

**THE NORTON FULL LINE OF STOCK ABRASIVE PRODUCTS**


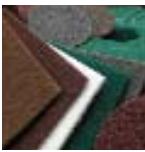













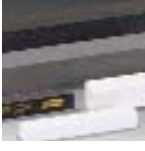
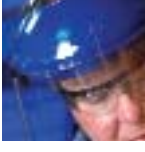


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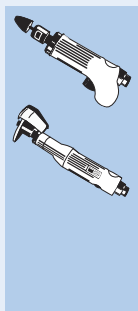
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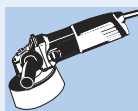
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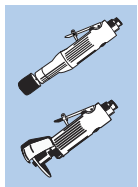
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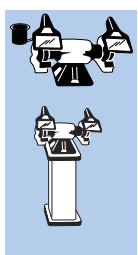
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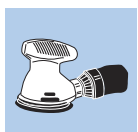
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## How To Order Product

To enable your authorized Norton Distributor to fill your order quickly and accurately, please be sure to include your billing and shipping address, purchase order number, and the following product information:

- **UPC Number** – the 11 digit product code found in each product availability chart to the right of the product description.
- **Item Description** – identifies the type of product ordered, such as grinding wheel, cloth sheet, belt, etc.
- **Size and Dimensions** – such as diameter x thickness x hole size (7 x 1/8 x 7/8) for a grinding wheel.
- **Product Name or Specification** – this could include a name (Charger) for a depressed center wheel; a full specification (A60-OBNA2) for a cut-off wheel; a coated abrasive cap code and grit (R981 60 grit) for a belt, etc.
- **Quantity Ordered** – the quantity of pieces ordered – not the number of standard packages (example: 25 cut-off wheels not 1 Standard Package). STD. PKG. quantities are listed in each product availability chart.

**Note:** for coated discs, sheets and specialties only: you may order by each or by pack per your preference, however, please ensure that the unit of measure (each or pack) is clearly noted on all orders to ensure accurate and timely order entry.

To determine the price of any item in this catalog, contact your Norton Distributor. For a listing of authorized Norton Distributors in your local trading area, visit our website at [www.nortonabrasives.com](http://www.nortonabrasives.com) or call us at 1 800 551-4413.

## Norton Product Tiering Concept

Norton offers the industry's widest selection of products at three separate value levels to meet your exact grinding needs. Norton abrasives are classified in BEST (gold), BETTER (blue), and GOOD (green) performance/price tiers to help you choose the right product for your specific application every time.

To help you compare and contrast the performance and price levels within each Norton line, every product availability chart highlights the product tier level with a color-coded "tiering bar".

Remember, premium Norton products – BEST and BETTER tiers – will always be the best overall value for your money. While initial unit cost is more, BEST and BETTER products will yield longer life and better performance, resulting in lowest total grinding cost.

### **BEST** Best Performance

- Represents products that are unmatched in the industry and provide the lowest total grinding cost for the application
- In many cases, these products are proprietary and only available from Norton.

### **BETTER** Premium Performance

- Represents superior performing products for the user who requires a high level of productivity and low total abrasive cost.

### **GOOD** Excellent Performance, Quality and Value

- Represents a value for the user who wants Norton quality products with consistent performance and very competitive prices.

Check the Depressed Center Wheel and Cut-off Wheel sections for specialized product tiering information.

## Product Warranty

**WARRANTY** – Norton warrants the products in this catalog to be free from defects in material or workmanship for a period of one year from the date of purchase. Norton's sole obligation under this warranty shall be to repair or replace, at Norton's option, any product which is non-conforming provided any such product failure was not caused by a subsequent modification of the product, misuse or a failure to follow any applicable instructions for the product.

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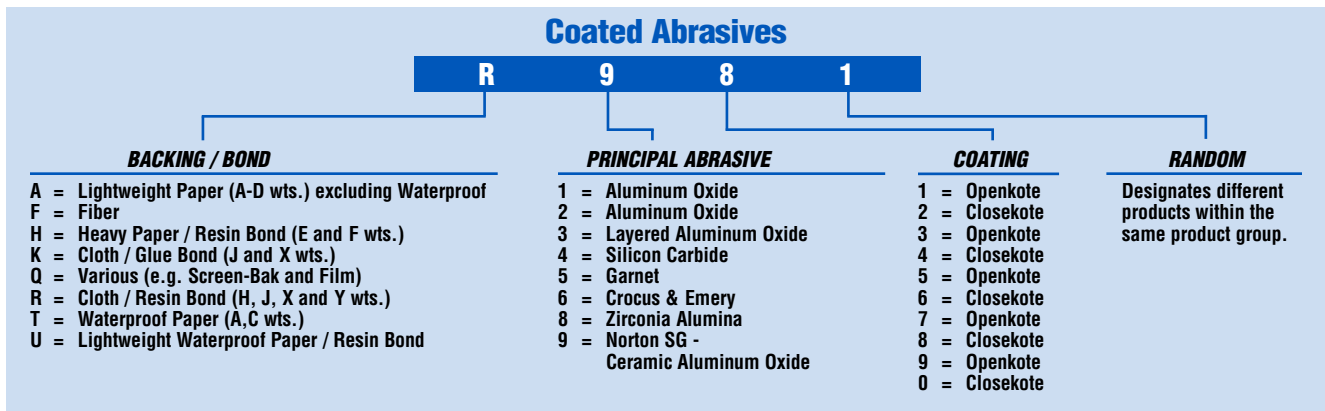
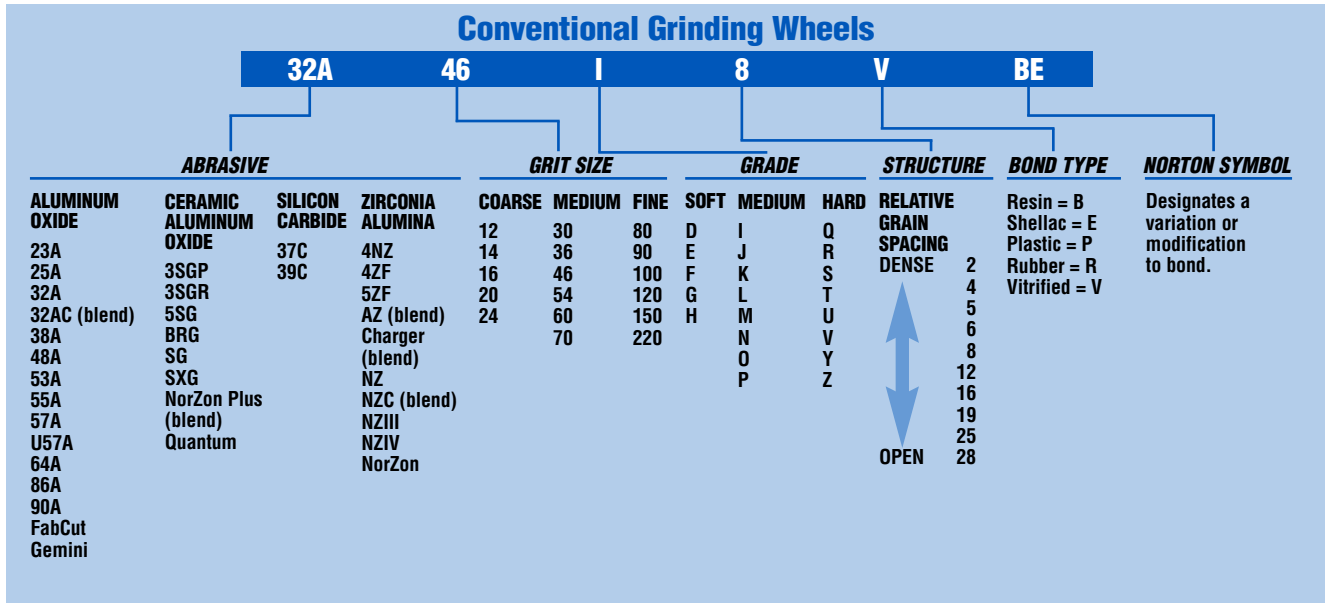
## Product Quality Complaints

All product quality complaints should be submitted to your local Norton Distributor.

## Liability Limitation

NORTON'S LIABILITY FOR ANY LOSS OR DAMAGE ARISING OUT OF OR RESULTING FROM THE USE OF THE PRODUCT SHALL NOT EXCEED THE PURCHASE PRICE THEREOF, REGARDLESS OF WHETHER SUCH LIABILITY ARISES IN CONTRACT, TORT (INCLUDING WITHOUT LIMITATION NEGLIGENCE OR STRICT LIABILITY), OR OTHERWISE, AND IN NO EVENT SHALL NORTON BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND. NO REPRESENTATIVE OF NORTON, NOR ANY OF NORTON'S DISTRIBUTORS OR DEALERS, IS AUTHORIZED TO MODIFY THIS WARRANTY OR ISSUE ANY WARRANTY REGARDING THE PRODUCTS IN THIS CATALOG.

## How to Read an Abrasive Product Specification



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- |   |   |   |  |  |
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| 3X™<br>ADALOX®<br>AEROJET™<br>ALUNDUM®<br>AMPLEX®<br>AVOS®<br>AZTEC®<br>BEAR-TEX®<br>BLACK ICE®<br>BLUE-BAK WATERPROOF™<br>CHARGER™<br>CLEAR CREEK™<br>CLOSEKOTE®<br>CRYSTOLON®<br>DUO® | DURITE®<br>DRY ICE®<br>E-Z FLEX®<br>FABCUT™<br>GEMINI®<br>GREENLYTE™<br>INDIA®<br>JOB PACK®<br>LIGHTNING®<br>MERIT®<br>METALITE®<br>MSL™<br>MULTI-AIR™<br>MULTI-OILSTONE®<br>MULTISAND™ | NEX™<br>NO-FIL®<br>NORAX®<br>NORBIDE®<br>NORGRIP®<br>NORLOK™<br>NORPOR®<br>NORTON®<br>NORTON DESIGN®<br>NORTON SG®<br>NORTON SG BLAZE®<br>NORZON®<br>NORTON PLUS™<br>OPENKOTE®<br>PACESETTER® | PLYWELD®<br>POLYBOND™<br>POWERFLEX®<br>POWERLOCK®<br>QUANTUM™<br>RAILCUT™<br>RAPIDCUT™<br>RAPID FINISH™<br>RAPID STRIP™<br>RIGHTCUT™<br>SANDWET™<br>SCREEN-BAK®<br>THE SEE-THRU SYSTEM™<br>SOFTTOUCH®<br>SPEED-GRIP® | SPEED-LOK®<br>STICK AND SAND®<br>TARGA®<br>THE ABSOLUTE FORCE™<br>TUFBAK®<br>TWINFIBER™<br>TWINSTAR™<br>U-DEX-IT™<br>VORTEX®<br>WOODSAND™<br>YANKEE CLIPPER™<br>and others |
|---|---|---|--|--|

# DEPRESSED CENTER WHEELS

The Norton line of depressed center wheels has products for every right angle grinder application: NorZon Plus provide the industry's highest productivity; Charger Plus give great performance and Gemini and Norton masonry offer general purpose value.

## Typical Applications

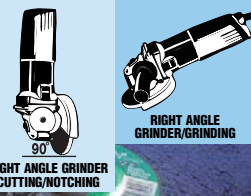
- Metal fabrication
- Petrochemical maintenance
- All weld grinding
- Shipbuilding
- Foundry – notching and removing gates and risers
- Pipeline – root pass grinding, pipe beveling and repair
- Construction – masonry/concrete fabrication



TYPE 27

TYPE 28

TYPE 29



### BEST NorZon Plus Depressed Center Wheels – Type 27 and 28

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>• Premium, combination of Norton SG (ceramic aluminum oxide) and NorZon (zirconia alumina)</li> </ul> | <ul style="list-style-type: none"> <li>• 50 to 200% better overall performance vs. competitive zirconia wheels</li> <li>• Lowest total grinding cost; highest productivity</li> <li>• Up to 10X the performance of aluminum oxide wheels</li> <li>• 50% or better cut rate than competitive wheels</li> <li>• Excellent performance on all grinding jobs from gray iron to exotic alloys and stainless steel</li> </ul> |
| <ul style="list-style-type: none"> <li>• An advanced bond system</li> </ul>  | <ul style="list-style-type: none"> <li>• The fastest cutting zirconia wheel on the market; easy on the operator and equipment</li> </ul>  |
| <ul style="list-style-type: none"> <li>• NorZon Plus Long Life</li> </ul>  | <ul style="list-style-type: none"> <li>• Extra long life, same fast cut; ideal for high-powered grinders</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Extra-thin .045" RightCut wheels</li> </ul>   | <ul style="list-style-type: none"> <li>• Quick, cool cutting action, minimal kerf loss</li> <li>• Up to 30% longer life and faster cut rate, for fewer wheel changes</li> </ul>   |
| <ul style="list-style-type: none"> <li>• NorZon Plus 1/8" thick wheels</li> </ul>  | <ul style="list-style-type: none"> <li>• 30 – 50% (and in some cases 100%) improvement in life, while maintaining an extremely smooth grinding and cutting action</li> </ul>  |

**new!**

**improved!**



**Made in U.S.A.**

### BETTER Charger Plus Depressed Center Wheels – Type 27 and 28

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• A blend of zirconia alumina and aluminum oxide grains – with more NorZon (zirconia) grain</li> </ul> | <ul style="list-style-type: none"> <li>• 3 times the life of aluminum oxide wheels</li> <li>• Ideal for stainless steel and carbon steel applications and efficiently grinds a variety of material from alloys to gray iron</li> <li>• Excellent performance to price ratio lowers total grinding costs</li> </ul> |
| <ul style="list-style-type: none"> <li>• FastCut Stainless Steel wheels</li> </ul>  | <ul style="list-style-type: none"> <li>• Full range of iron-, sulfur-, and chlorine-free wheels, ideal for nuclear industry</li> <li>• 2 to 3X performance vs. competitors' wheels</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Extra-thin .045" RightCut wheels</li> </ul>  | <ul style="list-style-type: none"> <li>• Up to 30% longer life and faster cut rate, for fewer wheel changes</li> </ul>   |

**improved!**



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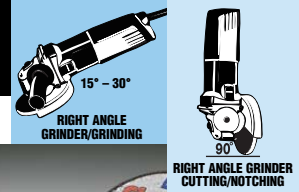
### BETTER Charger Foundry Depressed Center Wheels – Type 27

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>• A unique blend of aggressive zirconia alumina and versatile silicon carbide abrasives</li> </ul> | <ul style="list-style-type: none"> <li>• Ideal for a broad range of foundry applications – including ductile/gray iron, steel, nonferrous, soft metals (brass, bronze, copper) and dirty, scale-covered castings</li> </ul> |
| <ul style="list-style-type: none"> <li>• Advanced bond system</li> </ul>  | <ul style="list-style-type: none"> <li>• Maximizes cutting ability while minimizing wheel wear – reducing total wheel cost</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Triple-reinforced, 1/8" thick wheels</li> </ul>  | <ul style="list-style-type: none"> <li>• Designed to remove and grind gates and risers</li> </ul>   |
| <ul style="list-style-type: none"> <li>• 1/4" thick wheels have coarse grit dispersed throughout the wheel</li> </ul>                     | <ul style="list-style-type: none"> <li>• May be used on bottom and face of wheel to clean parting lines, pads, slag, and scale</li> </ul>   |
| <ul style="list-style-type: none"> <li>• 9" heavy-duty, triple-reinforced</li> </ul>  | <ul style="list-style-type: none"> <li>• Designed to withstand the most aggressive foundry applications</li> </ul>  |



**Made in U.S.A.**

# DEPRESSED CENTER WHEELS



## BETTER Charger AVOS and FLEX Depressed Center Wheels – Type 29

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Aluminum oxide grain in a uniquely patterned face (with button “nubs”)</li> </ul>                         | <ul style="list-style-type: none"> <li>Cooler operating; prevents digging, snagging, and loading through greater swarf removal</li> <li>No offensive odors generated while grinding</li> <li>Excellent for grinding and finishing stainless steel, carbon steel, and aluminum</li> </ul>                                    |
| <ul style="list-style-type: none"> <li>Type 29 conical shape:<br/>Non-hubbed: used at a 15° angle<br/>Hubbed: can grind on wheel face</li> </ul> | <ul style="list-style-type: none"> <li>Shallow grinding area permits larger contact area with less gouging of workpiece</li> <li>Smooth cutting action; let the wheels do the work</li> <li>Ideal for getting into tight spaces, smoothing corners and curves, and polishing and blending welds on flat surfaces</li> </ul> |
| <ul style="list-style-type: none"> <li>AVOS (Allows View of Surface): innovative shape and patented design</li> </ul>                            | <ul style="list-style-type: none"> <li>Provide complete vision of the grinding zone</li> <li>Operator can grind more effectively with less work</li> <li>Allow interrupted cut which reduces heat on workpiece</li> </ul>   |

expanded offering!



★ Made in U.S.A.

## GOOD Gemini Aluminum Oxide Depressed Center Wheels – Type 27 and 28

| SPECIFICATION   | APPLICATION  |
|---|--|
| <ul style="list-style-type: none"> <li>Quality aluminum oxide</li> </ul>  | <ul style="list-style-type: none"> <li>Consistent, maximum performance of aluminum oxide wheels at a competitive price</li> <li>Ideal for small job shops on a variety of metalworking applications</li> </ul> |
| <ul style="list-style-type: none"> <li>Gemini Fast Cut</li> </ul>   | <ul style="list-style-type: none"> <li>Quick stock removal on hard metals</li> </ul>   |
| <ul style="list-style-type: none"> <li>Gemini Long Life</li> </ul>  | <ul style="list-style-type: none"> <li>Exceptional life and cut rate on carbon and stainless steels</li> </ul>   |
| <ul style="list-style-type: none"> <li>Gemini Aluminum – contain no wax or rubber fillers</li> </ul>  | <ul style="list-style-type: none"> <li>Grinding aluminum and soft metals without loading</li> </ul>  |
| <ul style="list-style-type: none"> <li>Gemini Stainless Steel; 3/32" and 1/4" thick; contaminant free: no iron, sulfur or chlorine</li> </ul> | <ul style="list-style-type: none"> <li>Ideal for nuclear industry</li> <li>All kinds of stainless steel and various hard alloys</li> </ul>   |
| <ul style="list-style-type: none"> <li>3/32" and 5/32" thick</li> </ul>   | <ul style="list-style-type: none"> <li>Pipe and general cut-off applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>.045" RightCut wheels with clean bond</li> </ul>   | <ul style="list-style-type: none"> <li>Minimal kerf loss and fast cut rate</li> <li>Up to 30% longer life and faster cut rate, for fewer wheel changes</li> </ul>  |

new!

improved!



## GOOD Norton Masonry Depressed Center Wheels – Type 27

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>Masonry – sharp silicon carbide</li> </ul> | <ul style="list-style-type: none"> <li>Engineered for all masonry materials such as concrete, brick and asphalt</li> </ul> |
| <ul style="list-style-type: none"> <li>Low initial cost per wheel</li> </ul>      | <ul style="list-style-type: none"> <li>Ideal for on-site and small-unit jobs</li> </ul>                                    |
| <ul style="list-style-type: none"> <li>Display case packaging</li> </ul>          | <ul style="list-style-type: none"> <li>Promotes walk-in, self-service selling and easy restocking</li> </ul>               |



## GOOD Gemini Flexible Blending/Finishing Depressed Center Wheels – Type 27

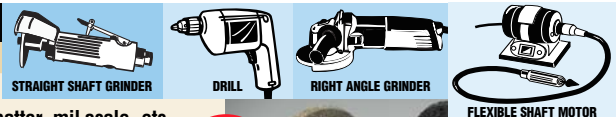
| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Aluminum oxide grain in a unique formulation</li> </ul> | <ul style="list-style-type: none"> <li>Better blending, finishing and polishing of stainless steel, structural steel, cast iron welds and burrs</li> <li>Cool cutting; leaves no burn marks</li> <li>Meets nuclear industry standards</li> </ul> |
| <ul style="list-style-type: none"> <li>Flexible</li> </ul>                                     | <ul style="list-style-type: none"> <li>Excellent control of finish quality and removal rate for light stock removal</li> </ul>   |
| <ul style="list-style-type: none"> <li>Available in 36 grit</li> </ul>                         | <ul style="list-style-type: none"> <li>Ideal for light stock removal</li> </ul>  |
| <ul style="list-style-type: none"> <li>Available in 60 grit</li> </ul>                         | <ul style="list-style-type: none"> <li>Designed for finishing applications</li> </ul>  |

expanded offering!



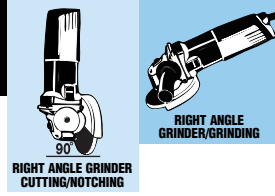
## BEST Bear-Tex Non-Woven Depressed Center Wheels – Type 27

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Thick, strong synthetic fibers and extra coarse grit bonded with a durable, smear-resistant adhesive</li> </ul> | <ul style="list-style-type: none"> <li>Ideal for surface preparation, conditioning and cleaning and the removal of rust, paint, weld spatter, mil scale, etc.</li> </ul> |
| <ul style="list-style-type: none"> <li>Open web construction</li> </ul>  | <ul style="list-style-type: none"> <li>Minimizes loading</li> </ul>  |
| <ul style="list-style-type: none"> <li>Conformable</li> </ul>  | <ul style="list-style-type: none"> <li>Follows difficult part profiles for easy cleaning of uneven surfaces</li> </ul>   |
| <ul style="list-style-type: none"> <li>Used with portable tools</li> </ul>   | <ul style="list-style-type: none"> <li>Easy and safe to use especially in difficult to reach areas</li> </ul>  |



new!





## Highest Productivity and Performance in Grinding

| Product  |                                  |                                  |                                   |                                 |
|--|----------------------------------|----------------------------------|-----------------------------------|---------------------------------|
|  | NorZon Plus – BEST               | Charger Plus – BETTER            | Gemini – GOOD                     | COMPETITOR                      |
| Life   |                                  |                                  |                                   |                                 |
|  | wheel wear = 7 grams             | wheel wear = 15 grams            | wheel wear = 23 grams             | wheel wear = 28 grams           |
| Metal Removal  |                                  |                                  |                                   |                                 |
|  | metal removed = 295 grams        | metal removed = 265 grams        | metal removed = 200 grams         | metal removed = 174 grams       |
| Overall Performance  | <b>6X</b><br>grinding ratio = 42 | <b>3X</b><br>grinding ratio = 18 | <b>1.5X</b><br>grinding ratio = 9 | <b>1X</b><br>grinding ratio = 6 |
| Approximate Consumer Price*  | \$8.78                           | \$4.52                           | \$2.56                            | \$2.14                          |
| Current Wheel Usage (monthly)  | —                                | —                                | —                                 | 100                             |
| If customer switched to Norton brand, usage would be (based on performance), in wheels:    | 14                               | 33                               | 75                                | —                               |
| To remove same amount of material, cost of wheels would be:                                | \$122.98                         | \$149.16                         | \$192.00                          | \$214.00                        |
| Add in labor cost of additional wheel changes (calculated at 2 minutes @ \$18.00 per hour) | \$8.40                           | \$19.80                          | \$45.00                           | \$60.00                         |
| Total cost of using each wheel:  | \$131.38                         | \$168.96                         | \$237.00                          | \$274.00                        |
| Savings:   | <b>52%</b>                       | <b>38%</b>                       | <b>14%</b>                        | <b>0%</b>                       |

BASED ON ESTIMATED US PRICING.



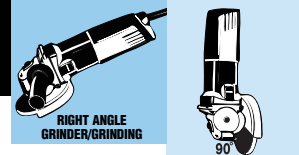
### Norton Fine, Hard Back Depressed Center Wheels Boost Productivity and Wheel Life Versus Competitors' Monolithic Design (2 coarse layers)

Our fine, hard back (a finer-grit mixture in the top half of the grinding wheel) limits premature shedding or “spalling” and allows for a smoother grinding action from the periphery to the hub.

- At the proper grinding angle, a sharp bevel is produced at the wheel periphery
- As the wheel wears, this thin edge become susceptible to stress
- A coarse grit back is much more likely to break away prematurely resulting in unnecessary wheel loss and quite possibly an injury to operator and others



# DEPRESSED CENTER WHEELS



## Application Guide

| WHEEL TYPE  | APPLICATIONS  |
|---|---|
| .045", 1/16", 3/32" Thick Type 27                           | Cutting only, where fast cutting and low kerf loss are desired. Ideal for pipe cutting.                               |
| .125" Thick Type 27   | Cutting and cleaning root pass welds.   |
| 1/8" Thick Type 27  | Cutting-off, notching and light side grinding.  |
| 1/4" Thick Fast Cut Type 27                                 | Grinding with low horsepower and electric grinders or where low pressure is used.                                     |
| 1/4" Thick Long Life Type 27                                | Grinding with high horsepower machines (3 hp or higher) and heavy pressure; flame cut and other severe applications.  |
| 1/8", 5/32" Thick Pipe Notchers Type 27 – Triple reinforced | Cutting on the face of the wheel for root pass applications; cleaning weld joints or cutting out weld on pipe repair. |
| 1/8" Thick Foundry Notchers Type 27 – Triple reinforced     | For grinding steel and dirty/scale-covered castings; removing and cleaning gates and risers.                          |
| 1/4" Thick Foundry Snaggers Type 27                         | Grinding on bottom and face of wheel; cleaning parting lines, pads and slag; smoothing weld seams.                    |
| 1/4" Thick Heavy-Duty Foundry Type 27                       | Most aggressive foundry applications. Triple-reinforced   |
| 1/4" Thick Saucers Type 28                                  | Smooth, gouge-free grinding at shallow angles.  |
| 1/8" Thick Flex, AVOS Type 29                               | Polishing and blending applications.  |

| RIGHT ANGLE GRINDER/GRINDING | RIGHT ANGLE GRINDER CUTTING/NOTCHING |
|------------------------------|--------------------------------------|
|                              | ■                                    |
|                              | ■                                    |
| ■                            | ■                                    |
| ■                            |                                      |
| ■                            | ■                                    |
|                              | ■                                    |
|                              | ■                                    |
| ■                            | ■                                    |
| ■                            |                                      |
| ■                            |                                      |

## Depressed Center Wheel Starting Recommendations by Material

| MATERIALS:   | HEAVY-DUTY GRINDING<br>BEST PERFORMANCE | GENERAL-DUTY GRINDING<br>BETTER VALUE | LIGHT GRINDING<br>INITIAL VALUE | BLENDING AND<br>FINISHING          | CUTTING                  | SURFACE<br>PREPARATION                    |
|--|---|---------------------------------------|---------------------------------|------------------------------------|--------------------------|---|
| Angle/Channel Iron<br>Bar Stock/I-Beams<br>Carbon/High Tensile Steel<br>Metal Studs/Tubing | NorZon Plus Type 27                     | Charger Plus Type 27                  | Gemini Type 27                  | Charger Flex &<br>AVOS Type 29     | NorZon Plus Type 27      | Bear-Tex<br>Rapid Strip &<br>Rapid Finish |
| Cast Iron/Pipe   | NorZon Plus Type 27                     | Charger Plus Type 27                  | Gemini Type 27                  | Charger Flex &<br>AVOS Type 29     | NorZon Plus Pipe Notcher | Rapid Strip &<br>Rapid Finish             |
| Stainless/Alloys   | NorZon Plus Type 27                     | Charger SS Type 27                    | Gemini SS Type 27               | Charger Flex &<br>AVOS SS Type 29  | NorZon Plus Type 27      | Rapid Strip &<br>Rapid Finish             |
| Aluminum/Brass/Bronze  | –                                       | –                                     | Gemini ALU Type 27              | Charger Flex &<br>AVOS ALU Type 29 | Gemini ALU Type 27       | Rapid Strip &<br>Rapid Finish             |
| Asphalt/Brick/Concrete   | Masonry Type 27                         | Masonry Type 27                       | Masonry Type 27                 | Masonry Type 27                    | Masonry Type 27          | Rapid Strip &<br>Rapid Finish             |
| Fiberglass/Plastic   | –                                       | Charger Flex<br>Type 29               | Gemini Flexible<br>Type 27      | Charger Flex &<br>AVOS Type 29     | Gemini Type 27           | Rapid Strip &<br>Rapid Finish             |
| Paint/Rust   | –                                       | –                                     | Metal Type 27                   | –                                  | –                        | Rapid Strip &<br>Rapid Finish             |

## Depressed Center Wheel Competitive Cross Reference

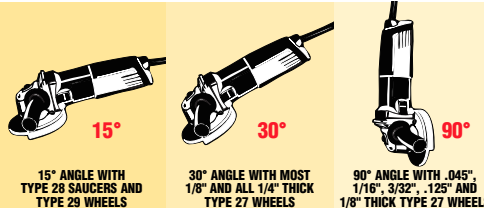
| NORTON          | FLEXOVIT | METABO | PFERD   | SAIT       | TYROLIT   | WALTER   |
|-----------------|----------|--------|---------|------------|-----------|----------|
| NorZon Plus     | FLEXON   |        | ZA-SG   | Attacker   |           | A-20-XX  |
| Charger Plus    | FLEXON   | ZA24   | ZA-SG   | Z-Tech     | 1ZA30QBFX | A-20-XX  |
| Charger Flex    | Flexcel  |        |         | Challenger | Rondeller | Roteller |
| Gemini Fast Cut |          |        | A-PS    | A24N       | A30PBF    |          |
| Gemini          | A24/A30T | A24R/T | A-SG    | A24R,A24T  | A30RBF    | A-24-HPS |
| Gemini Aluminum | A24ALU   | A36M   | A-W-ALU | A46N       | A36NBFX   | A-24-ALU |
| Norton Metal    | A30S     | A24N   |         | A24N       |           |          |
| Norton Masonry  | C24/30T  | C24    |         | C24N       |           | C-24     |

## TECHtips

- For maximum performance, run the grinder at the highest possible speed marked on the wheel.
- Hold your right angle grinder at the correct angle.



It is the user's responsibility to refer to and comply with ANSI B7.1

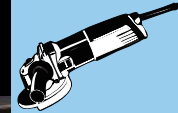


Unique, patented mini-mount hub used on 4-1/2" and 5" depressed center wheels provides up to 30% more wheel life because the hub covers just a small surface area, providing maximum grinding area exposure and usage.

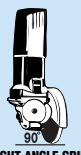
# DEPRESSED CENTER WHEELS

DEPRESSED CENTER WHEELS

8



RIGHT ANGLE GRINDER/GRINDING



RIGHT ANGLE GRINDER CUTTING/NOTCHING



**BEST  
NORZON PLUS**



**BETTER  
CHARGER PLUS**



**GOOD  
GEMINI**

| SIZE: D X T X H   | MAX RPM | STD PKG | PART NO.   | UPC NO.     | PART NO.  | UPC NO.     | PART NO. | UPC NO.     |
|---|---------|---------|------------|-------------|-----------|-------------|----------|-------------|
| <b>.045", 1/16" STEEL / STAINLESS – CUTTING – TYPE 27</b> |         |         |            |             |           |             |          |             |
| 4 x .045 x 5/8  | 15,280  | 20      |            |             |           |             | RC4G27   | 66252833840 |
| 4-1/2 x .045 x 5/8-11                                     | 13,580  | 20      | RC45HNZP27 | 66252830748 | RC45HCH27 | 66252832009 | RC45HG27 | 66252819549 |
| 4-1/2 x .045 x 7/8  | 13,580  | 20      | RC45NZP27  | 66252830742 | RC45CH27  | 66252830125 | RC45G27  | 66252819548 |
| 5 x .045 x 5/8-11   | 12,225  | 20      |            |             |           |             | RC5HG27  | 66252830586 |
| 5 x .045 x 7/8  | 12,225  | 20      | RC5NZP27   | 66252830744 | RC5CH27   | 66252830126 | RC5G27   | 66252819550 |
| 6 x .045 x 5/8-11   | 10,185  | 20      |            |             |           |             | RC6HG27  | 66252830587 |
| 6 x .045 x 7/8  | 10,185  | 20      | RC6NZP27   | 66252830745 | RC6CH27   | 66252830127 | RC6G27   | 66252819551 |
| 7 x 1/16 x 7/8  | 8,600   | 20      |            |             |           |             | RC7G27   | 66252912626 |
| 9 x 1/16 x 5/8-11   | 6,600   | 10      |            |             |           |             | RC9HG27  | 66253019115 |

THESE WHEELS ARE TO BE USED FOR CUTTING ONLY.

|  |        |    |             |             |  |  |           |             |
|--|--------|----|-------------|-------------|--|--|-----------|-------------|
| <b>.125", 1/8" STEEL / STAINLESS – CUTTING – TYPE 27</b> |        |    |             |             |  |  |           |             |
| 4 x .125 x 3/8   | 15,280 | 20 | DC412538NZP | 66243529883 |  |  |           |             |
| 4-1/2 x 3/32 x 7/8                                       | 13,580 | 20 |             |             |  |  | DC45332G  | 66252835320 |
| 4-1/2 x .125 x 5/8-11                                    | 13,580 | 20 | DC45125HNZP | 66252815010 |  |  | DC45125HG | 66252813301 |
| 4-1/2 x .125 x 7/8                                       | 13,580 | 20 | DC45125NZP  | 66252830443 |  |  | DC45125G  | 66252801860 |
| 5 x .125 x 7/8   | 12,225 | 20 |             |             |  |  | DC5125G   | 66252801862 |
| 7 x .125 x 5/8-11  | 8,600  | 10 | DC7125HNZP  | 66252912625 |  |  |           |             |
| 7 x .125 x 7/8   | 8,600  | 20 | DC7125NZP   | 66252912624 |  |  | DC7125G   | 66252900619 |

THESE WHEELS ARE TO BE USED FOR CUTTING ONLY.

The only .045 thick, hubbed depressed center cut-off wheels in the marketplace today!

expanded offering!

|   |        |    |              |             |  |  |         |             |
|---|--------|----|--------------|-------------|--|--|---------|-------------|
| <b>1/8" STEEL – PIPE NOTCHING – TYPE 27</b> |        |    |              |             |  |  |         |             |
| 5 x 5/32 x 7/8                              | 13,580 | 20 |              |             |  |  | DC5532G | 66252835579 |
| 6 x 5/32 x 7/8                              | 10,185 | 20 |              |             |  |  | DC6532G | 66252835580 |
| 7 x 1/8 x 5/8-11                            | 8,600  | 10 | DC718HNZPIPE | 66252939184 |  |  |         |             |
| 7 x 5/32 x 7/8                              | 8,600  | 20 |              |             |  |  | DC7532G | 66252835581 |
| 9 x 1/8 x 5/8-11                            | 6,600  | 10 | DC918HNZPIPE | 66253049066 |  |  |         |             |

|   |        |    |            |             |           |             |          |             |
|---|--------|----|------------|-------------|-----------|-------------|----------|-------------|
| <b>1/8" STEEL/STAINLESS – CUTTING/NOTCHING/LIGHT GRINDING – TYPE 27</b> |        |    |            |             |           |             |          |             |
| 3 x 1/8 x 3/8   | 18,000 | 20 | DC318NZP   | 66243528697 |           |             |          |             |
| 4 x 1/8 x 3/8   | 15,280 | 20 | DC41838NZP | 66243529884 | DC41838CH | 66243529893 | DC41838G | 66243529686 |
| 4 x 1/8 x 5/8   | 15,280 | 20 | DC418NZP   | 66243529885 | DC418CH   | 66243529851 | DC418G   | 66243530619 |
| 4-1/2 x 1/8 x 5/8-11  | 13,580 | 20 | DC4518HNZP | 66252830445 | DC4518HCH | 66252829853 | DC4518HG | 66252830435 |
| 4-1/2 x 1/8 x 7/8   | 13,580 | 20 | DC4518NZP  | 66252830444 | DC4518CH  | 66252829854 | DC4518G  | 66252830609 |
| 5 x 1/8 x 5/8-11  | 12,225 | 20 | DC518HNZP  | 66252832398 | DC518HCH  | 66252829857 |          |             |
| 5 x 1/8 x 7/8   | 12,225 | 20 | DC518NZP   | 66252830789 | DC518CH   | 66252829858 | DC518G   | 66252830614 |
| 6 x 1/8 x 5/8-11  | 10,185 | 10 |            |             |           |             | DC618HG  | 66252833965 |
| 6 x 1/8 x 7/8   | 10,185 | 20 |            |             | DC618CH   | 66252809367 | DC618G   | 66252801864 |
| 7 x 1/8 x 5/8-11  | 8,600  | 10 | DC718HNZP  | 66252938855 | DC718HCH  | 66252929862 | DC718HG  | 66252939259 |
| 7 x 1/8 x 7/8   | 8,600  | 20 | DC718NZP   | 66252938854 | DC718CH   | 66252929863 | DC718G   | 66252939207 |
| 9 x 1/8 x 5/8-11  | 6,600  | 10 | DC918HNZP  | 66253048897 | DC918HCH  | 66253029866 | DC918HG  | 66253048983 |
| 9 x 1/8 x 7/8   | 6,600  | 20 | DC918NZP   | 66253048896 | DC918CH   | 66253029867 | DC918G   | 66253048994 |

**Depressed Center Part Number Key**

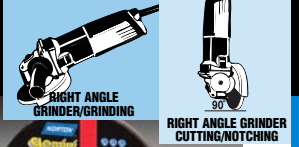
EXAMPLE: DC 45 14 H CH SS

| WHEEL TYPE            | DIAMETER    | THICKNESS | HUB/HOLE SIZE  | PRODUCT GROUP | MODIFIER             |
|-----------------------|-------------|-----------|----------------|---------------|----------------------|
| DC = DEPRESSED CENTER | 45 = 4-1/2" | 14 = 1/4" | H = 5/8-11 HUB | CH = CHARGER  | SS = STAINLESS STEEL |
| RC = RIGHT CUT        |             |           |                |               | FC = FAST CUT        |

**STAINLESS  
STEEL/METAL**



# DEPRESSED CENTER WHEELS



**BEST NORZON PLUS**      **BETTER CHARGER PLUS**      **GOOD GEMINI, NORTON METAL**

| SIZE: D X T X H                                    | MAX RPM | STD PKG | PART NO.                   | UPC NO.                    | PART NO.  | UPC NO.     | PART NO.               | UPC NO.                    |
|--|---------|---------|----------------------------|----------------------------|-----------|-------------|------------------------|----------------------------|
| <b>1/4" STEEL / STAINLESS – GRINDING – TYPE 27</b> |         |         |                            |                            |           |             |                        |                            |
| 3 x 1/4 x 3/8                                      | 18,000  | 20      | DC314NZP                   | 66243528809                |           |             | DC314G                 | 66243528855                |
| 4 x 1/4 x 3/8                                      | 15,280  | 20      | DC41438NZP                 | 66243529886                | DC41438CH | 66243529899 | DC41438G               | 66243529748                |
| 4 x 1/4 x 5/8                                      | 15,280  | 20      | DC414NZP                   | 66243529887                | DC414CH   | 66243529852 | DC414GFC<br>DC414G     | 66243519884<br>66243530620 |
| 4-1/2 x 3/16 x 7/8                                 | 13,580  | 20      | DC45316NZP                 | 66252830446                |           |             | DC45316G               | 66252830575                |
| 4-1/2 x 1/4 x 5/8-11                               | 13,580  | 20      | DC4514HNZP<br>DC4514HNZPLL | 66252828804<br>66252835576 | DC4514HCH | 66252829855 | DC4514HGFC<br>DC4514HG | 66252817084<br>66252830432 |
| 4-1/2 x 1/4 x 7/8                                  | 13,580  | 20      | DC4514NZP                  | 66252828803                | DC4514CH  | 66252829856 | DC4514GFC<br>DC4514G   | 66252830612<br>66252830611 |
| 5 x 1/4 x 5/8-11                                   | 12,225  | 20      | DC514HNZP<br>DC514HNZPLL   | 66252828806<br>66252835577 | DC514HCH  | 66252829859 |                        |                            |
| 5 x 1/4 x 7/8                                      | 12,225  | 20      | DC514NZP                   | 66252828805                | DC514CH   | 66252829861 | DC514GFC<br>DC514G     | 66252830617<br>66252830615 |
| 6 x 1/4 x 5/8-11                                   | 10,185  | 10      |                            |                            | DC614HCH  | 66252832391 | DC614HG                | 66252832390                |
| 6 x 1/4 x 7/8                                      | 10,185  | 20      | DC614NZP                   | 66252809376                | DC614CH   | 66252809372 | DC614G                 | 66252801865                |
| 7 x 1/4 x 5/8-11                                   | 8,600   | 10      | DC714HNZP<br>DC714HNZPLL   | 66252917881<br>66252835578 | DC714HCH  | 66252929864 | DC714HGFC<br>DC714HG   | 66252940147<br>66252940148 |
| 7 x 1/4 x 7/8                                      | 8,600   | 20      | DC714NZP                   | 66252917880                | DC714CH   | 66252929865 | DC714GFC<br>DC714G     | 66252940099<br>66252940098 |
| 9 x 1/4 x 5/8-11                                   | 6,600   | 10      | DC914HNZP<br>DC914HNZPLL   | 66253021634<br>66252830728 | DC914HCH  | 66253029868 | DC914HGFC<br>DC914HG   | 66253049105<br>66253049104 |
| 9 x 1/4 x 7/8                                      | 6,600   | 20      | DC914NZP                   | 66253021633                | DC914CH   | 66253029869 | DC914GFC<br>DC914G     | 66253049077<br>66253048991 |

## STAINLESS STEEL – CUTTING/PIPE NOTCHING/LIGHT GRINDING – TYPE 27

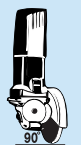
|                       |        |    |  |  |             |             |             |             |
|-----------------------|--------|----|--|--|-------------|-------------|-------------|-------------|
| 4-1/2 x 3/32 x 5/8-11 | 13,580 | 20 |  |  |             |             | DC45332HGSS | 66252823102 |
| 4-1/2 x 3/32 x 7/8    | 13,580 | 20 |  |  |             |             | DC45332GSS  | 66252823103 |
| 4-1/2 x 1/8 x 5/8-11  | 13,580 | 20 |  |  | DC4518HCHFC | 66243578249 |             |             |
| 4-1/2 x 1/8 x 7/8     | 13,580 | 20 |  |  | DC4518CHFC  | 66243578248 |             |             |
| 4-1/2 x 1/4 x 5/8-11  | 13,580 | 20 |  |  | DC4514HCHFC | 66243578251 | DC4514HGSS  | 66252819568 |
| 4-1/2 x 1/4 x 7/8     | 13,580 | 20 |  |  | DC4514CHFC  | 66243578250 | DC4514GSS   | 66252819567 |
| 5 x 3/32 x 7/8        | 12,225 | 20 |  |  |             |             | DC5332GSS   | 66252823106 |
| 5 x 1/8 x 5/8-11      | 12,225 | 20 |  |  | DC518HCHFC  | 66243578253 |             |             |
| 5 x 1/8 x 7/8         | 12,225 | 20 |  |  | DC518CHFC   | 66243578252 |             |             |
| 5 x 1/4 x 5/8-11      | 12,225 | 20 |  |  | DC514HCHFC  | 66243578255 |             |             |
| 5 x 1/4 x 7/8         | 12,225 | 20 |  |  | DC514CHFC   | 66243578254 | DC514GSS    | 66252819570 |
| 6 x 3/32 x 7/8        | 10,185 | 20 |  |  |             |             | DC6332GSS   | 66252832487 |
| 6 x 1/8 x 5/8-11      | 10,185 | 10 |  |  | DC618HCHFC  | 66243578257 |             |             |
| 6 x 1/8 x 7/8         | 10,185 | 20 |  |  | DC618CHFC   | 66243578256 |             |             |
| 6 x 1/4 x 5/8-11      | 10,185 | 10 |  |  | DC614HCHFC  | 66243578259 |             |             |
| 6 x 1/4 x 7/8         | 10,185 | 20 |  |  | DC614CHFC   | 66243578258 |             |             |
| 7 x 3/32 x 7/8        | 8,600  | 20 |  |  |             |             | DC7332GSS   | 66252914638 |
| 7 x 1/8 x 5/8-11      | 8,600  | 10 |  |  | DC718HCHFC  | 66243578241 |             |             |
| 7 x 1/8 x 7/8         | 8,600  | 20 |  |  | DC718CHFC   | 66243578240 |             |             |
| 7 x 1/4 x 5/8-11      | 8,600  | 10 |  |  | DC714HCHFC  | 66243578243 |             |             |
| 7 x 1/4 x 7/8         | 8,600  | 20 |  |  | DC714CHFC   | 66243578242 |             |             |
| 9 x 1/8 x 5/8-11      | 6,600  | 10 |  |  | DC918HCHFC  | 66243578245 |             |             |
| 9 x 1/8 x 7/8         | 6,600  | 20 |  |  | DC918CHFC   | 66243578244 |             |             |
| 9 x 1/4 x 5/8-11      | 6,600  | 10 |  |  | DC914HCHFC  | 66243578247 |             |             |
| 9 x 1/4 x 7/8         | 6,600  | 20 |  |  | DC914CHFC   | 66243578246 |             |             |

3/32" WHEELS ARE TO BE USED FOR CUTTING ONLY.

# DEPRESSED CENTER WHEELS



RIGHT ANGLE GRINDER/GRINDING



RIGHT ANGLE GRINDER CUTTING/NOTCHING



**BEST NORZON PLUS**      **BETTER CHARGER PLUS**      **GOOD GEMINI, NORTON MASONRY**

SIZE: D X T X H      MAX RPM      STD PKG      PART NO.      UPC NO.      PART NO.      UPC NO.      PART NO.      UPC NO.

## 1/8", 1/4" ALUMINUM – GRINDING / BLENDING – TYPE 27

| SIZE: D X T X H      | MAX RPM | STD PKG | PART NO. | UPC NO. | PART NO. | UPC NO. | PART NO.     | UPC NO.     |
|----------------------|---------|---------|----------|---------|----------|---------|--------------|-------------|
| 4 x 1/4 x 5/8        | 15,280  | 20      |          |         |          |         | DC414GALU    | 66243529741 |
| 4-1/2 x 1/8 x 5/8-11 | 13,580  | 20      |          |         |          |         | DC4518HGALU  | 66252819555 |
| 4 x 1/2 x 1/8 x 7/8  | 13,580  | 20      |          |         |          |         | DC4518GALU   | 66252819554 |
| 4-1/2 x 1/4 x 5/8-11 | 13,580  | 20      |          |         |          |         | DC4514HGALU  | 66252830433 |
| 4-1/2 x 1/4 x 7/8    | 13,580  | 20      |          |         |          |         | DC4514GALU   | 66252830627 |
| 5 x 1/4 x 7/8        | 12,225  | 20      |          |         |          |         | DC514GALU    | 66252823273 |
| 7 x 1/4 x 5/8-11     | 8,600   | 10      |          |         |          |         | DC714HGALU24 | 66252940514 |
|                      |         |         |          |         |          |         | DC714HGALU46 | 66252940515 |
| 7 x 1/4 x 7/8        | 8,600   | 20      |          |         |          |         | DC714GALU24  | 66252940516 |
| 9 x 1/4 x 5/8-11     | 6,600   | 10      |          |         |          |         | DC914HGALU   | 66253049045 |

## 1/8", 1/4" FOUNDRY – GRINDING / CUTTING – TYPE 27

| SIZE: D X T X H      | MAX RPM | STD PKG | PART NO.    | UPC NO.     | PART NO.    | UPC NO.     | PART NO. | UPC NO. |
|----------------------|---------|---------|-------------|-------------|-------------|-------------|----------|---------|
| 4 X 1/4 X 3/8        | 15,280  | 20      |             |             | DC41438CHF  | 66243531504 |          |         |
| 4 X 1/4 X 5/8        | 15,280  | 20      |             |             | DC414CHF    | 66243531502 |          |         |
| 4-1/2 X 1/8 X 5/8-11 | 13,580  | 20      |             |             | DC4518HCHF  | 66252824508 |          |         |
| 4-1/2 X 1/8 X 7/8    | 13,580  | 20      |             |             | DC4518CHF   | 66252824504 |          |         |
| 4-1/2 X 1/4 X 5/8-11 | 13,580  | 20      |             |             | DC4514HCHF  | 66252824509 |          |         |
| 4-1/2 X 1/4 X 7/8    | 13,580  | 20      |             |             | DC4514CHF   | 66252824505 |          |         |
| 7 x 1/8 x 5/8-11     | 8,600   | 10      |             |             | DC718HCHF   | 66252915529 |          |         |
| 7 x 1/4 x 5/8-11     | 8,600   | 10      |             |             | DC714HCHF   | 66252915528 |          |         |
| 7 X 1/4 X 7/8        | 8,600   | 20      |             |             | DC714CHF    | 66252915527 |          |         |
| 9 x 1/8 x 5/8-11     | 6,600   | 10      |             |             | DC918HCHF   | 66253018579 |          |         |
| 9 x 1/8 x 7/8        | 6,600   | 20      |             |             | DC918CHF    | 66253018574 |          |         |
|                      |         |         |             |             | DC918CHFS   | 66253018940 |          |         |
| 9 x 1/4 x 5/8-11     | 6,600   | 10      | DC914HNZPF  | 66253007014 | DC914HCHF   | 66253018580 |          |         |
|                      |         |         |             |             | DC914HCHFHD | 66253020902 |          |         |
| 9 x 1/4 x 7/8        | 6,600   | 20      | DC914NZPF   | 66253007013 | DC914CHF    | 66253018575 |          |         |
|                      |         |         | DC914NZPFHD | 66252832897 | DC914CHFHD  | 66253020901 |          |         |

## 1/8", 1/4" MASONRY – GRINDING / CUTTING – TYPE 27

| SIZE: D X T X H      | MAX RPM | STD PKG | PART NO. | UPC NO. | PART NO. | UPC NO. | PART NO.  | UPC NO.     |
|----------------------|---------|---------|----------|---------|----------|---------|-----------|-------------|
| 4 x 1/8 x 5/8        | 15,280  | 10      |          |         |          |         | DC418MA   | 07660775914 |
| 4 x 1/4 x 5/8        | 15,280  | 10      |          |         |          |         | DC414MA   | 07660775912 |
| 4-1/2 x 1/8 x 7/8    | 13,580  | 10      |          |         |          |         | DC4518MA  | 07660775908 |
| 4-1/2 x 1/4 x 5/8-11 | 13,580  | 5       |          |         |          |         | DC4514HMA | 07660775993 |
| 4-1/2 x 1/4 x 7/8    | 13,580  | 10      |          |         |          |         | DC4514MA  | 07660775944 |
| 5 x 1/4 x 7/8        | 12,225  | 5       |          |         |          |         | DC514MA   | 07660775902 |
| 7 x 1/4 x 5/8-11     | 8,600   | 5       |          |         |          |         | DC714HMA  | 07660775942 |
| 9 x 1/4 x 5/8-11     | 6,600   | 5       |          |         |          |         | DC914HMA  | 07660775937 |

THESE 1/8" MASONRY WHEELS ARE TO BE USED FOR CUTTING ONLY.

**Depressed Center Part Number Key**

**EXAMPLE: DC 45 14 H CH SS**

|                       |             |           |                |               |                      |
|-----------------------|-------------|-----------|----------------|---------------|----------------------|
| WHEEL TYPE            | DIAMETER    | THICKNESS | HUB/HOLE SIZE  | PRODUCT GROUP | MODIFIER             |
| DC = DEPRESSED CENTER | 45 = 4-1/2" | 14 = 1/4" | H = 5/8-11 HUB | CH = CHARGER  | SS = STAINLESS STEEL |
| RC = RIGHT CUT        |             |           |                |               | FC = FAST CUT        |

**ALUMINUM**

**FOUNDRY**

**MASONRY**



# DEPRESSED CENTER WHEELS



**BEST NORZON PLUS**      **BETTER CHARGER PLUS**      **GOOD GEMINI**

**SIZE: D X T X H**      **MAX RPM**      **STD PKG**      **PART NO.**      **UPC NO.**      **PART NO.**      **UPC NO.**      **PART NO.**      **UPC NO.**

## 1/4" SAUCER – STEEL / STAINLESS – TYPE 28

|                  |       |    |           |             |          |             |         |             |
|------------------|-------|----|-----------|-------------|----------|-------------|---------|-------------|
| 7 x 1/4 x 5/8-11 | 8,600 | 10 | DS714HNZP | 66252905369 | DS714HCH | 66252905367 | DS714HG | 66252940149 |
| 7 x 1/4 x 7/8    | 8,600 | 20 | DS714NZP  | 66252905368 |          |             | DS714G  | 66252940095 |
| 9 x 1/4 x 5/8-11 | 6,600 | 10 | DS914HNZP | 66253006335 | DS914HCH | 66253006334 | DS914HG | 66253049106 |
| 9 x 1/4 x 7/8    | 6,600 | 20 |           |             |          |             | DS914G  | 66253049081 |

expanded offering!

## 1/8" FLEXIBLE–STEEL/STAINLESS/ALUMINUM–BLENDING–TYPE 27

|                    |        |    |  |  |  |  |           |             |
|--------------------|--------|----|--|--|--|--|-----------|-------------|
| 2 x 1/8 x 3/8      | 30,560 | 5  |  |  |  |  | DC2A60    | 66252835632 |
|                    |        |    |  |  |  |  | DC2A80    | 66252835633 |
|                    |        |    |  |  |  |  | DC2A120   | 66252835634 |
| 4 x 1/8 x 5/8*     | 13,500 | 20 |  |  |  |  | DC4GFL36  | 66243529721 |
|                    |        |    |  |  |  |  | DC4GFL60  | 66243529722 |
| 4-1/2 x 1/8 x 7/8* | 12,000 | 20 |  |  |  |  | DC45GFL36 | 66252830424 |
|                    |        |    |  |  |  |  | DC45GFL60 | 66252830425 |
| 7 x 1/8 x 5/8-11   | 7,750  | 10 |  |  |  |  | DC7HGFL36 | 66252939024 |
| 7 x 1/8 x 7/8*     | 7,750  | 20 |  |  |  |  | DC7GFL36  | 66252939028 |

\* USE WITH BACK PLATE. TWO BACK PLATES ARE INCLUDED IN EACH BOX OF 20 WHEELS.

expanded offering!

## 1/8" AVOS AND FLEX–STEEL/STAINLESS/ALUMINUM–BLENDING–TYPE 29

|                      |        |    |  |  |                |             |  |  |
|----------------------|--------|----|--|--|----------------|-------------|--|--|
| 4-1/2 x 1/8 x 5/8-11 | 13,580 | 20 |  |  | DC4518CAVOS36  | 66252825236 |  |  |
|                      |        |    |  |  | DC4518CHFLEX36 | 66252833455 |  |  |
| 4-1/2 x 1/8 x 7/8    | 13,580 | 20 |  |  | DC4518CAVOS36  | 66252823473 |  |  |
|                      |        |    |  |  | DC4518CAVOS46  | 66252823475 |  |  |
|                      |        |    |  |  | DC4518CAVOS60  | 66252823474 |  |  |
|                      |        |    |  |  | DC4518CHFLEX36 | 66252833454 |  |  |
| 5 x 1/8 x 7/8        | 12,225 | 20 |  |  | DC518CAVOS36   | 66252823478 |  |  |
|                      |        |    |  |  | DC518CHFLEX36  | 66252833456 |  |  |
| 7 x 1/8 x 5/8-11     | 8,600  | 10 |  |  | DC718HCHFLEX36 | 66252917052 |  |  |
| 7 x 1/8 x 7/8        | 8,600  | 20 |  |  | DC718CHFLEX36  | 66252917051 |  |  |

**BEST RAPID STRIP**      **BEST RAPID FINISH** **new!**

**SIZE: D X T X H**      **MAX RPM**      **STD PKG**      **PART NO.**      **UPC NO.**      **PART NO.**      **UPC NO.**

## BEAR-TEX NON-WOVEN – CLEANING/POLISHING – TYPE 27

|                |        |    |               |             |            |             |  |  |
|----------------|--------|----|---------------|-------------|------------|-------------|--|--|
| 4-1/2 x 5/8-11 | 12,000 | 10 | Ex Coarse S/C | 66261009585 | NEX-2AM    | 66261023947 |  |  |
|                |        |    |               |             | NEX-2AF    | 66261023946 |  |  |
|                |        |    |               |             | NEX-2SF    | 66261023943 |  |  |
|                |        |    |               |             | A/O Med HS | 66261023949 |  |  |
| 4-1/2 x 7/8    | 12,000 | 10 | Ex Coarse S/C | 66261009649 | NEX-2AM    | 66261020548 |  |  |
|                |        |    |               |             | NEX-2AF    | 66261020547 |  |  |
|                |        |    |               |             | NEX-2SF    | 66261020546 |  |  |
|                |        |    |               |             | A/O Med HS | 66261020549 |  |  |
| 7 x 5/8-11     | 8,000  | 10 | Ex Coarse S/C | 66261009650 |            |             |  |  |
| 7 x 7/8        | 8,000  | 10 | Ex Coarse S/C | 66261009586 |            |             |  |  |

**STEEL/METAL**  
**ALUMINUM**  
**STAINLESS**



### Norton Depressed Center Adapter Kit

This reusable adapter kit contains everything you need to mount depressed center wheels and saucers with 7/8" center holes on to portable right angle or vertical shaft grinders. Adapter hubs are threaded for mounting on to standard 5/8"-11 NCRH spindles.

| KIT NO. | WHEEL DIAMETER | WHEEL THICKNESS | UPC NO.     |
|---------|----------------|-----------------|-------------|
| 114     | 6" thru 9"     | 1/16" thru 1/4" | 07660789275 |



# WIRE BRUSHES

WIRE BRUSHES

Our broad Merit wire brush offering includes all the basic shapes and configurations: cups, saucer cups, wheels, end brushes and hand brushes – in standard and full cable twist knot, crimped and stringer bead designs. New, attractive packaging clearly explains dimensions, structure, safety and machine usage.



## Typical Applications

- Cleaning rust, scale and dirt
- Light deburring
- Edge blending
- Roughening for adhesion
- Finishing for appearance
- Finish preparation prior to plating or painting

12

### BETTER Knotted Wire Cup Brushes

#### FEATURES

- Rigid structure
- Available with or without plastic guard
- Protective guard opens up into a shield

#### BENEFITS

- High impact cutting and cleaning on more demanding applications
- Application-specific
- Prevents wire, dust and any kind of projection from reaching the end-user during work
- Provides for a friendly handling of the brush, preventing potential pricking caused by the wire ends, for safety BEFORE, DURING and AFTER work

#### KNOTTED CUP – SINGLE ROW

- Single row, twist knot construction

- Limits flaring of the brush on corners and angles

#### KNOTTED CUP – DOUBLE ROW

- Double row, twist knot construction

- More aggressive; provides twice the cutting points of a single row cup brush for heavy-duty action in very severe applications



With Protective Guard

### BETTER High Performance (HP) Cable Crimped Cup Brushes with Protective Guards

#### FEATURES

- 12 wires of .009" brass-coated steel (12 x .009) are bundled together into a group, then crimped
- Cable crimped wire breaks down in smaller pieces than standard crimped brushes

#### BENEFITS

- Provides for a 50% longer lasting brush compared to standard crimped brushes
- Better flexibility on irregular surfaces
- For light- to medium-duty brushing applications on flat or irregular surfaces, and bevel buffing
- Safer wire to use



### BETTER Crimped Wire Cup Brushes

#### FEATURES

- Highly flexible
- Heavy wire fill

#### BENEFITS

- Fast cutting
- For light- to medium-duty brushing applications on flat or irregular surfaces, and bevel buffing



### BETTER Wire Saucer Cup Brushes

#### FEATURES

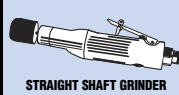
- Twist knot style
- Saucer-shaped
- Crimped style

#### BENEFITS

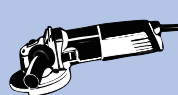
- For heavy-duty cleaning
- Ideal for cleaning corners, recesses, and other hard-to-reach areas
- For light- to medium-duty cleaning



# WIRE BRUSHES



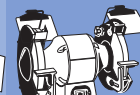
STRAIGHT SHAFT GRINDER



RIGHT ANGLE GRINDER/GRINDING



HAND SANDING



BENCH GRINDER



WALK-BEHIND SAW



PEDESTAL GRINDER

## BETTER Crimped Wire Wheel Brushes

### FEATURES

- Dense, high-quality, tempered crimped wire construction
- Brushes may be used individually or stacked on a shaft

### BENEFITS

- Offers excellent performance for deburring, removing rust, corrosion and dirt, or for surface preparation
- Single-section, narrow-faced brushes are ideal for general purpose brushing of uneven or difficult-to-reach surfaces
- Single section, medium-faced brushes clean larger surface areas and have longer life



## BETTER Standard Twist Knot Wire Wheel Brushes

### FEATURES

- Knotted wire design
- Application-specific sizes

### BENEFITS

- Provides added rigidity for extra cutting power
- Ideal for welding and metal fabrication applications (removing weld scale spatter, extra-heavy rust and corrosion, or surface roughening)
- Small diameter wheels are used for small- to medium-duty jobs requiring flexibility and lighter brushing action
- Use 3" wheels on die grinders
- Use 4" on right angle grinders
- Use 6" wheels on bench grinders



## BETTER Full Cable Twist Knot Wire Wheel Brushes

### FEATURES

- Full cable twist brushes

### BENEFITS

- Provide very low flex and high impact cutting and cleaning
- For the tougher applications, especially for weld passes or other demanding applications



## BETTER Stringer Bead Knot Wire Wheel Brushes

### FEATURES

- Narrow face stringer bead wire
- Joint/Crack cleaning wire wheel brushes

### BENEFITS

- Delivers high-impact cutting and cleaning for toughest applications
- Specially suited for groove and weld bead, corners and t-connections
- Used for brushing joints, cleaning cracks in concrete and asphalt, and preparing expansion joints for filling and scaling



## BETTER End Brushes

### FEATURES

- Available in two configurations
- Knot wire end brushes
- Crimped wire end brushes

### BENEFITS

- For use on die grinders to clean and debur a recessed area or the inside diameter of a tube or pipe
- For more aggressive cutting
- For lighter brushing action and contoured surfaces



Knotted

Crimped

## BETTER Hand Brushes




### FEATURES

- Plastic handle scratch brush
- Long handle and shoe handle brushes

### BENEFITS

- Ergonomic handle
- Crimped wire for longer life; all other scratch brushes are straight wire, not crimped
- Wires are wrapped up and around the metal post so they never come out
- Curved face for hard to reach places
- Narrow brush allows access into tight areas and slots
- Steel scratch brushes are made with a high carbon brass coated steel; stainless steel is made with a 304L stainless



| BRUSH<br>DIA. X WIRE SIZE X ARBOR HOLE  | MAX.<br>RPM | BRUSHES/<br>BOX | WIRE<br>TYPE | BETTER      |  |
|---|-------------|-----------------|--------------|-------------|--|
|   |             |                 |              | PART<br>NO. |  |
| <b>KNOTTED WIRE CUP BRUSHES – FOR STAINLESS STEEL</b>   |             |                 |              |             |  |
| <b>KNOTTED CUP – SINGLE ROW</b>   |             |                 |              |             |  |
| 2-3/4 x .020 x 5/8-11   | 15,000      | 5               | Stainless    | 69936653340 |  |
| 4 x .020 x 5/8-11   | 9,000       | 5               | Stainless    | 66252833947 |  |
| <b>KNOTTED WIRE CUP BRUSHES – FOR STEEL</b>    |             |                 |              |             |  |
| <b>KNOTTED CUP WITH PROTECTIVE GUARD – SINGLE ROW</b>   |             |                 |              |             |  |
| 2-3/4 x .020 x 5/8-11   | 15,000      | 5               | Carbon       | 66252833492 |  |
| 4 x .020 x 5/8-11   | 9,000       | 5               | Carbon       | 66252833496 |  |
| 5 x .020 x 5/8-11   | 6,500       | 5               | Carbon       | 66252833497 |  |
| <b>KNOTTED CUP – SINGLE ROW</b>   |             |                 |              |             |  |
| 2-3/4 x .020 x 5/8-11   | 15,000      | 5               | Carbon       | 69936653336 |  |
| 2-3/4 x .020 x M10-1.25 / 1.50  | 15,000      | 5               | Carbon       | 69936653338 |  |
| 4 x .020 x 5/8-11   | 9,000       | 5               | Carbon       | 69936653345 |  |
| 6 x .020 x 5/8-11   | 6,000       | 5               | Carbon       | 69936605965 |  |
| 6 x .035 x 5/8-11   | 6,000       | 5               | Carbon       | 69936602003 |  |
| <b>KNOTTED CUP – DOUBLE ROW</b>   |             |                 |              |             |  |
| 6 x .020 x 5/8-11   | 6,000       | 1*              | Carbon       | 69936653346 |  |
| <b>HIGH PERFORMANCE CABLE CRIMPED CUP BRUSHES – FOR STEEL</b>    |             |                 |              |             |  |
| <b>CRIMPED CUP WITH PROTECTIVE GUARD – SINGLE ROW</b>   |             |                 |              |             |  |
| 3 x 12 x .009 x 5/8-11  | 15,000      | 5               | Carbon       | 66252833493 |  |
| 4 x 12 x .009 x 5/8-11  | 9,000       | 5               | Carbon       | 66252833494 |  |
| 5 x 12 x .009 x 5/8-11  | 6,500       | 5               | Carbon       | 66252833495 |  |
| <b>CRIMPED WIRE CUP BRUSHES – FOR STEEL</b>    |             |                 |              |             |  |
| 3 x .014 x 5/8-11   | 15,000      | 5               | Carbon       | 69936653341 |  |
| 4 x .014 x 5/8-11   | 9,000       | 5               | Carbon       | 69936653347 |  |
| 6 x .014 x 5/8-11   | 6,000       | 5               | Carbon       | 69936653348 |  |
| 6 x .020 x 5/8-11   | 6,000       | 1*              | Carbon       | 69936653349 |  |
| <b>WIRE SAUCER CUP BRUSHES – FOR STAINLESS</b>   |             |                 |              |             |  |
| <b>TWIST KNOT SAUCER CUP</b>  |             |                 |              |             |  |
| 5 x .020 x 5/8-11   | 12,500      | 5               | Stainless    | 66252835586 |  |
| <b>WIRE SAUCER CUP BRUSHES – FOR STEEL</b>   |             |                 |              |             |  |
| <b>TWIST KNOT SAUCER CUP</b>  |             |                 |              |             |  |
| 4 x .020 x 5/8-11   | 15,000      | 5               | Carbon       | 66252833483 |  |
| 5 x .020 x 5/8-11   | 12,500      | 5               | Carbon       | 66252835585 |  |
| <b>CRIMPED SAUCER CUP</b>   |             |                 |              |             |  |
| 4 x .014 x 5/8-11   | 15,000      | 5               | Carbon       | 66252833485 |  |
| <b>CRIMPED WIRE WHEEL BRUSHES – FOR STEEL</b>     |             |                 |              |             |  |
| <b>CRIMPED NARROW 1/2" FACE</b>   |             |                 |              |             |  |
| 6 x .014 x 1/2-2**  | 6,500       | 1               | Carbon       | 69936653306 |  |
| <b>CRIMPED MEDIUM 3/4" FACE</b>   |             |                 |              |             |  |
| 6 x .014 x 1/2-2**  | 6,500       | 1               | Carbon       | 69936653324 |  |
| 8 x .014 x 1/2-2**  | 4,500       | 1               | Carbon       | 69936653326 |  |
| <b>STD TWIST KNOT WIRE WHEEL BRUSHES – FOR STEEL</b>    |             |                 |              |             |  |
| 3 x .015 x 3/8-1/2  | 20,000      | 5               | Carbon       | 69936653314 |  |
| 4 x .020 x 5/8-11   | 20,000      | 5               | Carbon       | 69936606275 |  |
| 6 x .020 x 1/2-2**  | 12,500      | 5               | Carbon       | 69936653327 |  |

When using wire brushes, be sure to comply with ANSI B165 "Power-Driven Brushing Tools: Safety Requirement for the Design, Care and Use." and Safety section on nortonabrasives.com website.









ALL BRUSHES ARE INDIVIDUALLY CLAMSHELL PACKAGED UNLESS OTHERWISE NOTED.

\* BULK PACKED ITEMS

\*\* 7 BUSHING SIZES INCLUDED WITH EACH BRUSH.



# WIRE BRUSHES

| BRUSH<br>DIA. X WIRE SIZE X ARBOR HOLE  | MAX.<br>RPM | BRUSHES/<br>BOX | WIRE<br>TYPE | BETTER      |
|---|-------------|-----------------|--------------|-------------|
|   |             |                 |              | PART<br>NO. |
| <b>FULL CABLE TWIST KNOT WIRE WHEEL BRUSHES – FOR STAINLESS</b>    |             |                 |              |             |
| 4 x .020 x 5/8-11   | 20,000      | 5               | Stainless    | 69936653333 |
| 4 x .020 x M10 x 1.25 / 1.50  | 20,000      | 5               | Stainless    | 69936653334 |
| 5 x .020 x 5/8-11   | 12,500      | 5               | Stainless    | 66252833488 |
| <b>FULL CABLE TWIST KNOT WIRE WHEEL BRUSHES – FOR STEEL</b>    |             |                 |              |             |
| 4 x .020 x 5/8-11   | 20,000      | 6*              | Carbon       | 69936653331 |
| 5 x .020 x 5/8-11   | 12,500      | 5               | Carbon       | 66252833487 |
| 6 x .020 x 5/8-11   | 12,500      | 5               | Carbon       | 69936653352 |
| <b>STRINGER BEAD KNOT WIRE BRUSHES – FOR STAINLESS STEEL</b>   |             |                 |              |             |
| <b>FOR RIGHT ANGLE GRINDERS</b>   |             |                 |              |             |
| 4 x .020 x 5/8-11   | 20,000      | 5               | Stainless    | 69936606278 |
| 5 x .020 x 5/8-11   | 12,500      | 6*              | Stainless    | 66252833491 |
| 6 x .020 x 5/8-11   | 9,000       | 5               | Stainless    | 69936653351 |
| <b>STRINGER BEAD KNOT WIRE BRUSHES – FOR STEEL</b>   |             |                 |              |             |
| <b>FOR RIGHT ANGLE GRINDERS</b>   |             |                 |              |             |
| 4 x .020 x 5/8-11   | 20,000      | 5               | Carbon       | 69936606277 |
| 4 x .020 x 5/8-11   | 20,000      | 6*              | Carbon       | 66252833489 |
| 5 x .020 x 5/8-11   | 12,500      | 6*              | Carbon       | 66252833490 |
| 6 x .020 x 5/8-11   | 12,500      | 10*             | Carbon       | 69936653350 |
| 6-7/8 x .020 x 5/8-11   | 9,000       | 10*             | Carbon       | 69936653329 |
| <b>FOR WALK-BEHIND MACHINES – JOINT/CRACK CLEANING BRUSHES</b>  |             |                 |              |             |
| 12 x .035 x 1 - DP  | 4,500       | 2*              | Carbon       | 69936606280 |
| <b>END BRUSHES – FOR STAINLESS STEEL</b>   |             |                 |              |             |
| <b>STEM MOUNTED CRIMPED</b>   |             |                 |              |             |
| 3/4 x .006 x 1/4 Shank  | 20,000      | 10*             | Stainless    | 66936606145 |
| <b>END BRUSHES – FOR STEEL</b>   |             |                 |              |             |
| <b>STEM MOUNTED KNOTTED</b>   |             |                 |              |             |
| 3/4 x .020 x 1/4 Shank  | 20,000      | 10*             | Carbon       | 69936653316 |
| 1 x .014 x 1/4 Shank  | 20,000      | 10*             | Carbon       | 69936606279 |
| 1 x .020 x 1/4 Shank  | 20,000      | 10*             | Carbon       | 69936653310 |
| <b>STEM MOUNTED CRIMPED</b>   |             |                 |              |             |
| 3/4 x .014 x 1/4 Shank  | 20,000      | 10*             | Carbon       | 69936653317 |
| 1 x .020 x 1/4 Shank  | 20,000      | 10*             | Carbon       | 69936653309 |
| <b>COPPER CENTER</b>  |             |                 |              |             |
| 2-1/2 x .014 x 1/2-3/8  | 20,000      | 12*             | Carbon       | 69936653320 |
| <b>HAND BRUSHES – FOR STAINLESS STEEL</b>    |             |                 |              |             |
| Scratch Brush 3 x 19 Long Handle  |             | 12              | Stainless    | 66252833950 |
| Scratch Brush 4 x 16 Shoe Handle  |             | 30              | Stainless    | 66252833951 |
| Scratch Brush Plastic Handle  |             | 24              | Stainless    | 66252833953 |
| Inspection Brush 3 x 7  |             | 36              | Stainless    | 66252833952 |
| <b>HAND BRUSHES – FOR STEEL</b>    |             |                 |              |             |
| Scratch Brush 3 x 19 Long Handle  |             | 12              | Carbon       | 66252833948 |
| Scratch Brush 4 x 16 Shoe Handle  |             | 30              | Carbon       | 66252833949 |
| Scratch Brush Plastic Handle  |             | 24              | Carbon       | 66252833954 |

# CUT-OFF WHEELS

The Norton cut-off product line provides premium performance in all cut-off applications from portable to stationary machines.

## Typical Applications

- Cutting sheet metal
- Cutting pipe
- Foundry/forge shops – gate/riser removal, cutting forgings
- Metal plate dimensioning
- Ship building – metal fabrication
- Toolroom – cutting drill bits, steel bar, tubing, metallurgical sectioning
- Construction – concrete/masonry work

## Product Offering

- Portable grinder small diameter (1-1/2" – 6")
- Right angle grinder (4" – 9")
- Circular saw (6" – 8")
- High-speed gas/electric saw (12" – 16")
- High-speed walk-behind road saw (14", 18")
- Rail Cut (14", 16")
- Stationary machine large diameter (10" – 30")
- Chop saw (10" – 16")















## SPECcheck

### Cut-off Wheel Competitive Cross Reference

| NORTON   | FLEXOVIT | METABO  | SAIT                 | 3M          | WALTER          |
|--|----------|---------|----------------------|-------------|-----------------|
| <b>FOR SMALL ANGLE OR IN-LINE PORTABLE GRINDERS (2"- 4")</b> |          |         |                      |             |                 |
| NorZon Plus  | -        | -       | -                    | Green Corps | -               |
| Charger  | FLEXON   | -       | SAITECH              | -           | -               |
| Gemini Free Cut  | A36R     | Slicer  | A24R                 | -           | A60-ZIP         |
| Gemini Long Life   | A46T     | A 60 TZ | A36T                 | -           | A24-ZIP         |
| <b>FOR RIGHT ANGLE GRINDERS (4" – 9")</b>                    |          |         |                      |             |                 |
| NorZon Plus RightCut   | -        | -       | -                    | -           | -               |
| Charger RightCut   | -        | -       | -                    | -           | -               |
| Gemini RightCut  | -        | -       | SAITECH .045         | -           | A30-ZIP         |
| <b>FOR CIRCULAR SAWS (6" – 8")</b>                           |          |         |                      |             |                 |
| Norton Metal   | A36TB38  | A 30 S  | -                    | -           | A30-ZIP         |
| Norton Masonry   | C30UB64  | C 30 S  | -                    | -           | C-30            |
| <b>FOR PORTABLE GAS OR ELECTRIC SAWS (12" – 16")</b>         |          |         |                      |             |                 |
| Norton Metal   | A24TB    | A 24 N  | Brute                | -           | A24 Portacut    |
| Norton Concrete  | AC24SB   | C 24 N  | C24R                 | -           | C24 Portacut    |
| Norton Ductile   | AC24SB   | AC 24 R | Ductile              | -           | -               |
| Norton Asphalt   | C16UB    | C 16 N  | Big M.A.C.           | -           | -               |
| <b>FOR WALK-BEHIND CONSTRUCTION SAWS (14", 18")</b>          |          |         |                      |             |                 |
| Norton Asphalt/<br>Green Concrete                            | C16UB    | C 16 N  | C16                  | -           | -               |
| Norton Hot Press<br>Asphalt/Green Concrete                   | HPC16AG  | -       | Street Walker        | -           | -               |
| <b>FOR STATIONARY SAWS (10" – 20")</b>                       |          |         |                      |             |                 |
| Charger Free Cut   | -        | -       | -                    | -           | -               |
| Charger Long Life  | -        | -       | -                    | -           | -               |
| Gemini Free Cut  | A30RB    | A 30 R  | A24N                 | -           | A24-FC RIP CUT  |
| Gemini Long Life   | A30SB    | A 30 N  | A24R                 | -           | A24-RIP         |
| Norton Masonry   | C24SB    | C 30 S  | C24R                 | -           | -               |
| <b>FOR CHOP SAWS (10" – 16")</b>                             |          |         |                      |             |                 |
| Charger Free Cut   | -        | -       | SAITECH Steel Worker | -           | -               |
| Charger Long Life  | -        | -       | -                    | -           | -               |
| Gemini Free Cut  | A30RB    | A 30 R  | EZ-CHOP              | -           | A30 Chopcut II  |
| Gemini Long Life   | A30SB    | A 30 S  | Iron Worker          | -           | A30-HC Chopcut  |
| Gemini Aluminum  | -        | -       | Aluminum             | -           | A30-ALU Chopcut |
| Norton Masonry   | C30UB    | -       | -                    | -           | -               |
| Norton Steel Stud  | A30TB    | -       | Stud King            | -           | -               |

## Highest Productivity and Performance in Cutting

| Product  |  |  |  |  |
|--|---|---|--|---|
|  | NorZon Plus – BEST  | Charger Plus – BETTER   | Gemini – GOOD  | COMPETITOR  |
| Life   |  |  |  |  |
|  | wheel wear = .20 inches   | wheel wear = .44 inches   | wheel wear = .93 inches  | wheel wear = 1.17 inches  |
| Metal Removal  |  |  |  |  |
|  | number of pieces cut = 15   | number of pieces cut = 15   | number of pieces cut = 15  | number of pieces cut = 10   |
| Overall Performance  | <b>7X</b><br>grinding ratio = 5   | <b>4X</b><br>grinding ratio = 3   | <b>2X</b><br>grinding ratio = 1.3  | <b>1X</b><br>grinding ratio = 0.7   |
| Approximate Consumer Price*  | \$4.59  | \$3.08  | \$2.64   | \$1.70  |
| Current Wheel Usage (monthly)  | –   | –   | –  | 1000  |
| If customer switched to Norton brand, usage would be (based on performance), in wheels:    | 128   | 274   | 546  | 1000  |
| To remove same amount of material, cost of wheels would be:                                | \$587.52  | \$843.92  | \$1,441.44   | \$1,700.00  |
| Add in labor cost of additional wheel changes (calculated at 2 minutes @ \$18.00 per hour) | \$76.80   | \$164.40  | \$327.60   | \$600.00  |
| Total cost of using each wheel:  | \$664.32  | \$1,008.32  | \$1,769.04   | \$2,300.00  |
| Savings:   | <b>71%</b>  | <b>56%</b>  | <b>23%</b>   | <b>0%</b>   |

BASED ON ESTIMATED US PRICING.



### Cut-off Wheel Starting Recommendations by Material

| MATERIAL                                       | SMALL ANGLE GRINDERS            | RIGHT ANGLE GRINDERS                     | CIRCULAR SAWS  | PORTABLE GAS / ELECTRIC SAWS      | WALK BEHIND SAWS                                     | STATIONARY SAWS             | CHOP SAWS                             |
|--|---------------------------------|--|----------------|-----------------------------------|--|-----------------------------|---------------------------------------|
| Angle/Channel Iron Bar/Sheet Stock             | NorZon Plus<br>Gemini Long Life | NorZon Plus RightCut<br>Gemini RightCut  | Norton Metal   | Norton Metal                      | –  | Charger<br>Gemini Long Life | Charger Long Life<br>Gemini Long Life |
| Metal Studs/Tubing                             | –                               | NorZon Plus RightCut<br>Gemini RightCut  | Norton Metal   | Norton Metal                      | –  | Gemini Long Life            | Norton Steel Stud                     |
| Cast Iron/Pipe                                 | Gemini Free Cut                 | NorZon Plus RightCut<br>Gemini RightCut  | Norton Metal   | Norton Metal                      | –  | Gemini Free Cut             | Gemini Free Cut                       |
| Stainless/Alloys                               | NorZon Plus                     | NorZon Plus RightCut<br>Charger RightCut | Norton Metal   | Norton Metal                      | –  | Charger                     | Charger Free Cut                      |
| Aluminum/Brass/Bronze                          | Gemini Free Cut                 | Gemini RightCut                          | Norton Metal   | Norton Metal                      | –  | Gemini Free Cut             | Gemini Aluminum                       |
| Concrete/Brick/Block<br>Asphalt/Green Concrete | –                               | –  | Norton Masonry | Norton Concrete<br>Norton Asphalt | Norton Concrete<br>Norton Asphalt/<br>Green Concrete | Norton Masonry              | Norton Masonry                        |
| Fiberglass/Plastic<br>Paint/Rust               | Gemini Free Cut                 | Gemini RightCut                          | Norton Metal   | –                                 | –  | Gemini Free Cut             | Gemini Free Cut                       |

# SMALL DIAMETER REINFORCED CUT-OFF WHEELS



## Small Diameter Reinforced Cut-off Wheels (1-1/2" – 6")

| <b>BEST</b> NorZon Plus Reinforced Cut-off Wheels – Fastest initial cut rate  |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>Patented Norton SG (ceramic alumina) / NorZon (zirconia alumina) grain combination</li> <li>Highly advanced bond system</li> <li>State-of-the-art manufacturing</li> <li>NORZON Plus</li> <li>NORZON Plus Long Life</li> </ul> | <ul style="list-style-type: none"> <li>Fastest initial cut of any wheel; highest productivity</li> <li>Free, cool cut</li> <li>Superior wheel balance</li> <li>Up to 3X life versus aluminum oxide wheels on carbon steel, stainless and cast iron</li> <li>40% faster cut rate versus standard aluminum oxide wheels</li> <li>Up to 5X life on harder metals and exotic metals</li> </ul> |



| <b>BETTER</b> Charger Reinforced Cut-off Wheels – Versatile; ideal for stainless steel                                   |  |
|--|--|
| FEATURES   | BENEFITS   |
| <ul style="list-style-type: none"> <li>A unique blend of premium NorZon (zirconia alumina) and aluminum oxide</li> </ul> | <ul style="list-style-type: none"> <li>2X the life of aluminum oxide wheels</li> <li>Free cutting</li> <li>Effectively cuts a variety of metals from alloys and stainless to gray iron</li> <li>Long life and economical performance-to-price ratio lower total cost</li> <li>Superior product at a value price</li> </ul> |



| <b>BETTER</b> Small Diameter Engineered Reinforced Cut-off Wheels – Precise, thin cuts                        |  |
|---|--|
| FEATURES  | BENEFITS   |
| <b>ALUMINUM OXIDE – OBNA2 BOND WHEELS</b>   |  |
| <ul style="list-style-type: none"> <li>Side reinforced, resin bond</li> </ul>                                 | <ul style="list-style-type: none"> <li>Yield maximum cut rate and minimum kerf loss; ideal when thin cut is desired</li> </ul> |
| <b>ALUMINUM OXIDE – B25N BOND</b>   |  |
| <ul style="list-style-type: none"> <li>Constructed with full diameter side reinforcing; resin bond</li> </ul> | <ul style="list-style-type: none"> <li>Versatile: durable, free cutting; offer greatest stiffness</li> </ul>                   |

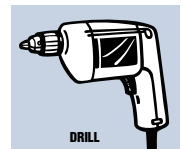


| <b>GOOD</b> Gemini Reinforced Cut-off Wheels – All purpose wheels, competitively priced |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>Advanced formulation</li> </ul>                  | <ul style="list-style-type: none"> <li>Free cutting</li> <li>Maximizes the performance of conventional aluminum oxide abrasive</li> </ul> |
| <ul style="list-style-type: none"> <li>Gemini Free Cut wheels</li> </ul>                | <ul style="list-style-type: none"> <li>Engineered to cut hard materials</li> </ul>  |
| <ul style="list-style-type: none"> <li>Gemini Long Life wheels</li> </ul>               | <ul style="list-style-type: none"> <li>Excellent life and cut rate</li> </ul>   |



## Drill Mount Mandrel for 2" – 3" Cut-off Wheels

This mandrel is used to safely mount 2" – 3" diameter cut-off wheels with 3/8" arbor holes on to a drill.



| STD PKG | SPEC.  | UPC NO.     |
|---------|--|-------------|
| 5       | Drill-Mount Mandrel for 2" and 3" 3/8" Hole Cut-off Wheels | 07660747769 |

### Cut-off Wheel Part Number Key

EXAMPLE: CO 4 18 38 G FC

| WHEEL TYPE   | DIAMETER | THICKNESS | HUB/HOLE SIZE | PRODUCT GROUP | MODIFIER                      |
|--------------|----------|-----------|---------------|---------------|-------------------------------|
| CO = CUT-OFF | 4 = 4"   | 18 = 1/8" | 38 = 3/8"     | G = GEMINI    | FC = FREE CUT, LL = LONG LIFE |

STEEL/METAL    STAINLESS    MASONRY    ALUMINUM    FOUNDRY



# SMALL DIAMETER REINFORCED CUT-OFF WHEELS

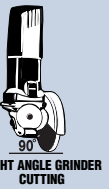


## Small Diameter Reinforced Cut-off Wheels (1-1/2" – 6") (CONTINUED)

| SIZE: D X T X H                                 | MAX RPM | STD PKG | BEST<br>NORZON PLUS            |                            | BETTER<br>CHARGER, SPEDIFIED                               |  | GOOD<br>GEMINI, NORTON METAL |                            |
|---|---------|---------|--------------------------------|----------------------------|--|--|------------------------------|----------------------------|
|   |         |         | SPEC/PART NO.                  | UPC NO.                    | SPEC/PART NO.  | UPC NO.  | PART NO.                     | UPC NO.                    |
| <b>TYPE 01 FLAT CUT-OFF – STEEL / STAINLESS</b> |         |         |                                |                            |  |  |                              |                            |
| 1-1/2 x .035 x 1/16                             | 40,745  | 25      |                                |                            | A60-OBNA2  | 66243427764  |                              |                            |
| 1-1/2 x .035 x 1/8                              | 40,745  | 25      |                                |                            | A60-OBNA2  | 66243427831  |                              |                            |
| 1-1/2 x .035 x 1/4                              | 40,745  | 25      |                                |                            | A60-OBNA2  | 66243427875  |                              |                            |
| 2 x .035 x 1/8                                  | 30,560  | 25      |                                |                            |  |  | C0203518G                    | 66243411392                |
| 2 x .035 x 1/4                                  | 30,560  | 25      |                                |                            | A60-OBNA2  | 66243428014  | C0203514G                    | 66243411393                |
| 2 x .035 x 3/8                                  | 30,560  | 25      |                                |                            |  |  | C0203538G                    | 66243411394                |
| 2 x .060 x 1/8                                  | 30,560  | 25      |                                |                            | A60-OBNA2  | 66243428041  |                              |                            |
| 2 x .060 x 1/4                                  | 30,560  | 25      |                                |                            | A60-OBNA2  | 66243427993  |                              |                            |
| 2 x 1/16 x 1/4                                  | 30,560  | 25      |                                |                            |  |  | C0211614G                    | 66243411395                |
| 2 x 1/16 x 3/8                                  | 30,560  | 25      |                                |                            |  |  | C0211638G                    | 66243411396                |
| 2 x 1/8 x 1/4                                   | 30,560  | 25      |                                |                            |  |  | C021814G                     | 66243411402                |
| 2 x 1/8 x 3/8                                   | 30,560  | 25      |                                |                            |  |  | C021838G                     | 66243411403                |
| 2-1/2 x .035 x 1/8                              | 30,560  | 25      |                                |                            | A60-OBNA2  | 66243528476  |                              |                            |
| 2-1/2 x .035 x 1/4                              | 30,560  | 25      |                                |                            | A60-OBNA2  | 66243528425  |                              |                            |
| 2-1/2 x 1/16 x 1/4                              | 30,560  | 25      |                                |                            |  |  | C02511614G                   | 66243510640                |
| 2-1/2 x 1/16 x 3/8                              | 30,560  | 25      |                                |                            | 57A701-TB25N   | 66243522372  | C02511638G                   | 66243510641                |
| 3 x .035 x 1/4                                  | 25,465  | 25      | C0303514NZZP                   | 66243510668                | A60-OBNA2  | 66243528573  | C0303514GFC<br>C0303514GLL   | 66243510627<br>66243537270 |
| 3 x .035 x 3/8                                  | 25,465  | 25      | C0303538NZZP                   | 66243510669                | 23A601-OBNA2<br>A60-OBNA2<br>C03035CH                      | 66243528629<br>66243528574<br>66243527753                | C0303538GFC<br>C0303538GLL   | 66243510628<br>66243537271 |
| 3 x .060 x 1/4                                  | 25,465  | 25      |                                |                            | A60-OBNA2  | 66243528471  |                              |                            |
| 3 x .060 x 3/8                                  | 25,465  | 25      |                                |                            | A60-OBNA2  | 66243528552  |                              |                            |
| 3 x 1/16 x 1/4                                  | 25,465  | 25      | C0311614NZZP                   | 66243510670                | 57A364-TB25N<br>57A601-TB25N                               | 66243522395<br>66243522398                               | C0311614GFC<br>C0311614GLL   | 66243510645<br>66243510649 |
| 3 x 1/16 x 3/8                                  | 25,465  | 25      | C0311638NZZP<br>C0311638NZZPLL | 66243510671<br>66243510835 | 57A364-TB25N<br>57A601-TB25N<br>U57A364-VB25N<br>C03116CH  | 66243522399<br>66243522401<br>66243528674<br>66243527755 | C0311638GFC<br>C0311638GLL   | 66243510647<br>66243510648 |
| 3 x 1/16 x 3/8<br>Contractor 5 pack             | 25,465  | 25*     | Z36-TB50N                      | 66243528812                |  |  | Metal Free Cut               | 07660747767                |
| 3 x 1/8 x 1/4                                   | 25,465  | 25      |                                |                            |  |  | C031814GFC<br>C031814GLL     | 66243510650<br>66243510652 |
| 3 x 1/8 x 3/8                                   | 25,465  | 25      | C031838NZZP                    | 66243510673                |  |  | C031838GFC<br>C031838GLL     | 66243510651<br>66243510653 |
| 4 x .035 x 1/4                                  | 19,100  | 25      | C0403514NZZP                   | 66243510674                | A60-OBNA2  | 66243529606  | C0403514GFC                  | 66243510629                |
| 4 x .035 x 3/8                                  | 19,100  | 25      | C0403538NZZP                   | 66243510675                | A60-OBNA2<br>C04035CH                                      | 66243529621<br>66243527340                               | C0403538GFC<br>C0403538GLL   | 66243510630<br>66243537273 |
| 4 x .035 x 1/2                                  | 19,100  | 25      |                                |                            | A60-OBNA2  | 66243529622  |                              |                            |
| 4 x .035 x 3/4                                  | 19,100  | 25      |                                |                            | A60-OBNA2  | 66243529609  |                              |                            |
| 4 x .040 x 3/8                                  | 19,100  | 25      |                                |                            | A60-OBNA2  | 66243529516  |                              |                            |
| 4 x .060 x 3/8                                  | 19,100  | 25      |                                |                            | A60-OBNA2  | 66243529604  |                              |                            |
| 4 x 1/16 x 1/4                                  | 19,100  | 25      | C0411614NZZP                   | 66243510676                |  |  | C0411614GFC                  | 66243510654                |
| 4 x 1/16 x 3/8                                  | 19,100  | 25      | C0411638NZZP<br>C0411638NZZPLL | 66243510677<br>66243510839 | 57A364-TB25N<br>C04116CH<br>U57A364-VB25N<br>U57A364-TB65N | 66243522500<br>66243527338<br>66243529594<br>66243517454 | C0411638GFC<br>C0411638GLL   | 66243510655<br>66243510657 |
| 4 x 1/16 x 1/2                                  | 19,100  | 25      |                                |                            | 57A364-TB25N   | 66243522502  |                              |                            |
| 4 x 1/8 x 1/4                                   | 19,100  | 25      |                                |                            |  |  | C041814GFC                   | 66243510658                |
| 4 x 1/8 x 3/8                                   | 19,100  | 25      | C041838NZZP<br>C041838NZZPLL   | 66243510841<br>66243510680 | 57A364-TB25N<br>C0418CH                                    | 66243522505<br>66243527339                               | C041838GFC<br>C041838GLL     | 66243510659<br>66243510661 |
| 5 x .035 x 3/8                                  | 12,225  | 25      |                                |                            | A60-OBNA2  | 66252830653  |                              |                            |
| 6 x .035 x 3/8                                  | 10,190  | 25      |                                |                            | A60-OBNA2  | 66252835064  |                              |                            |

\*5 WHEELS PER CONTRACTOR PACK, 5 CONTRACTOR PACKS PER STANDARD PACKAGE

# RIGHT ANGLE GRINDER REINFORCED CUT-OFF WHEELS



## Right Angle Grinder Reinforced Cut-off Wheels – Type 01 (4" – 7") and Type 27 (4" – 9")

### **BEST** NorZon Plus RightCut Right Angle Grinder Reinforced Cut-off Wheels

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>High performance, proprietary ceramic and zirconia alumina abrasives blend</li> <li>Extra thin</li> <li>New formulation for 2009</li> </ul> | <ul style="list-style-type: none"> <li>Up to 10 times the life of competitive aluminum oxide wheels</li> <li>Far fewer wheel changes required so job is completed faster</li> <li>Maximum productivity; lowest total grinding costs</li> <li>Quick cutting action; minimal low kerf loss</li> <li>Boosted performance up to 30%</li> </ul> |



### **BEST** NorZon ThinCut Right Angle Grinder Reinforced Cut-off Wheels

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>Premium abrasive and bond</li> <li>Unique reinforcement design</li> <li>Extra thin, rough sides</li> </ul> | <ul style="list-style-type: none"> <li>Maximum productivity</li> <li>Provides safety, strength and straight cuts</li> <li>Quick cutting action and low kerf loss</li> </ul> |



### **BETTER** FabCut Right Angle Grinder Reinforced Cut-off Wheels

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Quality aluminum oxide abrasive in a high performance bond system</li> <li>Unique reinforcement design</li> <li>Extra thin</li> </ul> | <ul style="list-style-type: none"> <li>Over 28% better cut rate than standard aluminum oxide</li> <li>Provides safety, strength and straight cuts</li> <li>Quick cutting action and low kerf loss</li> </ul> |



### **BETTER** Charger RightCut Right Angle Grinder Reinforced Cut-off Wheels

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>Durable zirconia alumina abrasive</li> <li>Unique reinforcement design</li> <li>Extra thin</li> <li>Significant improvement in the Type 01 cut-off wheel formulation</li> <li>.045" Type 27</li> </ul> | <ul style="list-style-type: none"> <li>3X the life and 2X the cut rate of standard aluminum oxide wheels</li> <li>Excels on a broad range of materials, from alloys and stainless to gray iron</li> <li>Maximum productivity; lowest total grinding costs</li> <li>Provides safety, strength and straight cuts</li> <li>Quick cutting action and low kerf loss</li> <li>Up to 100% longer life depending on the material being cut</li> <li>Boosted performance up to 30%</li> </ul> |



### **GOOD** Gemini RightCut Right Angle Grinder Reinforced Cut-off Wheels

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>Quality aluminum oxide grain</li> <li>Unique reinforcement design</li> <li>Extra thin</li> <li>.045 RightCut Type 27 has new iron-, sulfur-, and chlorine-free bond and new hubbed wheels</li> </ul> | <ul style="list-style-type: none"> <li>Consistent performance at a competitive price</li> <li>Ideal for small jobs on a variety of metal applications from carbon to stainless steels</li> <li>Provides safety, strength and straight cuts</li> <li>Quick cutting action and low kerf loss</li> <li>Boosted performance: up to 30% longer life and faster cut rate</li> <li>Ideal for nuclear industry</li> </ul> |



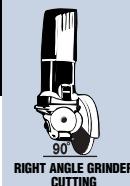
# safetyTIPS

- Contact your machine vendor for proper flanges and guards when using Type 01 wheels on right angle grinders.
- Use Type 01 when proper cut-off guard and equal size flanges are available.
- Use Type 27 with standard back flange and nut tool configuration.

It is the user's responsibility to refer to and comply with ANSI B7.1



# RIGHT ANGLE GRINDER REINFORCED CUT-OFF WHEELS



CUT-OFF WHEELS

## Right Angle Grinder Reinforced Cut-off Wheels – Type 01 (4" – 7") and Type 27 (4" – 9") (CONTINUED)

| SIZE: D X T X H                                 | MAX RPM | STD PKG | BEST NORZON   |             | BETTER CHARGER, SPECIFIED            |                            | GOOD GEMINI, NORTON METAL |             |
|---|---------|---------|---------------|-------------|--------------------------------------|----------------------------|---------------------------|-------------|
|   |         |         | SPEC/PART NO. | UPC NO.     | SPEC/PART NO.                        | UPC NO.                    | PART NO.                  | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF – STEEL / STAINLESS</b> |         |         |               |             |                                      |                            |                           |             |
| 4 x .035 x 5/8                                  | 19,100  | 25      |               |             | A60-OBNA2                            | 66243529590                |                           |             |
| 4 x .045 x 5/8                                  | 15,280  | 25      |               |             |                                      |                            | RC4G                      | 66243527956 |
| 4 x 1/16 x 5/8                                  | 19,100  | 100     |               |             | Fabcut All Purp.<br>Fabcut Long Life | 66243527827<br>66243527826 |                           |             |
| 4 x 3/32 x 5/8                                  | 15,280  | 25      |               |             |                                      |                            | RC4332G                   | 66243527955 |
| 4-1/2 x .045 x 7/8                              | 13,580  | 25      | RC45NZZ       | 66252830730 | RC45CH                               | 66252826569                | RC45G                     | 66252823602 |
| 4-1/2 x 3/32 x 7/8                              | 13,580  | 25      |               |             |                                      |                            | RC45332G                  | 66252823599 |
| 5 x .045 x 7/8                                  | 12,225  | 25      | RC5NZZ        | 66252830731 | RC5CH                                | 66252826570                | RC5G                      | 66252823603 |
| 5 x .050 x 7/8                                  | 12,225  | 25      | Thin Cut      | 66252809829 |                                      |                            |                           |             |
| 5 x 3/32 x 7/8                                  | 12,225  | 25      |               |             |                                      |                            | RC5332G                   | 66252823600 |
| 6 x .045 x 7/8                                  | 10,185  | 25      | RC6NZZ        | 66252830734 | RC6CH                                | 66252826571                | RC6G                      | 66252823604 |
| 6 x 3/32 x 7/8                                  | 10,185  | 25      |               |             |                                      |                            | RC6332G                   | 66252823601 |
| 7 x 1/16 x 7/8                                  | 8,730   | 25      | Thin Cut      | 66252900652 | 57A364-TB25N                         | 66252922675                | RC7G                      | 66252832323 |

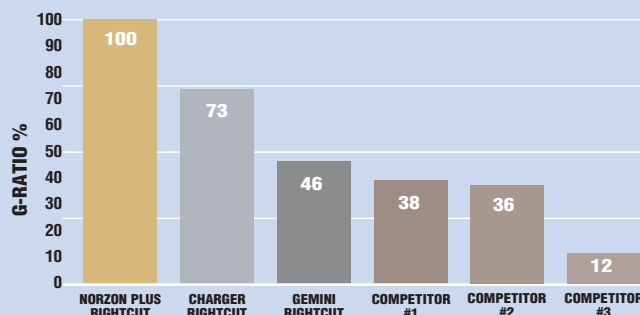
| SIZE: D X T X H   | MAX RPM | STD PKG | BEST NORZON PLUS |             | BETTER CHARGER |             | GOOD GEMINI, NORTON METAL |             |
|---|---------|---------|------------------|-------------|----------------|-------------|---------------------------|-------------|
|   |         |         | SPEC/PART NO.    | UPC NO.     | SPEC/PART NO.  | UPC NO.     | PART NO.                  | UPC NO.     |
| <b>TYPE 27 DEPRESSED CENTER CUT-OFF – STEEL / STAINLESS</b> |         |         |                  |             |                |             |                           |             |
| 4 x .045 x 5/8  | 15,280  | 20      |                  |             |                |             | RC4G27                    | 66252833840 |
| 4-1/2 x .045 x 5/8-11                                       | 13,580  | 20      | RC45HNZZ27       | 66252830748 | RC45HCH27      | 66252832009 | RC45HG27                  | 66252819549 |
| 4-1/2 x .045 x 7/8  | 13,580  | 20      | RC45NZZ27        | 66252830742 | RC45CH27       | 66252830125 | RC45G27                   | 66252819548 |
| 5 x .045 x 5/8-11   | 12,225  | 20      |                  |             |                |             | RC5HG27                   | 66252830586 |
| 5 x .045 x 7/8  | 12,225  | 20      | RC5NZZ27         | 66252830744 | RC5CH27        | 66252830126 | RC5G27                    | 66252819550 |
| 6 x .045 x 5/8-11   | 10,185  | 20      |                  |             |                |             | RC6HG27                   | 66252830587 |
| 6 x .045 x 7/8  | 10,185  | 20      | RC6NZZ27         | 66252830745 | RC6CH27        | 66252830127 | RC6G27                    | 66252819551 |
| 7 x 1/16 x 7/8  | 8,600   | 20      |                  |             |                |             | RC7G27                    | 66252912626 |
| 9 x 1/16 x 5/8-11   | 6,600   | 10      |                  |             |                |             | RC9HG27                   | 66253019115 |

THESE WHEELS ARE TO BE USED FOR CUTTING ONLY. THE ONLY .045 THICK, HUBBED DEPRESSED CENTER CUT-OFF WHEELS IN THE MARKETPLACE TODAY!

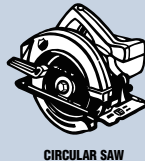
STEEL/METAL  
STAINLESS  
ALUMINUM



4-1/2" x .045" x 7/8"  
Type 01 Wheels  
Cutting 1" Angle Iron – Carbon Steel



# CIRCULAR SAW REINFORCED CUT-OFF WHEELS



## Circular Saw Reinforced Cut-off Wheels (6" – 8")

| <b>BETTER</b> Metal Circular Saw Reinforced Cut-off Wheels – Provide precise, thin cuts                                       |  |
|---|--|
| FEATURES  | BENEFITS   |
| <b>ALUMINUM OXIDE 57A – B25N WHEELS</b>   |  |
| <ul style="list-style-type: none"> <li>Constructed with full diameter side reinforcing, resin bond</li> </ul>                 | <ul style="list-style-type: none"> <li>Versatile; durable, free cutting; offer greatest stiffness</li> </ul>                   |
| <b>ALUMINUM OXIDE – OBNA2 BOND WHEELS</b>   |  |
| <ul style="list-style-type: none"> <li>Side reinforced, resin bond</li> </ul>   | <ul style="list-style-type: none"> <li>Yield maximum cut rate and minimum kerf loss; ideal when thin cut is desired</li> </ul> |
| <b>CHARGER LONG LIFE</b>  |  |
| <ul style="list-style-type: none"> <li>Blend of premium zirconia alumina and aluminum oxide abrasives, rough sides</li> </ul> | <ul style="list-style-type: none"> <li>Outperforms standard aluminum oxide up to 3X in life</li> </ul>                         |

| <b>GOOD</b> Masonry and Metal Circular Saw Reinforced Cut-off Wheels                           |  |
|--|--|
| FEATURES   | BENEFITS   |
| <ul style="list-style-type: none"> <li>Versatile</li> </ul>                                    | <ul style="list-style-type: none"> <li>Ideal for slotting and cutting when initial cost is a main consideration</li> </ul>   |
| <b>GEMINI ALL PURPOSE</b>  |  |
| <ul style="list-style-type: none"> <li>Quality aluminum oxide abrasive, rough sides</li> </ul> | <ul style="list-style-type: none"> <li>Sets the aluminum oxide general purpose industry standard for cutting all material in metal fabrication applications</li> </ul> |
| <b>NORTON MASONRY</b>  |  |
| <ul style="list-style-type: none"> <li>Sharp, silicon carbide grain</li> </ul>                 | <ul style="list-style-type: none"> <li>Engineered for all masonry materials such as concrete, brick and asphalt</li> </ul>   |
| <b>NORTON METAL</b>  |  |
| <ul style="list-style-type: none"> <li>Quality aluminum oxide abrasive</li> </ul>              | <ul style="list-style-type: none"> <li>Designed for cutting alloys, steels and ferrous metals</li> </ul>   |



| SIZE: D X T X H   | MAX RPM | STD PKG        | BETTER CHARGER, SPECIFIED  |                            | GOOD GEMINI, NORTON METAL, MASONRY |                                |
|---|---------|----------------|----------------------------|----------------------------|------------------------------------|--------------------------------|
|   |         |                | SPEC/PART NO.              | UPC NO.                    | SPEC/PART NO.                      | UPC NO.                        |
| <b>TYPE 01 FLAT CUT-OFF – STEEL / STAINLESS / MASONRY</b> |         |                |                            |                            |                                    |                                |
| 6 x .035 x 5/8  | 10,185  | 25             | A60-OBNA2                  | 66252835054                | C06035G                            | 66252809714                    |
| 6 x 1/16 x 5/8  | 10,185  | 25             | 57A364-TB25N               | 66252822973                | C06116G                            | 66252809718                    |
| 6 x 1/8 x 5/8   | 10,190  | 25             | 57A244-TB25N               | 66252822992                |                                    |                                |
| 6-1/2 x 1/8 x DM*   | 9,405   | 10             |                            |                            | C06518M<br>C06518MA                | 07660789098<br>07660789089     |
| 7 x .035 x 5/8  | 8,730   | 25             | A60-OBNA2                  | 66252938787                |                                    |                                |
| 7 x .060 x 5/8  | 8,730   | 25             | A60-OBNA2                  | 66252938811                |                                    |                                |
| 7 x 1/16 x 5/8  | 8,730   | 25             | 57A364-TB25N               | 66252922673                | C0716G                             | 66252905957                    |
| 7 x 3/32 x 5/8  | 8,730   | 25             | 57A244-TB25N               | 66252922688                |                                    |                                |
| 7 x 1/8 x DM*   | 8,730   | 25             |                            |                            | C0718M<br>C0718MA                  | 07660789097<br>07660789088     |
| 8 x .035 x 5/8  | 7,640   | 25             | A60-OBNA2                  | 66253042979                |                                    |                                |
| 8 x .060 x 5/8  | 7,640   | 25             | A60-OBNA2                  | 66253042981                |                                    |                                |
| 8 x 1/16 x 5/8  | 7,640   | 25<br>25<br>10 | 57A364-TB25N<br>Charger LL | 66253022703<br>66253017771 | C08116G<br><br>Gemini All Purp.    | 66253007025<br><br>66253017795 |
| 8 x 3/32 x 5/8  | 7,640   | 25             | 57A244-TB25N               | 66253022710                |                                    |                                |
| 8 x 1/8 x 5/8   | 7,640   | 25             | 57A364-TB25N               | 66253022712                |                                    |                                |
| 8 x 1/8 x DM*   | 7,640   | 10             |                            |                            | C0818M<br>C0818MA                  | 07660789096<br>07660789086     |

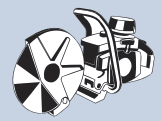
\* DM DENOTES DIAMOND MOUNT; 5/8" HOLE BUSHINGS INCLUDED

| Cut-off Wheel Part Number Key   |          |           |               |               |                               |
|---------------------------------|----------|-----------|---------------|---------------|-------------------------------|
| EXAMPLE: <b>CO 4 18 38 G FC</b> |          |           |               |               |                               |
| WHEEL TYPE                      | DIAMETER | THICKNESS | HUB/HOLE SIZE | PRODUCT GROUP | MODIFIER                      |
| CO = CUT-OFF                    | 4 = 4"   | 18 = 1/8" | 38 = 3/8"     | G = GEMINI    | FC = FREE CUT, LL = LONG LIFE |





# HIGH SPEED REINFORCED CUT-OFF WHEELS



HIGH SPEED GAS/  
ELECTRIC SAW

## High-Speed Reinforced Cut-off Wheels for Gas, Electric-Powered and Walk-Behind Road Saws (12" – 18")



| GOOD High-Speed Reinforced Cut-off Wheels  |  |
|--|--|
| SPECIFICATION / APPLICATION  | ABRASIVE TYPE                                      |
| • Metalworking   | • Versatile aluminum oxide                         |
| • Ductile  | • Durable silicon carbide and aluminum oxide blend |
| • Concrete   | • Sharp 24 grit silicon carbide                    |
| • Asphalt  | • Coarse 16 grit silicon carbide                   |
| • Asphalt/green concrete   | • Cold pressed silicon carbide blend               |
| • For higher performance on asphalt/green concrete                                     | • Hot pressed silicon carbide blend                |
| • Heavy-duty, triple reinforced, with universal arbor: for metal, ductile and concrete | • High performance, extra strength, longer lasting |



| GOOD High-Speed Metal Decking Reinforced Cut-off Wheels |  |
|---|--|
| FEATURES  | BENEFITS   |
| • Thicker blades  | • Longer life  |
|   | • Designed specifically to cut metal decking quickly |



| GOOD High-Speed Rescue Reinforced Cut-off Wheels |   |
|--|---|
| FEATURES   | BENEFITS  |
| • Thicker blades                                 | • For ventilation, forcible entry, rescue and demolition on steels, aluminum, PVC and masonry materials |



|   |            | GOOD<br>METAL, DUCTILE, ASPHALT, CONCRETE |  |   |                     |             |                     |             |                      |             |
|---|------------|---|--|---|---------------------|-------------|---------------------|-------------|----------------------|-------------|
| SIZE<br>D X T X H   | MAX<br>RPM | STD<br>PKG                                | METAL<br>PART NO.                              | UPC NO.                                   | DUCTILE<br>PART NO. | UPC NO.     | ASPHALT<br>PART NO. | UPC NO.     | CONCRETE<br>PART NO. | UPC NO.     |
| <b>TYPE 01 CUT-OFF – FOR GAS &amp; ELECTRIC-POWERED SAWS – STEEL/CONCRETE/ASPHALT</b> |            |   |  |   |                     |             |                     |             |                      |             |
| 12 x 1/8 x 20 mm  | 6,360      | 10  | HSM1220  | 70184680310                               | HSD1220             | 70184680314 | YPAHA1253220        | 70184670243 | HSC1220              | 70184680312 |
| 12 x 1/8 x 1  | 6,360      | 10  | HSM1201  | 70184680311                               | HSD1201             | 70184680315 | YPAHA12532          | 70184670083 | HSC1201              | 70184680313 |
| 14 x 1/8 x 20 mm  | 5,400      | 10  | HSM1420<br>HSM1420 Decking                     | 70184680317<br>66243578260                | HSD1420             | 70184680321 | YPAHA1420           | 70184671456 | HSC1420              | 70184680319 |
| 14 x 1/8 x 1  | 5,400      | 10  | HSM1401<br>HSM1401 Decking<br>HSRES1401 Rescue | 70184680318<br>66252832521<br>66243578262 | HSD1401             | 70184680322 | YPAHA14             | 70184672877 | HSC1401              | 70184680320 |
| <b>new!</b> 14 x 1/8 x 1"/20mm  | 5,400      | 10  | HSMHD14UA                                      | 66252835386                               | HSDHD14UA           | 66252835388 |                     |             | HSCHD14UA            | 66252835387 |
| 16 x 1/8 x 20 mm  | 4,800      | 10  | HSM1620  | 66252830885                               |                     |             |                     |             | HSC1620              | 70184625269 |
| 16 x 1/8 x 1  | 4,800      | 10  | HSM1601  | 66252830886                               |                     |             |                     |             | HSC1601              | 70184623029 |

|  |            | GOOD<br>ASPHALT, ASPHALT/GREEN CONCRETE, CONCRETE |                     |             |                                    |              |                      |             |
|--|------------|---|---------------------|-------------|------------------------------------|--------------|----------------------|-------------|
| SIZE<br>D X T X H  | MAX<br>RPM | STD<br>PKG  | ASPHALT<br>PART NO. | UPC NO.     | ASPHALT/GREEN CONCRETE<br>PART NO. | UPC NO.      | CONCRETE<br>PART NO. | UPC NO.     |
| <b>TYPE 01 CUT-OFF – FOR WALK-BEHIND SAWS – CONCRETE/ASPHALT</b> |            |   |                     |             |                                    |              |                      |             |
| 14 x 3/16 x 1 Pin Hole   | 4,365      | 10  | ASP14316            | 70184680324 | YHP14316                           | 70184670100* | CON14316             | 70184680323 |
| 14 x 1/4 x 1 Pin Hole  | 4,365      | 5   | YPASA1414           | 70184670535 | YHP1414                            | 70184670099* | YPASC1414            | 70184670533 |
| 18 x 1/4 x 1 Pin Hole  | 4,250      | 5   |                     |             | YHP1814                            | 70184670103* | YPASC1814            | 70184670098 |
| 18 x 3/8 x 1 Pin Hole  | 4,250      | 5   |                     |             | YHP1838                            | 70184648998* |                      |             |

\* THESE ASPHALT/GREEN CONCRETE WHEELS ARE HOT-PRESSED FOR ADDED STRENGTH



WALK-BEHIND SAW

**TECHtip**

Use Ductile for ultra-hard metals, hydraulic hose and PVC pipe.



## Rail Reinforced Cut-off Wheels (14", 16")

### BETTER NorZon III RailCut and NorZon III Rail FastCut Reinforced Cut-off Wheels

#### FEATURES

- NorZon III RailCut and NorZon III Rail FastCut
- Side reinforced, R Sides

#### BENEFITS

- Ideal for high powered, well-maintained machines
- Maximum number of cuts per wheel
- Fastest cut rate
- Highest value on cost per cut basis



### GOOD RailCut and Rail FastCut Reinforced Cut-off Wheels

#### FEATURES

- RailCut and Rail FastCut
- Side reinforced, R Sides

#### BENEFITS

- The choice for light-duty applications and older machines with less horsepower
- Work under a wide range of operating conditions
- Maintain cutting throughout the life of the wheel
- Smooth, easy cutting action

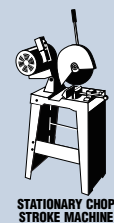


| SIZE: D X T X H             | MAX RPM | STD PKG | BETTER<br>NORZON III                          |                            | GOOD<br>A24      |             |  |
|-----------------------------|---------|---------|---|----------------------------|------------------|-------------|--|
|                             |         |         | SPEC  | UPC NO.                    | SPEC             | UPC NO.     |  |
| <b>TYPE 01 FLAT CUT-OFF</b> |         |         |   |                            |                  |             |  |
| 14 x 1/8 x 1                | 5,400   | 10      | NorZon III RailCut<br>NorZon III Rail FastCut | 66253360493<br>66253363694 | A24-RailCut      | 66253363693 |  |
| 16 x 1/8 x 1                | 4,800   | 10      | NorZon III RailCut<br>NorZon III Rail FastCut | 66253464607<br>66253464415 | A24-Rail FastCut | 66253411892 |  |
| 16 x 5/32 x 1               | 4,800   | 10      |   |                            | A36-T RailCut    | 66253466357 |  |

FOR FIXED RAIL TRACK CUTTING ONLY.



# STATIONARY SAW REINFORCED CUT-OFF WHEELS



STATIONARY CHOP STROKE MACHINE

## Large Diameter Reinforced Cut-off Wheels for Stationary Saws (10" – 24")

| BETTER Large Diameter Stationary Reinforced Cut-off Wheels  |  |
|---|--|
| FEATURES  | BENEFITS   |
| <b>23A</b>  |  |
| <ul style="list-style-type: none"> <li>Aluminum oxide abrasive, D sides</li> </ul>                            | <ul style="list-style-type: none"> <li>Engineered for fast cut and long life on a variety of applications</li> </ul> |
| <b>U57A</b>   |  |
| <ul style="list-style-type: none"> <li>Aluminum oxide abrasive, centrally reinforced, rough sides</li> </ul>  | <ul style="list-style-type: none"> <li>Engineered for fast cut and long life on a variety of applications</li> </ul> |
| <b>57A – B25N BOND WHEELS</b>   |  |
| <ul style="list-style-type: none"> <li>Constructed with full diameter side reinforcing, resin bond</li> </ul> | <ul style="list-style-type: none"> <li>Versatile; durable, free cutting; offer greatest stiffness</li> </ul>         |
| <b>CHARGER</b>  |  |
| <ul style="list-style-type: none"> <li>A blend of premium zirconia alumina and aluminum oxide</li> </ul>      | <ul style="list-style-type: none"> <li>Outperforms standard aluminum oxide up to 3X in life</li> </ul>               |
| <ul style="list-style-type: none"> <li>High performance bond system</li> </ul>                                | <ul style="list-style-type: none"> <li>Over 25% better cut rate than standard aluminum oxide wheels</li> </ul>       |



| GOOD Large Diameter Stationary Reinforced Cut-off Wheels                                      |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>Gemini: Quality aluminum oxide abrasive</li> </ul>     | <ul style="list-style-type: none"> <li>Sets the aluminum oxide industry standard for cutting all material in metal fabrication applications</li> </ul> |
| <ul style="list-style-type: none"> <li>Norton Masonry: sharp silicon carbide grain</li> </ul> | <ul style="list-style-type: none"> <li>Engineered for all masonry materials – such as concrete and brick</li> </ul>                                    |



| SIZE: D X T X H                                       | MAX RPM | STD PKG | BETTER CHARGER, SPECIFIED |             | GOOD GEMINI, MASONRY |             |
|---|---------|---------|---------------------------|-------------|----------------------|-------------|
|   |         |         | SPEC/PART NO. *           | UPC NO.     | SPEC/PART NO.        | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF – STEEL/STAINLESS/MASONRY</b> |         |         |                           |             |                      |             |
| 10 x 1/16 x 5/8                                       | 6,110   | 25      | 57A461-TB25N              | 66253122817 |                      |             |
| 10 x 3/32 x 5/8                                       | 6,110   | 10      | C010332CH                 | 66253106108 | C010332GFC           | 66253106101 |
|   |         | 10      |                           |             | C010332GLL           | 66253106102 |
|   |         | 25      |                           |             | C010332MA            | 07660789391 |
|   |         |         | 57A364-TB25N              | 66253122823 |                      |             |
| 10 x 1/8 x 5/8  | 6,110   | 25      | 57A244-TB25N              | 66253122826 |                      |             |
| 12 x 3/32 x 1   | 5,095   | 10      | 23A364-RB25B              | 66253261999 |                      |             |
| 12 x 1/8 x 1  | 5,095   | 10      | C01218CH                  | 66253207550 | C01218GFC            | 66253207547 |
|   |         |         |                           |             | C01218GLL            | 66253207548 |
| 14 x 1/8 x 1  | 4,365   | 10      | C01418CH                  | 66253306623 | C01418GFC            | 66253306609 |
|   |         |         |                           |             | C01418GLL            | 66253306611 |
| 16 x 1/8 x 1  | 3,820   | 10      | U57A304-TB25B             | 66253464694 |                      |             |
| 16 x 5/32 x 1   | 3,820   | 10      | U57A304-TB65B             | 66253464576 | C016532GFC           | 66253410183 |
|   |         |         |                           |             | C016532CH            | 66253410194 |
| 18 x 5/32 x 1   | 3,015   | 10      |                           |             | C018532G             | 66253410185 |
| 20 x 5/32 x 1   | 2,710   | 5       | C020532CHFC               | 69078609045 | C020532GFC           | 69078609031 |
|   |         | 5       | C020532CHLL               | 69078609046 | C020532GLL           | 69078609032 |
|   |         | 10      | U57A244-TB25B             | 69078666948 |                      |             |
| 20 x 3/16 x 1   | 2,710   | 5       |                           |             | C020316GFC           | 69078609033 |
|   |         |         |                           |             | C020316GLL           | 69078609034 |
| 24 x 3/16 x 1-3/4                                     | 2,260   | 10      | U57244-RB25B              | 69083166319 |                      |             |

NOTE: "N" INDICATES SIDE REINFORCED, "B" INDICATES INTERNALLY REINFORCED.

## TECHtips

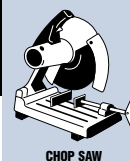
- Run the cut-off machine at the highest possible speed marked on the wheel.
- Long Life wheels should be used on a cut-off machine with 1 horsepower for every inch of wheel diameter.
- With a less powerful machine, we recommend starting with a Free Cut specification.

**!** It is the user's responsibility to refer to and comply with ANSI B7.1

**STEEL/METAL**  
**STAINLESS**  
**MASONRY**



# CHOP SAW REINFORCED CUT-OFF WHEELS



## Chop Saw Reinforced Cut-off Wheels (10" – 16")

| <b>BETTER</b> Charger Chop Saw Reinforced Cut-off Wheels |   |
|--|---|
| FEATURES   | BENEFITS  |
| • Zirconia alumina/aluminum oxide abrasive blend         | • 2X the life and cut rate of aluminum oxide                        |
| • High performance resin bond                            | • Free-cutting; burn-free cut                                       |
| • Free Cut: side reinforced                              | • Engineered for larger cross-sections and/or hard-to-cut materials |
|  | • Resist breakage and provide straight cuts                         |
| • Long Life: side reinforced                             | • Ideal for small cross-section workpieces                          |
|  | • Resist breakage and provide straight cuts                         |
| • Rapid Cut: centrally reinforced, rough sides           | • Free cutting, non-binding; burr- and burn-free cuts               |



| <b>GOOD</b> Gemini Chop Saw Reinforced Cut-off Wheels  |   |
|--|---|
| FEATURES   | BENEFITS  |
| • Free Cut: side reinforced  | • Engineered for larger cross-sections and/or hard-to-cut materials |
|  | • Resist breakage and provide straight cuts                         |
| • Long Life: side reinforced   | • Ideal for small cross-section workpieces                          |
|  | • Resist breakage and provide straight cuts                         |
| • Rapid Cut: centrally reinforced, rough sides   | • Free cutting, non-binding; burr- and burn-free cuts               |
| • Aluminum: specially formulated bond for aluminum and other soft, nonferrous metals; no wax or rubber fillers | • Free cutting; resists loading                                     |
|  | • No surface contamination  |



| <b>GOOD</b> Norton Metal, Masonry and Steel Stud Cutter Chop Saw Reinforced Wheels      |  |
|---|--|
| FEATURES  | BENEFITS   |
| • Stud Cutter: thin, side-reinforced; with new high-performance aluminum oxide abrasive | • Designed specifically for cutting steel studs<br>• Now faster cutting with longer life |
| • Norton Masonry: sharp, silicon carbide grain  | • Engineered for all masonry materials such as concrete, brick and asphalt               |
| • Norton Metal: quality aluminum oxide abrasive   | • Designed for cutting alloys, steels and ferrous metals                                 |

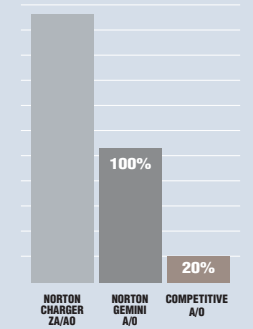


| SIZE: D X T X H   | MAX RPM | STD PKG | BETTER CHARGER         |                            | GOOD GEMINI, METAL, MASONRY |                             |
|---|---------|---------|------------------------|----------------------------|-----------------------------|-----------------------------|
|   |         |         | SPEC/PART NO.          | UPC NO.                    | SPEC/PART NO.               | UPC NO.                     |
| <b>TYPE O1 FLAT CUT-OFF – STEEL / STAINLESS / MASONRY</b> |         |         |                        |                            |                             |                             |
| 10 x 7/64 x 1   | 6,110   | 10      |                        |                            | C010764G                    | 66253106109                 |
| 12 x 7/64 x 1   | 5,095   | 10      | C012764CH              | 66253207552                | C012764G<br>C012764GRC      | 66253207554<br>66253214561* |
| 14 x 7/64 x 1   | 4,365   | 10      | C014764CHFC            | 66253306624                | C014764GFC                  | 66253306627                 |
|   |         | 10      | C014764CHLL            | 66253306625                | C014764GLL                  | 66253306626                 |
|   |         | 10      | C014764CHRC            | 66253309614*               | C014764GRC                  | 66253313588*                |
|   |         | 10      |                        |                            | C014764GALU                 | 66253314816                 |
|   |         | 5       |                        |                            | C014764MSS                  | 07660789405                 |
|   |         | 5       |                        |                            | C014764M                    | 07660703970                 |
| 16 x 7/64 x 1   | 3,820   | 10      | C016764FC<br>C016764LL | 66253410196<br>66253410197 | C016764G                    | 66253410198                 |

\* RAPIDCUTS ARE CENTRALLY REINFORCED; ALL OTHERS ARE SIDE REINFORCED

### Relative Wheel Life

Test done with 14 X 7/64 X 1 chop saw



## TECHtips

- Use Long Life chop saw wheels on small cross section workpieces.
- Use Free Cut chop saw wheels on larger cross-sections and/or hard-to-cut materials.

⚠ It is the user's responsibility to refer to and comply with ANSI B7.1

# FOUNDRY REINFORCED CUT-OFF WHEELS



## Foundry Reinforced Cut-off Wheels (12" – 30")

| <b>BEST</b> B65B and B97B Bond Reinforced Cut-off Wheels           |   |
|--|---|
| FEATURES   | BENEFITS  |
| • Rough (R) sides  | • Free cutting  |
| • Premium 90A abrasive and B97 bond system                         | • Lowest cost per cut; longer life versus B65 bond wheels   |
| • 4NZ – zirconia alumina abrasive and proprietary B65B bond system | • Engineered specifically for foundry applications<br>• Offer longer life over B25 bond wheels especially on stainless steels |



| <b>BETTER</b> NorZon Foundry Reinforced Cut-off Wheels |  |
|--|--|
| FEATURES   | BENEFITS   |
| • Durable zirconia alumina abrasive                    | • For premium performance on stainless steel, aerospace alloys, cast irons and steel |



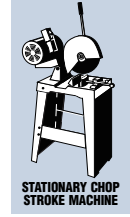
| <b>GOOD</b> Foundry Reinforced Cut-off Wheels |  |
|---|--|
| FEATURES                                      | BENEFITS   |
| • U57A aluminum oxide abrasive                | • Consistent performance<br>• Tough and versatile abrasive, low initial cost |

| SIZE:<br>D X T X H                    | MAX<br>RPM | STD<br>PKG | BEST   |   | BETTER<br>NORZON  |  | GOOD   |   |
|---------------------------------------|------------|------------|--|---|---|--|--|---|
|                                       |            |            | SPEC   | UPC NO.   | SPEC  | UPC NO.  | SPEC   | UPC NO.                                   |
| <b>TYPE 01 FLAT CUT-OFF – FOUNDRY</b> |            |            |  |   |   |  |  |   |
| 12 x 1/8 x 1                          | 5,095      | 10         |  |   | NZ Fdry All Purpose   | 66253249600  |  |   |
| 14 x 1/8 x 1                          | 4,365      | 10         |  |   | NZ Fdry All Purpose   | 66253319576  |  |   |
| 16 x 5/32 x 1                         | 3,820      | 10         | 90A244-TB97N   | 66253422205   | NZ Fdry All Purpose<br>NZ Fdry Free Cut<br>NZ Fdry Long Life                          | 66253466437<br>66253431487<br>66253431488                |  |   |
| 20 x 5/32 x 1                         | 2,710      | 10         | 4NZ24-TB65B<br>90A244-TB97N<br>90A244-YB97B<br>90A244-YB97N                | 69078666985<br>69078622209<br>69078650375<br>69078650377                | NZ Fdry All Purpose<br>NZ Fdry Free Cut<br>NZ Fdry Long Life<br>NZ Fdry Int. Reinfrcd | 69078627986<br>69078627987<br>69078627988<br>69078608926 | Foundry All Purpose  | 69078627989                               |
| 20 x 3/16 x 1                         | 2,710      | 10         | 90A204-YB97B   | 69078650380   | NZ Fdry All Purpose<br>NZ Fdry Free Cut<br>NZ Fdry Long Life                          | 69078649613<br>69078627992<br>69078627993                | Foundry All Purpose  | 69078649612                               |
| 24 x 7/32 x 1-3/4                     | 2,260      | 10         | 4NZ24-TB65B<br>90A204-VB97B<br>90A204-YB97B                                | 69083166297<br>69083108034<br>69083150382                               | NZ Fdry All Purpose<br>NZ Fdry Free Cut<br>NZ Fdry Long Life                          | 69083149615<br>69083125991<br>69083125992                | Foundry All Purpose<br>Foundry Free Cut<br>Foundry Long Life | 69083125993<br>69083125994<br>69083125995 |
| 26 x 7/32 x 1-3/4                     | 2,090      | 10         |  |   | U57A244-YB65B   | 69083166431  |  |   |
| 30 x 1/4 x 1-3/4                      | 1,810      | 10         | 4NZ24-TB65B<br>4NZ24-YB65B<br>90A204-YB97B<br>90A204-ZB97B<br>90A244-TB97B | 69210466453<br>69210466464<br>69210450386<br>69210450387<br>69210422211 |   |  |  |   |

# FOUNDRY NON-REINFORCED CUT-OFF WHEELS

## Foundry Non-Reinforced Cut-off Wheels (12" – 20")

| BETTER Foundry Non-reinforced Cut-off Wheels |  |
|--|--|
| FEATURES                                     | BENEFITS                                   |
| • Aluminum oxide abrasive                    | • Cool cutting on heat sensitive materials |
| • R sides                                    | • Durable, free cutting                    |
| • B25W resin bond, zone reinforced           |  |



| SIZE<br>D X T X H                     | MAX.<br>RPM | STD.<br>PKG. | BETTER        |             | GOOD                  |             |
|---------------------------------------|-------------|--------------|---------------|-------------|-----------------------|-------------|
|                                       |             |              | SPEC          | UPC NO.     | SPEC                  | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF – FOUNDRY</b> |             |              |               |             |                       |             |
| 12 x 3/32 x 1                         | 5,095       | 10           | U57A461-PB25  | 66253261887 |                       |             |
| 16 x 1/8 x 1                          | 3,820       | 10           |               |             | GEMINI<br>All Purpose | 66253422942 |
| 20 x 1/8 x 1                          | 2,710       | 10           | U57A304-VB25W | 69078665497 |                       |             |

### TECHtip

- Non-Reinforced cut-off wheels are designed for use on "fixed base" types of machines where the work is securely clamped, guarded, and where the wheel operates on a controlled cutting plane.
- Wheels with a "W" reinforcement (reinforcement around the hole) are not considered to be truly reinforced.

It is the user's responsibility to refer to and comply with ANSI B.7

### SPECcheck



### Starting Recommendations by Material

#### Reinforced

| FOUNDRY APPLICATION                    | WHEEL SPECIFICATION                    |
|--|--|
| Stainless steel and super alloys (dry) | 90A204-YB97B<br>NorZon Foundry Cut-off |
| Carbon and mild steels (dry)           | 4NZ24-TB65B<br>NorZon Foundry Cut-off  |

#### Non-Reinforced

| FOUNDRY APPLICATION      | WHEEL SPECIFICATION |
|--------------------------|---------------------|
| Soft metals (wet or dry) | B25 bond            |

Reinforced cut-off wheels contain strengthening fabric or filaments, which make them resistant to cross-bending breakage. All portable cut-off, swingframe, locked-head push-through and foundry chop stroke operations require reinforced cut-off wheels.

### Reinforcements

**B** – One or more full diameter pieces of filament molded inside each wheel. This construction leaves the abrasive exposed on the side of the wheel, improving freeness of cut. Used for fixed work operations with low probability of side pressure.

**N** – Full diameter pieces of reinforcement on the side of the wheel. Offers greatest possible resistance to side pressure and bending.

### Side Patterns

Smooth sides – used for precision cutting applications

Rough (R) sides – abrasive particles protrude from sides of wheel. Used wet or dry on most metals.



# TOOLROOM REINFORCED CUT-OFF WHEELS

## Toolroom Reinforced Cut-off Wheels (6" – 12", D Sides)

**BETTER** Engineered Reinforced Cut-off Wheels – Provide precise, thin cuts

### FEATURES

### BENEFITS

#### ALUMINUM OXIDE – OBNA2 BOND WHEELS

- Side reinforced, resin bond
- Yields maximum cut rate and minimum kerf loss; ideal when thin cut is desired

#### ALUMINUM OXIDE – B25N BOND WHEELS

- Constructed with full diameter side reinforcing, resin bond
- Versatile; durable, free cutting; offer greatest stiffness



| SIZE<br>D X T X H           | MAX.<br>RPM | STD.<br>PKG. | BETTER       |             |
|-----------------------------|-------------|--------------|--------------|-------------|
|                             |             |              | SPEC         | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF</b> |             |              |              |             |
| 6 x .035 x 1/2              | 10,190      | 25           | A60-OBNA2    | 66252835053 |
| 6 x .035 x 1-1/4            | 10,190      | 25           | A60-OBNA2    | 66252835055 |
| 6 x .060 x 1/2              | 10,190      | 25           | A60-OBNA2    | 66252835164 |
| 6 x .060 x 1-1/4            | 10,190      | 25           | A60-OBNA2    | 66252835165 |
| 6 x 1/16 x 1/2              | 10,190      | 25           | 57A364-TB25N | 66252822969 |
| 7 x .035 x 1/2              | 8,730       | 25           | A60-OBNA2    | 66252938786 |
| 7 x .035 x 1-1/4            | 8,730       | 25           | A60-OBNA2    | 66252938788 |
| 7 x .060 x 1/2              | 8,730       | 25           | A60-OBNA2    | 66252938816 |
| 7 x .060 x 1-1/4            | 8,730       | 25           | A60-OBNA2    | 66252938796 |
| 7 x 1/16 x 1-1/4            | 8,730       | 25           | 57A364-TB25N | 66252922676 |
| 8 x .035 x 1/2              | 7,640       | 25           | A60-OBNA2    | 66253043014 |
| 8 x .035 x 1-1/4            | 7,640       | 25           | A60-OBNA2    | 66253042980 |
| 8 x .060 x 1/2              | 7,640       | 25           | A60-OBNA2    | 66253043009 |
| 8 x .060 x 1-1/4            | 7,640       | 25           | A60-OBNA2    | 66253042983 |
| 8 x 1/16 x 1-1/4            | 7,640       | 25           | 57A364-TB25N | 66253022705 |

CONTINUED

| SIZE<br>D X T X H           | MAX.<br>RPM | STD.<br>PKG. | BETTER    |             |
|-----------------------------|-------------|--------------|-----------|-------------|
|                             |             |              | SPEC      | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF</b> |             |              |           |             |
| 10 x .060 x 5/8             | 6,110       | 25           | A60-OBNA2 | 66253149317 |
| 10 x .060 x 1-1/4           | 6,110       | 25           | A60-OBNA2 | 66253149186 |
| 12 x .060 x 1               | 5,095       | 10           | A60-OBNA2 | 66253261811 |
| 12 x .075 x 1               | 5,095       | 10           | A60-OBNA2 | 66253261910 |
| 12 x .075 x 1-1/4           | 5,095       | 10           | A60-OBNA2 | 66253261858 |

## TECHtip

- Reinforced cut-off wheels are designed to resist breakage caused by severe cross-bending and are required on any operation where the work is not securely clamped.



It is the user's responsibility to refer to and comply with ANSI B7.1

## SPECcheck

### Troubleshooting Guide

| PROBLEM           | POSSIBLE CAUSES  | SUGGESTED CORRECTION  |
|-------------------|--|---|
| Poor cutting rate | Insufficient power used<br>Wheel too hard<br>Contact area too large<br>Wheel too coarse<br>Wheel side out of truth                         | Increase feed or pressure to full power<br>Use softer grade, Free Cut or thinner wheel<br>Reduce contact area<br>Use finer grit or Free Cut wheel<br>Check spindle runout   |
| Non-square cuts   | Work not clamped properly<br>Misaligned spindle bearings<br>Poor coolant distribution<br>Wheel is too hard                                 | Check clamp and clean to remove swarf<br>Check for bearing truth and alignment<br>Ensure equal volume of coolant to each wheel side<br>Use softer acting wheel: softer grade, or finer grit, or Free Cut  |
| Workpiece burn    | Insufficient feed rate<br>Poor coolant flow<br>Wheel is too coarse<br>Wheel is too hard<br>Wheel is running out<br>Wheel speed is too slow | Work machine to maximum power available<br>Increase volume and direct at cutting point<br>Use finer grit or Free Cut wheel or more machine power<br>Use softer grade, thinner, or Free Cut wheel<br>Check spindle and flanges<br>Ensure tight flanges and maximum safe operating speed being used |
| Poor finish       | Too much burr<br>Wheel too coarse  | Use finer grit, or softer grade, or Free Cut wheel<br>Use finer grit or Free Cut wheel  |

# TOOLROOM NON-REINFORCED CUT-OFF WHEELS

## Toolroom Non-Reinforced Cut-off Wheels (6" – 12")

| BETTER Toolroom Non-reinforced Cut-off Wheels                                 |  |
|---|--|
| FEATURES  | BENEFITS   |
| • B Bond (smooth sides)   | • A mild acting resin bond for light cut-off applications. BW is zone reinforced   |
| • B25 Bond (smooth sides)   | • A versatile, free-cutting, durable resin bond<br>• Ideal for dry cutting metal in high production runs   |
| • E7 Bond (smooth sides)  | • A shellac bond with very mild cutting action, recommended for highly critical applications where no burr, heat checks, or discoloration is permitted |
| • R30 Bond (smooth sides)   | • Mild acting rubber bond primarily for wet, ultra-thin cutting  |
| • R55 Bond (rough sides)  | • Versatile, free cutting, rubber bond used primarily for wet cut-off  |
| • B82   | • Offers improved life over rubber bonds in wet applications   |
| • Metlab – engineered for sectioning samples during metallurgical evaluations | • Produce minimal burr and burn  |
| • Metlab 57A90-K4R30  | • Ideal for use on hard metals   |
| • Metlab 88A901-HB82  | • Designed for longer life and use on softer materials   |



| SIZE<br>D X T X H           | MAX.<br>RPM    | STD.<br>PKG. | BETTER             |              |
|-----------------------------|----------------|--------------|--------------------|--------------|
|                             |                |              | SPEC               | UPC NO.      |
| <b>TYPE 01 FLAT CUT-OFF</b> |                |              |                    |              |
| 6 x .015 x 1-1/4            | 6,370          | 25           | 57A90-R0R30        | 66252822953  |
| 6 x .020 x 1-1/4            | 6,370          | 25           | 57A90-R0R30        | 66252822954  |
| 6 x 1/32 x 1-1/4            | 6,370          | 25           | 57A60-M8B          | 66252822958  |
| 6 x 1/16 x 1/2              | 7,640          | 25           | 57A541-RB25        | 66252822970  |
| 6 x 1/16 x 1-1/4            | 7,640          | 25           | 57A60-M8B          | 66252822975  |
| 7 x 1/32 x 1-1/4            | 5,460          | 25           | 57A60-M8B          | 66252922983  |
|                             |                |              | 57A60-Q8B          | 66252922986  |
|                             |                |              | 57A60-Q8B          | 66252922987  |
| 7 x 1/32 x 1-1/4            | 5,460          | 25           | 57A601-PB25        | 66252922988  |
|                             |                |              | 57A601-RB25        | 66252922989  |
| 7 x 1/32 x 1-1/4            | 5,185          | 25           | 57A60-OE7          | 66252922985  |
| 7 x 1/32 x 1-1/4            | 5,460          | 25           | 23A601-PB25        | 66252938701  |
| 7 x .050 x 1-1/4            | 5,460          | 25           | 23A601-PB25        | 66252938724* |
| 7 x 1/16 x 1/2              | 6,550          | 25           | 57A60-Q8B          | 66252922672  |
| 7 x 1/16 x 1-1/4            | 6,550          | 25           | 57A46-M8B          | 66252922677  |
|                             |                |              | 57A60-M8B          | 66252922681  |
|                             |                |              | 57A60-Q8B          | 66252922684  |
| 7 x 1/16 x 1-1/4            | 5,185          | 25           | 57A60-OE7          | 66252922683  |
| 7 x 3/32 x 1-1/4            | 6,550          | 25           | 57A60-M8B          | 66252922690  |
| 7 x 1/8 x 1-1/4             | 6,550          | 25           | 57A60-M8B          | 66252922692  |
| 8 x 1/32 x 1-1/4            | 4,775          | 25           | 57A60-N8B          | 66253022694  |
| 8 x 1/16 x 1/2              | 5,730          | 25           | 57A60-M8B          | 66253022702  |
| 8 x 1/16 x 1-1/4            | 5,730          | 25           | 57A60-M8B          | 66253022708  |
| 8 x 1/16 x 1-1/4            | 4,540          | 25           | 57A60-OE7          | 66253022709  |
| 10 x 1/16 x 5/8             | 4,585          | 25           | 57A46-Q8BW         | 66253122816  |
|                             |                |              | 57A60-M8BW         | 66253122818  |
| 10 x 1/16 x 5/8             | 4,585          | 25           | 57A46-P4R55        | 66253122815  |
|                             |                |              | 57A80-P6R55        | 66253122819  |
| 10 x 1/16 x 1-1/4           | 3,820<br>4,585 | 5            | 57A90-K4R30 Metlab | 66253122821  |
|                             |                |              | 88A901-HB82 Metlab | 66253149449  |
| 10 x 3/32 x 5/8             | 4,585          | 25           | 57A60-M8BW         | 66253122824  |
| 12 x 1/16 x 1-1/4           | 3,185<br>3,820 | 5            | 57A90-K4R30 Metlab | 66253222833  |
|                             |                |              | 88A901-HB82 Metlab | 66253262172* |

\*EXCEPTION: ROUGH SIDES

## SPECcheck

### Norton Cut-off Wheel Side Patterns

Smooth sides – Used when a precise thickness tolerance is needed.

Rough (R) sides – Abrasive particles protrude from sides of wheel. Used wet or dry on most metals.

D sides – Cross-hatch pattern. Preferred for dry-cutting on non-metals.

## TECHtips

- Non-Reinforced cut-off wheels are designed for use on “fixed base” types of machines where the work is securely clamped, guarded, and where the wheel operates on a controlled cutting plane.
- Wheels with a “W” reinforcement (reinforcement around the hole) are not considered to be truly reinforced.
- Clamp or fixture the workpiece for straightest cuts
- Run wheels at the highest possible speed marked on the wheel and make cuts as quickly as possible.
- It is recommended that a cut-off machine should have 1 horsepower for every inch of wheel diameter. For less than this, we recommend using a softer specification.
- Using a harder grade wheel increases wheel life, but it also increases burn, power required and decreases cut rate.
- Using a coarser grit wheel increases wheel life and cut rate, but it also increases burr and power required.



It is the user's responsibility to refer to and comply with ANSI B7.1





# METALLURGICAL NON-REINFORCED CUT-OFF WHEELS

## Metallurgical Non-Reinforced Cut-off Wheels (9" – 13.75")

| <b>BEST Metallurgical Non-Reinforced Cut-off Wheels</b> |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| • Developed specifically for microscopic metal analysis | • Burr-free cutting   |
| • Available in silicon carbide and aluminum oxide       | • Ideal for titanium and other nonferrous metals<br>• Engineered for hard, medium and soft metals, ferrous alloys and tool steels |
| • Superior bond system                                  | • Generates pure cuts while minimizing wheel wear and odor<br>• More cuts/wheel and minimal downtime to change wheels             |
| • Used wet  | • Minimal burn  |



| SIZE<br>D X T X H  | MAX.<br>RPM | STD.<br>PKG. | BEST   |                               |             |
|--|-------------|--------------|--------|-------------------------------|-------------|
|  |             |              | SPEC.  | APPLICATION                   | UPC NO.     |
| <b>TYPE 01 FLAT CUT-OFF – FOR METALLURGICAL ANALYSIS</b> |             |              |        |                               |             |
| 9 x .063 x 1-1/4 (229mm x 1.6mm x 32mm)                  | 4,025       | 10           | ML-109 | Very Hard Steels (Rc 55 - 68) | 66253117874 |
|  | 4,025       |              | ML-209 | Hard Steels (Rc 40 - 55)      | 66253117875 |
|  | 4,025       |              | ML-309 | Medium Steels (Rc 30 - 40)    | 66253117877 |
|  | 5,085       |              | ML-409 | Soft Steels (Rc 20 - 30)      | 66253117828 |
|  | 5,085       |              | ML-509 | Nonferrous Materials          | 66253117829 |
|  | 5,085       |              | ML-609 | Titanium / Titanium Alloys    | 66253117878 |
| 10 x .063 x 1-1/4 (254mm x 1.6mm x 32mm)                 | 3,500       | 10           | ML-110 | Very Hard Steels (Rc 55 - 68) | 66253117879 |
|  | 3,500       |              | ML-210 | Hard Steels (Rc 40 - 55)      | 66253117880 |
|  | 3,500       |              | ML-310 | Medium Steels (Rc 30 - 40)    | 66253117881 |
|  | 4,585       |              | ML-410 | Soft Steels (Rc 20 - 30)      | 66253117830 |
|  | 4,585       |              | ML-510 | Nonferrous Materials          | 66253117831 |
|  | 4,585       |              | ML-610 | Titanium / Titanium Alloys    | 66253117882 |
| 12 x .078 x 1-1/4 (305mm x 2.0mm x 32mm)                 | 3,820       | 10           | ML-112 | Very Hard Steels (Rc 55 - 68) | 66253322151 |
|  | 3,820       |              | ML-212 | Hard Steels (Rc 40 - 55)      | 66253322152 |
|  | 3,820       |              | ML-312 | Medium Steels (Rc 30 - 40)    | 66253322153 |
|  | 3,820       |              | ML-412 | Soft Steels (Rc 20 - 30)      | 66253322099 |
|  | 3,820       |              | ML-512 | Nonferrous Materials          | 66253322100 |
|  | 3,820       |              | ML-612 | Titanium / Titanium Alloys    | 66253322154 |
| 13.75 x .098 x 1-1/4 (350mm x 2.5mm x 32mm)              | 2,770       | 10           | ML-114 | Very Hard Steels (Rc 55 - 68) | 66253322863 |
|  | 2,770       |              | ML-214 | Hard Steels (Rc 40 - 55)      | 66253322156 |
|  | 2,770       |              | ML-314 | Medium Steels (Rc 30 - 40)    | 66253322157 |
|  | 3,330       |              | ML-414 | Soft Steels (Rc 20 - 30)      | 66253322158 |
|  | 3,330       |              | ML-514 | Nonferrous Materials          | 66253322159 |
|  | 3,330       |              | ML-614 | Titanium / Titanium Alloys    | 66253322160 |

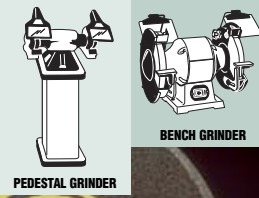


# BENCH AND PEDESTAL WHEELS

The Norton Bench and Pedestal wheel line encompasses three tiers and two abrasives – to answer all your deburring, shaping and sharpening needs: aluminum oxide for high speed tool steels and other metals and silicon carbide for nonferrous metals

## Typical Applications

- Offhand deburring and sharpening of parts and tools



|   |   |
|---|---|
| <b>BEST</b>   | <b>Premium White Aluminum Oxide Bench and Pedestal Wheels</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• White aluminum oxide in a premium vitrified bond</li> <li>• Each wheel contains nested bushings</li> </ul> | <ul style="list-style-type: none"> <li>• Maximum cut rate and cool cutting action on hardened or high-speed tool steels</li> <li>• Accommodates a wide variety of standard arbor sizes</li> </ul> |



|  |   |
|--|---|
| <b>BETTER</b>  | <b>57A and 39C/37C Engineered Bench and Pedestal Wheels</b>   |
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• High quality aluminum oxide and silicon carbide abrasive in a premium vitrified bond system</li> <li>• Each wheel contains nested bushings</li> </ul> | <ul style="list-style-type: none"> <li>• Precision engineered to maximize cut rate, finish and wheel life</li> <li>• Accommodates a wide variety of standard arbor sizes</li> </ul> |



|   |   |
|---|---|
| <b>GOOD</b>   | <b>Gemini Aluminum Oxide and Silicon Carbide Bench and Pedestal Wheels</b>  |
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Quality, gray aluminum oxide for metal</li> <li>• Sharp, green silicon carbide for nonferrous applications</li> <li>• Each wheel contains nested bushings</li> </ul> | <ul style="list-style-type: none"> <li>• Economical prices; ideal for small job shops and numerous general purpose applications</li> <li>• Accommodates a wide variety of standard arbor sizes</li> </ul> |



## Bench and Pedestal Wheel Arbor Bushings

### ARBOR BUSHINGS

| WHEEL DIAMETER | WHEEL CENTER HOLE | 1/2" | 5/8" | 3/4" | 7/8" | 1" | 1-1/4" |
|----------------|-------------------|------|------|------|------|----|--------|
| 5", 6", 7"     | 1"                | •    | •    | •    | •    |    |        |
| 8"             | 1"                |      | •    | •    | •    |    |        |
| 10"            | 1-1/4"            |      |      | •    | •    | •  |        |
| 12" X 1"       | 1-1/4"            |      |      | •    | •    | •  |        |
| 12" X 2"       | 1-1/4"            |      |      |      |      | •  |        |
| 12"            | 1-1/2"            |      |      |      |      | •  | •      |
| 14"            | 1-1/2"            |      |      |      |      | •  | •      |

THESE SIZE BUSHINGS SHIPPED FREE OF CHARGE WITH YOUR WHEEL ORDER.

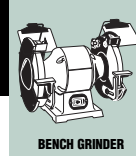
## TECHtips

- All bench and pedestal wheels must be dressed to prevent loading. Loading can cause excessive heat, damage to the workpiece and wheel breakage. Dressing exposes new cutting edges and provides chip clearance.
- Do not grind wood, plastic or any other non-metallic material on a bench or pedestal grinder.
- Unsecured machines can move, causing grinding breakage and injury. Fixed-Base bench and pedestal grinders **MUST** be secured.



It is the user's responsibility to refer to and comply with ANSI B7.1

# BENCH AND PEDESTAL WHEELS



BENCH GRINDER



PEDESTAL GRINDER

## Aluminum Oxide Bench and Pedestal Wheels for Steel Applications



**BEST  
PREMIUM WT ALUNDUM**



**BETTER  
57A**

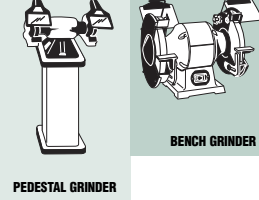


**GOOD  
GEMINI ALUNDUM**

| SIZE<br>D X T X H       | MAX.<br>RPM | MIN./<br>STD.<br>PKG. | SPEC                                   | UPC NO.                                   | SPEC   | UPC NO.  | STD.<br>PKG.  | SPEC.  | UPC. NO.   |
|-------------------------|-------------|-----------------------|--|---|--|--|---------------|--|--|
| <b>TYPE 01 STRAIGHT</b> |             |                       |  |   |  |  |               |  |  |
| 5 x 1/2 x 1             | 4,965       |                       |  |   |  |  | 1             | Medium 60/80   | 66252830649  |
| 5 x 3/4 x 1             | 4,965       |                       |  |   |  |  | 10<br>5<br>10 | Coarse 36<br>Medium 60<br>Fine 100                             | 07660788215<br>07660788210<br>07660788205                |
| 5 x 1 x 1               | 4,965       |                       |  |   |  |  | 10<br>10      | Coarse 36<br>Medium 60   | 07660788230<br>07660788225                               |
| 6 x 1/2 x 1             | 4,140       |                       |  |   |  |  |               | Coarse 36/46<br>Medium 60/80<br>Fine 100/120                   | 66252836132<br>66252836131<br>66252836133                |
| 6 x 3/4 x 1             | 4,140       | 1/10                  | Medium 60<br>Fine 100<br>Very Fine 150 | 07660788246<br>07660788247<br>07660788248 |  |  | 1             | Coarse 36/46<br>Medium 60/80<br>Fine 100/120                   | 66252837103<br>66252837102<br>66252837101                |
| 6 x 1 x 1               | 4,140       | 1/10                  | Medium 60<br>Fine 100<br>Very Fine 150 | 07660788261<br>07660788262<br>07660788263 |  |  | 1             | Coarse 36/46<br>Medium 60/80<br>Fine 100/120                   | 66252837958<br>66252837957<br>66252837100                |
| 7 x 1 x 1               | 3,600       |                       |  |   |  |  | 1             | Coarse 36/46<br>Medium 60/80<br>Fine 100/120                   | 66252942292<br>66252942294<br>66252942295                |
| 8 x 3/4 x 1             | 3,600       |                       |  |   |  |  | 1             | Coarse 36/46<br>Medium 60/80<br>Fine 100/120                   | 66253042315<br>66253042316<br>66253042317                |
| 8 x 1 x 1               | 3,600       | 1/10                  | Medium 60<br>Fine 100<br>Very Fine 150 | 07660788281<br>07660788282<br>07660788283 |  |  | 1             | Very Coarse 24<br>Coarse 36/46<br>Medium 60/80<br>Fine 100/120 | 66253044454<br>66253044449<br>66253044448<br>66253044447 |
| 10 x 1 x 1-1/4          | 2,485       | 1/1                   |  |   | 57A46-MVBE<br>57A60-MVBE                             | 66253116274<br>66253116273                               | 1             | Very Coarse 24<br>Coarse 36/46<br>Medium 60/80<br>Fine 100/120 | 66253160788<br>66253160787<br>66253160789<br>66253160350 |
| 10 x 1-1/4 x 1-1/4      | 2,485       |                       |  |   |  |  | 1             | Coarse 36/46<br>Medium 60/80                                   | 66253161250<br>66253161251                               |
| 10 x 1-1/2 x 1-1/4      | 2,485       | 1/1                   |  |   | 57A46-MVBE   | 66253116280  | 1             | Coarse 36/46<br>Medium 60/80                                   | 66253161393<br>66253161395                               |
| 12 x 1 x 1-1/4          | 2,070       | 1/1                   |  |   | 57A46-MVBE   | 66253220947  |               |  |  |
| 12 x 1-1/2 x 1-1/2      | 2,070       |                       |  |   |  |  | 1             | Coarse 36/46<br>Medium 60/80                                   | 66253263052<br>66253263053                               |
| 12 x 2 x 1-1/2          | 2,070       | 1/1                   |  |   | 57A30-MVBE<br>57A36-OVBE<br>57A46-MVBE<br>57A60-MVBE | 66253220951<br>66253220952<br>66253220953<br>66253220955 | 1             | Very Coarse 24<br>Coarse 36/46<br>Medium 60/80                 | 66253263054<br>66253263055<br>66253263056                |
| 14 x 2 x 1-1/2          | 1,800       | 1/1                   |  |   | 57A24-QVBE<br>57A36-OVBE<br>57A46-MVBE               | 66253319972<br>66253319973<br>66253319974                |               |  |  |
| 14 x 2-1/2 x 1-1/2      | 1,800       | 1/1                   |  |   | 57A24-QVBE<br>57A46-MVBE                             | 66253319976<br>66253319975                               |               |  |  |
| 14 x 3 x 1-1/2          | 1,800       | 1/1                   |  |   | 57A36-OVBE   | 66253319977  |               |  |  |

# BENCH AND PEDESTAL WHEELS

## Silicon Carbide Bench and Pedestal Wheels for Non-Steel Applications



**BETTER  
39C/37C**



**GOOD  
GEMINI CRYSTOLON**

| SIZE<br>D X T X H       | MAX.<br>RPM | STD.<br>PKG. | SPEC                   | UPC NO.                    | STD.<br>PKG. | SPEC                                   | UPC NO.                                   |
|-------------------------|-------------|--------------|------------------------|----------------------------|--------------|--|---|
| <b>TYPE 01 STRAIGHT</b> |             |              |                        |                            |              |  |   |
| 6 x 1/2 x 1             | 4,140       |              |                        |                            | 1            | Medium 60<br>Fine 80<br>Extra Fine 120 | 66252836571<br>66252836572<br>66252836573 |
| 6 x 3/4 x 1             | 4,140       |              |                        |                            | 1            | Medium 60<br>Fine 80<br>Extra Fine 120 | 66252837190<br>66252837191<br>66252837192 |
| 6 x 1 x 1               | 4,140       |              |                        |                            | 1            | Medium 60<br>Fine 80<br>Extra Fine 120 | 66252837187<br>66252837193<br>66252837194 |
| 7 x 1 x 1               | 3,600       |              |                        |                            | 1            | Medium 60<br>Fine 80<br>Extra Fine 120 | 66252942300<br>66252942301<br>66252942302 |
| 8 x 1 x 1               | 3,600       |              |                        |                            | 1            | Medium 60<br>Fine 80<br>Extra Fine 120 | 66253044087<br>66253044534<br>66253044535 |
| 10 x 1 x 1-1/4          | 2,485       | 1            | 39C60-IVK              | 66253116262                | 1            | Medium 60<br>Fine 80                   | 66253144536<br>66253160366                |
| 10 x 1-1/2 x 1-1/4      | 2,485       | 1            | 39C60-IVK              | 66253116265                |              |  |   |
| 12 x 2 x 1-1/4          | 2,070       |              |                        |                            | 1            | Medium 60<br>Fine 80                   | 66253263359<br>66253263360                |
| 12 x 2 x 1-1/2          | 2,070       | 1            | 39C60-KVK              | 66253220942                |              |  |   |
| 14 x 2 x 1-1/2          | 1,800       | 1            | 37C24-RVK<br>39C60-JVK | 66253319967<br>66253319968 |              |  |   |



### Starting Recommendation for Truing and Dressing Norton Toolroom Wheels

#### Truing and Dressing: Dressing Stick Starting Recommendations

| HIGH PERFORMANCE<br>SPEC     | UPC NO.     | CONVENTIONAL<br>SPEC | UPC NO.     |
|------------------------------|-------------|----------------------|-------------|
| 1/4 x 1/2 x 3" Norbide       | 61463610148 | 1 x 1 x 6" 37C24-SVK | 61463610462 |
| 1/4 x 1/2 x 3" Boron Carbide | 61463629472 | 1 x 1 x 8" 37C24-SVK | 61463610471 |
| Other sizes are available    |             |                      |             |

#### Dressing: Single Point Dressing Tool Starting Recommendations

| WHEEL ABRASIVE TYPE: |                     | SILICON CARBIDE |             | ALUMINUM OXIDE |             |
|----------------------|---------------------|-----------------|-------------|----------------|-------------|
| WHEEL SIZES          | TOOL SHANK DIAMETER | TOOL SPEC       | UPC NO.     | TOOL SPEC      | UPC NO.     |
| Up to 7"             | 3/8                 | BCSG2M6         | 66260157007 | BC2M6          | 66260195000 |
|                      | 7/16                | BCSG2M7         | 66260156905 | BC2M7          | 66260195001 |
| 8" to 10"            | 3/8                 | BCSG3M6         | 66260157008 | BC3M6          | 66260195002 |
|                      | 7/16                | BCSG3M7         | 66260156906 | BC3M7          | 66260195003 |
| 12" to 14"           | 3/8                 | BCSG5M6         | 66260157009 | BC5M6          | 66260195004 |
|                      | 7/16                | BCSG5M7         | 66260156907 | BC5M7          | 66260195005 |

These tools are standard recommendations; see the "Diamond Tool" section for additional tools.

# SNAGGING WHEELS, CONES AND PLUGS

## Cones and Plugs

For consistent, quality performance in foundries, welding shops, fabrication facilities, steel mills and shipyards, Norton cones and plugs maximize your productivity.

### Typical Applications

- For hard-to-reach areas inside castings
- Removing flaws and cracks
- Removing metal in corners



| <b>BEST</b> NorZon The Absolute Force Cones and Plugs   |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• High performance NorZon (zirconia alumina) abrasive</li> <li>• Advanced-technology, proprietary bond system</li> </ul> | <ul style="list-style-type: none"> <li>• Ideal for high-powered machines</li> <li>• 3 – 5X the life of standard aluminum oxide</li> <li>• Exceptional cut rate</li> <li>• Superior performance on ferrous metals and nickel alloys</li> </ul> |



| <b>BETTER</b> Charger AZ Cones and Plugs   |  |
|--|--|
| <b>FEATURES</b>  | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Zirconia alumina/aluminum oxide abrasive blend</li> </ul> | <ul style="list-style-type: none"> <li>• 2-3X life advantage over aluminum oxide with better cutting action</li> <li>• Fast accurate grinding</li> <li>• High performance products for grinding steel, steel alloys and irons</li> </ul> |



| <b>GOOD</b> Gemini Cones and Plugs  |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• 57A aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Strong performance to price relationship</li> <li>• For all steel, steel alloys and irons</li> </ul> |



## TECHtip






■ Maintain recommended air supply (pressure and volume) for highest efficiency.



It is the user's responsibility to refer to and comply with ANSI B7.1



## Cones and Plugs

| SIZE<br>D X T X H  | MAX.<br>RPM | STD.<br>PKG. | BEST<br>NORZON TAF |             | BETTER<br>CHARGER |                            | GOOD<br>GEMINI |             |
|--|-------------|--------------|--------------------|-------------|-------------------|----------------------------|----------------|-------------|
|  |             |              | SPEC               | UPC NO.     | SPEC              | UPC NO.                    | SPEC           | UPC NO.     |
| <b>TYPE 16 CONES</b>                |             |              |                    |             |                   |                            |                |             |
| 1 X 3 X 3/8-24<br>(ME 107019)  | 36,290      | 10           |                    |             |                   |                            | 57A24-R        | 61463622342 |
| 1-1/2 X 2-1/2 X 3/8-24<br>(ME 44436)   | 24,190      | 10           |                    |             |                   |                            | 57A24-R        | 61463622349 |
| 1-1/2 X 3 X 3/8-24<br>(ME 139029)  | 24,190      | 10           |                    |             | AZ24-R            | 61463614587                |                |             |
| 1-1/2 X 3 X 5/8-11<br>(ME 70535)   | 24,190      | 10           | NZ TAF             | 61463644231 | AZ20-R            | 61463614588                | 57A24-R        | 61463622190 |
| 1-3/4 X 3 X 3/8-24<br>(ME49226)  | 20,735      | 10           |                    |             |                   |                            | 57A24-R        | 61463614503 |
| 1-3/4 X 3 X 5/8-11<br>(ME 33432)   | 20,740      | 10           |                    |             |                   |                            | 57A24-R        | 61463622195 |
| 2 X 3 X 5/8-11<br>(ME 28229)   | 18,145      | 10           | NZ TAF             | 61463644232 | AZ20-R            | 61463614604                | 57A24-R        | 61463622218 |
| 2-3/4 x 3-1/2 x 5/8-11<br>(ME 18265)   | 13,195      | 10           |                    |             | AZ16-R            | 61463614599                | 57A24-R        | 61463622387 |
| <b>TYPE 17 CONES, SQUARE TIP</b>    |             |              |                    |             |                   |                            |                |             |
| 1-1/2 / 1/2 X 3 X 3/8-24   | 24,190      | 10           |                    |             |                   |                            | 57A24-R        | 61463622194 |
| 2 / 1/2 x 3 x 5/8-11   | 18,145      | 10           |                    |             |                   |                            | 57A24-R        | 61463615722 |
| <b>TYPE 17R CONES, ROUND TIP</b>   |             |              |                    |             |                   |                            |                |             |
| 2 / 3/4 x 3 x 5/8-11<br>(ME 151373)  | 18,145      | 10           |                    |             | AZ20-R            | 61463615866                |                |             |
| <b>TYPE 18 PLUGS, SQUARE TIP</b>  |             |              |                    |             |                   |                            |                |             |
| 1-1/2 X 2-1/2 X 3/8-24   | 24,190      | 10           |                    |             |                   |                            | 57A24-R        | 61463622217 |
| 1-1/2 X 2-1/2 X 5/8-11   | 24,190      | 10           | NZ TAF             | 61463644224 | AZ20-R            | 61463644256                | 57A24-R        | 61463622351 |
| 1-1/2 X 3 X 5/8-11   | 24,190      | 10           |                    |             | AZ20-R            | 61463644257                | 57A24-R        | 61463622191 |
| 2 X 3 X 5/8-11   | 18,145      | 10           | NZ TAF             | 61463644234 | AZ20-R<br>AZ24-R  | 61463614601<br>61463614595 | 57A24-R        | 61463622219 |
| 2 x 4 x 5/8-11   | 18,145      | 10           |                    |             |                   |                            | 57A24-R        | 61463622366 |
| <b>TYPE 18R PLUGS, ROUND TIP</b>  |             |              |                    |             |                   |                            |                |             |
| 1-1/2 X 3 X 3/8-24   | 24,190      | 10           |                    |             |                   |                            | 57A24-R        | 61463622192 |
| 2 x 3 x 5/8-11   | 18,145      | 10           |                    |             | AZ20-R            | 61463644259                | 57A24-R        | 61463622220 |

**GOOD**

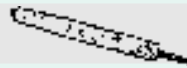
SIZE: T X W X L

STD PKG

SPEC

UPC NO.

### STOCK RESINOID CORE FILES – SILICON CARBIDE



1/2 X 1 X 10  
(ME21427)

5

37C24-SB

61463610314

# PORTABLE SNAGGING WHEELS

## Portable Snagging Wheels – Straight and Cup

For consistent, quality performance in foundries, welding shops, fabrication facilities, steel mills and shipyards, Norton snagging wheels maximize your productivity.

### Typical Applications

- Removing flaws and cracks
- Removing gates, risers and parting lines
- Smoothing weld seams
- Cleaning castings
- Rough beveling
- Preparing surfaces for plating or painting



| <b>BEST</b> NorZon III and NorZon IV Wheels – Highest performance zirconia alumina grain |   |
|--|---|
| FEATURES   | BENEFITS  |
| • NZ III – 4NZ and NZC   | • Engineered for high-powered machines<br>• Exceptional wheel life and cut                |
| • NZ IV – 4NZ and NZC  | • Developed for medium- to high-powered machines<br>• Outstanding cut rate and wheel life |
| • NZC – zirconia alumina and silicon carbide blend                                       | • Ideal for dirty, scale-covered castings   |



| <b>BETTER</b> Charger Snagging Wheels – Aggressive zirconia alumina grain |   |
|---|---|
| FEATURES  | BENEFITS  |
| • Fully reinforced straight wheels  | • Improved strength for all ferrous metals and metal alloys                                 |
| • 4NZ – zirconia alumina abrasive   | • Fast, smooth grinding<br>• Up to 5X the life of aluminum oxide with better cutting action |
| • NZC – zirconia alumina/silicon carbide abrasive blend                   | • Use on dirty, scale-covered castings<br>• Strong performance to price ratio               |



| <b>GOOD</b> Gemini 57A, 57AC Snagging Wheels – Versatile aluminum oxide grain |  |
|---|--|
| FEATURES  | BENEFITS                                       |
| • Fully reinforced straight wheels  | • Improved operator safety                     |
| • 57A – aluminum oxide  | • For steel, steel alloys and irons            |
| • 57AC – aluminum oxide/silicon carbide blend                                 | • For dirty, scale-covered steel or iron parts |



### Portable Straight and Cup Wheel Starting Recommendations by Material

| CASTING TYPE                 |  | BEST                    | BETTER           | GOOD              |
|------------------------------|--|-------------------------|------------------|-------------------|
| Iron                         | Gray<br>Ductile/Malleable<br>Dirty/Scale-covered | NZ III 4NZ1434-RBX348   | CHARGER 4NZ14-RS | 57A16-Q Gemini    |
|                              |  | NZ III 4NZ1434-RBX348   | CHARGER 4NZ14-RS | 57A16-Q Gemini    |
|                              |  | NZ IV NZC14-QS          | CHARGER NZC16-QS | 57AC16-Q Gemini   |
|                              |  | NZ III NZC1624-Q5BSX348 |                  |                   |
| Steel                        | Carbon and Low Alloy                             | NZ IV 4NZ16-Q           | CHARGER 4NZ16-QS | 57A16-Q Gemini    |
|                              |  | NZ III 4NZ1634-Q5BX348  |                  |                   |
| Aluminum Alloy               | Stainless and High Alloy                         | NZ IV 4NZ16-P           | CHARGER 4NZ16-QS | 57A16-Q Gemini    |
|                              |  | NZ III NZC1624-Q5BX348  | NZC16-Q          | 57AC16-Q, 37C16-P |
| Copper Alloys, Brass, Bronze |  | NZ III NZC1624-Q5BX348  | NZC16-Q          |                   |

NOTE: GRADE, GRIT AND ABRASIVE TUNING MAY BE NECESSARY TO OBTAIN OPTIMUM PERFORMANCE

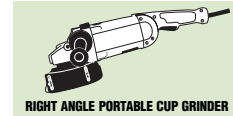
# PORTABLE SNAGGING WHEELS

## Portable Snagging Wheels – Straight



| SIZE<br>D X T X H       | MAX.<br>RPM | STD.<br>PKG. | BEST<br>NORZON    |             | BETTER<br>CHARGER  |             | GOOD            |             |
|-------------------------|-------------|--------------|-------------------|-------------|--------------------|-------------|-----------------|-------------|
|                         |             |              | SPEC              | UPC NO.     | SPEC               | UPC NO.     | SPEC            | UPC NO.     |
| <b>TYPE 01 STRAIGHT</b> |             |              |                   |             |                    |             |                 |             |
| 2-1/2 x 1/2 x 3/8       | 21,700      | 10           |                   |             |                    |             | 57A24-RBRA      | 66243522381 |
| 3 x 1/4 x 3/8           | 20,370      | 10           |                   |             | Charger 4NZ20-TBRA | 66243509999 | 57A24-TBRA      | 66243528831 |
| 3 x 3/8 x 3/8           | 18,080      | 10           |                   |             |                    |             | 57A24-RBRA      | 66243522415 |
| 3 x 1/2 x 3/8           | 18,080      | 10           |                   |             |                    |             | 57A24-PBRA      | 66243522417 |
| 4 x 1/4 x 3/8           | 15,280      | 10           |                   |             | Charger 4NZ20-TBRA | 66243510000 | 57A24-RBRA      | 66243522221 |
| 6 x 1 x 5/8<br>S Webs   | 8,000       | 5            | NZ III            | 66252838075 |                    |             |                 |             |
|                         |             |              | 4NZ1434-Q5BSX348  | 66252837961 |                    |             |                 |             |
|                         |             |              | NZ III            | 66252837965 |                    |             |                 |             |
|                         |             |              | 4NZ1434-R5BSX348  | 66252837965 |                    |             |                 |             |
|                         |             | 10           | NZC1624-Q5BSX348  |             | Charger 4NZ14-RS   | 66252809564 | Gemini 57A16-QS | 66252809563 |
| 8 x 3/4 x 5/8<br>S Webs | 6,000       | 10           |                   |             | Charger 4NZ14-RS   | 66253006674 |                 |             |
| 8 x 1 x 5/8<br>S Webs   | 6,000       | 5            | NZ IV 4NZ16-QS    | 66253030778 |                    |             |                 |             |
|                         |             |              | NZ III 4NZ1634-QS | 66253044532 |                    |             |                 |             |
|                         |             |              | NZ IV NZC14-QS    | 66253030782 |                    |             |                 |             |
|                         |             | 10           |                   |             | Charger 4NZ14-RS   | 66253006672 |                 |             |
|                         |             |              |                   |             | Charger 4NZ14-TS   | 66253006673 |                 |             |
|                         |             |              |                   |             | Charger 4NZ16-QS   | 66253006670 |                 |             |
|                         |             |              |                   |             | Charger NZC16-QS   | 66253006671 |                 |             |

## Portable Snagging Wheels – Cup



| SIZE<br>D X T X H   | MAX.<br>RPM | STD.<br>PKG. | BEST<br>NORZON            |             | BETTER<br>CHARGER |             | GOOD<br>GEMINI  |             |
|---|-------------|--------------|---------------------------|-------------|-------------------|-------------|-----------------|-------------|
|   |             |              | SPEC                      | UPC NO.     | SPEC              | UPC NO.     | SPEC            | UPC NO.     |
| <b>TYPE 06 STRAIGHT CUP</b>   |             |              |                           |             |                   |             |                 |             |
| 6 x 2 x 5/8-11<br>Rim 2" Back 3/4"<br>Steel Back<br>(ME 22293)          | 6,000       | 5            | NZ III<br>4NZ1634-R5BX348 | 66252838577 |                   |             |                 |             |
| <b>TYPE 11 FLARING CUP</b>  |             |              |                           |             |                   |             |                 |             |
| 4/3 x 2 x 5/8-11<br>Rim 3/4" Back 3/4"<br>(ME 48976)                    | 9,070       | 10           | NZ IV 4NZ16-Q             | 66243530761 | Charger 4NZ16-Q   | 66243509998 | Gemini 57A16-Q  | 66243510512 |
| 4/3 x 2 x 5/8-11<br>Rim 3/4" Back 3/4"<br>(ME102535) Steel Back         | 9,070       | 10           |                           |             | Charger 4NZ16-Q   | 66243527807 |                 |             |
| 5/3-3/4 x 2 x 5/8-11<br>Rim 1" Back 3/4"<br>(ME 49857)                  | 7,260       | 10           |                           |             | Charger 4NZ16-Q   | 66252809208 | Gemini 57A16-Q  | 66252809598 |
| 5/3-13/16 x 2 x 5/8-11<br>Rim 1" Back 3/4"<br>(ME76472) Steel Back      | 7,260       | 10           |                           |             | Charger 4NZ16-Q   | 66252823518 |                 |             |
| 6/4-3/4 x 2 x 5/8-11<br>Rim 1" Back 3/4"<br>(ME22100)                   | 6,000       | 5            | NZ III                    | 66252838568 | Charger 4NZ16-P   | 66252825197 | Gemini 57A16-Q  | 66252825201 |
|   |             |              | 4NZ1634-Q5BX348           | 66252838566 |                   |             |                 |             |
|   |             |              | 4NZ1634-R5BX348           |             |                   |             |                 |             |
| 6/4-3/4 x 2 x 5/8-11<br>Rim 1-1/2" Back 3/4"<br>(ME 24180)              | 6,000       | 5            | NZ IV 4NZ16-P             | 66252830765 | Charger 4NZ14-R   | 66252809211 | Gemini 37C16-P  | 66252809609 |
|   |             |              |                           |             | Charger 4NZ16-Q   | 66252809209 | Gemini 57A16-Q  | 66252809618 |
|   |             |              |                           |             | Charger NZC16-Q   | 66252809210 | Gemini 57AC16-Q | 66252809608 |
| 6/4-13/16 x 2 x 5/8-11<br>Rim 1-1/2" Back 3/4"<br>(ME 71438) Steel Back | 6,000       | 5            |                           |             | Charger 4NZ14-R   | 66252809213 | Gemini 57A16-Q  | 66252809599 |
|   |             |              |                           |             | Charger 4NZ16-Q   | 66252809212 | Gemini 57AC16-Q | 66252809600 |
|   |             |              |                           |             | Charger NZC16-Q   | 66252825195 |                 |             |



# FLOORSTAND AND SWINGFRAME SNAGGING WHEELS

## Floorstand and Swingframe Wheels

For consistent, quality performance in foundries, welding shops, fabrication facilities, steel mills and shipyards, Norton snagging wheels maximize your productivity.



SNAGGING WHEELS, CONES AND PLUGS

### Typical Applications

- Removing unwanted metal on castings
- Removing flaws and cracks
- Removing gates, risers and parting lines

| <b>BEST</b> 4ZF, 4NZ and NZC Wheels – Premium zirconia alumina abrasives; proprietary bonds |  |
|---|--|
| FEATURES  | BENEFITS   |
| • 4ZF   | • Engineered for high-pressure, heavy-duty, snagging operations<br>• Exceptional wheel life                                |
| • 4NZ   | • Developed for low- to medium-pressure operations<br>• Exceptionally high cut rate<br>• The most operator-friendly wheels |
| • NZC – zirconia alumina and silicon carbide blend  | • Ideal for dirty, scale-covered castings  |

| <b>BETTER</b> Charger Wheels – Strong performance to price ratio |                               |
|--|-------------------------------|
| FEATURES   | BENEFITS                      |
| • Strong zirconia alumina abrasive                               | • Very good cut rate and life |

| <b>GOOD</b> 5ZF and Gemini Wheels – Versatile  |  |
|--|--|
| FEATURES                                       | BENEFITS   |
| • Gemini: Versatile aluminum oxide formulation | • Works well with a variety of machines, horsepower and operations |
| • Competitively priced                         | • The choice for initial-price-conscious end-users                 |
| • 5ZF: Zirconia alumina                        | • Ideal for lower horsepower or low-pressure applications          |

| SIZE<br>D X T X H  | MAX.<br>RPM | STD.<br>PKG.                | BEST<br>NORZON  |  | BETTER<br>CHARGER                     |                            | GOOD                                     |  |
|--|-------------|-----------------------------|---|--|---------------------------------------|----------------------------|--|--|
|  |             |                             | SPEC  | UPC NO.  | SPEC                                  | UPC NO.                    | SPEC                                     | UPC NO.                                    |
| <b>TYPE 01 STRAIGHT</b>                                    |             |                             |   |  |                                       |                            |  |  |
| 24 x 3 x 12<br>HS Steel Rings with<br>Fine Centers, S Webs | 1,990       | 1<br>10<br>1                | 4ZF1234-R5B38S  | 69083166310  |                                       |                            | 5ZF14-QS<br>5ZF14-QS<br>Gemini All Purp. | 69083166858<br>69083123732*<br>69083167173 |
| 30 x 2 x 12<br>HS Steel Rings with<br>Fine Centers, S Webs | 1,595       | 1<br>1<br>1<br>10<br>1<br>1 | 4NZ1434-R5B38S<br>4NZ1634-Q5B38S<br>4ZF1434-Q5B38S<br>4ZF1434-R5B38S<br>4ZF1434-R5B38S<br>4ZF1634-Q5B38S<br>NZC142-R5B38S | 69210421413<br>69210421412<br>69210466456<br>69210466458<br>69210419707*<br>69210466460<br>69210421414 | Charger Free Cut<br>Charger Long Life | 69210421417<br>69210421418 | 5ZF14-R<br>Gemini All Purp.              | 69210467105<br>69210417463                 |

\* PACKAGED 10 WHEELS PER PALLET. MUST BE ORDERED IN MULTIPLES OF 10.  
FOR YOUR SAFETY: ALL FLOORSTAND AND SWINGFRAME WHEELS HAVE STRONG FINE CENTERS, STEEL RINGS AND HIGH STRENGTH FIBERGLASS REINFORCEMENT CONSTRUCTION.



## Floorstand Snagging Wheel Starting Recommendations by Material

| CASTING TYPE   | BEST                             | BETTER                                 | GOOD                                     |
|--|----------------------------------|--|--|
| Iron Gray<br>Ductile/ Malleable                        | 4ZF1434-R5B38S<br>4ZF1434-Q5B38S | Charger Long Life<br>Charger Long Life | Gemini All Purpose<br>Gemini All Purpose |
| Steel Carbon and Low Alloy<br>Stainless and High Alloy | 4NZ1434-R5B38S<br>4NZ1634-Q5B38S | Charger Free Cut<br>Charger Free Cut   | Gemini All Purpose<br>Gemini All Purpose |

NOTE: GRADE, GRIT AND ABRASIVE TUNING MAY BE NECESSARY TO OBTAIN OPTIMUM PERFORMANCE

## Swingframe Wheel Starting Recommendations by Material

| CASTING TYPE   | BEST                             | GOOD                                     |
|--|----------------------------------|--|
| Iron Gray<br>Ductile/ Malleable                        | 4ZF1234-R5B38S<br>4ZF1234-R5B38S | Gemini All Purpose<br>Gemini All Purpose |
| Steel Carbon and Low Alloy<br>Stainless and High Alloy | 4ZF1434-R5B38S                   | Gemini All Purpose<br>Gemini All Purpose |
| Aluminum Alloy   | NZC142-R5B38S                    |  |
| Copper Alloys, Brass, Bronze                           | NZC142-R5B38S                    |  |

NOTE: GRADE, GRIT AND ABRASIVE TUNING MAY BE NECESSARY TO OBTAIN OPTIMUM PERFORMANCE

## Troubleshooting Guide

| PROBLEM                                     | POSSIBLE CAUSE  | SUGGESTED CORRECTION  |
|---|---|---|
| Poor stock removal                          | Insufficient pressure applied<br>Wheel too coarse or hard<br>Inadequate abrasive                    | Increase pressure to use all available power<br>Use finer grit and/or softer grade wheel<br>Try NorZon or 4ZF specification |
| Grinding costs too high                     | Wheel acting too soft<br>Low performance specification  | Use harder and/or coarser wheel<br>Try NorZon products  |
| Wheel loading or glazing                    | Grade too hard<br>Grit too coarse<br>Dirty, scale-covered parts                                     | Try softer grade<br>Try finer grit<br>Try NZC wheels  |
| Wheels "dusty"                              | Wheel too soft  | Try harder grade  |
| Wheel doesn't hold corner or wheel spalling | Wheel too coarse<br>Wheel too soft  | Use finer grit and/or 2 grit combination<br>Use harder grade  |
| Burning the workpiece                       | Wheel too hard<br>Wheel glazed or loaded<br>Grinding pressure too low<br>Grinding pressure too high | Use softer grade<br>Dress the wheel face<br>Increase grinding force<br>Reduce grinding force                                |
| Surface finish too rough                    | Wheel too coarse<br>Wheel speed too slow<br>Worn machine bearings                                   | Try finer grit<br>Try higher speed machine (Do not exceed max. operating speed of wheel)<br>Rebuild machine                 |
| Vibration                                   | Wheel worn out of round<br>Faulty flanges<br>Bent machine spindle<br>Worn machine bearings          | Try truing the wheel<br>Check flanges for flatness and burrs (see ANSI B7.1)<br>Check spindle run-out<br>Rebuild machine    |
| Wheel stalls or slows                       | Grinding force too high<br>Wheel too hard<br>Machine power too low                                  | Reduce pressure or contact area<br>Use softer grade wheel<br>Replace machine with higher power grinder                      |

## TECHtips

- Always ensure proper mounting of floorstand and swingframe wheels by mounting with arrow down as marked on wheel.
- Always use safety guard.
- Always run wheel for 1 minute before grinding.
- For optimum performance, ensure adequate air pressure and air volume when using pneumatic machines.

- Use constant surface foot per minute machines for highest efficiency.
- Do not overdress the wheel face.
- Avoid loading or glazing by changing the contact angle.
- Use pressure assist whenever possible to obtain maximum cut rate.



It is the user's responsibility to refer to and comply with ANSI B7.1

# MOUNTED POINTS



DIE GRINDER

STRAIGHT SHAFT GRINDER

Resin bond, vitrified bond, center lap, and BF3 cotton fiber mounted wheels are available in a wide range of shapes.

## Typical Applications

### BF3 Cotton Fiber Mounted Points

- Blending and polishing

### Resin Bond Mounted Points

- Removing parting lines, fins and small risers from castings
- Smoothing and blending of welded areas

### Center Lap Mounted Points

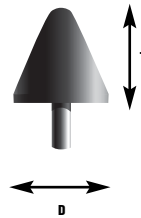
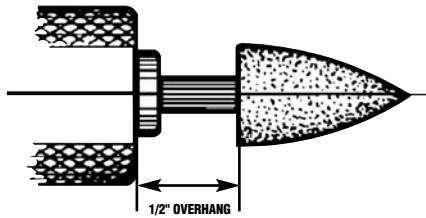
- For use on Ex-Cello Center Lap and similar machines
- Produce accurate centers, precisely angled, truly conical, and free from ridges for cylindrical grinding

### Vitrified Bond Mounted Points

- Blending contours
- Deburring molded parts and mold finishing
- ID grinding
- Offhand bench grinding
- Tool and die



## Measurements for Mounted Points



### Description of Overhang

Overhang is the distance between the grinder chuck and the abrasive on the spindle. The larger the overhang, the lower the maximum safe operating speed.

### Size

Measured by diameter (D) x thickness (T)

## BF3 Cotton Fiber Mounted Points

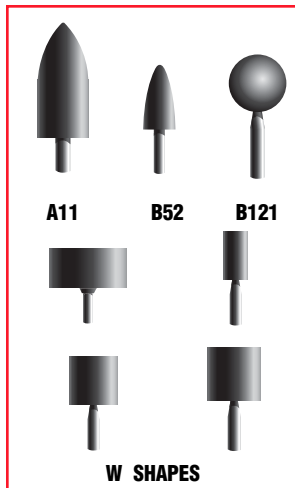
### BEST BF3 Cotton Fiber Mounted Points – For blending and polishing

#### FEATURES

- 80 grit
- 120 grit

#### BENEFITS

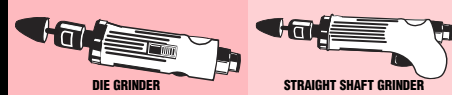
- For most materials
- For polishing and stainless steel applications



| SHAPE | SIZE<br>D X T | SPINDLE† | MAX.<br>RPM* | MIN./STD.<br>PKG. | BEST                  |                            |
|-------|---------------|----------|--------------|-------------------|-----------------------|----------------------------|
|       |               |          |              |                   | SPEC                  | UPC NO.                    |
| A11   | 7/8 x 2       | 1/4      | 25,420       | 25/25             | A80-HBF3              | 61463622664                |
| B52   | 3/8 x 3/4     | 1/8      | 64,810       | 25/25             | A120-HBF3             | 61463620242                |
| B121  | 1/2" Ball     | 1/8      | 62,420       | 25/25             | A80-HBF3              | 61463622657                |
| W163  | 1/4 x 1/2     | 1/8      | 59,990       | 25/25             | A80-HBF3<br>A120-HBF3 | 61463622655<br>61463622656 |
| W176  | 3/8 x 1/2     | 1/8      | 50,460       | 25/25             | A80-HBF3              | 61463622654                |
| W185  | 1/2 x 1/2     | 1/8      | 42,750       | 25/25             | A80-HBF3              | 61463622649                |
| W187  | 1/2 x 1       | 1/8      | 22,630       | 25/25             | A80-HBF3              | 61463622651                |
| W220  | 1 x 1         | 1/4      | 30,370       | 25/25             | A80-HBF3              | 61463622646                |

† SHANK LENGTH IS 1-1/2".

\* MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG.



## Resin Bond Mounted Points

A broad stock offering of premium quality mounted points for your metal fabricating and foundry applications.

### BEST NZ – NorZon (Zirconia Alumina) – Mounted Points

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>NZ – zirconia alumina (NorZon) self-sharpening abrasive and durable organic bond</li> </ul> | <ul style="list-style-type: none"> <li>4X faster stock removal than competitive aluminum oxide products</li> <li>Longest lasting</li> </ul> |

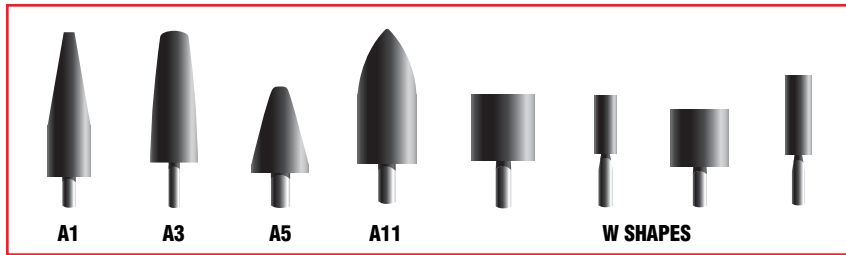
**5**  
minimum quantity



### BETTER Charger Mounted Points

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>NorZon (zirconia alumina) self-sharpening 30 grit abrasive</li> </ul> | <ul style="list-style-type: none"> <li>35% faster cut rate than standard aluminum oxide</li> <li>An aggressive, free cut</li> <li>More parts cleaned in less time to substantially increase productivity</li> </ul> |
| <ul style="list-style-type: none"> <li>Specially formulated organic bond</li> </ul>                          | <ul style="list-style-type: none"> <li>5X greater life than ordinary aluminum oxide</li> <li>Reduces vibration and wheel chatter</li> </ul>   |

**5**  
minimum quantity



## TECHtips

- Use "A" shapes for medium- to heavy-duty blending
- Use "W" shapes for offhand and precision grinding of medium to heavy stock

| SHAPE | SIZE<br>D X T | SPINDLE† | MAX.<br>RPM* | MIN./STD.<br>PKG. | BEST<br>NORZON |             | BETTER<br>CHARGER |             |
|-------|---------------|----------|--------------|-------------------|----------------|-------------|-------------------|-------------|
|       |               |          |              |                   | SPEC           | UPC NO.     | SPEC              | UPC NO.     |
| A1    | 3/4 x 2-1/2   | 1/4      | 20,960       | 5/25              | NZ24-UBXR1     | 61463616457 | Charger           | 61463616458 |
| A3    | 1 x 2-3/4     | 1/4      | 15,530       | 5/25              | NZ24-UBXR1     | 61463616459 | Charger           | 61463616460 |
| A5    | 3/4 x 1-1/8   | 1/4      | 38,550       | 5/25              |                |             | Charger           | 61463616462 |
| A11   | 7/8 x 2       | 1/4      | 25,420       | 5/25              | NZ24-UBXR1     | 61463616463 | Charger           | 61463616464 |
| W189  | 1/2 x 2       | 1/4      | 26,830       | 5/25              | NZ24-UBXR1     | 61463616465 | Charger           | 61463616466 |
| W197  | 5/8 x 2       | 1/4      | 24,550       | 5/25              | NZ24-UBXR1     | 61463616467 |                   |             |
| W207  | 3/4 x 1-1/2   | 1/4      | 27,070       | 5/25              |                |             | Charger           | 61463616470 |
| W208  | 3/4 x 2       | 1/4      | 22,830       | 5/25              | NZ24-UBXR1     | 61463616471 | Charger           | 61463616472 |
| W220  | 1 x 1         | 1/4      | 30,370       | 5/25              | NZ24-UBXR1     | 61463617520 | Charger           | 61463617521 |
| W221  | 1 x 1-1/2     | 1/4      | 24,490       | 5/25              | NZ24-UBXR1     | 61463616473 | Charger           | 61463616474 |
| W222  | 1 x 2         | 1/4      | 20,250       | 5/25              | NZ24-UBXR1     | 61463616475 | Charger           | 61463616476 |

† THE STANDARD SHANK LENGTH IS 1-1/2"

\* MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG

## Center Lap Mounted Points

### BETTER Center Lap Mounted Points

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Specially formulated wheel treatment (#5 wood resin)</li> </ul> | <ul style="list-style-type: none"> <li>Adds lubricity to the wheel, minimizing risk of metallurgical damage</li> </ul> |
| <ul style="list-style-type: none"> <li>Larger diameter spindle</li> </ul>                              | <ul style="list-style-type: none"> <li>Minimum deflection, rigid support</li> </ul>                                    |
| <ul style="list-style-type: none"> <li>Precise dimensional tolerances</li> </ul>                       | <ul style="list-style-type: none"> <li>Ensure accurate location of part centers</li> </ul>                             |

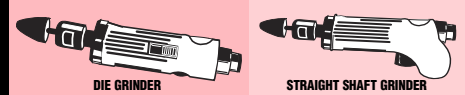
**5**  
minimum quantity



| SIZE<br>D X T | SPINDLE† | MAX.<br>RPM* | MIN./STD.<br>PKG. | BETTER  |             |
|---------------|----------|--------------|-------------------|---------|-------------|
|               |          |              |                   | SPEC    | UPC NO.     |
| 1/2 x 2**     | 1/2      | 65,000       | 5/25              | A80-VVM | 61463621421 |
| 1 x 2**       | 1/2      | 15,900       | 5/25              | A80-VVM | 61463622926 |

\*\* POINTED 60°; † SHANK LENGTH IS 1-1/4"; \* MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG.

■ Dress the center lap mounted points frequently to ensure accurate and smooth center holes.



DIE GRINDER

STRAIGHT SHAFT GRINDER

## Vitrified Bond Mounted Points

High quality, pre-engineered vitrified mounted points available in a full range of standard shapes and spindles.

### BEST Norton Quantum (NQ) Mounted Points

#### FEATURES

- Unique, engineered ceramic grain shape and chemistry with proven bond technology

#### BENEFITS

- Ideal for high-volume foundry operations – grinding Inconel and similar alloy turbine blade components
- Minimal loading and heat build-up
- 33% + longer life vs. competitive ceramic products
- 30% + higher metal removal rates
- Versatile, optimized for all low, medium and high force applications
- Exceptional productivity and life



### GOOD Pacesetter Mounted Points

#### FEATURES

- 38A abrasive
- Diverse shapes and sizes

#### BENEFITS

- Cool cutting, less burn
- Ideal when initial price is the main consideration
- Great choice for small job shops

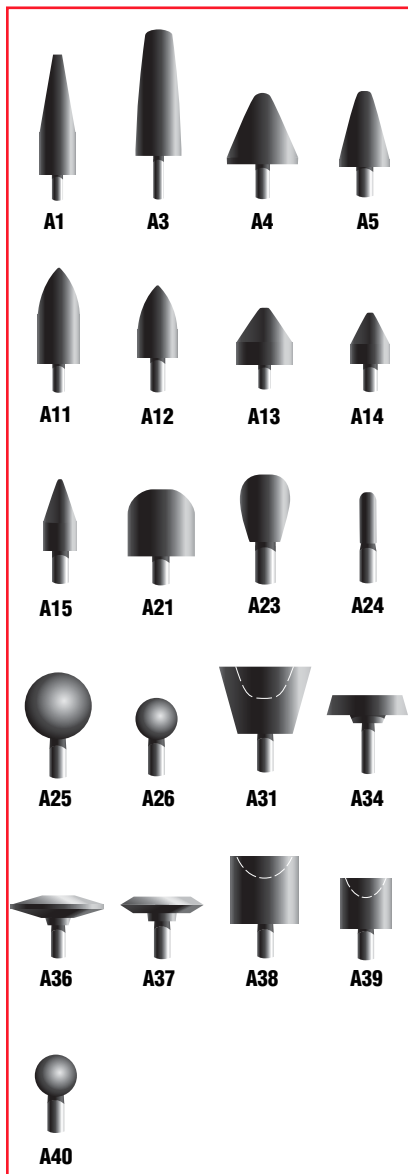


## Vitrified Bond Mounted Points – A Shapes



BEST  
QUANTUM

GOOD  
PACESETTER



| SHAPE | SIZE<br>D X T | SPINDLE<br>† | MAX.<br>RPM* | MIN/<br>STD.<br>PKG. | SPEC      | UPC NO.     | SPEC    | UPC NO.     |
|-------|---------------|--------------|--------------|----------------------|-----------|-------------|---------|-------------|
| A1    | 3/4 x 2-1/2   | 1/4          | 20,960       | 5/25                 | 3NQ80-OVS | 69083149139 | 38A36-T | 61463624374 |
| A1    | 3/4 x 2-1/2   | 1/4          | 20,960       | 5/25                 |           |             | 38A60-P | 61463624375 |
| A3    | 1 x 2-3/4     | 1/4          | 15,530       | 5/25                 |           |             | 38A36-T | 61463624377 |
| A3    | 1 x 2-3/4     | 1/4          | 15,530       | 5/25                 |           |             | 38A60-P | 61463624378 |
| A4    | 1-1/4 x 1-1/4 | 1/4          | 28,550       | 5/25                 |           |             | 38A60-P | 61463624380 |
| A5    | 3/4 x 1-1/8   | 1/4          | 38,550       | 5/25                 | 3NQ80-OVS | 69083149140 | 38A36-T | 61463624381 |
| A5    | 3/4 x 1-1/8   | 1/4          | 38,550       | 5/25                 |           |             | 38A60-P | 61463624382 |
| A11   | 7/8 x 2       | 1/4          | 25,420       | 5/25                 | 3NQ80-OVS | 69083149141 | 38A36-T | 61463624384 |
| A11   | 7/8 x 2       | 1/4          | 25,420       | 5/25                 |           |             | 38A60-P | 61463624385 |
| A12   | 11/16 x 1-1/4 | 1/4          | 38,050       | 5/25                 |           |             | 38A36-T | 61463624387 |
| A12   | 11/16 x 1-1/4 | 1/4          | 38,050       | 5/25                 |           |             | 38A60-P | 61463624388 |
| A13   | 1-1/8 x 1-1/8 | 1/4          | 31,850       | 5/25                 |           |             | 38A60-P | 61463624389 |
| A14   | 11/16 x 7/8   | 1/4          | 43,440       | 5/25                 |           |             | 38A60-P | 61463624390 |
| A15   | 1/4 x 1-1/16  | 1/4          | 50,510       | 5/25                 |           |             | 38A60-P | 61463624391 |
| A21   | 1 x 1         | 1/4          | 35,510       | 5/25                 | 3NQ80-OVS | 69083149144 | 38A60-P | 61463624392 |
| A23   | 3/4 x 1       | 1/4          | 40,300       | 5/25                 | 3NQ80-OVS | 69083149143 | 38A60-P | 61463624394 |
| A24   | 1/4 x 3/4     | 1/4          | 56,000       | 5/25                 |           |             | 38A60-P | 61463624395 |
| A25   | 1" Ball       | 1/4          | 35,510       | 5/25                 |           |             | 38A60-P | 61463624396 |
| A26   | 5/8" Ball     | 1/4          | 48,980       | 5/25                 | 3NQ80-OVS | 69083149145 | 38A60-P | 61463624397 |
| A31   | 1-3/8 x 1     | 1/4          | 27,780       | 5/25                 |           |             | 38A60-P | 61463624399 |
| A34   | 1-1/2 x 3/8   | 1/4          | 25,460       | 5/25                 |           |             | 38A60-P | 61463624402 |
| A36   | 1-5/8 x 3/8   | 1/4          | 23,510       | 5/25                 | 3NQ80-OVS | 69083149146 | 38A60-P | 61463624404 |
| A37   | 1-1/4 x 1/4   | 1/4          | 30,560       | 5/25                 |           |             | 38A60-P | 61463624405 |
| A38   | 1 x 1         | 1/4          | 35,510       | 5/25                 |           |             | 38A60-P | 61463624406 |
| A39   | 3/4 x 3/4     | 1/4          | 44,030       | 5/25                 | 3NQ80-OVS | 69083149147 | 38A60-P | 61463624407 |
| A40   | 3/4" Ball     | 1/4          | 44,030       | 5/25                 |           |             | 38A60-P | 61463624408 |

†STANDARD SHANK SIZE IS 1/4" X 1-1/2".

\*MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG.

Premium 3SG (ceramic seeded-gel) and 32A (monocrystalline aluminum oxide) mounted points are available as made-to-order for applications requiring maximum durability and increased productivity.



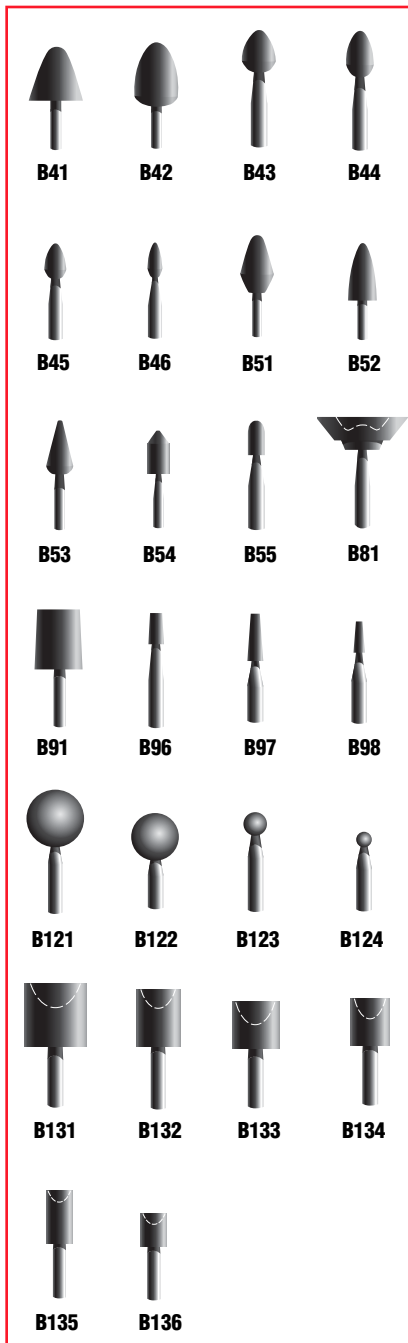


## Vitrified Bond Mounted Points – B Shapes

**5**  
minimum  
quantity

BEST  
QUANTUM

GOOD  
PACESETTER



| SHAPE | SIZE<br>D X T | SPINDLE<br>† | MAX.<br>RPM* | MIN/<br>STD.<br>PKG. | SPEC      | UPC NO.     | SPEC    | UPC NO.     |
|-------|---------------|--------------|--------------|----------------------|-----------|-------------|---------|-------------|
| B41   | 5/8 x 5/8     | 1/8          | 59,560       | 5/25                 |           |             | 38A60-P | 61463624410 |
| B42   | 1/2 X 3/4     | 1/8          | 61,320       | 5/25                 | 3NQ80-OVS | 69083149045 | 38A60-P | 61463624412 |
| B43   | 1/4 x 5/16    | 1/8          | 76,160       | 5/25                 |           |             | 38A60-P | 61463624413 |
| B44   | 7/32 x 3/8    | 1/8          | 75,840       | 5/25                 |           |             | 38A60-P | 61463624414 |
| B45   | 3/16 x 5/16   | 1/8          | 79,600       | 5/25                 |           |             | 38A60-P | 61463624415 |
| B46   | 1/8 x 5/16    | 1/8          | 83,530       | 5/25                 |           |             | 38A60-P | 61463624416 |
| B51   | 7/16 x 3/4    | 1/8          | 62,820       | 5/25                 |           |             | 38A60-P | 61463624418 |
| B52   | 3/8 x 3/4     | 1/8          | 64,810       | 5/25                 | 3NQ80-OVS | 69083149046 | 38A60-P | 61463624420 |
| B52   | 3/8 x 3/4     | 1/4          | 78,340       | 5/25                 |           |             | 38A60-P | 61463624419 |
| B52   | 3/8 x 3/4     | 1/8          | 64,810       | 5/25                 |           |             | 38A90-Q | 61463624422 |
| B53   | 5/16 x 5/8    | 1/8          | 67,070       | 5/25                 |           |             | 38A60-P | 61463624423 |
| B54   | 1/4 x 1/2     | 1/8          | 71,340       | 5/25                 |           |             | 38A60-P | 61463624424 |
| B55   | 1/8 x 1/4     | 1/8          | 85,900       | 5/25                 |           |             | 38A60-P | 61463624425 |
| B81   | 3/4 x 3/16    | 1/8          | 50,930       | 5/25                 |           |             | 38A60-P | 61463624437 |
| B91   | 1/2 x 5/8     | 1/8          | 61,110       | 5/25                 |           |             | 38A60-P | 61463624443 |
| B96   | 1/8 x 1/4     | 1/8          | 85,900       | 5/25                 |           |             | 38A60-P | 61463624448 |
| B96   | 1/8 x 1/4     | 1/8          | 85,900       | 5/25                 |           |             | 38A90-Q | 61463624449 |
| B97   | 1/8 x 3/8     | 1/8          | 81,550       | 5/25                 | 3NQ80-OVS | 69083149048 | 38A60-P | 61463624451 |
| B98   | 3/32 x 1/4    | 1/8          | 88,040       | 5/25                 |           |             | 38A60-P | 61463624452 |
| B121  | 1/2" Ball     | 1/8          | 62,420       | 5/25                 |           |             | 38A60-P | 61463624466 |
| B122  | 3/8" Ball     | 1/8          | 68,740       | 5/25                 | 3NQ80-OVS | 69083149050 | 38A60-P | 61463624470 |
| B122  | 3/8" Ball     | 1/8          | 68,740       | 5/25                 |           |             | 38A90-Q | 61463624471 |
| B123  | 3/16" Ball    | 1/8          | 84,720       | 5/25                 |           |             | 38A60-P | 61463624472 |
| B124  | 1/8" Ball     | 1/8          | 91,770       | 5/25                 |           |             | 38A90-Q | 61463624474 |
| B131  | 1/2 x 1/2     | 1/8          | 62,420       | 5/25                 | 3NQ80-OVS | 69083149049 | 38A60-P | 61463624475 |
| B132  | 3/8 x 1/2     | 1/8          | 65,910       | 5/25                 |           |             | 38A60-P | 61463624479 |
| B133  | 3/8 x 3/8     | 1/8          | 68,740       | 5/25                 |           |             | 38A60-P | 61463624481 |
| B134  | 5/16 x 3/8    | 1/8          | 71,220       | 5/25                 |           |             | 38A60-P | 61463624482 |
| B135  | 1/4 x 1/2     | 1/8          | 71,340       | 5/25                 |           |             | 38A60-P | 61463624484 |
| B136  | 1/4 x 5/16    | 1/8          | 76,160       | 5/25                 |           |             | 38A60-P | 61463624485 |

†STANDARD SHANK SIZE IS 1/8" OR 1/4" X 1-1/2".

\*MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG.

## 50-Piece Mounted Point Kits



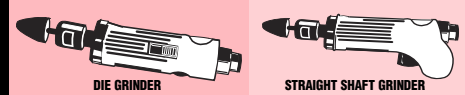
### 50-Piece Mounted Point Kits

#### FEATURES & BENEFITS

- Each kit contains 5 each of 10 of our best selling mounted point shapes and specifications
- The 1/4" spindle, "A"-shaped points are ideal for general maintenance, metalworking applications
- The 1/8" spindle kits contain "B" shaped points for light deburring machine parts and for finishing/polishing dies
- The "W" shaped points in both these kits work well for precision grinding of medium to heavy stock



# MOUNTED POINTS



DIE GRINDER

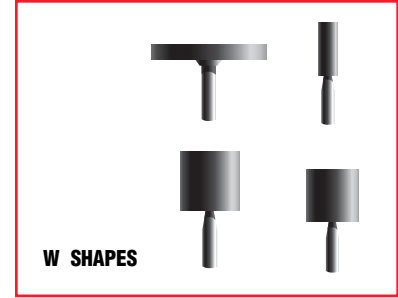
STRAIGHT SHAFT GRINDER

## Vitrified Bond Mounted Points – W Shapes

**5**  
minimum  
quantity

| SHAPE | SIZE<br>D X T | SPINDLE<br>† | MAX.<br>RPM* | MIN/<br>STD.<br>PKG. | BEST<br>QUANTUM |             | GOOD<br>PACESETTER |             |
|-------|---------------|--------------|--------------|----------------------|-----------------|-------------|--------------------|-------------|
|       |               |              |              |                      | SPEC            | UPC NO.     | SPEC               | UPC NO.     |
| W144  | 1/8 x 1/4     | 1/8          | 92,460       | 5/25                 |                 |             | 38A60-P            | 61463624488 |
| W145  | 1/8 x 3/8     | 1/8          | 84,190       | 5/25                 |                 |             | 38A60-P            | 61463624489 |
| W146  | 1/8 x 1/2     | 1/8          | 76,820       | 5/25                 |                 |             | 38A60-P            | 61463624491 |
| W152  | 3/16 x 1/4    | 1/8          | 82,070       | 5/25                 |                 |             | 38A60-P            | 61463624495 |
| W153  | 3/16 x 3/8    | 1/8          | 73,880       | 5/25                 |                 |             | 38A60-P            | 61463624496 |
| W154  | 3/16 x 1/2    | 1/8          | 66,580       | 5/25                 | 3NQ80-OVS       | 69083149133 | 38A60-P            | 61463624497 |
| W160  | 1/4 x 1/4     | 1/8          | 75,330       | 5/25                 |                 |             | 38A60-P            | 61463624501 |
| W162  | 1/4 x 3/8     | 1/8          | 67,210       | 5/25                 |                 |             | 38A60-P            | 61463624503 |
| W163  | 1/4 x 1/2     | 1/8          | 59,990       | 5/25                 |                 |             | 38A60-P            | 61463624504 |
| W164  | 1/4 x 3/4     | 1/8          | 47,880       | 5/25                 | 3NQ80-OVS       | 69083149135 | 38A60-P            | 61463624505 |
| W170  | 5/16 x 1/2    | 1/8          | 54,860       | 5/25                 |                 |             | 38A60-P            | 61463624511 |
| W175  | 3/8 x 3/8     | 1/8          | 57,530       | 5/25                 |                 |             | 38A60-P            | 61463624516 |
| W176  | 3/8 x 1/2     | 1/8          | 50,460       | 5/25                 |                 |             | 38A60-P            | 61463624517 |
| W177  | 3/8 x 3/4     | 1/8          | 38,640       | 5/25                 |                 |             | 38A60-P            | 61463624518 |
| W185  | 1/2 x 1/2     | 1/8          | 42,750       | 5/25                 | 3NQ80-OVS       | 69083149137 | 38A60-P            | 61463624525 |
| W185  | 1/2 x 1/2     | 1/4          | 44,470       | 5/25                 |                 |             | 38A60-P            | 61463624526 |
| W186  | 1/2 X 3/4     | 1/4          | 40,500       | 5/25                 |                 |             | 38A60-P            | 61463624528 |
| W188  | 1/2 x 1-1/2   | 1/4          | 31,070       | 5/25                 |                 |             | 38A60-P            | 61463624530 |
| W189  | 1/2 x 2       | 1/4          | 26,830       | 5/25                 |                 |             | 38A60-P            | 61463624531 |
| W196  | 5/8 x 1       | 1/4          | 34,670       | 5/25                 |                 |             | 38A60-P            | 61463624539 |
| W200  | 3/4 x 1/8     | 1/8          | 50,930       | 5/25                 |                 |             | 38A60-P            | 61463624543 |
| W200  | 3/4 x 1/8     | 1/8          | 50,930       | 5/25                 |                 |             | 38A90-Q            | 61463624544 |
| W204  | 3/4 x 3/4     | 1/4          | 36,510       | 5/25                 |                 |             | 38A60-P            | 61463624549 |
| W205  | 3/4 x 1       | 1/4          | 32,950       | 5/25                 |                 |             | 38A60-P            | 61463624550 |
| W208  | 3/4 x 2       | 1/4          | 22,830       | 5/25                 |                 |             | 38A60-P            | 61463624553 |
| W215  | 1 x 1/8       | 1/8          | 38,200       | 5/25                 | 3NQ80-OVS       | 69083149138 | 38A60-P            | 61463624560 |
| W216  | 1 x 1/4       | 1/4          | 38,200       | 5/25                 |                 |             | 38A60-P            | 61463624562 |
| W218  | 1 x 1/2       | 1/4          | 37,890       | 5/25                 |                 |             | 38A60-P            | 61463624564 |
| W220  | 1 x 1         | 1/4          | 30,370       | 5/25                 |                 |             | 38A60-P            | 61463624566 |
| W221  | 1 x 1-1/2     | 1/4          | 24,490       | 5/25                 |                 |             | 38A60-P            | 61463624567 |
| W222  | 1 x 2         | 1/4          | 20,250       | 5/25                 |                 |             | 38A60-P            | 61463624569 |
| W230  | 1-1/4 x 1-1/4 | 1/4          | 25,200       | 5/25                 |                 |             | 38A60-P            | 61463624578 |
| W235  | 1-1/2 x 1/4   | 1/4          | 25,460       | 5/25                 |                 |             | 38A60-P            | 61463624583 |
| W236  | 1-1/2 x 1/2   | 1/4          | 25,460       | 5/25                 |                 |             | 38A60-P            | 61463624585 |
| W237  | 1-1/2 x 1     | 1/4          | 25,460       | 5/25                 |                 |             | 38A60-P            | 61463624587 |
| W238  | 1-1/2 x 1-1/2 | 1/4          | 20,720       | 5/25                 |                 |             | 38A60-P            | 61463624588 |
| W242  | 2 x 1         | 1/4          | 19,100       | 5/25                 | 3NQ80-OVS       | 69083149148 | 38A60-P            | 61463624592 |

†STANDARD SHANK SIZE IS 1/8" OR 1/4" X 1-1/2". \*MAXIMUM OPERATING SPEED BASED ON 1/2" OVERHANG.



W SHAPES



## TECHtips

- For best mounted point performance, always run the mounted point at the maximum allowable speed according to ANSI B7.1. Refer to the speed chart included in each shipment for proper operating speeds.
- Use "A" shapes for medium- to heavy-duty blending
- Use "W" shapes for offhand and precision grinding of medium to heavy stock
- Dress the center lap mounted points frequently to ensure accurate and smooth center holes.
- Use 36 grit and coarser for rough grinding.
- Use 60 grit for imparting fine finishes or when grinding on narrow surfaces.



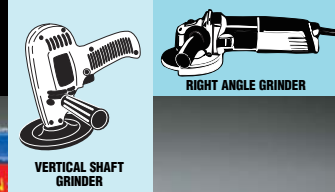
It is the user's responsibility to refer to and comply with ANSI B7.1

### MOUNTED POINT KITS

| SHAPE        | SPINDLE<br>† | MIN/<br>STD.<br>PKG. | SPEC   | BEST<br>QUANTUM | GOOD<br>PACESETTER |
|--------------|--------------|----------------------|--|-----------------|--------------------|
|              |              |                      |  | UPC NO.         | UPC NO.            |
| Assorted 1/4 | 1            | 1                    | 50 pc Premium Norton Quantum 1/4" Spdle Mtd. Point Kitt contains 5 each of A1, A5, A11, A21, A23, A26, A36, A39, W242 Norton Quantum and 5 W220 A80-HBF3     | 69083147810     |                    |
| Assorted 1/8 | 1            | 1                    | 50 pc Premium Norton Quantum 1/8" Spdle Mtd. Point Kit contains 5 each of B42, B52, B97, B122, B131, W154, W164, W185, W215 Norton Quantum and W163 A80-HBF3 | 69083147806     |                    |
| Assorted 1/4 | 1            | 1                    | 50 pc 38A60-P 1/4" Spdle Pacesetter Mtd. Point Kit contains 5 each of A1, A5, A11, A21, A23, A26, A36, A39, W242 Pacesetter and 5 W220 A80-HBF3              |                 | 69083147789        |
| Assorted 1/8 | 1            | 1                    | 50 pc 38A60-P 1/8" Spdle Pacesetter Mtd. Point Kit contains 5 each of B42, B52, B97, B122, B131, W154, W164, W185, W215 Pacesetter and W163 A80-HBF3         |                 | 69083147669        |

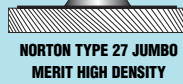
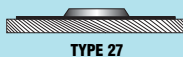
# FLAP DISCS

Our flap discs are engineered for light stock removal, blending and finishing all in one application. They grind like a depressed center wheel and finish like a fiber disc to reduce process time and lower total grinding costs.



## Typical Applications

- Stock removal
- Deburring
- Blending welds
- Edge chamfering
- Rust removal
- Cleaning and finishing



### BEST Norton SG Blaze R980 – Longest life, coolest cut rate

| FEATURES                                    | BENEFITS   |
|---|--|
| • Next generation SG ceramic abrasive grain | • Last 50% – 200% longer than any flap discs on stainless steel, cobalt, chrome, Inconel, titanium and other hard-to-grind materials |
| • Improved Y-wt polyester cloth             | • Significantly improves life, grain retention and fray resistance   |
| • Supersized grinding aid                   | • Cool, noticeably fast cut rate   |
| • Durable fiberglass back                   | • Quick stock removal and long life  |
| • Type 29 conical shape                     | • Maximum contact with workpiece without loading   |
| • Type 27 flat face                         | • Fine finishing primarily on flat surfaces  |



### BEST TwinFiber – Aggressive stock removal

| FEATURES  | BENEFITS   |
|---|--|
| • Premium ceramic and zirconia alumina abrasive blend | • Excellent performance and efficiencies on stainless steel applications |
| • Durable, fiberglass back                            | • Less pressure for aggressive stock removal; long life                  |
| • Type 29 angled face, conical shape                  | • Maximum contact with work surface without loading                      |
| • 4-1/2" and 7" with 5/8"-11 hub                      | • Less downtime for disc changes   |
| • 6" with 7/8" hole                                   | • Support increasing volume of 6" tools                                  |



### BEST TwinStar – Fine finishes

| FEATURES  | BENEFITS  |
|---|---|
| • Premium ceramic and zirconia alumina abrasive blend | • Excellent performance and efficiencies on stainless steel applications  |
| • Type 27 – flat face; plastic back                   | • Plastic wears away with abrasive – for longer life<br>• More forgiving than Type 29 – producing smooth finishes |
| • 4-1/2" and 7" with 5/8"-11 hub                      | • Less downtime for disc changes  |
| • 4" with 5/8" hole                                   | • Support increasing volume of smaller tools  |



### BETTER Charger R822 – Versatile; high performance

| FEATURES                                     | BENEFITS   |
|--|--|
| • High performance zirconia alumina abrasive | • Aggressive cut and long life<br>• Up to 30% longer life than aluminum oxide products |
| • Durable, fiberglass back                   | • Less pressure for aggressive stock removal and long life                             |







**GOOD** Merit Zirconia – Ideal, general purpose flap disc

**FEATURES**

- Quality zirconia alumina grain with a phenolic resin back

**BENEFITS**

- Fast cutting; fine finishes
- Great value for MRO operations



**SPECcheck**



**Flap Disc Starting Recommendations by Material**

| MATERIAL                                     | HEAVY-DUTY / AGGRESSIVE STOCK REMOVAL | FINE FINISHING                        |
|--|---------------------------------------|---------------------------------------|
| Stainless steel and other tough applications | Type 29 SG Blaze R980, TwinFiber      | Type 27 Norton SG Blaze R980 TwinStar |
| Other ferrous and nonferrous materials       | Charger R822 Type 29                  | Charger R822 Type 27                  |

**Flap Disc Competitive Cross Reference**

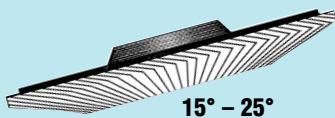
| NORTON        | DEWALT | GARRYSON | GEMTEX | KLINGSPOR | PFERD   | SAIT         | 3M            | WALTER     | WEILER         |
|---------------|--------|----------|--------|-----------|---------|--------------|---------------|------------|----------------|
| SG Blaze R980 |        |          |        |           |         |              | 947D          |            |                |
| TwinStar      |        |          |        |           |         |              |               | Enduroflex |                |
| TwinFiber     |        | Zirc +   |        |           |         |              | 747D Regalite |            |                |
| Charger R822  | Zirc   | Zirc     | Zirc   | SMT626    | Polifan | Saitlam F ZH | 563D          | Quick Step | Tiger, Big Cat |
| Merit         |        | Zirc     |        |           |         |              |               |            | Vortec         |

**Two Basic Flap Disc Designs**

**Norton Type 29 Conical / Merit Type 27C Conical**

**THE MOST AGGRESSIVE CHOICE**

- Conical flap discs have flaps angled at 10 degrees and may be used on both conical and flat surfaces
- The angle provides greater surface contact and as a result, tends to be the most aggressive choice
- The best choice when speed and stock removal are primary considerations

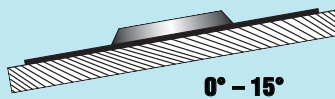


GRIND AT STEEPER ANGLES

**Norton and Merit Type 27 Flat**

**THE CHOICE FOR THE BEST FINISH**

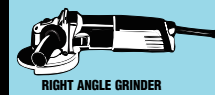
- The Type 27 flap discs have a flat design and are used primarily on flat surfaces
- The best choice for smooth finishing
- Also available in Norton Jumbo / Merit High Density sizes with extra large flaps lasting up to 40% longer than standard flap discs
- Choice will also depend on user preference of grinding angle (severe angle will weaken the edges)



GRIND AT FLATTER ANGLES



# FLAP DISCS



RIGHT ANGLE GRINDER



VERTICAL SHAFT GRINDER

FLAP DISCS

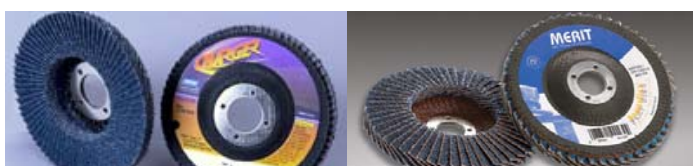


**BEST** T29 – SG BLAZE R980    **BEST** T29 – TWINFIBER    **BETTER** T29 – CHARGER R822    **GOOD** T27C – MERIT ZA

| SIZE<br>D X H | GRIT | MAX.<br>RPM | STD. |         | STD. |         | STD. |         | STD. |         |
|---------------|------|-------------|------|---------|------|---------|------|---------|------|---------|
|               |      |             | PKG. | UPC NO. | PKG. | UPC NO. | PKG. | UPC NO. | PKG. | UPC NO. |

## TYPE 29 / TYPE 27C CONICAL

|                |             |        |    |             |  |    |   |             |  |    |
|----------------|-------------|--------|----|-------------|--|----|---|-------------|--|----|
| 4 x 5/8        | 36          | 13,000 |    |             |  |    | 5 | 66261119265 |  |    |
|                | 40          |        |    |             |  |    |   | 66261119264 |  |    |
|                | 60          |        |    |             |  |    |   | 66261119263 |  |    |
|                | 80          |        |    |             |  |    |   | 66261119262 |  |    |
|                | 120         |        |    |             |  |    |   | 66261119261 |  |    |
| 4-1/2 x 5/8-11 | 24          | 13,000 | 10 | 66261183490 |  | 5  | 5 | 66261121291 |  | 10 |
|                | 36          |        |    |             |  |    |   | 66261121290 |  |    |
|                | 40          |        |    |             |  |    |   | 66261121289 |  |    |
|                | 60          |        |    |             |  |    |   | 66261121288 |  |    |
|                | 80          |        |    |             |  |    |   | 66261121287 |  |    |
| 120            | 66261121286 |        |    |             |  |    |   |             |  |    |
| 4-1/2 x 7/8    | 24          | 13,000 | 10 | 66261183486 |  | 10 | 5 | 66261119271 |  | 10 |
|                | 36          |        |    |             |  |    |   | 66261119270 |  |    |
|                | 40          |        |    |             |  |    |   | 66261119269 |  |    |
|                | 60          |        |    |             |  |    |   | 66261119268 |  |    |
|                | 80          |        |    |             |  |    |   | 66261119267 |  |    |
| 120            | 66261119266 |        |    |             |  |    |   |             |  |    |
| 5 x 7/8        | 24          | 12,000 | 10 | 66261190001 |  |    | 5 | 66261119277 |  | 10 |
|                | 36          |        |    |             |  |    |   | 66261119276 |  |    |
|                | 40          |        |    |             |  |    |   | 66261119275 |  |    |
|                | 60          |        |    |             |  |    |   | 66261119274 |  |    |
|                | 80          |        |    |             |  |    |   | 66261119273 |  |    |
| 120            | 66261119272 |        |    |             |  |    |   |             |  |    |
| 6 x 7/8        | 40          | 10,200 |    |             |  | 10 |   | 63642541406 |  |    |
|                | 60          |        |    |             |  |    |   | 63642541407 |  |    |
|                | 80          |        |    |             |  |    |   | 63642541408 |  |    |
| 7 x 5/8-11     | 24          | 8,500  | 10 | 66261183498 |  | 5  | 5 | 66261119289 |  | 10 |
|                | 36          |        |    |             |  |    |   | 66261119288 |  |    |
|                | 40          |        |    |             |  |    |   | 66261119287 |  |    |
|                | 60          |        |    |             |  |    |   | 66261119286 |  |    |
|                | 80          |        |    |             |  |    |   | 66261119285 |  |    |
| 120            | 66261119284 |        |    |             |  |    |   |             |  |    |
| 7 x 7/8        | 24          | 8,500  | 10 | 66261183494 |  | 10 | 5 | 66261119283 |  | 10 |
|                | 36          |        |    |             |  |    |   | 66261119282 |  |    |
|                | 40          |        |    |             |  |    |   | 66261119281 |  |    |
|                | 60          |        |    |             |  |    |   | 66261119280 |  |    |
|                | 80          |        |    |             |  |    |   | 66261119279 |  |    |
| 120            |             |        |    |             |  |    |   |             |  |    |



**BETTER** T27 – JUMBO CHARGER R822    **GOOD** T27 – HIGH DENSITY MERIT ZA

| SIZE<br>D X H | GRIT | MAX.<br>RPM | STD. |         | STD. |         |
|---------------|------|-------------|------|---------|------|---------|
|               |      |             | PKG. | UPC NO. | PKG. | UPC NO. |

## TYPE 27 JUMBO / HIGH DENSITY

|                |    |        |   |             |    |             |
|----------------|----|--------|---|-------------|----|-------------|
| 4-1/2 x 5/8-11 | 40 | 13,000 | 5 | 63642503527 |    |             |
|                | 60 |        |   | 63642503528 |    |             |
|                | 80 |        |   | 63642503529 |    |             |
| 4-1/2 x 7/8    | 40 | 13,000 | 5 | 63642503531 | 10 | 08834190172 |
|                | 60 |        |   | 63642503532 |    | 08834190767 |
|                | 80 |        |   | 63642503533 |    | 08834194360 |
| 7 x 5/8-11     | 40 | 8,500  | 5 | 63642503539 |    |             |
|                | 60 |        |   | 63642503540 |    |             |
| 7 x 7/8        | 40 | 8,500  | 5 | 63642503535 | 10 | 08834190933 |
|                | 60 |        |   | 63642503536 |    | 08834194514 |
|                | 80 |        |   | 63642503537 |    | 08834194362 |

## TECHtip

Use flap discs one grit size coarser than fiber discs, except in 36 grit.

It is the user's responsibility to refer to and comply with ANSI B7.7

# FLAP DISCS



**BEST** T27 – SG BLAZE R980      **BEST** T27 – TWINSTAR      **BETTER** T27 – CHARGER R822      **GOOD** T27 – MERIT ZA

| SIZE<br>D X H         | GRIT | MAX.<br>RPM | BEST<br>T27 – SG BLAZE R980 |             | BEST<br>T27 – TWINSTAR |             | BETTER<br>T27 – CHARGER R822 |             | GOOD<br>T27 – MERIT ZA |             |
|-----------------------|------|-------------|-----------------------------|-------------|------------------------|-------------|------------------------------|-------------|------------------------|-------------|
|                       |      |             | STD.<br>PKG.                | UPC NO.     | STD.<br>PKG.           | UPC NO.     | STD.<br>PKG.                 | UPC NO.     | STD.<br>PKG.           | UPC NO.     |
| <b>TYPE 27 FLAT</b>   |      |             |                             |             |                        |             |                              |             |                        |             |
| 2" Type II<br>Turn-on | 36   | 24,000      |                             |             |                        |             |                              |             | 10                     | 08834195020 |
|                       | 40   |             |                             |             |                        |             |                              |             |                        | 08834195021 |
|                       | 60   |             |                             |             |                        |             |                              |             |                        | 08834195022 |
|                       | 80   |             |                             |             |                        |             |                              |             |                        | 08834195023 |
|                       | 120  |             |                             |             |                        |             |                              |             |                        | 08834195024 |
| 3" Type II<br>Turn-on | 36   | 20,000      |                             |             |                        |             |                              |             | 10                     | 08834195035 |
|                       | 40   |             |                             |             |                        |             |                              |             |                        | 08834195036 |
|                       | 60   |             |                             |             |                        |             |                              |             |                        | 08834195037 |
|                       | 80   |             |                             |             |                        |             |                              |             |                        | 08834195038 |
|                       | 120  |             |                             |             |                        |             |                              |             |                        | 08834195039 |
| 4 x 5/8               | 40   | 13,000      |                             |             | 10                     | 63642536153 |                              |             |                        |             |
|                       | 60   |             |                             |             |                        | 63642536154 |                              |             |                        |             |
|                       | 80   |             |                             |             |                        | 63642536155 |                              |             |                        |             |
| 4-1/2 x 5/8-11        | 36   | 13,000      | 10                          | 66261100005 | 5                      | 63642536147 | 5                            | 63642503510 |                        |             |
|                       | 40   |             | 66261100006                 |             | 63642536148            |             | 63642503511                  |             |                        |             |
|                       | 60   |             | 66261100007                 |             | 63642536149            |             | 63642503512                  |             |                        |             |
|                       | 80   |             | 66261100008                 |             |                        |             | 63642503513                  |             |                        |             |
|                       |      |             |                             |             |                        |             |                              |             |                        |             |
| 4-1/2 x 7/8           | 36   | 13,000      | 10                          | 66261100001 | 10                     | 63642504876 | 5                            |             |                        |             |
|                       | 40   |             | 66261100002                 |             | 63642504877            |             | 66261134069                  |             |                        |             |
|                       | 60   |             | 66261100003                 |             | 63642504878            |             | 66261134070                  |             |                        |             |
|                       | 80   |             | 66261100004                 |             | 63642504879            |             | 66261134071                  |             |                        |             |
|                       | 120  |             |                             |             |                        |             |                              |             |                        |             |
| 5 x 7/8               | 36   | 12,000      | 10                          | 66261100009 | 10                     | 63642505281 | 5                            |             |                        |             |
|                       | 40   |             | 66261100010                 |             | 63642505282            |             | 63642503515                  |             |                        |             |
|                       | 60   |             | 66261100011                 |             | 63642505283            |             | 63642503516                  |             |                        |             |
|                       | 80   |             | 66261100012                 |             |                        |             |                              |             |                        |             |
|                       | 120  |             |                             |             |                        |             |                              |             |                        |             |
| 7 x 5/8-11            | 36   | 8,500       | 10                          | 66261100017 | 5                      | 63642536150 | 5                            | 63642503518 |                        |             |
|                       | 40   |             | 66261100018                 |             | 63642536151            |             | 63642503519                  |             |                        |             |
|                       | 60   |             | 66261100019                 |             | 63642536152            |             | 63642503520                  |             |                        |             |
|                       | 80   |             | 66261100020                 |             |                        |             | 63642503521                  |             |                        |             |
|                       |      |             |                             |             |                        |             |                              |             |                        |             |
| 7 x 7/8               | 36   | 8,500       | 10                          | 66261100013 | 10                     | 63642504880 |                              |             |                        |             |
|                       | 40   |             | 66261100014                 |             | 63642504881            |             |                              |             |                        |             |
|                       | 60   |             | 66261100015                 |             | 63642504882            |             |                              |             |                        |             |
|                       | 80   |             | 66261100016                 |             |                        |             |                              |             |                        |             |
|                       |      |             |                             |             |                        |             |                              |             |                        |             |

FLAP DISCS

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## Mini Powerflex Holder

| DESCRIPTION  | STD.<br>PKG. | UPC NO.     |
|--|--------------|-------------|
| Mini PowerFlex Type II Holder (Norton Speed-Lok TS)  | 1            | 08834168539 |
| Mini Powerflex Type III Holder (Norton Speed-Lok TR) | 1            | 08834160172 |

FIT 2" AND 3" MERIT FLAP DISCS

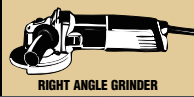


## TECHtips

- Operate Type 29/27C flap discs at a 15° – 25° angle; operate Type 27 (Regular and Jumbo / High Density) flap discs at an angle less than 15°; more severe angles will weaken flap edges.
- Use one grit size coarser than fiber discs, except in 36 grit.

**!** It is the user's responsibility to refer to and comply with ANSI B7.7





# FIBER AND AVOS DISCS

FIBER AND AVOS DISCS

The industry's most complete fiber disc offering: premium performance Norton SG ceramic, aggressive zirconia and long lasting aluminum oxide as well as quality Merit ceramic, zirconia and aluminum oxide for the initial-price-conscious user. Our fiber discs feature a full resin bond system with heavy-duty fiber backing for increased strength, durability and tear resistance.



## Typical Applications

- Material removal
- Weld grinding and blending
- Light deburring and finishing

50

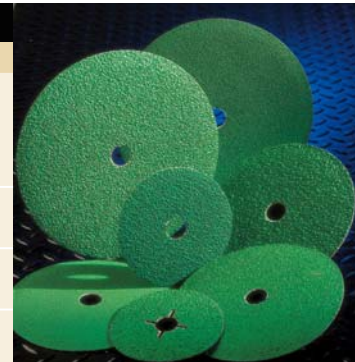
### **BEST** Norton SG Blaze F980 Discs – Greatest productivity and lowest total cost

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Ultimate performing, next-generation SG ceramic grain</li> </ul> | <ul style="list-style-type: none"> <li>• Coolest cut; significantly faster cut rate</li> <li>• Longest life on alloy metals and stainless steel</li> </ul> |
| <ul style="list-style-type: none"> <li>• Self-lubricating, advanced supersize treatment</li> </ul>        | <ul style="list-style-type: none"> <li>• Better finish and part integrity</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Heavier fiber backing</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Greater durability and longest life on tough applications</li> </ul>  |



### **BEST** GreenLyte SG F968 Discs – Exceptional productivity

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Premium, dense, self-sharpening SG ceramic abrasive grain with a unique coating design</li> </ul> | <ul style="list-style-type: none"> <li>• Faster initial cut rate, longer life and improved finishes versus competitive ceramic</li> <li>• Great productivity versus any fiber disc and lower total costs</li> <li>• Greater chip clearance; minimal loading</li> </ul> |
| <ul style="list-style-type: none"> <li>• Versatile</li> </ul>  | <ul style="list-style-type: none"> <li>• The choice for grinding and finishing carbon steel, mild steel, cast iron and welds</li> </ul>  |
| <ul style="list-style-type: none"> <li>• 7" and 9-1/8" discs have doming design</li> </ul>   | <ul style="list-style-type: none"> <li>• Ideal for edges and corners</li> <li>• Better shape control; resists curling</li> </ul>   |
| <ul style="list-style-type: none"> <li>• New 40 grit <b>new!</b></li> </ul>  | <ul style="list-style-type: none"> <li>• Quick, efficient stock removal</li> </ul>   |



### **BETTER** NorZon Plus F826 Discs – Ideal on stainless, alloy, and high pressure applications

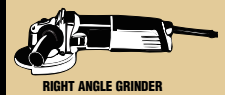
| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Premium self-sharpening zirconia aluminum abrasive</li> </ul>          | <ul style="list-style-type: none"> <li>• Fast, aggressive cutting</li> <li>• Self-sharpens with use</li> </ul> |
| <ul style="list-style-type: none"> <li>• Advanced resin bond technology with enhanced grain adhesion</li> </ul> | <ul style="list-style-type: none"> <li>• Grind more parts per hour to lower grinding costs</li> </ul>          |



### **BETTER** Merit Ceramic Discs – The economical choice for heavy stock removal

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• High performance ceramic alumina abrasive on a heavy fiber backing</li> </ul> | <ul style="list-style-type: none"> <li>• Engineered for heavy stock removal</li> </ul>                               |
| <ul style="list-style-type: none"> <li>• Economically priced</li> </ul>  | <ul style="list-style-type: none"> <li>• The choice when initial price is a main purchasing consideration</li> </ul> |





## BETTER Merit Zirconia Discs – The economical choice for stainless steel applications

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Durable zirconia alumina abrasive on a heavy fiber backing</li> </ul> | <ul style="list-style-type: none"> <li>Great performance on stainless steel at an economical initial price</li> </ul> |



## GOOD Gemini Metalite F226 Discs – Versatile performance for all MRO applications

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Tough, versatile aluminum oxide abrasive</li> <li>New availability: 10 packs containing discs individually backprinted with bar-code</li> </ul> | <ul style="list-style-type: none"> <li>Fast initial cut</li> <li>Ideal for general purpose applications</li> <li>Ideal for small unit sales and jobs</li> </ul> |



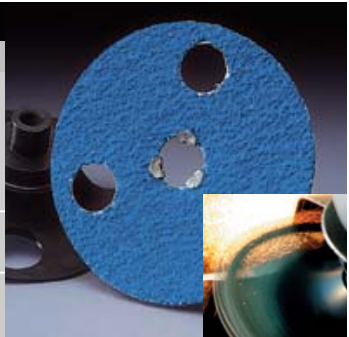
## GOOD Merit Aluminum Oxide Discs – Priced right for general purpose applications

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>Quality aluminum oxide grain on a heavy fiber backing</li> </ul> | <ul style="list-style-type: none"> <li>Economically priced, good for small job shops and general purpose applications</li> </ul> |



## AVOS – Allows View Of Surface – Fiber Discs

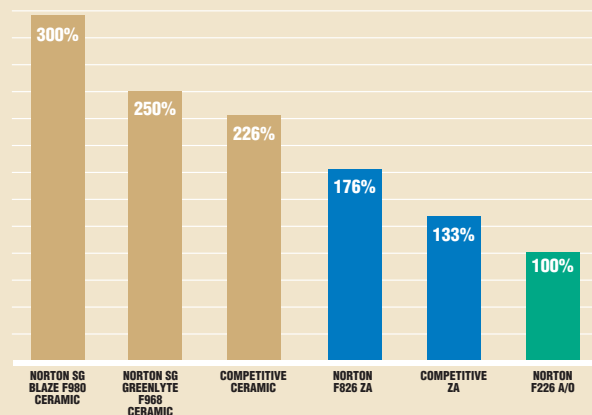
| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Patented hole design</li> </ul>       | <ul style="list-style-type: none"> <li>Allows interrupted cut which reduces heat up to 30% over standard round discs</li> <li>Cool cutting resulting in longer disc life</li> <li>Provides complete vision into the grinding zone</li> <li>Operators can grind more accurately with less re-work</li> </ul> |
| <ul style="list-style-type: none"> <li>Scooped holes</li> </ul>              | <ul style="list-style-type: none"> <li>Create air flow to pull loose abrasive and swarf away from work surface grinding zone – resulting in extended disc life</li> </ul>   |
| <ul style="list-style-type: none"> <li>5 degree angle back-up pad</li> </ul> | <ul style="list-style-type: none"> <li>Grinding at 5°-15° angle allows greater utilization of disc surface</li> <li>Eliminates gouging of workpiece</li> </ul>  |



### Starting Recommendations by Material

| MATERIAL                   | HEAVY-DUTY BEST PERFORMANCE               | GENERAL-DUTY INITIAL VALUE |
|----------------------------|---|----------------------------|
| Carbon Steel               | GreenLyte SG F968<br>Norton SG Blaze F980 | NorZon Plus F826           |
| Stainless Steel/<br>Alloys | Norton SG Blaze F980                      | NorZon Plus F826           |
| Cast Iron                  | GreenLyte SG F968                         | NorZon Plus F826           |
| Welds                      | GreenLyte SG F968                         | NorZon Plus F826           |
| Brass/Bronze               | NorZon Plus F826                          | Gemini Metalite F226       |
| Aluminum                   | NorZon Plus F826                          |                            |
| Fiberglass                 | GreenLyte SG F968                         | NorZon Plus F826           |
| Paint Removal              | GreenLyte SG F968,<br>NorZon Plus F826    | Gemini Metalite F226       |

### Relative Metal Removal Rate 50 Grit on Low Pressure Carbon Steel





RIGHT ANGLE GRINDER

## Fiber Discs

**25**  
standard  
package

| SIZE<br>D X H | GRIT | MIN./STD.<br>PKG.** | BEST          | BEST                     | BEST              | BETTER           |
|---------------|------|---------------------|---------------|--------------------------|-------------------|------------------|
|               |      |                     | SG BLAZE F980 | SG GREENLYTE F968        | SG GREENLYTE F968 | NORZON PLUS F826 |
|               |      |                     | BOXED         | BOXED                    | BALED**           | BOXED            |
| 4 x 5/8       | 24   | 25/25               |               |                          |                   |                  |
|               | 36   |                     |               |                          |                   |                  |
|               | 50   |                     |               |                          |                   |                  |
|               | 60   |                     |               |                          |                   |                  |
|               | 80   |                     |               |                          |                   |                  |
|               | 100  |                     |               |                          |                   |                  |
|               | 120  |                     |               |                          |                   |                  |
| 4-1/2 x 7/8   | 24   | 25/25               | 69957398000   | 66261141313              |                   | 66261138457      |
|               | 36   |                     | 69957398001   | 66261141312              |                   | 66261138456      |
|               | 40   |                     |               | 66261058701 <b>new!</b>  |                   |                  |
|               | 50   |                     | 69957398002   | 66261141311              |                   | 66261138454      |
|               | 60   |                     | 69957398003   | 66261141310              |                   | 66261138453      |
|               | 80   |                     | 69957398004   | 66261141309              |                   | 66261138452      |
|               | 100  |                     |               | 66261141308              |                   |                  |
|               | 120  |                     |               | 66261141307              |                   |                  |
| 5 x 7/8       | 16   | 25/25               |               |                          |                   |                  |
|               | 24   |                     |               |                          |                   |                  |
|               | 36   |                     |               |                          |                   |                  |
|               | 40   |                     |               | 66261058702 <b>new!</b>  |                   |                  |
|               | 50   |                     | 69957398007   | 66261141318              |                   | 66261138561      |
|               | 60   |                     | 69957398008   | 66261141317              |                   | 66261138601      |
|               | 80   |                     | 69957398009   | 66261141316              |                   | 66261138600      |
|               | 100  |                     |               | 66261141315              |                   |                  |
| 120           |      | 66261141314         |               |                          |                   |                  |
| 7 x 7/8       | 16   | 25/25               |               |                          |                   |                  |
|               | 24   |                     |               |                          |                   |                  |
|               | 36   |                     | 69957398010   | 66261141327*             | 66261141334*+     | 66261138594      |
|               | 40   |                     | 69957398011   | 66261141326*             | 66261141335*      | 66261138593      |
|               | 50   |                     |               | 66261058703* <b>new!</b> |                   |                  |
|               | 60   |                     | 69957398012   | 66261141325*             | 66261141336*      | 66261138592      |
|               | 80   |                     | 69957398013   | 66261141324*             | 66261141337*      | 66261138591      |
|               | 100  |                     | 69957398014   | 66261141323*             | 66261141338*      | 66261138590      |
|               | 120  |                     |               | 66261141322*             |                   |                  |
|               |      |                     | 66261141321*  |                          |                   |                  |
| 9-1/8 x 7/8   | 16   | 25/25               |               |                          |                   |                  |
|               | 24   |                     |               |                          |                   |                  |
|               | 36   |                     | 69957398015   | 66261141344*             |                   | 66261138584      |
|               | 50   |                     | 69957398016   | 66261141343*             |                   | 66261138583      |
|               | 60   |                     | 69957398017   | 66261141342*             |                   | 66261138582      |
|               | 80   |                     |               | 66261141341*             |                   |                  |
|               | 100  |                     |               | 66261141340*             |                   |                  |
| 120           |      | 66261141339*        |               |                          |                   |                  |

\* ALL 7 X 7/8" AND 9-1/8 X 7/8" GREENLYTE F968 DISCS FEATURE OUR DOMING DESIGN.

\*\* BALED ITEMS: MIN./STD. PKG. = 100/100

+ MIN./STD. PKG = 50/50



### The Norton Baling System for F968 7 x 7/8 Discs

7" GreenLyte SG F968 products are available with the Norton threaded baling units, allowing the discs to remain under pressure even after being opened.

- Places 100 discs on a spindle between two plates
- Locks down with a pinch screw
- Maintains the shape of the discs by minimizing curl
- User-friendly and reusable



### Fiber Disc Competitive Cross Reference

| NORTON                      | GEMTEX             | HERMES | KLINGSPOR | SAIT   | 3M               | VSM          | WALTER              |
|-----------------------------|--------------------|--------|-----------|--------|------------------|--------------|---------------------|
| Norton SG F980 (Supersized) |                    |        |           |        | 985C, 785C, 987C | SF840, SF750 |                     |
| Norton SG F968              |                    | CB444X | CS665     |        | 988C, 984C       | SF750        |                     |
| Merit Ceramic               | Ceramix "X"        |        |           | 7S     |                  |              | KF710               |
| NorZon Plus F826            |                    | RB414X | CS565     |        | 501C             | ZF715        |                     |
| Merit Zirconia Alumina      | G Type<br>ZEE Type |        |           | Z      |                  |              | TOPCUT<br>STAINLESS |
| Gemini F226                 |                    | RB314X | CS561     | AO     | 281C, 381C       | KF708        |                     |
| Merit Aluminum Oxide        | A Type<br>C Type   |        |           | 2A, 3A |                  |              | COOLCUT             |

# FIBER AND AVOS DISCS



25  
standard  
package

new!

| SIZE<br>D X H | GRIT | MIN./STD.<br>PKG. ** | BETTER<br>MERIT CERAMIC | BETTER<br>MERIT ZA | GOOD<br>MERIT AO | GOOD<br>METALITE F226 | MIN/STD<br>PKG. | GOOD<br>METALITE F226     |
|---------------|------|----------------------|-------------------------|--------------------|------------------|-----------------------|-----------------|---------------------------|
|               |      |                      | BOXED                   | BOXED              | BOXED            | BOXED                 |                 | INDIVIDUALLY<br>BAR-CODED |
| 4 x 5/8       | 24   | 25/25                |                         |                    |                  |                       | 10/10           | 07660704709               |
|               | 36   |                      |                         |                    |                  | 66261133434           |                 | 07660704710               |
|               | 50   |                      |                         |                    |                  | 66261133432           |                 | 07660704711               |
|               | 60   |                      |                         |                    |                  | 66261133431           |                 |                           |
|               | 80   |                      |                         |                    |                  | 66261133430           |                 |                           |
|               | 100  |                      |                         |                    |                  | 66261133429           |                 |                           |
|               | 120  |                      |                         |                    |                  | 66261133428           |                 |                           |
| 4-1/2 x 7/8   | 24   | 25/25                | 66623355601             | 66623353315        | 66623353309      | 66261133519           | 10/10           | 07660704712               |
|               | 36   |                      | 66623355602             | 66623353316        | 66623353306      | 66261133517           |                 | 07660704713               |
|               | 40   |                      |                         |                    |                  |                       |                 |                           |
|               | 50   |                      | 66623355603             | 66623353318        | 66623353310      | 66261133515           |                 | 07660704714               |
|               | 60   |                      | 66623355604             | 66623353319        | 66623353311      | 66261133513           |                 |                           |
|               | 80   |                      | 66623365598             | 66623353320        | 66623353312      | 66261133511           |                 |                           |
|               | 100  |                      |                         |                    | 66623353313      | 66261133509           |                 |                           |
| 120           |      |                      | 66623353314             | 66261133507        |                  |                       |                 |                           |
| 5 x 7/8       | 16   | 25/25                |                         |                    |                  |                       | 10/10           |                           |
|               | 24   |                      | 66623355597             | 66623357290        | 66623357276      | 66261133617           |                 | 07660704706               |
|               | 36   |                      | 66623355598             | 66623357291        | 66623357277      | 66261133615           |                 | 07660704707               |
|               | 40   |                      |                         |                    |                  |                       |                 |                           |
|               | 50   |                      | 66623355599             | 66623357292        | 66623357278      | 66261133605           |                 | 07660704708               |
|               | 60   |                      | 66623355600             | 66623357293        | 66623357279      | 66261133600           |                 |                           |
|               | 80   |                      | 66623366015             | 66623357294        | 66623357280      | 66261133595           |                 |                           |
| 100           |      |                      | 66623357281             | 66261133590        |                  |                       |                 |                           |
| 120           |      |                      | 66623357282             | 66261133585        |                  |                       |                 |                           |
| 7 x 7/8       | 16   | 25/25                |                         |                    |                  |                       | 10/10           |                           |
|               | 24   |                      | 66623355578             | 66623357295        | 66623357283      | 66261133760           |                 | 07660704703               |
|               | 36   |                      | 66623355594             | 66623357296        | 66623357284      | 66261133755           |                 | 07660704704               |
|               | 40   |                      |                         |                    |                  |                       |                 |                           |
|               | 50   |                      | 66623355595             | 66623357297        | 66623357285      | 66261133745           |                 | 07660704705               |
|               | 60   |                      | 66623355596             | 66623357298        | 66623357286      | 66261133740           |                 |                           |
|               | 80   |                      | 66623365600             | 66623357299        | 66623357287      | 66261133735           |                 |                           |
| 100           |      |                      | 66623357288             | 66261133730        |                  |                       |                 |                           |
| 120           |      |                      | 66623357289             | 66261133725        |                  |                       |                 |                           |
| 9-1/8 x 7/8   | 16   | 25/25                |                         |                    |                  |                       | 10/10           |                           |
|               | 24   |                      |                         |                    |                  | 66261133890           |                 |                           |
|               | 36   |                      |                         |                    |                  | 66261133885           |                 |                           |
|               | 50   |                      |                         |                    |                  | 66261133880           |                 |                           |
|               | 60   |                      |                         |                    |                  | 66261133875           |                 |                           |
|               | 80   |                      |                         |                    |                  | 66261133870           |                 |                           |
|               | 100  |                      |                         |                    |                  | 66261133865           |                 |                           |
| 120           |      |                      |                         | 66261133860        |                  |                       |                 |                           |
|               |      |                      |                         |                    | 66261133855      |                       |                 |                           |

## Air-Cooled Rubber Back-up Pads

- Designed for medium- to heavy-grinding applications.
- Slotted aluminum hub design draws cool air behind the disc.
- Curved ribs on the rubber face force heat away from the disc and back-up pad.
- Cooler cutting action reduces disc loading and increases grinding life.
- All pads have a 5/8"-11 threaded female hub for mounting.
- Firm pads provide more aggressive cut; medium pads offer greater flexibility.
- Use with Norton and Merit fiber discs to maximize cut and life.



| DESCRIPTION                         | MAX. RPM | STD. PKG. | UPC NO.     |
|-------------------------------------|----------|-----------|-------------|
| <b>RUBBER BACK-UP PADS</b>          |          |           |             |
| 4" Medium                           | 12,000   | 5         | 63642504918 |
| 4-1/2" Medium                       | 11,000   | 5         | 63642502122 |
| 5" Medium                           | 10,000   | 5         | 63642543421 |
| 7" Firm                             | 8,600    | 5         | 63642543425 |
| 7" Medium                           | 8,600    | 5         | 63642543422 |
| 9" Firm                             | 6,600    | 5         | 63642543426 |
| 9" Medium                           | 6,600    | 5         | 63642543423 |
| #103 Retainer Nut                   | —        | 10        | 63642543463 |
| #834 Retainer Nut<br>Spanner Wrench | —        | 5         | 63642543005 |
| 66NS Short Retainer Nut             | —        | 10        | 63642543461 |

NOTE: RETAINER NUTS ARE NOT INCLUDED WITH BACK-UP PADS. THESE MUST BE ORDERED SEPARATELY.

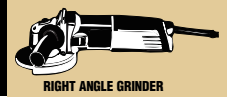
## Air-Cooled Back-up Pads

For 5/8"-11 arbor, these threaded "no nose" pads are designed for shorter-shafted right-angle grinders.



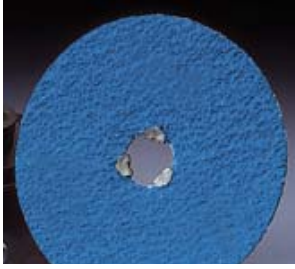
| DESCRIPTION                    | MAX. RPM | STD. PKG. | UPC NO.     |
|--------------------------------|----------|-----------|-------------|
| <b>AIR COOLED BACK-UP PADS</b> |          |           |             |
| 4-1/2" Medium Spiralcool Pad   | 11,000   | 5         | 63642504872 |
| 5" Medium Spiralcool Pad       | 10,000   | 5         | 63642503000 |





RIGHT ANGLE GRINDER

## Speed-Lok Fiber Discs



### Speed-Lok Fiber Discs

These discs feature Norton quick, tool-free, twist-on and off Speed-Lok fasteners. Discs lock to back-up pads – but are easily removed – increasing your grinding time and productivity.

| SIZE                         | GRIT       | MIN./STD. PKG. | BETTER   | GOOD   |
|------------------------------|------------|----------------|--|--|
|                              |            |                | NORZON PLUS F826 BOXED UPC NO.                           | METALITE F226 BOXED UPC NO.  |
| <b>SPEED-LOK FIBER DISCS</b> |            |                |  |  |
| 5 x 7/8<br>Speed-Lok         | 24         | 25/25          | 66261138797<br>66261138796                               | 66261137522<br>66261137515   |
|                              | 36         |                |  |  |
|                              | 60         |                |  |  |
| 7 x 7/8<br>Speed-Lok         | 24         | 25/25          | 66261138819<br>66261138818<br>66261138817<br>66261138816 | 66261137625<br>66261137620<br>66261137615<br><br>66261137605<br>66261137600<br>66261137595 |
|                              | 36         |                |  |  |
|                              | 50         |                |  |  |
|                              | 60         |                |  |  |
|                              | 80         |                |  |  |
|                              | 100<br>120 |                |  |  |

### AVOS EDGER SPEED-LOK DISCS

|                                   |    |       |   |
|-----------------------------------|----|-------|---|
| 4-1/2" AVOS<br>Edger<br>Speed-Lok | 24 | 10/40 | 66261129718<br>66261129719<br>66261129720<br>66261129721<br>66261129722 |
|                                   | 36 |       |   |
|                                   | 50 |       |   |
|                                   | 60 |       |   |
|                                   | 80 |       |   |
| 5" AVOS<br>Edger<br>Speed-Lok     | 24 | 10/40 | 66261126556<br>66261126557<br>66261126558<br>66261126559<br>66261126560 |
|                                   | 36 |       |   |
|                                   | 50 |       |   |
|                                   | 60 |       |   |
|                                   | 80 |       |   |
| 7" AVOS<br>Edger<br>Speed-Lok     | 24 | 10/40 | 66261137454<br>66261137455<br>66261137456<br>66261137457<br>66261137458 |
|                                   | 36 |       |   |
|                                   | 50 |       |   |
|                                   | 60 |       |   |
|                                   | 80 |       |   |

See new Norton SG Blaze F980 II - 3" Fiber Speed-Lok discs on page 57.

## FastCut Abrasive Fiber Discs



Type 27 (flat-faced), heavy fiber-backed discs with extra sharp, 16 grit silicon carbide abrasive, are engineered specifically with cooling ridges for an interrupted cut to efficiently grind softer materials (marble, granite, concrete, etc.) where loading is a problem.

| SIZE  | GRIT   | MIN./STD. PKG. | GOOD                    |
|-------|--------|----------------|-------------------------|
|       |        |                | FASTCUT TYPE 27 UPC NO. |
| 4 1/2 | S/C 16 | 25/25          | 66261199054             |
| 7     | S/C 16 | 25/25          | 66261199052             |

PACKED IN 5 INNER PACKS OF 5.

### Speed-Lok Back-up Pads

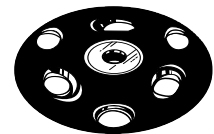
- Molded rubber back-up pads provide quick-change convenience.
- Hard density pads are for aggressive cutting action.
- Medium density pads are for all-purpose applications.
- Soft density pads are used for contours and fine finishing work.
- All pads have a 5/8"-11 threaded female hub. These pads can be adapted for use on conventional 7/8" center hole fiber discs by using a 66NS Retainer Nut to mount the disc to the Speed-Lok pad.



| DESCRIPTION             | MAX. RPM | STD. PKG. | UPC NO.     |
|-------------------------|----------|-----------|-------------|
| 5" Medium               | 12,000   | 5         | 63642543235 |
| 7" Hard                 | 8,600    | 5         | 63642543240 |
| 7" Medium               | 8,600    | 5         | 63642543245 |
| 7" Soft                 | 8,600    | 5         | 63642543250 |
| 9" Medium               | 7,000    | 5         | 63642543270 |
| 66NS Short Retainer Nut | —        | 10        | 63642543461 |

### AVOS Edger Speed-Lok Back-up Pads

Fiberglass-reinforced, plastic Speed-Lok back-up pads for use with AVOS discs.



| DESCRIPTION                        | MAX. RPM | STD. PKG. | UPC NO.     |
|------------------------------------|----------|-----------|-------------|
| <i>AVOS Speed-Lok Back-up Pads</i> |          |           |             |
| 4-1/2" x 5/8-11 (Sawtooth)         | 13,000   | 5         | 63642502985 |
| 5 x 3/8-24 Pistol Grip (Sawtooth)  | 20,000   | 5         | 63642503029 |
| 5 x 5/8-11 (Sawtooth)              | 13,000   | 5         | 63642502517 |
| 5 x 7/16-20 Pistol Grip (Sawtooth) | 20,000   | 5         | 63642503030 |
| 7 x 5/8-11 Round, Hard, Thicker    | 8,600    | 5         | 63642504873 |
| 7 x 5/8-11 Round, Medium, Thicker  | 8,600    | 5         | 63642504874 |
| 7 x 5/8-11 Round, Soft, Thicker    | 8,600    | 5         | 63642504875 |





# SPEED-LOK TS AND TR DISCS



VERTICAL SHAFT GRINDER

The tool-free, twist-on and off fastening systems make fast work of disc changes to maximize productivity by minimizing downtime.

## Typical Applications

### Fiber Discs

- Weld grinding and blending
- Heavy metal removal
- Light deburring and finishing

### Cloth Discs

- Light to medium pressure grinding
- Blending, leveling and finishing applications
- For use on contours or flat surfaces



SPEED-LOK TS AND TR DISCS

## Norton Speed-Lok TS and TR Discs

### FEATURES

- Speed-Lok fastener
- Twist on and twist off in 2-1/2 turns
- 1" – 4" TS discs – all-metal fasteners
- 1-1/2" – 4" TR discs – rubber threaded hubs

### BENEFITS

- Quick, tool-free disc changes allow for more grinding time
- Disc locks securely to back-up pad, but is easily removed
- Mount to the Norton Speed-Lok TS or Standard Abrasive's® Quick Change back-up pads
- Mount to Norton TR or 3M Roloc® back-up pads

## BEST Norton SG Blaze R980 Cloth and F980 Fiber Discs – Greatest productivity

### FEATURES

- Next generation, SG ceramic grain
- Improved resin bond system and durable backing
- Self-lubricating, supersize treatment
- F980 fiber discs
- R980 cloth discs

### BENEFITS

- Coolest cut; significantly faster cut rates
- Lowest total grinding costs
- Greater durability and longest life on tough applications and stainless steel
- Edge-fray resistance; excellent grain and body retention; consistent grinding throughout disc's life
- Cooler cutting; improved part finish and integrity
- Heaviest fiber backing
- Polyester Y-wt backing
- 3-ply laminate discs (yellow backing) is more aggressive; ideal when durability and long life are required
- 1-ply laminate discs (black backing) is more conformable; very flexible



**new!**  
**expanded offering!**

## BETTER NorZon Plus R821 Cloth Discs – For grinding and deburring stainless steel

### FEATURES

- Self-sharpening, zirconia alumina abrasive
- Heavy Y-wt backing, two-ply construction

### BENEFITS

- Cooler cut, longer life
- Extended durability
- Reduced edge-wear



## GOOD Metalite R228 Cloth Discs – Metalworking, versatile

### FEATURES

- Premium aluminum oxide abrasive
- Heavy-weight cloth construction
- X-wt cotton backing

### BENEFITS

- Long life
- Excellent durability
- Ideal for aggressive stock removal applications
- Resistant to heat



# SPEED-LOK TS AND TR DISCS



VERTICAL SHAFT GRINDER

SPEED-LOK TS AND TR DISCS

## Speed-Lok TS Cloth Discs

expanded offering!

BEST  
SG BLAZE R980

expanded offering!

BEST  
SG BLAZE R980

BETTER  
NORZON+ R821

GOOD  
METALITE R228

| SIZE  | GRIT | MIN./STD. PKG. | 3-PLY<br>UPC NO. | 1-PLY<br>UPC NO. | UPC NO.     | UPC NO.     |
|-------|------|----------------|------------------|------------------|-------------|-------------|
| 1     | 36   | 100/100        |                  |                  |             | 66261138098 |
|       | 50   |                |                  |                  | 66261138609 | 66261138095 |
|       | 60   |                |                  |                  | 66261138608 | 66261138090 |
|       | 80   |                |                  |                  | 66261138607 | 66261138085 |
|       | 100  |                |                  |                  |             | 66261138080 |
|       | 120  |                |                  |                  |             | 66261138075 |
| 1-1/2 | 24   | 100/100        |                  |                  | 66261138625 | 66261138135 |
|       | 36   |                | 66261162307      | 63642595401      | 66261138624 | 66261138130 |
|       | 40   |                |                  |                  |             | 66261138130 |
|       | 50   |                | 66261162309      | 63642595446      | 66261138622 | 66261138125 |
|       | 60   |                | 66261162311      | 63642595447      | 66261138621 | 66261138120 |
|       | 80   |                | 66261162313      | 63642595450      | 66261138620 | 66261138115 |
|       | 100  |                |                  |                  |             | 66261138110 |
|       | 120  |                | 66261043379      | 66261043416      |             | 66261138105 |
|       | 180  |                |                  |                  |             | 66261138099 |
|       | 320  |                |                  |                  |             | 66261144113 |
| 2     | 24   | 25/25*         |                  |                  | 66261138638 | 66261138171 |
|       | 36   |                | 66261162317      | 63642595452      | 66261138637 | 66261138170 |
|       | 40   |                |                  |                  |             | 66261138165 |
|       | 50   |                | 66261162319      | 63642595456      | 66261138635 | 66261138160 |
|       | 60   |                | 66261162321      | 63642595458      | 66261138634 | 66261138155 |
|       | 80   |                | 66261162323      | 63642595459      | 66261138633 | 66261138150 |
|       | 100  |                | 66261043382      | 66261043418      |             | 66261138145 |
|       | 120  |                | 66261043384      | 66261043420      |             | 66261138140 |
|       | 150  |                |                  |                  |             | 66261138139 |
|       | 180  |                |                  |                  |             | 66261138138 |
|       | 240  |                |                  |                  |             | 66261138137 |
|       | 320  |                |                  |                  |             | 66261137346 |
| 3     | 24   | 25/25•         |                  |                  | 66261138665 | 66261138206 |
|       | 36   |                | 66261162327      | 63642595460      | 66261138664 | 66261138205 |
|       | 40   |                |                  |                  |             | 66261138200 |
|       | 50   |                | 66261162329      | 63642595462      | 66261138662 | 66261138195 |
|       | 60   |                | 66261162331      | 63642595463      | 66261138661 | 66261138190 |
|       | 80   |                | 66261162333      | 63642595464      | 66261138660 | 66261138185 |
|       | 100  |                | 66261043389      | 66261043422      |             | 66261138180 |
|       | 120  |                | 66261043391      | 66261043424      |             | 66261138175 |
|       | 150  |                |                  |                  |             | 66261137347 |
|       | 240  |                |                  |                  |             | 66261138173 |
| 4     | 36   | 25/25          |                  |                  | 66261138683 |             |
|       | 50   |                |                  |                  | 66261138681 |             |
|       | 60   |                |                  |                  | 66261137343 |             |
|       | 80   |                |                  |                  | 66261138679 |             |

\* PACKAGING: 2" METALITE R228 100/100

• PACKAGING: 3" METALITE R228 50/50



## Speed-Lok TS Back-up Pads



| DESCRIPTION | MAX. RPM | STD. PKG. | UPC NO. |
|-------------|----------|-----------|---------|
|-------------|----------|-----------|---------|

### SPEED-LOK TS BACK-UP PADS

|               |        |    |             |
|---------------|--------|----|-------------|
| 1" Medium     | 40,000 | 10 | 63642543185 |
| 1-1/2" Medium | 25,000 | 10 | 63642543200 |
| 2" Hard       | 30,000 | 10 | 63642543205 |
| 2" Medium     | 25,000 | 10 | 63642543210 |
| 3" Hard       | 20,000 | 10 | 63642543220 |
| 3" Medium     | 20,000 | 10 | 63642543225 |
| 4" Medium     | 12,000 | 10 | 63642543232 |

# SPEED-LOK TS AND TR DISCS



VERTICAL SHAFT GRINDER

## Speed-Lok TR Cloth Discs



| SIZE  | GRIT | MIN./<br>STD. PKG. | BEST<br>SG BLAZE R980 | BEST<br>SG BLAZE R980 | BETTER<br>NORZON+ R821 | GOOD<br>METALITE R228 |             |
|-------|------|--------------------|-----------------------|-----------------------|------------------------|-----------------------|-------------|
|       |      |                    | 3-PLY<br>UPC NO.      | 1-PLY<br>UPC NO.      | UPC NO.                | UPC NO.               |             |
| 1-1/2 | 36   | 100/100            | 66261162308           | 63642595465           | 66261121041            | 66261121009           |             |
|       | 50   |                    | 66261162310           | 63642595467           |                        |                       |             |
|       | 60   |                    | 66261162312           | 63642595468           | 66261121043            | 66261121012           |             |
|       | 80   |                    | 66261162314           | 63642595469           | 66261121044            | 66261121013           |             |
|       | 100  |                    |                       |                       |                        | 66261121014           | 66261121015 |
|       | 120  |                    | 66261043380           | 66261043417           |                        |                       |             |
| 2     | 24   | 25/25*             |                       |                       | 66261138672            | 66261121018           |             |
|       | 36   |                    | 66261162318           | 63642595470           | 66261138671            | 66261121019           |             |
|       | 40   |                    |                       |                       |                        | 66261121020           |             |
|       | 50   |                    | 66261162320           | 63642595472           | 66261138670            | 66261121021           |             |
|       | 60   |                    | 66261162322           | 63642595476           | 66261121048            | 66261121022           |             |
|       | 80   |                    | 66261162324           | 63642595478           | 66261121049            | 66261121023           |             |
|       | 100  |                    | 66261043383           | 66261043419           |                        | 66261121024           |             |
|       | 120  |                    | 66261043386           | 66261043421           |                        | 66261121025           |             |
|       | 150  |                    |                       |                       |                        | 66261121026           |             |
|       | 180  |                    |                       |                       |                        | 66261121027           |             |
|       | 240  |                    |                       |                       |                        | 66261121028           |             |
|       | 3    |                    | 24                    | 25/25*                |                        |                       | 66261138675 |
| 36    |      | 66261162328        | 63642595479           |                       | 66261138674            | 66261121030           |             |
| 40    |      |                    |                       |                       |                        | 66261121031           |             |
| 50    |      | 66261162330        | 63642595480           |                       | 66261138673            | 66261121032           |             |
| 60    |      | 66261162332        | 63642895481           |                       | 66261121053            | 66261121033           |             |
| 80    |      | 66261162334        | 63642595493           |                       | 66261121054            | 66261121034           |             |
| 100   |      | 66261043390        | 66261043423           |                       |                        | 66261121035           |             |
| 120   |      | 66261043392        | 66261043425           |                       |                        | 66261121036           |             |
| 150   |      |                    |                       |                       |                        | 66261121037           |             |
| 180   |      |                    |                       |                       |                        | 66261121038           |             |
| 240   |      |                    |                       | 66261121039           |                        |                       |             |

\* PACKAGING: 2" METALITE R228 100/100; • PACKAGING: 3" METALITE R228 50/50

## Speed-Lok TR Fiber Discs

| SIZE | GRIT | MIN./<br>STD. PKG. | BEST<br>SG BLAZE F980 |
|------|------|--------------------|-----------------------|
|      |      |                    | SPEED-LOK TR UPC #    |
| 2    | 36   | 25/25              | 66261058704           |
|      | 50   | 25/25              | 66261058705           |
|      | 60   | 25/25              | 66261058706           |
|      | 80   | 25/25              | 66261058707           |
| 3    | 36   | 25/25              | 66261058708           |
|      | 50   | 25/25              | 66261058709           |
|      | 60   | 25/25              | 66261058711           |
|      | 80   | 25/25              | 66261058712           |

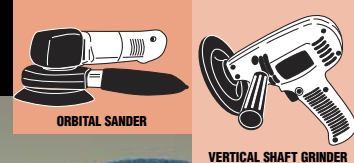
Refer to the "Fiber and AVOS Discs" section for additional Speed-Lok fiber discs.

## Speed-Lok TR Back-up Pads



| DESCRIPTION                      | MAX.<br>RPM | STD.<br>PKG. | UPC NO.     |
|----------------------------------|-------------|--------------|-------------|
| <b>SPEED-LOK TR BACK-UP PADS</b> |             |              |             |
| 1-1/2" Medium                    | 30,000      | 10           | 66261047580 |
| 2" Medium                        | 25,000      | 10           | 66261055103 |
| 3" Hard                          | 20,000      | 10           | 63642504900 |
| 3" Medium                        | 20,000      | 10           | 66261055105 |
| 4" Medium                        | 12,000      | 10           | 66261047581 |

# CLOTH PSA DISCS AND ACCESSORIES



Norton cloth PSA (pressure sensitive adhesive) individual discs and disc rolls are ideal for all maintenance and repair applications, from medium grinding to light deburring.

## Typical Applications

- Light to medium pressure grinding
- Blending, leveling and finishing applications
- For use on contours or flat surfaces



### **BEST** Norton SG R938 Discs – For demanding cloth applications

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Patented, P-graded, Norton SG ceramic aluminum oxide grain</li> </ul> | <ul style="list-style-type: none"> <li>• Maximum life; rapid, cool cutting; consistent finishes</li> <li>• Ideal for flash and seam removal on molded parts and a broad range of nonferrous metalworking and woodworking applications</li> </ul> |
| <ul style="list-style-type: none"> <li>• All resin bond</li> </ul>   | <ul style="list-style-type: none"> <li>• Provides excellent grain retention and load resistance</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Strong, semi-flexible X-wt cotton cloth backing</li> </ul>            | <ul style="list-style-type: none"> <li>• Durable; resistant to heat</li> </ul>   |
| <ul style="list-style-type: none"> <li>• DL (dustless) anti-static</li> </ul>                                  | <ul style="list-style-type: none"> <li>• Cleaner workpiece and equipment</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Tabbed discs</li> </ul>   | <ul style="list-style-type: none"> <li>• Easy application and removal</li> </ul>   |



### **BETTER** NorZon Plus R821 Discs – The choice for grinding and deburring stainless steel

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Self-sharpening, zirconia alumina abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Cooler cut, extended life over competitive zirconia alumina products</li> </ul> |
| <ul style="list-style-type: none"> <li>• Heavy Y-wt backing</li> </ul>                         | <ul style="list-style-type: none"> <li>• Durable; reduced edge wear</li> </ul>   |



### **GOOD** Metalite R228 Discs – Metalworking, versatile

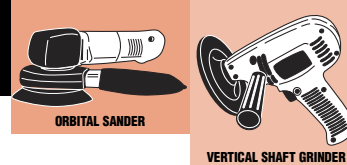
| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>• Premium aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Long life</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Heavy, X-wt cotton backing</li> </ul>      | <ul style="list-style-type: none"> <li>• Durable</li> <li>• Ideal for aggressive stock removal applications</li> <li>• Resistant to heat</li> </ul> |



### **GOOD** KJ370 Discs – Ideal for dimensioning and finishing of contours

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• P-graded, heat-treated, aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Excellent cut rate; long life</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Resin bond system</li> </ul>                               | <ul style="list-style-type: none"> <li>• Increased strength and durability</li> <li>• Produces fine finishes on soft metals and wood</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Flexible J-wt backing</li> </ul>                           | <ul style="list-style-type: none"> <li>• Provides flexibility needed for contouring while maintaining grain adhesion</li> <li>• Designed for intermediate / light pressure, dry sanding</li> </ul> |
| <ul style="list-style-type: none"> <li>• Tabbed discs</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Easy application and removal</li> </ul>   |





## Small Diameter Cloth PSA Discs

### Metalite R228 Individual Cloth PSA Discs

| SIZE | MIN./<br>STD PKG | GOOD<br>METALITE R228 |             |             |             |             |             |             |             |             |
|------|------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|      |                  | 36<br>GRIT            | 40<br>GRIT  | 50<br>GRIT  | 60<br>GRIT  | 80<br>GRIT  | 100<br>GRIT | 120<br>GRIT | 150<br>GRIT | 180<br>GRIT |
| 2    | 50/500           |                       |             | 66261136530 | 66261136525 | 66261136520 | 66261136517 | 66261136515 |             |             |
| 3    | 50/500           | 66261136565           |             | 66261136562 | 66261136560 | 66261136555 | 66261136552 |             |             |             |
| 5    | 50/250           | 66261136589           | 66261136588 | 66261136587 | 66261136586 | 66261136585 | 66261136584 | 66261136583 | 66261136582 | 66261136581 |
| 6    | 50/250           |                       |             |             | 66261136596 | 66261136595 | 66261136594 | 66261136593 |             | 66261136592 |
| 8    | 50/250           | 66261136350           | 66261136351 | 66261136352 | 66261136576 | 66261136354 |             | 66261136355 |             |             |

### Individual Cloth PSA Tabled Discs

| SIZE | GRIT | MIN./<br>STD. PKG. | BEST<br>R938* | GOOD<br>KJ370* |
|------|------|--------------------|---------------|----------------|
|      |      |                    | PSA           | PSA            |
| 5    | 80   | 50/250             | 66261139832   | 66623351358    |
|      | 100  |                    | 66261139833   | 66623351359    |
|      | 120  |                    | 66261139834   | 66623351360    |
|      | 150  |                    |               | 66623351361    |
|      | 180  |                    |               | 66623351362    |
|      | 220  |                    |               | 66623351363    |

\*P-GRADED



### Cloth PSA Disc Rolls

| SIZE                 | STD. PKG./<br>DISCS PER ROLL | GOOD<br>METALITE R228 / KJ370* |             |             |             |             |             |             |             |
|----------------------|------------------------------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                      |                              | 50<br>GRIT                     | 60<br>GRIT  | 80<br>GRIT  | 100<br>GRIT | 120<br>GRIT | 150<br>GRIT | 180<br>GRIT | 220<br>GRIT |
| <b>METALITE R228</b> |                              |                                |             |             |             |             |             |             |             |
| 5                    | 4/100                        | 66261133252                    | 66261133253 | 66261133254 | 66261133255 |             |             |             |             |
| <b>KJ370</b>         |                              |                                |             |             |             |             |             |             |             |
| 5                    | 4/100                        |                                |             | 66623350228 |             | 66623350230 | 66623350231 | 66623350232 | 66623350233 |

\*P-GRADED

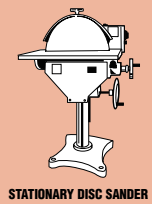
SEE PAGE 70 FOR DISC ROLL DISPENSERS

### Back-up Pads for Cloth PSA Discs

| DESCRIPTION                      | STD PKG | MAX. RPM | UPC NO.     |
|----------------------------------|---------|----------|-------------|
| 2" Diameter                      | 10      | 12,500   | 63642543095 |
| 3" Diameter                      | 10      | 8,000    | 63642543100 |
| 5" Diameter – Low Profile – Soft | 5       | 12,000   | 63642503087 |
| 5" Diameter – Low Profile – Firm | 5       | 12,000   | 63642503605 |
| 5" Diameter – Tapered – Medium   | 5       | 12,000   | 63642503112 |
| 6" Diameter – Tapered – Medium   | 5       | 10,000   | 63642543852 |
| 8" Diameter – Tapered – Medium   | 5       | 6,000    | 63642543112 |



FOR ADDITIONAL BACK-UP PADS AND PRODUCT DESCRIPTIONS, SEE PAGE 69



## Large Diameter Cloth PSA Discs

Used on stationary disc machines for dimensioning and finishing metal workpieces. Pressure sensitive adhesive offers fast, convenient mounting. Made without center holes for full-face usage.

### NorZon Plus R821 Large Diameter Cloth PSA Discs

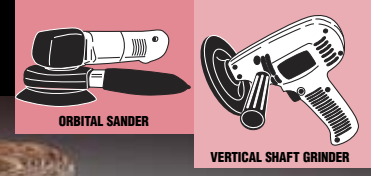
| SIZE | MIN./STD. PKG. | BETTER<br>NORZON PLUS R821 |             |             |             |             |             |
|------|----------------|----------------------------|-------------|-------------|-------------|-------------|-------------|
|      |                | 24 GRIT                    | 36 GRIT     | 40 GRIT     | 50 GRIT     | 60 GRIT     | 80 GRIT     |
| 10   | 25/50          |                            |             | 66261138314 |             | 66261138316 | 66261138317 |
| 12   | 25/50          | 66261138318                | 66261138319 | 66261138320 | 66261138321 | 66261138322 | 66261138323 |
| 16   | 25/50          |                            |             |             | 66261138333 | 66261138334 | 66261109128 |
| 18   | 25/50          |                            | 66261138337 |             |             |             |             |
| 20   | 25/50          |                            | 66261138343 | 66261138344 |             | 66261138346 | 66261138347 |

### Metalite R228 Large Diameter Cloth PSA Discs

| SIZE | MIN./STD. PKG. | GOOD<br>METALITE R228 |             |             |             |             |             |             |
|------|----------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|      |                | 36 GRIT               | 40 GRIT     | 50 GRIT     | 60 GRIT     | 80 GRIT     | 100 GRIT    | 120 GRIT    |
| 10   | 25/50          | 66261136606           | 66261136604 | 66261136607 | 66261136602 | 66261136601 | 66261136600 |             |
| 12   | 25/50          | 66261136635           | 66261136630 | 66261136625 | 66261136620 | 66261136615 | 66261136614 | 66261136613 |
| 15   | 25/50          | 66261136666           | 66261136665 | 66261136714 | 66261136663 | 66261136662 |             |             |
| 16   | 25/50          | 66261136700           | 66261136685 | 66261136684 | 66261136683 | 66261136701 |             |             |
| 18   | 25/50          | 66261136720           |             |             | 66261136696 | 66261136723 |             |             |
| 20   | 25/50          | 66261136710           | 66261136709 | 66261136711 | 66261136712 | 66261136706 |             |             |
| 24   | 10/10          | 66261136718           | 66261136717 | 66261136725 | 66261136726 | 66261136727 |             |             |



# PAPER DISCS AND ACCESSORIES



ORBITAL SANDER

VERTICAL SHAFT GRINDER

For use on random orbital and rotary sanders. The industry's highest performing and broadest selection of paper discs in Stick and Sand disc rolls, NorGrip (hook and loop) discs, PSA (pressure sensitive adhesive) discs and standard discs.

## Typical Applications

- Preparing primed and painted surfaces for finishing
- Stripping primer and paint
- Sanding of plastic and fiberglass
- Light weld blending and deburring
- Bare wood sanding
- Finishing metal of all types



## Light Weight Paper Discs

### BEST No-Fil DryIce Norton SG A975 – For the most demanding DA sanding applications

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>• Patented Norton SG ceramic aluminum oxide abrasive, P-graded</li> </ul>  | <ul style="list-style-type: none"> <li>• Fastest cut rate; longest life</li> <li>• Consistent finish</li> <li>• Designed for the most demanding DA sanding applications on primed and painted parts including composites, marine gel coat, furniture and nonferrous metals</li> </ul> |
| <ul style="list-style-type: none"> <li>• Unique fiber-reinforced, B-wt latex-saturated backing</li> </ul>   | <ul style="list-style-type: none"> <li>• 50-60% improvement in tear strength</li> <li>• Flexible; can be used wet</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Water-based stearate, non-pigmented, No-Fil coating</li> </ul>   | <ul style="list-style-type: none"> <li>• Provides maximum load resistance and extended life; no color transfer to work</li> </ul>   |
| <ul style="list-style-type: none"> <li>• New, increased backing weight for P80, P100 and P120 grits from B-wt to C-wt fiber-reinforced latex</li> </ul> | <ul style="list-style-type: none"> <li>• Increased tear and tensile strength while maintaining flexibility</li> <li>• More durable; longer life in more demanding applications</li> </ul>   |



### BETTER No-Fil Adalox A275 Discs – The performance leader in dry finishing

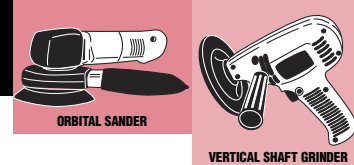
| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>• Premium P-graded, heat-treated aluminum oxide abrasive</li> </ul>                              | <ul style="list-style-type: none"> <li>• Superior life, fast cut rate, consistent finish</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Unique fiber-reinforced, B-wt latex-saturated backing</li> </ul>                               | <ul style="list-style-type: none"> <li>• 50-60% improvement in tear strength</li> <li>• Flexible; can be used wet</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Water-based stearate, non-pigmented, No-Fil coating</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Provides maximum load resistance and extended life; no color transfer to work</li> </ul>   |
| <ul style="list-style-type: none"> <li>• 5" and 6" individual PSA discs in fine grits have a tabbed, white translucent liner</li> </ul> | <ul style="list-style-type: none"> <li>• The PSA adhesive is protected from air-borne contaminants</li> <li>• The tab allows easier removal of the paper liner</li> </ul> |



### BETTER Adalox A270 Discs – Non-stearated / non-contaminating

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Premium P-graded, heat-treated aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Fast, aggressive cutting action, consistent finish</li> </ul>   |
| <ul style="list-style-type: none"> <li>• High-strength B-wt latex backing</li> </ul>                       | <ul style="list-style-type: none"> <li>• Superior strength and tear resistance, flexible</li> <li>• Eliminates delamination to back-up pad</li> <li>• Can be used wet</li> </ul> |
| <ul style="list-style-type: none"> <li>• Non-stearated (no anti-loading agents)</li> </ul>                 | <ul style="list-style-type: none"> <li>• Non-contaminating (often required for prime auto and aerospace paint applications)</li> </ul>   |





## Light Weight Paper Discs (CONTINUED)

| <b>GOOD</b> No-Fil Adalox A290 Discs – unrivaled durability and value for dry finishing |  |
|---|--|
| <i>FEATURES</i>   | <i>BENEFITS</i>                                    |
| • P-graded aluminum oxide abrasive  | • Increased life, fast cut rate, consistent finish |
| • Heavy-duty C-wt backing   | • Edge-tear resistance, durable                    |
| • Stearated (No-Fil), open coat   | • Reduced loading                                  |



| <b>GOOD</b> No-Fil Durite A413 Discs – General purpose versatility |   |
|--|---|
| <i>FEATURES</i>  | <i>BENEFITS</i>                                       |
| • Sharp silicon carbide abrasive                                   | • Excellent for finishing; ideal between sealer coats |
| • B-wt backing   | • Flexible  |
| • Stearated (No-Fil), open coat                                    | • Reduced loading                                     |



## Heavy Paper Discs

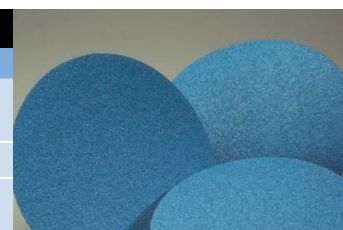
| <b>BEST</b> Norton SG H920 Discs – For more demanding metal finishing applications |   |
|--|---|
| <i>FEATURES</i>  | <i>BENEFITS</i>   |
| • Patented Norton SG ceramic aluminum oxide abrasive                               | • Maximum life; fast aggressive cutting action, yet cool cutting  |
| • Strong F-wt paper, synthetically-coated  | • Maximum durability and chip resistance, ideal for soldered and welded areas, and body-in-white applications |



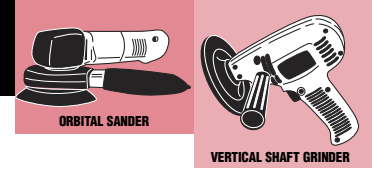
| <b>BETTER</b> NorZon Plus H822 Discs – For demanding metal finishing applications |   |
|---|---|
| <i>FEATURES</i>   | <i>BENEFITS</i>   |
| • Patented NorZon Plus zirconia alumina abrasive                                  | • Extended life over original zirconia alumina products   |
| • Strong F-wt paper, synthetically-coated   | • Excellent durability and chip resistance; ideal for soldered and welded areas, and body-in-white applications |



| <b>BETTER</b> NorZon Plus H875 Discs – Excellent for soft material applications |   |
|---|---|
| <i>FEATURES</i>   | <i>BENEFITS</i>   |
| • Patented NorZon Plus zirconia alumina abrasive                                | • Extended life over original zirconia alumina products             |
| • Strong E-wt paper   | • Increased durability and chip resistance, flexible                |
| • Open coat design  | • Reduced loading; ideal for body-filler, fiberglass and composites |





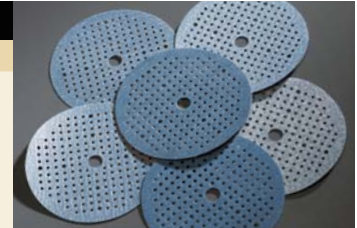


## No-Fil Multi-Air NorGrip Paper Discs – Hook and Loop

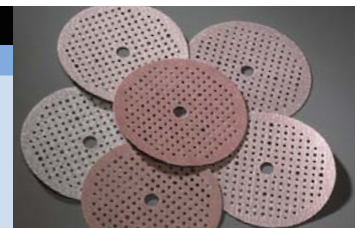
| Multi-Air NorGrip Discs – Less dust; more productivity   |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Revolutionary design for maximum vacuum assist</li> <li>• Cutting surface of disc remains clean</li> <li>• Highly-engineered back-up pad</li> </ul> | <ul style="list-style-type: none"> <li>• 30% increase in dust extraction; clogging is virtually eliminated</li> <li>• Cleaner working environment; less dust and contamination</li> <li>• 35% increase in productivity versus traditional vacuum systems</li> <li>• No clogging; consistent cut throughout the life of the disc</li> <li>• Revolutionary style for maximum dust extraction</li> </ul> |



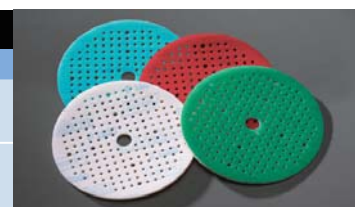
| BEST No-Fil Multi-Air Plus A975 NorGrip Discs  |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Patented Norton SG ceramic aluminum oxide abrasive, P-graded</li> </ul> | <ul style="list-style-type: none"> <li>• Fastest cut rate; longest life; consistent finish</li> <li>• Designed for the most demanding DA sanding applications on primed and painted parts including composites, marine gel coat, furniture and nonferrous metals</li> </ul> |



| BETTER No-Fil Multi-Air A275 NorGrip Discs   |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Premium P-graded, heat-treated aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Superior life, fast cut rate, consistent finish</li> <li>• Substantially longer life and faster cut than conventional abrasives</li> </ul> |



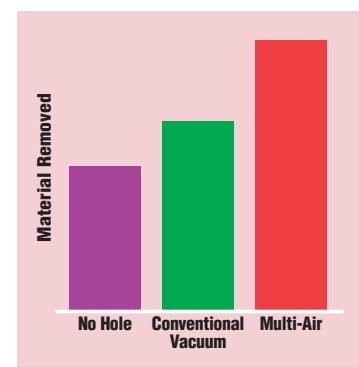
| BETTER No-Fil Multi-Air SoftTouch A275 NorGrip Discs  |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Unique SoftTouch discs on a durable foam sponge in fine grits</li> <li>• Premium P-graded, heat-treated aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Sand over contours without cutting through</li> <li>• Color-coded by grit size for easy identification</li> <li>• Superior life, fast cut rate, consistent finish</li> <li>• Substantially longer life and faster cut than conventional abrasives</li> </ul> |



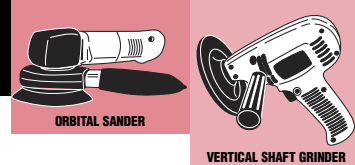
| SIZE                      | GRIT | MIN. PKG./<br>STD. PKG. | BEST + A975* | BETTER A275* | MIN. PKG./<br>STD. PKG. | BETTER SOFTTOUCH A275* |             |       |             |
|---------------------------|------|-------------------------|--------------|--------------|-------------------------|------------------------|-------------|-------|-------------|
|                           |      |                         | UPC NO.      | UPC NO.      |                         | UPC NO.                |             |       |             |
| 5 x 11/16<br>125mm x 18mm | 80   | 100/400                 | 63642563535  |              |                         |                        |             |       |             |
|                           | 120  |                         | 63642563536  |              |                         |                        |             |       |             |
|                           | 150  |                         | 63642563537  |              |                         |                        |             |       |             |
|                           | 180  |                         | 63642563538  |              |                         |                        |             |       |             |
|                           | 220  |                         | 63642563539  |              |                         |                        |             |       |             |
|                           | 240  |                         | 63642563540  |              |                         |                        |             |       |             |
|                           | 320  |                         | 63642563542  |              |                         |                        | 63642563520 |       |             |
|                           | 400  |                         | 63642563543  |              |                         |                        | 63642563522 |       |             |
|                           | 800  |                         |              |              |                         |                        | 63642563525 |       |             |
| 6 x 11/16<br>150mm x 18mm | 80   | 100/400                 |              |              |                         |                        |             |       |             |
|                           | 120  |                         |              |              |                         |                        | 63642560561 |       |             |
|                           | 150  |                         |              |              |                         |                        | 63642560562 |       |             |
|                           | 180  |                         |              |              |                         |                        | 63642560563 |       |             |
|                           | 220  |                         |              |              |                         |                        | 63642560564 |       |             |
|                           | 240  |                         |              |              |                         |                        | 63642560565 |       |             |
|                           | 280  |                         |              |              |                         |                        | 63642560566 |       |             |
|                           | 320  |                         |              |              |                         |                        | 63642560567 |       |             |
|                           | 400  |                         |              |              |                         |                        | 63642560568 |       |             |
|                           | 500  |                         |              |              |                         |                        | 63642560570 |       |             |
|                           | 600  |                         |              |              |                         |                        | 63642560571 |       |             |
|                           | 800  |                         |              |              |                         |                        | 63642560572 |       |             |
|                           | 1000 |                         |              |              |                         |                        | 63642560573 | 20/80 | 63642560577 |
|                           | 1500 |                         |              |              |                         |                        |             |       | 63642560578 |
|                           |      |                         |              |              |                         |                        |             |       | 63642560579 |

\* P-GRADED

Area Sanded in One Minute



**Multi-Air NorGrip discs and back-up pads should always be used together – as a system, with the holes properly aligned. Multi-Air Discs should be used only with Multi-Air back-up pads, shown on page 70.**



ORBITAL SANDER

VERTICAL SHAFT GRINDER

## NorGrip Paper Discs – Hook and Loop

Reusable discs that reduce waste.

| SIZE       | GRIT        | MIN./<br>STD. PKG. | LIGHT WEIGHT PAPER |                 |                | HEAVY PAPER   |              |                |
|------------|-------------|--------------------|--------------------|-----------------|----------------|---------------|--------------|----------------|
|            |             |                    | BEST<br>A975*      | BETTER<br>A275* | BETTER<br>A270 | GOOD<br>A290* | BEST<br>H920 | BETTER<br>H875 |
| 3          | 80          | 50/200             |                    | 66261131532     |                |               |              |                |
|            | 100         |                    | 66261144926        |                 |                |               |              |                |
|            | 120         |                    | 66261128688        |                 |                |               |              |                |
|            | 150         |                    | 66261140385        |                 |                |               |              |                |
|            | 180         |                    | 66261131528        |                 |                |               |              |                |
|            | 220         |                    | 66261131527        |                 |                |               |              |                |
|            | 240         |                    | 66261131526        |                 |                |               |              |                |
|            | 320         |                    | 66261131524        |                 |                |               |              |                |
|            | 400         |                    | 66261136995        |                 |                |               |              |                |
|            | 500         |                    | 66261131521        |                 |                |               |              |                |
|            | 600         |                    | 66261136996        |                 |                |               |              |                |
|            | 800         |                    | 66261131519        |                 |                |               |              |                |
| 1000       | 66261135900 |                    |                    |                 |                |               |              |                |
| 1500       | 66261147434 |                    |                    |                 |                |               |              |                |
| 3 x<br>7/8 | 320         | 200/200            |                    |                 | 66261127425    |               |              |                |
|            | 500         |                    |                    |                 | 66261127268    |               |              |                |
|            | 600         |                    |                    |                 | 66261128695    |               |              |                |
|            | 800         |                    |                    |                 | 66261128791    |               |              |                |
| 5          | 40          | 25/100             |                    |                 |                | 66261130224   | 66261149864* | 66261125684    |
|            | 60          |                    |                    |                 |                |               | 66261149865* | 66261125444•   |
|            | 80          | 100/400            | 66261140522‡       | 66261131549     |                | 66261149907   | 66261149866* |                |
|            | 100         |                    | 66261140521‡       | 66261131548     |                | 66261149906   | 66261149905  |                |
|            | 120         |                    | 66261140520‡       | 66261131547     |                | 66261149905   | 66261149867* |                |
|            | 150         |                    | 66261140519‡       | 66261131546     |                | 66261149904   |              |                |
|            | 180         |                    | 66261140518‡       | 66261131545     |                | 66261149903   |              |                |
|            | 220         |                    | 66261149541‡       | 66261131544     | 66261127477    | 66261149902   |              |                |
|            | 240         |                    |                    | 66261131543     |                |               |              |                |
|            | 280         |                    |                    | 66261131542     |                |               |              |                |
|            | 320         |                    | 66261149538‡       | 66261131541     | 66261127478    | 66261149900   |              |                |
|            | 400         |                    | 66261149537‡       | 66261131539     | 66261127479    | 66261149899   |              |                |
|            | 500         |                    | 66261131538        |                 |                |               |              |                |
|            | 600         |                    | 66261131537        |                 |                |               |              |                |
|            | 800         |                    | 66261131536        |                 |                |               |              |                |
|            | 1000        |                    | 66261131535        |                 |                |               |              |                |
| 1200       |             | 66261131534        |                    |                 |                |               |              |                |
| 1500       |             | 66261131533        |                    |                 |                |               |              |                |
| 6          | 36          | 25/100             |                    |                 |                |               |              | 66261123590    |
|            | 40          |                    |                    |                 |                |               |              | 66261123589    |
|            | 80          | 100/400            | 66261140532‡       | 66261131566     |                | 66261149916   |              | 66261123588•   |
|            | 100         |                    | 66261140531‡       | 66261131565     |                | 66261149915   |              |                |
|            | 120         |                    | 66261140530‡       | 66261131564     |                | 66261149914   |              |                |
|            | 150         |                    | 66261140529‡       | 66261131563     |                | 66261149913   |              |                |
|            | 180         |                    | 66261140528‡       | 66261131562     |                | 66261149912   |              |                |
|            | 220         |                    | 66261149546‡       | 66261131561     |                | 66261149911   |              |                |
|            | 240         |                    |                    | 66261131560     |                |               |              |                |
|            | 280         |                    |                    | 66261131559     |                | 66261149910   |              |                |
|            | 320         |                    | 66261149543‡       | 66261131558     |                | 66261149909   |              |                |
|            | 400         |                    | 66261149542‡       | 66261131556     |                | 66261149908   |              |                |
|            | 500         |                    | 66261131555        |                 |                |               |              |                |
|            | 600         |                    | 66261131554        |                 |                |               |              |                |
|            | 800         |                    | 66261131553        |                 |                |               |              |                |
|            | 1000        |                    | 66261131552        |                 |                |               |              |                |
| 1200       |             | 66261131551        |                    |                 |                |               |              |                |
| 1500       |             | 66261131550        |                    |                 |                |               |              |                |
| 8          | 36          | 25/100             |                    |                 |                |               |              | 66261123593    |
|            | 40          |                    |                    |                 |                |               |              | 66261123592    |
|            | 60          | 50/250<br>100/400  |                    |                 |                |               | 66261149894  |                |
|            | 80          |                    |                    | 66261131658     |                |               |              | 66261123591    |
|            | 100         |                    |                    |                 |                |               | 66261149896  |                |
|            | 120         |                    |                    | 66261131662     |                |               |              |                |
| 180        |             | 66261131661        |                    |                 |                |               |              |                |

PACKAGING STANDARDS:

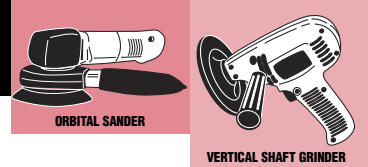
MIN. / STD. PKG.

\* H920 = 50/250

• H875 = 25/100

‡ A975, A975 VACUUM, A290 VACUUM = 50/200

\* P-GRADED

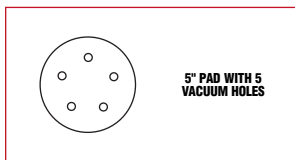


## NorGrip Paper Discs – Hook and Loop Vacuum

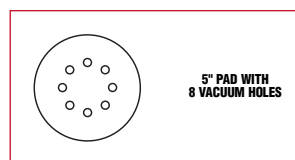
|      |      | LIGHT WEIGHT PAPER – VAC |                       |                     |                             | HEAVY PAPER – VAC    |                    |               |
|------|------|--------------------------|-----------------------|---------------------|-----------------------------|----------------------|--------------------|---------------|
|      |      | BEST<br>A975* VAC        | BEST<br>A975(3X)* VAC | BETTER<br>A275* VAC | GOOD<br>A290*VAC            | GOOD<br>A290* VAC    | BETTER<br>H875 VAC |               |
| SIZE | GRIT | MIN./<br>STD. PKG.       | DIE #<br>3328 / 3371  | DIE #<br>3408-2     | DIE #<br>3328 / 3371 / 3370 | DIE #<br>3328 / 3371 | DIE #<br>3392      | DIE #<br>3370 |
| 5    | 60   | 100/400                  |                       |                     |                             | 66261130236‡         | 66261130245‡       |               |
|      | 80   |                          | 66261140517‡          |                     | 66261131583                 | 66261130235‡         | 66261130244‡       |               |
|      | 100  |                          |                       |                     | 66261131582                 | 66261130234‡         | 66261130243‡       |               |
|      | 120  |                          | 66261140515‡          |                     | 66261131581                 | 66261130233‡         | 66261130242‡       |               |
|      | 150  |                          |                       |                     | 66261131580                 | 66261130232‡         | 66261130241‡       |               |
|      | 180  |                          |                       |                     | 66261131579                 | 66261130231‡         | 66261130240‡       |               |
|      | 220  |                          |                       |                     | 66261131578                 | 66261130230‡         | 66261130239‡       |               |
|      | 240  |                          |                       |                     | 66261131577                 |                      |                    |               |
|      | 280  |                          |                       |                     | 66261131576                 |                      |                    |               |
|      | 320  |                          |                       |                     | 66261131575                 | 66261130227‡         | 66261130238‡       |               |
|      | 400  |                          |                       |                     | 66261131573                 | 66261130226‡         |                    |               |
| 600  |      |                          | 66261131571           |                     |                             |                      |                    |               |
| 800  |      |                          | 66261131570           |                     |                             |                      |                    |               |
| 1000 |      |                          | 66261131569           |                     |                             |                      |                    |               |
| 6    | 80   | 100/400                  | 66261140527‡          | 07660705489‡        | 66261131600                 | 66261130255‡         |                    |               |
|      | 100  |                          | 66261140526‡          | 07660705488‡        | 66261131599                 |                      |                    |               |
|      | 120  |                          |                       | 07660705487‡        | 66261131598                 | 66261130253‡         |                    |               |
|      | 150  |                          |                       | 07660705486‡        | 66261131597                 |                      |                    |               |
|      | 180  |                          |                       | 07660705485‡        | 66261131596                 |                      |                    |               |
|      | 220  |                          |                       | 07660705484‡        | 66261131595                 | 66261130250‡         |                    |               |
|      | 280  |                          |                       |                     | 66261131593                 |                      |                    |               |
|      | 320  |                          | 66261149553‡          | 07660705483‡        | 66261131592                 |                      |                    |               |
|      | 400  |                          |                       |                     | 66261131590                 |                      |                    |               |
|      | 600  |                          |                       |                     | 66261131588                 |                      |                    |               |
| 800  |      |                          | 66261131587           |                     |                             |                      |                    |               |
| 8    | 36   | 25/100                   |                       |                     |                             |                      | 66261123598        |               |
|      | 80   |                          |                       |                     |                             |                      | 66261123596        |               |

PACKAGING STANDARDS: ‡ A975, A975 VACUUM, A290 VACUUM = 50/200

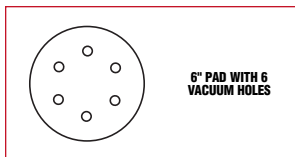
**Die 3328 – NorGrip**



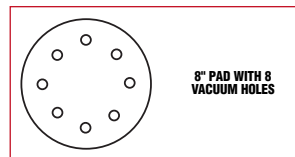
**Die 3392 – NorGrip**



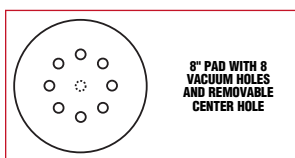
**Die 3371 – NorGrip**



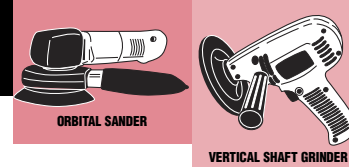
**Die 3370 – NorGrip**



**Die 3408-2 – NorGrip**



# STICK AND SAND PAPER DISC ROLLS



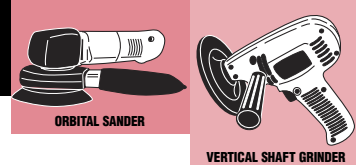
## Stick and Sand Paper Disc Rolls

Pressure Sensitive Adhesive makes for easy application and removal.

|       |      |                                     | LIGHT WEIGHT PAPER |                 |                 |               |              |
|-------|------|-------------------------------------|--------------------|-----------------|-----------------|---------------|--------------|
|       |      |                                     | BEST<br>A975*      | BETTER<br>A275* | BETTER<br>A270* | GOOD<br>A290* | GOOD<br>A413 |
| SIZE  | GRIT | ROLLS/<br>STD. PKG./<br>DISCS/ ROLL |                    |                 |                 |               |              |
| 3-1/2 | 80   | 4/100                               |                    | 66261136376     |                 |               |              |
|       | 120  |                                     | 66261136375        |                 |                 |               |              |
|       | 180  |                                     | 66261136373        |                 |                 |               |              |
|       | 220  |                                     | 66261136372        |                 |                 |               |              |
|       | 320  |                                     | 66261136369        |                 |                 |               |              |
|       | 400  |                                     | 66261136368        |                 |                 |               |              |
| 5     | 60   | 4/100                               |                    |                 |                 | 66261149831   |              |
|       | 80   |                                     | 66261140502        | 66261131464*    |                 | 66261149830   | 66261131318  |
|       | 100  |                                     | 66261140501        | 66261131463*    |                 | 66261149829   | 66261131317  |
|       | 120  |                                     | 66261140500        | 66261131462*    |                 | 66261149828   | 66261131316  |
|       | 150  |                                     | 66261140499        | 66261131461*    |                 | 66261149827   | 66261131315  |
|       | 180  |                                     | 66261140498        | 66261131460*    |                 | 66261149826   | 66261131314  |
|       | 220  |                                     | 66261142474        | 66261131459*    | 66261127463     | 66261149825   | 66261131307  |
|       | 240  |                                     | 66261155380        | 66261131458*    |                 | 66261149824   | 66261131313  |
|       | 280  |                                     | 66261155379        | 66261131457*    |                 | 66261149823   |              |
|       | 320  |                                     | 66261155378        | 66261131456*    | 66261127465     | 66261149822   | 66261131311  |
|       | 400  |                                     | 66261155377        | 66261131454*    | 66261127466     | 66261149821   |              |
|       | 500  |                                     |                    | 66261131453*    | 66261127467     |               |              |
|       | 600  |                                     |                    | 66261131452*    |                 |               |              |
|       | 800  |                                     |                    | 66261131451*    |                 |               |              |
| 6     | 60   | 4/100                               |                    |                 |                 | 66261149847   |              |
|       | 80   |                                     | 66261140512        | 66261131481*    |                 | 66261149842   | 66261131366  |
|       | 100  |                                     | 66261140511        | 66261131480*    |                 | 66261149841   |              |
|       | 120  |                                     | 66261140510        | 66261131479*    |                 | 66261149840   | 66261131364  |
|       | 150  |                                     | 66261140509        | 66261131478*    |                 | 66261149839   |              |
|       | 180  |                                     | 66261140508        | 66261131477*    | 66261127472     | 66261149838   | 66261131362  |
|       | 220  |                                     | 66261148340        | 66261131476*    | 66261127473     | 66261149837   | 66261131361  |
|       | 240  |                                     | 66261155376        | 66261131475*    |                 | 66261149836   |              |
|       | 280  |                                     | 66261155375        | 66261131474*    |                 | 66261149835   |              |
|       | 320  |                                     | 66261155374        | 66261131473*    |                 | 66261149834   | 66261131358  |
|       | 360  |                                     |                    | 66261141198*    |                 |               |              |
|       | 400  |                                     |                    | 66261131471*    |                 | 66261149833   |              |
|       | 500  |                                     | 66261155373        | 66261131470*    |                 |               |              |
|       | 600  |                                     |                    | 66261131469*    |                 |               |              |
| 800   |      | 66261131468*                        |                    |                 |                 |               |              |
| 8     | 80   | 4/100                               |                    | 66261131617     |                 |               |              |
|       | 120  |                                     | 66261131615        |                 |                 |               |              |
|       | 150  |                                     | 66261131614        |                 |                 |               |              |
|       | 180  |                                     | 66261131613        |                 |                 |               |              |
|       | 220  |                                     | 66261131612        |                 |                 |               |              |
|       | 320  |                                     | 66261131609        |                 |                 |               |              |

\* P-GRADED  
PACKAGING STANDARDS \* A275 = 6/100





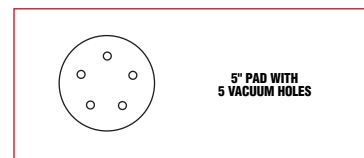
## Stick and Sand Paper Disc Rolls (CONTINUED)

|      |      |  | HEAVY PAPER  |                |                |
|------|------|--|--------------|----------------|----------------|
|      |      |  | BEST<br>H920 | BETTER<br>H822 | BETTER<br>H875 |
| SIZE | GRIT | ROLLS/<br>STD. PKG./<br>DISCS/<br>ROLL |              |                |                |
| 5    | 60   | 4/100                                  | 66261149873  | 66261137310    |                |
|      | 80   |  | 66261149872  | 66261137309    | 66261124977    |
|      | 100  |  | 66261149871  | 66261137308    | 66261125597    |
|      | 120  |  | 66261149870  | 66261137307    |                |
|      | 150  |  |              | 66261137306    |                |
| 6    | 60   | 4/100                                  | 66261149877  | 66261137323    |                |
|      | 80   |  | 66261149876  | 66261137322    | 66261125573    |
|      | 120  |  | 66261149874  |                |                |
| 8    | 100  | 4/50                                   | 66261149879  |                |                |
|      | 120  |  | 4/100        | 66261137333    |                |

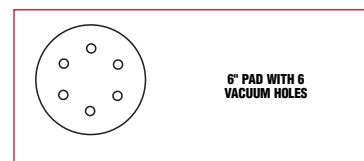
## Stick and Sand Paper Disc Rolls – Vacuum

|      |      |  | LIGHT WEIGHT PAPER – VAC |                     |                    |
|------|------|--|--------------------------|---------------------|--------------------|
|      |      |  | BEST<br>A975* VAC        | BETTER<br>A275* VAC | GOOD<br>A290* VAC  |
| SIZE | GRIT | ROLLS/<br>STD. PKG./<br>DISCS/<br>ROLL | DIE #<br>3333            | DIE #<br>3329/3333  | DIE #<br>3329/3333 |
| 5    | 60   | 4/100                                  |                          |                     | 66261130266        |
|      | 80   |  |                          | 66261131498*        | 66261130265        |
|      | 100  |  |                          | 66261131497*        | 66261130265        |
|      | 120  |  |                          | 66261131496*        | 66261130264        |
|      | 150  |  |                          | 66261131495*        | 66261130263        |
|      | 180  |  |                          | 66261131495*        | 66261130262        |
|      | 220  |  |                          | 66261131494*        | 66261130261        |
|      | 240  |  |                          | 66261131493*        | 66261130260        |
|      | 320  |  |                          | 66261131492*        | 66261130259        |
|      | 400  |  |                          | 66261131490*        | 66261130258        |
|      | 500  |  |                          | 66261131488*        |                    |
|      | 800  |  |                          | 66261131487*        |                    |
|      |      |  |                          | 66261131485*        |                    |
| 6    | 80   | 4/100                                  |                          | 66261131515*        | 66261130276        |
|      | 100  |  |                          | 66261131514*        | 66261130275        |
|      | 120  |  |                          | 66261131513*        | 66261130274        |
|      | 150  |  |                          | 66261131512*        | 66261130273        |
|      | 180  |  |                          | 66261131511*        | 66261130272        |
|      | 220  |  |                          | 66261131510*        | 66261130271        |
|      | 240  |  |                          | 66261131509*        |                    |
|      | 280  |  |                          | 66261131508*        |                    |
|      | 320  |  |                          | 66261131507*        |                    |
|      | 400  |  |                          | 66261131505*        | 66261130268        |
|      | 600  |  |                          | 66261131503*        |                    |
|      |      |  |                          | 66261149536         |                    |

Die 3329 – Vacuum Disc Rolls

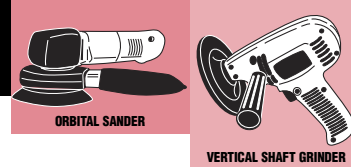


Die 3333 – Vacuum Disc Rolls



See Pages 69-71 for back-up pads and other accessories.

\* P-GRADED PACKAGING STANDARDS \* A275 = 6/100

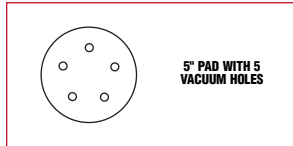


## Individual Paper Discs – PSA (Pressure Sensitive Adhesive) and Non-PSA

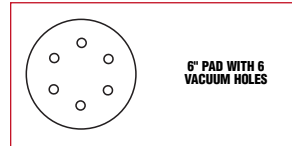
| SIZE | GRIT        | MIN./<br>STD. PKG. | PSA             |                            |  | PSA VAC                                   | NON-PSA                                   |               |
|------|-------------|--------------------|-----------------|----------------------------|--|---|---|---------------|
|      |             |                    | BETTER<br>A275* | BETTER<br>H875             | GOOD<br>H290*                                | BETTER<br>H875 VAC                        | BETTER<br>H875                            | GOOD<br>H290* |
| 5    | 36          | 50/200             | PSA<br>TABBED   | PSA                        | PSA  | PSA VACUUM<br>#3328/3371/3370             | NON PSA                                   | NON PSA       |
|      | 40          |                    |                 | 66261125436                |  |   |   |               |
|      | 80          |                    |                 | 66261125307<br>66261125244 |  |   |   |               |
|      | 1000        | 100/400            | 66261131450     |                            |  |   |   |               |
|      | 1200        |                    | 66261131449     |                            |  |   |   |               |
| 6    | 36          | 50/200             | PSA             | 66261123575                | 66261130834‡<br>66261130833‡<br>66261130832‡ | 66261123580                               | 66261123604<br>66261123603<br>66261123602 |               |
|      | 40          |                    |                 | 66261123574                |  |   |   |               |
|      | 80          |                    |                 | 66261123573                |  |   |   |               |
|      | 1000        | 100/400            | 66261131467     |                            |  |   |   |               |
|      | 1200        |                    | 66261131466     |                            |  |   |   |               |
| 1500 | 66261131465 |                    |                 |                            |  |   |   |               |
| 8    | 36          | 25/100             | PSA             | 66261123578                | 66261130827•<br>66261130826•                 | 66261123584<br>66261123583<br>66261123582 | 66261123605                               | 66261130830‡  |
|      | 40          |                    |                 | 66261123577                |  |   |   |               |
|      | 80          |                    |                 | 66261123576                |  |   |   |               |

\* P-GRADED  
PACKAGING STANDARDS:  
MIN. / STD. PKG.  
‡ H920 = 100/400  
• H290 = 50/200

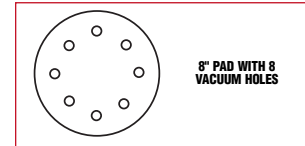
Die 3328



Die 3371



Die 3370



**SPECcheck**



### Starting Recommendations by Application

| MATERIAL                    | BEST PERFORMANCE | GENERAL DUTY |
|-----------------------------|------------------|--------------|
| Unfinished Metal            | H920             | H822, H875   |
| Primed and Painted Surfaces | A975, A275       | A290         |
| Fiberglass, Composites      | A975, A275, H875 | A290, H290   |
| Bare Wood                   | A975, A275       | A290         |
| Sealer Sanding              | A975, A275       | A413         |
| Paint Stripping             | A975, A275, H875 | A290, H290   |

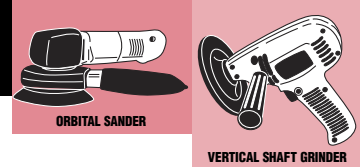
### Recommended Grit Selection

| ROUGHING TO INTERMEDIATE | INTERMEDIATE TO FINISHING | FINE FINISHING | ULTRA FINE FINISHING |
|--------------------------|---------------------------|----------------|----------------------|
| 36-80                    | 80-240                    | 240-600        | 600-1500             |



### Paper Disc Competitive Cross Reference

| NORTON | 3M                     | HERMES        | KLINGSPOR  | MIRKA            | VSM           |
|--------|------------------------|---------------|------------|------------------|---------------|
| A270   | 210U, 268L, 360L       | —             | —          | Silver           | —             |
| A275   | 216U, 255L, 260L, 334U | HC133, HCAB   | PS33       | Q-Silver, Royal  | —             |
| A290   | 236U, 316U             | HCAB          | PS33, PL36 | Bulldog Gold     | KP911         |
| A413   | 414N, 415N             | PSF-LL, SA167 | PL35       | Carat (B)        | CP131A        |
| A975   | 734U, 735U, 765U, 334U | —             | —          | —                | —             |
| H822   | 363I                   | —             | —          | —                | —             |
| H875   | 750U, 751U, 740I, 745I | —             | —          | Royal Coarse Cut | KP510E, KP709 |
| H920   | 763U, 751I             | —             | —          | —                | —             |



## Accessories

### Low-Profile Pads for Dual Action/Random Orbital Sanders

Soft density low-profile pads utilize 1/2" thick foam for fine finish sanding and offer moderate conformability. Medium low-profile pads have 1/2" thick urethane foam for intermediate and finish sanding. Firm density low-profile pads utilize 1/4" thick urethane foam for flash and seam removal. Available with PSA or NorGrip faces. Both designs are shock resistant and have a fiberglass backing plate with a riveted 5/16"-24 threaded shank for added strength and increased heat resistance. Also available with a standard 5-hole pattern for vacuum-assist sanding.

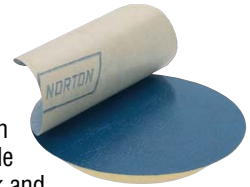


| DESCRIPTION                                       | MAX. RPM | STD. PKG. | UPC NO.     |
|---|----------|-----------|-------------|
| 3" Foam Polishing Pad                             | 12,000   | 10        | 63642504295 |
| 3" PSA Soft Low-Profile                           |          | 10*       | 63642506125 |
| 3" NorGrip Soft Low-Profile                       | 12,000   | 10*       | 63642506128 |
| 3" x 7/8" NorGrip Pad                             |          | 10        | 63642541947 |
| 5" PSA Soft Low-Profile                           | 12,000   | 5         | 63642503087 |
| 5" PSA Soft Low-Profile                           | 12,000   | 5*        | 63642506126 |
| 5" NorGrip Soft Low-Profile                       | 12,000   | 5         | 63642503088 |
| 5" NorGrip Soft Low-Profile                       | 12,000   | 5*        | 63642506129 |
| 5" NorGrip Soft Low-Profile with 5 vacuum holes   | 12,000   | 5         | 63642503090 |
| 5" PSA Medium Low-Profile                         | 15,000   | 5*        | 63642506131 |
| 5" PSA Medium Low-Profile with 5 vacuum holes     | 15,000   | 5*        | 63642506132 |
| 5" NorGrip Medium Low-Profile                     | 15,000   | 5*        | 63642506135 |
| 5" NorGrip Medium Low-Profile with 5 vacuum holes | 15,000   | 5*        | 63642506136 |
| 5" PSA Firm Low-Profile                           | 12,000   | 5         | 63642503605 |
| 5" PSA Firm Low-Profile with 5 vacuum holes       | 12,000   | 5         | 63642503606 |
| 5" NorGrip Firm Low-Profile                       | 12,000   | 5         | 63642503607 |
| 5" NorGrip Firm Low-Profile with 5 vacuum holes   | 12,000   | 5         | 63642503608 |
| 6" PSA Soft Low-Profile                           | 12,000   | 5*        | 63642506127 |
| 6" NorGrip Soft Low-Profile                       | 12,000   | 5*        | 63642506130 |
| 6" PSA Medium Low-Profile                         | 15,000   | 5*        | 63642506133 |
| 6" PSA Medium Low-Profile with 6 vacuum holes     | 15,000   | 5*        | 63642506134 |
| 6" NorGrip Medium Low-Profile                     | 15,000   | 5*        | 63642506137 |
| 6" NorGrip Medium Low-Profile with 6 vacuum holes | 15,000   | 5*        | 63642506138 |

\* PACKED IN INDIVIDUAL CLAM SHELLS

### Tapered Pads for Dual Action/Random Orbital Sanders

Designed with medium density polyurethane foam and a tapered edge for conformability, these pads are firm enough for flat surfaces, yet soft enough for severe curves and contours. Available with either PSA (vinyl) or NorGrip (hook and loop) faces in vacuum or non-vacuum. The 5" and 6" pads are shock resistant and have a fiberglass backing plate with a riveted 5/16"-24 threaded shank for use on random orbital or dual action sanders. The 8" pad has a 5/8"-11 threaded female hub.



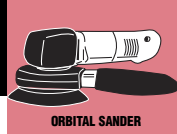
| DESCRIPTION                                   | MAX. RPM | STD. PKG. | UPC NO.     |
|---|----------|-----------|-------------|
| 5" PSA Medium Tapered                         | 12,000   | 5         | 63642503112 |
| 5" PSA Medium Tapered                         | 15,000   | 5*        | 63642506139 |
| 5" PSA Medium Tapered with 5 vacuum holes     | 12,000   | 5         | 63642503113 |
| 5" PSA Medium Tapered with 5 vacuum holes     | 15,000   | 5*        | 63642506140 |
| 5" NorGrip Medium Tapered                     | 12,000   | 5         | 63642503119 |
| 5" NorGrip Medium Tapered                     | 15,000   | 5*        | 63642506143 |
| 5" NorGrip Medium Tapered with 5 vacuum holes | 12,000   | 5         | 63642503120 |
| 5" NorGrip Medium Tapered with 5 vacuum holes | 15,000   | 5*        | 63642506144 |
| 6" PSA Medium Tapered                         | 10,000   | 5         | 63642543852 |
| 6" PSA Medium Tapered                         | 15,000   | 5*        | 63642506141 |
| 6" PSA Medium Tapered with 6 vacuum holes     | 10,000   | 5         | 63642543853 |
| 6" PSA Medium Tapered with 6 vacuum holes     | 15,000   | 5*        | 63642506142 |
| 6" NorGrip Medium Tapered                     | 10,000   | 5         | 63642543856 |
| 6" NorGrip Medium Tapered                     | 15,000   | 5*        | 63642506145 |
| 6" NorGrip Medium Tapered with 6 vacuum holes | 10,000   | 5         | 63642543857 |
| 6" NorGrip Medium Tapered with 6 vacuum holes | 15,000   | 5*        | 63642506146 |
| 8" PSA Medium Tapered                         | 6,000    | 5*        | 63642543112 |
| 8" NorGrip Medium Tapered                     | 3,200    | 5*        | 63642543704 |

\* PACKED IN INDIVIDUAL CLAM SHELLS

### Foam NorGrip Interface Pads

Designed for use with our fine grit NorGrip sanding discs. Improves both surface finish and cut rate. Use with NorGrip Back-up Pads.

| DESCRIPTION                       | STD. PKG. | UPC NO.     |
|-----------------------------------|-----------|-------------|
| 3" Diameter, 1/2" Thick Interface | 10        | 63642505457 |
| 6" Diameter, 1/2" Thick Interface | 5         | 63642542089 |
| 5" Diameter, 3/4" Thick Interface | 2         | 63642502161 |
| 6" Diameter, 3/4" Thick Interface | 2         | 63642502162 |



## Accessories

### Multi-Air NorGrip Back-up Pads with Vacuum Holes

Innovative design draws dust into a collecting chamber allowing optimal air flow and powerful dust extraction. These medium pads are recommended for all applications. Packed in individual boxes supplied with Festo adapter, 2 x M8 and 5/16"-24 bolts and 3 fiber ring spacers, or with fixed 5/16"-24 threaded shank.



| DESCRIPTION   | STD. PKG. | UPC NO.     |
|---|-----------|-------------|
| 5" (125mm) with 5-1/16"-24 and 8mm Shank with Festo Adapter |           | 63642563533 |
| 5" (125mm) with Fixed 5/16"-24 Threaded Shank               |           | 63642582249 |
| 6" (150mm) with 5-1/16"-24 and 8mm Shank with Festo Adapter |           | 63642560580 |
| 6" (150mm) with Fixed 5/16"-24 Threaded Shank               |           | 63642582245 |

### Alignment Tool for 5" Multi-Air Discs

This handy, plastic tool holds up to 20 Multi-Air discs. Discs are inserted (and stored) face-down onto the two prongs on the tool. To place a disc on the Multi-Air back-up pad, simply flip the template over the pad, inserting the prongs into the corresponding vacuum holes on the pad. The disc is then perfectly aligned to get the full benefits of the dust collecting system.



| DESCRIPTION                           | STD. PKG. | UPC NO.     |
|---------------------------------------|-----------|-------------|
| Alignment Tool for 5" Multi-Air Discs | 1         | 63642576744 |

### Polishing Adapter Pad

Converts your standard NorGrip pad into a soft polishing pad. The foam adapter is 3/8" thick and is excellent for fine grits where minimal removal is required. It is ideal for either flat or contour surfaces.



| DESCRIPTION | MAX. RPM | STD. PKG. | UPC NO.     |
|-------------|----------|-----------|-------------|
| 5" NorGrip  | 3,786    | 10        | 63642503121 |

### PSA Disc Roll Dispenser

Norton disc roll dispensers feature heavy-duty construction and a rubberized finish to protect your product, as well as the finish on your workpiece. These versatile dispensers are designed to accommodate any 5" or 6" disc roll or sheet roll. They can be attached to a wall or stacked for multi-grit or multi-diameter operations. Discs are individually dispensed and removed from the roll by a cutter bar.



| DESCRIPTION                | STD. PKG. | UPC NO.     |
|----------------------------|-----------|-------------|
| Single Disc Roll Dispenser | 1         | 63642542772 |
| Double Disc Roll Dispenser | 1         | 63642502981 |

### Non-PSA Glue-on Back-up Pads

These pads require the use of manually applied disc adhesive, such as Norton No. 10 Disc Adhesive, to adhere paper discs to the pad. A specially designed fabric surface permits even distribution of the adhesive, excellent holding power, and easy disc removal. The pads are precision balanced, with tapered edges, and are ideal for flat and contoured surfaces.



5" and 6" pads are constructed of epoxy-glass and molded urethane with a 5/16"-24 threaded shank to fit all popular sanders including random orbital and dual action. 8" pads are made of thick molded polyurethane anchored to a plastic hub with a 5/8"-11 female threaded aluminum insert.

| DESCRIPTION    | MAX. RPM | STD. PKG. | UPC NO.     |
|----------------|----------|-----------|-------------|
| 5" Pad         | 10,000   | 10        | 63642543400 |
| 6" Pad         | 10,000   | 10        | 63642543401 |
| 8" Pad, Medium | 3,800    | 5         | 63642543166 |
| 8" Pad, Soft   | 3,800    | 5         | 63642543165 |

### Adhesive for Non-PSA Discs

Available in tube form, this adhesive is specially formulated for holding paper discs to any back-up pad. Waterproof and heat-resistant, No. 10 adhesive is ideal for use on feather-edging operations. For a more permanent bond, apply to both surfaces.



| DESCRIPTION                       | STD. PKG. | UPC NO.     |
|-----------------------------------|-----------|-------------|
| No. 10 Disc Adhesive - 5 oz. Tube | 12        | 07660782720 |

## TECHtip

For best results, allow adhesive to set until tacky before applying disc.



It is the user's responsibility to refer to and comply with ANSI B7.7

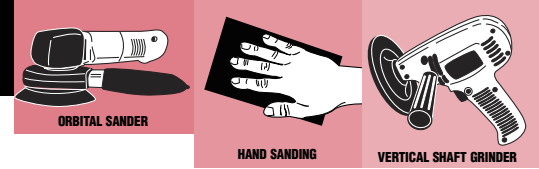
### Universal Adhesive Solvent & Cleaner

Designed as a general purpose solvent, adhesive cleaner is ideal for removal of old or excess adhesive spill-over, grease, tar, oil and residual dirt. Transparent and colorless, it is excellent for cleaning applicator guns, aerosol nozzles, brushes and tools, as well as thinning adhesive and sealer products as needed.



| DESCRIPTION | STD. PKG. | UPC NO.     |
|-------------|-----------|-------------|
| Quart Can   | 12        | 07660782780 |





ORBITAL SANDER

HAND SANDING

VERTICAL SHAFT GRINDER

## Accessories

### Disc Hand Pads

Hand pads eliminate finger sanding. The 1" thick pad is composed of two layers, neoprene and polyester foam, for excellent conformability and softness, resulting in fine finishes. The ultra-thin 3/16" thick pad is composed of a single layer of neoprene foam and is designed for maximum flexibility – producing excellent finishes. Each pad has an elastic hand strap to hold it firmly in place. Available with either PSA (vinyl) faces or NorGrip (hook and loop) face.



| DESCRIPTION                     | STD. PKG. | UPC NO.     |
|---------------------------------|-----------|-------------|
| 5" x 3/16" Thick Soft Foam PSA  | 10        | 63642503111 |
| 5" x 1" Thick Soft Foam PSA     | 10        | 63642502842 |
| 5" x 1" Thick Soft Foam NorGrip | 10        | 63642503117 |

### Half Moon Hand Pad

The unique half moon pad uses a standard 5" NorGrip disc folded in half, which adheres to the hooks on the pad face. The straight edge of the pad allows the operator to sand corners, contours, narrow crevices and minute imperfections without over-sanding.



| DESCRIPTION    | STD. PKG. | UPC NO.     |
|----------------|-----------|-------------|
| 5" x 0 NorGrip | 10        | 63642502768 |

### Ergonomic Palm Sander

The ergonomic palm sander is uniquely designed to be user-friendly, with finger indentations for the operator. It quickly converts standard 5" and 6" NorGrip (hook and loop) discs and 6" PSA discs into a palm sander for finishing flat surfaces.



| DESCRIPTION | STD. PKG. | UPC NO.     |
|-------------|-----------|-------------|
| 5" NorGrip  | 5         | 63642503147 |
| 6" PSA      | 5         | 63642503727 |
| 6" NorGrip  | 5         | 63642503726 |

### Black Lambswool Polishing Pads

Designed to repair clear coat finishes, these pads are 100% natural lambs wool which has the densest pile of any material. They are well-balanced and more durable than conventional pads. Fibers can be compressed and still recover their natural shape. Because of the denser pile surface, these pads distribute and apply material evenly and consistently.



Available in 3" – 5" diameters with a 3/4" or 1" nap to attach to a NorGrip back-up pad.

| DESCRIPTION                 | STD. PKG. | UPC NO.     |
|-----------------------------|-----------|-------------|
| 3" Pad with Loop – 3/4" nap | 500       | 63642503670 |
| 4" Pad with Loop – 3/4" nap | 250       | 63642503671 |
| 5" Pad with Loop – 1" nap   | 150       | 63642503678 |

### Micro-fiber Cloths

Micro-fiber is a single fiber with a thickness less than a human hair that has been split 16 times and woven into various products. The surface area of the micro-fiber product is increased over 15 times, creating millions of spaces between the fibers which trap dirt, grime or liquids, making this product one of the most absorbent materials.



Use the micro-fiber products dry for general cleaning.

To remove spills, stains or grime, lightly dampen the product for best results. All micro-fiber products can be used with or without chemicals. Micro-fiber products can be washed up to 300+ times without losing cleaning and trapping abilities. Clean often for best results. They save you labor time and additional costs of multiple cleaning products and chemicals.

| DESCRIPTION   | COLOR  | STD. PKG. | UPC NO.     |
|---|--------|-----------|-------------|
| <b>Micro-fiber Cleaning Cloth (Blue)</b>  |        |           |             |
| Used for general wet or dry applications. Works best when sprayed with a light water mist to deep clean.                                  |        |           |             |
| 16" x 16" Cleaning Cloth  | Blue   | 20        | 07660705300 |
| <b>Micro-fiber Dry Tack Cloth (Red)</b>   |        |           |             |
| The woven terry cloth has a low profile to resist snagging and help pick up embedded debris. This cloth is used in dry tack applications. |        |           |             |
| 16" x 16" Dry Tack Cloth  | Red    | 20        | 07660704025 |
| <b>Micro-fiber Polishing Cloth (Yellow)</b>   |        |           |             |
| Streak-free cleaning of mirrors, optical lens and highly-polished items.  |        |           |             |
| 16" x 16" Polishing Cloth   | Yellow | 20        | 07660705301 |

## TECHtip

Micro-fiber is virtually scratch resistant but may pick up debris that can scratch. Clean micro-fiber products often for best results.



It is the user's responsibility to refer to and comply with ANSI B7.7

# NORaX WATERPROOF PAPER DISCS



NORaX WATERPROOF PAPER DISCS

NORaX U381 waterproof paper discs have been developed for solid surface, automotive, and other fine finishing operations, producing superior finishes without sacrificing cut rate.

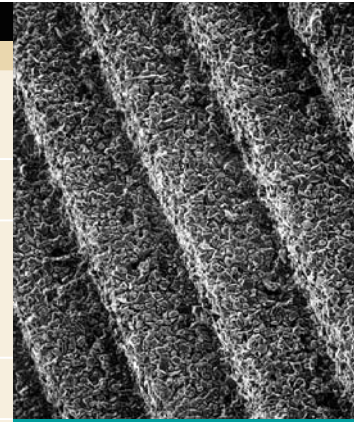
## Typical Applications

- Solid surface, composite and plastic finishing
- Automotive E-coat and moist primer defect removal



## BEST NORaX U381 Waterproof Paper Discs – For superior finishes

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Multiple premium white aluminum oxide abrasive layers with an engineered surface</li> <li>• Unique resin bond designed for solid surface applications</li> <li>• Lightweight, flexible super-smooth waterproof paper backing</li> </ul> | <ul style="list-style-type: none"> <li>• Produce smooth, consistent finishes and gloss readings, and superior cut rates; reduce thermal damage on both flat and contoured surfaces</li> <li>• Creates an optimal blend of aggressive cutting and polishing action</li> <li>• Last up to 10 times longer than conventional coated discs, reducing cost and downtime; greatest productivity</li> <li>• Excellent grain adhesion; improved flexibility and conformability</li> <li>• Resistance to edge chipping</li> <li>• Swarf is easily rinsed and wiped from the disc surface to reduce loading</li> </ul> |
| <ul style="list-style-type: none"> <li>• U381 – Tri-helical pattern; stock and non-stock</li> <li>• Color-coded micron grading</li> </ul>  | <ul style="list-style-type: none"> <li>• Medium-pressure grinding; consistent finish, long life; conformable</li> <li>• Easy identification and match to the applications</li> </ul>   |



▲ U381 – TRIHELICAL PATTERN

72

| SIZE | GRIT | MIN./STD. PKG. | BEST U381          | BEST U381       |
|------|------|----------------|--------------------|-----------------|
|      |      |                | PSA TABBED UPC NO. | NORGRIP UPC NO. |
| 5"   | X45  | 25/100         | 69957350040        | 69957350002     |
|      | X35  |                | 69957350039        | 69957350000     |
|      | X10  |                | 69957350038        | 69957349999     |
| 6"   | X45  | 25/100         | 69957350043        | 69957350007     |
|      | X35  |                | 69957350042        | 69957350005     |
|      | X10  |                | 69957350041        | 69957350003     |

- 45 MICRON TAN COLOR
- 35 MICRON GREEN COLOR
- 10 MICRON BLUE COLOR

## SPECcheck

### NORaX versus FEPA Grading

NORaX engineered abrasives perform over a wider range of traditional grit sequences.

#### FEPA

|       |      |
|-------|------|
| P150  | X100 |
| P180  | X80  |
| P220  | X65  |
| P320  | X45  |
| P400  | X30  |
| P600  | X22  |
| P800  | X16  |
| P1200 | X16  |
| P3000 | X5   |

## TECHtips

### Acrylic Solid Surface Finishing System

| STEP #           | MATTE FINISH |      |                     | SEMI-GLOSS FINISH    |      |                     |
|------------------|--------------|------|---------------------|----------------------|------|---------------------|
|                  | PRODUCT      | GRIT | POLISHING CONDITION | PRODUCT              | GRIT | POLISHING CONDITION |
| STEP #1          | U381         | X45  | Damp                | U381                 | X45  | Damp                |
| STEP #2          | U381         | X35  | Damp                | U381                 | X35  | Damp                |
| STEP #3          | U381         | X10  | Damp                | U381                 | X10  | Damp                |
| STEP #4          | -            |      |                     | Bear-Text MF S/C Dry |      |                     |
| Gloss = 12 to 15 |              |      | Gloss = 45+         |                      |      |                     |

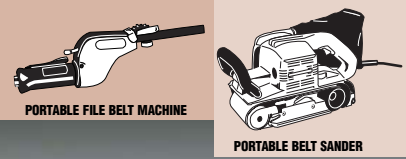
NOTE: Step 3 in the matte finish may be substituted with Bear-Text MF S/C disc.



It is the user's responsibility to refer to and comply with ANSI B7.7



# FILE AND PORTABLE BELTS



File belt specifications to perform on the most demanding, intricate shapes, profiles and materials. Portable belts are ideal for all your metal and woodworking applications.

## Typical File Belt Applications

- Light weld removal and blending
- Shape and contour sanding
- Surface preparation prior to coating and plating
- Removing cutting tool marks from molds and dies
- General clean-up and finishing

## Typical Portable Belt Applications

- Grinding and finishing of all metals
- Blending of welds
- Sanding and finishing of wood
- Glass seaming and polishing



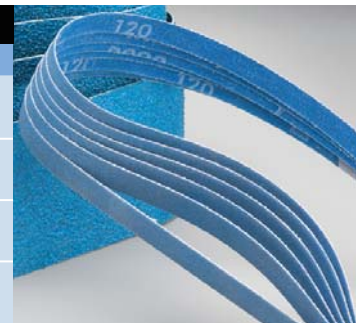
| <b>BEST Norton SG Blaze R980 Belts – For greatest productivity</b>   |  |
|--|--|
| <b>FEATURES</b>  | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Next generation cooler cutting SG ceramic abrasive grain</li> </ul> | <ul style="list-style-type: none"> <li>• Lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, inconel and titanium</li> <li>• Cuts 20% faster than the current generation of grinding belts</li> <li>• Longer belt life</li> <li>• Better metal integrity</li> <li>• Greater productivity; lowest total grinding costs</li> </ul> |
| <ul style="list-style-type: none"> <li>• Improved Y-wt polyester waterproof cloth backing</li> </ul>         | <ul style="list-style-type: none"> <li>• Significantly improved belt life due to better grain adhesion</li> <li>• Edge-fray resistance</li> <li>• Improved body retention during use for more consistent grinding throughout belt life</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Improved resin bond system</li> </ul>                               | <ul style="list-style-type: none"> <li>• Improved grain-retention; cooler cutting during the life of the belt</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Advanced “supersize” grinding lubricant</li> </ul>                  | <ul style="list-style-type: none"> <li>• Cooler cutting during the life of the belt</li> <li>• Improved part finish and integrity</li> </ul>   |



| <b>BEST Norton SG R981 Belts – Ideal for heat-sensitive jobs</b>                                       |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Patented Norton SG ceramic aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Exceptional life and value, especially on hard-to-grind alloys</li> <li>• Aggressive cut rate</li> <li>• Sharpness maintained throughout life of the belt</li> </ul> |
| <ul style="list-style-type: none"> <li>• Grinding aid coating</li> </ul>                               | <ul style="list-style-type: none"> <li>• Cooler cut, burn-free grinding of heat-sensitive materials</li> <li>• Minimizes loading</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Durable Y-wt polyester, waterproof cloth backing</li> </ul>   | <ul style="list-style-type: none"> <li>• Improved grain adhesion, reduced edge-fray and better body retention, result in longer life and product consistency</li> </ul>                                       |



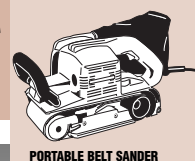
| <b>BETTER NorZon Plus R823 Belts – The choice for stainless steel</b>  |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Premium, self-sharpening zirconia alumina abrasive</li> </ul>           | <ul style="list-style-type: none"> <li>• Aggressive, rapid cut rate</li> </ul>                  |
| <ul style="list-style-type: none"> <li>• Strong grain adhesion, durable grain coating</li> </ul>                 | <ul style="list-style-type: none"> <li>• Longer life</li> </ul>                                 |
| <ul style="list-style-type: none"> <li>• Waterproof for use on a broad range of materials</li> </ul>             | <ul style="list-style-type: none"> <li>• Versatile</li> </ul>                                   |
| <ul style="list-style-type: none"> <li>• Strong X-wt polyester backing, available in finer grit range</li> </ul> | <ul style="list-style-type: none"> <li>• For moderate to heavy pressure applications</li> </ul> |



# FILE AND PORTABLE BELTS



PORTABLE FILE BELT MACHINE



PORTABLE BELT SANDER

| <b>BETTER</b> NorZon Plus 3X Belt Job Packs   |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>Premium, self-sharpening, zirconia alumina abrasive</li> <li>Reversible butt splice</li> <li>Open coat design, strong Y-wt backing</li> <li>Tri-lingual, job specific application information</li> <li>Durable packages</li> </ul> | <ul style="list-style-type: none"> <li>Aggressive, rapid cut rate, long life</li> <li>Use in either direction for longer life</li> <li>Reduced loading, extended life</li> <li>Simplifies selection</li> <li>Minimize waste and damage</li> <li>Better product visibility</li> <li>Portable; ideal for wall merchandising and carrying to the job site</li> </ul> |



| <b>GOOD</b> Metalite R228 Belts – For metal and wood  |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>Aluminum oxide abrasive</li> <li>Strong X-wt cotton backing</li> </ul> | <ul style="list-style-type: none"> <li>Aggressive cutting; resistant to heat</li> <li>Versatile</li> </ul> |



| <b>GOOD</b> Metalite R283 Belts – Versatility for all MRO applications  |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>P-graded premium aluminum oxide abrasive</li> <li>Semi-flexible backing</li> </ul> | <ul style="list-style-type: none"> <li>Consistent, cool cut</li> <li>Tear and fray resistant</li> </ul> |



| <b>GOOD</b> Aluminum Oxide – All Purpose Belt Job Packs   |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>Aluminum oxide abrasive</li> <li>X-wt cotton backing</li> <li>Tri-lingual, job specific application information</li> <li>Durable packages</li> </ul> | <ul style="list-style-type: none"> <li>Tough and durable, with an aggressive cutting action</li> <li>Versatile; ideal for metal and wood</li> <li>Simplifies selection</li> <li>Minimize waste and damage</li> <li>Better product visibility</li> <li>Portable; ideal for wall merchandising and carrying to the job site</li> </ul> |



## Recommended Grit Selection

| ROUGH/HEAVY-DUTY | INTERMEDIATE | FINISHING/POLISHING |
|------------------|--------------|---------------------|
| 36–50            | 60–100       | 100–120             |

## File and Portable Belt Competitive Cross Reference

| NORTON                           | 3M   | HERMES                          | KLINGSPOR                 | SAIT       | SIA                               | VSM              |
|----------------------------------|--|---------------------------------|---------------------------|------------|-----------------------------------|------------------|
| <b>FILE AND PORTABLE BELTS</b>   |  |                                 |                           |            |                                   |                  |
| Norton SG Blaze R980             | 977F, 967F, 987F1                                      | CR456                           | CS610YY                   |            |                                   | SK840X, SK750X   |
| Norton SG R981                   | 987F, 963G, 963H, 967F                                 |                                 |                           |            |                                   |                  |
| <b>ADDITIONAL FILE BELTS</b>     |  |                                 |                           |            |                                   |                  |
| NorZon Plus R823                 | 551E Cubicut XE  | RB844Y                          | CS411YX                   |            |                                   | KK715X           |
| Metalite R283                    | 231D, 241E, 261E<br>311ED, 331D, 351E, 353E            | RB317J, RB316EJ<br>RB303 Flex   | CS310XF                   |            | 933A, 936A                        | KK711T, KK511J   |
| <b>ADDITIONAL PORTABLE BELTS</b> |  |                                 |                           |            |                                   |                  |
| NorZon Plus Job Pack             | 561D Y, 568D Y, 761D                                   | RB484TY                         | CS411X                    | ZH         |                                   |                  |
| Metalite R228                    | 240DZ OPK, 260DZ OPK<br>241D, 248D, 251D<br>3411, 351D | RB316XOP<br>RB372YOP<br>RB346MX | CS311X<br>CS310Y<br>CS410 | AOX<br>IAX | 2903XO<br>2905X<br>2920X<br>2928Y | KK511X<br>KK711X |
| All Purpose Job Pack             | 270D, 270DZ, 272DZ<br>260D, 362RZ                      | RB316-34XOP                     | CS311X<br>CS413Y          |            |                                   | KK524X           |



PORTABLE FILE BELT MACHINE

## File Belts 1/4" to 1" Wide, 12" to 30" Long

| SIZE<br>W X L | GRIT                               | MIN./<br>STD. PKG. | BEST<br>SG BLAZE R980†                    |                         | BEST<br>SG R981†   |                                  | BETTER<br>NORZON + R823†                                 |                                  | GOOD<br>METALITE R283*  |   |
|---------------|------------------------------------|--------------------|---|-------------------------|--|----------------------------------|--|----------------------------------|---|---|
|               |                                    |                    | UPC NO.                                   | JOINT/<br>FLEX          | UPC NO.  | JOINT/<br>FLEX                   | UPC NO.  | JOINT/<br>FLEX                   | UPC NO.   | JOINT/<br>FLEX                            |
| 1/4 x 24      | 60<br>120                          | 50/200             |   |                         | 78072756534  | PG, S                            | 78072728552<br>78072728550                               | PG, S<br>PG, S                   | 78072727548   | PG, L                                     |
| 3/8 x 13      | 60<br>80                           | 50/200             |   |                         |  |                                  | 78072740295<br>78072736062                               | PG, S<br>PG, S                   |   |   |
| 1/2 x 12      | 40<br>50<br>60<br>80<br>100<br>120 | 50/200             | 69957398018<br>69957398019<br>69957398020 | PG, S<br>PG, S<br>PG, S | 78072718700<br>78072718701<br>78072718702                | PG, S<br>PG, S<br>PG, S          | 78072728745<br>78072728744<br>78072728742                | PG, S<br>PG, S<br>PG, S          | 78072727557   | PG, L                                     |
| 1/2 x 18      | 40<br>60<br>80<br>120              | 50/200             | 69957398021<br>69957398022<br>69957398023 | PG, S<br>PG, S<br>PG, S | 78072718704<br>78072718705<br>78072718706                | PG, S<br>PG, S<br>PG, S          | 78072728569<br>78072728568<br>78072728567                | PG, S<br>PG, S<br>PG, S          | 78072727561<br>78072727560<br>78072727559<br>78072727558                | PG, L<br>PG, L<br>PG, L<br>PG, L          |
| 1/2 x 24      | 40<br>50<br>60<br>80<br>100<br>120 | 50/200             | 69957398024<br>69957398025<br>69957398026 | PG, S<br>PG, S<br>PG, S | 78072718707<br>78072718708<br>78072718709<br>78072718710 | PG, S<br>PG, S<br>PG, S<br>PG, S | 78072728564<br>78072728566<br>78072753076<br>78072728565 | PG, S<br>PG, S<br>PG, S<br>PG, S | 78072727568<br>78072727567<br>78072727566<br>78072727565<br>78072727564 | PG, L<br>PG, L<br>PG, L<br>PG, L<br>PG, L |
| 3/4 x 18      | 40<br>60<br>80                     | 50/200             | 69957398027<br>69957398028<br>69957398029 | PG, S<br>PG, S<br>PG, S | 78072745691<br>78072756309                               | PG, S<br>PG, S                   | 78072709590<br>78072758953                               | PG, S<br>PG, S                   |   |   |
| 3/4 x 20-1/2  | 40<br>50<br>60<br>80<br>100<br>120 | 50/200             | 69957398030<br>69957398031<br>69957398032 | PG, S<br>PG, S<br>PG, S | 78072718714<br>78072718715<br>78072718716                | PG, S<br>PG, S<br>PG, S          | 78072728560<br>78072728559<br>78072728557                | PG, S<br>PG, S<br>PG, S          | 78072727573   | PG, L                                     |
| 1 x 12        | 60                                 | 50/200             |   |                         |  |                                  | 78072753073  | PG, S                            |   |   |
| 1 x 24        | 50                                 | 50/200             |   |                         | 78072710374  | PG, S                            |  |                                  |   |   |
| 1 x 30        | 60<br>80<br>120                    | 50/200             |   |                         |  |                                  | 78072728583<br>78072728582                               | PG, L<br>PG, L                   | 78072727579<br>78072727577  | PG, L<br>PG, L                            |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.  
\* P-GRADED † WATERPROOF



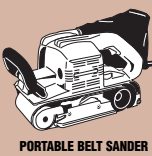
### Starting Recommendations by Material

| MATERIAL               | HEAVY-DUTY           | GENERAL-DUTY        |
|------------------------|----------------------|---------------------|
| Carbon Steel           | Norton SG R981       | Metalite R283, R228 |
| Stainless Steel/Alloys | Norton SG Blaze R980 | NorZon Plus R823    |
| Cast Iron              | Norton SG R981       | Metalite R283, R228 |
| Brass/Bronze           | NorZon Plus R823     | NorZon Plus R823    |
| Aluminum               | NorZon Plus R823     | Metalite R283       |
| Wood                   | NorZon Plus R823     | Metalite R228       |

### Troubleshooting Guide

| PROBLEM              | POSSIBLE CAUSES                      | CORRECTION                          |
|----------------------|--------------------------------------|-------------------------------------|
| Belt splice breakage | Tension too tight                    | Reduce tension                      |
| Reduced belt life    | Too fine a grit<br>Too high pressure | Use coarser grit<br>Reduce pressure |

# PORTABLE BELTS



## Portable Belts, Boxed, 3" to 4" Wide, 15-1/2" to 24" Long

| SIZE<br>W X L  | GRIT | MIN./<br>STD. PKG.* | BEST<br>NORTON SG BLAZE R980† |                | BEST<br>NORTON SG R981† |                | GOOD<br>METALITE R228 |                |
|----------------|------|---------------------|-------------------------------|----------------|-------------------------|----------------|-----------------------|----------------|
|                |      |                     | UPC NO.                       | JOINT/<br>FLEX | UPC NO.                 | JOINT/<br>FLEX | UPC NO.               | JOINT/<br>FLEX |
| 3 x 18         | 36   | 10/50               |                               |                |                         |                | 78072721666           | Plyweld, RR    |
|                | 50   |                     |                               |                |                         |                | 78072721664           | Plyweld, RR    |
|                | 80   |                     |                               |                |                         |                | 78072721662           | Plyweld, RR    |
|                | 120  |                     |                               |                |                         |                | 78072721660           | Plyweld, RR    |
| 3 x 21         | 40   | 10/50               |                               |                |                         |                | 78072721691           | Plyweld, RR    |
|                | 50   |                     |                               |                |                         |                | 78072721690           | Plyweld, RR    |
|                | 60   |                     |                               |                |                         |                | 78072721685           | Plyweld, RR    |
|                | 80   |                     |                               |                |                         |                | 78072721680           | Plyweld, RR    |
|                | 100  |                     |                               |                |                         |                | 78072721676           | Plyweld, RR    |
|                | 120  |                     |                               |                |                         |                | 78072721675           | Plyweld, RR    |
| 3 x 24         | 36   | 10/50               |                               |                |                         |                | 78072721770           | Plyweld, RR    |
|                | 40   |                     |                               |                |                         |                | 78072721765           | Plyweld, RR    |
|                | 50   |                     |                               |                |                         |                | 78072721760           | Plyweld, RR    |
|                | 60   |                     |                               |                |                         |                | 78072721755           | Plyweld, RR    |
|                | 80   |                     |                               |                |                         |                | 78072721750           | Plyweld, RR    |
|                | 100  |                     |                               |                |                         |                | 78072721745           | Plyweld, RR    |
|                | 120  |                     |                               |                |                         |                | 78072721740           | Plyweld, RR    |
|                | 150  |                     |                               |                |                         |                | 78072721739           | Plyweld, RR    |
| 180            |      |                     |                               |                | 78072721736             | Plyweld, RR    |                       |                |
| 3-1/2 x 15-1/2 | 36   | 10/50               |                               |                | 78072700783             | Plyweld, RR    | 78072721997           | Plyweld, RR    |
|                | 60   |                     | 69957345296                   | Plyweld, RR    | 78072718750             | Plyweld, RR    | 78072722000           | Plyweld, RR    |
|                | 80   |                     | 63642593514                   | Plyweld, RR    | 78072718751             | Plyweld, RR    | 78072721995           | Plyweld, RR    |
|                | 120  |                     | 66261042542                   | Plyweld, RR    | 78072718753             | Plyweld, RR    |                       |                |
| 4 x 24         | 36   | 10/50               |                               |                |                         |                | 78072722058           | Plyweld, RR    |
|                | 40   |                     |                               |                |                         |                | 78072722057           | Plyweld, RR    |
|                | 50   |                     |                               |                |                         |                | 78072722056           | Plyweld, RR    |
|                | 60   |                     |                               |                |                         |                | 78072722055           | Plyweld, RR    |
|                | 80   |                     |                               |                |                         |                | 78072722050           | Plyweld, RR    |
|                | 120  |                     |                               |                |                         |                | 78072722045           | Plyweld, RR    |
|                | 100  |                     |                               |                |                         | 78072722044    | Plyweld, RR           |                |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.  
† WATERPROOF

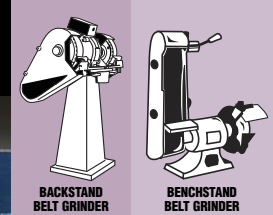
## Portable Belts, Job Packs, 3" to 4" Wide, 18" to 24" Long

| SIZE: W X L | GRIT | STD.<br>PKG.* | BETTER<br>NORZON PLUS 3X | GOOD<br>A/O ALL PURPOSE |
|-------------|------|---------------|--------------------------|-------------------------|
|             |      |               | JOB PACK                 | JOB PACK                |
| 3 x 18      | 50   | 25            | 07660749259              | 07660700964             |
|             | 80   |               | 07660749258              | 07660700968             |
|             | 120  |               | 07660749256              | 07660700969             |
| 3 x 21      | 36   | 25            | 07660749266              | 07660701741             |
|             | 50   |               | 07660749265              | 07660701740             |
|             | 80   |               | 07660749264              | 07660702064             |
|             | 100  |               | 07660749263              | 07660702063             |
|             | 120  |               | 07660749262              | 07660702062             |
| 3 x 24      | 36   | 25            | 07660749272              | 07660701743             |
|             | 50   |               | 07660749271              | 07660701742             |
|             | 80   |               | 07660749270              | 07660702067             |
|             | 100  |               | 07660749269              | 07660702066             |
|             | 120  |               | 07660749268              | 07660702065             |
| 4 x 24      | 36   | 25            | 07660749278              | 07660701745             |
|             | 50   |               | 07660749277              | 07660701744             |
|             | 80   |               | 07660749276              | 07660702069             |
|             | 100  |               | 07660749275              |                         |
|             | 120  |               | 07660749274              | 07660702068             |

\* PACKED 5 BELTS PER JOB PACK; 5 JOB PACKS PER STANDARD PACKAGE.

# NARROW BELTS

A wide selection of sizes and grits for most dimensioning, intermediate grinding and polishing applications.



## Typical Applications

### Benchstand and Backstand Belts

- Grinding and deburring of all metals
- Heavy stock removal
- Blending, dimensioning and shaping
- Polishing

### Centerless, Conveyor and Platen Belts

- Intermediate grinding stainless and carbon
- Moderate pressure applications
- Dimensioning and finishing



### **BEST** Norton SG Blaze R980 Belts – For greatest productivity

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Next generation cooler cutting SG ceramic abrasive grain</li> </ul> | <ul style="list-style-type: none"> <li>• Lasts 50% to 200% longer on mild and carbon steel, stainless, cobalt, chrome, inconel and titanium</li> <li>• Cuts 20% faster than the current generation of grinding belts</li> <li>• Longer belt life</li> <li>• Better metal integrity</li> <li>• Greater productivity; lowest total grinding costs</li> </ul> |
| <ul style="list-style-type: none"> <li>• Improved Y-wt polyester, waterproof cloth backing</li> </ul>        | <ul style="list-style-type: none"> <li>• Significantly improved belt life due to better grain adhesion</li> <li>• Edge-fray resistance</li> <li>• Improved body retention during use for more consistent grinding throughout belt life</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Improved resin bond system</li> </ul>                               | <ul style="list-style-type: none"> <li>• Improved grain-retention; cooler cutting during the life of the belt</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Advanced “supersize” grinding lubricant</li> </ul>                  | <ul style="list-style-type: none"> <li>• Cooler cutting during the life of the belt</li> <li>• Improved part finish and integrity</li> </ul>   |



### **BEST** Norton SG R981 Belts – Exceptional performance

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>• Norton SG ceramic abrasive</li> </ul>                      | <ul style="list-style-type: none"> <li>• Exceptional life and value, especially on hard-to-grind alloys</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Grinding-aid enhanced</li> </ul>                           | <ul style="list-style-type: none"> <li>• Longer life, cooler cut</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Strong Y-wt polyester, waterproof cloth backing</li> </ul> | <ul style="list-style-type: none"> <li>• Improved grain adhesion, reduced edge-fray and better body retention, result in longer life and product consistency</li> </ul> |



### **BETTER** NorZon Plus R821 Belts – For non-ferrous metals, glass and ceramics

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Premium self-sharpening zirconia alumina abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Aggressive, rapid cut rate</li> </ul>                 |
| <ul style="list-style-type: none"> <li>• Durable grain coating</li> </ul>                             | <ul style="list-style-type: none"> <li>• Excellent grain adhesion: longer life</li> </ul>      |
| <ul style="list-style-type: none"> <li>• Y-wt cotton backing</li> </ul>                               | <ul style="list-style-type: none"> <li>• Extended life on dry grinding applications</li> </ul> |

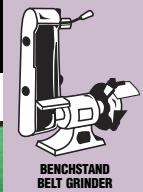


### **BETTER** NorZon Plus R824/R823 Belts – The choice for heaviest pressure applications

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Premium self-sharpening zirconia alumina abrasive</li> </ul>       | <ul style="list-style-type: none"> <li>• Aggressive, rapid cut rate</li> </ul>   |
| <ul style="list-style-type: none"> <li>• R824 – Durable Y-wt polyester, waterproof cloth backing</li> </ul> | <ul style="list-style-type: none"> <li>• Excellent grain adhesion, reduced edge-fray and better body retention, result in longer life and product consistency</li> </ul> |
| <ul style="list-style-type: none"> <li>• R823 – Strong X-wt polyester backing; waterproof</li> </ul>        | <ul style="list-style-type: none"> <li>• More flexible than R824</li> <li>• Available in finer grit sizes</li> </ul>   |



# BENCHSTAND BELTS



BENCHSTAND BELT GRINDER

|  |   |
|--|---|
| <b>BETTER</b>  | <b>NorZon Plus R801 Belts – Ideal for grinding exotic alloys and forged steel</b>   |
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Self-sharpening NorZon Plus zirconia alumina abrasive grain</li> <li>• Grinding aid enhanced</li> <li>• Durable Y-wt polyester, waterproof cloth backing</li> </ul> | <ul style="list-style-type: none"> <li>• Resists dulling, resulting in longer belt life</li> <li>• Cooler cut on stainless steels and titanium alloys</li> <li>• Improved grain adhesion, reduced edge-fray and better body retention, result in longer life and product consistency</li> </ul> |



|   |   |
|---|---|
| <b>GOOD</b>   | <b>Metalite R228 Belts – Versatile; for all MRO applications</b>  |
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Aluminum oxide abrasive</li> <li>• Strong X-wt cotton backing</li> </ul> | <ul style="list-style-type: none"> <li>• For a wide range of metalworking applications</li> <li>• Ideal where cutting action is more important than backing conformability</li> <li>• Aggressive cutting/resistant to heat</li> </ul> |



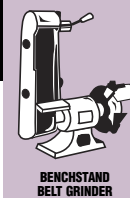
## Benchstand Belts 1" to 6" Wide, 36" to 72" Long



| SIZE<br>W X L | GRIT | MIN./<br>STD. PKG. | BETTER<br>NORZON PLUS R821 |                | BETTER<br>NORZON PLUS R823† |                | GOOD<br>METALITE R228 |                |             |             |
|---------------|------|--------------------|----------------------------|----------------|-----------------------------|----------------|-----------------------|----------------|-------------|-------------|
|               |      |                    | UPC NO.                    | JOINT/<br>FLEX | UPC NO.                     | JOINT/<br>FLEX | UPC NO.               | JOINT/<br>FLEX |             |             |
| 1 x 42        | 40   | 50/200             | 78072726905                | Plyweld, RR    | 78072728596                 | Plyweld, RR    | 78072720910           | Plyweld, RR    |             |             |
|               | 50   |                    | 78072726904                | Plyweld, RR    |                             |                | 78072720905           | Plyweld, RR    |             |             |
|               | 60   |                    | 78072726903                | Plyweld, RR    |                             |                | 78072720900           | Plyweld, RR    |             |             |
|               | 80   |                    | 78072726902                | Plyweld, RR    |                             |                | 78072720895           | Plyweld, RR    |             |             |
|               | 100  |                    |                            | 78072728592    |                             |                | Plyweld, RR           | 78072720890    | Plyweld, RR |             |
|               | 120  |                    |                            | 78072728590    |                             |                | Plyweld, RR           | 78072720885    | Plyweld, RR |             |
|               | 150  |                    |                            |                |                             |                |                       | 78072720880    | Plyweld, RR |             |
|               | 180  |                    |                            |                |                             |                | 78072728586           | Plyweld, RR    | 78072720875 | Plyweld, RR |
|               | 220  |                    |                            |                |                             |                |                       | 78072720871    | Plyweld, RR |             |
|               | 240  |                    |                            |                |                             |                |                       | 78072720870    | Plyweld, RR |             |
| 320           |      |                    |                            | 78072720865    | Plyweld, RR                 |                |                       |                |             |             |
| 1-1/2 x 60    | 36   | 10/50              | 78072726993                | Plyweld, RR    | 78072726988                 | Norlok, RR     | 78072721045           | Plyweld, RR    |             |             |
|               | 50   |                    | 78072726991                | Plyweld, RR    |                             |                | 78072721030           | Plyweld, RR    |             |             |
|               | 60   |                    | 78072726990                | Norlok, RR     |                             |                | 78072722855           | Plyweld, RR    |             |             |
|               | 80   |                    |                            |                |                             |                |                       |                |             |             |
|               | 120  |                    |                            |                |                             |                |                       |                |             |             |
| 180           |      |                    |                            |                |                             |                |                       |                |             |             |
| 2 x 48        | 36   | 10/50              | 78072727103                | Plyweld, RR    | 78072728621                 | Norlok, RR     | 78072721255           | Plyweld, RR    |             |             |
|               | 40   |                    | 78072727102                | Plyweld, RR    |                             |                | 78072721250           | Plyweld, RR    |             |             |
|               | 50   |                    | 78072727101                | Norlok, RR     |                             |                | 78072721245           | Plyweld, RR    |             |             |
|               | 60   |                    | 78072727100                | Norlok, RR     |                             |                | 78072721240           | Plyweld, RR    |             |             |
|               | 80   |                    | 78072727099                | Norlok, RR     |                             |                | 78072721235           | Plyweld, RR    |             |             |
|               | 100  |                    |                            |                |                             |                | 78072721230           | Plyweld, RR    |             |             |
|               | 120  |                    |                            |                |                             |                | 78072721225           | Plyweld, RR    |             |             |
|               | 180  |                    |                            |                |                             |                | 78072721223           | Plyweld, RR    |             |             |
|               | 220  |                    |                            |                |                             |                |                       |                |             |             |
|               |      |                    |                            |                |                             |                |                       |                |             |             |
| 2 x 60        | 40   | 10/50              | 78072727124                | Plyweld, RR    | 78072721300                 | Plyweld, RR    | 78072721300           | Plyweld, RR    |             |             |
|               | 60   |                    | 78072727122                | Norlok, RR     |                             |                | 78072721290           | Plyweld, RR    |             |             |
|               | 80   |                    | 78072727121                | Norlok, RR     |                             |                | 78072721285           | Plyweld, RR    |             |             |
|               | 100  |                    |                            |                |                             |                | 78072721280           | Plyweld, RR    |             |             |
|               | 120  |                    |                            |                |                             |                | 78072721275           | Plyweld, RR    |             |             |
| 320           |      |                    |                            | 78072702825    | Plyweld, RR                 |                |                       |                |             |             |
| 2 x 72        | 36   | 10/50              | 78072727147                | Plyweld, RR    | 78072728645                 | Norlok, RR     | 78072721335           | Plyweld, RR    |             |             |
|               | 40   |                    | 78072727146                | Plyweld, RR    |                             |                | 78072721325           | Norlok, RR     |             |             |
|               | 50   |                    | 78072727145                | Norlok, RR     |                             |                | 78072721320           | Norlok, RR     |             |             |
|               | 60   |                    | 78072727144                | Norlok, RR     |                             |                | 78072723235           | Norlok, RR     |             |             |
|               | 80   |                    | 78072727142                | Norlok, RR     |                             |                | 78072721318           | Plyweld, RR    |             |             |
|               | 100  |                    |                            |                |                             |                |                       |                |             |             |
|               | 120  |                    |                            |                |                             |                | 78072728639           | Plyweld, RR    |             |             |
|               | 220  |                    |                            |                |                             |                | 78072728633           | Plyweld, RR    |             |             |
|               | 320  |                    |                            |                |                             |                |                       |                |             |             |
|               |      |                    |                            |                |                             |                |                       |                | 78072721308 | Plyweld, RR |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.  
† WATERPROOF





BENCHSTAND BELT GRINDER

## Benchstand Belts 1" to 6" Wide, 36" to 72" Long (CONTINUED)

| SIZE<br>W X L | GRIT | MIN./<br>STD. PKG. | BETTER<br>NORZON PLUS R821 |                | BETTER<br>NORZON PLUS R823† |                | GOOD<br>METALITE R228 |                |             |
|---------------|------|--------------------|----------------------------|----------------|-----------------------------|----------------|-----------------------|----------------|-------------|
|               |      |                    | UPC NO.                    | JOINT/<br>FLEX | UPC NO.                     | JOINT/<br>FLEX | UPC NO.               | JOINT/<br>FLEX |             |
| 2-1/2 x 48    | 36   | 10/50              | 78072727213                | Norlok, RR     |                             |                | 78072721540           | Plyweld, RR    |             |
|               | 50   |                    |                            |                |                             |                |                       | 78072721530    | Plyweld, RR |
|               | 60   |                    |                            |                |                             |                |                       | 78072721525    | Plyweld, RR |
|               | 80   |                    |                            |                |                             |                |                       | 78072721520    | Plyweld, RR |
|               | 120  |                    |                            |                |                             |                |                       | 78072721510    | Plyweld, RR |
| 2-1/2 x 60    | 36   | 10/50              | 78072727235                | Plyweld, RR    | 78072728692                 | Norlok, RR     | 78072721610           | Plyweld, RR    |             |
|               | 40   |                    | 78072727234                | Plyweld, RR    |                             |                | 78072721605           | Plyweld, RR    |             |
|               | 50   |                    | 78072727233                | Norlok, RR     |                             |                | 78072721600           | Plyweld, RR    |             |
|               | 60   |                    | 78072727232                | Norlok, RR     |                             |                | 78072721595           | Plyweld, RR    |             |
|               | 80   |                    | 78072727231                | Norlok, RR     |                             |                | 78072721590           | Plyweld, RR    |             |
|               | 100  |                    |                            |                |                             |                | 78072721585           | Plyweld, RR    |             |
|               | 120  |                    |                            |                |                             |                | 78072721580           | Plyweld, RR    |             |
|               | 180  |                    |                            |                |                             |                | 78072721570           | Plyweld, RR    |             |
| 4 x 36        | 36   | 10/50              | 78072727475                | Norlok, RR     | 78072728827                 | Norlok, RR     | 78072722110           | Plyweld, RR    |             |
|               | 40   |                    |                            |                |                             |                | 78072722105           | Plyweld, RR    |             |
|               | 50   |                    |                            |                |                             |                | 78072722100           | Plyweld, RR    |             |
|               | 60   |                    |                            |                |                             |                | 78072722095           | Plyweld, RR    |             |
|               | 80   |                    |                            |                |                             |                | 78072722090           | Plyweld, RR    |             |
|               | 100  |                    |                            |                |                             |                | 78072722085           | Plyweld, RR    |             |
|               | 120  |                    |                            |                |                             |                | 78072722080           | Plyweld, RR    |             |
|               | 150  |                    |                            |                |                             |                | 78072722079           | Plyweld, RR    |             |
|               | 180  |                    |                            |                |                             |                | 78072722075           | Plyweld, RR    |             |
|               | 320  |                    |                            |                |                             |                | 78072722071           | Plyweld, RR    |             |
| 4 x 54        | 36   | 10/50              | 78072727518                | Norlok, RR     |                             |                | 78072722185           | Plyweld, RR    |             |
|               | 40   |                    |                            |                |                             |                | 78072722180           | Plyweld, RR    |             |
|               | 50   |                    |                            |                |                             |                | 78072722175           | Plyweld, RR    |             |
|               | 60   |                    |                            |                |                             |                | 78072722170           | Plyweld, RR    |             |
|               | 80   |                    |                            |                |                             |                | 78072722165           | Plyweld, RR    |             |
|               | 100  |                    |                            |                |                             |                | 78072722160           | Plyweld, RR    |             |
|               | 120  |                    |                            |                |                             |                | 78072722155           | Plyweld, RR    |             |
| 6 x 48        | 36   | 10/20              | 78072727698                | Plyweld, RR    | 78072728937                 | Norlok, RR     | 78072722590           | Plyweld, RR    |             |
|               | 40   | 20/20              | 78072727697                | Plyweld, RR    |                             |                | 78072722585           | Plyweld, RR    |             |
|               | 50   |                    | 78072727696                | Norlok, RR     |                             |                | 78072722580           | Plyweld, RR    |             |
|               | 60   |                    | 78072727695                | Norlok, RR     |                             |                | 78072722575*          | Plyweld, RR    |             |
|               | 80   |                    | 78072727694                | Norlok, RR     |                             |                | 78072722570*          | Plyweld, RR    |             |
|               | 100  |                    |                            |                |                             |                | 78072722565*          | Plyweld, RR    |             |
|               | 120  |                    |                            |                |                             |                | 78072722560*          | Plyweld, RR    |             |
|               | 150  |                    |                            |                |                             |                | 78072722555*          | Plyweld, RR    |             |
|               | 180  |                    |                            |                |                             |                | 78072722550*          | Plyweld, RR    |             |
|               | 220  |                    |                            |                |                             |                | 78072722546*          | Plyweld, RR    |             |
|               | 240  |                    |                            |                |                             |                | 78072722545*          | Plyweld, RR    |             |
|               | 320  |                    |                            |                |                             |                | 78072722543*          | Plyweld, RR    |             |
| 6 x 60        | 36   |                    | 10/20                      | 78072727762    | Plyweld, RR                 | 78072728957    | Norlok, RR            | 78072722680    | Plyweld, RR |
|               | 40   | 20/20              | 78072722679                |                |                             |                |                       | Plyweld, RR    |             |
|               | 60   |                    | 78072722665                |                |                             |                |                       | Plyweld, RR    |             |
|               | 80   |                    | 78072722660                |                |                             |                |                       | Plyweld, RR    |             |

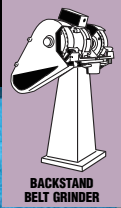
REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS. † WATERPROOF \* MIN./STD. PKG IS 10/20



### Narrow Belt Competitive Cross Reference

| NORTON | 3M                      | HERMES                 | KLINGSPOR | SIA        | VSM    |
|--------|-------------------------|------------------------|-----------|------------|--------|
| R980   | 987F1, 977F, 777F, 967F | CR456                  | CS612YY   | -          | SK840X |
| R981   | 963G, 963H              |                        | CS610YY   |            | SK750X |
| R801   | 577F, 567G, 777F        | RB486X, RB486Y         | CS409Y    | -          | KK815Y |
|        | 977F                    | RB426-23MX             |           |            | ZK744X |
| R821   | 561D                    |                        | CS411X    | -          | -      |
| R823   | 561F Y, 551E XE         | RB486 X, RB346-23MX    | CS411Y    |            | KK715X |
|        | 741A, 741E, 761D        | RB426-23MX, RB484TY    |           |            |        |
|        |                         | RB486XF                |           |            |        |
| R824   | 561D, 561F, 563F        | RB484TY, RB486Y        | CS411Y    | 2800, 2803 | KK716Y |
|        | 741A, 741E, 761D        | RB346-23MX, RB426-23MX |           | 2929       | ZK713X |
|        | 761F                    | RB480-21MX, CB440Y     |           |            |        |
|        |                         | RB486XY                |           |            |        |
| R228   | 240DZ OPK               | RB3160P                | CS311X    | 2903X0     | -      |
|        | 270DZ OPK               | RB317LX                | CS310     | 2905X      | KK511X |
|        | 241D, 248D, 251D        | RB346MX                | CS410     | 2920X      | KK711  |
|        | 3411 Imperial, 351D     |                        |           |            |        |

# BACKSTAND BELTS



BACKSTAND BELT GRINDER

NARROW BELTS

## Backstand Belts 2" to 10" Wide



**BEST**  
**NORTON SG BLAZE R980†**



**BEST**  
**NORTON SG R981†**



**BETTER**  
**NORZON PLUS R824†**

| SIZE<br>W X L | GRIT        | MIN./<br>STD.<br>PKG. | BEST        |                |                       | BETTER      |                |             |             |
|---------------|-------------|-----------------------|-------------|----------------|-----------------------|-------------|----------------|-------------|-------------|
|               |             |                       | UPC #       | JOINT/<br>FLEX | MIN./<br>STD.<br>PKG. | UPC #       | JOINT/<br>FLEX |             |             |
| 2 x 132       | 36          |                       |             |                | 10/50                 | 78072753086 | Plyweld, RR    | 78072750016 | Plyweld, RR |
|               | 40          |                       |             |                |                       | 78072740771 | Norlok, RR     | 78072750015 | Plyweld, L  |
|               | 50          |                       |             |                |                       | 78072701958 | Norlok, RR     | 78072750013 | Norlok, L   |
|               | 60          |                       |             |                |                       |             |                | 78072750011 | Norlok, L   |
|               | 80          |                       |             |                |                       |             |                | 78072750008 | Norlok, RR  |
| 3 x 132       | 24          | 25/50                 | 69957344962 | Plyweld, RR    | 10/50                 | 78072753087 | Plyweld, RR    | 78072750140 | Plyweld, RR |
|               | 36          |                       |             |                |                       |             |                | 69957344710 | Plyweld, RR |
|               | 36          |                       |             |                |                       |             | 78072750139    | Plyweld, L  |             |
|               | 40          |                       | 69957344964 | Plyweld, RR    |                       | 78072701614 | Plyweld, RR    |             |             |
|               | 50          |                       | 69957344763 | Plyweld, RR    |                       | 78072703709 | Norlok, RR     |             |             |
|               | 60          |                       | 69957344958 | Plyweld, RR    |                       |             | 78072750135    | Norlok, L   |             |
| 80            | 69957344764 | Plyweld, RR           |             |                |                       |             |                |             |             |
| 4 x 132       | 36          |                       |             |                | 10/50                 | 78072739662 | Plyweld, RR    | 78072750287 | Plyweld, RR |
|               | 60          |                       |             |                |                       |             |                | 78072750281 | Norlok, RR  |
|               | 80          |                       |             |                |                       |             |                | 78072750279 | Norlok, RR  |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.

† WATERPROOF

L = LINEAR FLEX

RR = RUBBER ROLL FLEX

80

## Belt Cleaning Stick

This solid rubber cleaning stick is designed to remove wood and other non-metallic materials that build up on narrow belts during use. Apply it to the face of the belt while running, to remove unwanted materials and increase cut rate and overall life of the belt.



| DESCRIPTION       | STD. PKG. | UPC NO.     |
|-------------------|-----------|-------------|
| 1-3/8 x 1-3/8 x 6 | 10        | 07660701717 |



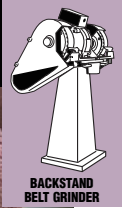
## TECHtips

- A light bodied grease applied to the belt surface will reduce loading and greatly enhance the belt life and performance when grinding soft, malleable nonferrous materials such as aluminum, brass, bronze and copper.
- Norlok and Plyweld joints can be used in either direction.



It is the user's responsibility to refer to and comply with ANSI B7.7

# BACKSTAND BELTS



BACKSTAND BELT GRINDER

NARROW BELTS

## Backstand Belts 2" to 10" Wide



| SIZE<br>W X L | GRIT        | MIN./<br>STD.<br>PKG. | BETTER<br>NORZON PLUS R823† |                | BETTER<br>NORZON PLUS R801† |                | GOOD<br>METALITE R228 |                |
|---------------|-------------|-----------------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------|----------------|
|               |             |                       | UPC #                       | JOINT/<br>FLEX | UPC #                       | JOINT/<br>FLEX | UPC #                 | JOINT/<br>FLEX |
| 2 x 132       | 60          | 10/50                 | 78072728662                 | Plyweld, RR    |                             |                | 78072721445           | Norlok, RR     |
|               | 80          |                       |                             |                |                             |                | 78072721440           | Norlok, RR     |
|               | 120         |                       |                             |                |                             |                |                       |                |
| 3 x 132       | 36          | 25/50                 |                             |                | 78072721973                 | Plyweld, RR    | 78072721900           | Plyweld, RR    |
|               | 50          |                       |                             |                |                             |                | 78072721890           | Norlok, RR     |
|               | 60          |                       |                             |                |                             |                | 78072721885           | Norlok, RR     |
|               | 80          |                       |                             |                |                             |                | 78072721880           | Norlok, RR     |
|               | 100         |                       |                             |                |                             |                | 78072721875           | Norlok, RR     |
|               | 120         |                       |                             |                |                             |                | 78072721870           | Plyweld, RR    |
|               | 150         |                       |                             |                |                             |                | 78072721865           | Plyweld, RR    |
|               | 180         |                       |                             |                |                             |                | 78072721860           | Plyweld, RR    |
| 220           | 78072721855 | Plyweld, RR           |                             |                |                             |                |                       |                |
| 4 x 132       | 80          | 10/50                 |                             |                |                             |                | 78072722385           | Norlok, RR     |
|               | 120         |                       |                             |                |                             |                | 78072722375           | Plyweld, RR    |
| 8 x 107       | 36          | 10/20                 |                             |                |                             |                | 78072722795           | CRG, D         |
|               | 50          | 20/20                 |                             |                |                             |                | 78072749887           | CRG, D         |
|               | 60          |                       |                             |                |                             |                | 78072722780           | CRG, C         |
|               | 80          |                       |                             |                |                             |                | 78072722775           | CRG, D         |
| 10 x 70-1/2   | 36          | 5/10                  |                             |                |                             |                | 78072722840           | CRG, RR        |
|               | 40          | 10/10                 |                             |                |                             |                | 78072722835           | CRG, RR        |
|               | 50          |                       |                             |                |                             |                | 78072722830           | CRG, RR        |
|               | 60          |                       |                             |                |                             |                | 78072722825           | CRG, RR        |
|               | 80          |                       |                             |                |                             |                | 78072722820           | CRG, RR        |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.

- † WATERPROOF
- CRG = ROLL GRINDING JOINT
- C = CROSS FLEX
- D = DOUBLE FLEX
- RR = RUBBER ROLL FLEX

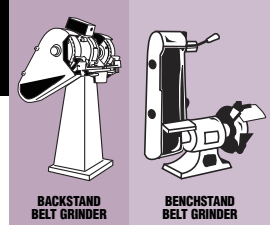


### Narrow Belt Starting Recommendations

| MATERIAL                   | HEAVY DUTY   | GENERAL DUTY                      |
|----------------------------|--|-----------------------------------|
| Aluminum                   | NorZon Plus R824   | NorZon Plus R823                  |
| Cast Iron                  | NorZon Plus R824   | NorZon Plus R823                  |
| Brass/Bronze               | NorZon Plus R824   |                                   |
| Die Castings               | NorZon Plus R823   | Metalite R228                     |
| Carbon Steel               | Norton SG Blaze R980<br>NorZon Plus R824<br>Norton SG R981                     | Metalite R228                     |
| Glass/Ceramics             | NorZon Plus R821   |                                   |
| Stainless Steel and Alloys | Norton SG Blaze R980<br>NorZon Plus R824<br>NorZon Plus R801<br>Norton SG R981 | NorZon Plus R823<br>Metalite R228 |
| Wood                       |  | Metalite R228                     |

### Recommended Grit Selection

| ROUGH/HEAVY DUTY | INTERMEDIATE | FINISHING/POLISHING |
|------------------|--------------|---------------------|
| 24-50            | 60-100       | 120-320             |



## Troubleshooting Guide for Contact Wheels

### SUGGESTED CORRECTION – CONTACT WHEELS

| PROBLEM             | HARDER WHEEL | SOFTER WHEEL | LARGER GROOVE/LAND | SMALLER GROOVE/LAND | DRESS WHEEL | HIGHER SPEED | LOWER SPEED | STANDARD SERRATION | LARGER WHEEL | SMALLER WHEEL |
|---------------------|--------------|--------------|--------------------|---------------------|-------------|--------------|-------------|--------------------|--------------|---------------|
| Dulling             | •            |              | •                  |                     |             |              | •           |                    |              | •             |
| Loading             |              |              | •                  |                     |             |              |             |                    |              | •             |
| Over-aggressiveness |              | •            |                    | •                   |             |              |             | •                  | •            |               |
| Slow cutting        | •            |              | •                  |                     |             | •            |             |                    |              | •             |
| Scratches too deep  |              | •            |                    | •                   |             |              |             | •                  | •            |               |
| Burning             | •            |              |                    |                     |             |              | •           |                    |              |               |
| Non-conformity      |              | •            | •                  |                     |             |              | •           |                    | •            |               |
| Dubbing edges       | •            |              |                    |                     |             |              |             |                    |              |               |
| Shedding abrasives  |              | •            |                    | •                   | •           | •            |             | •                  | •            |               |
| Chatter             |              | •            |                    |                     | •           |              |             | •                  | •            |               |

### Troubleshooting Guide

| PROBLEM       | CORRECTION   |
|---------------|--|
| Loading       | Decrease infeed pressure or belt speed   |
| Shedding      | Reduce applied pressure<br>Use a less aggressive contact wheel<br>Dress contact wheel if worn or damaged<br>Use entire surface of belt |
| Belt breakage | Reduce belt tension<br>Use less aggressive contact wheel<br>Check tracking mechanism for belts tracking erratically                    |



### Belt Joints

**CD Joint** – conventional butt joint specifically for portable belts – straight cut with tape

**Channel Joint** – preferred for woodworking. Available on selected F-wt wide paper belts only. The patch material is inlaid into the paper backing, making the thinnest, smoothest-running butt joint possible, which minimizes bumping and chattering, with no loss of strength.

**CRG Joint** – Roll Grinding Joint – special platen and roll grinding butt joint

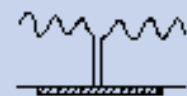
**Norlok Joint** – The two ends of the abrasive material are cut in an interlocking configuration that, when joined with a thinner patch material, offers resistance to hinging and joint fatigue. The special configuration permits this joint to more closely conform to contact wheels, workpiece shapes, and other difficult applications.

**PG Joint** – Precision Grinding Joint – a butt joint, joined with flexible tape for contour grinding.

**BT / Plyweld Joint** – a conventional butt joined with an extra strong patch to eliminate joint breakage. Often used for demanding operations with coarse grit belts.



NORLOK JOINT



PLYWELD JOINT

### Belt Flexes

**C – Cross Flex** – Flex lines are at a 45° angle to the edge of the belt, making a series of diamond shaped lines.

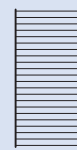
**D – Double Flex** – The bond is broken at two 45° angles (to the length). This flex is desirable for sanding shapes and contours, such as moldings. It is standard on most J-wt products.

**L – Linear Flex** – The bond is broken in the direction of the length, providing good product conformability with long life.

**S – Single Flex** – The bond is broken at a 90° angle to the length, creating flex lines that are perpendicular to the edge of the belt. The abrasive is stiffer in one direction and flexible in the other. Single Flex is standard on most X-wt products.

**RR – Rubber Roll Flex** – Flex lines are perpendicular (90° angle) to the edge of the belt (creating a horizontal line pattern) providing flexibility in the lengthwise direction.

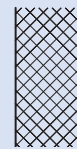
**T – Triple Flex** – A combination of Single Flex and Double Flex. It is specified on applications requiring maximum product conformability, such as sanding irregular contours.



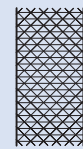
SINGLE FLEX



LINEAR



CROSS FLEX



TRIPLE FLEX

# WIDE BELTS – CLOTH AND HEAVY PAPER

A selection of stock products to meet wide belt needs in the woodworking and metalworking industries.

## Typical Applications – Cloth Wide Belts

### R824/R821/R215

- General metalworking applications
- Plate dimensioning
- Slag grinding
- Machining and deburring a variety of materials

### R215

- Abrasive planing and dimensioning of glued-up stock and banded particleboard



## Cloth Wide Belts

| BETTER  | NorZon Plus R824/R823 Cloth Belts                                       |  |
|---|---|--|
| FEATURES  | BENEFITS  |  |
| • Premium self-sharpening zirconia alumina abrasive       | • Aggressive cut and long life  |  |
| • R824 – Durable Y-wt polyester, waterproof cloth backing | • Long life on high-pressure, dry or wet, heavy-duty metal applications |  |
| • R823 – Strong X-wt polyester, waterproof backing        | • Moderate flexibility, dry or wet, fine grit applications              |  |

| GOOD                         | Metalite R215 Cloth Belts                                     |  |
|------------------------------|---|--|
| FEATURES                     | BENEFITS  |  |
| • Strong X-wt cotton backing | • Aggressive cutting, resistant to heat                       |  |
| • Open coat design           | • Resists loading<br>• Value product for wood and soft metals |  |

| SIZE<br>W X L | GRIT | MIN./<br>STD. PKG. | BETTER<br>NORZON PLUS R824†               |   | BETTER<br>NORZON PLUS R823† |                | GOOD<br>METALITE R215 |                |             |             |
|---------------|------|--------------------|---|---|-----------------------------|----------------|-----------------------|----------------|-------------|-------------|
|               |      |                    | UPC #                                     | JOINT/<br>FLEX                            | UPC #                       | JOINT/<br>FLEX | UPC #                 | JOINT/<br>FLEX |             |             |
| 25 x 48       | 80   | 3/3                |   |   | 69957344781                 | Plyweld, RR    |                       |                |             |             |
| 25 x 60       | 80   | 3/3                |   |   | 69957328117                 | Plyweld, RR    |                       |                |             |             |
|               | 120  | 5/5                |   |   | 69957328115                 | Plyweld, RR    |                       |                |             |             |
| 25 x 75       | 120  | 5/5                |   |   | 69957344791                 | Plyweld, RR    |                       |                |             |             |
| 36 x 75       | 36   | 2/2                | 69957350934<br>69957350931                | Plyweld, RR<br>Plyweld, RR                |                             |                | 69957323872           | Plyweld, RR    |             |             |
|               | 60   | 3/3                |   |   |                             |                | 69957323871           | Plyweld, RR    |             |             |
|               | 80   | 5/5                |   |   | 69957329014                 | Plyweld, RR    | 69957323870           | Plyweld, RR    |             |             |
|               | 100  |                    |   |   | 69957344869                 | Plyweld, RR    | 69957323869           | Plyweld, RR    |             |             |
|               | 120  |                    |   |   |                             |                |                       |                |             |             |
| 150           |      |                    |   |   |                             |                |                       |                |             |             |
| 180           |      |                    |   |   |                             |                |                       |                |             |             |
| 37 x 60       | 50   | 3/3                | 69957306219                               | Plyweld, RR                               |                             |                | 69957325709           | Plyweld, RR    |             |             |
|               | 80   | 5/5                |   |   |                             |                | 69957329019           | Plyweld, RR    | 69957325708 | Plyweld, RR |
|               | 100  |                    |   |   |                             |                | 69957328103           | Plyweld, RR    | 69957325707 | Plyweld, RR |
|               | 120  |                    |   |   |                             |                | 69957329018           | Plyweld, RR    | 69957302955 | Plyweld, RR |
|               | 150  |                    |   |   |                             |                | 69957328102           | Plyweld, RR    |             |             |
|               | 180  |                    |   |   |                             |                | 69957328101           | Plyweld, RR    |             |             |
| 220           |      |                    | 69957328100                               | Plyweld, RR                               |                             |                |                       |                |             |             |
| 37 x 75       | 36   | 2/2                | 69957350959<br>69957305107<br>69957350955 | Plyweld, RR<br>Plyweld, RR<br>Plyweld, RR |                             |                | 69957325957           | Plyweld, RR    |             |             |
|               | 50   | 3/3                |   |   |                             |                | 69957307358           | Plyweld, RR    | 69957323880 | Plyweld, RR |
|               | 80   | 5/5                |   |   |                             |                | 69957305760           | Plyweld, RR    | 69957305737 | Plyweld, RR |
|               | 100  |                    |   |   |                             |                |                       |                |             |             |
|               | 120  |                    |   |   |                             |                |                       |                |             |             |
|               | 150  |                    |   |   |                             |                |                       |                |             |             |
| 180           |      |                    |   |   | 69957306734                 | Plyweld, RR    |                       |                |             |             |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.  
† WATERPROOF

# WIDE BELTS – CLOTH AND HEAVY PAPER

A selection of stock products to meet wide belt needs in the woodworking industry.



## Typical Applications – Heavy Paper Wide Belts

- Woodworking applications where close tolerances and quality finishes are required
- Intermediate wide belt sanding
- Upgrading the finish of raised panels, doors, face frames, drawer fronts, and other components
- Veneered panel sanding
- Sealer sanding

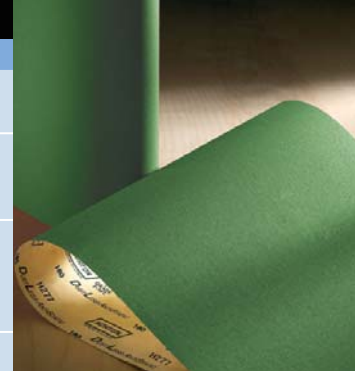


## Heavy Paper Wide Belts for Woodworking

| <b>BEST</b> Norton SG H968 Heavy Paper Belts                |  |
|---|--|
| FEATURES  | BENEFITS   |
| • P-graded Norton seeded-gel ceramic abrasive, F-wt backing | • Longest life; greatest productivity; most cost-effective |
| • Antistatic properties                                     | • High performance cutting; dust-free environment          |
| • Semi-open coat  | • Excellent load resistance                                |



| <b>BETTER</b> DL Adalox H277 Heavy Paper Belts  |   |
|---|---|
| FEATURES  | BENEFITS  |
| • Premium P-graded aluminum oxide grain   | • Long life   |
| • NEW! Reinforced, dimensionally-stable, F-wt backing   | • Smoother coating surface for consistent finish  |
|   | • More resistant to belt tear and belt edge damage  |
|   | • Less reactive to humidity changes   |
| • Graduated open/closed coat along the grit range: coarser grits are more open coat, finer grits are more closed coat | • Grain coverage designed into the product to best match the application: aggressive cutting action in the coarse grits and a finer grit finishing action |
| • Antistatic properties   | • Creates dust-free environment   |



| <b>GOOD</b> DL Adalox H248 and DL Adalox H258 Heavy Paper Belts |  |
|---|--|
| FEATURES  | BENEFITS   |
| • Antistatic properties   | • No curling in humid settings; dust-free environment    |
| • H258: P-graded, open coat, F-wt backing                       | • Excellent load resistant on both hardwood and softwood |
| • H248: P-graded, closed coat, F-wt backing                     | • Excellent finish on hardwoods                          |



## TECHtips

- 36" wide belts can be used on machines that normally use 37" wide belts.
- Closed coat belts are used on harder materials where loading is not a problem.



It is the user's responsibility to refer to and comply with ANSI B7.7

# WIDE BELTS – CLOTH AND HEAVY PAPER

| SIZE<br>W X L | GRIT | MIN./<br>STD.<br>PKG. | BEST<br>H968*                                      |                | BETTER<br>H277*  |                | GOOD<br>H258*                                      |                | GOOD<br>H248*                                      |             |
|---------------|------|-----------------------|--|----------------|--|----------------|--|----------------|--|-------------|
|               |      |                       | UPC #  | JOINT/<br>FLEX | UPC #  | JOINT/<br>FLEX | UPC #  | JOINT/<br>FLEX | JOINT/<br>UPC #                                    | FLEX        |
| 37 x 75       | 80   | 3/3                   | 69957327784 Channel, RR<br>69957327785 Channel, RR | Channel, RR    | 66261064636 Channel, RR<br>66261064649 Channel, RR<br>69957399062 Channel, RR<br>66261064653 Channel, RR<br>69957399064 Channel, RR<br>69957399063 Channel, RR | Channel, RR    | 69957307662 Channel, RR<br>69957307665 Channel, RR | Channel, RR    | 69957300110 Channel, RR<br>69957300111 Channel, RR | Channel, RR |
|               | 100  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 120  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 150  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 180  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 220  | 5/5                   |  |                |  |                |  |                |  |             |
| 52 x 103      | 80   | 3/3                   | 69957327778 Channel, RR<br>69957327779 Channel, RR | Channel, RR    | 66261064655 Channel, RR<br>66261064656 Channel, RR<br>66261055098 Channel, RR<br>66261064657 Channel, RR<br>66261055099 Channel, RR<br>66261064660 Channel, RR | Channel, RR    | 69957307727 Channel, RR<br>69957307676 Channel, RR | Channel, RR    | 69957307647 Channel, RR<br>69957307698 Channel, RR | Channel, RR |
|               | 100  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 120  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 150  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 180  | 5/5                   |  |                |  |                |  |                |  |             |
|               | 220  | 5/5                   |  |                |  |                |  |                |  |             |

REFER TO PAGE 82 FOR JOINT AND FLEX DESCRIPTIONS.

\* P-GRADED



## Wide Belt Starting Recommendations

| APPLICATIONS | COAT DESIGN | HEAVY PRESSURE   | MODERATE PRESSURE |
|--------------|-------------|------------------|-------------------|
| Metalworking | Close       | NorZon Plus R824 | NorZon Plus R823  |
| Woodworking  | Open        | R215             | Metalite R215     |

## Recommended Grit Selection

| ROUGH/HEAVY-DUTY | INTERMEDIATE | FINISHING/POLISHING |
|------------------|--------------|---------------------|
| 24–50            | 60–100       | 120–220             |

## Cloth Wide Belt Competitive Cross Reference

| NORTON | 3M   | EKAMANT  | HERMES   | KLINGSPOR        | SIA                 | VSM              |
|--------|--|----------|--|------------------|---------------------|------------------|
| R823   | 561F Y, 551E XE<br>741A, 741E, 761D          | UZA0X    | RB486 X, RB346-23MX<br>RB426-23MX, RB484TY<br>RB486XF                      | CS411Y           |                     | KK715X           |
| R824   | 561D, 561F, 563F<br>741A, 741E, 761D<br>761F | UZPOX    | RB484TY, RB486Y<br>RB346-23MX, RB426-23MX<br>RB480-21MX, CB440Y<br>RB486XY | CS411Y           | 2800,2803<br>2929   | KK716Y<br>ZK713X |
| R215   | 270D, 270DZ, 272DZ<br>260D, 362RZ            | MKX, RKX | RB316-XOP<br>RB316-34XOP   | CS413Y<br>CS311X | 2928, 2920<br>C903D | KK504X<br>KK524X |

## Heavy Paper Wide Belt Competitive Cross Reference

| NORTON | 3M            | EKAMANT   | HERMES | KLINGSPOR | MIRKA         | SIA                 | VSM    |
|--------|---------------|-----------|--------|-----------|---------------|---------------------|--------|
| H968   | 961UZ         |           | CB115  |           |               |                     |        |
| H277   | 251U          | EKA 1000E | BW110  | PS22      | Unimax        | 1939 Siawood TopTec | KP508E |
|        | 362UZ         | RKEO      | BW114  | PS20      | Avomax Plus   | 1919 Siawood TopTec | KP520  |
|        | 363UZ         | ARKFO     | BW112  | PS23      | Jepuflex Plus | 1920 Siawood TopTec | KP532E |
|        |               | ARKFEO    | CB115  | PS26      |               |                     | KP709  |
| H258   | 251U<br>362UZ | EKA 1000E | BW110  | PS23      | Avomax Plus   | 1939 Siawood TopTec | KP508E |
|        |               | RKEO      | BW114  | PS26      |               | 1919 Siawood TopTec | KP520  |
|        |               | ARKFO     | BW112  |           |               |                     | KP532E |
|        |               | ARKFEO    |        |           |               |                     |        |
| H248   | 363UZ         | AEKM      | BW110  | PS22      | Jepuflex Plus | 1920 Siawood TopTec | KP508E |
|        |               | EKA 1000E | BW114  | PS20      | Unimax        | 1919 Siawood TopTec |        |
|        |               | RKEO      |        | PS23      |               |                     |        |

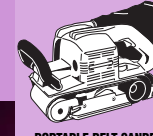
# NORaX BELTS

## NORaX Flex U242 Polishing Belts

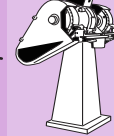
NORaX Flex U242 belts, with their multi-layered, consistent surface pattern outlast conventional abrasive belts with 2- 5 times longer life. They produce repeatable, uniform finishes from the first to last part. Inside each pattern are precisely graded abrasive particles to prevent wild scratches, and a grinding aid to keep your parts cool. Longer product life, higher quality finishes, faster cut rates, and the ability to skip finishing steps all help drive down the costs of your finishing processes.



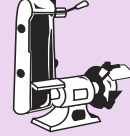
PORTABLE FILE BELT MACHINE



PORTABLE BELT SANDER



BACKSTAND BELT GRINDER

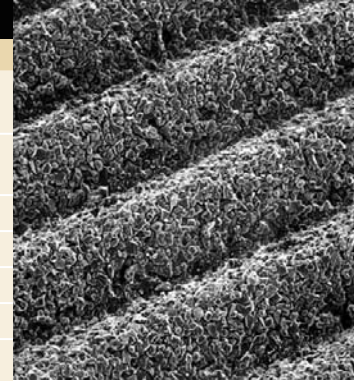


BENCHSTAND BELT GRINDER



### BEST NORaX U242 Belts

| FEATURES  | BENEFITS   |
|---|--|
| • Multiple abrasive layers with an engineered surface pattern | • Provide superior finishing results                 |
| • High performance, micron-graded aluminum oxide abrasive     | • Consistent finish                                  |
| • Improved UV resin bond system                               | • Increased durability                               |
| • J-wt cotton backing   | • Very flexible; conforms to intricate part contours |
| • Fine trihelical pattern                                     | • Faster cut rate                                    |
| • Grinding aid  | • Reduces heat                                       |
| • "Tear-straight" backing                                     | • Shred-free   |



### BEST NORaX U242 – FINE HELICAL

| SIZE<br>W X L               | MIN./<br>STD. PKG. | X65<br>GRIT | X45<br>GRIT | X30<br>GRIT | X22<br>GRIT | X16<br>GRIT |
|-----------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| <b>FASTTRACK FILE BELTS</b> |                    |             |             |             |             |             |
| 1/2 x 12                    | 200/600            | 78072795606 | 78072795607 | 78072795608 | 78072795609 | 63642593974 |
| 1/2 x 18                    | 200/600            | 78072739735 | 78072795610 | 78072739736 | 78072739737 | 78072735006 |
| 1/2 x 24                    | 200/600            | 78072793093 | 78072794254 | 78072795611 | 78072794477 | 66261040994 |
| 1 x 24                      | 200/600            | 78072794148 | 78072750441 | 78072793462 | 78072750443 | 66261190775 |

### POPULAR NON-STOCK BELTS

|                |         |             |             |             |             |             |
|----------------|---------|-------------|-------------|-------------|-------------|-------------|
| 1 x 42         | 200/600 | 78072795064 | 78072795600 | 78072795601 | 78072795602 | 66261060691 |
| 2 x 48         | 50/150  | 78072737656 | 78072795603 | 78072749922 | 78072749923 | 78072722953 |
| 2 x 60         | 50/150  | 78072750251 | 78072739551 | 78072739552 | 78072744375 | 69957339707 |
| 2 x 72         | 50/150  | 78072738384 | 78072738385 | 78072738386 | 78072738387 | 66261020190 |
| 2 x 132        | 15/75   | 78072737346 | 78072737538 | 78072737347 | 78072737542 | 78072794528 |
| 2-1/2 x 60     | 50/150  | 78072741566 | 78072741565 | 78072795604 | 78072795037 | 66261060692 |
| 3 x 132        | 15/60   | 78072737352 | 78072737351 | 78072737316 | 78072737317 | 78072794618 |
| 3-1/2 x 15-1/2 | 10/50   | 78072794608 | 78072794609 | 78072738281 | 78072795619 | 78072713199 |
| 4 x 132        | 15/45   | 78072739731 | 78072738532 | 78072738533 | 78072750181 | 78072795075 |
| 6 x 48         | 20/60   | 78072794414 | 78072794415 | 78072794416 | 78072795606 | 78072799429 |

NOTE: ALL THESE BELTS ARE PLYWELD JOINT, TF FLEX. REFER TO PAGE 82 FOR JOINT AND FLEX INFORMATION.



Call your local Norton distributor or sales representative for information on additional NORaX belt sizes and specifications.

#### U242 Availability

Shapes: Belts up to 24" wide

Grits: X65, X45, X30, X22, X16

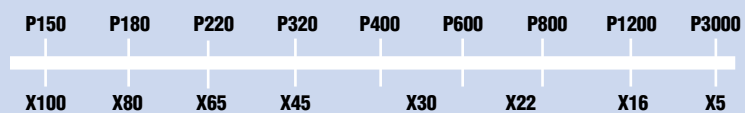
Joints: Standard – Plyweld

Flex: Standard – Triple Flex (TF)  
Optl – High Pressure TF

#### NORaX versus FEPA Grading

NORaX engineered abrasives perform over a wider range of traditional grit sequences.

FEPA



NORaX



# FASTTRACK SERVICE FOR MADE-TO-ORDER BELTS

## FastTrack Belt Service

Strategically located, Norton FastTrack Service Centers offer all the benefits of an ISO 9001 quality manufacturer and the advantages of a coated abrasives express belt service. As the industry's leading producer of abrasive material and backings, Norton offers an extensive range of made-to-order belts including Norton SG ceramic alumina – shipped within two to five days of Norton's receipt of order.

### Lead-time:

- 2 days on narrow belts (12" wide and less)
- 5 days on wide belts (>=14" up to 52" wide)

### Product Availability:

- 1/2" and greater widths, for 25" and greater lengths
- Note: 8" x 107" and 9" x 107" are exempt from FastTrack Service

### Cloth Products

- Norton SG Ceramic Alumina
- NorZon Plus Zirconia Alumina
- Metalite Aluminum Oxide
- Durite Silicon Carbide

### Paper Products

- Norton SG Ceramic Alumina
- DL (Dustless) Adalox Aluminum Oxide

### NORaX Products

- Fine Tri-Helical

### Order Information:

- All belts are made-to-order
- Minimum quantity is 1 package
- Manufacturing Leeway +/-10%

### How to Order:

- See your local distributor for the FastTrack Product Availability List
- Include a full description of belt required, including:
  - Size
  - Specification
  - Grit size
  - Quantity
- Check joint and flex availability
  - Standard and optional joints are available
- Verify that quantity is within FastTrack order limits

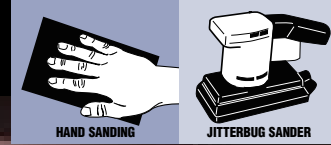


FASTTRACK SERVICE FOR MADE-TO-ORDER BELTS

### FastTrack Packaging Standards

| WIDTH                                  | GRIT SIZE                                  | BELTS/PKG.  | BELTS/CASE  |
|--|--|-------------|-------------|
| <b>NARROW BELTS</b>                    |  |             |             |
| 1/2" up to 1"                          | All  | 50          | 200         |
| over 1" up to 5"<br>(except below)     | All  | 10          | 50          |
| over 1" up to 4"<br>length 109" – 168" | 50 and coarser<br>60 and finer             | 25<br>50    | 50<br>50    |
| over 5" up to 9"                       | All  | 10          | 20          |
| over 9" up to 14"                      | All  | 10          | 10          |
| WIDTH                                  | GRIT SIZE                                  | BELTS/PKG.  | BELTS/CASE  |
| <b>WIDE BELTS</b>                      |  |             |             |
| over 14" up to 20"                     | 50 and coarser<br>60 and finer             | 5<br>10     | 10<br>10    |
| over 20" up to 52"                     | 36 and coarser<br>40 – 80<br>100 and finer | 2<br>3<br>5 | 2<br>3<br>5 |

**Ask your Norton Sales Representative about new Norton SG Blaze R980 narrow and wide FastTrack belts.**

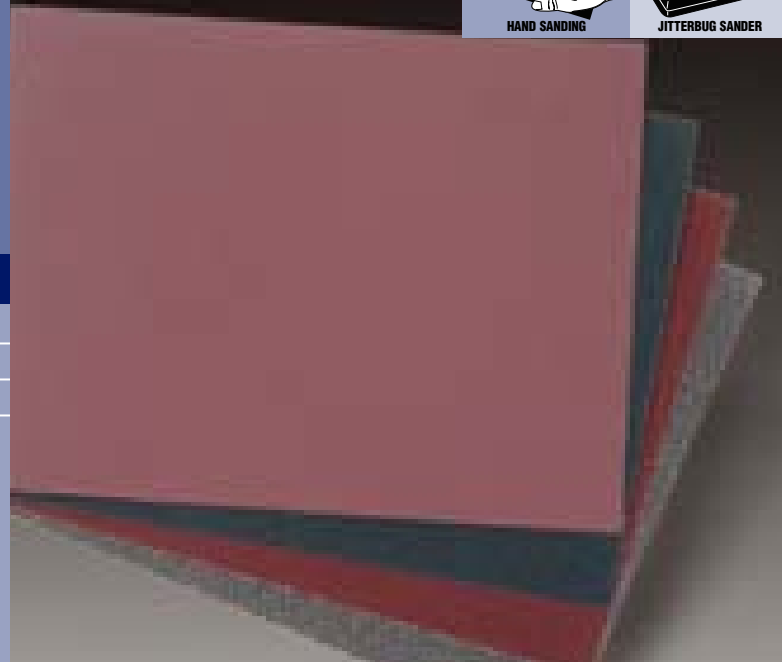


## Cloth Sheets

Engineered for maximum flexing and fast cutting, cloth sheets have a longer life than paper sheets. They tear cleanly and straight without shedding and are packed in a protective dispenser to eliminate waste and damage.

### Typical Applications

- Scouring and light deburring
- Scale and rust removal
- Blending machine tool marks
- Fine sanding and polishing



#### **GOOD** Metalite K225 Sheets – General purpose metalworking applications

| FEATURES                                   | BENEFITS  |
|--|---|
| • Premium P-graded aluminum oxide abrasive | • Greater cut rate than competitive products                      |
| • Advanced full resin bond system          | • Exceptional grain adhesion for longer life                      |
| • Flexible J-wt cotton backing             | • Superior conformability to complex surfaces and better finishes |



#### **GOOD** Lightning Metalite K227 Sheets – For quality finishing and polishing

| FEATURES   | BENEFITS  |
|--|---|
| • P-graded aluminum oxide abrasive               | • Fast cut rate and consistent finish                             |
| • Resin bond system                              | • Long life   |
| • J-wt cotton backing with increased flexibility | • Superior conformability to complex surfaces and better finishes |



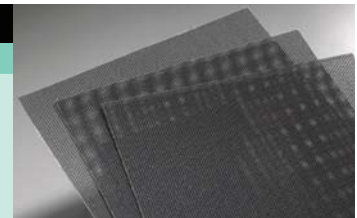
#### **GOOD** Emery K622 Sheets – Ideal for extra fine finishes

| FEATURES   | BENEFITS  |
|--|---|
| • K622 – Highest quality, natural emery abrasive | • Produces extra fine finishes, ideal for lapping |

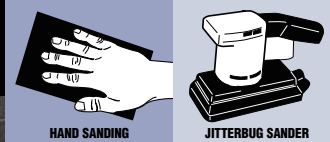


#### **GOOD** Screen-Bak Durite Q421 Sheets – For wet or dry applications

| FEATURES  | BENEFITS                                   |
|---|--|
| • P-graded silicon carbide abrasive (220 and coarser) on an open mesh backing | • Extreme resistance to loading, long life |
|   | • Waterproof                               |



# CLOTH SHEETS



## 9 x 11 Cloth Sheets

| SIZE   | GRIT           | MIN./STD. PKG. | GOOD METALITE K225*      | GOOD METALITE K227* | GOOD EMERY K622 | GOOD** SCREEN-BAK Q421† |
|--------|----------------|----------------|--------------------------|---------------------|-----------------|-------------------------|
|        |                |                | UPC NO.                  | UPC NO.             | UPC NO.         | UPC NO.                 |
| 9 x 11 | 40             | 25/125         | 66261058713* <b>new!</b> |                     |                 |                         |
|        | 50             | 25/125         | 66261101862*             |                     |                 |                         |
|        | 60             | 25/125         | 66261101861*             |                     |                 |                         |
|        | 80             | 25/125         | 66261126340              | 66261101750         |                 | 66261100960*            |
|        | 100            | 50/250         | 66261126339              | 66261101745         |                 | 66261100955*            |
|        | 120            | 50/250         | 66261126338              | 66261101740         |                 | 66261100950*            |
|        | 150            | 50/250         | 66261126337              | 66261101735         |                 | 66261100945*            |
|        | 180            | 50/250         | 66261126336              | 66261101730         |                 | 66261100940*            |
|        | 220            | 50/250         | 66261126335              |                     |                 | 66261100935*            |
|        | 240            | 50/250         | 66261126334              |                     |                 |                         |
|        | 280            | 50/250         | 66261126333              | 66261101720         |                 |                         |
|        | 320            | 50/250         | 66261126332              | 66261101710         |                 | 66261100920*            |
|        | 400            | 50/250         | 66261126331              | 66261101705         |                 | 66261100915*            |
|        | 500            | 50/250         |                          | 66261101700         |                 |                         |
|        | 600            | 50/250         | 66261126330              |                     |                 |                         |
|        | Extra Coarse   | 25/125         |                          |                     | 66261101255     |                         |
|        | Coarse         | 25/125         |                          |                     | 66261101250     |                         |
|        | Medium         | 50/250         |                          |                     | 66261101245     |                         |
|        | Fine           | 50/250         |                          |                     | 66261101240     |                         |
|        | Finer than 500 | 50/250         |                          |                     |                 |                         |

\*SUPPLIED IN E-Z FLEX METALITE K224

\* P-GRADED

† WATERPROOF

• PACKAGING STANDARDS: MIN./STD. PKG. Q421 = 25/125



### Cloth Sheet Starting Recommendations

| WATERPROOF LOAD RESISTANT | FAST CUT GENERAL FINISH | SLOW CUT FINE FINISH |
|---------------------------|-------------------------|----------------------|
| Screen-Bak Durite Q421    | Metalite K225           | Emery K622           |

### Cloth Sheet Competitive Cross Reference

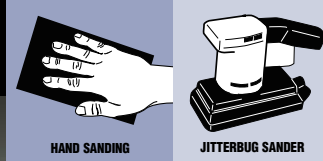
| NORTON    | 3M                                     | HERMES  | KLINGSPOR | SIA   | VSM              |
|-----------|--|---------|-----------|-------|------------------|
| K224      | 311T Three-M-Ite BG<br>211K Electrocut | RB317LX | CS310X    |       | KK504X           |
| K225/K227 | 211K Three-M-Ite<br>311K Three-M-Ite   | RB232J  | KL361     | 2947J | KK504J<br>KK504X |
| K622      | 011K Crystal Bay                       |         | KL371     | C680J |                  |
| Q421      | 481W                                   |         |           |       |                  |

## TECHtip

Use light machine oil with cloth sheets as a lubricant for finer finishes and quicker cut.



It is the user's responsibility to refer to and comply with ANSI B7.7



## Paper Sheets

Full size (9" x 11") and cut sheets are used for both metalworking and woodworking applications. Packed in protective dispensers and/or convenient job packs to eliminate waste and permit easy, neat storage.

### Typical Applications

- Light duty, metal sanding
- Primer sanding, defect removal from painted surfaces
- Filler sanding
- Sanding and finishing of composites and fiberglass
- Bare wood sanding
- Sanding between sealer coats



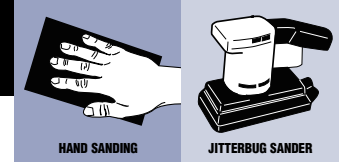
## Light Weight Paper Sheets

|  |   |  |
|--|---|--|
| <b>BEST</b>  | <b>No-Fil Adalox A275 Sheets – The performance leader for dry finishing</b>     |  |
| <b>FEATURES</b>  | <b>BENEFITS</b>   |  |
| • Premium P-graded, heat-treated aluminum oxide abrasive | • Superior life, fast cut rate, consistent finish                               |  |
| • Unique fiber-reinforced, B-wt latex-saturated backing  | • 50-60% improvement in tear strength   |  |
| • Water-based stearate, non-pigmented, No-Fil coating    | • Flexible; can be used wet   |  |
| • Ultra fine grit (P1000, P1200, P1500) upgrade          | • Provides maximum load resistance and extended life; no color transfer to work |  |
|  | • Excellent cut rate and total cut, while minimizing loading = maximum life     |  |

|  |  |  |
|--|--|--|
| <b>BEST</b>  | <b>Norton 3X NO-Fil Paper Sheet Job Packs – Fast Cut Rate</b>  |  |
| <b>FEATURES</b>  | <b>BENEFITS</b>  |  |
| • Open coat, premium aluminum oxide abrasive grain               | • Hard, tough; provides a free cutting action for quick initial cut and maximum life                                 |  |
| • Non-pigmented stearate coating                                 | • Provides maximum resistance to clogging for longer life especially when sanding soft materials                     |  |
| • High-strength, fiber-reinforced, latex-saturated paper backing | • Tear resistant; provides exceptional flexibility when folding to get into corners and crevices                     |  |
| • Full resin adhesive bond                                       | • Provides exceptional resistance to abrasive grain shedding especially when folding to sand into corners; long life |  |

|                                   |   |  |
|-----------------------------------|---|--|
| <b>GOOD</b>                       | <b>No-Fil Adalox A251 Sheets – Unrivaled flexibility and finish – dry</b> |  |
| <b>FEATURES</b>                   | <b>BENEFITS</b>   |  |
| • P-grade aluminum oxide abrasive | • Increased life, consistent finish                                       |  |
| • A-wt paper backing              | • Increased flexibility for hand sanding applications                     |  |
| • Stearated (No-Fil), open coat   | • Reduced loading   |  |

|                                    |   |  |
|------------------------------------|---|--|
| <b>GOOD</b>                        | <b>No-Fil Adalox A290 Sheets – Unrivaled durability and value for dry finishing</b> |  |
| <b>FEATURES</b>                    | <b>BENEFITS</b>   |  |
| • P-graded aluminum oxide abrasive | • Increased life, fast cut rate, consistent finish                                  |  |
| • Heavy-duty, C-wt backing         | • Edge-tear resistance, durable for cut sheet machine sanding applications          |  |
| • Stearated (No-Fil), open coat    | • Reduced loading   |  |



## Light Weight Paper Sheets (CONTINUED)

|   |  |
|---|--|
| <b>GOOD</b>   | <b>Adalox A212, A213, A211 Sheets – For dry, general purpose sanding</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>Aluminum oxide grain, open-coat Available in three backing weights: A212 A-wt, A213 C-wt, A211 D-wt</li> <li>Extensive, P-graded grit range (P36 – P220 grit)</li> </ul> | <ul style="list-style-type: none"> <li>Aggressive cutting action for all dry sanding applications</li> <li>Designed for heavy-duty to light-duty hand and machine sanding, coarse to fine</li> </ul> |



|  |   |
|--|---|
| <b>GOOD</b>  | <b>MultiSand Paper Sheet Job Packs – Versatile</b>  |
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>Aluminum oxide open coat</li> <li>Extensive, P-graded grit range (P36 – P220 grit)</li> </ul> | <ul style="list-style-type: none"> <li>Versatile; for hand or machine sanding wood, metal, plastic and fiberglass and for removing old paint</li> </ul> |



|   |   |
|---|---|
| <b>GOOD</b>   | <b>No-Fil Durite A413/A414 Sheets – Good general purpose choice</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>Sharp silicon carbide abrasive</li> <li>A413 – B-wt paper backing</li> <li>A414 – A-wt paper backing</li> <li>Stearated (No-Fil), open coat</li> </ul> | <ul style="list-style-type: none"> <li>Excellent for finishing</li> <li>Penetrates dense, hard materials (glass, ceramics, etc.)</li> <li>Flexible, yet durable</li> <li>Very flexible and conformable, soft-acting</li> <li>Reduced loading</li> </ul> |

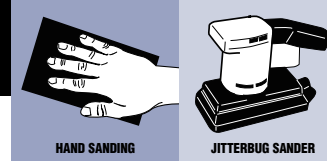


|   |   |
|---|---|
| <b>GOOD</b>   | <b>Garnet A511, A513, A514 Sheets – Ideal on soft woods</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>Natural garnet grain</li> <li>Available in three backing weights: A511 A-wt, A513 C-wt, A514 D-wt</li> </ul> | <ul style="list-style-type: none"> <li>Excellent for soft woods, consistent finishes</li> <li>Designed for heavy-duty to light-duty hand and machine sanding, coarse to fine</li> </ul> |



|  |   |
|--|---|
| <b>GOOD</b>  | <b>WoodSand Paper Sheet Job Packs – For prepping wood</b>   |
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>Natural garnet grain</li> </ul> | <ul style="list-style-type: none"> <li>The choice when preparing bare wood surfaces for stains or finishes</li> </ul> |





## Waterproof Paper Sheets

### BEST Black Ice T214 Waterproof Sheets – Ultimate performance for wet applications

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>Premium, P-graded, heat-treated aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>Ultimate cut and life in wet applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>Strong, resin bond system</li> </ul>                               | <ul style="list-style-type: none"> <li>Long life in wet applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>B-wt, high-latex, waterproof paper backing</li> </ul>              | <ul style="list-style-type: none"> <li>Ultimate flexibility</li> <li>Wet-curl resistance</li> <li>Environmentally stable, resists humidity-caused curling</li> </ul> |



### BEST Black Ice T402 Waterproof Sheets – Ultimate surface finishes – wet

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Premium, ultra fine (1000 – 2500 grits) silicon carbide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>Ultimate finish in wet applications</li> </ul>   |
| <ul style="list-style-type: none"> <li>Strong resin bond system</li> </ul>   | <ul style="list-style-type: none"> <li>Long life in wet applications</li> </ul>   |
| <ul style="list-style-type: none"> <li>New, higher strength B-wt waterproof paper backing</li> </ul>               | <ul style="list-style-type: none"> <li>Extremely flexibility</li> <li>Wet-curl resistance</li> <li>Environmentally stable; resists humidity-caused curling</li> </ul> |



### BETTER Blue-Bak T414 Waterproof Sheets – Exceptional finishing in wet applications

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>Sharp silicon carbide abrasive (220-600 grit range)</li> </ul> | <ul style="list-style-type: none"> <li>Exceptional finishes in wet applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>Strong resin bond</li> </ul>                                   | <ul style="list-style-type: none"> <li>Longer life in wet applications</li> </ul>   |
| <ul style="list-style-type: none"> <li>New, higher strength B-wt waterproof paper backing</li> </ul>  | <ul style="list-style-type: none"> <li>Extremely flexible</li> <li>Improved wet-curl resistance</li> <li>Environmentally stable; resists humidity-caused curling</li> </ul> |



### GOOD Tufbak Waterproof T461 Sheets – For more aggressive applications

| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>Silicon carbide abrasive</li> </ul>        | <ul style="list-style-type: none"> <li>Fast cutting with excellent finish in wet applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>Strong, waterproof C-wt backing</li> </ul> | <ul style="list-style-type: none"> <li>Ideal for more aggressive applications</li> <li>Environmentally stable, resists product curl in humidity</li> <li>Resists chipping and cracking</li> </ul> |
| <ul style="list-style-type: none"> <li>Advanced resin bond system</li> </ul>      | <ul style="list-style-type: none"> <li>Excellent flexibility and abrasive adhesion</li> </ul>   |



### GOOD SandWet Paper Sheet Job Packs – For topcoat sanding

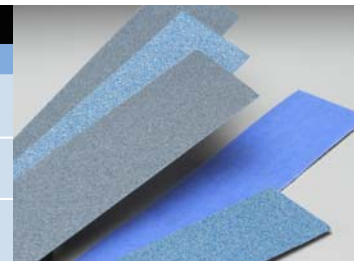
| FEATURES  | BENEFITS  |
|---|---|
| <ul style="list-style-type: none"> <li>Sharp silicon carbide abrasive</li> <li>Waterproof A-wt backing</li> </ul> | <ul style="list-style-type: none"> <li>Ideal for wet, oil or dry sanding primer, sealer, varnish, lacquer, enamel and other topcoats</li> </ul> |



## Heavy Paper Sheets

### BETTER NorZon Plus H875 Sheets – Excellent for soft material applications

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Patented NorZon Plus zirconia abrasive</li> </ul> | <ul style="list-style-type: none"> <li>Extended life over original NorZon products</li> </ul>                              |
| <ul style="list-style-type: none"> <li>Strong E-wt paper, latex impregnated</li> </ul>   | <ul style="list-style-type: none"> <li>Increased durability and chip resistance, flexible</li> </ul>                       |
| <ul style="list-style-type: none"> <li>Open coat design</li> </ul>                       | <ul style="list-style-type: none"> <li>Reduced loading; ideal for body filler, fiberglass and composite sanding</li> </ul> |



# PAPER SHEETS



BODY FILE

HAND SANDING

JITTERBUG SANDER

## File Sheets

Used on manual or air file boards for sanding, shaping, and finishing.

| SIZE           | GRIT        | MIN/STD. PKG. | BEST A275*  |             |             |                | GOOD H290*  | MIN/STD. PKG. | BETTER H875 |             | MIN/STD. PKG. | BETTER H875 |
|----------------|-------------|---------------|-------------|-------------|-------------|----------------|-------------|---------------|-------------|-------------|---------------|-------------|
|                |             |               | NON-PSA     | PSA         | NORGRIP     | NORGRIP VACUUM | PSA         |               | NON-PSA     | PSA         |               | NORGRIP     |
| 2-3/4 x 16     | 100         | 50/500        |             |             |             | 66261131657    |             |               |             |             |               |             |
|                | 120         |               |             |             |             | 66261131656    |             |               |             |             |               |             |
|                | 180         |               |             |             |             | 66261131654    |             |               |             |             |               |             |
| 2-3/4 x 16-1/2 | 36          | 50/500        |             |             |             |                | 66261130840 | 50/250        |             | 66261123610 | 25/125        | 66261123616 |
|                | 40          |               |             |             |             |                |             |               |             | 66261123609 |               | 66261123615 |
|                | 80          |               |             |             | 66261131640 | 66261131646    |             |               |             | 66261123608 |               | 66261123614 |
|                | 100         |               |             |             | 66261131639 | 66261131645    |             |               |             |             |               |             |
|                | 120         |               |             |             |             | 66261131644    |             |               |             |             |               |             |
|                | 150         |               |             |             | 66261131637 | 66261131643    |             |               |             |             |               |             |
|                | 180         |               |             |             | 66261131636 | 66261131642    |             |               |             |             |               |             |
| 220            |             |               |             | 66261131641 |             |                |             |               |             |             |               |             |
| 2-3/4 x 17-1/2 | 36          | 50/500        |             |             |             |                |             | 50/250        | 66261123622 |             |               |             |
|                | 40          |               |             |             |             |                |             |               | 66261123621 |             |               |             |
|                | 80          |               | 66261131652 |             |             |                |             |               | 66261123620 |             |               |             |
|                | 100         |               | 66261131651 |             |             |                |             |               | 66261126512 |             |               |             |
|                | 120         |               | 66261131650 |             |             |                |             |               |             |             |               |             |
|                | 150         |               | 66261131649 |             |             |                |             |               |             |             |               |             |
| 180            | 66261131648 |               |             |             |             |                |             |               |             |             |               |             |
| 220            | 66261131647 |               |             |             |             |                |             | 66261126511   |             |             |               |             |

\* P-GRADED  
PACKAGING STANDARDS: MIN./STD. PKG.

## Paper Cut Sheets

| SIZE      | GRIT | MIN/STD. PKG. | GOOD A211*  | GOOD A213*  | GOOD A290*  | BETTER T414† |
|-----------|------|---------------|-------------|-------------|-------------|--------------|
|           |      |               | UPC NO.     | UPC NO.     | UPC NO.     | UPC NO.      |
| 3-2/3 x 9 | 60   | 100/1000      | 66261102925 |             |             |              |
|           | 80   |               | 66261102920 |             |             |              |
|           | 100  |               |             | 66261102900 | 66261101119 |              |
|           | 120  |               |             | 66261102895 |             |              |
|           | 150  |               |             |             | 66261101125 |              |
|           | 180  |               |             |             | 66261101124 |              |
|           | 220  |               |             |             | 66261101123 | 66261139359  |
|           | 280  |               |             |             |             | 66261139357  |
|           | 320  |               |             |             |             | 66261139356  |
|           | 400  |               |             |             |             | 66261139354  |
| 600       |      |               |             | 66261139352 |             |              |

\* P-GRADED  
† WATERPROOF



## NorGrip Sanding Blocks

Used with NorGrip cut sheets, these blocks fit comfortably in your hand. Soft – Flexible, yet tough, foam designed for flat and contoured surfaces. Firm – Sturdy, high-strength material produces a true flat surface.



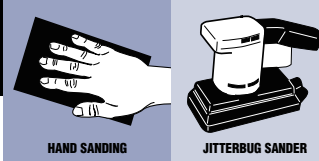
| SIZE          | DESCRIPTION    | STD. PKG. | UPC NO.     |
|---------------|----------------|-----------|-------------|
| 2-3/4 x 5     | NorGrip – Soft | 5         | 63642542092 |
| 2-3/4 x 5     | NorGrip – Firm | 5         | 63642542093 |
| 2-3/4 x 7-3/4 | NorGrip – Firm | 5         | 63642542095 |

## Rubber Hand Sanding Block

A resilient rubber block that conforms well to mild contours and flat surfaces. 3-2/3" x 9" sheets are securely held by slotted "jaws" at each end of the block to permit quick, easy sheet changes.



| SIZE      | STD. PKG. | UPC NO.     |
|-----------|-----------|-------------|
| 3-2/3 x 9 | 14        | 07660743140 |



## 9 x 11 Paper Sheets

|        |      |                       | LIGHT WEIGHT PAPER |               |   |               |                            |              |              |  |
|--------|------|-----------------------|--------------------|---------------|---|---------------|----------------------------|--------------|--------------|--|
|        |      |                       | BEST<br>A275*      | GOOD<br>A251* | GOOD<br>A211*                             | GOOD<br>A213* | GOOD<br>A212*              | GOOD<br>A413 | GOOD<br>A414 |  |
| SIZE   | GRIT | MIN./<br>STD.<br>PKG. |                    |               |   |               |                            |              |              |  |
| 9 x 11 | 36   | 25/125                |                    |               |   |               |                            |              |              |  |
|        | 40   |                       |                    |               |   |               |                            |              |              |  |
| 9 x 11 | 50   | 50/250                |                    |               |   |               |                            |              |              |  |
|        | 60   |                       |                    |               |   |               |                            |              |              |  |
|        | 80   |                       | 66261131634        | 66261184107   | 66261100325<br>66261100320<br>66261100315 |               |                            | 66261100801  |              |  |
|        | 100  |                       | 66261131633        | 66261184106   |   |               | 66261100295                | 66261100800  |              |  |
|        | 120  |                       | 66261131632        | 66261184105   |   |               | 66261100290<br>66261100285 | 66261100799  |              |  |
| 9 x 11 | 150  | 100/500               | 66261131631        | 66261184108   |   |               | 66261100802                |              |              |  |
|        | 180  |                       | 66261131630        | 66261184104   |   |               | 66261100245                | 66261100803  |              |  |
|        | 220  |                       | 66261131629        | 66261184103   |   |               | 66261100240                | 66261100804  |              |  |
|        | 240  |                       | 66261131628        | 66261184102   |   |               | 66261100805                |              | 66261134606  |  |
|        | 280  |                       | 66261131627        | 66261184101   |   |               |                            |              |              |  |
|        | 320  |                       | 66261131626        | 66261184100   |   |               | 66261100807                |              | 66261134600  |  |
|        | 360  |                       |                    |               |   |               |                            |              |              |  |
|        | 400  |                       | 66261131624        | 66261184098   |   |               |                            |              |              |  |
|        | 500  |                       | 66261131623        |               |   |               |                            |              |              |  |
|        | 600  |                       | 66261131622        |               |   |               |                            |              |              |  |
| 9 x 11 | 800  | 100/500               | 66261131621        |               |   |               |                            |              |              |  |
|        | 1000 |                       | 66261131620        |               |   |               |                            |              |              |  |
|        | 1200 |                       | 66261131619        |               |   |               |                            |              |              |  |
|        | 1500 |                       | 66261131618        |               |   |               |                            |              |              |  |
| 9 x 11 | 2000 | 100/500               |                    |               |   |               |                            |              |              |  |
|        | 2500 |                       |                    |               |   |               |                            |              |              |  |

\* P-GRADED  
 † WATERPROOF  
 \* PACKAGING STANDARDS: T214, T402, T414, T461 = 50/250



## Emery Sheets

Durable C-wt. paper for fine metal polishing and metallurgical sample preparation.

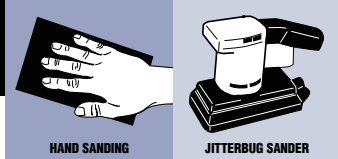
|               |              |                    | GOOD<br>A621      |                       |
|---------------|--------------|--------------------|-------------------|-----------------------|
| EMERY<br>GRIT | CAMI<br>GRIT | MIN./<br>STD. PKG. | 9 X 11<br>UPC NO. | 9 X 13-3/4<br>UPC NO. |
| 3             | 180          | 100/500            |                   |                       |
| 2             | 220          |                    |                   |                       |
| 1             | 280          |                    | 66261101263       | 66261101315*          |
| 0             | 500          |                    | 66261101261       | 66261101310*          |
| 2/0           | 600          |                    | 66261101260       | 66261101300*          |
| 3/0           | 1000         |                    | 66261101259       | 66261101290*          |
| 4/0           | 1200         |                    | 66261101258       | 66261101285*          |
|               |              |                    |                   | 66261101275*          |

\*PACKAGING STANDARDS: MIN. PKG./STD. PKG. = 100/1000





# PAPER SHEETS



HAND SANDING

JITTERBUG SANDER

| SIZE   | GRIT   | MIN./STD. PKG. | LIGHT WEIGHT PAPER |             |             | WATERPROOF PAPER |             |              | HEAVY        |
|--------|--------|----------------|--------------------|-------------|-------------|------------------|-------------|--------------|--------------|
|        |        |                | GOOD A514          | GOOD A513   | GOOD A511   | BEST T214†       | BEST T402†  | BETTER T414† | GOOD T461†   |
| 9 x 11 | 36     |                |                    |             |             |                  |             |              |              |
|        | 40     |                |                    |             |             |                  |             |              |              |
|        | 50     | 50/250         | 66261101565        |             |             |                  |             |              |              |
|        | 60     |                |                    | 66261101560 |             |                  |             |              | 66261101175  |
|        | 80     |                |                    | 66261101555 | 66261101505 |                  |             |              | 66261101170  |
|        | 100    | 100/500        |                    | 66261101535 | 66261101500 |                  |             |              | 66261101165* |
|        | 120    |                |                    | 66261101530 | 66261101495 |                  |             |              | 66261101160* |
|        | 150    |                |                    | 66261101525 | 66261101490 |                  |             |              | 66261101155* |
|        | 180    |                |                    |             | 66261101489 |                  |             |              | 66261101150* |
|        | 220    |                |                    |             | 66261101488 | 66261139389*     |             | 66261139367* |              |
|        | 240    |                |                    |             | 66261101487 | 66261139388*     |             | 66261139366* | 66261130331* |
|        | 280    |                |                    |             | 66261101486 | 66261139387*     |             | 66261139365* |              |
|        | 320    | 50/250         |                    |             |             | 66261139386      |             | 66261139364  | 66261130332  |
|        | 360    |                |                    |             |             | 66261139346      |             | 66261139363  |              |
|        | 400    |                |                    |             |             | 66261139385      |             | 66261139362  | 66261130333  |
| 500    |        |                |                    |             | 66261139384 |                  | 66261139361 |              |              |
| 600    |        |                |                    |             | 66261139383 |                  | 66261139360 | 66261130334  |              |
| 800    |        |                |                    |             | 66261139382 |                  |             |              |              |
| 1000   | 50/250 |                |                    |             |             | 66261139381      |             |              |              |
| 1200   |        |                |                    |             |             | 66261139380      |             |              |              |
| 1500   |        |                |                    |             |             | 66261139379      |             |              |              |
| 2000   |        |                |                    |             |             | 66261139378      |             |              |              |
| 2500   |        |                |                    |             |             | 66261139377      |             |              |              |

★ P-GRADED

† WATERPROOF

\* PACKAGING STANDARDS: T214, T402, T414, T461 = 50/250

## 9 x 11 Paper Sheet Job Packs

A line of abrasive sheets for general and institutional contractors, and serious do-it-yourselfers.

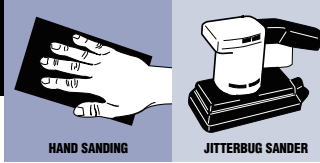
| Job Packs – Packaging highlights  |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Tri-lingual, job-specific application information</li> <li>• Durable packages</li> </ul> | <ul style="list-style-type: none"> <li>• Simplifies selection</li> <li>• Better product visibility; minimize waste and damage</li> <li>• Portable; ideal for showroom merchandising and carrying to the job site</li> </ul> |

| SIZE   | GRIT     | STD. PKG. | BEST NORTON 3X   |           | GOOD MULTISAND*  |                  |                  | GOOD WOODSAND    | GOOD SANDWET† |
|--------|----------|-----------|------------------|-----------|------------------|------------------|------------------|------------------|---------------|
|        |          |           | JOB PACK UPC NO. | STD. PKG. | JOB PACK UPC NO. | JOB PACK UPC NO. | JOB PACK UPC NO. | JOB PACK UPC NO. |               |
| 9 x 11 | 36       | 200*      |                  | 250*      | 07660700361      |                  |                  |                  |               |
|        | 50       |           |                  |           | 07660700360      |                  |                  |                  |               |
|        | 60       |           | 07660702642      |           | 07660701624      |                  | 07660701584      |                  |               |
|        | 80       |           | 07660702641      |           | 07660700359      |                  | 07660701583      |                  |               |
|        | 100      |           | 07660702640      |           | 07660700358      |                  | 07660701582      |                  |               |
|        | 120      |           | 07660702639      |           | 07660700357      |                  | 07660701581      |                  |               |
|        | 150      |           | 07660702638      |           | 07660700356      |                  | 07660701580      |                  |               |
|        | 180      |           | 07660702637      |           | 07660700355      |                  | 07660701579      |                  | 07660701226   |
|        | 220      |           | 07660702636      |           | 07660700354      |                  |                  |                  | 07660701225   |
|        | 320      |           | 07660702633      |           |                  |                  |                  |                  | 07660701224   |
|        | 400      |           | 07660702632      |           |                  |                  |                  |                  | 07660701223   |
|        | 600      |           |                  |           |                  |                  |                  |                  |               |
|        | Assorted |           |                  |           |                  | 07660700365      |                  |                  |               |

★ P-GRADED

† WATERPROOF

\* PACKED 20 SHEETS PER JOB PACK, 10 JOB PACKS PER STANDARD PACKAGE. • PACKED 25 SHEETS PER JOB PACK, 10 JOB PACKS PER STANDARD PACKAGE. ASSORTED CONTAINS 6 EACH OF 60, 100, 150 GRIT AND 7 EACH OF 220 GRIT.



## Paper Sheet Starting Recommendations

| MATERIAL                | BEST PERFORMANCE | GENERAL DUTY     |
|-------------------------|------------------|------------------|
| Unfinished Metal        | A275             | A251             |
| Primed/Painted Surfaces | A275             | A251             |
| Fiberglass/Composites   | A275, H875       | A251, H290       |
| Bare Wood               | A275             | A511, A513, A514 |
| Clear Coat Sanding      | T402             |                  |
| Sealer Sanding          | A275, A251       | A413, A414       |
| Lacquer Sanding         | T402, T414, T214 |                  |
| Wet Sanding             | T402, T414, T214 | T461             |
| Paint Stripping         | A275, H875       | A290, H290       |
| Drywall Sanding         | Q421             | A412             |
| All Purpose Dry Sanding |                  | A212, A213, A211 |

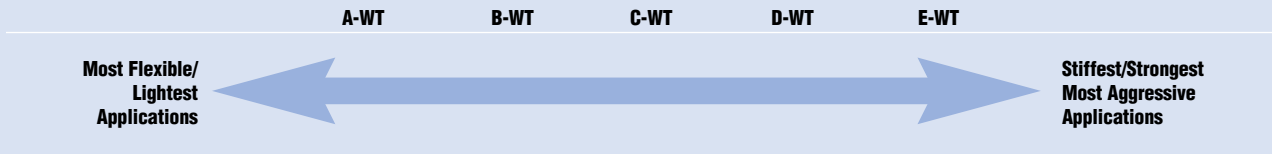
## Recommended Grit Selection

| ROUGHING TO INTERMEDIATE | INTERMEDIATE TO FINISHING | FINE FINISHING | ULTRA FINE FINISHING |
|--------------------------|---------------------------|----------------|----------------------|
| 36-80                    | 80-240                    | 240-400        | 400-2500             |

## Paper Sheet Competitive Cross Reference

| NORTON | 3M                     | HERMES        | KLINGSPOR  | MIRKA            | VSM           |
|--------|------------------------|---------------|------------|------------------|---------------|
| A211   | 230U, 240N, 346U       | -             | -          | -                | KP31C         |
| A212   | 210N                   | HFB           | PL31       | -                | -             |
| A213   | 230N                   | HFB           | PL31       | -                | KP31B         |
| A251   | 316U                   |               | PL36       | GoldFlex         | -             |
| A275   | 214U, 216U, 334U       | HC133, HCAB   | PS33       | Q-Silver, Royal  | -             |
| A290   | 236U, 316U             | HCAB          | PS33, PL36 | Bulldog Gold     | KP911         |
| A413   | 414N, 415N             | PSF-LL, SA167 | PL35       | Carat(B)         | CP131A        |
| A414   | 404N, 405N, 414N       | PSF-LL, SA167 | -          | FineFlex         | CP131A        |
| A511   | 110N                   | -             | -          | -                | -             |
| A513   | 130N                   | GCAB          | -          | -                | -             |
| A514   | 140N                   | GCAB          | -          | -                | -             |
| A621   | -                      | -             | -          | -                | -             |
| H875   | 750U, 751U, 740I, 745I | -             | -          | Royal Coarse Cut | KP510E, KP709 |
| T402   | 401Q                   | WSFlex18B     | PS11       | Waterproof (A)   | CP918A        |
| T414   | 413Q                   | WSFlex18B     | PS11       | Waterproof (A)   | CP918A        |
| T214   | 213Q                   | -             | PS12       | -                | -             |
| T461   | 438Q, 431Q             | WSFlex18C     | PS11       |                  | CP918C        |

## Paper Sheet Recommended Backing Weight



# ABRASIVE SPONGES



Flexible, abrasive sanding sponges for a wide variety of wood, metal, paint, plastic, ceramics and drywall, curved, contoured or flat surface applications.



ABRASIVE SPONGES

## Typical Applications

- Light stock removal
- Sanding sealer and wash-coats
- Touch-up or repair of primer
- Sanding contours, intricate shapes
- Finishing

| GOOD Abrasive Sponges                    |   |
|--|---|
| FEATURES                                 | BENEFITS  |
| • Durable abrasive-coated foam           | • Lasts up to 5 times longer than sandpaper; tear-resistant |
| • Easily conforms to shapes and contours | • Can reach areas inaccessible to sandpaper sheets          |
| • Waterproof, washable                   | • Reusable; long life                                       |

| DESCRIPTION/<br>SIZE W X L X T  | GRIT   | STD. PKG.<br>(SPONGES/<br>CASE) | GOOD        |             |
|---|--|---------------------------------|-------------|-------------|
|   |  |                                 | PACKAGE     | UPC NO.     |
| <b>ABRASIVE SPONGES</b>   |  |                                 |             |             |
| <b>FLEXIBLE ABRASIVE SPONGES</b><br>3 x 4 x 1/2<br>Coated on 1 side<br><br>             | 60 Coarse  | 48                              | Bulk Pack   | 07660704068 |
|   | 60 Coarse  | 108                             | Bulk Pack   | 07660701110 |
|   | 80 Medium  | 48                              | Bulk Pack   | 07660704067 |
|   | 80 Medium  | 108                             | Bulk Pack   | 07660704070 |
|   | 100 Medium   | 48                              | Bulk Pack   | 07660704066 |
|   | 100 Medium   | 108                             | Bulk Pack   | 07660700950 |
|   | 150 Fine   | 48                              | Bulk Pack   | 07660704065 |
|   | 150 Fine   | 108                             | Bulk Pack   | 07660700949 |
|   | 220 Very Fine  | 108                             | Bulk Pack   | 07660704069 |
|   | <b>PROFILE SPONGES</b><br>3-3/4 x 2-3/4 x 1/2, Coated on 3 sides | 60 Coarse                       | 500         | Bulk Pack   |
| 100 Medium  |  | 500                             | Bulk Pack   | 63642536313 |
| <b>SMALL AREA GENERAL PURPOSE SPONGES</b><br>4 x 2-3/4 x 1<br>Coated on 4 sides<br><br> | 36/80 Coarse/Medium  | 24                              | Job Pack    | 07660749505 |
|   | 36/80 Coarse/Medium  | 250                             | Bulk Pack   | 07660704735 |
|   | 80/80 Med/Med  | 24                              | Job Pack    | 07660749507 |
|   | 80/80 Med/Med  | 250                             | Bulk Pack   | 07660701875 |
|   | 80/120 Medium/Fine   | 24                              | Job Pack    | 07660749504 |
| 80/120 Medium/Fine  | 250  | Bulk Pack                       | 07660702600 |             |
| <b>CONTOUR SINGLE-SIDED SPONGES</b><br>4-1/2 x 5-1/2 x 3/16<br>Coated on 1 side         | 100 Medium   | 100                             | Bulk Pack   | 07660702257 |
|   | 150 Fine   | 100                             | Bulk Pack   | 07660702256 |
|   | 220 Extra Fine   | 100                             | Bulk Pack   | 07660702255 |
| <b>SOFTTOUCH CONTOUR SPONGES</b><br>4-1/2 x 5-1/2 x 3/16<br>Coated on 1 side            | 60 Medium  | 80                              | Bulk Pack   | 07660703074 |
|   | 100 Fine   | 80                              | Bulk Pack   | 07660703075 |
|   | 180 Super Fine   | 80                              | Bulk Pack   | 07660703076 |
|   | 220 Ultra Fine   | 80                              | Bulk Pack   | 07660703077 |
| <b>SEALER SANDING SPONGES</b><br>4-3/4 x 3-3/4 x 1/2<br>Coated on 2 sides               | 280 Micro Fine   | 80                              | Bulk Pack   | 07660703078 |
|   | 60 Very Coarse   | 250                             | Bulk Pack   | 63642536334 |
|   | 80 Extra Coarse  | 250                             | Bulk Pack   | 63642502538 |
|   | 100 Coarse   | 250                             | Bulk Pack   | 63642552870 |
|   | 150 Medium   | 250                             | Bulk Pack   | 63642552869 |
|   | 220 Fine   | 250                             | Bulk Pack   | 63642552868 |

NOTE: ORDERS FOR SANDING SPONGES SHOULD BE EXPRESSED PER SPONGE – NOT PER PACK OR CASE.  
EXAMPLE: TO ORDER A CASE OF FLEXIBLE ABRASIVE SPONGES, ORDER 108 SPONGES.



## Application Information

**Flexible:** economical, fabric-backed foam for sanding a variety of materials; coated one side.

**Profile:** for corners and flat surfaces on wood, metal, plastic and paint; coated on three sides

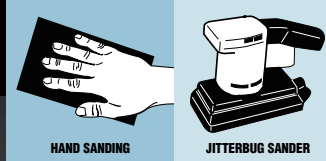
**Small Area General Purpose:** for a wide variety of materials and sanding applications where flexibility is needed; coated four sides.

**Contour Single-sided:** thin, flexible; for sanding small diameters and contours such as ceramics, spindles, turnings and railings; coated one side.

**SoftTouch Contour:** superior flexibility; for hand-sanding or finishing flat, curved, contoured and hard-to-reach areas on wood, metal, composites, paint and solid surfaces; can be used wet or dry; washable; coated one side.

**Sealer Sanding:** very flexible; silicon carbide abrasive for sanding primers, sealers and between coats on furniture and cabinets; coated two sides.

Coated abrasive rolls are designed for fast and easy sanding of various surfaces, and can be torn to exact lengths as needed. Handy rolls are packaged in a protective, convenient dispenser which eliminates costly waste and permits neat, easy storage.



## Typical Applications

### Paper Rolls

- Preparing primed and painted surfaces
- Sanding plastic and fiberglass
- Bare wood sanding
- Ideal for hand/portable sanders

### Cloth Rolls

- Polishing lathe turnings, rolls and cylinders
- Light deburring
- Blending machine tool marks
- Removing rust and scale
- Fine sanding and polishing



## Paper Rolls

### BEST No-Fil Norton SG Dry Ice A975 PSA Paper Rolls – Longest life

| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Patented Norton SG ceramic aluminum oxide abrasive, P-graded</li> </ul>  | <ul style="list-style-type: none"> <li>• Fastest cut rate; longest life</li> <li>• Consistent finish</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Unique fiber-reinforced, B-wt latex-saturated backing</li> </ul>   | <ul style="list-style-type: none"> <li>• 50-60% improvement in tear strength</li> <li>• Flexible; can be used wet</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Water-based stearate, non-pigmented, No-Fil coating</li> </ul>   | <ul style="list-style-type: none"> <li>• Provides maximum load resistance and extended life; no color transfer to work</li> </ul>  |
| <ul style="list-style-type: none"> <li>• PSA coated backing</li> </ul>  | <ul style="list-style-type: none"> <li>• Easy mounting and removal</li> </ul>  |
| <ul style="list-style-type: none"> <li>• New, increased backing weight for P80, P100 and P120 grits from B-wt to C-wt fiber-reinforced latex</li> </ul> | <ul style="list-style-type: none"> <li>• Increased tear and tensile strength while maintaining flexibility</li> <li>• More durable; longer life in more demanding applications <b>improved!</b></li> </ul> |



### BETTER No-Fil Adalox A275 PSA Paper Rolls – Exceptional dry sanding

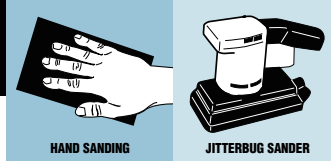
| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Premium P-graded, heat-treated aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Superior life; consistent finish</li> </ul>                   |
| <ul style="list-style-type: none"> <li>• High strength, B-wt latex backing</li> </ul>                      | <ul style="list-style-type: none"> <li>• Superior strength, reduced edge-wear</li> </ul>               |
| <ul style="list-style-type: none"> <li>• Non-pigmented stearate (No-Fil), open coat</li> </ul>             | <ul style="list-style-type: none"> <li>• Reduces loading, no color transfer to work surface</li> </ul> |
| <ul style="list-style-type: none"> <li>• PSA coated backing</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Easy mounting and removal</li> </ul>                          |



### GOOD No-Fil Adalox A290 Paper Rolls – Unrivalled durability and value for dry finishing

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• P-graded aluminum oxide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Increased life, fast cut rate, consistent finish</li> </ul> |
| <ul style="list-style-type: none"> <li>• Heavy-duty C-wt backing</li> </ul>          | <ul style="list-style-type: none"> <li>• Edge-tear resistance, durable</li> </ul>                    |
| <ul style="list-style-type: none"> <li>• Stearated (No-Fil), open coat</li> </ul>    | <ul style="list-style-type: none"> <li>• Reduced loading</li> </ul>                                  |





HAND SANDING

JITTERBUG SANDER

## PSA (Pressure Sensitive Adhesive) Paper Rolls

All rolls are measured in inches x yards.

| GRIT | MIN./STD. PKG. | BEST A975*       |                  |                  | BETTER A275*     |                  |                  |                  | GOOD A290*       |                  |
|------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|      |                | 2-3/4" X 25 YDS. | 2-3/4" X 30 YDS. | 2-3/4" X 45 YDS. | 2-3/4" X 25 YDS. | 2-3/4" X 30 YDS. | 2-3/4" X 45 YDS. | 4-1/2" X 10 YDS. | 2-3/4" X 20 YDS. | 2-3/4" X 25 YDS. |
| 80   | 1/5            | 66261149566      |                  |                  | 66261131691      |                  |                  |                  | 66261160325      |                  |
| 100  |                |                  | 66261148565      |                  |                  | 66261131690      |                  | 66261131697      |                  |                  |
| 120  |                |                  | 66261149564      |                  |                  | 66261131689      |                  | 66261131696      |                  |                  |
| 150  |                |                  |                  |                  |                  |                  | 66261131688      | 66261131695      |                  |                  |
| 180  |                |                  |                  | 66261149562      |                  |                  | 66261131687      | 66261131694      |                  | 66261160324      |
| 220  |                |                  |                  | 66261149561      |                  |                  | 66261131686      | 66261131693      |                  | 66261160323      |
| 240  |                |                  |                  |                  |                  |                  | 66261131685      | 66261131692      |                  | 66261160322      |
| 320  |                |                  |                  |                  |                  |                  | 66261131683      |                  |                  |                  |
| 400  |                |                  |                  | 66261149558      |                  |                  | 66261131681      |                  |                  | 66261160321      |
| 600  |                |                  |                  | 66261149557      |                  |                  | 66261131679      |                  |                  | 66261160352      |

\* P-GRADED

### PSA Roll Dispenser

Designed to accommodate two 2-3/4" PSA rolls, this heavy-duty wire dispenser has a vinyl coating to protect the work surface. They are stackable for multi-grit operations and can be attached to a wall or mounted on a cabinet.



| DESCRIPTION        | STD. PKG. | UPC NO.     |
|--------------------|-----------|-------------|
| PSA Roll Dispenser | 1         | 63642542773 |

### PSA Hand Sanding Blocks new!

Their unique ergonomic shape and embossed rubber faces (for good PSA sheet roll adhesion) make these blocks the choice for finishing surfaces. The firm design is constructed of sturdy, high-strength material to produce a true flat surface. The soft design, constructed of flexible, yet tough foam, works well on flat surfaces and contours.



| DESCRIPTION        | STD. PKG. | UPC NO.     |
|--------------------|-----------|-------------|
| 2-3/4 x 5 Soft     | 5         | 63642542090 |
| 2-3/4 x 5 Firm     | 5         | 63642542091 |
| 2-3/4 x 7-3/4 Firm | 5         | 63642542094 |

### Rubber Hand Sanding Block

A resilient rubber block that conforms well to mild contours and flat surfaces. Cut 2-3/4" rolls are securely held by slotted "jaws" at each end of the block to permit quick, easy, roll changes.



| DESCRIPTION | STD. PKG. | UPC NO.     |
|-------------|-----------|-------------|
| 2-3/4 x 5   | 5         | 07660701889 |



### FastTrack Rolls

Norton offers FastTrack delivery on your customized, made-to-order R228 and K225 fifty-yard rolls. Contact your local distributor or Norton sales representative for details.

#### Description

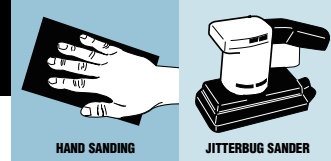
- Width: 2" – 12"
- Length: 50 yards
- Leadtime: 5 days
- Aluminum Oxide Cloth, R228, K225

#### Ordering

- Include a full description of roll required, including:
  - Size
  - Specification
  - Grit size
  - Quantity

#### FastTrack Roll Quantity Availability

| Width           | Minimum Qty. | Maximum Qty. |
|-----------------|--------------|--------------|
| 2" to <3"       | 5 Rolls      | 10           |
| 3" to <4"       | 4 Rolls      | 8            |
| 4" to <5"       | 3 Rolls      | 6            |
| 5" through 7"   | 2 Rolls      | 4            |
| >7" through 12" | 1 Roll       | 2            |



## Cloth Rolls

### GOOD Metalite K225 Cloth Rolls – For general purpose metalworking applications

| FEATURES                                   | BENEFITS  |
|--|---|
| • Premium P-graded aluminum oxide abrasive | • Greater cut rate than competitive products                      |
| • Flexible J-wt cotton backing             | • Superior conformability to complex surfaces and better finishes |
| • Advanced full resin bond system          | • Exceptional grain adhesion for longer life                      |
| • <b>new!</b> 40 grit offering             | • Quick, clean action   |

expanded offering!



### GOOD Lightning Metalite K227 Cloth Rolls – The choice for quality metal finishing

| FEATURES                                 | BENEFITS  |
|--|---|
| • P-graded aluminum oxide abrasive grain | • Fast cut rate and consistent finish                         |
| • Flexible J-wt cotton backing           | • Superior conformity to complex surfaces and better finishes |
| • Resin bond system                      | • Longer life   |
| • <b>new!</b> 100 and 150 grit offering  | • Smooth finishes   |

expanded offering!



### GOOD Screen-Bak Durite Q421 Rolls – Washable, ideal for drywall applications

| FEATURES  | BENEFITS  |
|---|---|
| • P-graded silicon carbide on open mesh backing | • Extreme resistance to loading when removing scale, rust and corrosion |
|   | • Waterproof  |



## Handy Rolls and Other Cloth Rolls

All rolls measured in inches x yards.

| GRIT           | MIN./STD.PKG. | GOOD K225*   |              |                  |              |              |
|----------------|---------------|--------------|--------------|------------------|--------------|--------------|
|                |               | 1" X 10 YDS. | 1" X 50 YDS. | 1-1/2" X 50 YDS. | 2" X 50 YDS. | 4" X 50 YDS. |
| 40 <b>new!</b> | 1/5           |              | 66261058716* | 66261058715*     | 66261058714* |              |
| 50             |               |              | 66261127728* | 66261127730*     | 66261127732* |              |
| 60             |               |              | 66261127729* | 66261127731*     | 66261127733* |              |
| 80             |               | 66261134298  | 66261126276  | 66261126288      | 66261126299  |              |
| 100            |               | 66261134299  | 66261126275  | 66261126287      | 66261126298  |              |
| 120            |               | 66261134300  | 66261126274  | 66261126286      | 66261126297  | 66261127285  |
| 150            |               | 66261134301  | 66261126273  | 66261126285      | 66261126296  |              |
| 180            |               | 66261134302  | 66261126272  | 66261126284      | 66261126295  |              |
| 220            |               |              | 66261126271  | 66261126283      | 66261126294  |              |
| 240            |               | 66261134303  | 66261126270  | 66261126282      | 66261126293  |              |
| 280            |               |              | 66261126269  | 66261126281      | 66261126292  |              |
| 320            |               | 66261134304  | 66261126268  | 66261126280      | 66261126291  |              |
| 400            |               |              | 66261126267  | 66261126279      | 66261126290  |              |
| 600            |               |              | 66261126266  | 66261126278      | 66261126289  |              |

| GRIT            | MIN./STD.PKG. | GOOD K227*   |                  |              | GOOD Q421*†      |               |
|-----------------|---------------|--------------|------------------|--------------|------------------|---------------|
|                 |               | 1" X 50 YDS. | 1-1/2" X 50 YDS. | 2" X 50 YDS. | 1-1/2" X 25 YDS. | 2" X 25 YDS.  |
| 80              | 1/5           | 66261109180  | 66261109255      | 66261109335  | 66261107275**    |               |
| 100 <b>new!</b> |               | 66261058721  | 66261058719      | 66261109330  |                  |               |
| 120             |               | 66261109170  | 66261109245      | 66261109325  | 66261107270**    | 66261149811** |
| 150 <b>new!</b> |               | 66261058720  | 66261058717      | 66261109320  |                  |               |
| 180             |               | 66261109160  | 66261109235      | 66261109315  | 66261107265**    |               |
| 240             |               |              | 66261109225      | 66261109305  |                  |               |
| 280             |               | 66261109150  |                  |              |                  |               |
| 320             |               | 66261109140  | 66261109215      | 66261109295  |                  |               |

\* P-GRADED  
 † WATERPROOF  
 \* SUPPLIED IN METALITE K224 – P-GRADED  
 \*\* PACKAGING STANDARDS:  
 MIN. QTY./STD. PKG.: Q421: 1/10

## TECHtip



Use light machine oil with cloth rolls as a lubricant for finer finishes and quicker cut.

! It is the user's responsibility to refer to and comply with ANSI B7.7

# FLAP WHEELS AND ACCESSORIES

## Flap Wheels

Designed to deliver a consistent finish with a uniform rate of cut, flap wheels wear away, continually exposing fresh abrasive. Conformable to most shapes, they are available in coarse to fine grit.

### Typical Applications

- Metal fabrication
- Blending welds
- Deburring
- Cleaning and finishing



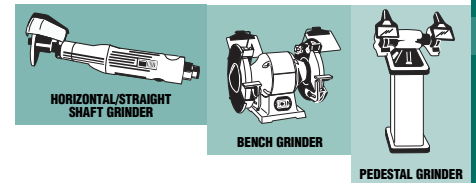
| <b>BEST</b> Metalite Plus R369 Flap Wheels   |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Long lasting P-graded aluminum oxide/ceramic abrasive blend</li> <li>• Heavy cotton backing</li> <li>• Small diameter available with 1/4" x 1-1/4" steel shank or 1/4"-20 threaded mandrel</li> </ul> | <ul style="list-style-type: none"> <li>• Superior life and aggressive cut, lasting 2 to 3 times longer on polishing, blending, cleaning, and finishing applications</li> <li>• Lowest total cost, aggressively grinds and finishes metals ranging from carbon to stainless steel</li> <li>• Extended durability; reduced edge wear</li> <li>• Fast wheel changes</li> </ul> |



| <b>GOOD</b> Metalite R265 Flap Wheels   |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>• P-graded, aluminum oxide abrasive</li> <li>• Excellent balance</li> <li>• Small diameter available with 1/4" x 1-1/4" steel shank or 1/4"-20 threaded mandrel</li> </ul> | <ul style="list-style-type: none"> <li>• Uniform stock removal and long life</li> <li>• Smooth, chatter-free finish</li> <li>• Fast wheel changes</li> </ul> |



Ask your Norton distributor about the full line of Merit Abrasive Specialty Products.

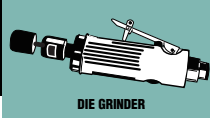


## Large Diameter Flap Wheels

| SIZE<br>DIAMETER X FACE<br>WIDTH X CENTER HOLE | MAX.<br>RPM. | STD.<br>PKG. | BEST<br>METALITE PLUS R369* |                     |                      | GOOD<br>METALITE R265* |                     |                     |                      |
|--|--------------|--------------|-----------------------------|---------------------|----------------------|------------------------|---------------------|---------------------|----------------------|
|  |              |              | P60 GRIT<br>UPC NO.         | P80 GRIT<br>UPC NO. | P120 GRIT<br>UPC NO. | P40 GRIT<br>UPC NO.    | P60 GRIT<br>UPC NO. | P80 GRIT<br>UPC NO. | P120 GRIT<br>UPC NO. |
| 3-1/2 x 1 x 5/8                                | 12,000       | 10           |                             |                     |                      |                        | 63642502668         | 63642502669         |                      |
| 4 x 1 x 5/8                                    | 12,000       | 10           |                             |                     |                      |                        | 63642502673         | 63642502674         | 63642502675          |
| 4 x 2 x 5/8                                    | 12,000       | 10           |                             |                     |                      |                        | 63642502677         |                     |                      |
| 5 x 1 x 5/8                                    | 6,200        | 5            |                             |                     |                      |                        |                     | 63642502678         |                      |
| 6 x 1 x 1                                      | 6,200        | 5            | 69957394198                 | 69957394199         | 69957394200          | 63642502679            | 63642502680         | 63642502681         | 63642502682          |
| 6 x 1-1/2 x 1                                  | 6,200        | 5            |                             |                     |                      |                        | 63642502686         | 63642502687         |                      |
| 6 x 2 x 1                                      | 6,200        | 5            |                             |                     |                      | 63642502689            | 63642502691         | 63642502692         | 63642502694          |
| 6 x 3 x 1                                      | 6,200        | 5            |                             |                     |                      |                        |                     | 63642502696         |                      |
| 8 x 1 x 1                                      | 4,700        | 3            |                             |                     |                      |                        |                     | 63642502698         |                      |
| 8 x 2 x 1                                      | 4,700        | 3            |                             |                     |                      |                        | 63642502700         | 63642502701         |                      |

REDUCING BUSHINGS FOR 1" CENTER HOLE WHEELS ARE AVAILABLE IN THE BEAR-TEX CONVOLUTE WHEEL SECTION.

\* P-GRADED



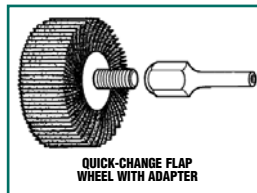
DIE GRINDER

## Small Diameter Flap Wheels

| SIZE<br>DIAMETER X<br>FACE WIDTH X SHANK | MAX.<br>RPM. | MIN./<br>STD.<br>PKG. | BEST<br>METALITE PLUS R369* |                     |                      | GOOD<br>METALITE R265* |                     |                      |                      |
|--|--------------|-----------------------|-----------------------------|---------------------|----------------------|------------------------|---------------------|----------------------|----------------------|
|  |              |                       | P60 GRIT<br>UPC NO.         | P80 GRIT<br>UPC NO. | P120 GRIT<br>UPC NO. | P60 GRIT<br>UPC NO.    | P80 GRIT<br>UPC NO. | P120 GRIT<br>UPC NO. | P180 GRIT<br>UPC NO. |
| <b>WITH 1/4" - 20 THREADED MANDREL</b>   |              |                       |                             |                     |                      |                        |                     |                      |                      |
| 1 x 5/8 x 1/4-20                         | 30,000       | 10/20                 |                             |                     |                      | 63642502624            | 63642502625         | 63642502626          |                      |
| 1 x 1 x 1/4-20                           | 30,000       | 20/20                 | 69957394189                 | 69957394190         | 69957394191          | 63642502628            | 63642502629         | 63642502630          | 63642502631          |
|  |              | 10/20                 |                             |                     |                      |                        |                     |                      |                      |
| 1-3/8 x 5/8 x 1/4-20                     | 30,000       | 10/20                 |                             |                     |                      | 63642502632            | 63642502633         | 63642502634          |                      |
| 1-5/8 x 1 x 1/4-20                       | 23,000       | 20/20                 |                             |                     |                      |                        |                     | 63642502640          |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502638            | 63642502639         |                      |                      |
| 2 x 1/2 x 1/4-20                         | 23,000       | 10/20                 |                             |                     |                      | 63642502642            | 63642502643         | 63642502644          |                      |
| 2 x 1 x 1/4-20                           | 23,000       | 20/20                 | 69957394192                 | 69957394193         | 69957394194          |                        |                     |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502646            | 63642502647         | 63642502648          | 63642502649          |
| 2-1/2 x 1/2 x 1/4-20                     | 23,000       | 20/20                 |                             |                     |                      | 63642502650            | 63642502651         |                      |                      |
| 2-1/2 x 1 x 1/4-20                       | 23,000       | 10/20                 |                             |                     |                      | 63642502654            | 63642502655         | 63642502656          |                      |
| 3 x 1/2 x 1/4-20                         | 20,000       | 10/20                 |                             |                     |                      |                        | 63642502659         | 63642502660          |                      |
| 3 x 1 x 1/4-20                           | 20,000       | 20/20                 | 69957394195                 | 69957394196         | 69957394197          |                        |                     |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502664            | 63642502665         | 63642502666          |                      |
| <b>WITH 1/4" X 1-1/4" STEEL SHANK</b>    |              |                       |                             |                     |                      |                        |                     |                      |                      |
| 1 x 5/8 x 1/4                            | 30,000       | 10/20                 |                             |                     |                      | 63642502576            | 63642502577         | 63642502578          |                      |
| 1 x 1 x 1/4                              | 30,000       | 20/20                 | 69957394176                 | 69957394181         | 69957394182          |                        |                     |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502580            | 63642502581         | 63642502582          | 63642502583          |
| 1-3/8 x 5/8 x 1/4                        | 30,000       | 10/20                 |                             |                     |                      | 63642502584            | 63642502585         |                      |                      |
| 1-5/8 x 1 x 1/4                          | 23,000       | 10/20                 |                             |                     |                      | 63642502592            | 63642502593         | 63642502594          |                      |
| 2 x 1/2 x 1/4                            | 23,000       | 20/20                 |                             |                     |                      |                        | 63642502597         |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502596            |                     |                      |                      |
| 2 x 1 x 1/4                              | 23,000       | 20/20                 | 69957394183                 | 69957394184         | 69957394185          |                        |                     |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502600            | 63642502601         | 63642502602          | 63642502603          |
| 2-1/2 x 1/2 x 1/4                        | 23,000       | 20/20                 |                             |                     |                      | 63642502604            |                     | 63642502606          |                      |
|  |              | 10/20                 |                             |                     |                      |                        | 63642502605         |                      |                      |
| 2-1/2 x 1 x 1/4                          | 23,000       | 10/20                 |                             |                     |                      | 63642502608            | 63642502609         | 63642502610          |                      |
| 3 x 1/2 x 1/4                            | 20,000       | 20/20                 |                             |                     |                      | 63642502612            | 63642502613         | 63642502614          |                      |
| 3 x 1 x 1/4                              | 20,000       | 20/20                 | 69957394186                 | 69957394187         | 69957394188          |                        |                     |                      |                      |
|  |              | 10/20                 |                             |                     |                      | 63642502620            | 63642502621         | 63642502622          | 63642502623          |

\* P-GRADED

### Adapters for Small Diameter Flap Wheels with 1/4"-20 Threaded Mandrel



QUICK-CHANGE FLAP WHEEL WITH ADAPTER

| DESCRIPTION             | SHANK LENGTH | STD. PKG. | UPC NO.     |
|-------------------------|--------------|-----------|-------------|
| 1/4" Diameter x 1" Long | 5/8"         | 10        | 63642543318 |
| 1/4" Diameter x 4" Long | 5/8"         | 10        | 63642543319 |

### Portable Tool Adapter Kit For Large Diameter Flap Wheels

To permit use of coated abrasive flap wheels on 1/4" electric drills and other adjustable-chuck power tools, a special adapter kit is available with a 1/4" steel shank. The kit will accommodate flap wheels 3-1/2" through 6" in diameter with face widths up to and including 1-1/2", with 5/8" center hole only (may be used on wheels with 1" center holes reduced to 5/8" with reducing bushings).



| STD. PKG | UPC NO.     |
|----------|-------------|
| 1 Kit    | 63642542750 |

Ask your Norton distributor about the full line of Merit Abrasive Specialty Products.



#### Recommended Grit Selection

|                               |              |
|-------------------------------|--------------|
| Stock Removal/Rough Finishing | 40, 60 Grit  |
| Surface Preparation/Blending  | 80, 120 Grit |
| Light Finishing/Contouring    | 180 Grit     |



## Coated Abrasive Grit Comparison Chart

| AVERAGE PARTICLE SIZE IN MICRONS | GRADING SYSTEMS (OTHER THAN EMERY) |       |      | EMERY PRODUCTS |
|----------------------------------|------------------------------------|-------|------|----------------|
|                                  | CAMI                               | FIPA  | JIS  |                |
| 5.0                              | -                                  | -     | -    | -              |
| 6.0                              | -                                  | -     | 3000 | -              |
| 6.5                              | 1200                               | -     | 2500 | 4/0            |
| 8.4                              | -                                  | P2500 | -    | -              |
| 8.5                              | -                                  | -     | 2000 | -              |
| 9.2                              | 1000                               | -     | -    | 3/0            |
| 10.3                             | -                                  | P2000 | -    | -              |
| 10.5                             | -                                  | -     | 1500 | -              |
| 12.2                             | 800                                | -     | 1200 | -              |
| 12.6                             | -                                  | P1500 | -    | -              |
| 15.0                             | -                                  | -     | -    | -              |
| 15.3                             | -                                  | P1200 | 1000 | -              |
| 16.0                             | 600                                | -     | -    | 2/0            |
| 18.3                             | -                                  | P1000 | 800  | -              |
| 19.7                             | 500                                | -     | -    | 0              |
| 20.0                             | -                                  | -     | -    | -              |
| 21.8                             | -                                  | P800  | -    | -              |
| 23.6                             | 400                                | -     | 600  | -              |
| 25.0                             | -                                  | -     | -    | -              |
| 25.75                            | -                                  | P600  | -    | -              |
| 28.8                             | 360                                | -     | 500  | -              |
| 30.0                             | -                                  | P500  | -    | -              |
| 35.0                             | -                                  | P400  | 400  | -              |
| 36.0                             | 320                                | -     | -    | -              |
| 40.0                             | -                                  | -     | 360  | -              |
| 40.5                             | -                                  | P360  | -    | -              |
| 44.0                             | 280                                | -     | -    | 1              |
| 45.0                             | -                                  | -     | -    | -              |
| 46.2                             | -                                  | P320  | 320  | -              |
| 50.0                             | -                                  | -     | -    | -              |
| 52.5                             | -                                  | P280  | 280  | -              |
| 53.5                             | 240                                | -     | -    | -              |
| 55.0                             | -                                  | -     | -    | -              |
| 58.5                             | -                                  | P240  | -    | -              |
| 60.0                             | -                                  | -     | 240  | -              |
| 64.0                             | -                                  | -     | -    | 2              |
| 65.0                             | -                                  | P220  | 220  | -              |
| 66.0                             | 220                                | -     | -    | -              |
| 78.0                             | 180                                | P180  | 180  | -              |
| 79.0                             | -                                  | -     | -    | 3              |
| 93.0                             | 150                                | -     | 150  | -              |
| 95.0                             | -                                  | -     | -    | FINE           |
| 97.0                             | -                                  | P150  | -    | -              |
| 116.0                            | 120                                | -     | 120  | -              |
| 127.0                            | -                                  | P120  | 100  | -              |
| 136.0                            | -                                  | -     | -    | MEDIUM         |
| 141.0                            | 100                                | -     | -    | -              |
| 156.0                            | -                                  | P100  | -    | -              |
| 189.0                            | -                                  | -     | -    | COARSE         |
| 192.0                            | 80                                 | -     | 80   | -              |
| 197.0                            | -                                  | P80   | -    | -              |
| 260.0                            | -                                  | P60   | -    | -              |
| 268.0                            | 60                                 | -     | 60   | -              |
| 326.0                            | -                                  | P50   | 50   | -              |
| 341.0                            | -                                  | -     | -    | EX. COARSE     |
| 351.0                            | 50                                 | -     | -    | -              |
| 412.0                            | -                                  | P40   | 40   | -              |
| 428.0                            | 40                                 | -     | -    | -              |
| 524.0                            | -                                  | P36   | -    | -              |
| 535.0                            | 36                                 | -     | 36   | -              |
| 622.0                            | -                                  | P30   | -    | -              |
| 638.0                            | 30                                 | -     | 30   | -              |
| 715.0                            | 24                                 | -     | -    | -              |
| 740.0                            | -                                  | P24   | 24   | -              |
| 905.0                            | 20                                 | -     | -    | -              |
| 984.0                            | -                                  | P20   | 20   | -              |
| 1320.0                           | 16                                 | -     | 16   | -              |
| 1324.0                           | -                                  | P16   | -    | -              |
| 1764.0                           | -                                  | P12   | -    | -              |
| 1842.0                           | 12                                 | -     | -    | -              |

## Backing Types

Backings are the base for the abrasive minerals and, combined with the adhesive bond, support and anchor the abrasive mineral. The backings used in the manufacture of coated abrasives are:

### Paper

Due to the fine surface of paper, a consistent finish is produced. Paper weights include *A, B, C, D, E* and *F* weights with *A* being the lightest and most flexible and *F* being the heaviest and least flexible. *A, B, C* and *D* weight papers are used for hand sanding and light mechanical operations in the form of sheets, NorGrip and PSA discs and sheet rolls. *E* and *F* weight papers are primarily used for more aggressive mechanical operations in the form of belts and discs.

### Cloth

Cloth backings used for coated abrasives are identified by weight. Cloth backings are filled or "finished" with a variety of materials (glues or resins) to create various backing characteristics, most notably flexibility. Several cloth types are used: cotton, polyester, polyester/nylon and polyester/cotton blends, and rayon.

There are three basic weights of cloth: J-weight or "jeans" is the lightest and most flexible. X-weight or "drills" is a heavier cloth that ranges in flexibility, strength and durability and is used on the broadest range of applications. Y-weight is a heavyweight drills cloth used on heavy-duty, high stock removal operations.

### Fiber

Vulcanized fiber (cotton fibers which are chemically treated and then pressed under temperature and pressure to form a very durable backing) is used exclusively as the backing for resin fiber discs.

### Film

Polyester film backing comes in 3 mil. and 5 mil. thicknesses, which have high strength and surface smoothness. They are used primarily in disc and roll applications requiring consistent surface finish.

## Bond Types

An adhesive bond system is required to secure the abrasive mineral to the backing. All coated abrasive products are made with a two stage bonding process, the *make coat* and the *size coat*.

The *make coat* is the first layer of bond applied to the backing. The make coat provides the adhesive base between the abrasive mineral and the backing.

The *size coat* is the second coat, which is applied over the abrasive mineral and make coat to anchor the abrasive mineral and provide the desired physical strength of the finished product.

*Glue, urea resin, and phenolic resin* are the three basic bonding agents most commonly used. There are many size coat and make coat combinations, such as *glue over glue, urea over glue, and resin over resin*. *Glue over glue* is the most flexible bond while *resin over resin bond* is moisture-resistant, harder, less flexible, heat-resistant and has superior grain retention.

## Coating Types

There are two types of abrasive coatings used in the manufacturing of coated abrasives: *open coat* and *closed coat*.

### Open Coat

With an open coat, 50% to 75% of the surface is covered by abrasive grain. There are evenly spaced voids between the particles of grain, helping reduce the effect of loading caused by wood dust or metal particles.

### Closed Coat

With a closed coat, the entire surface is covered with abrasive grain, with no voids between the particles. This is the most typical coating, permitting the greatest degree of stock removal and longest product life.



OPEN COAT  
(1/3 LESS GRAIN THAN CLOSED)



CLOSED COAT

# BEAR-TEX HAND PADS

Bear-Tex Surface Finishing products are made of a non-woven nylon web impregnated with abrasive grain and resin. A variety of abrasives, grit sizes and backing materials give the user an extensive and superior product offering.

## Typical Applications

- Light to heavy duty cleaning
- Deburring
- Blending
- Polishing
- Finishing



## Bear-Tex Hand Pads



| BEST General Purpose Hand Pads  |   |
|---|---|
| FEATURES  | BENEFITS  |
| • General Purpose pads with finer grit size and improved grain adhesion | • Double the cut rate; no color bleeding when working with solvents                                     |
| • 847 General Purpose pad with perforations                             | • Perforations allow for a smooth, shred-free split to create two smaller, easy-to-use 4-1/2" x 6" pads |



| GOOD Bear-Tex Hand Pads   |   |
|---|---|
| FEATURES  | BENEFITS  |
| • Flexible  | • Conform to work surface   |
| • Gentle action   | • Easily removes flashing or burrs without affecting dimension of workpiece |
| • Non-loading   | • Constant supply of new cutting edges                                      |
| • Non-rusting   | • No workpiece contamination  |
| • Resilient construction  | • Long life, increased productivity; solvent resistant; waterproof          |
| • Easily cut to desired size  | • Reduces waste   |
| • 696 Food Pro pad  | • No color transfer, meets FDA/USDA/Canadian food industry standards        |
| <b>new!</b> • 914 Gold Clear Blend Prep pad is loftier and softer than competitors' | • Conforms to contours better   |
| • 748 Final Shine pad <b>improved!</b>  | • Produces finest finishes; scratch pattern equal to 1,200 grit and finer   |
| • Softer acting, more flexible, uniform abrasive dispersion                         | • More conformable to contours; produces finer finishes                     |
|   | • Less aggressive; for defuzzing wood, light deburring, final rubbing       |
|   | • Consistent polishing action   |



| SIZE<br>W X L | COLOR            | NAME                           | ABRASIVE        | GRIT SIZE | STD.<br>PKG. | BEST           |             | GOOD           |              |
|---------------|------------------|--------------------------------|-----------------|-----------|--------------|----------------|-------------|----------------|--------------|
|               |                  |                                |                 |           |              | PRODUCT<br>NO. | UPC NO.     | PRODUCT<br>NO. | UPC NO.      |
| 6 x 9         | White            | Light Duty Cleaning Pad        | Non-Abrasive    |           | 60           |                |             | 456            | 66261045600  |
| 6 x 9         | Gray             | Clean & Finish Pad             | Silicon Carbide | UF        | 60           |                |             | 635            | 66261063500  |
| 6 x 9         | Lt. Green        | Food Pro Pad                   | Aluminum Oxide  | VF        | 2880         |                |             | 696            | 66261069600  |
| 6 x 9         | Dark Tan         | Heavy-Duty Pad                 | Aluminum Oxide  | Med       | 40           |                |             | 740            | 66261074000  |
| 6 x 9         | Gray             | Metal Blend Pad                | Silicon Carbide | Med       | 40           |                |             | 746            | 66261074600  |
| 6 x 9         | Maroon           | General Purpose Pad            | Aluminum Oxide  | VF        | 60           | 747            | 66261074700 |                |              |
| 6 x 9         | Gray             | Final Shine Pad                | Silicon Carbide | MF        | 60           |                |             | 748            | 66261074800  |
| 6 x 9         | Maroon           | Long Life Pad                  | Aluminum Oxide  | VF        | 60           |                |             | 777            | 66261077700  |
| 6 x 9         | Green            | Scouring Pad                   | Aluminum Oxide  | VF        | 60           |                |             | 796            | 66261079600  |
| 6 x 9         | Maroon           | General Purpose Perforated Pad | Aluminum Oxide  | VF        | 60           | 847            | 66261084700 |                |              |
| 6 x 9         | Gray             | General Purpose Pad            | Silicon Carbide | VF        | 40           |                |             | 851            | 66261085100  |
| 6 x 9         | <b>new!</b> Gold | Clear Blend Prep Pad           | Aluminum Oxide  | MF        | 20           |                |             | 914            | 66261195914* |
| 3-1/4 x 5-1/2 |                  | Hand Pad Holder                |                 |           | 10           |                |             |                | 66261047583  |

\* NON-STOCK; 2-WEEK LEADTIME



## Bear-Tex Hand Pads



### Hand Pad Starting Recommendations by Application

| ← MORE AGGRESSIVE, ROUGHER FINISH   |  |  |   |   | LESS AGGRESSIVE, FINER FINISH →   |  |   |   |  |   |
|---|--|--|---|---|---|--|---|---|--|---|
| <b>#740</b><br>(DARK TAN)<br>HEAVY DUTY<br>PAD  | <b>#746</b><br>(GRAY)<br>METAL BLEND<br>PAD  | <b>#777</b><br>(MAROON)<br>LONG LIFE<br>PAD  | <b>#747/847</b><br>(MAROON)<br>GENERAL<br>PURPOSE PADS  | <b>#796</b><br>(GREEN)<br>SCOURING PAD  | <b>#696</b><br>(LT. GREEN)<br>FOOD PRO PAD  | <b>#851</b><br>(GRAY)<br>GENERAL<br>PURPOSE PAD  | <b>#635</b><br>(GRAY)<br>CLEAN &<br>FINISH PAD  | <b>#748</b><br>(GRAY)<br>FINAL SHINE<br>PAD   | <b>#914</b><br>(GOLD)<br>CLEAR BLEND<br>PREP PAD   | <b>#456</b><br>(WHITE)<br>LIGHT DUTY<br>CLEANING PAD  |
| <ul style="list-style-type: none"> <li>• Removing rust and oxidation</li> <li>• Deburring</li> <li>• Blending</li> <li>• Replaces steel wool and wire brushes in many applications</li> </ul> | <ul style="list-style-type: none"> <li>• Cleaning - aluminum - around welds</li> <li>- glass molds - dies</li> <li>• Light deburring of intricate parts</li> </ul> | <ul style="list-style-type: none"> <li>• Fast initial cut rate</li> <li>• Cleaning</li> <li>• Deburring</li> <li>• Corrosion, oxidation and scale removal</li> </ul> | <ul style="list-style-type: none"> <li>• Cleaning and finishing machinery and tools</li> <li>• Cleaning solid surfaces (granite, marble, etc.)</li> <li>• Rust removal</li> <li>• Defuzzing wood</li> <li>• Denibbing plastic component parts</li> <li>• Finer than #851</li> <li>• #847 is perforated</li> </ul> | <ul style="list-style-type: none"> <li>• Removing - stains - marks - rust - corrosion - oxidation</li> <li>• Applying finishes on non-ferrous metals</li> </ul> | <ul style="list-style-type: none"> <li>• General purpose cleaning in food processing plants</li> <li>• Sanitary prep of work surfaces</li> <li>• Light cleaning of metal surfaces</li> <li>• Removal of light surface stains, etc.</li> </ul> | <ul style="list-style-type: none"> <li>• Removing rust and oxidation</li> <li>• Blending around welds</li> <li>• Cleaning glass molds</li> <li>• Satin finishing aluminum parts</li> </ul> | <ul style="list-style-type: none"> <li>• Deburring plastic surfaces</li> <li>• Cleaning fiberglass partitions</li> <li>• Blending paint</li> <li>• Scuffing acrylic surfaces</li> <li>• Finishing aluminum doors and windows</li> </ul> | <ul style="list-style-type: none"> <li>• Light cleaning - steel - non-steel</li> <li>• Defuzzing wood</li> <li>• Final rub</li> <li>• Light deburring - rubber - plastics - composites - metal</li> </ul> | <ul style="list-style-type: none"> <li>• Scuffing prior to clear coat blending</li> <li>• Sanding base coats without removing the coat</li> <li>• Light cleaning</li> <li>• Polishing, blemish repair and finishing: - composites - marine - steel - non-steel - wood</li> </ul> | <ul style="list-style-type: none"> <li>• Non-abrasive</li> <li>• Cleaning glass, fiberglass and porcelain fixtures</li> <li>• Scratch-free cleaning of stainless steel, chrome, copper and ceramic</li> <li>• Wood highlighting and rubbing between finish coats</li> <li>• Use with liquid detergents</li> </ul> |

## Bear-Tex Sponge Pads

Bear-Tex material is laminated to a top quality, long-lasting sponge for the convenience of 2 pads in one.

| SIZE W X L X T      | COLOR        | NAME               | ABRASIVE       | GRIT SIZE    | STD. PKG. | GOOD | PRODUCT NO. | UPC NO. |
|---------------------|--------------|--------------------|----------------|--------------|-----------|------|-------------|---------|
| 3-1/4 x 6-1/4 x 3/4 | White/Yellow | Clean-N-Sponge Pad | Non-Abrasive   | Non-Abrasive | 40        | 785  | 66261059402 |         |
| 3-1/4 x 6-1/4 x 3/4 | Green/Yellow | Scour-N-Sponge Pad | Aluminum Oxide | Very Fine    | 40        | 893  | 66261059403 |         |



## TECHtip

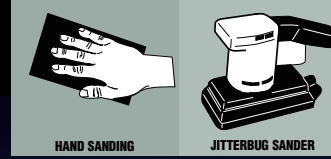
Bear-Tex products are non-metallic, won't rust and are an ideal replacement for steel wool.



It is the user's responsibility to comply with safety regulations.



# BEAR-TEX ROLLS



## Bear-Tex Rolls

Rolls may be cut for use in jitterbug sanding or on hand sanding applications. Rolls have the durability for indexing machine applications.

### Typical Applications

- Light deburring
- Cleaning
- Finishing
- Applying decorative finishes



### **BEST** Bear-Tex High Strength Rolls – For light deburring and finishing

| FEATURES                                  | BENEFITS  |
|---|---|
| • Premium aluminum oxide grain            | • Clean cutting and long lasting                      |
| • Firm, durable web; strong resin binders | • High resistance to tearing on burrs and sharp edges |
| • Smear-proof                             | • Produces light satin finishes                       |

### **BETTER** Bear-Tex Fast Cut Rolls – Fast initial cut, flexible

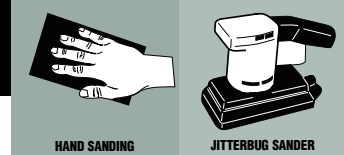
| FEATURES                       | BENEFITS   |
|--------------------------------|--|
| • Premium aluminum oxide grain | • Clean cutting and long lasting                                       |
| • Fast initial cut             | • Less pressure needed   |
| • Conformable                  | • Able to get into intricate shapes and follow contours, user-friendly |
| • Strong base adhesion         | • Improved cut rate  |

### **BETTER** Bear-Tex Clean & Blend Rolls – For general purpose use

| FEATURES  | BENEFITS                    |
|---|-----------------------------|
| • High quality, aluminum oxide or silicon carbide grain | • Long product life         |
| • Uniform web construction                              | • Controlled aggressiveness |
| • Can be cut to exact sizes needed                      | • Economical; minimal waste |

| SIZE (W X L) | COLOR    | NAME             | ABRASIVE | GRIT         | STD. PKG. | BEST        | BETTER  |
|--------------|----------|------------------|----------|--------------|-----------|-------------|---|
|              |          |                  |          |              |           | UPC NO.     | UPC NO.   |
| 4" x 30 Ft.  | Maroon   | High Strength    | A/O      | Medium       | 3         | 66261006358 | 66261010081<br>66261058364<br>66261058361<br>66261051701<br>66261058360<br>66261058357<br>66261052235 |
|              | Dark Tan | Fast Cut         | A/O      | Medium       | 3         |             |   |
|              | Maroon   | Clean & Blend    | A/O      | Fine         | 4         |             |   |
|              | Maroon   | Clean & Blend    | A/O      | Very Fine    | 4         |             |   |
|              | Maroon   | Fast Cut GP      | A/O      | Very Fine    | 4         | 66261006373 |   |
|              | Maroon   | High Strength    | A/O      | Very Fine    | 4         |             |   |
|              | Gray     | Clean & Blend GP | S/C      | Very Fine    | 4         |             |   |
|              | Gray     | Clean & Blend    | S/C      | Ultra Fine   | 5         |             |   |
|              | White    | T- Polishing     | None     | Non-Abrasive | 3         |             |   |
|              |          |                  |          |              |           |             |   |
| 6" x 30 Ft.  | Maroon   | High Strength    | A/O      | Medium       | 2         | 66261005182 | 66261058376<br>66261016430<br>66261004281<br>66261058377  |
|              | Maroon   | Clean & Blend    | A/O      | Very Fine    | 3         |             |   |
|              | Maroon   | Fast Cut GP      | A/O      | Very Fine    | 3         |             |   |
|              | Maroon   | High Strength    | A/O      | Very Fine    | 3         |             |   |
|              | Gray     | Clean & Blend GP | S/C      | Very Fine    | 3         |             |   |

# BEAR-TEX ROLLS AND DISCS



## Bear-Tex Roll Assortment

Bear-Tex rolls may be cut for use in jitterbug sanding or on hand sanding applications. This convenient dispenser box contains three 2 inch wide x 15 foot long rolls. Each roll is a different grit.

BETTER  
UPC NO. 66261008108



| SIZE<br>W X L  | ABRASIVE  | GRIT                            | STD. PKG. | UPC NO.     |
|--|---|---------------------------------|-----------|-------------|
| Three Rolls 2" x 15 ft.<br>(One of Each Specification) | Aluminum Oxide<br>Aluminum Oxide<br>Silicon Carbide | Fine<br>Very Fine<br>Micro Fine | 1         | 66261008108 |

## Bear-Tex High Strength and FastCut Discs

Made of non-woven nylon web impregnated with abrasive grain and resin for use in a variety of deburring and finishing applications.

### Typical Applications

- Rust/oxide or coating removal
- Pipe ID and OD polishing
- Casting cleaning
- Highlighting (antiquing)
- Contaminant removal
- Removal of handling marks
- Gasket removal
- Cleaning and blending of surface imperfections
- Prepping prior to soldering
- Removal of filling materials
- Cleaning angles and odd shapes



BEAR-TEX SURFACE FINISHING PRODUCTS

| BEST                                   |  | Bear-Tex High Strength and FastCut Discs – For light deburring and finishing |  |
|--|--|--|--|
| FEATURES                               |  | BENEFITS   |  |
| • Premium aluminum oxide grain         |  | • Clean cutting and long lasting   |  |
| • Firm, durable web                    |  | • High resistance to tearing on burrs and sharp edges                        |  |
| • Tough, yet conformable               |  | • Can be “ganged” together and used as a wheel                               |  |
| • Strong resin binders                 |  | • Highly smear-resistant   |  |
| • Smear-proof                          |  | • Produces light satin finishes  |  |
| • 2" and 3" with Speed-Lok TR fastener |  | • Quick, tool-free disc changes allow for more grinding time                 |  |
| • FastCut discs                        |  | • Fast initial cut; more flexible than High Strength discs                   |  |

| SIZE<br>D X H                                   | ABRASIVE   | MAX.<br>RPM | STD. PKG. | BEST<br>UPC NO.                           |
|---|--|-------------|-----------|---|
| <b>BEAR-TEX HIGH STRENGTH AND FASTCUT DISCS</b> |  |             |           |   |
| 2" Speed-Lok TR                                 | A/O Medium High Strength   | 12,000      | 160       | 66261014792                               |
| 3" Speed-Lok TR                                 | A/O Medium High Strength   | 12,000      | 80        | 66261014793                               |
| 6 x 1/4   | A/O Very Fine High Strength  | 4,000       | 70        | 66261007628                               |
| 6 x 1/2   | A/O Medium High Strength<br>A/O Very Fine High Strength<br>A/O Very Fine FastCut | 4,000       | 70        | 66261005073<br>66261004980<br>66261000601 |
| 8 x 1/2   | A/O Medium High Strength<br>A/O Very Fine High Strength                          | 3,000       | 50        | 66261005491<br>66261004506                |
| 12 x 1-1/4                                      | A/O Very Fine High Strength  | 1,900       | 25        | 66261008723                               |

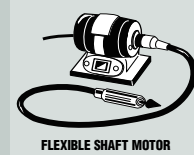
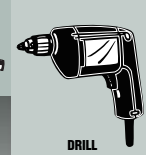
## TECHtips

Use 2" back-up pad with 3" Speed-Loc TR High Strength discs to work on edge for added flexibility.

It is the user's responsibility to comply with safety regulations.

See “Mandrel Assemblies” on page 109 when using these discs on edge.

# BEAR-TEX DISCS AND DC WHEELS



## Bear-Tex Rapid Finish Depressed Center Wheels, Rapid Strip Discs and Depressed Center Wheels

A web of strong synthetic fibers and quality abrasive, bonded together by a smear-resistant adhesive for cleaning, conditioning, and finishing a multitude of materials, quickly and easily with little loading.

### Typical Applications

#### Rapid Strip

- Removal of paint and epoxy coating, surface rust and residue, corrosion, light weld splatter, dirt, mill scale and other similar surface contaminants
- Surface prep before coatings are applied
- Surface prep before welding; cleaning and conditioning afterwards
- Applying fine finishes

#### Rapid Finish

- Prepping surfaces
- Removing light scale on electrical power generation components, composite and fiberglass resins, surface impurities from aluminum tubing, weld discoloration, and overspray from powercoating or painting
- Cleaning and polishing stainless steel, ferrous and nonferrous metal surfaces, injection molds, and paper mill rolls



### BEST Bear-Tex Rapid Strip Discs and Depressed Center Wheels

| FEATURES  | BENEFITS   |
|---|--|
| • Open web construction                                 | • Fast cutting action with very little loading                         |
| • Conformable   | • Follow difficult part profiles<br>• Easy cleaning of uneven surfaces |
| • Thick, strong, synthetic fibers and extra coarse grit | • Quick cleaning and conditioning of surfaces                          |
| • Used with portable tools                              | • Easy and safe to use especially in difficult to reach areas          |
| • 2" and 3" discs with Speed-Loc TR fastener            | • Quick, tool-free disc changes allow for more grinding time           |
| • 4" TR+ discs  | • Quick-change replacement; can be used on face and edge               |

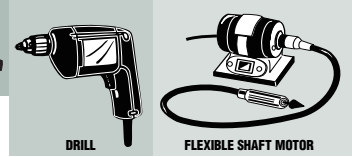
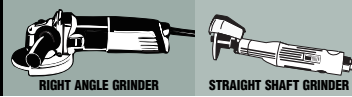


### BEST Bear-Tex Rapid Finish Depressed Center Wheels

| FEATURES   | BENEFITS   |
|--|--|
| • Fine grain particle concentration cleans and polishes while imparting final finishes on a variety of materials | • Increases productivity and reduces total abrasive costs by eliminating a grinding step |
| • Advanced resin system  | • Resists loading; smear-free, clean, fine finishes                                      |
| • Low density  | • Conformable and flexible   |
| • Undersized backing   | • Maximizes grinding area and usage for longer life                                      |
| • NEX 2AM  | • Most aggressive  |
| • NEX 2AF  | • Multi-purpose  |
| • NEX 2SF  | • Polishing  |
| • A/O Medium High Strength   | • Less aggressive, most conformable  |

new!





## Bear-Tex Rapid Strip Discs

| SIZE<br>D X H    | ABRASIVE        | GRIT SIZE    | MAX.<br>RPM | STD. PKG. | BEST        |
|------------------|-----------------|--------------|-------------|-----------|-------------|
|                  |                 |              |             |           | UPC NO.     |
| 2" Speed-Lok TR  | Silicon Carbide | Extra Coarse | 15,500      | 10        | 66261013402 |
| 3" Speed-Lok TR  | Silicon Carbide | Extra Coarse | 12,000      | 10        | 66261013403 |
| 4" Speed-Lok TR+ | Silicon Carbide | Extra Coarse | 8,000       | 10        | 66261016580 |
| 4 x 1/4          | Silicon Carbide | Extra Coarse | 8,000       | 25        | 66261008008 |
| 4 x 1/2          | Silicon Carbide | Extra Coarse | 8,000       | 25        | 66261007916 |
| 6 x 1/2          | Silicon Carbide | Extra Coarse | 5,500       | 15        | 66261008051 |

See page 113 for Speed-Lok back-up pads.

## Mandrel Assemblies for Rapid Strip Discs and Discs-On-Edge

| FITS HOLE | FOR DISC WIDTH  | FOR DISC DIAMETER | SHANK DIAMETER | OVERALL LENGTH | WASHER DIAMETER | STD. PKG. | UPC NO.     |
|-----------|-----------------|-------------------|----------------|----------------|-----------------|-----------|-------------|
| 1/4"      | 1/2" (Standard) | up to 6"          | 1/4"           | 2-1/2"         | 1-1/2"          | 1         | 66261009502 |
| 1/2"      | 1/2" (Standard) | Up to 8"          | 1/4"           | 3-1/8"         | 2-1/4"          | 1         | 66261059420 |



## Bear-Tex Rapid Strip and Rapid Finish Depressed Center Wheels

Rapid Finish depressed center wheels will work anywhere Rapid Strip products work. Use Rapid Finish when a less aggressive product is needed.

| SIZE<br>D X H  | MAX.<br>RPM | STD. PKG. | BEST                   |                                      |
|----------------|-------------|-----------|------------------------|--------------------------------------|
|                |             |           | RAPID STRIP<br>UPC NO. | RAPID FINISH<br>UPC NO.              |
| 4-1/2 x 5/8-11 | 12,000      | 10        | S/C ExC 66261009585    | NEX-2AM 66261023947                  |
|                |             |           |                        | NEX-2AF 66261023946                  |
|                |             |           |                        | NEX-2SF 66261023943                  |
|                |             |           |                        | A/O Medium High Strength 66261023949 |
| 4-1/2 x 7/8    | 12,000      | 10        | S/C ExC 66261009649    | NEX-2AM 66261020548                  |
|                |             |           |                        | NEX-2AF 66261020547                  |
|                |             |           |                        | NEX-2SF 66261020546                  |
|                |             |           |                        | A/O Medium High Strength 66261020549 |
| 7 x 5/8-11     | 8,000       | 10        | S/C ExC 66261009650    |                                      |
| 7 x 7/8        | 8,000       | 10        | S/C ExC 66261009586    |                                      |

## Bear-Tex Abrasive Brushes

Tough, flexible nylon filaments embedded with abrasive grain form the bristles of these brushes. Use Bear-Tex abrasive brushes where maximum conformability is needed.

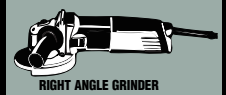


| SIZE<br>D X R X H* | ABRASIVE        | GRIT | MAX.<br>RPM | STD. PKG. | GOOD        |
|--------------------|-----------------|------|-------------|-----------|-------------|
|                    |                 |      |             |           | UPC NO.     |
| 7 x 1 x 7/8        | Silicon Carbide | 80   | 6,000       | 5         | 66261058830 |
|                    |                 |      |             |           | 66261058834 |

\*DIAMETER X RIM WIDTH X HOLE

## Air-Cooled Rubber Back-up Pad and Retainer Nut for Abrasive Brushes

| DESCRIPTION       | MAX. RPM | STD. PKG. | UPC NO.     |
|-------------------|----------|-----------|-------------|
| 7" Firm Pad       | 6,000    | 5         | 63642543425 |
| #103 Retainer Nut | —        | 10        | 63642543463 |



## AVOS Edger Speed-Lok Bear-Tex Discs

Made of non-woven nylon web impregnated with abrasive grain and resin for use in a variety of applications. Choose one of three grit specifications to achieve the best results for your application.



### Typical Applications

- Light deburring
- Cleaning and rust removal
- Finishing, polishing and paint preparation

| <b>BETTER AVOS – Allows View Of Surface – Edger Speed-Lok Bear-Tex Discs</b> |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| • Patented hole design   | • Allows interrupted cut which reduces heat up to 30% over standard round discs<br>• Cool cutting results in longer disc life<br>• Provides complete vision into the grinding zone<br>• Operators can grind more accurately with less re-work |
| • Scooped holes  | • Create air flow to pull loose abrasive and swarf away from work surface grinding zone – resulting in extended disc life   |
| • 15 degree angle back-up pad  | • Grinding at 5°-15° angle allows greater utilization of disc surface<br>• Eliminates gouging of workpiece  |
| • Coarse removes 60 – 120 grit grindlines                                    | • For light deburring   |
| • Medium removes 120 – 180 grit grindlines                                   | • For cleaning and rust removal   |
| • Very Fine removes 180 – 320 grit grindlines                                | • For finishing, polishing and paint preparation  |

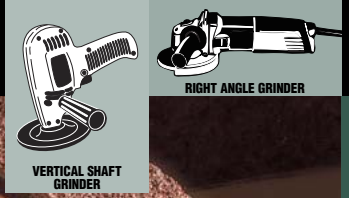


See page 54 for AVOS back-up pads.

| SIZE                                       | ABRASIVE/<br>GRIT | STD.<br>PKG. | BETTER      |
|--|-------------------|--------------|-------------|
|  |                   |              | UPC NO.     |
| <b>AVOS EDGER SPEED-LOK BEAR-TEX DISCS</b> |                   |              |             |
| 4-1/2 Edger<br>Speed-Lok                   | A/O Coarse        | 40           | 66261010447 |
|  | A/O Medium        |              | 66261010448 |
|  | A/O Very Fine     |              | 66261010449 |
| 5 Edger<br>Speed-Lok                       | A/O Coarse        | 40           | 66261009427 |
|  | A/O Medium        |              | 66261009428 |
|  | A/O Very Fine     |              | 66261009429 |
| 7 Edger<br>Speed-Lok                       | A/O Coarse        | 40           | 66261009430 |
|  | A/O Medium        |              | 66261009431 |
|  | A/O Very Fine     |              | 66261009432 |



# BEAR-TEX DISCS AND BELTS

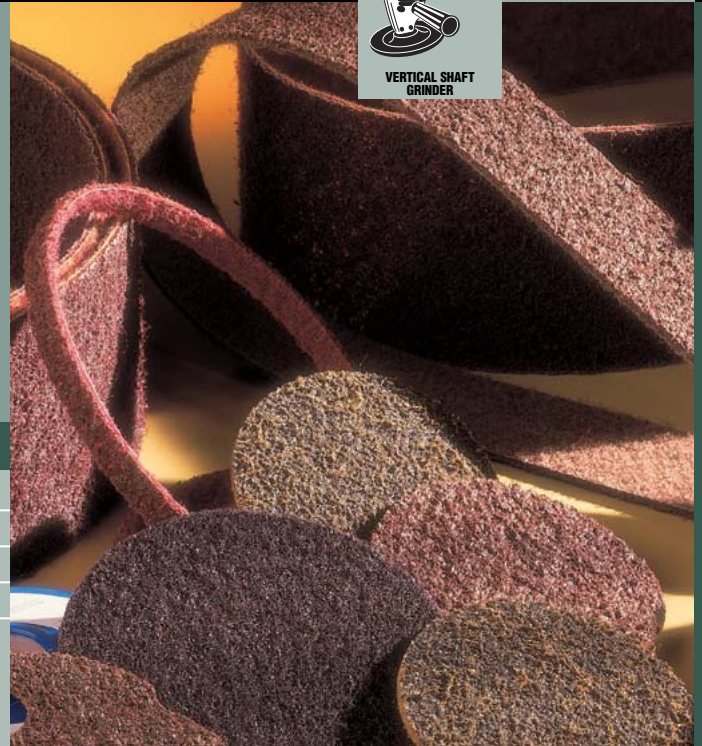


## Bear-TEX Surface Blending STE Discs and Belts

Norton Bear-TEX surface blending material is available in all three tiers. With three different stock product lines, and grit sizes of extra coarse to very fine, STE discs and belts perform well under a wide range of applications: from removing engine gaskets, and deburring of aluminum and steel, to finishing nickel alloy turbine blades.

### Typical Applications

- Removing surface defects
- Removing light edge burrs, parting lines or flashing
- Removing rust, oxides, corrosion, paints and scale
- Cleaning molds
- Blending mill marks, tool marks, uneven edges and coated abrasive finish



### Bear-TEX STE Discs and Belts

| FEATURES   | BENEFITS  |
|--|---|
| • Color-coded grit sizes   | • Easy identification and matching of product with application and finish requirement |
| • Conformable  | • Conform to workpiece; forgiving   |
| • Uniform, thorough abrasive coating   | • Consistent finish   |
| • Disc configurations: Hook and Loop; TR and TS Speed-Lok                                  | • Can be used on a wide variety of industrial and commercial tools                    |
| • Belt configurations: up to 37" width; Plyweld, butt joint; low stretch backing available | • Speed-Lok provides quick and easy on and off  |

### BEST Bear-TEX STE-CS Discs – Work best on harder materials

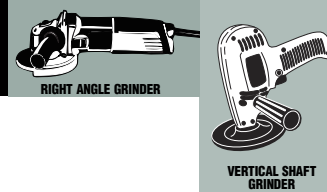
| FEATURES                                   | BENEFITS   |
|--|--|
| • Closed structure                         | • Long lasting   |
| • Very sharp abrasive grain                | • High, continuous cut rate  |
| • Rigid, low stretch backing               | • Excellent performance on hard materials (steels, nickel, alloys, etc.) |
| • Extra Coarse and Medium stock grit sizes | • Two degrees of aggressiveness and surface finishing                    |

### BETTER Bear-TEX STE-VS Discs and Belts – Great multi-purpose product

| FEATURES  | BENEFITS   |
|---|--|
| • Slightly open structure                       | • Resists loading and chunking   |
| • High abrasive content                         | • Continuous cut rate on soft (e.g. aluminum) and hard materials (e.g. steels and nickel alloys) |
| • Firm backing                                  | • Low stretch  |
| • Coarse, Medium and Very Fine stock grit sizes | • Three degrees of aggressiveness and surface finishing  |

### GOOD Bear-TEX STE Discs and Belts – Ideal for soft materials and low force applications

| FEATURES  | BENEFITS  |
|---|---|
| • Open structure                                | • Resists loading on softer materials (aluminum, gaskets, etc.) |
| • High abrasive content                         | • Fast initial cut rate   |
| • Flexible backing                              | • Conformable   |
| • Coarse, Medium and Very Fine stock grit sizes | • Three degrees of aggressiveness and surface finishing         |



## Bear-Tex Surface Blending STE Discs

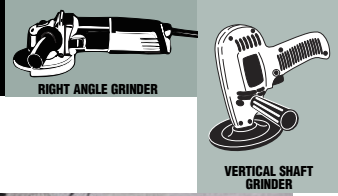
| SIZE                                       | ABRASIVE | GRIT SIZE | STD. PKG. | BETTER STE-VS | GOOD STE    |
|--|----------|-----------|-----------|---------------|-------------|
|  |          |           |           | UPC NO.       | UPC NO.     |
| <b>WITH HOOK AND LOOP FASTENING SYSTEM</b> |          |           |           |               |             |
| 2" Blank                                   | A/O      | Coarse    | 80        | 66261004431   |             |
|  | A/O      | Medium    |           | 66261004441   |             |
|  | A/O      | Very Fine |           | 66261004451   |             |
| 3" Blank                                   | A/O      | Coarse    | 60        | 66261004432   |             |
|  | A/O      | Medium    |           | 66261004442   |             |
|  | A/O      | Very Fine |           | 66261004452   |             |
| 4" Blank                                   | A/O      | Coarse    | 40        | 66261004433   | 66261055018 |
|  | A/O      | Medium    |           | 66261004443   | 66261055019 |
|  | A/O      | Very Fine |           | 66261004453   |             |
| 4-1/2" Blank                               | A/O      | Coarse    | 40        | 66261004434   | 66261017806 |
|  | A/O      | Medium    |           | 66261004444   | 66261017807 |
|  | A/O      | Very Fine |           | 66261004454   |             |
| 5" Blank                                   | A/O      | Coarse    | 40        | 66261004435   | 66261055021 |
|  | A/O      | Medium    |           | 66261004445   | 66261055022 |
|  | A/O      | Very Fine |           | 66261004455   |             |
| 6" Blank                                   | A/O      | Coarse    | 30        | 66261006910   |             |
|  | A/O      | Medium    |           | 66261006911   |             |
|  | A/O      | Very Fine |           | 66261006912   |             |
| 7" Blank                                   | A/O      | Coarse    | 25        | 66261004436   | 66261055027 |
|  | A/O      | Medium    |           | 66261004446   | 66261055028 |
|  | A/O      | Very Fine |           | 66261004456   |             |
| 8" Blank                                   | A/O      | Coarse    | 20        | 66261006913   |             |
|  | A/O      | Medium    |           | 66261006914   |             |
|  | A/O      | Very Fine |           | 66261006915   |             |



| SIZE                                      | ABRASIVE | GRIT SIZE    | STD. PKG. | BEST STE-CS | BETTER STE-VS | GOOD STE     |              |
|---|----------|--------------|-----------|-------------|---------------|--------------|--------------|
|   |          |              |           | UPC NO.     | UPC NO.       | UPC NO.      |              |
| <b>WITH SPEED-LOK TS FASTENING SYSTEM</b> |          |              |           |             |               |              |              |
| 2" Speed-Lok                              | A/O      | Extra Coarse | 50        | 66261017819 | 66261004439   | 66261009183  |              |
|   | A/O      | Coarse       |           | 66261017528 |               | 66261009182  |              |
|   | A/O      | Medium       |           |             |               | 66261004459  | 66261009181  |
|   | A/O      | Very Fine    |           |             |               |              |              |
| 3" Speed-Lok                              | A/O      | Extra Coarse | 25        | 66261017818 | 66261004440   | 66261009186  |              |
|   | A/O      | Coarse       |           | 66261017817 |               | 66261009185  |              |
|   | A/O      | Medium       |           |             |               | 66261004450  | 66261009184  |
|   | A/O      | Very Fine    |           |             |               | 66261004460  |              |
| 4" Speed-Lok                              | A/O      | Coarse       | 25        |             | 66261055349   |              |              |
|   | A/O      | Medium       |           |             | 66261055350   |              |              |
| <b>WITH SPEED-LOK TR FASTENING SYSTEM</b> |          |              |           |             |               |              |              |
| 2" Speed-Lok                              | A/O      | Extra Coarse | 50        | 66261016373 | 66261004437   | 66261009191• |              |
|   | A/O      | Coarse       |           | 66261016763 |               | 66261009190• |              |
|   | A/O      | Medium       |           |             |               | 66261004457  | 66261009189• |
|   | A/O      | Very Fine    |           |             |               |              |              |
| 3" Speed-Lok                              | A/O      | Extra Coarse | 25        | 66261016994 | 66261004438   | 66261009194  |              |
|   | A/O      | Coarse       |           | 66261016995 |               | 66261009193  |              |
|   | A/O      | Medium       |           |             |               | 66261004458  | 66261009192  |
|   | A/O      | Very Fine    |           |             |               |              |              |
| 4" Speed-Lok                              | A/O      | Coarse       | 25        |             | 66261008822   |              |              |
|   | A/O      | Medium       |           |             | 66261008821   |              |              |
|   | A/O      | Very Fine    |           |             | 66261008820   |              |              |

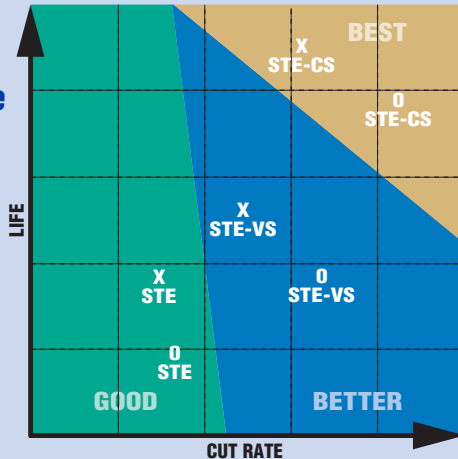
• PACKAGING STANDARDS: 2" STE TR DISCS STD. PKG. = 25

If you do not see the STE disc you need in our stock offering, call your local Norton distributor to check for made-to-order availability.



## SPECcheck

### STE Disc and Belt Performance



**STE-CS** – aggressive, closed structure, very sharp; works best on harder materials, low- and high-force applications.

**STE-VS** – great multi-purpose, works great for a variety of materials

**STE** – more open structure; excellent on soft materials and low force applications.



### Surface Finish



## Back-up Pads for Bear-Tex Discs

| PAD DIAMETER                                  | SPINDLE OR HOLE SIZE | MAX. RPM | 3M EQUIVALENT | STD. PKG. | UPC NO.     |
|---|----------------------|----------|---------------|-----------|-------------|
| <b>BACK-UP PADS FOR HOOK &amp; LOOP DISCS</b> |                      |          |               |           |             |
| 2   | 1/4 Steel Shank      | 23,000   | 922           | 5         | 66261059352 |
| 3   | 1/4 Steel Shank      | 20,000   | 923           | 5         | 66261059354 |
| 4   | 1/4 Steel Shank      | 18,000   | 924           | 5         | 66261059356 |
|   | 1/2-13               | 13,000   | 914           |           | 66261059303 |
|   | 5/8-11               |          | 914           |           | 66261059304 |
|   | M10 x 1.250          |          |               |           | 66261059305 |
| 4-1/2   | 5/8-11               | 10,000   | 9145          | 5         | 66261006948 |
| 5   | 5/16-24 Male         | 10,000   | 905           | 5         | 66261059360 |
|   | 3/8-24 Male          |          | 905           |           | 66261059308 |
|   | 5/8-11               |          | 915           |           | 66261059310 |
| 6   | 5/8-11               | 8,000    | 916           | 5         | 66261059312 |
| 7   | 5/8-11               | 6,000    | 917           | 5         | 66261059368 |
| 8   | 5/8-11               | 4,500    | 918           | 5         | 66261059372 |

| PAD DIAMETER                            | DESCRIPTION                     | MAX. RPM | STD. PKG. | UPC NO.     |
|---|---------------------------------|----------|-----------|-------------|
| <b>BACK-UP PADS FOR SPEED-LOK DISCS</b> |                                 |          |           |             |
| 2                                       | Hard Speed-Lok TS Back-up Pad   | 30,000   | 10        | 63642543205 |
|   | Medium Speed-Lok TS Back-up Pad | 25,000   | 10        | 63642543210 |
|   | Medium Speed-Lok TR Back-up Pad | 25,000   | 10        | 66261055103 |
| 3                                       | Hard Speed-Lok TS Back-up Pad   | 20,000   | 10        | 63642543220 |
|   | Medium Speed-Lok TS Back-up Pad | 20,000   | 10        | 63642543225 |
|   | Hard Speed-Lok TR Back-up Pad   | 20,000   | 10        | 63642504900 |
|   | Medium Speed-Lok TR Back-up Pad | 20,000   | 10        | 66261055105 |
| 4                                       | Medium Speed-Lok TS Back-up Pad | 12,000   | 10        | 66261043232 |
|   | Hard Speed-Lok TR Back-up Pad   | 12,000   | 10        | 63642502912 |
|   | Medium Speed-Lok TR Back-up Pad | 12,000   | 10        | 66261047581 |
|   | Speed-Lok TR+ Back-up Pad       | 8,000    | 1         | 66261016581 |

### BEAR-TEX DISC ATTACHMENT SYSTEMS



**SURFACE BLENDING STE DISCS** FEATURE A HOOK & LOOP FASTENING SYSTEM.



**SPEED-LOK TS DISCS** ARE COMPATIBLE WITH THE NORTON SPEED-LOK TS AND STANDARD® ABRASIVES QUICK CHANGE FASTENING SYSTEMS.

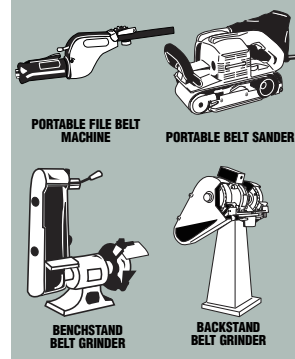


**SPEED-LOK TR DISCS** ARE COMPATIBLE WITH THE NORTON SPEED-LOK TR AND 3M ROLOC® FASTENING SYSTEMS.

# BEAR-TEX BELTS AND FLAP WHEELS

## Bear-Tex Surface Blending STE Belts

| SIZE           | ABR. | GRIT SIZE | STD. PKG. | BETTER STE-VS | GOOD STE    |
|----------------|------|-----------|-----------|---------------|-------------|
|                |      |           |           | UPC NO.       | UPC NO.     |
| 1/2 x 18       | A/O  | Coarse    | 24        | 66261009048   | 66261055309 |
|                | A/O  | Medium    |           | 66261008814   | 66261055310 |
|                | A/O  | Very Fine |           | 66261006762   | 66261055311 |
| 1/2 x 24       | A/O  | Coarse    | 24        | 66261008972   | 66261055312 |
|                | A/O  | Medium    |           |               | 66261055313 |
|                | A/O  | Very Fine |           |               | 66261055314 |
| 3/4 x 18       | A/O  | Coarse    | 12        | 66261008813   | 66261055324 |
|                | A/O  | Medium    |           |               |             |
| 3-1/2 x 15-1/2 | A/O  | Coarse    | 8         |               | 66261055326 |
|                | A/O  | Medium    |           |               | 66261055330 |
|                | A/O  | Very Fine |           |               | 66261055331 |
| 6 x 48         | A/O  | Coarse    | 4         |               | 66261055332 |
|                | A/O  | Medium    |           |               | 66261055331 |
|                | A/O  | Very Fine |           |               | 66261055332 |
| 2 x 132        | A/O  | Coarse    | 6         | 66261017512   | 66261008492 |
|                | A/O  | Medium    |           | 66261008492   |             |



If you do not see the STE and STE-VS belts you need in our stock offering, call your local Norton distributor to check for made-to-order availability.

## SPECcheck

### Starting Recommendations

| HEAVY-DUTY CLEANING/ BLENDING | DEBURRING      | CLEANING/ BLENDING | FINISHING        |
|-------------------------------|----------------|--------------------|------------------|
| Extra Coarse (Brown)          | Coarse (Brown) | Medium (Maroon)    | Very Fine (Blue) |

## TECHtips

- For removing 60 to 120 grit grindlines – use coarse grit (brown)
- For removing 120 to 180 grit grindlines – use medium grit (maroon)
- For removing 180 to 320 grit grindlines – use very fine grit (blue)



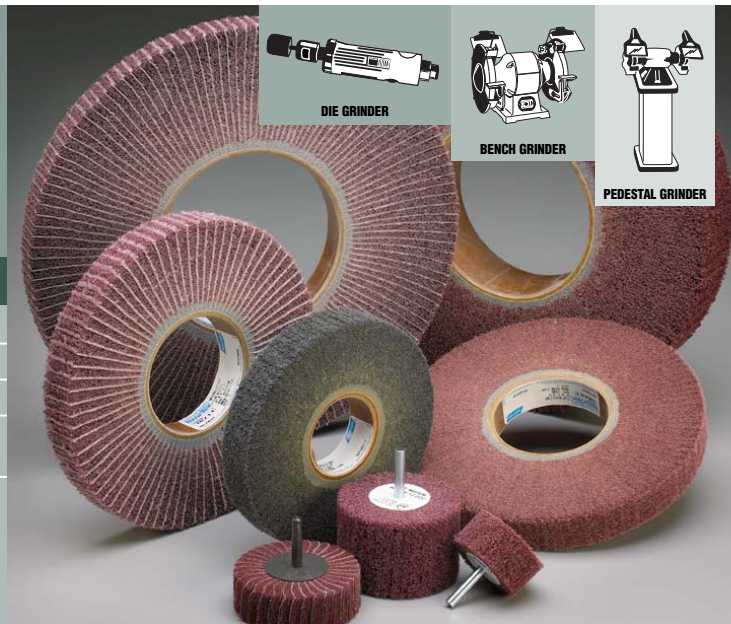
It is the user's responsibility to comply with safety regulations.

## Bear-Tex Flap Wheels

A very conformable Bear-Tex product, flap wheels provide a cushioning action which is ideal for use on uneven or irregular surfaces as well as flat areas.

### Typical Applications

- Cleaning threaded parts
- Removing oxide from printed circuit boards
- De-glossing plastic parts
- Producing uniform finishes on aluminum, brass and stainless steel
- Can be used on automatic and robotic equipment



# BEAR-TEX FLAP WHEELS

## Bear-Tex Spindle-Mounted Flap Wheels

Interleaf flap wheels consist of alternating flaps of aluminum oxide coated abrasive cloth and medium grit Bear-Tex material. The interleaf product is less conformable than a standard Bear-Tex flap wheel and will remove more material.



| SIZE<br>D X T X SPINDLE                       | BEAR-TEX ABRASIVE/<br>GRIT  | MAX.<br>RPM | STD.<br>PKG. | BETTER                     |
|---|-----------------------------|-------------|--------------|----------------------------|
|   |                             |             |              | UPC NO.                    |
| <b>BEAR-TEX FLAP WHEELS – SPINDLE-MOUNTED</b> |                             |             |              |                            |
| 2 x 1 x 1/4" Spindle                          | A/O Medium<br>A/O Very Fine | 12,000      | 20           | 66261051716<br>66261051717 |
| 3 x 1 x 1/4" Spindle                          | A/O Medium<br>A/O Very Fine | 12,000      | 20           | 66261051718<br>66261051719 |
| 3 x 2 x 1/4" Spindle                          | A/O Medium                  | 8,000       | 10           | 66261058474                |

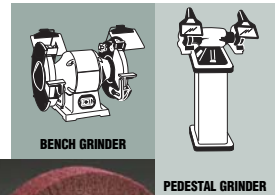


| SIZE<br>D X T X SPINDLE                                 | COATED ABRASIVE/<br>GRIT    | MAX.<br>RPM | STD.<br>PKG. | BETTER                                    |
|---|-----------------------------|-------------|--------------|---|
|   |                             |             |              | UPC NO.                                   |
| <b>BEAR-TEX INTERLEAF FLAP WHEELS – SPINDLE-MOUNTED</b> |                             |             |              |   |
| 2 x 1 x 1/4" Spindle                                    | A/O 60<br>A/O 80<br>A/O 120 | 12,000      | 20           | 66261051720<br>66261051721<br>66261051722 |
| 3 x 1 x 1/4" Spindle                                    | A/O 120                     | 12,000      | 20           | 66261051725                               |



## Bear-Tex Flap Wheels

| SIZE<br>D X T X H           | BEAR-TEX ABRASIVE/<br>GRIT                          | DENSITY                              | MAX.<br>RPM | STD.<br>PKG. | BETTER   |
|-----------------------------|---|--------------------------------------|-------------|--------------|--|
|                             |   |                                      |             |              | UPC NO.  |
| <b>BEAR-TEX FLAP WHEELS</b> |   |                                      |             |              |  |
| 6 x 1 x 2                   | A/O Medium<br>A/O Fine<br>S/C Fine<br>S/C Very Fine | Medium<br>Medium<br>Medium<br>Medium | 3,000       | 4            | 66261058456<br>66261058487<br>66261058451<br>66261058450 |
| 8 x 1 x 3                   | A/O Fine  | Medium                               | 2,500       | 3            | 66261058491  |
| 8 x 2 x 3                   | A/O Medium<br>A/O Fine                              | Hard<br>Medium                       | 2,500       | 2            | 66261000889<br>66261058493                               |
| 12 x 2 x 5                  | A/O Med. High Strength                              | Medium                               | 1,900       | 1            | 66261005070  |



| SIZE<br>D X T X H                     | COATED ABRASIVE/<br>GRIT     | DENSITY                    | MAX.<br>RPM | STD.<br>PKG. | BETTER                                    |
|---------------------------------------|------------------------------|----------------------------|-------------|--------------|---|
|                                       |                              |                            |             |              | UPC NO.                                   |
| <b>BEAR-TEX INTERLEAF FLAP WHEELS</b> |                              |                            |             |              |   |
| 6 x 1 x 2                             | A/O 80<br>A/O 120<br>A/O 180 | Medium<br>Medium<br>Medium | 3,000       | 4            | 66261004418<br>66261007678<br>66261005387 |
| 8 x 1 x 3                             | A/O 120                      | Medium                     | 2,500       | 3            | 66261010711                               |
| 12 x 1 x 5                            | A/O 80<br>A/O 120            | Medium<br>Medium           | 1,900       | 2            | 66261010712<br>66261004667                |



Refer to "Bear-Tex Convolute Wheels" section, for flap wheel reducing bushings.

## TECHtips

Interleaf flap wheels must always be run in the direction indicated by the arrow printed on the product.

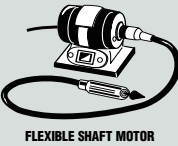
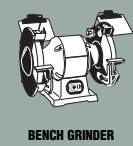


It is the user's responsibility to comply with all safety regulations.

# BEAR-TEX CONVOLUTE WHEELS

## Bear-Tex Convolute Wheels

Formed by wrapping and bonding web material impregnated with abrasive grain and resin around a center core. Convolute wheels offer a wide range of uses from heavy burr removal to cleaning rust and oxides.



### Typical Applications

- Burr and flashing removal
- Surface roughness reduction
- Blending weld areas on stainless steel
- Blending scratch patterns
- Weld polishing
- Removing rust and oxides
- Applying decorative finishes including antique patterns

**BEST** **Bear-Tex Clean & Finish Wheels – Fine finish with light pressure**

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>• Silicon carbide grain</li> </ul>  | <ul style="list-style-type: none"> <li>• Good for blending, rust removal, applying decorative, contrast finishes and low- to moderate-speed applications</li> <li>• Not used for deburring</li> </ul> |
| <ul style="list-style-type: none"> <li>• Open mesh construction</li> </ul> | <ul style="list-style-type: none"> <li>• Used with light to moderate pressure, low speed</li> </ul>   |



**BEST** **Bear-Tex Surface Finishing Wheels – Uniform finish with moderate pressure**

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>• Stronger web</li> </ul> | <ul style="list-style-type: none"> <li>• More aggressive cutting action and more durability than Clean &amp; Finish wheels</li> <li>• Ideal for rust and paint removal, coarse, decorative finishes and blending</li> </ul> |



**BEST** **Bear-Tex Metal Finishing Wheels – Decorative finishing, blending, final finishing**

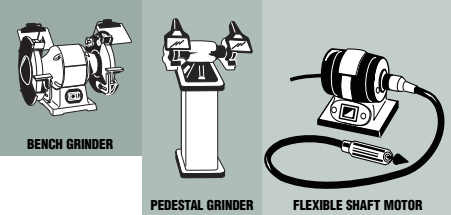
| FEATURES  | BENEFITS   |
|---|--|
| <ul style="list-style-type: none"> <li>• Premium, medium grit aluminum oxide grain</li> </ul> | <ul style="list-style-type: none"> <li>• Generates uniform distinct satin and antique finishes</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Dense, very durable web</li> </ul>                   | <ul style="list-style-type: none"> <li>• Can be used for blending applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Strongest resin binders</li> </ul>                   | <ul style="list-style-type: none"> <li>• Resilient, long life construction</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Uniform grain dispersion and coating</li> </ul>      | <ul style="list-style-type: none"> <li>• Clean and condition without gouging or changing dimensions of workpiece</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Available in 5 and 6 densities</li> </ul>            | <ul style="list-style-type: none"> <li>• Ideal for blending and matching #3 and 4 mil. finishes, and surface prep for buffing, polishing and applying decorative finishes</li> </ul> |



**BEST** **Bear-Tex Series 1000 Long Life Wheels – General deburring, blending, finishing**

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>• Smear and heat-resistant formula</li> </ul>       | <ul style="list-style-type: none"> <li>• Consistent, high quality results</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Dense web construction (9 density)</li> </ul>     | <ul style="list-style-type: none"> <li>• Starting point for deburring, blending, polishing and finishing applications</li> </ul>                               |
| <ul style="list-style-type: none"> <li>• More open web construction (7 density)</li> </ul> | <ul style="list-style-type: none"> <li>• Smear-proof and cool cutting on light deburring applications</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Waterproof</li> </ul>                             | <ul style="list-style-type: none"> <li>• Use dry, wet or with oil</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Non-metallic</li> </ul>                           | <ul style="list-style-type: none"> <li>• No contamination of workpiece</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Optimum grain/resin formulation</li> </ul>        | <ul style="list-style-type: none"> <li>• Durable, long life construction with versatile application range and improved cut rate and shed resistance</li> </ul> |
| <ul style="list-style-type: none"> <li>• Conformable and flexible</li> </ul>               | <ul style="list-style-type: none"> <li>• Less operator fatigue</li> </ul>  |





## Bear-Tex Convolute Wheels (CONTINUED)

**BEST** Bear-Tex Series 4000 Wheels – Ideal for heavy deburring applications

| FEATURES   | BENEFITS   |
|--|--|
| <ul style="list-style-type: none"> <li>Advanced resin bond system</li> <li>High quality synthetic web</li> </ul> | <ul style="list-style-type: none"> <li>Free cutting</li> <li>Use both wet and dry</li> <li>Long life for heavy deburring, edge breaking and removing parting lines on exotic metals</li> </ul> |



| SIZE<br>D X T X H                                   | ABRASIVE                           | GRIT           | MAX.<br>RPM | STD. PKG. | BEST                       |
|---|------------------------------------|----------------|-------------|-----------|----------------------------|
|   |                                    |                |             |           | UPC NO.                    |
| <b>BEAR-TEX CLEAN &amp; FINISH CONVOLUTE WHEELS</b> |                                    |                |             |           |                            |
| 4 x 1 x 1   | Silicon Carbide<br>Silicon Carbide | Medium<br>Fine | 4,000       | 10        | 66261058502<br>66261058501 |
| 6 x 1 x 1   | Silicon Carbide<br>Silicon Carbide | Medium<br>Fine | 3,000       | 4         | 66261058507<br>66261058506 |
| 6 x 2 x 1   | Silicon Carbide<br>Silicon Carbide | Medium<br>Fine | 3,000       | 2         | 66261058510<br>66261058509 |
| 6 x 3 x 1   | Silicon Carbide                    | Medium         | 3,000       | 1         | 66261058512                |
| 6 x 4 x 1   | Silicon Carbide                    | Medium         | 3,000       | 1         | 66261058514                |
| 8 x 1 x 3   | Silicon Carbide                    | Medium         | 2,500       | 3         | 66261058518                |
| 8 x 2 x 3   | Silicon Carbide                    | Medium         | 2,500       | 2         | 66261058521                |
| 8 x 3 x 3   | Silicon Carbide                    | Medium         | 2,500       | 1         | 66261058524                |
| 8 x 4 x 3   | Silicon Carbide                    | Medium         | 2,500       | 1         | 66261058526                |

|  |                                   |                  |       |   |                            |
|--|-----------------------------------|------------------|-------|---|----------------------------|
| <b>BEAR-TEX SURFACE FINISHING CONVOLUTE WHEELS</b> |                                   |                  |       |   |                            |
| 6 x 1 x 1  | Aluminum Oxide<br>Silicon Carbide | Medium<br>Coarse | 4,500 | 4 | 66261058550<br>66261058553 |
| 6 x 2 x 1  | Silicon Carbide                   | Medium           | 4,500 | 2 | 66261058560                |
| 12 x 2 x 5   | Silicon Carbide                   | Coarse           | 2,500 | 1 | 66261058574                |

|  |                |            |       |   |                            |
|--|----------------|------------|-------|---|----------------------------|
| <b>BEAR-TEX METAL FINISHING CONVOLUTE WHEELS</b> |                |            |       |   |                            |
| 6 x 1 x 1  | Aluminum Oxide | 5AM<br>6AM | 6,000 | 3 | 66261007936<br>66261010148 |
| 6 x 2 x 1  | Aluminum Oxide | 5AM<br>6AM | 6,000 | 2 | 66261007957<br>66261009635 |
| 8 x 1 x 3  | Aluminum Oxide | 5AM        | 4,500 | 3 | 66261007831                |
| 8 x 2 x 3  | Aluminum Oxide | 5AM<br>6AM | 4,500 | 2 | 66261007904<br>66261012971 |
| 12 x 1 x 5                                       | Aluminum Oxide | 5AM<br>6AM | 3,000 | 2 | 66261007434<br>66261009481 |
| 12 x 2 x 5                                       | Aluminum Oxide | 5AM        | 3,000 | 1 | 66261007212                |
| 14 x 2 x 8                                       | Aluminum Oxide | 5AM<br>6AM | 2,550 | 1 | 66261007817<br>66261012041 |

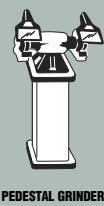
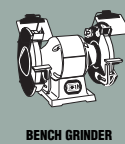
## TECHtips

If you do not see the stock Convolute Wheel needed, call your local Norton distributor to check our made-to-order availability.

- Convolute wheels must always run in the direction indicated by the arrow printed on the side of each wheel.
- Light to medium pressure is recommended. Excessive pressure may result in part damage.
- Lubricants such as water-soluble oil and straight oil will decrease the heat and improve the surface finish and lustre.



It is the user's responsibility to comply with all safety regulations.



## Bear-Tex Convolute Wheels (CONTINUED)

| SIZE<br>D X T X H                                      | ABRASIVE   | GRIT                     | MAX.<br>RPM | STD.<br>PKG. | BEST<br>SERIES 1000 LONG LIFE |                      |                      |             |
|--|--|--------------------------|-------------|--------------|-------------------------------|----------------------|----------------------|-------------|
|  |  |                          |             |              | 7 DENSITY<br>UPC NO.          | 8 DENSITY<br>UPC NO. | 9 DENSITY<br>UPC NO. |             |
| <b>BEAR-TEX SERIES 1000 LONG LIFE CONVOLUTE WHEELS</b> |  |                          |             |              |                               |                      |                      |             |
| 6 x 1/2 x 1  | Aluminum Oxide<br>Silicon Carbide<br>Silicon Carbide | Medium<br>Medium<br>Fine | 6,000       | 4            | 66261018857                   | 66261018789          | 66261018650          |             |
|  |  |                          |             |              | 66261018628                   |                      | 66261019540          | 66261018629 |
| 6 x 1 x 1  | Aluminum Oxide<br>Silicon Carbide<br>Silicon Carbide | Medium<br>Medium<br>Fine | 6,000       | 3            | 69957397884                   | 66261018636          | 66261019337          |             |
|  |  |                          |             |              | 69957397882                   |                      | 69957397883          | 66261018630 |
|  |  |                          |             |              | 66261018631                   |                      | 66261018774          | 66261018632 |
| 8 x 1 x 3  | Aluminum Oxide<br>Silicon Carbide<br>Silicon Carbide | Medium<br>Medium<br>Fine | 4,500       | 3            | 69957397885                   | 66261018855          | 66261018633          |             |
|  |  |                          |             |              | 69957394610                   |                      | 66261018673          | 66261018997 |
|  |  |                          |             |              | 66261018639                   |                      | 66261018640          | 66261018641 |
| 12 x 1 x 5   | Aluminum Oxide<br>Silicon Carbide<br>Silicon Carbide | Medium<br>Medium<br>Fine | 3,000       | 2            | 69957397887                   | 66261018786          | 66261018896          |             |
|  |  |                          |             |              |                               |                      | 66261018908          | 66261018626 |

| SIZE<br>D X T X H                            | ABRASIVE                          | GRIT           | MAX.<br>RPM | STD.<br>PKG. | BEST                 |                      |
|--|-----------------------------------|----------------|-------------|--------------|----------------------|----------------------|
|  |                                   |                |             |              | 8 DENSITY<br>UPC NO. | 9 DENSITY<br>UPC NO. |
| <b>BEAR-TEX SERIES 4000 CONVOLUTE WHEELS</b> |                                   |                |             |              |                      |                      |
| 6 x 1/2 x 1                                  | Silicon Carbide                   | Fine           | 6,000       | 4            |                      | 66261004021          |
| 6 x 1 x 1                                    | Aluminum Oxide<br>Silicon Carbide | Medium<br>Fine | 6,000       | 3            | 66261004208          | 66261004141          |
|  |                                   |                |             |              | 66261004142          |                      |
| 8 x 1 x 3                                    | Aluminum Oxide<br>Silicon Carbide | Medium<br>Fine | 4,500       | 3            | 66261004165          | 66261004135          |
|  |                                   |                |             |              | 66261004123          |                      |
| 12 x 1 x 5                                   | Silicon Carbide                   | Fine           | 3,000       | 2            | 66261004284          | 66261004148          |
| 12 x 2 x 5                                   | Silicon Carbide                   | Fine           | 3,000       | 1            |                      | 66261004011          |

If you do not see the Convolute Wheel needed in stock, call your local Norton distributor to check our made-to-order availability.

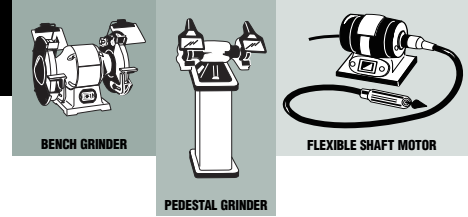
## Aluminum Reducing Bushings for Flap and Convolute Wheels

- Durable, aluminum one-piece design flanges with integrated "contact washer"
- Snug fit; extended useable life
- Available in stock and non-stock sizes: 3" up to 10" in many combinations of ID hole reduction

| WHEEL<br>CENTER HOLE | BUSHING REDUCES<br>HOLE SIZE TO | FOR WHEEL<br>DIAMETER | STD.<br>PKG. | UPC<br>NO.  |
|----------------------|---------------------------------|-----------------------|--------------|-------------|
| 1"                   | 3/8"                            | 4" - 6"               | 1 Pair       | 66261080522 |
|                      | 1/2"                            |                       |              | 66261080523 |
|                      | 5/8"                            |                       |              | 66261080524 |
|                      | 3/4"                            |                       |              | 66261080525 |
|                      | 7/8"                            |                       |              | 66261080526 |
| 2"                   | 1/2"                            | 6"                    | 1 Pair       | 66261080527 |
|                      | 5/8"                            |                       |              | 66261080528 |
|                      | 1"                              |                       |              | 66261080529 |
|                      | 1-1/4"                          |                       |              | 66261080530 |
| 3"                   | 1"                              | 8"                    | 1 Pair       | 66261080531 |
|                      | 1-1/4"                          |                       |              | 66261080532 |
|                      | 1-1/2"                          |                       |              | 66261080383 |
|                      | 1-3/4"                          |                       |              | 66261080384 |
|                      | 2"                              |                       |              | 66261080514 |
| 5"                   | 1"                              | 10" and 12"           | 1 Pair       | 66261080533 |
|                      | 1-1/4"                          |                       |              | 66261080534 |
|                      | 3"                              |                       |              | 66261080535 |
| 8"                   | 1-1/4"                          | 14"                   | 1 Pair       | 66261080536 |
|                      | 3"                              |                       |              | 66261080512 |
| 10"                  | 1-1/4"                          | 16"                   | 1 Pair       | 66261080520 |







## Bear-Tex Convolute Wheels (CONTINUED)



### Troubleshooting Guide

| PROBLEM            | CORRECTION   |
|--------------------|--|
| Slow cut rate      | Increase density<br>Decrease wheel speed<br>Use coarser grit   |
| Low conformability | Decrease density<br>Reduce pressure  |
| Poor form holding  | Increase density<br>Decrease wheel speed<br>Reduce pressure  |
| Poor finish        | Increase density<br>Increase oscillation<br>Use lubricant:<br>- Water – fine<br>- Water soluble – finer<br>- Oil – finest<br>Increase wheel speed (observe MAX. RPM) |

### Bear-Tex Metal Finishing, Series 1000 Long Life and 4000 Marking System

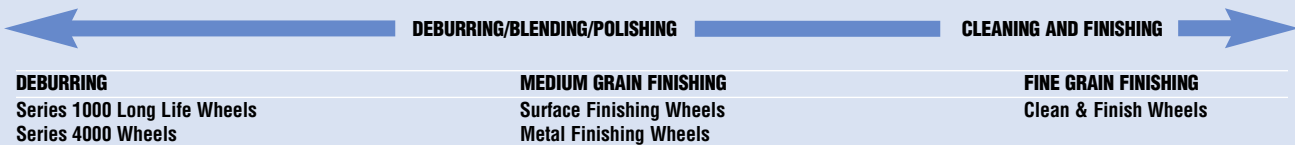
| BOND SYSTEM               | DENSITY              | ABRASIVE            | GRIT SIZE  |
|---------------------------|----------------------|---------------------|------------|
| 1 = Series 1000 Long Life | 7 = Open/Conformable | A = Aluminum Oxide  | M = Medium |
| 4 = Series 4000           | 8                    | S = Silicon Carbide | F = Fine   |
|                           | 9 = Dense/Durable    |                     |            |

### Series 1000 Long Life Wheel Starting Recommendations by Application

We recommend starting these applications with a Series 1000 Long Life Wheel.

| TOOL/EQUIPMENT                         | APPLICATIONS / RECOMMENDED STARTING POINT  |  |  |  |
|--|--|--|--|--|
|  | CLEANING   | DEBURRING  | BLENDING   | FINISHING  |
| PORTABLE STRAIGHT SHAFT/<br>STATIONARY | 1-6AM, 1-7AM<br><ul style="list-style-type: none"> <li>General purpose cleaning</li> <li>Removing rust, oxidation, corrosion, discoloration</li> </ul> | 1-9SF<br><ul style="list-style-type: none"> <li>Removing medium to heavy burrs</li> <li>Deburring die cast flashings, pipe threads, machine parts, plastic molded parts</li> </ul> | 1-7SF<br><ul style="list-style-type: none"> <li>Smoothing parting lines</li> <li>Polishing welds, machine parts</li> <li>Smoothing radii on metal parts</li> <li>Blending coated abrasive scratch pattern</li> </ul> | 1-7SF<br><ul style="list-style-type: none"> <li>Satin finish</li> <li>Cosmetic finish</li> <li>Brush finish</li> </ul> |

### Convolute Wheel Starting Recommendations



# BEAR-TEX UNIFIED WHEELS



## Bear-Tex Unified Wheels

Designed for maintenance operations needing an efficient and cost-effective method of deburring, polishing, cleaning or finishing metals and composites.

### Typical Applications

- Deburring flashings, threads, sharp edges
- Removing excessive bonding agents after curing
- Blending alloys
- Polishing sheet metal and stainless steel
- Polishing precision metal pieces and welds



| Bear-Tex Unified Wheels |   |
|-------------------------|---|
| FEATURES                | BENEFITS  |
| • Easily preformed      | • Usable on a wide variety of shapes/contours           |
| • Hold shape well       | • Less wheel dressing                                   |
| • Non-metallic          | • No contamination of workpiece                         |
| • Uniform construction  | • Maintains part tolerance; prevents cutting or gouging |

| BEST Bear-Tex NEX Unified Wheels                                |  |
|---|--|
| FEATURES  | BENEFITS   |
| • Uniform construction  | • Extra long life  |
| • High quality, virgin nylon fiber and unique resin formulation | • Optimal combination of cut rate, life, finish and hardness/flexibility |
| • Smear-resistant formula                                       | • Excellent, consistent, smear-free finishes                             |

| BETTER Bear-Tex Deburring Unified Wheels |   |
|--|---|
| FEATURES                                 | BENEFITS  |
| • Controlled density range               | • More durable than General Duty wheels                     |
|  | • Good starting point for high speed deburring applications |

| GOOD Bear-Tex General Duty Unified Wheels |  |
|---|--|
| FEATURES                                  | BENEFITS   |
| • Outstanding resistance to snagging      | • For general purpose light deburring applications |



### NEX Unified Wheel Marking System

| SPECIFICATION     | DENSITY    | ABRASIVE            | GRIT SIZE         |
|-------------------|------------|---------------------|-------------------|
| NEX Unified Wheel | 2 – softer | A = Aluminum Oxide  | XC = Extra Coarse |
|                   | 3          |                     | C = Coarse        |
|                   | 4          |                     | M = Medium        |
|                   | 6          | S = Silicon Carbide | F = Fine          |
|                   | 7          |                     |                   |
|                   | 8 – Harder |                     |                   |

### Unified Wheel Starting Recommendations

| APPLICATION            | SPECIFICATION   |
|------------------------|---|
| Heavy Deburring        | NEX-8AM or NEX 8SM  |
| Medium Deburring       | NEX-6AM or NEX-6AF  |
| Light Deburring        | NEX-2SF or NEX-2AM  |
| Medium Grain Finishing | 150 grit S/C Medium Density General Duty Wheel or NEX-8AC |
| Fine Grain Finishing   | 220 grit S/C Medium Density General Duty Wheel or NEX-6AF |



## TECHtips

Unified wheels can be run in either direction.



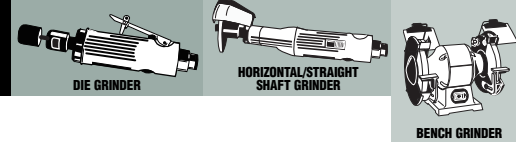
It is the user's responsibility to comply with all safety regulations.

# BEAR-TEX UNIFIED WHEELS



## Bear-Tex Unified Wheels (CONTINUED)

| SIZE<br>D X T X H                  | SPEC.   | MAX<br>RPM   | STD.<br>PKG. | BEST<br>NEX                |                      |                      |   |                      |   |
|------------------------------------|---|--|--------------|----------------------------|----------------------|----------------------|---|----------------------|---|
|                                    |   |  |              | 2 DENSITY<br>UPC NO.       | 3 DENSITY<br>UPC NO. | 4 DENSITY<br>UPC NO. | 6 DENSITY<br>UPC NO.                      | 7 DENSITY<br>UPC NO. | 8 DENSITY<br>UPC NO.                      |
| <b>BEAR-TEX NEX UNIFIED WHEELS</b> |   |  |              |                            |                      |                      |   |                      |   |
| 1 x 1 x 3/16                       | A/O Crse<br>A/O Med<br>A/O Fine<br>S/C Fine                                   | 35,100   | 50           | 66261014891<br>66261014883 |                      |                      | 66261014908<br>66261014900<br>66261014904 |                      | 66261014915<br>66261014924                |
| 2" Speed-Lok TR                    | A/O Crse<br>A/O Med<br>S/C Fine   | 22,100   | 60           | 66261014897<br>66261014889 | 66261017306          |                      | 66261014911<br>66261014906                |                      | 66261014921<br>66261014935                |
| 2 x 1/8 x 1/4                      | A/O Med   | 22,100   | 60           |                            |                      |                      |   |                      | 66261014927                               |
| 2 x 1/4 x 1/4                      | A/O Crse<br>A/O Med<br>A/O Med<br>A/O Fine<br>S/C Med<br>S/C Fine             | 22,100<br>18,000<br>22,100<br>22,100<br>22,100<br>18,100           | 60           | 66261014892<br>66261014884 |                      |                      | 66261014901                               |                      | 66261014916<br>66261014926<br>66261014964 |
| 2 x 1/2 x 1/4                      | A/O Med   | 22,100   | 30           |                            |                      |                      |   |                      | 66261014925                               |
| 3" Speed-Lok TR                    | A/O Crse<br>A/O Med<br>A/O Fine<br>S/C Med<br>S/C Fine                        | 15,100   | 40           | 66261014898<br>66261014890 | 66261016005          | 66261015419          | 66261014912                               |                      | 66261014922<br>66261014936                |
| 3 x 1/8 x 1/4                      | A/O Med   | 18,100   | 40           |                            |                      |                      |   |                      | 66261014934                               |
| 3 x 1/4 x 1/4                      | A/O Crse<br>A/O Med<br>A/O Med<br>A/O Fine<br>S/C Med<br>S/C Fine             | 18,100<br>12,100<br>18,100<br>18,100<br>18,100<br>12,100           | 40           | 66261014894<br>66261014886 | 66261016392          | 66261015565          | 66261014909<br>66261014902                |                      | 66261014919<br>66261014930<br>66261014937 |
| 3 x 1/4 x 3/8                      | A/O Crse<br>A/O Med<br>A/O Med<br>A/O Fine<br>S/C Med<br>S/C Fine<br>S/C Fine | 18,100<br>12,100<br>18,100<br>18,100<br>18,100<br>12,100<br>18,100 | 40           | 66261014895<br>66261014887 | 66261016006          | 66261014899          | 66261014910                               | 66261014905          | 66261014920<br>66261014933<br>66261014965 |
| 3 x 1/2 x 1/4                      | A/O Crse<br>A/O Med<br>A/O Med<br>S/C Fine                                    | 18,100<br>12,100<br>18,100<br>12,100                               | 20           | 66261014893<br>66261014885 |                      |                      | 66261014928                               |                      | 66261014917                               |
| 3 x 1/2 x 3/8                      | A/O Crse<br>A/O Med<br>S/C ExCrse   | 18,100<br>18,100<br>14,100   | 20           |                            |                      |                      |   | 66261014913          | 66261014918<br>66261014929                |
| 3 x 1 x 3/8                        | S/C ExCrse  | 14,100   | 10           |                            |                      |                      |   | 66261014914          |   |
| 6 x 1/2 x 1                        | A/O Med   | 7,500  | 4            |                            |                      |                      |   |                      | 66261014931                               |
| 6 x 1 x 1                          | A/O Med   | 5,000  | 2            | 66261014896                |                      |                      |   |                      |   |
| 6 x 1 x 1                          | S/C Fine  |  |              | 66261014888                |                      |                      |   |                      |   |



## Bear-Tex Unified Wheels (CONTINUED)

| SIZE<br>D X T X H                        | ABRASIVE        | GRIT | MAX.<br>RPM | STD.<br>PKG. | BETTER      |
|--|-----------------|------|-------------|--------------|-------------|
|  |                 |      |             |              | UPC NO.     |
| <b>BEAR-TEX DEBURRING UNIFIED WHEELS</b> |                 |      |             |              |             |
| 2 x 1/4 x 1/4                            | Aluminum Oxide  | 220  | 20,000      | 60           | 66261052200 |
| 2 x 1/2 x 1/4                            | Aluminum Oxide  | 120  | 20,000      | 40           | 66261058876 |
|  | Silicon Carbide | 220  |             |              | 66261058782 |
| 3 x 1/4 x 1/4                            | Aluminum Oxide  | 220  | 18,000      | 40           | 66261058877 |
|  | Silicon Carbide | 220  |             |              | 66261058854 |
| 3 x 1/2 x 1/4                            | Silicon Carbide | 220  | 18,000      | 20           | 66261058859 |
| 3 x 3/4 x 1/4                            | Aluminum Oxide  | 220  | 18,000      | 20           | 66261058881 |

| SIZE<br>D X T X H                           | ABRASIVE        | GRIT | DENSITY | MAX.<br>RPM | STD.<br>PKG. | GOOD        |
|---|-----------------|------|---------|-------------|--------------|-------------|
|   |                 |      |         |             |              | UPC NO.     |
| <b>BEAR-TEX GENERAL DUTY UNIFIED WHEELS</b> |                 |      |         |             |              |             |
| 1 x 1 x 3/16                                | Aluminum Oxide  | 80   | Hard    | 15,000      | 50           | 66261000938 |
| 2 x 1/4 x 1/4                               | Aluminum Oxide  | 80   | Hard    | 11,000      | 60           | 66261052275 |
| 2 x 1/2 x 1/4                               | Aluminum Oxide  | 220  | Medium  | 11,000      | 40           | 66261058764 |
| 3 x 1/4 x 1/4                               | Aluminum Oxide  | 80   | Hard    | 8,000       | 40           | 66261052276 |
|   | Aluminum Oxide  | 220  | Medium  |             |              | 66261058816 |
|   | Silicon Carbide | 220  | Medium  |             |              | 66261000745 |
| 3 x 1/2 x 1/4                               | Aluminum Oxide  | 220  | Medium  | 8,000       | 20           | 66261054046 |
|   | Silicon Carbide | 220  | Medium  |             |              | 66261054048 |
| 3 x 3/4 x 1/4                               | Aluminum Oxide  | 220  | Medium  | 8,000       | 20           | 66261058769 |
|   | Silicon Carbide | 150  | Medium  |             |              | 66261058773 |
|   | Silicon Carbide | 220  | Medium  |             |              | 66261058771 |
| 6 x 1/2 x 1/2                               | Silicon Carbide | 150  | Medium  | 4,800       | 8            | 66261058779 |
| 6 x 1 x 1/2                                 | Silicon Carbide | 150  | Medium  | 4,800       | 4            | 66261058792 |
|   | Silicon Carbide | 220  | Medium  |             |              | 66261058790 |
| 6 x 1 x 1                                   | Silicon Carbide | 220  | Medium  | 4,800       | 4            | 66261058797 |



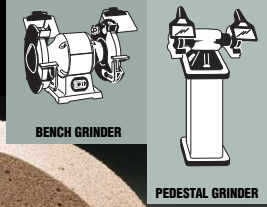
## Mandrel Assemblies for Unified Wheels and Discs on Edge

| FITS WHEEL<br>CENTER HOLE | FOR WHEEL<br>WIDTHS | FOR WHEEL<br>DIAMETER | SHANK<br>DIAMETER | OVERALL<br>LENGTH | WASHER<br>DIAMETER | 3M<br>EQUIVALENT | STD.<br>PKG. | UPC<br>NO.  |
|---------------------------|---------------------|-----------------------|-------------------|-------------------|--------------------|------------------|--------------|-------------|
| 1/8" - 3/16"              | Up to 1/2"          | Up to 2"              | 1/8"              | 1-3/4"            | 7/16"              | 931              | 1            | 66261009849 |
| 3/16"                     | 1/8" - 1/2"         | 1" - 2"               | 1/4"              | 2"                | 7/16"              | 994              | 1            | 66261009852 |
| 1/4" - 5/16"              | Up to 1/2"          | Up to 2"              | 1/4"              | 2"                | 5/8"               | 932              | 1            | 66261015146 |
| 1/4" - 5/16"              | Up to 1"            | Up to 2"              | 1/4"              | 2-1/2"            | 5/8"               | 932              | 1            | 66261059422 |
|                           | Up to 1"            | 2" - 3"               | 1/4"              | 2-1/2"            | 1"                 | 933              | 1            | 66261059421 |
| 3/8"                      | Up to 1/2"          | 2" - 4"               | 1/4"              | 2-1/2"            | 1"                 | 990              | 1            | 66261009851 |
| 1/2"                      | Up to 1"            | 3" - 6"               | 1/4"              | 3-1/8"            | 1-5/8"             | 934              | 1            | 66261009850 |

## Threaded Mandrel for Unified Wheels

| SHANK<br>LENGTH | SHANK<br>DIAMETER | FOR CENTER<br>HOLE | USE WITH<br>UNIFIED WHEEL | 3M<br>EQUIVALENT | STD.<br>PKG. | UPC<br>NO.  |
|-----------------|-------------------|--------------------|---------------------------|------------------|--------------|-------------|
| 1-3/4"          | 1/4"              | 3/16               | 1 X 1 X 3/16              | 948              | 5            | 66261047584 |

# BEAR-TEX POLYBOND WHEELS



## Bear-Tex Polybond Wheels

Polybond wheels are manufactured by bonding abrasive grain into a foamed polyurethane matrix, similar to bonded grinding wheels, yet flexible and conformable.

### Typical Applications

#### Metal Conditioning Wheels

- Heavy-duty deburring applications
- High surface temperature applications
- Replacing wire brushes
- Finishing applications

#### Wood Finishing Wheels

- Wood mold profile sanding



BEAR-TEX SURFACE FINISHING PRODUCTS

| SIZE<br>D X T X H                                  | SPECIFICATION | MAX.<br>RPM | STD.<br>PKG. | BETTER      |
|--|---------------|-------------|--------------|-------------|
|  |               |             |              | UPC NO.     |
| <b>BEAR-TEX METAL CONDITIONING POLYBOND WHEELS</b> |               |             |              |             |
| 6 x 1/2 x 1-1/4                                    | C150-H10BTM   | 3,600       | 8            | 66261010696 |
| 6 x 1 x 1-1/4                                      | A40-H10BTM    | 3,600       | 4            | 66261006117 |
| 6 x 1 x 1-1/4                                      | C80-F7BTM     | 3,600       | 4            | 66261010698 |
| 6 x 1 x 1-1/4                                      | C240-D4BTM    | 2,200       | 4            | 66261010695 |



| SIZE<br>D X T X H                              | SPECIFICATION           | MAX.<br>RPM    | STD.<br>PKG. | BETTER                     |
|--|-------------------------|----------------|--------------|----------------------------|
|  |                         |                |              | UPC NO.                    |
| <b>BEAR-TEX WOOD FINISHING POLYBOND WHEELS</b> |                         |                |              |                            |
| 6 x 2 x 1-1/4                                  | G60-H9BTW<br>C80-F7BTW  | 3,600          | 2            | 66261003833<br>66261009750 |
| 8 x 2 x 1-1/4                                  | C80-F7BTW<br>G100-D7BTW | 2,600          | 2            | 66261004579<br>66261009846 |
| 8 x 2 x 3                                      | G60-F7BTW<br>G120-D7BTW | 2,600<br>1,750 | 2            | 66261017833<br>66261017763 |



### Bear-Tex Polybond Wheel Starting Recommendations

#### Metal Conditioning

| APPLICATION   | SPEC        |
|---|-------------|
| General deburring – nonferrous and coarse finishing | A40-H10BTM  |
| General deburring – nonferrous materials            | C80-F7BTM   |
| All purpose finishing and polishing                 | C240-D4BTM  |
| General deburring and finishing                     | C150-H10BTM |

#### Wood Finishing

| APPLICATION                                | SPEC       |
|--|------------|
| Knife mark removal on solid wood molding   | G60-F7BTW  |
| Intermediate sanding of solid woods        | G60-H9BTW  |
| Finish sanding of solid woods              | C60-H9BTW  |
| Finish sanding of synthetic board products | C80-F7BTW  |
| Sealer sanding                             | G100-D7BTW |
| Final finishing of solid wood molding      | G120-D7BTW |

### Bear-Tex Wood Finishing Polybond Wheel Speed Recommendation Chart

Polybond polyurethane foam wood finishing wheels provide the ideal balance between long life and profile edge holding ability – matched with fast cut rates and uncompromised finishing capability.

| WHEEL DIAMETER | SOFT MAPLE, POPLAR, MAHOGANY, PINE, GUM<br>SUGGESTED SFPM: 1500 – 2000 | OAK, WALNUT, ROCK MAPLE, PECAN, CHERRY<br>SUGGESTED SFPM: 900 – 1400 | SYNTHETIC BOARD PRODUCTS<br>SUGGESTED SFPM: 2000 – 2500 |
|----------------|--|--|---|
| 6"             | 900 – 1250 RPM   | 550 – 850 RPM  | 1300 – 1600 RPM   |
| 8"             | 650 – 900 RPM  | 400 – 600 RPM  | 950 – 1200 RPM  |

Contact your Norton representative for additional non-stock Polybond wheels.



## Bear-Tex Competitive Cross Reference Charts

### Bear-Tex Hand Pads

| NORTON (BEAR-TEX)                   | 3M (SCOTCH-BRITE) | STANDARD ABRASIVES (BRITE-RITE) |
|-------------------------------------|-------------------|---------------------------------|
| 456 Light Duty Cleaning Pad (White) | 7445 (White)      | Brite-Rite Cleaning             |
| 635 Clean & Finish Pad (Gray)       | 6448 (Brown)      |                                 |
| 740 Heavy Duty Pad (Brown)          | 7440 (Tan)        | Brite-Rite Heavy Duty           |
| 746 Metal Blend Pad (Gray)          | 7446 (Gray)       |                                 |
| 747 General Purpose Pad (Maroon)    | 7447 (Maroon)     | Brite-Rite General Purpose      |
| 748 Final Shine Pad (Gray)          | 7448 (Gray)       | Brite-Rite Ultra-Fine S/C       |
| 777 Long Life Pad (Maroon)          |                   |                                 |
| 796 Scouring Pad (Green)            | 96 (Green)        | Brite-Rite Industrial           |

### Bear-Tex Discs

| NORTON (BEAR-TEX)            | 3M (SCOTCH-BRITE) | STANDARD ABRASIVES (BRITE-RITE) |
|------------------------------|-------------------|---------------------------------|
| Bear-Tex High Strength Discs | High Strength     | High Strength                   |
| Rear-Tex Rapid Strip Discs   | Clean & Strip     | Britestrip                      |

### Bear-Tex Surface Blending STE Discs and Belts

| NORTON (BEAR-TEX)             | 3M (SCOTCH-BRITE)                                | STANDARD ABRASIVES (BRITE-RITE)                         |
|-------------------------------|--|---|
| A/O Very Fine (Blue)          | Surface Conditioning A VFN                       | Surface Conditioning FE Very Fine                       |
| A/O Medium (Maroon)           | Surface Conditioning A MED                       | Surface Conditioning FE Maroon                          |
| A/O Coarse (Brown)            | Surface Conditioning A CRS                       | Surface Conditioning FE Coarse                          |
| STE-CS (EXCRS, MED)           | SE Surface Conditioning,<br>SE Purple (CRS, MED) | Surface Conditioning FE,<br>Rapid Cut (CRS, MED)        |
| STE-VS, STE (CRS, MED, VFINE) | Surface Conditioning (CRS, MED, VFINE)           | Surface Conditioning FE,<br>Rapid Cut (CRS, MED, VFINE) |

### Bear-Tex Flap Wheels and Interleaf Flap Wheels

| NORTON (BEAR-TEX)                             | 3M (SCOTCH-BRITE)              | STANDARD ABRASIVES (BRITE-RITE)        |
|---|--------------------------------|--|
| Medium Density Flap Wheel                     | Finishing Flap Brush 5 Density | Buff & Blend Flap Brushes – Medium     |
| Hard Density Flap Wheel                       | Finishing Flap Brush 7 Density | Buff & Blend Flap Brushes – Hard       |
| Flap Wheel with 1/4 Spindle A/O VF            | CFFB-S S FIN                   |  |
| Flap Wheel with 1/4 Spindle A/O Med           | CFFB-S A CRS                   | Mandrel Mounted Flap Brushes – A/O Med |
| Interleaf Flap Wheel with 1/4 Spindle A/O 60  | COMBI-S A 80                   | Mandrel Mounted Combi-wheels – A/O 60  |
| Interleaf Flap Wheel with 1/4 Spindle A/O 80  | COMBI-S A P120                 | Mandrel Mounted Combi-wheels – A/O 80  |
| Interleaf Flap Wheel with 1/4 Spindle A/O 120 | COMBI-S A P180                 | Mandrel Mounted Combi-wheels – A/O 120 |

### Bear-Tex Convolute Wheels

| NORTON (BEAR-TEX)                     | 3M (SCOTCH-BRITE)           | STANDARD ABRASIVES (BRITE-RITE)          |
|---------------------------------------|-----------------------------|--|
| Series 1000 Long Life 7 Density S/C   | SST Deburring 7 Density S/C | Brite-Rite General Purpose 7 Density S/C |
| Series 1000 Long Life 7 Density A/O   | Cut & Polish 7 Density A/O  | Brite-Rite General Purpose 7 Density A/O |
| Series 1000 Long Life 8 Density S/C   | SST Deburring 8 Density S/C | Brite-Rite Deburring 8 Density S/C       |
| Series 1000 Long Life 8 Density A/O   | Cut & Polish 8 Density A/O  | Brite-Rite Deburring 8 Density A/O       |
| Series 1000 Long Life 9 Density S/C F | EXL Deburring               | Brite-Rite Deburring 9 Density           |
| Series 4000                           | EXL, EX2 & EX3 Deburring    | Brite-Rite HP                            |
| Metal Finishing 5AM                   | Metal Finishing 4AM & 5AM   | Metal Finishing                          |
| Clean & Finish/Surface Finishing      | Multi-Finishing             | Brite-Rite Final Finishing               |

### Bear-Tex Unified Wheels

| NORTON (BEAR-TEX)                          | 3M (SCOTCH-BRITE)               | STANDARD ABRASIVES (BRITE-RITE) |
|--|---------------------------------|---------------------------------|
| NEX  | EXL, SST, Cut & Polish Unitized | Brite-Rite Unitized             |
| General Duty Unified and Deburring Unified | General Purpose                 |                                 |

# BEAR-TEX SURFACE FINISHING PRODUCTS

## Introduction

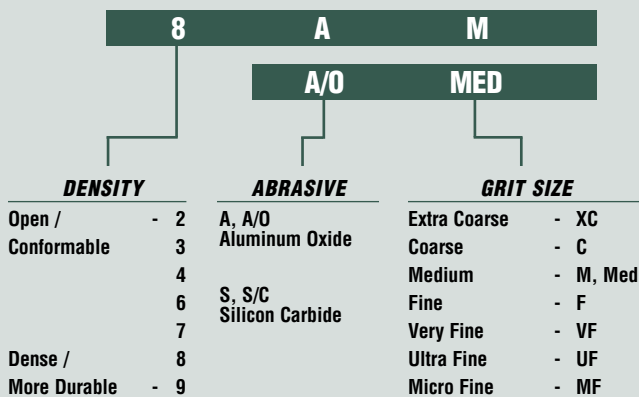
Most Bear-Tex products consist of a non-woven web of nylon fibers impregnated throughout with abrasive grain and bonded with synthetic resins. This design produces a cushioned, three-dimensional material that is extremely pliable and long lasting. The uniform dispersion of abrasive throughout the web provides a continuous supply of new grain as the old grain and fibers wear away during use.

Bear-Tex products, with their open mesh construction, are waterproof, washable, resilient, conformable, non-loading, non-conductive, non-metallic and non-rusting. Bear-Tex wheels are easily pre-formed to conform to special-shaped work pieces.

Since Bear-Tex products are designed for use where stock removal is not required, they begin where other abrasives leave off. The relatively non-aggressive nature of nylon and grit inherent in the Bear-Tex material makes it ideal as a finishing tool. While 60 to 80 grit are considered intermediate sizes in other products, they are considered coarse for Bear-Tex items.

Used wet or dry, Bear-Tex products offer the following advantages: controlled cut (with little or no stock removal) allows for increased productivity, consistent, uniform finish, ability to automate operations, minimized smearing and reduced operator training. These advantages make Bear-Tex products an excellent alternative to bristle brushes, set-up wheels, greaseless compounds and steel wool.

## Product Identification System



## Conventional Finishing Methods Versus Bear-Tex Products

The following chart outlines the advantages achievable when using Bear-Tex products as alternatives to other cleaning, blending, deburring and finishing methods. Bear-Tex products are listed in the sequence of normal preference for the application stated. However, because of the numerous variables, only testing can ensure selection of the most cost-effective product.

| CONVENTIONAL FINISHING METHOD | KEY APPLICATION        | BEAR-TEX PRODUCT AS AN ALTERNATIVE                             | ADVANTAGES OF BEAR-TEX PRODUCT VERSUS ALTERNATE FINISHING METHODS   |
|-------------------------------|------------------------|--|---|
| Bristle Brushes               | Cleaning               | Clean & Finish Wheels<br>Metal Finishing Wheels<br>Flap Wheels | Superior cleaning performance<br>Higher productivity<br>No slurry or compound required<br>More consistent finish<br>Eliminate compound dust and flying bristles |
| Greaseless Compounds          | Finishing              | Flap Wheels<br>Convolute Wheels<br>Unified Wheels              | Reduced maintenance<br>No compound, instant set-up<br>Elimination of compound dust<br>More uniform finish<br>More consistent work rate                          |
| Set-up Wheels                 | Blending/<br>Deburring | Convolute Wheels<br>Unified Wheels                             | No break-in time required<br>More consistent cut<br>More uniform finish<br>Maintains geometry<br>Safer, no flying wheel pieces                                  |
| Steel Wool                    | Cleaning               | Rolls<br>Discs<br>Hand Pads                                    | Faster, longer life<br>Less pressure required<br>Non-rusting, cleaner<br>Safer, no splinters  |

## Abrasives

Silicon carbide and aluminum oxide abrasives are offered. Silicon carbide is sharper, cuts faster, and produces finer scratch patterns on most surfaces. Aluminum oxide is more durable and tends to last longer. It causes less discoloration on aluminum, and is more aggressive on certain applications such as hardened steel parts. Bear-Tex hand pads and rolls are also available in a non-abrasive material.

## Grits

Grit refers to the size of the abrasive grain impregnated into the nylon web. The coarser the grit, the more aggressive the cut, the rougher the finish. The finer the grit, the less aggressive the cut and the resulting surface finish will be finer, if all other conditions are equal.

| GRIT DESIGNATIONS | GRIT SIZE  |
|-------------------|------------|
| Extra Coarse (XC) | 24 - 36    |
| Coarse (C)        | 50 - 80    |
| Medium (M)        | 100 - 150  |
| Fine (F)          | 180 - 220  |
| Very Fine (VF)    | 240 - 360  |
| Super Fine (SF)   | 400        |
| Ultra Fine (UF)   | 600        |
| Micro Fine (MF)   | 800 - 1200 |

## Densities

The product "density" refers to the number of fibers which have been compressed into the nylon web material. Under identical conditions, harder density wheels cut faster, last longer and produce finer finishes than softer density wheels. Softer density wheels offer greater conformability and have less tendency to load or burn the work piece.

## Fiber Sizing

Several nylon fiber sizes are used in the manufacture of Bear-Tex web material because the fiber size is a significant factor in the coating process, as each produces distinct cutting characteristics.

## Bonding Agents

Waterproof resins are used in the manufacture of Bear-Tex web material to bond the nylon fibers together and to firmly anchor the abrasive grains throughout the web.

# BEAR-TEX SURFACE FINISHING PRODUCTS

## Getting the Most Out of Bear-Tex Wheels

Maximum wheel life and best surface conditioning results can be achieved by closely adhering to the following recommendations.

### 1) Wheel Direction

Convolute wheels and interleaf flap wheels must always run in the direction indicated by the arrow printed on the side of each wheel. Conventional flap wheels and unified wheels can be run in either direction.

### 2) Wheel Speed

Wheel speed is an important factor in that it affects product finish, rate of cut, and wheel life. In general, fast wheel speeds give harder action and a finer finish; whereas, slower speeds give a softer action and a coarser finish for the same wheel density.

The following are recommended operating speeds for the most common applications.

| APPLICATION                                  | RECOMMENDED SPEED |
|--|-------------------|
| Cleaning and upgrading of surface conditions | 2200 to 6000 SFPM |
| Cut-buffing on metal surfaces                | 6500 to 8000 SFPM |
| Deburring                                    | 5500 to 8000 SFPM |
| Decorative finishing                         | 500 to 3000 SFPM  |
| Imparting decorative finishes                | 900 to 3000 SFPM  |
| Oxide removal                                | 3500 to 6500 SFPM |

TESTING MAY SHOW THAT A SLOWER OR FASTER SPEED IS DESIRABLE FOR SPECIFIC OPERATIONS. NEVER EXCEED THE MAXIMUM RPM RATING OF THE WHEEL.

### 3) Pressure

Light to medium pressure is recommended for most operations. Flap wheels require much lighter pressure to perform properly than other Bear-Tex wheels; unified wheels can withstand much higher pressures in order to perform deburring jobs. In all cases, avoid excessive pressure which may result in wheel deformation and damage to the work surface.

### 4) Feed Speed

Low feed speed reduces the number of workpieces completed, while producing a shorter scratch pattern. Slow feed speed allows for longer dwell time and permits more work to be done on each piece. Conversely, a fast feed speed increases the number of workpieces completed, while producing a longer scratch pattern.

### 5) Oscillation

Oscillation may be used to break up scratch lines and produce a more uniform finish. Additionally, an increase in cut may be experienced. A general starting point for oscillation is 3/8" amplitude at 200 cycles per minute.

### 6) Lubricants

Lubricants, such as water, water soluble oil and straight oil, will decrease the heat generated while running, improve the luster, and reduce the surface finish. The higher the viscosity of the lubricant, the lower the surface finish (RMS value) produced.

## Factors in Wheel Choice

This chart provides a relative comparison of other Bear-Tex wheel variables. It can serve as a useful guide in choosing the most suitable product for a given application. However, as many other

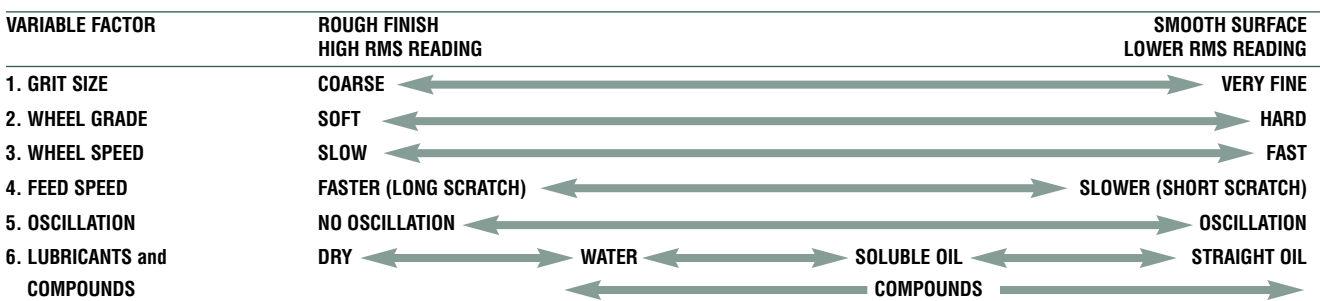
factors affect wheel performance, this chart can only be general in nature. The most cost-effective results can always be obtained by wheel testing on the application.



\* ON STEEL SURFACES, SILICON CARBIDE WHEELS WILL PRODUCE A BRIGHTER FINISH THAN ALUMINUM OXIDE WHEELS.

## Surface Finish Variables

Changes in any one of many factors can affect the surface finish on the work piece. This chart shows the effect on surface finish by changes in single factors of product specifications. Arrows have been used to signify the trend direction. The arrow length does not signify that the effect of each factor is equal.





# SHARPENING STONES



Since 1823, Norton has been the leading supplier of benchstones, files, slips and rubbing bricks. Our comprehensive line of sharpening and finishing stones delivers the superior performance you want.

## Typical Applications

- Deburring
- Dimensioning
- Sharpening
- Honing
- Rubbing



## SPECcheck

### Application Guide and Page Index

#### Benchstones – pages 128-132

| APPLICATION    | COARSE/MEDIUM SHARPENING                  | FINE STONING                        | FINISH HONING                          |
|----------------|---|-------------------------------------|--|
| Chip Breakers  | –   | Fine Crystolon Benchstone           | –                                      |
| Draw Knives    | Coarse Crystolon Benchstone               | Fine India Benchstone               | Hard Arkansas Benchstone               |
| Scrapers       | Coarse Crystolon Benchstone               | Fine India Benchstone               | Hard Arkansas Benchstone               |
| Chisels (Wood) | Coarse Crystolon Benchstone<br>Waterstone | Fine India Benchstone<br>Waterstone | Hard Arkansas Benchstone<br>Waterstone |
| Plane Blades   | Coarse Crystolon Benchstone<br>Waterstone | Fine India Benchstone<br>Waterstone | Hard Arkansas Benchstone<br>Waterstone |

#### Slips – pages 141

| APPLICATION    | COARSE/MEDIUM SHARPENING     | FINE STONING                          |
|----------------|------------------------------|---------------------------------------|
| Milling Cutter | Medium India Round Edge Slip | Fine India Round Edge Slip            |
| Carbide Tools  |                              | Fine Crystolon Slip for Carbide Tools |

#### Rubbing Bricks – page 142

| APPLICATION           | RUBBING BRICK                  |
|-----------------------|--------------------------------|
| Castings (scouring)   | Crystolon Plain Rubbing Brick  |
| Mold Marks (removing) | Crystolon Fluted Rubbing Brick |

#### Abrasive Files – pages 134-138

| APPLICATION      | COARSE/MEDIUM SHARPENING           | FINE STONING                       | FINISH HONING                 |
|------------------|------------------------------------|------------------------------------|-------------------------------|
| Form Cutter      | Coarse or Medium India Knife Blade | Fine India Knife Blade             | –                             |
| Keyways          | Coarse or Medium India Square File | Fine India Square File             | –                             |
| Lathe Bits       | Medium India Square File           | Fine India Square File             | –                             |
| Radius Tools     | Medium India Round File            | Fine India Round File              | –                             |
| Reamers          | Medium India Reamer Stone+         | Fine India Reamer Stone+           | –                             |
| Router Bits      | –                                  | Fine India Square File             | –                             |
| Saws             | Coarse India Triangular File       | Fine India Tapered Triangular File | –                             |
| Center Punches   | Medium India Triangular File       | Fine India Triangular File         | –                             |
| Magnetic Chucks  | Medium Crystolon Round File        | Fine India Round File              | –                             |
| Molding Cutters* | Coarse or Medium India File        | Fine India File                    | –                             |
| Countersinks     | Coarse India Triangular File       | Fine India Triangular File         | Hard Arkansas Triangular File |
| Tap Threads      | –                                  | Fine India Triangular File         | –                             |

\* SELECT SHAPE TO FIT CONFIGURATION  
+ REAMER STONES ARE FOUND ON PAGE 140

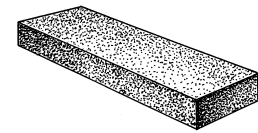
See the new “Norton Professional Sharpening Products and Dressing Sticks Catalog #200” to view the complete list and descriptions of our many sharpening products.

## Single Grit Abrasive Benchstones

| Single Grit Abrasive Benchstones   |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Crystolon – Premium silicon carbide abrasive</li> </ul>   | <ul style="list-style-type: none"> <li>• Fast cutting stone; ideal for general sharpening of cutting tools</li> <li>• Fast stock removal for quick edge shaping with minimal loading</li> </ul>                           |
| <ul style="list-style-type: none"> <li>• India – Smooth cutting aluminum oxide abrasive; our patent for a fine finish</li> </ul>                         | <ul style="list-style-type: none"> <li>• Long lasting cutting edge</li> <li>• The choice of artisans, craftsmen and mechanics</li> <li>• Ideal for clean deburring, generating keen edges and quality finishes</li> </ul> |
| <ul style="list-style-type: none"> <li>• Arkansas – Natural premium Novaculite quarried in Arkansas and available in Soft or Hard Translucent</li> </ul> | <ul style="list-style-type: none"> <li>• Sharpest possible razor edges</li> <li>• Near mirror finishes</li> <li>• Use for finer honing after India stone</li> </ul>   |



| SIZE<br>L X W X H                              | QTY/<br>PKG | QTY/<br>CASE | SPECIFICATION            | BETTER                  |   |
|--|-------------|--------------|--------------------------|-------------------------|---|
|  |             |              |                          | PRODUCT NO.             | UPC NO.                                   |
| <b>CRYSTOLON (SILICON CARBIDE) BENCHSTONES</b> |             |              |                          |                         |   |
| <b>SINGLE GRIT</b>                             |             |              |                          |                         |   |
| 4 x 1 x 1/4                                    | 1           | 5            | Coarse<br>Medium<br>Fine | CJB14<br>MJB14<br>FJB14 | 61463685470<br>61463685465<br>61463685460 |
| 4 x 1 x 1/2                                    | 1           | 5            | Coarse<br>Medium<br>Fine | CJB24<br>MJB24<br>FJB24 | 61463685485<br>61463685480<br>61463685475 |
| 5 x 2 x 5/8                                    | 1           | 5            | Medium<br>Fine           | MJB35<br>FJB35          | 61463685495<br>61463685490                |
| 6 x 2 x 1                                      | 1           | 5            | Coarse<br>Medium<br>Fine | CJB6<br>MJB6<br>FJB6    | 61463685510<br>61463685505<br>61463685500 |
| 8 x 2 x 1                                      | 1           | 5            | Coarse<br>Medium<br>Fine | CJB8<br>MJB8<br>FJB8    | 61463685525<br>61463685520<br>61463685515 |



|   |   |   |                          |                      |   |
|---|---|---|--------------------------|----------------------|---|
| <b>INDIA (ALUMINUM OXIDE) BENCHSTONES</b> |   |   |                          |                      |   |
| <b>SINGLE GRIT</b>                        |   |   |                          |                      |   |
| 4 x 1 x 1/4                               | 1 | 5 | Coarse<br>Medium<br>Fine | CB14<br>MB14<br>FB14 | 61463685580<br>61463685575<br>61463685570 |
| 4 x 1 x 1/2                               | 1 | 5 | Coarse<br>Medium<br>Fine | CB24<br>MB24<br>FB24 | 61463685595<br>61463685590<br>61463685585 |
| 5 x 2 x 5/8                               | 1 | 5 | Medium<br>Fine           | MB35<br>FB35         | 61463685605<br>61463685600                |
| 6 x 2 x 1                                 | 1 | 5 | Coarse<br>Medium<br>Fine | CB6<br>MB6<br>FB6    | 61463685620<br>61463685615<br>61463685610 |
| 8 x 2 x 1                                 | 1 | 5 | Coarse<br>Medium<br>Fine | CB8<br>MB8<br>FB8    | 61463685635<br>61463685630<br>61463685625 |

## TECHtip

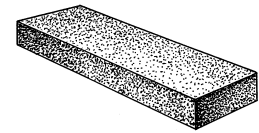
- All oil stones are porous in nature. Oil is required to keep the pores open and working efficiently.
- Use Norton oil to optimize the performance of Crystolon, India and Arkansas stones.



It is the user's responsibility to refer to and comply with ANSI B7.1

## Single Grit Abrasive Benchstones (CONTINUED)

| SIZE<br>L X W X H                            | QTY/<br>PKG | QTY/<br>CASE | SPECIFICATION | BETTER         |             |
|--|-------------|--------------|---------------|----------------|-------------|
|  |             |              |               | PRODUCT<br>NO. | UPC NO.     |
| <b>ARKANSAS BENCHSTONES</b>                  |             |              |               |                |             |
| <b>SINGLE GRIT HARD TRANSLUCENT ARKANSAS</b> |             |              |               |                |             |
| 4 x 2 x 3/4-1                                | 1           | 5            | Ultra Fine    | HB4            | 61463685655 |
| 6 x 2 x 3/4-1                                | 1           | 5            | Ultra Fine    | HB6            | 61463685660 |
| 8 x 2 x 3/4-1                                | 1           | 5            | Ultra Fine    | HB8            | 61463685665 |
| <b>SINGLE GRIT SOFT ARKANSAS</b>             |             |              |               |                |             |
| 3 x 1 x 3/8                                  | 5           | 10           | Extra Fine    | SB13           | 61463687560 |
| 4 x 2 x 3/4-1                                | 1           | 5            | Extra Fine    | SB4            | 61463685670 |
| 6 x 2 x 3/4-1                                | 1           | 5            | Extra Fine    | SB6            | 61463685675 |
| 8 x 2 x 3/4-1                                | 1           | 5            | Extra Fine    | SB8            | 61463685680 |



## Precision Benchstones

### Precision Benchstones

#### FEATURES AND APPLICATIONS

**Jewelers' Benchstones** – These stones are excellent for sharpening the fine, precision cutting tools used by jewelers, engravers and artisans.

**Penknife Precision Benchstones** – Ideal for sharpening cutting tools, laboratory blades, surgical instruments, engravers' and die makers' tools, and pocket knives to the keenest edge.

| SIZE<br>L X W X H                     | QTY/<br>PKG | QTY/<br>CASE | SPECIFICATION                          | BETTER         |             |
|---------------------------------------|-------------|--------------|--|----------------|-------------|
|                                       |             |              |  | PRODUCT<br>NO. | UPC NO.     |
| <b>JEWELERS' BENCHSTONES</b>          |             |              |  |                |             |
| 4 x 2 x 3/8                           | 1           | 5            | Ultra Fine – Hard Translucent Arkansas | HB24           | 61463687525 |
| 6 x 2 x 3/8                           | 1           | 5            | Ultra Fine – Hard Translucent Arkansas | HB26           | 61463687530 |
| <b>PENKNIFE PRECISION BENCHSTONES</b> |             |              |  |                |             |
| 3 x 1 x 3/8                           | 5           | 10           | Ultra Fine – Hard Translucent Arkansas | HB13           | 61463687550 |
| 4 x 1 x 3/8                           | 5           | 10           | Extra Fine – Soft Arkansas             | SB14           | 61463687565 |
|                                       |             |              | Ultra Fine – Hard Translucent Arkansas | HB14           | 61463687555 |



### Benchstone Performance Attributes

|                      | FAST CUT        | SHARPENING |                  | HONING        | SHARPEST EDGE      |                        |
|----------------------|-----------------|------------|------------------|---------------|--------------------|------------------------|
| <b>Grit Size</b>     | Coarse          | Medium     | Fine             | Extra Fine    |                    | Ultra Fine             |
| <b>Abrasive</b>      | Diamond         | Crystolon  | India            | Soft Arkansas | Waterstone         | Hard Arkansas          |
| <b>Product/Color</b> | Silver Metallic | Grey       | Orange/<br>Brown | Milky White   | Orange to<br>White | Grey to<br>Translucent |

## Combination Grit Abrasive Benchstones

| Combination Grit Abrasive Benchstones |  |
|---------------------------------------|--|
| <b>FEATURES AND APPLICATIONS</b>      |  |
| <b>Crystolon Combination</b>          | Coarse and fine grit sharp-cutting silicon carbide abrasive surfaces for general sharpening (to moderate tolerances) when the speed of sharpening is more important than the fineness of the cutting edges. Gray in color. |
| <b>India Combination</b>              | Coarse and fine grit aluminum oxide abrasive surfaces produce strong, keen, long-lasting edges on quality tools. Orange/brown in color.  |
| <b>Crystolon/India Combination</b>    | Fast-sharpening, medium grit silicon carbide (Crystolon) and fine aluminum oxide (India) abrasive surfaces for keen, long-lasting edges on quality tools. Crystolon side is dark gray in color, India side is orange.      |
| <b>Giant Combination Stones</b>       | 11-1/2" and 12" bench oil stones are used to sharpen large edge tools with long sweeping strokes.  |



| SIZE<br>L X W X H                              | QTY/<br>PKG | QTY/<br>CASE | SPECIFICATION                    | BETTER         |             |
|--|-------------|--------------|----------------------------------|----------------|-------------|
|  |             |              |                                  | PRODUCT<br>NO. | UPC NO.     |
| <b>CRYSTOLON (SILICON CARBIDE) BENCHSTONES</b> |             |              |                                  |                |             |
| <b>COMBINATION GRIT</b>                        |             |              |                                  |                |             |
| 4 x 1 Round                                    | 1           | 5            | Coarse/Fine                      | JB64           | 61463685435 |
| 4 x 1-3/4 x 5/8                                | 1           | 5            | Coarse/Fine                      | JB134          | 61463685440 |
| 5 x 2 x 3/4                                    | 1           | 5            | Coarse/Fine                      | JB45           | 61463685445 |
| 6 x 2 x 1                                      | 1           | 5            | Coarse/Fine with Anniversary Box | JB6            | 61463685450 |
| 8 x 2 x 1                                      | 1           | 5            | Coarse/Fine with Anniversary Box | JB8            | 61463685455 |
| 11-1/2 x 2-1/2 x 1                             | 1           | 2            | Coarse/Fine                      | JUM3           | 61463685840 |
| 12 x 2-1/2 x 1-1/2                             | 1           | 2            | Coarse/Fine                      | JUM4           | 61463685855 |



|   |   |   |                                  |       |             |
|---|---|---|----------------------------------|-------|-------------|
| <b>INDIA (ALUMINUM OXIDE) BENCHSTONES</b> |   |   |                                  |       |             |
| <b>COMBINATION GRIT</b>                   |   |   |                                  |       |             |
| 4 x 1 Round                               | 1 | 5 | Coarse/Fine                      | IB64  | 61463685545 |
| 4 x 1-3/4 x 5/8                           | 1 | 5 | Coarse/Fine                      | IB134 | 61463685550 |
| 5 x 2 x 3/4                               | 1 | 5 | Coarse/Fine                      | IB45  | 61463685555 |
| 6 x 2 x 1                                 | 1 | 5 | Coarse/Fine with Anniversary Box | IB6   | 61463685560 |
| 8 x 2 x 1                                 | 1 | 5 | Coarse/Fine with Anniversary Box | IB8   | 61463685565 |
| 11-1/2 x 2-1/2 x 1                        | 1 | 2 | Coarse/Fine                      | IM2   | 61463685851 |

|                                    |   |   |             |      |             |
|------------------------------------|---|---|-------------|------|-------------|
| <b>CRYSTOLON/INDIA BENCHSTONES</b> |   |   |             |      |             |
| <b>COMBINATION GRIT</b>            |   |   |             |      |             |
| 6 x 2 x 1                          | 1 | 5 | Medium/Fine | IC6  | 61463685643 |
| 11-1/2 x 2 x 1                     | 1 | 2 | Medium/Fine | IC11 | 61463687239 |

|                                    |   |   |               |  |             |
|------------------------------------|---|---|---------------|--|-------------|
| <b>OIL STONE INSTRUCTIONAL DVD</b> |   |   |               |  |             |
| N/A                                | 1 | 1 | Oil Stone DVD |  | 07660787945 |

## TECHtip

### Instruction DVD Offering

Ideal for sales training and end-user self-study. Learn to efficiently use these sharpening products to maintain tools at peak performance and prolong their life – to make all your sharpening, honing, etc applications easier.

Waterstone 07660787944

Oil Stone 07660787945

See the new “Norton Professional Sharpening Products and Dressing Sticks Catalog #200” to view the complete list and descriptions of our many sharpening products.

# WATERSTONES

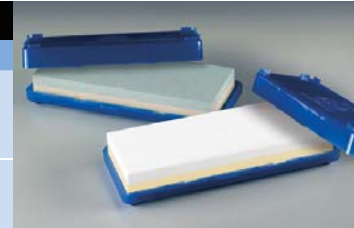


SHARPENING STONES

Waterstones are synthetic stones designed to be softer than oil stones. These softer grade stones are used with water as the lubricant (versus oil) to develop a fast cutting slurry. The Norton Waterstone system was designed in a carefully planned sequence to create sharpening efficiency. You get the level of abrasiveness you need at each stage, without wasting time trying to sharpen your tools on a grit that is too fine, too soon.

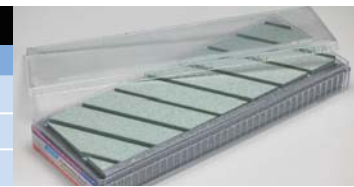


| Waterstones – Produce superior edges for planes and straight chisels  |  |
|---|--|
| FEATURES  | BENEFITS   |
| <ul style="list-style-type: none"> <li>• System of four synthetic “Japanese-type” stones designed to work together, with water</li> <li>• Softer than traditional oilstones – providing lapping action</li> </ul> | <ul style="list-style-type: none"> <li>• Fast sharpening, fine finish</li> <li>• Superb results with low pressure</li> </ul> |

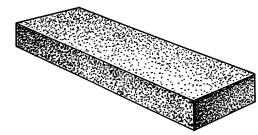


| Prep Stone   |   |
|--|---|
| FEATURES   | BENEFITS  |
| <ul style="list-style-type: none"> <li>• This synthetic stone raises the slurry</li> </ul> | <ul style="list-style-type: none"> <li>• Speeds up the slurry-making process needed to cut and polish with waterstones</li> </ul> |

| Flattening Stone  |   |
|---|---|
| FEATURES  | BENEFITS  |
| <ul style="list-style-type: none"> <li>• Coarse grit silicon carbide stone</li> <li>• Diagonal grooves</li> <li>• Superbly flat with hard bond</li> </ul> | <ul style="list-style-type: none"> <li>• Promotes maximum cutting for all grit sizes of waterstones</li> <li>• Provide swarf removal</li> <li>• Produces extremely flat results on all waterstones</li> </ul> |



| SIZE<br>L X W X H                     | QTY/<br>PKG | QTY/<br>CASE | GRIT/ABRASIVE                        | BETTER      |  |
|---------------------------------------|-------------|--------------|--------------------------------------|-------------|--|
|                                       |             |              |                                      | UPC NO.     |  |
| <b>WATERSTONES</b>                    |             |              |                                      |             |  |
| <b>SINGLE GRIT (BULK-PACKED)</b>      |             |              |                                      |             |  |
| 8 x 3 x 1                             | 1           | 5            | 220                                  | 61463689505 |  |
|                                       |             |              | 1000                                 | 61463689506 |  |
|                                       |             |              | 4000                                 | 61463689507 |  |
|                                       |             |              | 8000                                 | 61463689508 |  |
| Set                                   | 1           | 1            | 4 Stones: 220, 1000, 4000, 8000 Grit | 61463624334 |  |
| <b>COMBINATION GRIT (BULK-PACKED)</b> |             |              |                                      |             |  |
| 8 x 3 x 1                             | 1           | 5            | 220 / 1000                           | 61463624335 |  |
|                                       |             |              | 1000 / 4000                          | 61463624450 |  |
|                                       |             |              | 1000 / 8000                          | 69936655039 |  |
|                                       |             |              | 4000 / 8000                          | 61463624336 |  |
| <b>PREP STONE</b>                     |             |              |                                      |             |  |
| 20mm x 20mm x 3"                      | 1           | 5            | Aluminum Oxide                       | 66243439361 |  |
| <b>FLATTENING STONE</b>               |             |              |                                      |             |  |
| 9 x 3 x 3/4                           | 1           | 5            | Silicon Carbide                      | 69936687444 |  |
| <b>WATERSTONE INSTRUCTIONAL DVD</b>   |             |              |                                      |             |  |
| N/A                                   | 1           | 1            | Waterstone DVD                       | 07660787944 |  |



## TECHtip

- Maximizing Waterstone Performance**
- Wet waterstone
  - Rub evenly with the prep stone to create slurry
  - Evening off the high spots will make for less-frequent flattening of the waterstones
  - Waterstones wear concave with use; periodically flatten with flattening stone

# DIAMOND BENCHSTONES

SHARPENING STONES

Diamonds are the hardest known sharpening material.

### Typical Applications

- Initial sharpening procedures
- Rapid stock removal
- Sharpening any hard material – including carbide
- Tool and knife repair
- Deburring, filing and abrading



## Diamond Benchstones – The fastest cutting stone

### FEATURES

- Single, solid, monocrystalline diamonds (use with water)
- Diamond abrasive with a nickel bond on a core of solid steel

### BENEFITS

- Fastest cut
- Longest life
- Wear resistant, unbreakable
- Will not groove, cup, or hollow
- Holds tolerance of  $\pm .002"$

| SIZE<br>L X W X H | QTY/<br>PKG | QTY/<br>CASE | GRIT | BETTER      |  |
|-------------------|-------------|--------------|------|-------------|--|
|                   |             |              |      | UPC NO.     |  |
| 6 x 2 x 1/4       | 1           | 5            | 325  | 61463690633 |  |
|                   |             |              | 600  | 61463690634 |  |
| 8 x 2 x 1/4       | 1           | 5            | 220  | 61463690636 |  |
|                   |             |              | 600  | 61463690638 |  |
|                   |             |              | 1200 | 61463690639 |  |

## TECHtip

The recommended lubricant for diamond benchstones is water, although oil may be used

# SHARPENING STONE OIL

Norton Oil is a highly refined lubricating oil specifically formulated for sharpening stone use, but equally ideal for all lubricating jobs. It will not load or “gum-up” sharpening stones. Meets U.S. Pharmacopoeia standards for mineral oil purity; it may be used around food preparation operations.

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| SIZE<br>L X W X H | QTY/<br>PKG | QTY/<br>CASE | SPEC | BETTER      |             |
|-------------------|-------------|--------------|------|-------------|-------------|
|                   |             |              |      | PRODUCT NO. | UPC NO.     |
| 4-1/2 oz.         | 1           | 20           | Oil  | XB1         | 61463687760 |
| 1 Pint            | 1           | 20           | Oil  | XB5         | 61463687770 |
| 1 Quart           | 1           | 5            | Oil  | XB2         | 61463687775 |

## TECHtip

Use Norton oil to optimize the performance of Crystolon, India and Arkansas stones.

**!** While sharpening knives, blades and tools, be careful to keep fingers away from sharp edges.

# SHARPENING SYSTEMS

The base of the tri-stone system acts as an oil reservoir permitting continuous submersion of the unused stones, keeping them clean and saturated, ready for immediate use and years of utility.

Rotating the handle brings the desired stone into position for sharpening.

All offer a range of replacement stones to replace worn or damaged stones, or substitute different specifications to customize the system.



## Tri-Stone Sharpening Systems

### IM100 3-in-1 Tool and Knife Sharpening System – Small straight-edged tool sharpening

#### FEATURES AND BENEFITS

The smallest system, designed for general sharpening, the IM100 is an affordable choice for small knives, cutlery, and woodworking tools. 4-1/2 oz. of lubricating oil and a reservoir unit completes the system. For general sharpening – coarse Crystolon quickly restores worn edges; medium Crystolon produces the average edge needed for most tools; and fine India stone hones for a sharper edge.



### IM200 Professional Sharpening System – Versatile, multi-size tool and knife sharpener

#### FEATURES AND BENEFITS

The smaller 8" stone IM200 system provides the same quality sharpening features as the IM313 – making it the perfect choice for small restaurants and home DIYers. The system contains 4-1/2 oz of lubricating oil, plastic angle guide, and the reservoir unit. For general sharpening – coarse Crystolon quickly restores worn edges; medium Crystolon produces the average edge needed for most tools; and fine India stone hones for a sharper edge.



### IM313 Multi-Oilstone Sharpening System – Large straight-edged tool sharpening

#### FEATURES AND BENEFITS

Considered by many to be the ultimate sharpening system, the IM313 contain three oil stones. The 11-1/2" stone length permits long, sweeping strokes for faster and more precise sharpening and honing of all large, wider straight-edged tools. The heavy base has a non-skid bottom. A pint of Norton oil, plastic angle guide, and reservoir unit are included with each IM313 system. For general sharpening – coarse Crystolon quickly restores worn edges; medium Crystolon produces the average edge needed for most tools; and fine India stone hones for a sharper edge.



## Portable Sharpening Systems

### IM83 Portable Sharpening Stone Systems

#### FEATURES AND BENEFITS

These unique "tool-box" portable systems allow you to sharpen tools wherever needed. Sturdy metal latches secure the cover and storage case – where small tools can be housed. The IM83 is designed like all our other sharpening systems; the stones can be replaced to customize the unit to individual requirements. These systems are ideal for industrial toolrooms, restaurants, knife manufacturers as well as home DIYers and sportsmen.

Both IM83 systems include 3 sharpening stones, an instructional DVD in the base, and a reservoir carrying case. The oil stone system also includes 4-1/2 oz. oil.

#### IM83-W Portable Waterstone System – Tool Repair to Fine Finishes

This portable sharpening system is equipped with a carefully engineered sequence of waterstones for clean, efficient sharpening. The waterstones can easily be maintained with the flattening stone provided.

#### IM83-O Portable Oil Stone System – Straight-Edged Tool Sharpening

The coarse silicon carbide (Crystolon) stone in this system repairs damaged edges quickly; the medium aluminum oxide (India) stone imparts a durable, smooth cutting edge; and the fine aluminum oxide (India) stone provides the final sharpening and polishing stage.



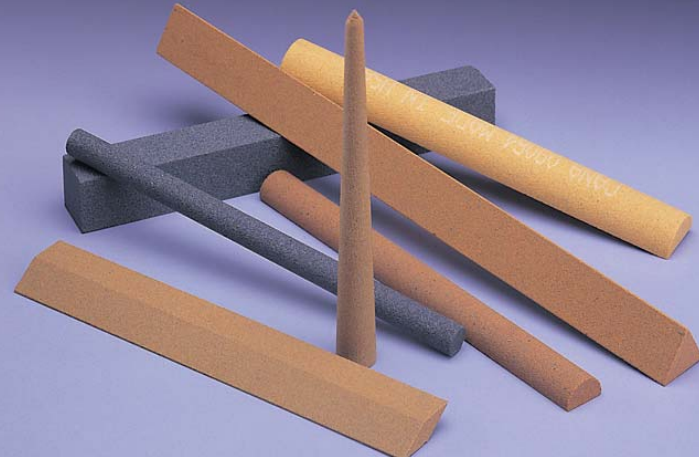
# SHARPENING SYSTEMS

## Sharpening Systems (CONTINUED)

| SIZE<br>L X W X H                                    | QTY/<br>PKG | QTY/<br>CASE | SPECIFICATION   | BETTER         |                         |
|--|-------------|--------------|---|----------------|-------------------------|
|  |             |              |   | PRODUCT<br>NO. | UPC NO.                 |
| <b>IM100 3-IN-1 TOOL AND KNIFE SHARPENING SYSTEM</b> |             |              |   |                |                         |
| 6 x 2 x 1/2  | 1           | 5            | 1 Coarse Crystolon, 1 Medium Crystolon,<br>1 Fine India, 4-1/2 oz Oil, Reservoir Unit   | IM100          | 61463685356             |
| <b>IM200 PROFESSIONAL SHARPENING SYSTEM</b>          |             |              |   |                |                         |
| 8 x 2 x 3/8  | 1           | 1            | 1 Coarse Crystolon, 1 Medium Crystolon,<br>1 Fine India, 4-1/2 oz Oil, Angle Guide,<br>Reservoir Unit                               | IM200          | 61463691260             |
| <b>IM313 MULTI-OILSTONE SHARPENING SYSTEM</b>        |             |              |   |                |                         |
| 11-1/2 x 2-1/2 x 1/2                                 | 1           | 1            | 1 Coarse Crystolon, 1 Medium Crystolon,<br>1 Fine India, 1 Pint Oil, Angle Guide, Reservoir Unit                                    | IM313          | 61463685960             |
| <b>IM83 PORTABLE SYSTEMS</b>                         |             |              |   |                |                         |
| 8 x 3 x 1  | 1           | 1            | Waterstones: 1 ea of 1000, 4000, 8000 Grit,<br>1 Flattening Stone, Instructional DVD in Base,<br>Reservoir Carrying Case            | IM83-W         | 66243582825 <b>new!</b> |
| 8 x 3 x 1/2  | 1           | 1            | Oilstones: 1 Coarse Crystolon, 1 Medium India,<br>1 Fine India, 4-1/2 oz Oil,<br>Instructional DVD in Base, Reservoir Carrying Case | IM83-O         | 66243582823 <b>new!</b> |

## ABRASIVE FILES

Norton abrasive files hold their shape while imparting the finest, most uniform finish on precision machine parts and in tool and die making. Abrasive files are ideal for any deburring, chamfering or radiusing job, or for filing delicate parts. Select the file shape that matches the contour of the surface being stoned.



### Abrasive Files

#### FEATURES AND APPLICATIONS

**Crystolon Files** – Fast-acting silicon carbide products, Crystolon files are designed for use where moderate tolerances are acceptable, and speed of sharpening is more important than fineness.

**India Files** – India files are ideal when close tolerance, and strong, keen, long lasting edges are needed.

**Hard Translucent Arkansas Files** – Hard Arkansas has an ultra fine grit that produces the finest edge possible while maintaining tolerances unequalled by any other abrasive file. It will also produce a highly polished finish.

See the new “Norton Professional Sharpening Products and Dressing Sticks Catalog #200” to view the complete list and descriptions of our many sharpening products.



## Square Abrasive Files

### FEATURES AND APPLICATIONS

Square File applications range from dimensioning keyways to maintain fit, stoning faces on router bits, touching-up edges of reamer teeth, and lapping/honing to close tolerances to produce the finest edge on precision instruments, die work and delicate tools.



## Triangular Abrasive Files

### FEATURES AND APPLICATIONS

Triangular Files are used for a variety of deburring, chamfering and radiusing applications including cleaning tap threads, stoning cutting surfaces of milling cutters, lapping honing tools, dies and molds, and putting precision points on center punches.

The India line also offers Tapered Triangles...used by mechanics and tool and die makers to impart the correct edge in the least time.



| SIZE<br>L X W X H                          | QTY/<br>PKG | QTY/<br>CASE | SPEC       | BETTER         |             |
|--|-------------|--------------|------------|----------------|-------------|
|  |             |              |            | PRODUCT<br>NO. | UPC NO.     |
| <b>SQUARE ABRASIVE FILES (BULK-PACKED)</b> |             |              |            |                |             |
| <b>CRYSTOLON (SILICON CARBIDE)</b>         |             |              |            |                |             |
| 4 x 3/8                                    | 5           | 20           | Fine       | FJF34          | 61463686030 |
| 4 x 1/2                                    | 5           | 20           | Medium     | MJF44          | 61463686045 |
|  |             |              | Fine       | FJF44          | 61463686040 |
| 6 x 1                                      | 5           | 20           | Medium     | MJF76          | 61463625039 |
| <b>HARD TRANSLUCENT ARKANSAS</b>           |             |              |            |                |             |
| 3 x 1/4                                    | 5           | 10           | Ultra Fine | HF13           | 61463686590 |
| 3 x 3/8                                    | 5           | 10           | Ultra Fine | HF33           | 61463686595 |
| 3 x 1/2                                    | 5           | 10           | Ultra Fine | HF43           | 61463686600 |
| <b>INDIA (ALUMINUM OXIDE)</b>              |             |              |            |                |             |
| 4 x 1/4                                    | 5           | 20           | Coarse     | CF14           | 61463686075 |
|  |             |              | Medium     | MF14           | 61463686070 |
|  |             |              | Fine       | FF14           | 61463686065 |
| 4 x 3/8                                    | 5           | 20           | Coarse     | CF34           | 61463686090 |
|  |             |              | Medium     | MF34           | 61463686085 |
|  |             |              | Fine       | FF34           | 61463686080 |
| 4 x 1/2                                    | 5           | 20           | Coarse     | CF44           | 61463686105 |
|  |             |              | Medium     | MF44           | 61463686100 |
|  |             |              | Fine       | FF44           | 61463686095 |
| 6 x 1/2                                    | 5           | 20           | Coarse     | CF46           | 61463686120 |
|  |             |              | Medium     | MF46           | 61463686115 |
|  |             |              | Fine       | FF46           | 61463686110 |
| 6 x 5/8                                    | 5           | 20           | Medium     | MF56           | 61463686130 |
|  |             |              | Fine       | FF56           | 61463686125 |
| 6 x 3/4                                    | 5           | 20           | Coarse     | CF66           | 61463686150 |
|  |             |              | Medium     | MF66           | 61463686145 |
|  |             |              | Fine       | FF66           | 61463686140 |
| 6 x 1                                      | 5           | 20           | Coarse     | CF76           | 61463686165 |
|  |             |              | Medium     | MF76           | 61463686160 |
|  |             |              | Fine       | FF76           | 61463686155 |

| SIZE<br>L X W X H                               | QTY/<br>PKG | QTY/<br>CASE | SPEC       | BETTER         |             |
|---|-------------|--------------|------------|----------------|-------------|
|   |             |              |            | PRODUCT<br>NO. | UPC NO.     |
| <b>TRIANGULAR ABRASIVE FILES (BULK-PACKED)</b>  |             |              |            |                |             |
| <b>CRYSTOLON (SILICON CARBIDE)</b>              |             |              |            |                |             |
| 4 x 1/4   | 5           | 20           | Fine       | FJF114         | 61463686185 |
| 4 x 1/2   | 5           | 20           | Fine       | FJF144         | 61463686205 |
| <b>INDIA (ALUMINUM OXIDE)</b>                   |             |              |            |                |             |
| 4 x 1/4   | 5           | 20           | Coarse     | CF114          | 61463686240 |
|   |             |              | Medium     | MF114          | 61463686235 |
|   |             |              | Fine       | FF114          | 61463686230 |
| 4 x 3/8   | 5           | 20           | Coarse     | CF134          | 61463686255 |
|   |             |              | Medium     | MF134          | 61463686250 |
|   |             |              | Fine       | FF134          | 61463686245 |
| 4 x 1/2   | 5           | 20           | Coarse     | CF144          | 61463686270 |
|   |             |              | Medium     | MF144          | 61463686265 |
|   |             |              | Fine       | FF144          | 61463686260 |
| 6 x 1/2   | 5           | 20           | Coarse     | CF146          | 61463686285 |
|   |             |              | Medium     | MF146          | 61463686280 |
|   |             |              | Fine       | FF146          | 61463686275 |
| 6 x 5/8   | 5           | 20           | Medium     | MF156          | 61463686295 |
|   |             |              | Fine       | FF156          | 61463686290 |
| 6 x 3/4   | 5           | 20           | Medium     | MF166          | 61463686310 |
|   |             |              | Fine       | FF166          | 61463686305 |
| 6 x 1   | 5           | 20           | Medium     | MF176          | 61463686325 |
|   |             |              | Fine       | FF176          | 61463686320 |
| <b>HARD TRANSLUCENT ARKANSAS</b>                |             |              |            |                |             |
| 3 x 1/4   | 5           | 10           | Ultra Fine | HF113          | 61463686620 |
| 3 x 3/8   | 5           | 10           | Ultra Fine | HF133          | 61463686625 |
| 3 x 1/2   | 5           | 10           | Ultra Fine | HF143          | 61463686630 |
| <b>TRIANGULAR TAPERED ABRASIVE FILES (BULK)</b> |             |              |            |                |             |
| <b>INDIA (ALUMINUM OXIDE)</b>                   |             |              |            |                |             |
| 4 x 1/2 x 1/4                                   | 5           | 20           | Medium     | MF544          | 61463686685 |
|   |             |              | Fine       | FF544          | 61463686680 |

## Round Abrasive Files

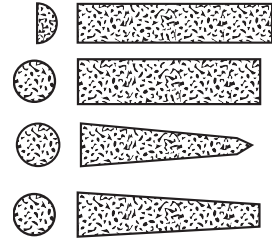
### FEATURES AND APPLICATIONS

Half Round Files offer both a round and a flat surface for imparting a fine finish on precision machine parts, tools and dies.

Round Files are ideal for deburring, chamfering, radiusing, lapping, honing, cleaning radius tools to a burr-free edge, and dimensioning compound curves on templates.

Round Pointed Files are ideally suited for engravers and die sinkers for stoning difficult recesses on instruments and die tools.

Round Tapered Files are used by craftsmen, woodworkers, and die makers as their unique shape imparts the correct edge quickly.



## Diamond-shaped Abrasive Files

### FEATURES AND APPLICATIONS

Diamond-shaped Files are precision sharpening favorites for cleaning acute angles in dies and molds, and for stoning geometric chasers and sewing machine feeds.



## Beveled Abrasive File

### FEATURES AND APPLICATIONS

Beveled Files are preferred by exacting artisans, jewelers, mechanics, and watchmakers for honing the finest of finishes. These extremely hard files provide years of service.



| SIZE<br>L X W X H                              | QTY/<br>PKG | QTY/<br>CASE | SPEC       | BETTER         |             |
|--|-------------|--------------|------------|----------------|-------------|
|  |             |              |            | PRODUCT<br>NO. | UPC NO.     |
| <b>HALF ROUND ABRASIVE FILES (BULK-PACKED)</b> |             |              |            |                |             |
| <b>INDIA (ALUMINUM OXIDE)</b>                  |             |              |            |                |             |
| 4 x 1/4  | 5           | 20           | Medium     | MF314          | 61463686355 |
|  |             |              | Fine       | FF314          | 61463686350 |
| 4 x 3/8  | 5           | 20           | Medium     | MF334          | 61463686385 |
|  |             |              | Fine       | FF334          | 61463686380 |
| 4 x 1/2  | 5           | 20           | Coarse     | CF344          | 61463686405 |
|  |             |              | Medium     | MF344          | 61463686400 |
|  |             |              | Fine       | FF344          | 61463686395 |
| <b>ROUND ABRASIVE FILES (BULK-PACKED)</b>      |             |              |            |                |             |
| <b>CRYSTOLON (SILICON CARBIDE)</b>             |             |              |            |                |             |
| 4 x 1/4  | 5           | 20           | Medium     | MJF214         | 61463686430 |
|  |             |              | Fine       | FJF214         | 61463686425 |
| 4 x 3/8  | 5           | 20           | Medium     | MJF234         | 61463686440 |
| <b>INDIA (ALUMINUM OXIDE)</b>                  |             |              |            |                |             |
| 4 x 1/4  | 5           | 20           | Coarse     | CF214          | 61463686480 |
|  |             |              | Medium     | MF214          | 61463686475 |
|  |             |              | Fine       | FF214          | 61463686470 |
| 4 x 3/8  | 5           | 20           | Coarse     | CF234          | 61463686495 |
|  |             |              | Medium     | MF234          | 61463686490 |
|  |             |              | Fine       | FF234          | 61463686485 |
| 4 x 1/2  | 5           | 20           | Coarse     | CF244          | 61463686510 |
|  |             |              | Medium     | MF244          | 61463686505 |
|  |             |              | Fine       | FF244          | 61463686500 |
| 6 x 1/2  | 5           | 20           | Coarse     | CF246          | 61463686525 |
|  |             |              | Medium     | MF246          | 61463686520 |
|  |             |              | Fine       | FF246          | 61463686515 |
| 6 x 5/8  | 5           | 20           | Medium     | MF256          | 61463686535 |
| 6 x 3/4  | 5           | 20           | Medium     | MF266          | 61463686550 |
| 6 x 1  | 5           | 20           | Medium     | MF276          | 61463686565 |
| <b>HARD TRANSLUCENT ARKANSAS</b>               |             |              |            |                |             |
| 3 x 1/4  | 5           | 10           | Ultra Fine | HF813          | 61463686800 |

| SIZE<br>L X W X H                                 | QTY/<br>PKG | QTY/<br>CASE | SPEC       | BETTER         |             |
|---|-------------|--------------|------------|----------------|-------------|
|   |             |              |            | PRODUCT<br>NO. | UPC NO.     |
| <b>ROUND POINTED ABRASIVE FILES (BULK-PACKED)</b> |             |              |            |                |             |
| <b>INDIA (ALUMINUM OXIDE)</b>                     |             |              |            |                |             |
| 3 x 5/16 Base                                     | 5           | 20           | Coarse     | CF723          | 61463686750 |
|   |             |              | Medium     | MF723          | 61463686745 |
|   |             |              | Fine       | FF723          | 61463686740 |
| <b>HARD TRANSLUCENT ARKANSAS</b>                  |             |              |            |                |             |
| 3 x 1/4 Base                                      | 5           | 10           | Ultra Fine | HF863          | 61463686825 |
| <b>ROUND TAPERED ABRASIVE FILES (BULK-PACKED)</b> |             |              |            |                |             |
| <b>INDIA (ALUMINUM OXIDE)</b>                     |             |              |            |                |             |
| 4 x 1/2 x 1/4                                     | 5           | 20           | Coarse     | CF644          | 61463686660 |
|   |             |              | Medium     | MF644          | 61463686655 |
|   |             |              | Fine       | FF644          | 61463686650 |
| <b>DIAMOND-SHAPED ABRASIVE FILES (BULK)</b>       |             |              |            |                |             |
| <b>INDIA (ALUMINUM OXIDE)</b>                     |             |              |            |                |             |
| 4 x 9/16 x 3/16                                   | 5           | 20           | Coarse     | CT134          | 61463686720 |
|   |             |              | Medium     | MT134          | 61463686715 |
|   |             |              | Fine       | FT134          | 61463686710 |
| <b>HARD TRANSLUCENT ARKANSAS</b>                  |             |              |            |                |             |
| 3 x 1/2 x 3/16                                    | 5           | 10           | Ultra Fine | HF843          | 61463686815 |
| <b>BEVELED ABRASIVE FILE (BULK-PACKED)</b>        |             |              |            |                |             |
| <b>HARD TRANSLUCENT ARKANSAS</b>                  |             |              |            |                |             |
| 3 x 3/8 x 1/8                                     | 5           | 10           | Ultra Fine | HF833          | 61463686810 |

# ABRASIVE FILES

## Flat Abrasive File

### FEATURES AND APPLICATIONS

The Flat File is the choice of mechanics, artisans and jewelers. This long lasting file produces the finest finishes.



## Oval Abrasive File

### FEATURES AND APPLICATIONS

The Oval File's shape makes it ideal for finishing and honing recesses or curved edges of precision instruments.



## Knife Blade Abrasive Files

### FEATURES AND APPLICATIONS

Knife Blade Files are used by clock and watch makers to quickly sharpen, hone and maintain the edges and points of cutting tools.



## Abrasive File Sets

### FEATURES AND APPLICATIONS

#### Hard Translucent Arkansas File Set

This set provides a selection of our most popular square, triangular, round and knife blade files in ultra fine Hard Translucent Arkansas for honing and polishing a wide range of configurations.



#### Hard Translucent Arkansas-India File Set

This set contains an assortment of files for finishing, honing and polishing applications. It contains a selection of the most popular square, triangular, round and knife blade files in both fine grit India and ultra fine grit Hard Translucent Arkansas.

| SIZE<br>L X W X H  | QTY/<br>PKG | QTY/<br>CASE | SPEC       | BETTER         |             |             |
|--|-------------|--------------|------------|----------------|-------------|-------------|
|  |             |              |            | PRODUCT<br>NO. | UPC NO.     |             |
| <b>FLAT ABRASIVE FILE (BULK-PACKED)</b>  |             |              |            |                |             |             |
| <b>HARD TRANSLUCENT ARKANSAS</b>   |             |              |            |                |             |             |
| 3 x 3/8 x 1/8  | 5           | 10           | Ultra Fine | HF823          | 61463686805 |             |
| <b>OVAL ABRASIVE FILE (BULK-PACKED)</b>  |             |              |            |                |             |             |
| <b>HARD TRANSLUCENT ARKANSAS</b>   |             |              |            |                |             |             |
| 3 x 1/2 x 3/16   | 5           | 10           | Ultra Fine | HF853          | 61463686820 |             |
| <b>KNIFE BLADE ABRASIVE FILES (BULK-PACKED)</b>  |             |              |            |                |             |             |
| <b>INDIA (ALUMINUM OXIDE)</b>  |             |              |            |                |             |             |
| 4 x 1 x 1/8 Back   | 5           | 20           | Coarse     | CF724          | 61463686780 |             |
|  |             |              | Medium     | MF724          | 61463686775 |             |
|  |             |              | Fine       | FF724          | 61463686770 |             |
| <b>HARD TRANSLUCENT ARKANSAS</b>   |             |              |            |                |             |             |
| 3 x 3/4 x 1/8  | 5           | 10           | Ultra Fine | HF873          | 61463686830 |             |
| <b>ABRASIVE FILE SETS</b>  |             |              |            |                |             |             |
| <b>HARD TRANSLUCENT ARKANSAS FILE SET</b>  |             |              |            |                |             |             |
| 1 Each of Ultra Fine Hard Arkansas<br>HF13, HF113, HF813, and HF873  |             |              |            | 1              | 5           | 61463686839 |
| <b>HARD TRANSLUCENT ARKANSAS AND INDIA FILE SET</b>  |             |              |            |                |             |             |
| 1 Each of Ultra Fine Hard Arkansas<br>HF13, HF43, HF113, HF813, HF873, and<br>Fine India FF14, FF44, FF114, FF214, FF724 |             |              |            | 1              | 5           | 61463686840 |

See the new "Norton Professional Sharpening Products and Dressing Sticks Catalog #200" to view the complete list and descriptions of our many sharpening products.

## Engravers' Chuck & Points

### FEATURES AND APPLICATIONS

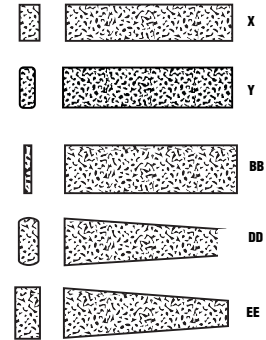
Engravers' Points are the choice of professional die-makers for cleaning tight corners and recesses where close tolerances and accuracy are a must. The Engravers' Chuck is a knurled nickel-plated tool designed to hold the Engravers' Point.



## Silversmith Precision Files

### FEATURES AND APPLICATIONS

These aluminum oxide precision-shaped stones are designed for use by silversmiths and mechanics for close tolerance lapping, touching-up instruments, and for cleaning tools and dies.



| SIZE<br>L X W X H                                | QTY/<br>PKG | QTY/<br>CASE | SPEC                     | BETTER                  |   |
|--|-------------|--------------|--------------------------|-------------------------|---|
|  |             |              |                          | PRODUCT<br>NO.          | UPC NO.                                   |
| <b>ENGRAVERS' CHUCK AND POINTS (BULK-PACKED)</b> |             |              |                          |                         |   |
| Engravers' Chuck                                 | 5           | 10           |                          | XT1                     | 61463687485                               |
| <b>INDIA (ALUMINUM OXIDE)</b>                    |             |              |                          |                         |   |
| 1 x 1/8 Point                                    | 5           | 20           | Fine                     | FT11                    | 61463687495                               |
| <b>SOFT ARKANSAS</b>                             |             |              |                          |                         |   |
| 1 x 1/8 Point                                    | 5           | 20           | Extra Fine               | AT11                    | 61463687490                               |
| <b>SILVERSMITH PRECISION FILES (BULK-PACKED)</b> |             |              |                          |                         |   |
| <b>INDIA (ALUMINUM OXIDE)</b>                    |             |              |                          |                         |   |
| 4 x 5/16 x 3/16 x 5/16 x 1/16 - X                | 5           | 20           | Medium<br>Fine           | MF414<br>FF414          | 61463686855<br>61463686850                |
| 4 x 3/8 x 3/16 x 1/8 x 1/16 - Y                  | 5           | 20           | Medium<br>Fine           | MF424<br>FF424          | 61463686915<br>61463686910                |
| 4 x 7/16 x 3/16 x 1/8                            | 5           | 20           | Fine                     | FF434                   | 61463686940                               |
| 4 x 1/2 x 1/16 - BB                              | 5           | 20           | Coarse<br>Medium<br>Fine | CF444<br>MF444<br>FF444 | 61463686965<br>61463686960<br>61463686955 |
| 4 x 1/2 x 1/4 x 5/16 x 1/8 - DD                  | 5           | 20           | Fine                     | FF464                   | 61463686985                               |
| 4 x 1/2 x 1/4 x 5/16 x 1/8 - EE                  | 5           | 20           | Medium<br>Fine           | MF474<br>FF474          | 61463687005<br>61463687000                |

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# POCKET STONES AND KNIFE SHARPENER

## Pocket Stones

Convenient and easily transported. Ideal for outdoor enthusiasts to sharpen scissors, knives, axes, etc. Available in a protective case.

## Knife Sharpener

The compact, handheld Rolling Wheel Knife Sharpener has two slots, to sharpen each side of the blade, and a built-in proper angle for sharpening. No lubricant needed.



SHARPENING STONES

| SIZE<br>L X W X H                                    | QTY/<br>PKG | QTY/<br>CASE | SPEC              | BETTER         |             |
|--|-------------|--------------|-------------------|----------------|-------------|
|  |             |              |                   | PRODUCT<br>NO. | UPC NO.     |
| <b>POCKET STONES</b>                                 |             |              |                   |                |             |
| <b>INDIA SPORTSMAN POCKET STONE</b>                  |             |              |                   |                |             |
| 3 x 1-1/2 x 1/2                                      | 1           | 50           | Coarse/Fine       | IBP34          | 61463690705 |
| <b>INDIA POCKET STONE</b>                            |             |              |                   |                |             |
| 4 x 3/4 x 1/4  | 1           | 25           | Fine              | IBP4           | 61463624153 |
| <b>CRYSTOLON POCKET STONE W/ CASE</b>                |             |              |                   |                |             |
| 3 x 7/8 x 3/8 w/ Case                                | 50          |              | Fine              | JP14           | 61463690703 |
| <b>CRYSTOLON HALF-ROUND FISH HOOK STONE W/ POUCH</b> |             |              |                   |                |             |
| 3" x 1/2" w/ Pouch                                   | 50          |              | Fine              |                | 61463624072 |
| <b>ROLLING-WHEEL KNIFE SHARPENER</b>                 |             |              |                   |                |             |
|  | 12          | 12           | Slotted, Handheld |                | 66253092616 |



## SPECIALTY STONES

Norton continues to offer specialty stones with optimum specifications and unique shapes that conform to, and quickly sharpen, specific tools.



## Specialty Stones for Machine Tools

### Specialty Stones for Machine Tools

#### FEATURES AND APPLICATIONS

#### Machine Knife Stone

Crystolon (silicon carbide) Machine Knife Stones offer both coarse and fine sides for sharpening and honing paper and cloth-cutting knives and planer knives on the machine. The groove around the middle of the stone protects fingers and provides a secure hold.

#### Reamer Stones

India (aluminum oxide) Reamer Stones are durable, fast-cutting stones designed for imparting a professional edge on reamers, taps, and rough rounders on shoe machine tools.

#### Boat Stones

Boat Stones are medium grit, medium grade stones that are easy to hold and use. Excellent for deburring and breaking sharp edges on dies, fixtures and machined parts, and for deburring grinder magnetic chucks.



## Specialty Stones for Machine Tools (CONTINUED)

| SIZE<br>L X W X H                  | QTY/<br>PKG | QTY/<br>CASE | SPEC           | BETTER         |                            |
|------------------------------------|-------------|--------------|----------------|----------------|----------------------------|
|                                    |             |              |                | PRODUCT<br>NO. | UPC NO.                    |
| <b>MACHINE KNIFE STONE</b>         |             |              |                |                |                            |
| <b>CRYSTOLON (SILICON CARBIDE)</b> |             |              |                |                |                            |
| 4" Diam. x 1-1/2" Thick            | 1           | 5            | Coarse/Fine    | JB74           | 61463687570                |
| <b>REAMER STONES</b>               |             |              |                |                |                            |
| <b>INDIA (ALUMINUM OXIDE)</b>      |             |              |                |                |                            |
| 4-1/2 x 1 x 5/16                   | 5           | 10           | Medium<br>Fine | MT124<br>FT124 | 61463687420<br>61463687415 |
| 5 x 1 x 3/16                       | 5           | 10           | Medium<br>Fine | MT125<br>FT125 | 61463687430<br>61463687425 |
| 6 x 1 x 1/4                        | 5           | 10           | Medium<br>Fine | MT126<br>FT126 | 61463687440<br>61463687435 |
| <b>BOAT STONES (BULK PACKED)</b>   |             |              |                |                |                            |
| <b>CRYSTOLON (SILICON CARBIDE)</b> |             |              |                |                |                            |
| 9 x 2-1/2 x 1-1/2                  | 10          | 50           | 37C80-HV       |                | 61463610369                |
| <b>INDIA (ALUMINUM OXIDE)</b>      |             |              |                |                |                            |
| 9 x 2-1/2 x 1-1/2                  | 10          | 50           | 38A60-IVBE     |                | 61463610503                |



## Large Specialty Stones

| Large Specialty Stones   |  |
|--|--|
| FEATURES AND APPLICATIONS  |  |
| <b>Tradesmen's Utility Stones</b>  |  |
| Used for sharpening trimming knives and as an abrasive file in many different industries. The JT910 does not have a handle, while the JT920 & JT930 have wooden handles.   |  |
| <b>Utility File</b>  |  |
| A long wedge-shaped stone with four flat sides designed for sharpening coarse cutting edges on cutting implements and edged garden tools. Wooden handles make them easy to use. They will outlast and out-sharpen metal files. |  |



| SIZE<br>L X W X H                  | QTY/<br>PKG | QTY/<br>CASE | SPEC                  | BETTER         |                            |
|------------------------------------|-------------|--------------|-----------------------|----------------|----------------------------|
|                                    |             |              |                       | PRODUCT<br>NO. | UPC NO.                    |
| <b>TRADESMEN'S UTILITY STONES</b>  |             |              |                       |                |                            |
| <b>CRYSTOLON (SILICON CARBIDE)</b> |             |              |                       |                |                            |
| 10 x 1-1/4 x 3/4 (Bulk-Packed)     | 5           | 10           | Medium                | JT910          | 61463687665                |
| 14-3/4 Overall (w/ Handle)         | 5           | 10           | Coarse/Fine<br>Medium | JT930<br>JT920 | 61463687675<br>61463687670 |
| <b>UTILITY FILE (BULK-PACKED)</b>  |             |              |                       |                |                            |
| <b>CRYSTOLON (SILICON CARBIDE)</b> |             |              |                       |                |                            |
| 14 Overall (w/ Handle)             | 5           | 10           | Coarse                | JD2            | 61463687750                |

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# ABRASIVE SLIPS

Norton abrasive slips impart the finest, most uniform finishes on curved knives and tools, molders' knives, wood gouges, bead planers, and carbide-tipped tools. These fast-acting slips hold their shape and are long lasting.

The Crystolon and India stones are designed for preliminary sharpening and the Norton Hard Translucent Arkansas stones are the choice for achieving the finest finish possible.



## Carbide Tool Slips

### FEATURES AND APPLICATIONS

Crystolon (silicon carbide) Slips are used to maintain the edge of carbide tools – keeping regrinding costs and time to an absolute minimum. Not oil-filled.



## Round Edge Slips

### FEATURES AND APPLICATIONS

Round Edge Slips are ideal for precision sharpening and honing of bead planers, curved knives and tools, molders' knives and wood gouges.



| SIZE<br>L X W X H                   | QTY/<br>PKG | QTY/<br>CASE | SPEC                  | BETTER         |             |
|-------------------------------------|-------------|--------------|-----------------------|----------------|-------------|
|                                     |             |              |                       | PRODUCT<br>NO. | UPC NO.     |
| <b>CARBIDE TOOL SLIPS</b>           |             |              |                       |                |             |
| <b>CRYSTOLON (SILICON CARBIDE)</b>  |             |              |                       |                |             |
| 3-1/2 x 3/4 x 1/2                   | 5           | 20           | Coarse                | CJT63          | 61463687295 |
|                                     |             |              | Medium                | MJT63          | 61463687290 |
|                                     |             |              | Fine                  | FJT63          | 61463687285 |
| Set of Three Above                  | 5           | 10           | Coarse, Medium & Fine | J63            | 61463687300 |
| <b>ROUND EDGE SLIPS</b>             |             |              |                       |                |             |
| <b>CRYSTOLON (SILICON CARBIDE)</b>  |             |              |                       |                |             |
| 4-1/2 x 1-3/4 x 1/4 x 1/16          | 5           | 10           | Medium                | MJS24          | 61463687080 |
|                                     |             |              | Fine                  | FJS24          | 61463687075 |
| 4-1/2 x 1-3/4 x 1/2 x 3/16          | 5           | 10           | Coarse                | CJS44          | 61463687100 |
|                                     |             |              | Medium                | MJS44          | 61463687095 |
|                                     |             |              | Fine                  | FJS44          | 61463687090 |
| 6 x 2-1/4 x 3/4 x 3/8               | 5           | 10           | Medium                | MJS66          | 61463687110 |
|                                     |             |              | Fine                  | FJS66          | 61463687105 |
| <b>INDIA (ALUMINUM OXIDE)</b>       |             |              |                       |                |             |
| 4 x 1 x 7/16 x 3/16                 | 5           | 10           | Medium                | MS14           | 61463687140 |
|                                     |             |              | Fine                  | FS14           | 61463687135 |
| 4 x 1-3/4 x 3/8 x 1/8 x 5/16 x 3/32 | 5           | 10           | Fine                  | FS15           | 61463687190 |
| 4-1/2 x 1-3/4 x 1/4 x 1/16          | 5           | 10           | Coarse                | CS24           | 61463687155 |
|                                     |             |              | Medium                | MS24           | 61463687150 |
|                                     |             |              | Fine                  | FS24           | 61463687145 |
| 4-1/2 x 1-3/4 x 3/8 x 1/8           | 5           | 10           | Coarse                | CS34           | 61463687170 |
|                                     |             |              | Medium                | MS34           | 61463687165 |
|                                     |             |              | Fine                  | FS34           | 61463687160 |
| 4-1/2 x 1-3/4 x 1/2 x 3/16          | 5           | 10           | Coarse                | CS44           | 61463687185 |
|                                     |             |              | Medium                | MS44           | 61463687180 |
|                                     |             |              | Fine                  | FS44           | 61463687175 |
| 5 x 1 x 5/16 x 3/32                 | 5           | 10           | Medium                | MS15           | 61463687195 |
|                                     |             |              | Fine                  | FS15           | 61463687190 |
| <b>HARD TRANSLUCENT ARKANSAS</b>    |             |              |                       |                |             |
| 3 x 1-3/4 x 1/4 x 1/16              | 5           | 10           | Ultra Fine            | HS3            | 61463687040 |
| 4 x 1-1/4 x 1/4 x 1/8               | 5           | 10           | Ultra Fine            | HS14           | 61463687050 |
| 4 x 1-3/4 x 3/8 x 1/8               | 5           | 10           | Ultra Fine            | HS4            | 61463687045 |
| <b>SOFT ARKANSAS</b>                |             |              |                       |                |             |
| 4 x 1-3/4 x 3/8 x 1/8 x 5/16 x 3/32 | 5           | 10           | Extra Fine            | SS4            | 61463687055 |

# RUBBING BRICKS

Hard crystolon rubbing bricks are used for heavy-duty applications such as rubbing floors, cleaning and scouring castings, rubbing down concrete and removing mold marks.



## Floor Rubbing Bricks

### FEATURES AND APPLICATIONS

Crystolon floor rubbing bricks are designed to fit the chucks of common concrete floor grinding equipment – to rub down the concrete and remove mold marks. The 8" brick has a center score that facilitates dividing the brick in half ...an economical alternative to buying two 4" bricks. Reusable wooden wedges anchor the bricks to the equipment chucks.

## Hand Rubbing Bricks

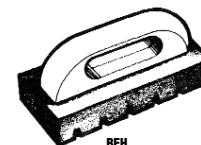
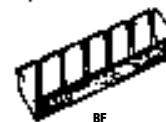
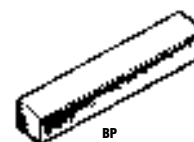
### FEATURES AND APPLICATIONS

Hand Rubbing Bricks, manufactured with extra coarse silicon carbide abrasive, are available in three types...plain, fluted and fluted with handle.

Plain Bricks are the choice of mechanics and foundrymen for dressing grinding wheels and cleaning or scouring castings.

Fluted Bricks are used by masons and stone workers for rubbing down concrete and removing mold marks. The diagonal flutes provide sharp edges, a clean shearing action, and carry away debris.

Fluted Bricks with Handle make quick work of removing mold marks and rubbing down concrete. The firmly attached handle reduces fatigue and facilitates overhead, wall and floor work.



BETTER

SIZE  
L X W X H

QTY/  
PKG

QTY/  
CASE

SPEC

PRODUCT  
NO.

UPC NO.

## RUBBING BRICKS (BULK-PACKED) – CRYSTOLON

### PLAIN FLOOR RUBBING BRICKS W/ WOODEN WEDGES

|           |   |   |       |  |             |
|-----------|---|---|-------|--|-------------|
| 4 x 2 x 2 | 1 | 6 | C6-R  |  | 61463653292 |
|           |   |   | C10-R |  | 61463653293 |
|           |   |   | C24-R |  | 61463653294 |
|           |   |   | C80-R |  | 61463653295 |

### WOODEN WEDGES

|  |   |   |  |  |             |
|--|---|---|--|--|-------------|
|  | 6 | 6 |  |  | 61463685297 |
|--|---|---|--|--|-------------|

### FLOOR RUBBING BRICK W/ CENTER SCORE

|           |   |   |        |  |             |
|-----------|---|---|--------|--|-------------|
| 8 x 2 x 2 | 1 | 5 | C120-R |  | 61463685296 |
|-----------|---|---|--------|--|-------------|

### PLAIN HAND RUBBING BRICKS

|           |   |   |     |      |             |
|-----------|---|---|-----|------|-------------|
| 8 x 2 x 2 | 1 | 5 | C24 | BP28 | 61463687830 |
|-----------|---|---|-----|------|-------------|

### FLUTED HAND RUBBING BRICKS

|           |   |   |     |      |             |
|-----------|---|---|-----|------|-------------|
| 6 x 2 x 2 | 1 | 5 | C20 | BF26 | 61463687840 |
| 8 x 2 x 2 | 1 | 5 | C20 | BF28 | 61463687845 |

### FLUTED HAND RUBBING BRICKS W/ HANDLE

|                   |   |   |     |      |             |
|-------------------|---|---|-----|------|-------------|
| 6 x 3 x 1         | 1 | 5 | C20 | BFH6 | 61463687800 |
| 8 x 3-1/2 x 1-1/2 | 1 | 5 | C20 | 235  | 61463687795 |



# VITRIFIED WHEELS

Norton vitrified toolroom wheels have set the standard for generations — leading the way with technological improvements to maximize performance and productivity. Depend exclusively on Norton wheels for all your toolroom needs.

## Typical Applications

- Surface grinding
- Tool and cutter grinding
- Drill sharpening



★ Made in U.S.A.

VITRIFIED WHEELS

### BEST Norton Quantum (5NQ) Wheels – Versatile; maximum performance/cost savings

#### FEATURES

- Revolutionary, engineered ceramic grain shape and chemistry w/ proven bond technology – Green

#### BENEFITS

- Versatile; for all low, medium and high force applications ranging from cast iron, to stainless steel and hard-to-grind inconel and titanium
- Performs well on old and new machines
- 33% to 100% longer life vs. competitive ceramic products
- 30%+ higher metal removal rate
- 15%+ lower threshold power
- Lowest total grinding costs



### BEST Norton SG Wheels – High productivity/low total per-part grinding cost

#### FEATURES

- Exceptionally high-performance proprietary seeded gel ceramic aluminum oxide abrasive
- Self-sharpening abrasive
- High performance VS and VSP bonds
- Provide sharp edge on tools & dies
- 5SG – Durable SG and aluminum oxide blend – blue
- NORPOR 3SGR – Purple SG and 48A abrasive blend with VP2 porous bond

#### BENEFITS

- Fast stock removal, cool, superior cutting
- 3X - 5X more life than aluminum oxide wheels
- Double rough stock removal rate versus conventional abrasives
- Less burn, less dressing; most consistent performing wheel
- Versatile; exceptional form holding
- Longer life of tools and dies in production
- High stock removal rates, excellent productivity, long wheel life, low overall grinding costs
- Maximum productivity in heat-sensitive, heavy stock removal operations



### BETTER Norton 32A Wheels – Ideal for medium to heavy stock removal

#### FEATURES

- Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive – gray

#### BENEFITS

- Free cutting on a wide range of applications and materials
- Outstanding form holding



### BETTER Norton 48A Wheels – Versatile choice for medium to heavy stock removal

#### FEATURES

- Durable, ruby colored aluminum oxide abrasive
- NORPOR 48A — Durable, fused, ruby aluminum oxide abrasive with VP2 porous bond

#### BENEFITS

- Excellent for grinding a wide variety of tool steels at moderate to heavy feed rates
- Good form holding capabilities
- Extremely cool cutting in heat-sensitive applications
- Good form holding



| <b>GOOD Norton 25A Wheels – GP wheel for light to medium stock removal</b>  |  |
|---|--|
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Pink, friable aluminum oxide</li> </ul>  | <ul style="list-style-type: none"> <li>• Works well on tool steels (hardened, forged and stainless) and cast iron</li> </ul>                   |
| <ul style="list-style-type: none"> <li>• NORPOR 25A — Pink, friable aluminum oxide abrasive with VP2 porous bond</li> </ul> | <ul style="list-style-type: none"> <li>• Designed to grind a broad variety of heat-sensitive steels at light to moderate feed rates</li> </ul> |



| <b>GOOD Norton 38A Wheels – The choice for light grinding of tool steels</b>   |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• White, friable abrasive grain</li> </ul>  | <ul style="list-style-type: none"> <li>• Cool and burn-free cutting; ideal for heat-sensitive applications with light to moderate feed rates</li> </ul> |
| <ul style="list-style-type: none"> <li>• Consistent quality</li> </ul>   | <ul style="list-style-type: none"> <li>• Excellent balance and dimensional accuracy time after time</li> </ul>  |
| <ul style="list-style-type: none"> <li>• NORPOR 38A — White, most friable, aluminum oxide abrasive with VP2 porous bond</li> </ul> | <ul style="list-style-type: none"> <li>• Exceptionally cool cutting in light pressure grinding applications, or heat-sensitive applications</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Versatile</li> </ul>  | <ul style="list-style-type: none"> <li>• Ideal for use across a broad variety of tool steels</li> </ul>   |



| <b>GOOD Norton 57A Wheels – Economical choice for general purpose applications</b>                              |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Extremely durable aluminum oxide abrasive grain – dark gray</li> </ul> | <ul style="list-style-type: none"> <li>• Excellent for steels and steel alloys</li> </ul>                       |
|   | <ul style="list-style-type: none"> <li>• Economical; ideal for numerous general purpose applications</li> </ul> |



| <b>3SGR, 48A, 25A and 38A NORPOR Wheels – High porosity for heat-sensitive applications</b> |  |
|---|--|
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Controlled porosity bond</li> </ul>                | <ul style="list-style-type: none"> <li>• Increased chip clearance and maximum coolant flow</li> <li>• Reduced loading</li> <li>• Cool cutting - wet or dry - in heat sensitive applications</li> </ul> |
| <ul style="list-style-type: none"> <li>• Durable bond post</li> </ul>                       | <ul style="list-style-type: none"> <li>• Maximum grain retention</li> <li>• Less dressing; longer wheel life</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Maximum depth of cut</li> </ul>                    | <ul style="list-style-type: none"> <li>• Increased grain efficiency; consistent grinding action at high metal removal rates</li> </ul>   |



## SPECcheck

### Vitrified Wheel Bonds

**BOND:**

- VS: Quantum (Green) and SG (Blue): High stock removal; narrow/medium contact area; roughing/finishing; less burn; cool cutting.
- VSP: Quantum (Green) and SG (Blue): Porous bond; high stock removal; medium/wide contact area; cool cutting; less burn than VS; high chip clearance.
- VBE: 32A (Gray), 48A (Ruby), 38A (White), 25A (Pink) and 57A (Dark Gray): General purpose; narrow/medium contact area; versatile; economical.
- VBEP: 32A (Gray) and 38A (White): Porous bond; medium/wide contact area; cool cutting; less burn than VBE; high chip clearance; high stock removal.
- V: 38A (Orange): For fine grit; form/corner holding applications; narrow contact area.
- VK: 37C (Black) and 39C (Green): Designed specifically for silicon carbide abrasives; medium to narrow area of contact.
- VCP: 32A (Gray) and 23A (Blue/Grey): Induced-pore, wide contact area, surface/creepfeed grinding applications.
- VP2: 3SGR (Ruby), 48A (Ruby), 25A (Pink) and 38A (White): Unique, controlled-porosity (NORPOR) bond for heat-sensitive applications.



## Grit Size

| GRIT     | REQUIREMENT         | FINISH            | MINIMUM CORNER RADIUS |
|----------|---------------------|-------------------|-----------------------|
| 46       | General Purpose     | 32 Ra and rougher | 0.020"                |
| 60       | Commercial Finish   | 32 RA and better  | 0.016"                |
| 80 – 100 | Fine Finish         | 20 Ra and better  | 0.0105"               |
| 120      | Very Fine Finish    | 10 Ra and better  | 0.006"                |
| 150      | Corner-Form Holding |                   | 0.005"                |
| 180      | Corner-Form Holding |                   | 0.0035"               |
| 220      | Corner-Form Holding |                   | 0.0026"               |

## Vitrified Wheel Starting Recommendations

| PERFORMANCE/PRODUCTIVITY  | BEST BETTER GOOD    |            |            | BEST BETTER GOOD    |            |            | BEST BETTER GOOD  |             |             |
|---|---------------------|------------|------------|---------------------|------------|------------|-------------------|-------------|-------------|
|   | NARROW CONTACT AREA |            |            | MEDIUM CONTACT AREA |            |            | WIDE CONTACT AREA |             |             |
| <b>APPLICATION / MATERIAL</b>                                     |                     |            |            |                     |            |            |                   |             |             |
| <b>TOOL RESHARPENING</b>  |                     |            |            |                     |            |            |                   |             |             |
| • Heavy Stock Removal (> .004)<br>HSS & Tool Steel RC 50-68       | 5SG46-KVS           | 32A46-KVBE | 38A46-KVBE | 5SG46-JVS           | 32A46-JVBE | 38A46-JVBE |                   |             |             |
| • Moderate Stock Removal (.002-.004)<br>HSS & Tool Steel RC 50-68 | 5SG60-KVS           | 32A60-KVBE | 38A60-KVBE | 5SG60-JVS           | 32A60-JVBE | 38A60-JVBE |                   |             |             |
| Carbide   |                     |            | 39C60-JVK  |                     |            | 39C60-JVK  |                   |             |             |
| <b>SURFACE GRINDING</b>   |                     |            |            |                     |            |            |                   |             |             |
| • Heavy Stock Removal (> .004)                                    |                     |            |            |                     |            |            |                   |             |             |
| HSS & Tool Steel RC 50-68   | 5NQ46-JVS           | 32A46-JVBE | 38A46-JVBE | 5SG46-IVS           | 32A46-IVBE | 38A46-IVBE | 5SG46-GVSP        | 32A46-GVBEP | 38A46-GVBEP |
| 400 Series Stainless  |                     |            |            |                     |            |            | 3SGR46-GVP2       | 48A46-GVP2  | 38A46-GVP2  |
| Soft Steels RC 30-45  | 5SG46-KVS           | 32A46-KVBE | 38A46-KVBE | 5SG46-JVS           | 32A46-JVBE | 38A46-JVBE | 5SG46-HVSP        | 32A46-HVBEP | 38A46-HVBEP |
| 300 Series Stainless  |                     |            |            |                     |            |            | 3SGR46-HVP2       | 48A46-HVP2  | 38A46-HVP2  |
| Cast Iron: Ductile & Gray   | 5SG46-KVS           | 32A46-KVBE | 38A46-KVBE | 5SG46-JVS           | 32A46-JVBE | 38A46-JVBE | 5SG46-HVSP        | 32A46-HVBEP | 38A46-HVBEP |
|   |                     |            |            |                     |            |            | 3SGR46-GVP2       | 48A46-HVP2  | 38A46-HVP2  |
| Nonferrous Alloys   |                     |            | 39C46-JVK  |                     |            | 39C46-IVK  |                   |             |             |
| • Moderate Stock Removal (.002-.004)                              |                     |            |            |                     |            |            |                   |             |             |
| HSS & Tool Steel RC 50-68   | 5NQ60-JVS           | 32A60-JVBE | 38A60-JVBE | 5SG60-IVS           | 32A60-IVBE | 38A60-IVBE | 5SG60-GVSP        | 32A60-GVBEP | 38A60-GVBEP |
| 400 Series Stainless  |                     |            |            |                     |            |            | 3SGR60-GVP2       | 48A60-GVP2  |             |
| Soft Steels RC 30-45  | 5SG60-KVS           | 32A60-KVBE | 38A60-KVBE | 5SG60-JVS           | 32A60-JVBE | 38A60-JVBE | 3SGR60-HVP2       | 32A60-HVBEP | 38A60-HVBEP |
| 300 Series Stainless  |                     |            |            |                     |            |            |                   | 48A60-HVP2  | 38A60-HVP2  |
| Cast Iron: Ductile & Gray   | 5SG60-KVS           | 32A60-KVBE | 38A60-KVBE | 5SG60-JVS           | 32A60-JVBE | 38A60-JVBE | 3SGR60-HVP2       | 32A60-HVBEP | 38A60-HVBEP |
|   |                     |            |            |                     |            |            |                   | 48A60-HVP2  | 38A60-HVP2  |
| Nonferrous Alloys   |                     |            | 39C60-JVK  |                     |            | 39C60-IVK  |                   |             |             |
| • Light Stock Removal and Finishing (<.001)                       |                     |            |            |                     |            |            |                   |             |             |
| HSS & Tool Steel RC 50-68   |                     | 32A80-JVBE | 38A80-JVBE |                     | 32A80-IVBE | 38A80-IVBE |                   | 32A80-HVBE  | 38A80-HVBE  |
| 400 Series Stainless  |                     |            |            |                     |            |            |                   |             |             |
| Soft Steels RC 30-45  |                     | 32A80-KVBE | 38A80-KVBE |                     | 32A80-JVBE | 38A80-JVBE |                   | 32A80-IVBE  | 38A80-IVBE  |
| 300 Series Stainless  |                     |            |            |                     |            |            |                   |             |             |
| Cast Iron: Ductile & Gray   |                     | 32A80-KVBE | 38A80-KVBE |                     | 32A80-JVBE | 38A80-JVBE |                   | 32A80-IVBE  | 38A80-IVBE  |
| Nonferrous Alloys   |                     |            | 39C80-JVK  |                     |            | 39C80-IVK  |                   |             | 39C80-HVK   |

**For non-stock Toolroom Wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability, – including our revolutionary new Quantum ceramic wheels.**



## Toolroom Wheel Competitive Cross Reference

| NORTON      | BAY STATE      | CAMEL              | CINCINNATI        | COLONIAL | RADIAC             |
|-------------|----------------|--------------------|-------------------|----------|--------------------|
| Quantum 5NQ |                |                    | 5M5B              |          |                    |
| 3SGR        | 3GA            | AS3                | 3BP               | 20A/VG3  | 7BP, 8BP           |
| 5SG         | 5GA            | SZA                | 5MSB              | 20A/VG5  | 7BW, 8BW           |
| 25A         |                | PA                 | 12A               | 24A      | RAA                |
| 32A         | 7A, 17A        | AZ                 | 4A, 12A, 29A, 32A | 32A      | 32A, WRA           |
| 38A         | 9A, 48A        | 83A, WA, AZ (Blue) | 9A, 10A, 11A, 82A | 20A      | WA, 9A             |
| 48A         |                |                    |                   | 25A      | RA                 |
| 53A         | 2A, 3A, 6A, 8A | 91A, DA            | 29A, 97A          | 10TA     | 43A, 45A, 97A, WPA |
| 57A         | TA             | 94A, CGW, A        | A, AK             | TA       | A                  |
| 37C         | C              |                    | 6C                | C        | C                  |
| 39C         | 1C             |                    | 5C                | GC       | GC                 |

## Starting Recommendations for Truing and Dressing Norton Toolroom Wheels

### Truing & Dressing: Dressing Stick Starting Recommendations

| SIZE/<br>SPEC                | HIGH PERFORMANCE | UPC NO.     | SIZE/<br>SPEC             | CONVENTIONAL | UPC NO.     |
|------------------------------|------------------|-------------|---------------------------|--------------|-------------|
| 3 x 1/2 x 1/4" Norbide       |                  | 61463610148 | 6 x 1 x 1" 37C24-SVK      |              | 61463610462 |
| 3 x 1/2 x 1/4" Boron Carbide |                  | 61463629472 | 8 x 1 x 1" 37C24-SVK      |              | 61463610471 |
|                              |                  |             | other sizes are available |              |             |

### Dressing: Single Point Dressing Tool Starting Recommendations

| WHEEL ABRASIVE TYPE:<br>WHEEL SIZES |      | TOOL SHANK DIAMETER | ALL SG, 37C & 39C WHEELS<br>PRODUCT NO. UPC NO. |             | 25A, 32A, 38A, 48A, 53A, 57A, 64A, 86A WHEELS<br>PRODUCT NO. UPC NO. |             |
|-------------------------------------|------|---------------------|---|-------------|--|-------------|
| Up to 7"                            | 3/8  |                     | BCSG2M6   | 66260157007 | BC2M6  | 66260195000 |
|                                     | 7/16 |                     | BCSG2M7   | 66260156905 | BC2M7  | 66260195001 |
| 8" to 10"                           | 3/8  |                     | BCSG3M6   | 66260157008 | BC3M6  | 66260195002 |
|                                     | 7/16 |                     | BCSG3M7   | 66260156906 | BC3M7  | 66260195003 |
| 12" to 14"                          | 3/8  |                     | BCSG5M6   | 66260157009 | BC5M6  | 66260195004 |
|                                     | 7/16 |                     | BCSG5M7   | 66260156907 | BC5M7  | 66260195005 |

THESE TOOLS ARE A STANDARD RECOMMENDATION; SEE THE "DIAMOND TOOL" SECTION FOR ADDITIONAL TOOLS.

# TECHtips

## Wheel Dressing

### Single Point Diamond Tools

- Rigidly mount Single Point tools at a 10°-15° angle to the wheel centerline with a line drawn through the center of the wheel, pointing in the direction of wheel travel.
- Point of contact should be slightly below centerline of wheel.
- Use coolant whenever possible.
- Normal infeed is .001" per pass.
- Lead selections range from .002" - .010" per wheel revolution.
- Rotate the tool 1/4 turn periodically to maintain a sharp point.

### Multi-Point Diamond Tools

- Most multi-point tools are used for straight face dressing.
- Tool should have full face contact with the wheel.
- With new tool, 3-5 passes at .005" per pass should be taken to expose diamonds.
- Infeed per pass .001" - .002"
- Use coolant whenever possible.
- Use appropriate lead (and traverse rate).
- Contact Norton for proper tool selection for Targa wheels.

### Dressing SG Ceramic Wheels

- Use our specially designed Norton SG diamond tools when dressing Norton SG ceramic wheels.
  - When first using a Norton SG tool, make 3 to 5 passes at .005" infeed to ensure full face contact between the dressing tool and wheel face.
  - Reduce normal dressing infeed by half. Do not exceed infeed of .002" per pass.
  - The lead selection should be between .006"-.030" per wheel revolution. Faster traverse with Norton SG tools generally provides an open wheel face that can maximize productivity of the Norton ceramic abrasive.
- To optimize applications using SG ceramic abrasives and/or tools, normal dressing parameters must change. Reduce infeed by 25%. Significant reductions in the amount of infeed and frequency of dress will result in substantially lower cost per part ground.



It is the user's responsibility to refer to and comply with ANSI B7.1

### Trouble Shooting Guide

Check the obvious first. Before changing the grinding wheel specification, investigate the following most common causes for most grinding problems:

1. Diamond dressing tool condition (check if worn or dull, rotate tool or replace if necessary)
2. Coolant direction, volume & filtration
3. Wheel dressing procedures (dress more open to free up cut rate, dress more closed to improve finish)

| PROBLEM                    | POSSIBLE CAUSE   | CORRECTION   |
|----------------------------|--|--|
| Workpiece burn             | Poor coolant direction<br>Restricted or low coolant volume<br>Wheel too hard<br>Wheel structure too closed<br>Wheel dressed too fine<br>Worn dressing tool<br>Work speed too slow<br>Infeed too fast | Redirect coolant into grinding zone<br>Increase coolant volume<br>Use one grade softer wheel<br>Use porous bond wheel<br>Dress wheel coarser, more "open"<br>Inspect, rotate or replace dressing tool<br>Increase work speed<br>Reduce stock removed per pass or upgrade to 5SG or 5NQ       |
| Wheel loading and glazing  | Wheel too fine<br>Wheel too hard<br>Too durable abrasive<br>Poor coolant quality<br>Wheel structure too closed<br>Wheel too finely dressed<br>Diamond dressing tool worn<br>Depth of cut too small   | Use coarser grit or softer grade wheel<br>Use one grade softer wheel<br>Use a sharper, more friable abrasive<br>Change coolant or use high detergent type<br>Use a porous bond wheel<br>Dress wheel very open<br>Replace diamond and dress coarse (open)<br>Increase feed and traverse speed |
| Chatter                    | Unsupported work<br>Machine vibration<br>Too heavy cut rate<br>Wheel too hard<br>Wheel structure too closed<br>Wheel out of balance  | Increase work support<br>Check for worn bearings<br>Reduce cut rate<br>Use one grade softer wheel<br>Use a porous bond wheel<br>Check wheel balance or try new wheel   |
| Chatter marks on workpiece | Worn spindle bearings<br>Wheel out of truth<br>Poorly clamped wheel<br>Glazed face of wheel  | Check and correct for truth and end play<br>Redress wheel and check mounting<br>Check tightness of mounting nuts<br>Redress wheel with sharp dressing tool   |
| Poor surface finish        | Incorrect wheel dress<br>Worn dressing tool<br>Too coarse grit size<br>Wheel too hard  | Dress wheel finer (slow down dressing tool traverse)<br>Inspect, rotate, or replace dressing tool<br>Use a finer grit size<br>Use softer grade   |
| Not holding form           | Wheel too soft<br>Wheel structure too open   | Use one grade harder wheel<br>Use a more closed wheel structure  |
| Not holding corner         | Incorrect wheel dress<br>Too large grit size<br><br>Wheel too soft<br>Wheel structure too open   | Dress wheel finer. Face and side true wheel<br>Use smaller grit size (maximum grit diameter less than 1.5 times corner radius)<br>Use harder grade wheel<br>Use more closed structure wheel  |



## TECHtips

- Use VBE/V/VS/VK bonds for general purpose applications or medium contact areas.
- Use VBEP/VS, VCP, VP2 bonds on wide contact areas where heat is an issue.
- Wheel dressing
  - When using a single-point diamond tool, approach the wheel at a 10°–15° angle.
  - When using a multi-point diamond tool, approach the wheel at an 0° angle.



It is the user's responsibility to refer to and comply with ANSI B7.1

**For non-stock Toolroom Wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability, – including our revolutionary new Quantum ceramic wheels.**

## ID and Race Wheels



Vitrified First Line (VFL) ID and Race Wheel availability encompasses over 1,000 wheel sizes and most abrasive types. These high performance wheels are made-to-order and shipped within two weeks of receipt of your order.

Additional dimensions and grinding faces are available as made-to-order products with 4 week lead-times.



### ID and Race Wheel FastTrack Availability

#### Type 01 Straight

DIAMETER 0.164" thru 4.532" THICKNESS 0.150" thru 2.750"

#### Type 05 Recessed One Side

DIAMETER 0.407" thru 4.625" THICKNESS 3/16" thru 3.100"

| ABRASIVE  | 25A, 32A, 38A, 48A, 53A, 57A | 5TG**       | Quantum (NQ) 1SG, 3SG, 5SG | 32AA    | BRGL, BRGM, BRGH |
|-----------|------------------------------|-------------|----------------------------|---------|------------------|
| GRIT      | 46* - 120                    | 80/1, 120/1 | 36 - 150                   | 46 - 80 | 46* - 150        |
| GRADE     | J - P                        | I - M       | I - N                      | I - M   | I - M            |
| STRUCTURE | 6                            | 8           | 6                          | 6       | 6                |
| BOND      | VFL                          | VFL         | VFL                        | VFL     | VFL              |
| SPEED     | 8,500 SFPM***                |             |                            |         |                  |
| TREAT 22  | Available for 32A & 53A      |             |                            |         |                  |

\* 46 grit only available in .312 Diameter  
 \*\* 5TG is available in /1 combination, only  
 \*\*\* Speeds up to 12,500 SFPM by request and Safety approval

## Vitrified Wheels for Steel Applications

For all types of tool steel grinding.

| SIZE<br>D X T X H       | MAX.<br>RPM. | MIN./STD.<br>PKG. | BEST                   |         | BETTER                                 |   | GOOD              |   |
|-------------------------|--------------|-------------------|------------------------|---------|--|---|-------------------|---|
|                         |              |                   | NORTON CERAMIC<br>SPEC | UPC NO. | NORTON ALUMINUM OXIDE<br>SPEC          | UPC NO.                                     | MIN./STD.<br>PKG. | NORTON ALUMINUM OXIDE<br>SPEC   |
| <b>TYPE 01 STRAIGHT</b> |              |                   |                        |         |  |   |                   |   |
| 2 x 1/2 x 3/8           | 16,235       | 20/-              |                        |         | 32A60-KVBE                             | 66243428214                                 | <b>new!</b>       |   |
| 3 x 1/4 x 1/2           | 10,825       | 10/-              |                        |         | 32A60-KVBE                             | 66243528696                                 |                   |   |
| 3 x 1/2 x 3/8           | 10,825       | 10/-              |                        |         | 32A60-KVBE                             | 66243528825                                 | 10/-              | 38A60-JVBE 66243529032  |
| 3 x 1/2 x 1/2           | 10,825       | 10/-              |                        |         | 32A60-KVBE                             | 66243528828                                 |                   |   |
| 3 x 1 x 1/2             | 10,825       |                   |                        |         |  |   | 1/10              | 38A60-MVBE 66243529145<br>38A80-MVBE 66243529146  |
| 4 x 1/4 x 1/2           | 8,120        | 1/10              |                        |         | 32A60-KVBE                             | 66243529532                                 | 1/10              | 38A60-KVBE 66243529777<br>38A100-IVBE 66243529782   |
| 4 x 1/4 x 3/4           | 8,120        | 1/10              |                        |         | 32A60-KVBE                             | 66243529736                                 |                   |   |
| 4 x 1/2 x 1/2           | 8,120        | 1/10              |                        |         | 32A46-KVBE                             | 66243529845                                 | 1/10              | 38A60-KVBE 66243529947<br>38A100-KVBE 66243529954   |
| 4 x 1/2 x 3/4           | 8,120        | 1/10              |                        |         | 32A60-KVBE<br>32A80-KVBE               | 66243529849<br>66243529850                  | 1/10              | 38A60-KVBE 66243529961  |
| 4 x 1 x 1/2             | 8,120        |                   |                        |         |  |   | 1/10              | 38A60-MVBE 66243530126  |
| 5 x 1/4 x 1/2           | 4,970        | 1/10              |                        |         | 32A60-KVBE                             | 66252830572                                 |                   |   |
| 6 x 1/8 x 1-1/4         | 4,140        | 1/10              |                        |         | 32A80-KVBE                             | 66252835361                                 | 1/10              | 38A150-LVBE 66252835506   |
| 6 x 1/4 x 1/2           | 4,140        | 1/10              |                        |         | 32A60-KVBE                             | 66252835784                                 |                   |   |
| 6 x 1/4 x 1-1/4         | 4,140        | 1/10              |                        |         | 32A60-KVBE                             | 66252835786                                 | 1/10              | 38A60-KVBE 66252835803<br>38A80-KVBE 66252835807<br>38A150-KV 66252835759                             |
| 6 x 1/2 x 1/2           | 4,140        | 1/10              |                        |         | 32A60-KVBE                             | 66252836394                                 | 1/10              | 38A60-KVBE 66252836530<br>38A80-KVBE 66252836548  |
| 6 x 1/2 x 1-1/4         | 4,140        | 1/10              |                        |         | 32A46-KVBE<br>32A60-KVBE<br>32A80-JVBE | 66252836380<br>66252836396 B<br>66252836405 | 1/10              | 38A46-KVBE 66252836520<br>38A60-KVBE 66252836533<br>38A80-KVBE 66252836550<br>38A120-KVBE 66252836664 |

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS

# VITRIFIED WHEELS

## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

| SIZE<br>D X T X H                   | MAX.<br>RPM.   | MIN./STD.<br>PKG. | BEST  |  | BETTER  |  | MIN./STD.<br>PKG.   | GOOD  |  |  |
|-------------------------------------|----------------|-------------------|---|--|---|--|---|---|--|--|
|                                     |                |                   | NORTON CERAMIC<br>SPEC  | UPC NO.  | NORTON ALUMINUM OXIDE<br>SPEC   | UPC NO.  |   | NORTON ALUMINUM OXIDE<br>SPEC   | UPC NO.  |  |
| <b>TYPE 01 STRAIGHT (CONTINUED)</b> |                |                   |   |  |   |  |   |   |  |  |
| 6 x 3/4 x 1/2                       | 4,140          | 1/10              |   |  | 32A60-KVBE  | 66252837420  |   |   |  |  |
| 6 x 3/4 x 5/8                       | 4,140          |                   |   |  |   |  | 1/10  | 38A60-KVBE  | 66252837444  |  |
| 6 x 3/4 x 1-1/4                     | 4,140          | 1/10              |   |  | 32A60-KVBE  | 66252837421  | 1/10  | 38A60-KVBE  | 66252837445  |  |
| 6 x 1 x 1-1/4                       | 4,140          | 1/10              |   |  | 32A60-KVBE  | 66252837921 B  |   |   |  |  |
| 7 x 1/8 x 1-1/4                     | 3,275<br>3,600 | 1/10              |   |  | 32A60-IVBE  | 66252939112  | 1/10  | 38A80-IVBE<br>38A100-KVBE   | 66252939219<br>66252939223   |  |
| 7 x 1/4 x 1-1/4                     | 3,600          | 1/10              | 5SG46-IVS<br>5SG60-IVS<br>5SG60-JVS<br>5SG60-KVS<br>5SG80-IVS<br>5SG80-JVS<br>5SG80-KVS<br>5SG100-IVS<br>5SG100-KVS | 66252940207 B<br>66252939459 B<br>66252939460 B<br>66252939461 B<br>66252939462<br>66252939463<br>66252939464<br>66252939467<br>66252939468 B  | 32A46-HVBE<br>32A46-IVBE<br>32A46-JVBE<br>32A46-KVBE<br>32A60-HVBE<br>32A60-IVBE<br>32A60-JVBE<br>32A60-KVBE<br>32A80-HVBE<br>32A80-IVBE<br>32A80-JVBE<br>32A80-KVBE<br>32A100-IVBE<br>32A100-JVBE<br>32A100-KVBE<br>32A120-IVBE<br>32A120-KVBE<br>32A220-LVBE  | 66252939543<br>66252939544<br>66252939545<br>66252939862<br>66252939547<br>66252939548 B<br>66252939549 B<br>66252939552 B<br>66252939557<br>66252939658 B<br>66252939660 B<br>66252939662 B<br>66252939670 B<br>66252939672<br>66252939673 B<br>66252939680<br>66252939682<br>66252939689   | 1/10  | 38A46-HVBE<br>38A46-IVBE<br>38A46-JVBE<br>38A60-HVBE<br>38A60-IVBE<br>38A60-JVBE<br>38A60-KVBE<br>38A80-HVBE<br>38A80-IVBE<br>38A80-JVBE<br>38A80-KVBE<br>38A100-IVBE<br>38A100-JVBE<br>38A100-KVBE<br>38A100-LVBE<br>38A120-JVBE<br>38A120-KVBE<br>38A150-KVBE<br>38A150-LVBE<br>38A150-MV<br>38A220-KV<br>38A220-LV<br>38A220-LVBE<br>38A220-MV | 66252939690<br>66252939691<br>66252909755<br>66252939695<br>66252939696<br>66252939698<br>66252939700<br>66252939707<br>66252939808<br>66252939809<br>66252939812<br>66252939823<br>66252939826<br>66252939827<br>66252939830<br>66252939833<br>66252939834<br>66252939838<br>66252939839<br>66252939521<br>66252939528<br>66252939529<br>66252939847<br>66252939530   |  |
| 7 x 3/8 x 1-1/4                     | 3,600          | 1/10              |   |  | 32A60-KVBE<br>32A80-KVBE  | 66252940276<br>66252940284   | 1/10  | 38A60-KVBE<br>38A80-IVBE  | 66252940294<br>66252940297   |  |
| 7 x 1/2 x 1-1/4                     | 3,600          | 1/10              | <b>new!</b><br><b>new!</b><br><b>new!</b>   | 5NQ46-IVS<br>5NQ46-JVS<br>5NQ60-GVSP<br>5NQ60-JVS<br>3SGR46-HVP2<br>3SGR60-HVP2<br>5SG46-GVSP<br>5SG46-HVSP<br>5SG46-IVS<br>5SG46-IVSP<br>5SG46-JVS<br>5SG46-KVS<br>5SG60-GVSP<br>5SG60-IVS<br>5SG60-IVSP<br>5SG60-JVS<br>5SG60-KVS<br>5SG60-LVS<br>5SG80-IVS<br>5SG80-IVSP<br>5SG80-JVS<br>5SG80-KVS<br>5SG80-LVS<br>5SG100-IVS<br>5SG100-KVS | 69083159103<br>69083159104<br>69083159105<br>69083159106<br>66252916211 B<br>66252916213 B<br>66252940522 B<br>66252941130 B<br>66252940193 B<br>66252940523<br>66252940194 B<br>66252940195 B<br>66252940524<br>66252940196 B<br>66252940525<br>66252940197 B<br>66252940198 B<br>66252940199<br>66252940200<br>66252940527<br>66252940201 B<br>66252940202<br>66252940203<br>66252940204<br>66252940205 | 32A46-FVBEP<br>32A46-GVBE<br>32A46-GVBEP<br>32A46-HVBE<br>32A46-HVBEP<br>32A46-IVBE<br>32A46-IVBEP<br>32A46-JVBE<br>32A46-KVBE<br>32A54-IVBE<br>32A60-GVBEP<br>32A60-HVBE<br>32A60-HVBEP<br>32A60-IVBE<br>32A60-JVBE<br>32A60-JVBEP<br>32A60-KVBE<br>32A60-LVBE<br>32A80-HVBE<br>32A80-IVBE<br>32A80-JVBE<br>32A80-KVBE<br>32A80-LVBE<br>32A100-IVBE<br>32A100-JVBE<br>32A120-LVBE<br>48A46-HVBE<br>48A46-HVP2<br>48A46-IVBE<br>48A46-JVBE<br>48A46-KVBE<br>48A60-HVP2<br>48A60-IVBE<br>48A60-JVBE<br>48A60-KVBE | 66252941203<br>66252940862<br>66252941204 B<br>66252940863 B<br>66252941205 B<br>66252940864 B<br>66252941206<br>66252940865 B<br>66252940867 B<br>66252940873<br>66252941313<br>66252940879 B<br>66252941314<br>66252940880 B<br>66252940882 B<br>66252941316<br>66252940885 B<br>66252940888<br>66252940894<br>66252940895 B<br>66252940897 B<br>66252940899 B<br>66252940900<br>66252940907<br>66252941008<br>66252941018 B<br>69936662081 B<br>66252916215 B<br>69936662082 B<br>69936662083<br>69936662084<br>66252916217 B<br>69936662085 B<br>69936662098 B<br>69936662099 | 1/10  | 25A46-HVBE<br>25A46-HVP2<br>25A46-IVBE<br>25A46-JVBE<br>25A46-KVBE<br>25A60-HVP2<br>25A60-IVBE<br>25A60-JVBE<br>25A60-KVBE<br>38A46-GVBE<br>38A46-GVBEP<br>38A46-HVBE<br>38A46-HVBEP<br>38A46-HVP2<br>38A46-IVBE<br>38A46-JVBE<br>38A46-KVBE<br>38A60-HVBE<br>38A60-IVBE<br>38A60-JVBE<br>38A60-KVBE<br>38A60-LVBE<br>38A80-IVBE<br>38A80-JVBE<br>38A80-KVBE<br>38A80-LVBE<br>38A100-IVBE<br>38A100-JVBE<br>38A100-KVBE<br>38A120-JVBE<br>38A120-KVBE<br>38A150-JVBE<br>38A150-MV<br>38A220-QV | 69936662909 B<br>66252916219<br>69936662915 B<br>69936662916<br>69936662918<br>66252916221<br>69936662919 B<br>69936662920 B<br>69936662922<br>66252941022<br>66252941323<br>66252941023<br>66252941324<br>66252916223<br>66252941024<br>66252941026<br>66252941028<br>66252941035<br>66252941330<br>66252941036<br>66252941038<br>66252941041<br>66252911677<br>66252941047<br>66252941048<br>66252941049<br>66252941054<br>66252941056<br>66252941163<br>66252941165<br>66252941168<br>66252941174<br>66252941175<br>66252941179<br>66252940595<br>66252940605 |
| 7 x 5/8 x 1-1/4                     | 3,600          | 1/10              |   |  | 32A60-IVBE  | 66252941762  |   |   |  |  |

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS





## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

| SIZE<br>D X T X H                   | MAX.<br>RPM   | MIN./STD.<br>PKG. | BEST                         |              | BETTER                        |             | MIN./STD.<br>PKG. | GOOD                          |             |             |
|-------------------------------------|---|-------------------|------------------------------|--------------|-------------------------------|-------------|-------------------|-------------------------------|-------------|-------------|
|                                     |   |                   | NORTON CERAMIC<br>SPEC       | UPC NO.      | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.     |                   | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.     |             |
| <b>TYPE 01 STRAIGHT (CONTINUED)</b> |   |                   |                              |              |                               |             |                   |                               |             |             |
| 8 x 3/4 x 1-1/4                     | 3,105   | 1/10              | new!<br>new!<br>new!<br>new! | 5NQ46-IVS    | 69083159111                   | 32A46-GVBEP | 66253044195       | 1/10                          | 38A46-HVBE  | 66253044175 |
|                                     | +   |                   |                              | 5NQ46-JVS    | 69083159112                   | 32A46-HVBE  | 66253044159       |                               | 38A46-IVBE  | 66253044177 |
|                                     | +   |                   |                              | 5NQ60-GVSP   | 69083159113                   | 32A46-HVBEP | 66253044196†      |                               | 38A46-KVBE  | 66253044180 |
|                                     | +   |                   |                              | 5NQ60-JVS    | 69083159114                   | 32A46-IVBE  | 66253044215       |                               | 38A60-IVBE  | 66253044184 |
|                                     | +   |                   |                              | 5SG46-IVS    | 66253044098                   | 32A46-JVBE  | 66253044161       |                               |             |             |
|                                     | 3,600   |                   |                              | 5SG46-JVS    | 66253044099 B                 | 32A46-KVBE  | 66253044165       |                               |             |             |
|                                     | +   |                   |                              | 5SG60-IVS    | 66253044101                   | 32A60-GVBEP | 66253044198       |                               |             |             |
|                                     | 3,600   |                   |                              | 5SG60-JVS    | 66253044102                   | 32A60-HVBE  | 66253044168       |                               |             |             |
|                                     | 3,600   |                   |                              | 5SG60-KVS    | 66253044103                   | 32A60-IVBE  | 66253044169       |                               |             |             |
|                                     | 3,600   |                   |                              |              |                               | 32A60-JVBE  | 66253044171       |                               |             |             |
|                                     | 3,600   |                   |                              |              |                               | 32A60-KVBE  | 66253044173       |                               |             |             |
|                                     |   |                   |                              | 32A80-KVBE   | 66253044064                   |             |                   |                               |             |             |
| 8 x 1 x 1-1/4                       | +   | 1/10              | 5SG46-KVS                    | 66253002588  | 32A46-HVBE                    | 66253044616 | 1/10              | 38A46-IVBE                    | 66253044636 |             |
|                                     | +   |                   | 5SG60-GVSP                   | 66253003228† | 32A46-IVBE                    | 66253044617 |                   | 38A60-IVBE                    | 66253044456 |             |
|                                     | 3,600   |                   | 5SG60-IVS                    | 66253002639  | 32A46-KVBE                    | 66253044622 |                   | 57A60-MVBE                    | 66253044270 |             |
|                                     | 3,600   |                   |                              |              | 32A60-IVBE                    | 66253044624 |                   |                               |             |             |
|                                     |   |                   |                              | 32A60-KVBE   | 66253044629                   |             |                   |                               |             |             |
| 10 x 1/4 x 3                        | 2,485   |                   |                              |              |                               | 1/-         | 38A80-KVBE        | 66253149572                   |             |             |
| 10 x 1/2 x 3                        | 2,485   | 2/-               |                              |              | 32A60-JVBE                    | 66253149729 | 1/-               | 38A60-KVBE                    | 66253149859 |             |
|                                     |   |                   |                              |              |                               |             |                   | 38A80-KVBE                    | 66253149865 |             |
| 10 x 3/4 x 3                        | 2,485   | 1/-               |                              |              | 32A46-IVBE                    | 66253160024 | 1/-               | 38A46-JVBE                    | 66253160158 |             |
|                                     |   |                   |                              |              | 32A60-IVBE                    | 66253160137 |                   | 38A60-IVBE                    | 66253160163 |             |
|                                     |   |                   |                              |              | 32A60-KVBE                    | 66253160143 |                   |                               |             |             |
| 10 x 1 x 1-1/4                      | 2,485   | 1/-               |                              |              | 32A60-KVBE                    | 66253160774 |                   |                               |             |             |
| 10 x 1 x 2                          | 2,485   | 1/-               |                              |              | 32A46-IVBE                    | 66253160749 |                   |                               |             |             |
| 10 x 1 x 3                          | 2,485   | 1/*               | 5SG46-GVSP                   | 66253160494  | 32A46-HVBE                    | 66253160747 | 1/-               | 38A46-IVBE                    | 66253160889 |             |
|                                     |   |                   | 5SG46-IVS                    | 66253160400  | 32A46-IVBE                    | 66253160750 |                   | 38A46-JVBE                    | 66253160892 |             |
|                                     |   |                   | 5SG46-JVS                    | 66253160401  | 32A46-JVBE                    | 66253160754 |                   | 38A60-IVBE                    | 66253160898 |             |
|                                     |   |                   | 5SG46-KVS                    | 66253160402  | 32A46-KVBE                    | 66253160758 |                   | 38A60-KVBE                    | 66253160900 |             |
|                                     |   |                   | 5SG60-GVSP                   | 66253160495  | 32A60-IVBE                    | 66253160769 |                   |                               |             |             |
|                                     |   |                   | 5SG60-IVS                    | 66253160403  | 32A60-KVBE                    | 66253160777 |                   |                               |             |             |
|                                     |   |                   | 5SG60-JVS                    | 66253160404  | 32A80-KVBE                    | 66253160782 |                   |                               |             |             |
|                                     |   |                   | 5SG60-KVS                    | 66253160405  |                               |             |                   |                               |             |             |
| 12 x 1/2 x 3                        | 2,070   | 2/-               |                              |              | 32A60-JVBE                    | 66253262134 |                   |                               |             |             |
|                                     |   |                   |                              |              | 32A80-KVBE                    | 66253262110 |                   |                               |             |             |
| 12 x 1/2 x 5                        | 2,070   | 2/-               |                              |              | 32A60-KVBE                    | 66253262107 |                   |                               |             |             |
|                                     |   |                   |                              |              | 32A80-KVBE                    | 66253262111 |                   |                               |             |             |
| 12 x 3/4 x 3                        | 2,070   | 1/*               | 5SG46-IVS                    | 66253262204  | 32A46-GVBEP                   | 66253262392 | 1/-               | 38A46-JVBE                    | 66253262281 |             |
|                                     |   |                   |                              |              | 32A46-HVBE                    | 66253262260 |                   |                               |             |             |
|                                     |   |                   |                              |              | 32A46-IVBE                    | 66253262261 |                   |                               |             |             |
|                                     |   |                   |                              |              | 32A60-IVBE                    | 66253262270 |                   |                               |             |             |
|                                     |   |                   |                              |              | 32A60-KVBE                    | 66253262273 |                   |                               |             |             |
| 12 x 1 x 1-1/4                      | 2,070   | 1/-               |                              |              | 32A46-KVBE                    | 66253262570 |                   |                               |             |             |
| 12 x 1 x 3                          | •<br>•<br>2,070<br>2,070<br>2,070<br>2,070<br>2,070<br>2,070<br>2,070<br>2,070<br>2,710 | 1/*               | 3SGR46-HVP2                  | 66253220885  | 32A46-GVBEP                   | 66253262840 | 1/-               | 38A46-HVBE                    | 66253262700 |             |
|                                     |   |                   | 3SGR60-HVP2                  | 66253220887  | 32A46-HVBE                    | 66253262562 |                   | 38A46-IVBE                    | 66253262702 |             |
|                                     |   |                   | 5SG46-HVSP                   | 66253262488  | 32A46-HVBEP                   | 66253262842 |                   | 38A46-JVBE                    | 66253262704 |             |
|                                     |   |                   | 5SG46-IVS                    | 66253262500  | 32A46-IVBE                    | 66253262564 |                   | 38A60-IVBE                    | 66253262713 |             |
|                                     |   |                   | 5SG46-JVS                    | 66253262501  | 32A46-JVBE                    | 66253262567 |                   |                               |             |             |
|                                     |   |                   | 5SG46-KVS                    | 66253262502  | 32A46-KVBE                    | 66253262572 |                   |                               |             |             |
|                                     |   |                   | 5SG60-GVSP                   | 66253262593  | 32A60-HVBE                    | 66253262580 |                   |                               |             |             |
|                                     |   |                   | 5SG60-IVS                    | 66253262503  | 32A60-IVBE                    | 66253262581 |                   |                               |             |             |
|                                     |   |                   | 5SG60-JVS                    | 66253262504  | 32A60-KVBE                    | 66253262689 |                   |                               |             |             |
|                                     |   |                   | 5SG60-KVS                    | 66253262505  | 32A80-KVBE                    | 66253262532 |                   |                               |             |             |
|                                     |   |                   |                              |              |                               | 48A60-HVP2  |                   | 66253220891                   |             |             |

+ † REFER TO THE TECH TIPS ON THE PREVIOUS PAGE.

• 12" TYPE 01 WHEEL MAXIMUM RPM: NORPOR WHEELS = 2,710; ALL OTHERS = 2,070

\* BEST STD. PKG. = 3 WHEELS

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS

**For non-stock Toolroom Wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability, – including our revolutionary new Quantum ceramic wheels.**

## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

| SIZE<br>D X T X H                   | MAX.<br>RPM | MIN./STD.<br>PKG.  | BEST                   |               | BETTER                        |               | MIN./STD.<br>PKG. | GOOD                          |             |  |
|-------------------------------------|-------------|--|------------------------|---------------|-------------------------------|---------------|-------------------|-------------------------------|-------------|--|
|                                     |             |  | NORTON CERAMIC<br>SPEC | UPC NO.       | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.       |                   | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.     |  |
| <b>TYPE 01 STRAIGHT (CONTINUED)</b> |             |  |                        |               |                               |               |                   |                               |             |  |
| 12 x 1 x 5                          | 2,070       | 1/*  | 5SG46-GVSP             | 66253262594   | 32A46-GVBEP                   | 66253262841   | 1/-               | 38A46-IVBE                    | 66253262703 |  |
|                                     |             |  | 5SG46-IVS              | 66253262508   | 32A46-HVBE                    | 66253262563   |                   | 38A60-KVBE                    | 66253262719 |  |
|                                     |             |  | 5SG46-JVS              | 66253262509 B | 32A46-IVBE                    | 66253262565   |                   |                               |             |  |
|                                     |             |  | 5SG46-KVS              | 66253262510   | 32A46-KVBE                    | 66253262573   |                   |                               |             |  |
|                                     |             |  | 5SG60-GVSP             | 66253262595   | 32A60-HVBE                    | 66253262734   |                   |                               |             |  |
|                                     |             |  | 5SG60-IVS              | 66253262511   | 32A60-IVBE                    | 66253262582   |                   |                               |             |  |
|                                     |             |  | 5SG60-JVS              | 66253262512   | 32A60-JVBE                    | 66253262686   |                   |                               |             |  |
|                                     |             |  | 5SG60-KVS              | 66253262513   | 32A60-KVBE                    | 66253262691 B |                   |                               |             |  |
|                                     |             |  | 5SG80-JVS              | 66253262515   | 32A80-JVBE                    | 66253262696   |                   |                               |             |  |
|                                     |             |  | 32A80-KVBE             | 66253262697   |                               |               |                   |                               |             |  |
| 12 x 1-1/4 x 3                      | 2,070       | 1/-  |                        |               | 32A46-IVBE                    | 66253262301   |                   |                               |             |  |
| 12 x 1-1/2 x 1-1/4                  | 2,070       | 1/-  |                        |               | 32A46-KVBE                    | 66253263146   |                   |                               |             |  |
| 12 x 1-1/2 x 3                      | 2,070       | 1/*  | 5SG46-IVS              | 66253202820   | 32A46-HVBE                    | 66253263143   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A46-IVBE                    | 66253263144   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A60-JVBE                    | 66253263123   |                   |                               |             |  |
| 12 x 1-1/2 x 5                      | 2,070       | 1/* <b>new!</b><br><b>new!</b><br><b>new!</b><br><b>new!</b> | 5NQ46-IVS              | 69083159115   | 32A46-GVBEP                   | 66253263192   | 1/-               | 38A46-IVBE                    | 66253214987 |  |
|                                     |             |  | 5NQ46-JVS              | 69083159116   | 32A46-HVBE                    | 66253263128   |                   |                               |             |  |
|                                     |             |  | 5NQ60-GVSP             | 69083159117   | 32A46-IVBE                    | 66253263145   |                   |                               |             |  |
|                                     |             |  | 5NQ60-JVS              | 69083159118   | 32A46-JVBE                    | 66253263120   |                   |                               |             |  |
|                                     |             |  | 5SG46-GVSP             | 66253203453   | 32A60-HVBE                    | 66253263149   |                   |                               |             |  |
|                                     |             |  | 5SG46-IVS              | 66253202842   | 32A60-KVBE                    | 66253263034   |                   |                               |             |  |
|                                     |             |  | 5SG46-JVS              | 66253202926   |                               |               |                   |                               |             |  |
|                                     |             |  | 5SG60-GVSP             | 66253262596   |                               |               |                   |                               |             |  |
| 12 x 2 x 1-1/4                      | 2,070       | 1/-  |                        |               | 32A46-KVBE                    | 66253263461   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A46-MVBE                    | 66253263463   |                   |                               |             |  |
| 12 x 2 x 3                          | 2,070       | 1/-  |                        |               | 32A46-IVBE                    | 66253263459   |                   |                               |             |  |
| 12 x 2 x 5                          | 2,070       | 1/-  |                        |               | 32A46-HVBE                    | 66253263403   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A46-IVBE                    | 66253262302   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A60-KVBE                    | 66253263465   |                   |                               |             |  |
| 14 x 1/2 x 5                        | 1,800       | 1/*  | 5SG80-KVS              | 66253363814   | 32A60-KVBE                    | 66253363761   |                   |                               |             |  |
| 14 x 3/4 x 5                        | 1,800       | 1/-  |                        |               | 32A60-KVBE                    | 66253363772   |                   |                               |             |  |
| 14 x 1 x 3                          | 1,800       | 1/*  | 5SG46-IVS              | 66253363960   | 32A46-HVBE                    | 66253363912   |                   |                               |             |  |
|                                     |             |  | 5SG46-KVS              | 66253363961   | 32A46-IVBE                    | 66253363914   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A46-JVBE                    | 66253363917   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A60-IVBE                    | 66253363927   |                   |                               |             |  |
| 14 x 1 x 5                          | 1,800       | 1/*  | 5SG46-GVSP             | 66253364108   | 32A46-GVBEP                   | 66253364074   | 1/-               | 38A46-HVBE                    | 66253364043 |  |
|                                     |             |  | 5SG46-HVSP             | 66253313990   | 32A46-HVBE                    | 66253363913   |                   | 38A60-IVBE                    | 66253363947 |  |
|                                     |             |  | 5SG46-IVS              | 66253363970   | 32A46-IVBE                    | 66253363915   |                   | 38A60-JVBE                    | 66253364051 |  |
|                                     |             |  | 5SG46-JVS              | 66253363971   | 32A46-JVBE                    | 66253363919   |                   | 38A60-KVBE                    | 66253364053 |  |
|                                     |             |  | 5SG60-IVS              | 66253363974   | 32A46-KVBE                    | 66253363921   |                   | 38A80-KVBE                    | 66253364058 |  |
|                                     |             |  | 5SG60-IVSP             | 66253363871   | 32A60-GVBEP                   | 66253364077   |                   | 57A60-KVBE                    | 66253364065 |  |
|                                     |             |  | 5SG60-JVS              | 66253363975   | 32A60-HVBE                    | 66253363926   |                   | 57A60-LVBE                    | 66253364066 |  |
|                                     |             |  | 5SG60-KVS              | 66253363976   | 32A60-JVBE                    | 66253363930   |                   | 57A80-MVBE                    | 66253364070 |  |
|                                     |             |  | 5SG80-JVS              | 66253363979   | 32A60-KVBE                    | 66253363932   |                   |                               |             |  |
|                                     |             |  | 5SG80-KVS              | 66253364003   | 32A60-LVBE                    | 66253364035   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A80-JVBE                    | 66253364038   |                   |                               |             |  |
|                                     |             |  |                        |               | 32A80-KVBE                    | 66253364039   |                   |                               |             |  |
|                                     |             |  |                        |               |                               |               |                   |                               |             |  |
|                                     |             |  |                        |               |                               |               |                   |                               |             |  |
| 14 x 1 x 8                          | 1,800       | 1/-  |                        |               | 32A60-IVBE                    | 66253363887   |                   |                               |             |  |

\* BEST STD. PKG. = 3 WHEELS

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS



### Single Point Dressing Tool Starting Recommendations for Toolroom Wheels

| WHEEL ABRASIVE TYPE: | ALL SG, 37C AND 39C |                  |             |                  | 25A, 32A, 38A, 48A, 57A, 64A, 86A |  |
|----------------------|---------------------|------------------|-------------|------------------|-----------------------------------|--|
| WHEEL SIZES          | TOOL SHANK DIAMETER | TOOL PRODUCT NO. | UPC NO.     | TOOL PRODUCT NO. | UPC NO.                           |  |
| 12" to 14"           | 3/8                 | BCSG5M6          | 66260157009 | BC5M6            | 66260195004                       |  |
|                      | 7/16                | BCSG5M7          | 66260156907 | BC5M7            | 66260195005                       |  |

THESE TOOLS ARE A STANDARD RECOMMENDATION; SEE THE "DIAMOND TOOL" SECTION FOR ADDITIONAL TOOLS.

# VITRIFIED WHEELS

## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

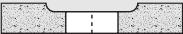
| SIZE<br>D X T X H  | MAX.<br>RPM    | MIN./STD.<br>PKG. | BEST                   |               | BETTER                                   |   | MIN./STD.<br>PKG. | GOOD                          |             |  |
|--|----------------|-------------------|------------------------|---------------|--|---|-------------------|-------------------------------|-------------|--|
|  |                |                   | NORTON CERAMIC<br>SPEC | UPC NO.       | NORTON ALUMINUM OXIDE<br>SPEC            | UPC NO.                                   |                   | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.     |  |
| <b>TYPE 01 STRAIGHT (CONTINUED)</b>  |                |                   |                        |               |  |   |                   |                               |             |  |
| 14 x 1-1/2 x 5   | 1,800          | 1/*               | 5NQ46-IVS              | 69083159119   | 32A46-GVBEP                              | 66253364238                               | 1/-               | 38A46-HVBE                    | 66253313968 |  |
|  |                |                   | 5NQ46-JVS              | 69083159120   | 32A46-HVBE                               | 66253364335 B                             |                   | 38A46-HVBEP                   | 66253313969 |  |
|  |                |                   | 5NQ60-GVSP             | 69083159122   | 32A46-HVBEP                              | 66253364243                               |                   | 38A46-IVBE                    | 66253364090 |  |
|  |                |                   | 5NQ60-JVS              | 69083159124   | 32A46-IVBE                               | 66253364336                               |                   | 38A46-JVBE                    | 66253364240 |  |
|  |                |                   | 5SG46-GVSP             | 66253364320   | 32A46-JVBE                               | 66253364337                               |                   | 38A60-IVBE                    | 66253364247 |  |
|  |                |                   | 5SG46-HVSP             | 66253302625   | 32A46-KVBE                               | 66253364339                               |                   |                               |             |  |
|  |                |                   | 5SG46-IVS              | 66253364097 B | 32A60-HVBE                               | 66253364340                               |                   |                               |             |  |
|  |                |                   | 5SG46-IVSP             | 66253302498   | 32A60-IVBE                               | 66253364239                               |                   |                               |             |  |
|  |                |                   | 5SG46-JVS              | 66253364098 B | 32A60-JVBE                               | 66253364341                               |                   |                               |             |  |
|  |                |                   | 5SG60-IVS              | 66253364100   | 32A60-KVBE                               | 66253364342                               |                   |                               |             |  |
|  |                |                   | 5SG60-JVS              | 66253364101   | 32A80-JVBE                               | 66253364246                               |                   |                               |             |  |
|  |                |                   | 5SG60-KVS              | 66253302160   |  |   |                   |                               |             |  |
|  |                |                   | 5SG80-KVS              | 66253363815   |  |   |                   |                               |             |  |
| 14 x 2 x 5   | 1,800          | 1/*               | 5SG60-JVS              | 66253364414   | 32A46-IVBE                               | 66253364323                               |                   |                               |             |  |
|  |                |                   |                        |               | 32A46-JVBE                               | 66253364508                               |                   |                               |             |  |
|  |                |                   |                        |               | 32A46-KVBE                               | 66253364509                               |                   |                               |             |  |
|  |                |                   |                        |               | 32A60-KVBE                               | 66253364510                               |                   |                               |             |  |
| <b>TYPE 02 CYLINDER</b>  |                |                   |                        |               |  |   |                   |                               |             |  |
| 6 x 1 x 4<br>Rim 1"<br>Plate A47466  | 3,600          | 1/5               |                        |               | 32A46-KVBE                               | 66252838308                               | 1/5               | 38A80-HVBE                    | 66252838314 |  |
| 6 x 3-7/8 x 4-7/8<br>Used in Pairs<br>Rim 9/16"<br>(ME159035)<br>Plate A308567 | 3,600          |                   |                        |               |  |   | 2/-               | 46-K+<br>Knife Sharpening     | 66253049501 |  |
| 8 x 2 x 5-1/2<br>Rim 1-1/4"<br>Plate A50831                                    | 2,865          |                   |                        |               |  |   | 1/5               | 53A46-KVBE                    | 66253044942 |  |
| 8 x 3-1/2 x 6-1/2<br>Used in Pairs<br>Rim 3/4"<br>(ME151086)<br>Plate A76209   | 2,865          |                   |                        |               |  |   | 2/-               | 46-K+<br>Knife Sharpening     | 66253045407 |  |
| 10 x 2 x 7-1/2<br>Rim 1-1/4"<br>(ME62845)<br>Plate A110170                     | 2,295          | 1/-               |                        |               | 32A54-JVG                                | 66253161687                               | 1/-               | 53A60-KVG                     | 66253161701 |  |
| 11 x 5<br>Rim 1" (ME33437)<br>Tape Wound                                       | 1,910          | 1/-               |                        |               | 32A30-HVBE                               | 66253161800                               |                   |                               |             |  |
| 11 x 5<br>Rim 1" (ME52726)<br>Tape Wound                                       | 1,740<br>1,910 | 1/-               |                        |               | 32A36-EVBEP<br>32A36-GVBEP<br>32A46-HVBE | 66253161780<br>66253161808<br>66253161893 | 1/-               | 38A46-GVBE                    | 66253161807 |  |
| 14 x 4 x 11<br>Rim 1-1/2"<br>(ME62806)<br>Plate A52814<br>Tape Wound           | 1,640          |                   |                        |               |  |   | 1/-               | 38A46-KVBE                    | 66253364652 |  |
| 18 x 5 Rim 1-1/2"<br>(ME15536)<br>Tape Wound                                   | 1,065          | 1/-               |                        |               | 32A30-E19VCP                             | 66253465142                               |                   |                               |             |  |
| 18 x 5 Rim 1-1/2"<br>(ME52719)<br>Tape Wound<br>Includes Strips                | 1,170          | 1/-               |                        |               | 23A30-F19VCP<br>23A30-G19VCP             | 66253465235<br>66253465129                |                   |                               |             |  |
| 20 x 5 Rim 1-3/4"<br>(ME58559)<br>Tape Wound<br>Includes Strips                | 1,050          | 1/-               |                        |               | 23A30-G19VCP                             | 69078665769                               |                   |                               |             |  |

\* BEST STD. PKG. = 3 WHEELS

B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS - FOR MANY SATISFIED CUSTOMERS

## Vitrified Wheels for Steel Applications (CONTINUED)



For all types of tool steel grinding.

| SIZE<br>D X T X H  | MAX.<br>RPM                                 | MIN./STD.<br>PKG. | BEST  |   | BETTER   |   | MIN./STD.<br>PKG. | GOOD   |  |
|--|---|-------------------|---|---|--|---|-------------------|--|--|
|  |   |                   | NORTON CERAMIC<br>SPEC  | UPC NO.   | NORTON ALUMINUM OXIDE<br>SPEC  | UPC NO.   |                   | NORTON ALUMINUM OXIDE<br>SPEC  | UPC NO.  |
| <b>TYPE 05 RECESSED ONE SIDE</b>  |   |                   |   |   |  |   |                   |  |  |
| 7 x 3/4 x 1-1/4<br>Rec 1/S 2-3/4 x 1/4   | 3,600                                       | 1/10              | 5SG46-IVS<br>5SG60-IVS  | 66252941976<br>66252942312  | 32A46-HVBE<br>32A46-IVBE<br>32A46-JVBE<br>32A60-IVBE<br>32A60-JVBE<br>32A60-KVBE   | 66252942209<br>66252942211<br>66252942213<br>66252942217<br>66252942218<br>66252942205  | 1/10              | 38A46-IVBE<br>38A60-IVBE   | 66252942222<br>66252942225   |
| 7 x 1 x 1-1/4<br>Rec 1/S 2-3/4 x 1/2   | 3,600                                       | 1/10              | 3SGR46-HVP2<br>5SG46-IVS<br>5SG46-JVS<br>5SG60-JVS  | 66252916228<br>66252942318<br>66252942427<br>66252942431  | 32A46-GVBEP<br>32A46-HVBE<br>32A46-HVBEP<br>32A46-IVBE<br>32A46-KVBE<br>32A60-IVBE<br>32A60-JVBE<br>32A60-KVBE<br>48A46-HVP2 | 66252942826<br>66252942688<br>66252942828<br>66252942691<br>66252942708<br>66252942699<br>66252942701<br>66252942703<br>66252916232 |                   |  |  |
| 7 x 1 x 1-1/4<br>Rec 1/S 3 x 1/2   | 3,600                                       | 1/10              | 5SG46-IVS<br>5SG60-IVS  | 66252901814<br>66252906907  | 32A46-HVBE<br>32A46-IVBE<br>32A60-IVBE   | 66252942689<br>66252942690<br>66252942686   | 1/10              | 38A46-HVBE<br>38A46-IVBE<br>38A46-KVBE<br>38A60-IVBE<br>38A60-JVBE<br>38A60-KVBE | 66252942707<br>66252942809<br>66252942793<br>66252942815<br>66252942816<br>66252942817 |
| 7 x 1-1/4 x 1-1/4<br>Rec 1/S 2-3/4 x 5/8   | 3,600                                       | 1/5               |   |   | 32A46-HVBE<br>32A60-IVBE<br>32A60-JVBE   | 66252942833<br>66252942859<br>66252942835   |                   |  |  |
| 7 x 1-1/2 x 1-1/4<br>Rec 1/S 2-3/4 x 3/4   | 3,600                                       | 1/5               |   |   | 32A46-IVBE<br>32A60-IVBE   | 66252942843<br>66252942844  |                   |  |  |
| 8 x 3/4 x 1-1/4<br>Rec 1/S 3-1/4 x 1/4   | 3,105                                       | 1/10              |   |   | 32A46-IVBE   | 66253044213   |                   |  |  |
| 8 x 1 x 1-1/4<br>Rec 1/S 3-1/4 x 1/2   | 3,105<br>3,600<br>3,600<br>3,600            | 1/10              | 5SG46-IVS<br>5SG46-JVS  | 66253013543<br>66253003301  | 32A46-IVBE<br>32A46-JVBE<br>32A60-IVBE<br>32A60-KVBE   | 66253044790<br>66253044382<br>66253044753<br>66253044810  |                   |  |  |
| 10 x 3/4 x 2<br>Rec Side A<br>5 x 3/16 Face Bev<br>Side A 75 Deg<br>From 1/8" Flat                                 | 2,485                                       | 1/-               |   |   | 32A60-JVBE   | 66253160189   |                   |  |  |
| 12 x 1-1/2 x 3<br>Rec 1/S 6 x 1/2  | 2,070                                       | 1/-               |   |   | 32A46-IVBE   | 66253263186   |                   |  |  |
| 12 x 1-1/2 x 5<br>Rec 1/S 7-1/2 x 1/2  | •<br>2,070<br>2,070<br>2,070<br>2,070       | 1/*               | 3SGR46-HVP2<br>5SG46-GVSP<br>5SG46-IVS<br>5SG60-IVSP  | 66253220904<br>66253263127<br>66253202883<br>66253263050  | 32A46-HVBEP<br>32A46-IVBE<br>32A46-JVBE<br>32A46-KVBE<br>32A60-KVBE  | 66253263180<br>66253263166<br>66253263169<br>66253263170<br>66253263172   | 1/-               | 38A46-IVBE   | 66253263175  |
| 14 x 1-1/2 x 5<br>Rec 1/S 8 x 1/2  | •<br>•<br>•<br>1,800<br>1,800<br>•<br>1,800 | 1/*               | 3SGR46-GVP2<br>3SGR46-HVP2<br>3SGR60-HVP2<br>5SG46-IVS<br>5SG46-JVS<br>5SG60-IVS<br>5SG60-JVS | 66253319953<br>66253319954<br>66253319956<br>66253364102<br>66253364103<br>66253364104<br>66253364105 | 32A46-HVBE<br>32A46-IVBE<br>32A46-KVBE<br>32A60-JVBE<br>32A60-KVBE<br>48A46-HVP2   | 66253364359<br>66253364300<br>66253364362<br>66253364364<br>66253364365<br>66253319958  |                   |  |  |
| 14 x 2 x 5<br>REC 1/S 8 x 1/2  | 2,320                                       | 1/-               | 3SGR46-GVP2<br>3SGR46-HVP2  | 66253319936<br>66253319937  | 48A46-HVP2   | 66253319941   | 1/-               | 25A46-HVP2<br>38A46-HVP2<br>38A60-HVP2   | 66253319945<br>66253319949<br>66253319951  |
| 14 x 2 x 5<br>REC 1/S 8 x 1  | 1,800                                       | 1/-               |   |   | 32A60-KVBE<br>32A60-LVBE   | 66253364390<br>66253364525  |                   |  |  |

• 12" TYPE 05 WHEEL MAXIMUM RPM: NORPOR VP2 WHEELS = 2,710; ALL OTHERS=2,070  
 • 14" TYPE 05 WHEEL MAXIMUM RPM: NORPOR VP2 WHEELS = 2,320; ALL OTHERS=1,800  
 \* BEST STD. PKG. = 3 WHEELS

## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

| SIZE<br>D X T X H   | MAX.<br>RPM | MIN./STD.<br>PKG. | BEST  |             | BETTER  |   | MIN./STD.<br>PKG. | GOOD                          |                            |
|---|-------------|-------------------|---|-------------|---|---|-------------------|-------------------------------|----------------------------|
|   |             |                   | NORTON CERAMIC<br>SPEC  | UPC NO.     | NORTON ALUMINUM OXIDE<br>SPEC                                       | UPC NO.   |                   | NORTON ALUMINUM OXIDE<br>SPEC | UPC NO.                    |
| <b>TYPE 06 STRAIGHT CUP</b>                                 |             |                   |    |             |   |   |                   |                               |                            |
| 3-1/2 x 1-1/2 x 1/2<br>Rim 1/2" Back 1/2"                   | 6,550       |                   |   |             |   |   | 1/10              | 38A60-KVBE                    | 66243529372                |
| 100mm x 50mm<br>x 20mm<br>Rim 10mm<br>Back 13mm             | 6,550       |                   |   |             |   |   | 1/10              | 38A80-JVBE                    | 66243530429                |
| 4 x 1-1/2 x 1/2<br>Rim 1/2" Back 1/2"                       | 5,730       | 1/10              |   |             | 32A60-KVBE  | 66243530218   |                   |                               |                            |
| 4 x 1-1/2 x 1-1/4<br>Rim 1/2" Back 1/2"                     | 5,730       |                   |   |             |   |   | 1/10              | 38A60-KVBE                    | 66243530221                |
| 4 x 2 x 20mm<br>Rim 3/8" Back 1/2"                          | 5,730       |                   |   |             |   |   | 1/10              | 38A80-JVBE                    | 66243530523                |
| 5 x 1-1/2 x 1-1/4<br>Rim 3/8" Back 3/8"<br>Face Y (ME19243) | 4,585       | 1/10              |   |             | 32A46-KVBE<br>32A60-JVBE<br>32A60-KVBE                              | 66252830832<br>66252830837<br>66252830838                               | 1/10              | 38A46-KVBE<br>38A60-KVBE      | 66252830842<br>66252830846 |
| 5 x 2 x 5/8<br>Rim 1/2" Back 1/2"                           | 4,585       | 1/10              |   |             | 32A60-JVBE  | 66252830987   |                   |                               |                            |
| 6 x 1-1/2 x 1/2<br>Rim 1" Back 1/2"                         | 3,820       | 1/10              |   |             | 32A46-KVBE  | 66252838458   |                   |                               |                            |
| 6 x 2 x 1-1/4<br>Rim 1/2" Back 1/2"                         | 3,820       | 1/10              |   |             | 32A46-IVBE<br>32A60-JVBE  | 66252838544<br>66252838538  | 1/10              | 38A60-KVBE                    | 66252838486                |
| 7 x 2 x 1-1/4<br>Rim 1/2" Back 1/2"                         | 3,275       | 1/8               |   |             | 32A46-JVBE  | 66252942856   |                   |                               |                            |
| <b>TYPE 07 RECESSED TWO SIDES</b>                           |             |                   |  |             |   |   |                   |                               |                            |
| 12 x 2 x 3<br>Rec 2/S 5-1/2 x 3/8                           | 2,070       | 1/-               |   |             | 32A46-IVBE  | 66253263588   |                   |                               |                            |
| 12 x 2 x 3<br>Rec 2/S 7-1/4 x 1/2                           | 2,070       | 1/-               | 5SG46-IVS   | 66253210249 | 32A46-HVBE<br>32A46-JVBE  | 66253263590<br>66253263348  |                   |                               |                            |
| 12 x 2 x 5<br>Rec 2/S 7-1/4 x 1/2                           | 2,070       | 1/-               |   |             | 32A46-IVBE  | 66253263594   |                   |                               |                            |
| 12 x 2 x 5<br>Rec 2/S 7-1/2 x 1/2                           | 2,070       | 1/*               | 5SG46-JVS   | 66253209930 | 32A46-HVBE<br>32A46-HVBEP<br>32A46-JVBE<br>32A46-KVBE<br>32A60-IVBE | 66253263591<br>66253263603<br>66253263483<br>66253263596<br>66253263597 | 1/-               | 38A46-IVBE                    | 66253263600                |





\* BEST STD. PKG. = 3 WHEELS

Refer to page 146, and the "Diamond Tool" and "Dressing Sticks" sections for truing and dressing products.

For non-stock Toolroom Wheels: if you don't see the toolroom wheel you need in our stock listing, call your local authorized Norton distributor to check our made-to-order non-stock availability, – including our revolutionary new Quantum ceramic wheels.

## Vitrified Wheels for Steel Applications (CONTINUED)

For all types of tool steel grinding.

| SIZE<br>D X T X H   | MAX.<br>RPM | MIN./STD.<br>PKG. | BEST  |  | BETTER   |   | MIN./STD.<br>PKG. | GOOD   |   |  |
|---|-------------|-------------------|---|--|--|---|-------------------|--|---|--|
|   |             |                   | NORTON CERAMIC<br>SPEC  | UPC NO.  | NORTON ALUMINUM OXIDE<br>SPEC                                      | UPC NO.   |                   | NORTON ALUMINUM OXIDE<br>SPEC                                      | UPC NO.   |  |
| <b>TYPE 11 FLARING CUP</b>           |             |                   |   |  |  |   |                   |  |   |  |
| 3/2-1/4 x 1-1/4 x 3/4<br>Rim 1/4" Back 3/8"<br>Face Z (ME21560)   | 7,640       | 1/10              |   |  | 32A60-JVBE<br>32A60-KVBE   | 66243529183<br>66243529187  | 1/10              | 38A60-JVBE   | 66243529197   |  |
| 3-1/2/2-3/4 x<br>1-1/2 x 1-1/4<br>Rim 1/4" Back 3/8"<br>Face Z (ME24327)  | 7,640       | 1/10              |   |  | 32A60-KVBE   | 66243529358   |                   |  |   |  |
| 4/3 x 1-1/2 x 1-1/4<br>Rim 1/4" Back 1/2"<br>Face Z (ME19237)   | 5,730       | 1/10              | 5SG46-IVSP<br>5SG46-KVS<br>5SG60-JVS<br>5SG60-LVS<br>5SG80-JVS<br>5SG80-KVS | 66243530127<br>66243503342<br>66243530415<br>66243530417<br>66243530419<br>66243530420 | 32A46-IVBE<br>32A46-KVBE<br>32A60-JVBE<br>32A60-KVBE<br>32A80-KVBE | 66243530240<br>66243530246<br>66243530256<br>66243530361<br>66243530368 | 1/10              | 38A46-KVBE<br>38A60-JVBE<br>38A60-KVBE<br>38A80-JVBE<br>38A80-KVBE | 66243530378<br>66243530387<br>66243530390<br>66243530393<br>66243530395 |  |
| 4-1/2/3-3/4 x 2 x 1-1/4<br>Rim 1/4" Back 1/2"<br>(ME20115)  | 5,730       | 1/10              |   |  | 32A46-KVBE   | 66252830539   |                   |  |   |  |
| 5/3-3/4 x 1-3/4 x 1-1/4<br>Rim 1/4" Back 1/2"<br>Face Z (ME21563)   | 4,585       | 5/15              | 5SG46-KVS<br>5SG60-KVS<br>5SG60-LVS   | 66252803291<br>66252830737<br>66252830736  | 32A46-JVBE<br>32A46-KVBE<br>32A60-JVBE<br>32A60-KVBE<br>32A80-KVBE | 66252830858<br>66252830859<br>66252830962<br>66252830964<br>66252830966 | 1/10              | 38A46-KVBE<br>38A60-JVBE<br>38A60-KVBE                             | 66252830971<br>66252830973<br>66252830975                               |  |
| 6/4-1/2 x 2 x 1-1/4<br>Rim 3/8" Back 1/2"<br>Face Z (ME19241)   | 3,820       | 5/15              |   |  | 32A46-JVBE<br>32A46-KVBE<br>32A60-JVBE                             | 66252838491<br>66252838528<br>66252838492                               | 1/10              | 38A46-KVBE<br>38A60-KVBE   | 66252838495<br>66252838497  |  |
| 7/5 x 2 x 1-1/4<br>Rim 3/4" Back 1/2"<br>(ME19242)  | 3,275       | 1/8               |   |  | 32A46-JVBE   | 66252942959   | 1/8               | 38A46-HVBE   | 66252942963   |  |
| <b>TYPE 12 DISH</b>                |             |                   |   |  |  |   |                   |  |   |  |
| 4 x 1/2 x 3/4<br>(ME19226)  | 6,207       | 1/10              |   |  | 32A60-KVBE   | 66243530067   |                   |  |   |  |
| 6 x 1/2 x 1-1/4<br>(ME19229)  | 4,140       | 1/10              | 5SG60-LVS   | 66252836574  | 32A46-JVBE<br>32A60-JVBE   | 66252836860<br>66252836966  | 1/10              | 38A60-JVBE   | 66252836977   |  |
| 6 x 3/4 x 1-1/4<br>(ME19230)  | 4,140       | 1/10              | 5SG60-KVS   | 66252837771  | 32A46-KVBE<br>32A60-JVBE<br>32A60-KVBE                             | 66252837732<br>66252837734<br>66252837735                               |                   |  |   |  |
| 7 x 1/2 x 1-1/4<br>(ME13717)  | 3,600       | 1/10              |   |  | 32A46-KVBE<br>32A60-KVBE   | 66252941644<br>66252941647  |                   |  |   |  |
| 8 x 3/4 x 1-1/4<br>(ME19231)  | 3,600       |                   |   |  |  |   | 1/10              | 38A60-KVBE   | 66253044319   |  |
| 10 x 1 x 1<br>(ME38702)   | 2,485       | 1/-               |   |  | 32A54-JVBE   | 66253161196   |                   |  |   |  |
| 10 x 1 x 1-1/4<br>(ME38702)   | 2,485       | 1/-               |   |  | 32A54-JVBE   | 66253161197   |                   |  |   |  |
| <b>TYPE 20 CONCAVE ONE SIDE</b>    |             |                   |   |  |  |   |                   |  |   |  |
| 14 x 1-1/2 x 5<br>Concave from Periphery<br>1/2" Deep to 8" Flat Spot   | 1,800       | 1/-               | 5SG60-JVS   | 66253302265  | 32A60-JVBE<br>32A60-KVBE<br>32A60-LVBE                             | 66253364250<br>66253364332<br>66253364375                               |                   |  |   |  |
| <b>TYPE 35 PLATE MOUNTED DISC</b>  |             |                   |   |  |  |   |                   |  |   |  |
| 9 x 2 x 4-15/16<br>Rim 2-1/32" (ME31130)<br>Plate A47248  | 2,550       | 1/-               |   |  | 32A46-MVBE<br>32A60-J25VCF2<br>32A70-JVBEP                         | 66253049115<br>66253006557<br>66253049112                               |                   |  |   |  |

# VITRIFIED WHEELS

## Non-Steel Applications

Use 39C (green silicon carbide) for cemented carbides, titanium, metal matrix composites and plasma sprayed materials. Use 37C (black silicon carbide) on 300 series stainless steels, irons, nonferrous metals (aluminum, brass, bronze and copper) and non-metallic materials (stone, marble, rubber, ceramics and glass).



Made in U.S.A.

VITRIFIED WHEELS

| SIZE<br>D X T X H              | MAX.<br>RPM | MIN./STD.<br>PKG. | GOOD<br>SILICON CARBIDE |                            |
|--------------------------------|-------------|-------------------|-------------------------|----------------------------|
|                                |             |                   | SPEC                    | UPC NO.                    |
| <b>TYPE 01 STRAIGHT</b>        |             |                   |                         |                            |
| 3 x 1/2 x 1/2                  | 10,825      | 20/-              | 37C60-MVK               | 66243529041                |
| 3 x 1 x 1/2                    | 10,825      | 1/10              | 37C60-MVK               | 66243529166                |
|                                |             |                   | 37C80-HVK               | 66243529170                |
|                                |             |                   | 37C80-MVK               | 66243529171                |
|                                |             |                   | 37C100-HVK              | 66243529172                |
|                                |             |                   | 37C100-MVK              | 66243529070                |
| 3-1/2 x 1-1/2 x 7/8<br>(ME622) | 7,095       | 1/10              | 37C24-SVK               | 66243529339                |
|                                |             |                   | 37C30-SVK               | 66243529338                |
| 4 x 1/2 x 1/2                  | 8,120       | 1/10              | 37C60-MVK<br>39C100-IVK | 66243529960<br>66243530064 |
| 6 x 1/2 x 1-1/4                | 4,140       | 1/10              | 39C60-IVK               | 66252836706                |
|                                |             |                   | 39C80-IVK               | 66252836816                |
|                                |             |                   | 39C100-IVK              | 66252836827                |
|                                |             |                   | 39C120-IVK              | 66252836836                |
| 6 x 3/4 x 1-1/4                | 4,140       | 1/10              | 39C60-IVK               | 66252837584                |
|                                |             |                   | 39C80-IVK               | 66252837598                |
|                                |             |                   | 39C100-IVK              | 66252837717                |
| 6 x 1 x 1-1/4                  | 4,140       | 1/10              | 39C60-IVK               | 66252838161                |
|                                |             |                   | 39C80-IVK               | 66252838173                |
| 7 x 1/4 x 1-1/4                | 3,600       | 1/10              | 39C80-JVK               | 66252940007                |
|                                |             |                   | 39C100-IVK              | 66252940109                |
|                                |             |                   | 39C120-IVK              | 66252940111                |
| 7 x 1/2 x 1-1/4                | 3,600       | 1/10              | 37C46-JVK               | 66252941488                |
|                                |             |                   | 37C60-OVK               | 66252941498                |
|                                |             |                   | 39C60-IVK               | 66252941609                |
|                                |             |                   | 39C60-JVK               | 66252941611                |
|                                |             |                   | 39C60-KVK               | 66252941613                |
|                                |             |                   | 39C80-IVK               | 66252941617                |
|                                |             |                   | 39C80-JVK               | 66252941618                |
|                                |             |                   | 39C100-HVK              | 66252941622                |
|                                |             |                   | 39C100-IVK              | 66252941624                |
|                                |             |                   | 39C120-IVK              | 66252941632 B              |
| 7 x 3/4 x 1-1/4                | 3,600       | 1/10              | 39C80-JVK               | 66252942096                |
|                                |             |                   | 39C100-JVK              | 66252942104                |
| 7 x 1 x 1-1/4                  | 3,600       | 1/10              | 39C60-IVK               | 66252942666                |
|                                |             |                   | 39C80-IVK               | 66252942413                |
|                                |             |                   | 39C120-IVK              | 66252942416                |
| 8 x 1/2 x 1-1/4                | 3,600       | 1/10              | 39C60-IVK               | 66253044013                |
|                                |             |                   | 39C100-IVK              | 66253044017 B              |
| 8 x 3/4 x 1-1/4                | 3,600       | 1/10              | 39C60-JVK               | 66253044312                |
|                                |             |                   | 39C100-IVK              | 66253044314                |
| 8 x 1 x 1-1/4                  | 3,600       | 1/10              | 39C60-JVK               | 66253044770                |
|                                |             |                   | 39C80-IVK               | 66253044425 B              |
|                                |             |                   | 39C100-IVK              | 66253044379                |

CONTINUED

| SIZE<br>D X T X H                                       | MAX.<br>RPM | MIN./STD.<br>PKG. | GOOD<br>SILICON CARBIDE |             |
|---|-------------|-------------------|-------------------------|-------------|
|   |             |                   | SPEC                    | UPC NO.     |
| <b>TYPE 01 STRAIGHT (CONT'D)</b>                        |             |                   |                         |             |
| 10 x 1 x 3  | 2,485       | 1/-               | 39C60-JVK               | 66253160348 |
| 10 x 1-1/2 x 2  | 2,485       | 1/-               | 39C60-JVK               | 66253161640 |
| 12 x 1 x 3  | 2,070       | 1/-               | 39C60-IVK               | 66253262985 |
| 12 x 1 x 5  | 2,070       | 1/-               | 39C60-IVK               | 66253262884 |
|   |             |                   | 39C80-JVK               | 66253262988 |
| 14 x 1 x 5  | 1,800       | 1/-               | 39C60-JVK               | 66253364206 |
|   |             |                   | 39C80-JVK               | 66253364208 |
| 14 x 1-1/2 x 5  | 1,800       | 1/-               | 39C60-JVK               | 66253364242 |
| 14 x 2 x 5  | 1,800       | 1/-               | 39C60-JVK               | 66253364322 |
| <b>TYPE 02 CYLINDER</b>                                 |             |                   |                         |             |
| 6 x 1 x 4<br>Rim 1"<br>Plate A47466                     | 3,600       | 1/5               | 39C60-IVK               | 66252838322 |
|   |             |                   | 39C60-JVK               | 66252838324 |
|   |             |                   | 39C80-IVK               | 66252838327 |
|   |             |                   | 39C100-IVK              | 66252838330 |
|   |             |                   | 39C120-IVK              | 66252838193 |
| 6 x 1-1/4 x 4<br>Rim 1"<br>Plate A47466                 | 3,600       | 1/5               | 39C60-IVK               | 66252838345 |
|   |             |                   |                         |             |
| 7 x 1-1/2 x 5<br>Rim 1"<br>Plate A39027                 | 3,600       | 1/5               | 39C60-IVK               | 66252942848 |
|   |             |                   |                         |             |
| 10 x 2 x 7<br>Rim 1-1/2"<br>Plate A83831                | 2,100       | 1/-               | 39C60-HVK               | 66253161675 |
|   |             |                   | 39C60-JVK               | 66253161678 |
|   |             |                   | 39C120-IVK              | 66253161784 |
| 14 x 4 x 11<br>Rim 1-1/2"<br>Plate A52814<br>Tape Wound | 1,640       | 1/-               | 39C60-JVK               | 66253364657 |
|   |             |                   |                         |             |
| <b>TYPE 05 RECESSED ONE SIDE</b>                        |             |                   |                         |             |
| 14 x 1-1/2 x 5<br>Rec 1/8 x 1/2                         | 1,800       | 1/-               | 39C60-IVK               | 66253364328 |

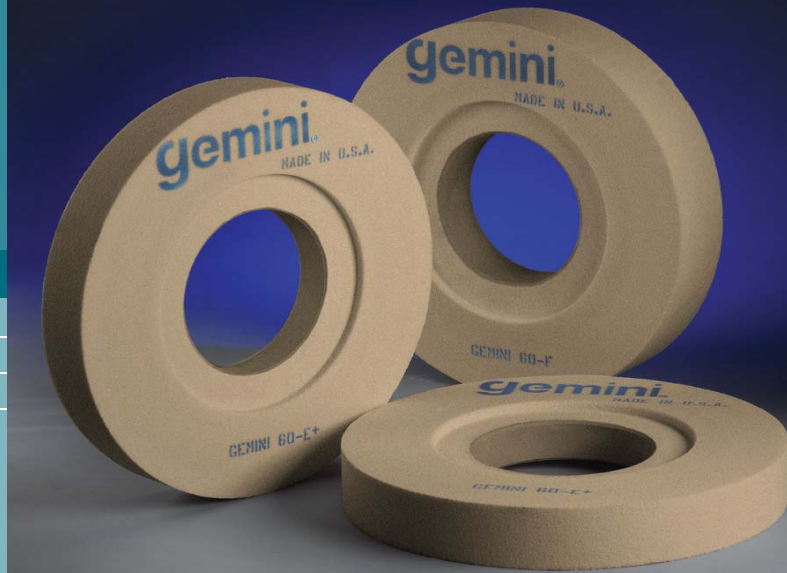
B = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS

# SURFACE GRINDING WHEELS

Surface grinding wheels are generally used to grind flat stock or flat surfaces within a workpiece. These wheels are typically used on horizontal spindle machines. Applications can vary from heavy, rapid stock removal to precision tolerance operations.

## Typical Wheel Applications

- Producing flat stock
- Grinding large molds and dies
- Sharpening knives, blades and cutlery
- Manufacturing broaches



| GOOD   | Gemini Non-stock Wheels – Economical, versatile, general purpose wheels   |  |
|--|---|--|
| FEATURES   | BENEFITS  |  |
| • Specially blended aluminum oxide abrasive for many surface grinding applications | • Consistent performance at an economical price<br>• Faster grinding rates remove stock; lower rates produce finer finishes |  |
| • Porous bond  | • Cool cutting on medium to wide contact areas; high chip clearance and stock removal                                       |  |
| • Versatile  | • Ideal when a broad range of tool steel parts are ground on one machine  |  |

## Popular Gemini Surface Grinding Wheels

The following UPC numbers for popular sizes and specifications have been created for ease of ordering. Two are stock; the remainder are non-stock. See the availability chart for many more made-to-order sizes and specifications.

| GOOD                                   |             |                   |                |              |
|--|-------------|-------------------|----------------|--------------|
| SIZE<br>D X T X H                      | MAX.<br>RPM | MIN./STD.<br>PKG. | GEMINI<br>SPEC | UPC NO.      |
| <b>TYPE 01 STRAIGHT</b>                |             |                   |                |              |
| 16 x 2 x 5                             | 1,430       | 2/-               | Gemini 36-l    | 66253058310* |
| 18 x 2 x 8                             | 1,275       | 1/-               | Gemini 36-l    | 66253058311* |
| 20 x 2 x 8                             | 1,625       | 1/-               | Gemini 36-l    | 66253058312* |
| <b>TYPE 07 RECESSED TWO SIDES</b>      |             |                   |                |              |
| 18 x 2 x 8<br>Recess 2/S 11-1/2 x 1/2  | 1,275       | 1/-               | Gemini 46-l    | 66253058313* |
| 20 x 3 x 8<br>Recess 2/S 11-1/2 x 1/2  | 1,625       | 1/-               | Gemini 46-l    | 66253058314* |
| 20 x 3 x 10<br>Recess 2/S 12-1/4 x 3/4 | 1,625       | 1/-               | Gemini 46-l    | 66253058315  |
| 20 x 4 x 8<br>Recess 2/S 11-1/2 x 1/2  | 1,625       | 1/-               | Gemini 46-l    | 66253058317* |
| 20 x 4 x 10<br>Recess 2/S 12-1/4 x 1   | 1,625       | 1/-               | Gemini 46-l    | 66253058318* |
| 20 x 6 x 10<br>Recess 2/S 12-1/4 x 1   | 1,625       | 1/-               | Gemini 46-l    | 66253058320  |

\* NON-STOCK; AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES

## SPECcheck

### Gemini Surface Grinding Wheel Availability

ALL GEMINI SURFACE GRINDING WHEELS ARE NON-STOCK, MADE-TO-ORDER, WITH STANDARD LEAD-TIMES (EXCEPT THE TWO STOCK WHEELS SHOWN IN THE UPC CHART).

|                    |   |
|--------------------|---|
| Wheel Types :      | Type 01 Straight, Type 05 Recessed One Side, and Type 07 Recessed Two Sides |
| Abrasive:          | Surface grinding aluminum oxide blend                                       |
| Diameter:          | 16" - 24"   |
| Maximum Thickness: | 6"  |
| Grit sizes:        | 24 - 120  |
| Grades:            | D - I   |
| Bond:              | Vitrified porous bond   |

### Surface Grinding Wheel Competitive Cross Reference

| NORTON | CAMEL | CINCINNATI | MILACRON | RADIAC        |
|--------|-------|------------|----------|---------------|
| Gemini | 91A   | 29A, 97A   |          | WAA, 97A, 45A |

**See 55A-VH Blank Stock on page 170 for additional (FastTrack) Surface Grinding specifications.  
Ask your distributor about our revolutionary new Norton Quantum ceramic made-to-order surface grinding wheels – a quantum leap in technology.**





# SURFACE GRINDING SEGMENTS

Surface grinding segments are generally used to grind flat stock or flat surfaces within a workpiece. The segment moves over the workpiece in a flat plane or vice versa. Applications can vary from heavy, rapid stock removal to precision tolerance operations.

## Typical Segment Applications

- Vertical spindle surface grinding
- Grinding large molds, dies and large plates
- Producing flat stock
- Sharpening knives, blades, cutlery



### **BEST** SG Ceramic Aluminum Oxide Segments

| FEATURES                                       | BENEFITS   |
|--|--|
| • High performance seeded gel ceramic abrasive | • Fast stock removal, maximum productivity; lowest total grinding cost |
| • Self-sharpening abrasive                     | • Cool cutting, minimal dressing needed                                |
| • High performance bond                        | • Long segment life  |
| <b>5SG</b>                                     |  |
| • Highest ceramic content                      | • Best for grinding hard materials                                     |
| • Sharpest blend                               | • Fastest stock removal  |
| <b>3SGP</b>                                    |  |
| • Aggressive, ceramic blend                    | • Very durable and sharp<br>• Best for grinding mild steels            |



### **BETTER** 86A Segments

| FEATURES                        | BENEFITS                            |
|---------------------------------|-------------------------------------|
| • Sharp aluminum oxide abrasive | • Versatile, consistent performance |



### **GOOD** Gemini Segments

| FEATURES                                | BENEFITS   |
|---|--|
| • Quality aluminum oxide abrasive blend | • Ideal when a large variety of parts are ground on one machine<br>• Excellent value for general purpose use, and for the account where initial price is a main purchasing consideration |



## TECHtips

- Choose 24 and 30 grit for soft and mild steels.
- Choose 36 and 46 grit for hard steels.
- Choose as coarse a grit size as possible in order to remove stock as quickly as possible (in big chips).
- To maximize production, choose the hardest grade possible that will not overload the machine.



It is the user's responsibility to refer to and comply with ANSI B7.1

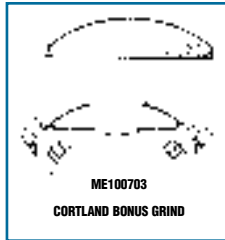
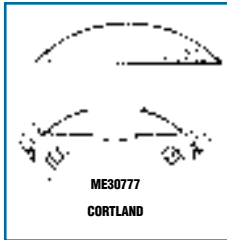
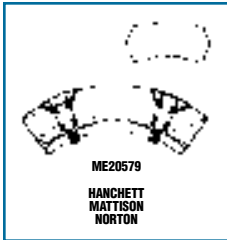
# SURFACE GRINDING SEGMENTS

## Segments

| WIDTH  | THICK. | HEIGHT | BLUEPRINT NO. | STD. PKG. | BEST SG                |                      | BETTER 86A    |             | GOOD GEMINI |             |
|--------|--------|--------|---------------|-----------|------------------------|----------------------|---------------|-------------|-------------|-------------|
|        |        |        |               |           | SPEC                   | UPC NO.              | SPEC          | UPC NO.     | SPEC        | UPC NO.     |
| 5      | 1-1/2  | 6      | ME20579       | 8         | 3SGP30-G12VSP          | 61463604490 <i>B</i> | 86A30-F12VBEP | 61463650273 | Gemini 30-E | 66253050295 |
|        |        |        |               |           | 5SG30-G12VSP           | 61463650413          | 86A30-G12VBEP | 61463650275 | Gemini 30-F | 66253050297 |
| 11-1/4 | 2-1/4  | 6      | ME30777       | 5         | 3SGP30-E12VSP          | 61463604646          | 86A24-E12VBEP | 61463650279 | Gemini 30-E | 69936699706 |
|        |        |        |               |           | 3SGP30-F12VSP          | 61463604039 <i>B</i> | 86A24-G12VBEP | 61463650282 | Gemini 30-F | 69936699709 |
|        |        |        |               |           | 3SGP30-G12VSP          | 61463604522 <i>B</i> | 86A30-E12VBEP | 61463650285 | Gemini 30-G | 69936699710 |
|        |        |        |               |           | 5SG30-E12VSP           | 61463650424 <i>B</i> | 86A30-F12VBEP | 61463650287 | Gemini 30-H | 66243447588 |
|        |        |        |               |           | 5SG30-F12VSP           | 61463650417 <i>B</i> | 86A30-G12VBEP | 61463650289 | Gemini 30-I | 66243447589 |
|        |        |        |               |           | 5SG30-G12VSP           | 61463650419          | 86A36-E12VBEP | 61463650291 |             |             |
| 11-1/4 | 2-1/4  | 8      | ME30777       | 5         |                        |                      | 86A46-D12VBEP | 61463650442 |             |             |
|        |        |        |               |           |                        |                      |               |             | Gemini 30-E | 69936699712 |
| 11-1/4 | 3      | 8      | ME100703B     | 4         | 3SGP30-F12VSP          | 61463604720 <i>B</i> | 86A30-E12VBEP | 61463650301 | Gemini 30-E | 69936699725 |
|        |        |        |               |           | 3SGP30-G12VSP          | 61463615471 <i>B</i> |               |             | Gemini 30-F | 69936699727 |
|        |        |        |               |           |                        |                      |               |             | Gemini 30-G | 69936699728 |
|        |        |        |               |           |                        |                      |               |             | Gemini 30-H | 66243447594 |
|        |        |        |               |           |                        |                      |               |             | Gemini 30-I | 66243447595 |
|        | 1-5/8  |        |               | 10        | Vitrified Burr Remover | 61463650268*         |               |             |             |             |

*B* = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS

\*MINIMUM QUANTITY = 2



Ask your distributor about our revolutionary new Norton Quantum ceramic made-to-order segments – a quantum leap in technology.



### Troubleshooting Guide

| PROBLEM                 | CORRECTION  |
|-------------------------|---|
| Segment acting too hard | Increase rate of downfeed<br>Increase table rotation speed (watch amp-meter)<br>Dress more frequently<br>Consider reducing area of table load |
| Segment acting too soft | Decrease rate of downfeed<br>Decrease table rotation speed<br>Check for abnormal machine vibration  |
| Glazing and/or burning  | Choose a softer grade<br>Increase table speed (watch amp-meter)   |

### Surface Grinding Starting Recommendations by Material

| MATERIAL            | WHEELS      | SEGMENTS – HEAVY-DUTY | SEGMENTS – GENERAL-DUTY |
|---------------------|-------------|-----------------------|-------------------------|
| Aluminum            | Gemini 46-H | 86A30-E12VBEP         | Gemini 30-E             |
| Bronze (hard)       | Gemini 46-I | Pacesetter 30-G       | Gemini 30-G             |
| Cast Iron           | Gemini 46-G | 5SG30-G12VSP          | Gemini 30-G             |
| Hastalloy           | Gemini 46-G | 86A30-G12VBEP         | Gemini 30-E             |
| Inconel             | Gemini 60-F | 5SG30-E12VSP          | Gemini 30-E             |
| Hardened Steel      | Gemini 60-F | 5SG30-G12VSP          | Gemini 30-E             |
| High Speed Steel    | Gemini 60-G | 5SG30-G12VSP          | Gemini 30-E             |
| Soft Steel          | Gemini 60-H | Charger 30-G          | Gemini 30 G             |
| Stainless Steel 300 | Gemini 60-F | 86A30-E12VBEP         | Gemini 30-E             |
| Stainless Steel 400 | Gemini 60-H | 86A30-E12VBEP         | Gemini 30-F             |

# CENTERLESS AND FEED WHEELS

## Centerless Wheels

Centerless grinding is a production process that produces extremely close tolerances on metal cylindrical forms or parts. Centerless grinding is used on a wide variety of workpieces. The key components in the process are the grinding wheel, the work rest blade (used to support the work) and the regulating or “feed” wheel (the drive mechanism for the workpiece).

### Typical Applications and Industries

- High production operations on large volume continuous grinding
- Parts ranging from miniature roller bearings to train axles and bearings
- Fastener manufacturing
- Tool manufacturing
- Steel mills
- Automotive related components
- Bearing
- Machine tools
- Aircraft
- Turbine blades – land- and air-based



| <b>BETTER 32AC Wheels – Blended aluminum oxide/silicon carbide in a resinoid bond</b>               |  |
|---|--|
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Blended aluminum oxide/silicon carbide abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Ideal when one wheel is used to grind several different materials from high to low tensile strengths</li> </ul> |

| <b>GOOD 57A Wheels – Strong, blocky-shaped aluminum oxide in a vitrified bond</b>  |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Versatile/durable abrasive</li> <li>• Superior vitrified bond system</li> </ul> | <ul style="list-style-type: none"> <li>• Well suited for general purpose applications</li> <li>• High “G” ratios (metal removed/wheel wear)</li> <li>• Longer wheel life; excellent form holding</li> </ul> |

| <b>GOOD 64A Wheels – Versatile abrasive in a vitrified bond; economical price</b>   |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Specially blended aluminum oxide abrasive coupled with a superior vitrified bond</li> <li>• Broad availability</li> <li>• Versatile</li> </ul> | <ul style="list-style-type: none"> <li>• Will maintain high grinding rates without wheel breakdown</li> <li>• Quick delivery on many popular sizes</li> <li>• Engineered to grind a variety of materials</li> </ul> |

| <b>GOOD Gemini Non-stock Wheels – Economical, versatile, general purpose wheels <span style="color: red; font-weight: bold;">new!</span></b>   |   |
|--|---|
| <b>FEATURES</b>  | <b>BENEFITS</b>   |
| <ul style="list-style-type: none"> <li>• Specially blended aluminum oxide abrasive for many centerless applications</li> <li>• Durable, vitrified bond</li> <li>• Versatile</li> </ul> | <ul style="list-style-type: none"> <li>• Consistent performance at an economical initial price</li> <li>• High stock removal on narrow to medium contact areas; cool cutting</li> <li>• Ideal when a broad range of tool steel parts are ground on one machine</li> </ul> |

See 55A-VH Blank Stock on page 170 for additional (FastTrack) Centerless specifications.

# CENTERLESS AND FEED WHEELS

## Centerless Wheels

| SIZE<br>D X T X H   | STD.<br>PKG. | BETTER                             |                            | GOOD  |   |
|---|--------------|------------------------------------|----------------------------|---|---|
|   |              | CENTERLESS RESINOID WHEELS<br>SPEC | UPC NO.                    | CENTERLESS VITRIFIED WHEELS<br>SPEC   | UPC NO.   |
| <b>TYPE 01 STRAIGHT</b>                                     |              |                                    |                            |   |   |
| 16 x 4 x 10   | 1            |                                    |                            | 57A80-L8VCN   | 66253465001   |
| 20 x 2 x 12   | 1            |                                    |                            | 53A60-K8VCN   | 69078665347   |
| 20 x 4 x 12   | 1            |                                    |                            | 64A60-KVCE<br>64A60-MVCE<br>64A80-LVCE  | 69078666723<br>69078666725<br>69078666727   |
| 20 x 6 x 12   | 1            | 32AC54-QB                          | 69078666545                | 37C60-LV<br>57A60-K8VCN<br>57A80-M8VCN<br>64A60-KVCE<br>64A80-MVCE<br>Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L                                | 69078666296<br>69078665800<br>69078665785<br>69078666729<br>69078666734<br>66253056957*<br>66253056959*<br>66253056961*<br>66253056962*                               |
| 20 x 8 x 12   | 1            | 32AC54-QB<br>32AC90-QB             | 69078666546<br>69078666479 | 57A60-K6VCN<br>57A60-L6VCN<br>57A80-M6VCN<br>64A60-KVCE<br>64A60-LVCE<br>64A80-KVCE<br>64A80-LVCE<br>Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L | 69078665817<br>69078665818<br>69078665821<br>69078666748<br>69078666749<br>69078666751<br>69078666752<br>66253056963*<br>66253056964*<br>66253056965*<br>66253056967* |
| 24 x 3 x 12   | 1            |                                    |                            | 64A60-K8V127  | 69083166708   |
| 24 x 6 x 12   | 1            | 32AC54-QB                          | 69083166547                | Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L  | 66253056973*<br>66253056974*<br>66253056975*<br>66253056976*  |
| 24 x 8 x 12   | 1            | 32AC54-QB                          | 69083166548                | 57A60-K6VCN<br>64A60-KVCE<br>64A60-LVCE<br>64A80-KVCE<br>Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L   | 69083166737<br>69083166766<br>69083166767<br>69083166769<br>66253056977*<br>66253056978*<br>66253056979*<br>66253057199*  |
| 24 x 10 x 12  | 1            | 32AC54-QB                          | 69083166549                | 57A60-K6VCN<br>64A60-KVCE<br>64A80-KVCE<br>Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L   | 69083166771<br>69083166791<br>69083166788<br>66253057200*<br>66253057201*<br>66253056980*<br>66253057202*   |
| 24 x 20 x 12<br>Composed of 2 Wheels<br>10" Thick (ME90362) | 1            | 32AC54-QB<br>32AC54-SB             | 69083166552<br>69083166553 | 64A60-KVCE<br>Gemini 60-K<br>Gemini 60-L<br>Gemini 80-K<br>Gemini 80-L  | 69083166796<br>66253057203*<br>66253057204*<br>66253057205*<br>66253057206*   |

\* ALL GEMINI CENTERLESS WHEELS ARE NON-STOCK AND ARE AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES. SHOWN HERE ARE UPC NUMBERS FOR POPULAR SIZES AND SPECIFICATIONS, CREATED FOR EASE OF ORDERING.



## TECHtips


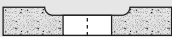

- Use vitrified bond wheels for form holding and plunge grinding
- Use resinoid bond wheels for stock removal, long irregular parts and faster throughfeed grinding
- Vitrified Centerless Wheel Speeds:
  - 64A46-KVCE wheels: 6500 SFPM max operating speed
  - All other vitrified centerless stock products: 8500 SFPM max operating speed
  - Always check wheel speed markings on wheels before running wheels




It is the user's responsibility to refer to and comply with ANSI B7.1

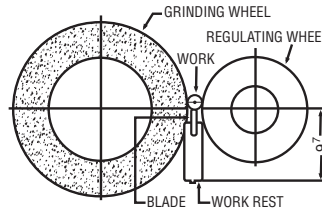
# CENTERLESS AND FEED WHEELS

## Rubber Feed Wheels

| SIZE<br>D X T X H   | STD.<br>PKG. | BETTER     |             |
|---|--------------|------------|-------------|
|   |              | SPEC       | UPC NO.     |
| <b>TYPE 01 STRAIGHT</b>            |              |            |             |
| 12 x 2 x 5  | 1            | 57A80-RR51 | 66253222840 |
| 12 x 3 x 5  | 1            | 57A80-RR51 | 66253222841 |
| 12 x 4 x 5  | 1            | 57A80-RR51 | 66253222843 |
| <b>TYPE 05 RECESSED ONE SIDE</b>   |              |            |             |
| 12 x 8 x 5<br>Rec 1 Side 7-1/2 x 1-1/2  | 1            | 57A80-RR51 | 66253222848 |
| 14 x 10 x 6<br>Rec 1 Side 8-1/2 x 1-1/2   | 1            | 57A80-RR51 | 66253322861 |
| <b>TYPE 07 RECESSED TWO SIDES</b>  |              |            |             |
| 9 x 4 x 4<br>Rec 2 Sides 5-1/2 x 5/8  | 1            | 57A80-RR51 | 66253022719 |
| 12 x 4 x 5<br>Rec 2 Sides 7-1/2 x 1/2   | 1            | 57A80-RR51 | 66253222844 |
| 12 x 6 x 5<br>Rec Side A 7-1/2 x 1-1/2<br>Rec Side B 7-1/2 x 1/2  | 1            | 57A80-RR51 | 66253222846 |
| 12 x 6 x 5<br>Rec 2 Sides 7-1/2 x 1-1/2   | 1            | 57A80-RR51 | 66253222847 |
| 12 x 8 x 5<br>Rec Side A 7-1/2 x 2-1/2<br>Rec Side B 7-1/2 x 1-1/2  | 1            | 57A80-RR51 | 66253222850 |
| 12 x 8 x 5<br>Rec Side A 7-1/2 x 3-1/2<br>Rec Side B 7-1/2 x 1-1/2  | 1            | 57A80-RR51 | 66253222851 |
| 14 x 8 x 5<br>Rec Side A 8 x 2<br>Rec Side B 8 x 1-1/2  | 1            | 57A80-RR51 | 66253322859 |
| 14 x 10 x 5<br>Rec 2 Sides 8 x 1-1/2  | 1            | 57A80-RR51 | 66253322860 |
| 14 x 20 x 6<br>Rec 2 Sides 8-1/2 x 1-1/2<br>Composed of 2 Wheels<br>10" Thick (ME91512)                             | 1            | 57A80-RR51 | 66253322196 |

## Plastic Feed Wheels

| SIZE<br>D X T X H   | STD.<br>PKG. | GOOD      |             |
|---|--------------|-----------|-------------|
|   |              | SPEC      | UPC NO.     |
| <b>TYPE 07 RECESSED TWO SIDES</b>  |              |           |             |
| 12 x 8 x 5<br>Rec Side A 7-1/2 x 2-1/2<br>Rec Side B 7-1/2 x 1-1/2  | 1            | 57A80-RP4 | 66253222199 |
| 14 x 20 x 6<br>Rec 2 Sides 8-1/2 x 1-1/2<br>Butted Feed Wheels<br>Composed of 2 Wheels<br>10" Thick (ME91512)         | 1            | 57A80-RP4 | 66253322200 |



See 55A-VH Blank Stock on page 170 for additional (FastTrack) Centerless specifications.

## TECHtips

- To make a wheel act softer:
  - Increase work speed/regulating wheel speed
  - Increase throughput speed/regulating wheel speed
  - Increase infeed
  - Decrease wheel speed
  - Dress at a faster traverse rate
- To make a wheel act harder:
  - Decrease work speed/regulating wheel speed
  - Decrease throughput speed/regulating wheel speed
  - Decrease infeed
  - Increase wheel speed (observe safe limits)



It is the user's responsibility to refer to and comply with ANSI B7.1

## SPECcheck

### Centerless Wheel Starting Recommendations by Material

| APPLICATION                                | WHEEL SPECIFICATIONS               |
|--|------------------------------------|
| Alnico                                     | 64A60-KVCE, 57A60-K8VCN, 32AC54-QB |
| Cast Iron                                  | 64A60-KVCE, 57A60-K8VCN, 32AC54-QB |
| Hastalloy                                  | 64A60-LVCE                         |
| Inconel                                    | 64A60-LVCE                         |
| Stainless                                  | 64A60-KVCE                         |
| Stainless – 300 series                     | 64A60-KVCE                         |
| Stainless – 400 series (commercial finish) | 57A60-K8VCN, 64A60-KVCE            |
| Steel – Hard or Soft                       |                                    |
| Less than 1/2" diameter                    | 57A80-L8VCN, 64A80-LVCE            |
| 5/8" to 2-1/2" diameter                    | 57A60-L8VCN, 64A60-LVCE            |
| Over 2-1/2" diameter                       | 57A60-K8VCN, 64A60-LVCE, 32AC54-QB |
| High Speed (commercial finish)             | 64A60-KVCE, 57A60-K8VCN, 32AC54-QB |
| High Speed (fine finish)                   | 32AC90-QB                          |

### Gemini Centerless Wheel Non-stock Availability



All Gemini centerless wheels are non-stock, made-to-order, with standard lead-times and are ideal for the initial-price conscious customer and small job shops.

|               |   |
|---------------|---|
| Wheel Types : | Type 01 Straight, Type 05 Recessed One Side, and Type 07 Recessed Two Sides   |
| Abrasive:     | Centerless grinding aluminum oxide blend  |
| Diameter:     | >18" - 24"  |
| Thickness:    | 1" - 10"; varies with diameter and grit size  |
| Grit sizes:   | 36 - 180 grit for wheels with a thickness of 1" - 4-1/2"<br>36 - 100 grit for wheels with a thickness > 4-12" - 10" |
| Grades:       | I - R   |
| Bond:         | Vitrified bond  |



## Stationary Dressing Tool Recommendations for Centerless Wheels

| GRINDING WHEEL DIAMETER | DIAMOND CARAT WEIGHT | SINGLE POINT                 | INDEXABLE SINGLE POINT       | MULTI-POINT (GRIT)           |                 |                               |                 |
|-------------------------|----------------------|------------------------------|------------------------------|------------------------------|-----------------|-------------------------------|-----------------|
|                         |                      | TOOL PRODUCT NO.<br>0° ANGLE | TOOL PRODUCT NO.<br>0° ANGLE | TOOL PRODUCT NO.<br>0° ANGLE | SHAPE           | TOOL PRODUCT NO.<br>15° ANGLE | SHAPE           |
| 11" - 14"               | 1/2                  | BC5M7<br>NS5M7               | BCUD5<br>NSUD5               | BC65<br>2R6K7                | 3/8 Round       | BC63<br>2A6E7                 | 1/4 x 1/2 Rect. |
| 15" - 20"               | 3/4                  | BC7M7<br>NS7M7               | N/A<br>NSUD7                 | BC62<br>2A6D7                | 1/4 x 1/2 Rect. | BC63<br>2A6E7                 | 1/4 x 1/2 Rect. |
| 21" +                   | 1                    | BC10M7<br>NS10M7             | N/A<br>NSUD10                | BC61<br>1A6A7                | 1/4 x 3/4 Rect. | BC60<br>1A6C7                 | 1/4 x 3/4 Rect. |

## Stationary Dressing Tool Recommendations for Feed Wheels

| FEED WHEEL DIAMETER | TOOL CARAT WEIGHT | TOOL SHANK DIAMETER | SINGLE POINT DESIGNATION | INDEXABLE SINGLE POINT PRODUCT NO. |
|---------------------|-------------------|---------------------|--------------------------|------------------------------------|
| Up to 14"           | 1/2               | 3/8"                | SP5AM6                   |                                    |
|                     |                   | 7/16"               | SP5AM7                   | NSUD5                              |
| Over 14"            | 3/4               | 3/8"                | SP7AM6                   |                                    |
|                     |                   | 7/16"               | SP7AM7                   | NSUD7                              |



## Dressing Tips for Throughfeed Grinding

### DRESS TRAVERSE RATE CALCULATION

| TOOL TYPE       | FINISH               | LEAD VALUE/WHEEL REVOLUTION |
|-----------------|----------------------|-----------------------------|
| Single Point    | Coarse               | .008" - .010"               |
|                 | Medium               | .005" - .007"               |
|                 | Fine                 | .002" - .004"               |
| Multi-Point     | Coarse               | .023" - .030"               |
|                 | Medium               | .013" - .022"               |
|                 | Fine                 | .006" - .012"               |
| TOOL TYPE       | LEAD                 |                             |
| Traversing Roll | 10" - 20" per minute |                             |

**FORMULA:** Wheel Speed (RPM) x Lead Value/Wheel Revolutions = Traverse Rate in Inches/Minute.  
 $RPM = SFPM \div (Wheel\ Diameter \times 0.262)$

## Proper Wheel Mounting

1. Thoroughly clean spindle and flange bearing area of all dirt and foreign material.
2. Inspect for worn, distorted or damaged areas on flanges and spindle.
3. If mounting a wide centerless wheel on a spindle (i.e., twin-grip), do not use grease or other petroleum lubricants. Use a silicone spray lubricant on the spindle to ease mounting the wheel, if necessary.
4. Ensure mount up arrow is at the top of the wheel. In the case of butted sets, assemble so that the arrow is formed across the top of the wheel face.
5. Ensure proper blotters are installed; one on each flange mating surface. Always use new blotters.
6. Install blotter flange and snug up the bolts only finger tight.
7. Using a torque wrench, tighten all bolts in an alternating pattern from side to side to 15 foot pounds.
8. Repeat the same tightening sequence, increasing the torque to 35 foot pounds.
  - a.) for wide wheels (18"-20"), torque the bolts at 45 to 50 foot pounds
  - b.) for narrower wheels (10"-12"), a torque of 35 foot pounds is sufficient
9. Retorque the flange bolts to specification after the first eight hours of operation.

Ask your distributor about our revolutionary new Norton Quantum ceramic made-to-order Centerless wheels – a quantum leap in technology.

# CYLINDRICAL WHEELS

## Cylindrical Wheels

Cylindrical wheels are used most often when the part is held between centers and in chucks. There are three methods of cylindrical grinding: plunge, traverse, and angular

- Plunge grinding – wheel is thrust or plunged into the part
- Traverse grinding – wheel moves across the part
- Angular grinding – wheel contacts the part at an angle

### Typical Industries

- Automotive
- Aerospace
- Shipbuilding
- Engine building
- Turbine blades – land- and air-based
- Bearing
- Toolroom



|   |  |
|---|--|
| <b>BETTER</b>   | <b>Norton 32A Wheels – Ideal for medium to heavy stock removal</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive</li> </ul> | <ul style="list-style-type: none"> <li>• Free cutting on a wide range of applications and materials</li> <li>• Outstanding form holding</li> </ul> |

|   |  |
|---|--|
| <b>BETTER</b>   | <b>86A Wheels – 50% to 80% longer wheel life than standard aluminum oxide</b>  |
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Premium abrasive; superior bond system</li> <li>• Engineered for easy use</li> </ul> | <ul style="list-style-type: none"> <li>• High grinding G-Ratios (metal removal/wheel wear) increase productivity</li> <li>• Decrease in dress frequency and/or dress compensation</li> <li>• Less wheel dressing means lower abrasive costs</li> <li>• Hold form for better part geometry</li> <li>• Grind cycles do not need to be altered</li> <li>• No special operator training is needed</li> </ul> |

|   |  |
|---|--|
| <b>GOOD</b>   | <b>64A Wheels – Versatile performance at an economical price</b>   |
| <b>FEATURES</b>   | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Specially blended aluminum oxide abrasive coupled with a superior bond</li> <li>• Broad availability</li> <li>• Versatile</li> </ul> | <ul style="list-style-type: none"> <li>• Will maintain high grinding rates without wheel breakdown</li> <li>• Quick delivery on popular sizes</li> <li>• Engineered to grind a variety of materials</li> </ul> |

|   |  |             |
|---|--|-------------|
| <b>GOOD</b>   | <b>Gemini Non-stock Wheels - Economical, versatile general purpose wheels</b>  | <b>new!</b> |
| <b>FEATURES</b>   | <b>BENEFITS</b>  |             |
| <ul style="list-style-type: none"> <li>• Specially blended aluminum oxide abrasive for many cylindrical applications</li> <li>• Durable, vitrified bond</li> <li>• Versatile</li> </ul> | <ul style="list-style-type: none"> <li>• Consistent performance at an economical initial price</li> <li>• High stock removal on narrow to medium contact areas; cool cutting</li> <li>• Ideal when a broad range of tool steel parts are ground on one machine or in small to mid-sized shops</li> </ul> |             |

## TECHtips

- |  |  |  |   |
|--|--|--|---|
| <ul style="list-style-type: none"> <li>■ To make a wheel act softer:             <ul style="list-style-type: none"> <li>• Increase work speed</li> <li>• Increase traverse speed</li> <li>• Increase infeed</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Decrease wheel speed</li> <li>• Increase dresser traverse rate</li> <li>• Increase depth of dress per traverse</li> <li>• Dress more often</li> </ul> | <ul style="list-style-type: none"> <li>■ To make a wheel act harder:             <ul style="list-style-type: none"> <li>• Decrease work speed</li> <li>• Decrease traverse speed</li> <li>• Decrease infeed</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Increase wheel speed (do not exceed MAX RPM marked on wheel)</li> <li>• Dress at slower traverse rate</li> <li>• Decrease depth of dress per traverse</li> </ul> |
|--|--|--|---|

# CYLINDRICAL WHEELS

## Cylindrical Wheels



| SIZE<br>D X T X H       | STD.<br>PKG. | BETTER                       |                            | STD.<br>PKG. | GOOD   |   |
|-------------------------|--------------|------------------------------|----------------------------|--------------|--|---|
|                         |              | SPEC                         | UPC NO.                    |              | SPEC   | UPC NO.   |
| <b>TYPE 01 STRAIGHT</b> |              |                              |                            |              |  |   |
| 16 x 1/2 x 5            | 3            |                              |                            | 3            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057299*<br>66253057301*<br>66253057303*                |
| 16 x 1 x 5              | 1            | 32A60-K5VBE                  | 66253464837                | 1<br>2       | 64A60-K8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 66253466722<br>66253057305*<br>66253057307*<br>66253057309* |
| 16 x 1 x 8              | 1            | 32A60-K5VBE                  | 66253464826                |              |  |   |
| 16 x 1-1/2 x 5          | 1            | 32A46-H8VBE                  | 66253464925                |              |  |   |
| 16 x 2 x 5              | 1            | 32A46-J8VBE<br>32A60-K5VBE   | 66253464995<br>66253464960 | 1<br>2       | 64A60-K8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 66253466721<br>66253057312*<br>66253057314*<br>66253057315* |
| 16 x 3 x 5              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057317*<br>66253057319*<br>66253057320*                |
| 18 x 1/2 x 5            |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057321*<br>66253057323*<br>66253057324*                |
| 18 x 1/2 x 8            |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057367*<br>66253057368*<br>66253057371*                |
| 18 x 1 x 5              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057327*<br>66253057328*<br>66253057334*                |
| 18 x 1 x 8              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057374*<br>66253057373*<br>66253057375*                |
| 18 x 2 x 5              |              |                              |                            | 1            | 64A60-K8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 66253466719<br>66253057341*<br>66253057362*<br>66253057363* |
| 18 x 2 x 8              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057376*<br>66253057378*<br>66253057379*                |
| 18 x 3 x 5              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057364*<br>66253057365*<br>66253057366*                |
| 18 x 3 x 8              |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057380*<br>66253057381*<br>66253057383*                |
| 20 x 1/2 x 8            |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057386*<br>66253057387*<br>66253057388*                |
| 20 x 1/2 x 10           |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057412*<br>66253057413*<br>66253057415*                |
| 20 x 1 x 8              | 1            | 86A60-J8V127<br>86A80-J8V127 | 69078608982<br>69078608983 | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057390*<br>66253057391*<br>66253057394*                |
| 20 x 1 x 10             |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057418*<br>66253057420*<br>66253057427*                |
| 20 x 1-1/2 x 5          | 1            | 32A46-H8VBE                  | 69078665382                |              |  |   |
| 20 x 2 x 5              | 1            |                              |                            | 1            | 64A60-J8V127   | 69078666713   |
| 20 x 2 x 8              | 1            | 32A46-I8VBE<br>32A60-K5VBE   | 69078665433<br>69078665490 | 1            | 64A60-K8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 69078666712<br>66253057396*<br>66253057399*<br>66253057401* |
| 20 x 2 x 10             |              |                              |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                 | 66253057429*<br>66253057432*<br>66253057434*                |
| 20 x 2 x 12             | 1            | 32A46-I8VBE                  | 69078665455                |              |  |   |

\* ALL GEMINI CYLINDRICAL WHEELS ARE NON-STOCK AND ARE AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES. SHOWN HERE ARE UPC NUMBERS FOR POPULAR SIZES AND SPECIFICATIONS, CREATED FOR EASE OF ORDERING.



# CYLINDRICAL WHEELS

## Cylindrical Wheels (CONTINUED)

| SIZE<br>D X T X H   | STD.<br>PKG. | BETTER  |                            | STD.<br>PKG. | GOOD   |  |
|---|--------------|---|----------------------------|--------------|--|--|
|   |              | SPEC  | UPC NO.                    |              | SPEC   | UPC NO.  |
| <b>TYPE 01 STRAIGHT</b>                                       |              |    |                            |              |  |  |
| 20 x 3 x 8  |              |   |                            | 1            | 64A46-I8V127<br>64A60-J8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 69078666447<br>69078608140<br>66253057404*<br>66253057407*<br>66253057409* |
| 20 x 3 x 10   |              |   |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                                 | 66253057436*<br>66253057437*<br>66253057438*                               |
| 24 x 1/2 x 12   |              |   |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                                 | 66253057393*<br>66253057395*<br>66253057397*                               |
| 24 x 1 x 12   |              |   |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                                 | 66253057400*<br>66253057402*<br>66253057405*                               |
| 24 x 2 x 12   |              |   |                            | 1            | 64A60-K8V127<br>64A80-K8V127<br>Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K | 69083166710<br>69083166711<br>66253057408*<br>66253057410*<br>66253057411* |
| 24 x 3 x 12   |              |   |                            | 1            | Gemini 60-K<br>Gemini 80-K<br>Gemini 100-K                                 | 66253057414*<br>66253057416*<br>66253057419*                               |
| 30 x 1 x 12   |              |   |                            | 1            | Gemini 60-K<br>Gemini 80-K   | 66253057421*<br>66253057422*   |
| 30 x 2 x 12   |              |   |                            | 1            | 64A60-J8V127<br>Gemini 60-K<br>Gemini 80-K                                 | 69210466704<br>66253057423*<br>66253057425*                                |
| 30 x 3 x 12   | 1            |   |                            | 1            | 64A60-J8V127<br>64A60-K8V127<br>Gemini 60-K<br>Gemini 80-K                 | 69210466697<br>69210466698<br>66253057426*<br>66253057428*                 |
| 30 x 4 x 12   | 1            |   |                            |              | 64A60-J8V127   | 69210401774  |
| <b>TYPE 07 RECESSED TWO SIDES</b>                             |              |  |                            |              |  |  |
| 18 x 2 x 8<br>Rec 2/S 10-1/2 x 1/2                            | 1            | 32A46-I8VBE   | 66253465110                |              |  |  |
| 20 x 2 x 8<br>Rec 2/S 11-1/2 x 1/2                            | 1            | 32A46-I8VBE   | 69078665537                |              |  |  |
| 20 x 3 x 8<br>Rec 2/S 11-1/4 x 1/2                            | 1            | 23A46-I8VBE<br>32A46-I8VBE  | 69078665582<br>69078665686 |              |  |  |
| 20 x 3 x 10<br>Rec 2/S 12-1/4 x 5/8                           | 1            | 32A46-I8VBE   | 69078665575                |              |  |  |
| 20 x 6 x 10<br>Rec Side A 12-1/4 x 2<br>Rec Side B 12-1/4 x 1 | 1            | 32A46-I8VBE   | 69078665854                |              |  |  |

\* ALL GEMINI CYLINDRICAL WHEELS ARE NON-STOCK AND ARE AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES. SHOWN HERE ARE UPC NUMBERS FOR POPULAR SIZES AND SPECIFICATIONS, CREATED FOR EASE OF ORDERING.

See 55A-VH Blank Stock on page 170 for additional (FastTrack) Cylindrical specifications.  
Ask your distributor about our revolutionary new Norton Quantum ceramic made-to-order cylindrical wheels – a quantum leap in technology.

## Cylindrical Wheels (CONTINUED)



### Stationary Dressing Tool Recommendations for Cylindrical Wheels

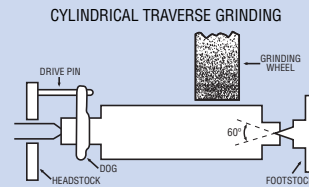
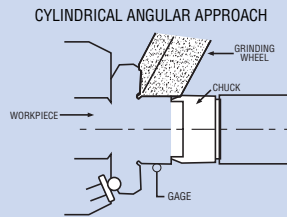
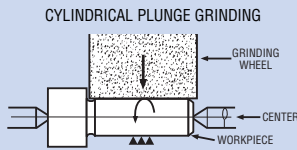
#### General Purpose (BC) and Norton Standard (NS) Stationary Tool Recommendations for Cylindrical Grinding Wheels

| GRINDING WHEEL DIAMETER | CARAT WEIGHT | SINGLE POINT     |          | MULTI-POINT (GRIT) |                 |                  |                 |
|-------------------------|--------------|------------------|----------|--------------------|-----------------|------------------|-----------------|
|                         |              | TOOL PRODUCT NO. | 0° ANGLE | TOOL PRODUCT NO.   | SHAPE           | TOOL PRODUCT NO. | 15° ANGLE       |
| 16" - 20"               | 3/4          | BC7M7            | 0°       | BC62               | 1/4 x 1/2 Rect. | BC63             | 1/4 x 1/2 Rect. |
|                         |              | NS7M7            |          | 2A6D7              | 2A6E7           |                  |                 |
| 21" +                   | 1            | BC10M7           | 0°       | BC61               | 1/4 x 3/4 Rect. | BC60             | 1/4 x 3/4 Rect. |
|                         |              | NS10M7           |          | 1A6A7              | 1A6C7           |                  |                 |

NS SINGLE POINT DIAMOND TOOLS ARE RESETTABLE. BC DIAMOND TOOLS ARE NOT RESETTABLE. ALL TOOLS SPECIFIED ABOVE HAVE 7/16" DIAMETER SHANKS.

### Troubleshooting Guide

| PROBLEM                     | POSSIBLE CAUSE   | SUGGESTED CORRECTION  |
|-----------------------------|--|---|
| Burn or cracks on workpiece | Wheel too hard<br>Dress is too fine<br>Nozzle not directing coolant properly<br>Work speed too slow or wheel speed too fast<br>Wheel feed too slow causing excess contact time | Try softer wheel or make wheel act softer (see previous Tech Tip)<br>Dress faster<br>Redirect flow<br>Adjust speeds<br>Increase feed rate   |
| Chatter marks on workpiece  | Loose spindle, end play, bearing failure<br>Work drive faults, out-of-truth plate<br>Wheel too hard, poor truing, poor mounting  | Check wheel spindle on assembly<br>Check gear action, truth, drive on pin pressure<br>Use softer grade; dress wheel correctly; secure mounting  |
| Poor quality finish         | Poor quality dressing<br>Diamond insecurely held<br>Misalignment of head and tail stocks<br>Dirty coolant<br>Scored workpiece centers  | Reduce final depth of dress on wheel<br>Check and replace diamond and secure properly<br>Check for properly aligned workpiece<br>Clean coolant frequently; use efficient filter<br>Check and lap center holes as required |



### Gemini Cylindrical Non-stock Wheel Availability new!

All Gemini cylindrical wheels are non-stock, made-to-order, with standard lead-times and are ideal for the initial-price conscious customer and small job shops.

**Wheel Types :** Type 01 Straight, Type 05 Recessed One Side, and Type 07 Recessed Two Sides

**Abrasive:** Cylindrical grinding aluminum oxide blend

**Diameter:** 16" - 30"

**Thickness:** 3" - 10"; varies with diameter

**Grit sizes:** 36 - 180; varies with thickness

**Grades:** I - R

**Bond:** Vitrified bond

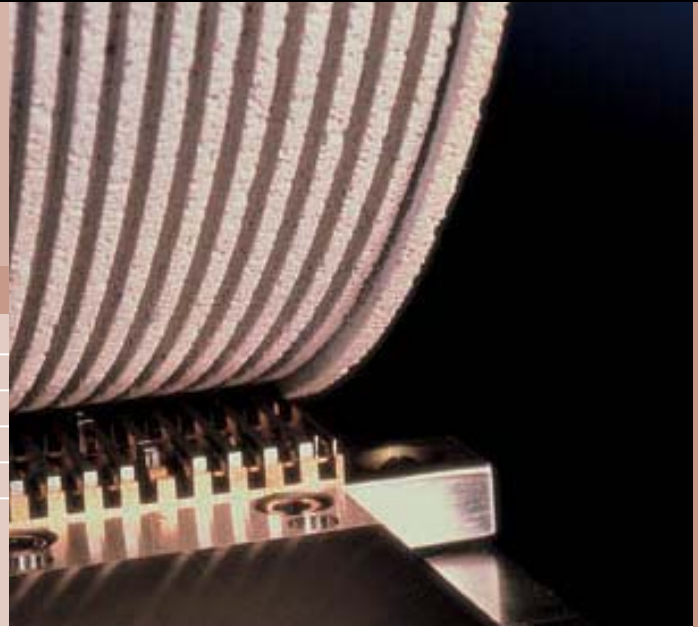
**Wheel Faces:** 15 standard faces

# CREEPFEED BLANK STOCK – FASTTRACK SERVICE

Norton revolutionary, proprietary, Vortex VTX Creepfeed wheels are the best conventional creepfeed wheels in the industry. These high performance blank stock wheels can be altered to your dimensional requirements and shipped within 48 hours receipt of your order.

## Typical Applications and Industries

- Heat-sensitive, porous grinding of difficult-to-grind alloys
- Aerospace
- Automotive
- Toolroom
- Gear
- Energy



CENTERLESS, CYLINDRICAL & CREEPFEEED

### **BEST** Vortex – Ideal for heat-sensitive, porous grinding of difficult-to-grind alloys

#### FEATURES

- High performance, engineered, fused aluminum oxide abrasive, optimally spaced
- Highly porous and permeable

#### BENEFITS

- Highest metal removal rates; able to grind large areas of contact
- Ultimate part integrity and quality; superior surface finish
- Longest wheel life: dramatically shorter grinding cycles = less wheel changes and more parts/wheel = highest productivity



| SIZE D X T X H          | SPECIFICATION | BEST                       |
|-------------------------|---------------|----------------------------|
|                         |               | UNFINISHED BLANK STOCK NO. |
| <b>TYPE 01 STRAIGHT</b> |               |                            |
| 16 x 1 x 5              | IPA60-HA29VTX | 00310309668                |
|                         | IPA60-ME17VTX | 00310303104                |
|                         | IPA60-ME26VTX | 00310303103                |
|                         | IPA80-ME26VTX | 00310303106                |
|                         | IPA80-EH26VTX | 00310303105                |
| 16 x 2-1/2 x 5          | IPA60-HA29VTX | 00310309669                |
|                         | IPA60-ME26VTX | 00310303108                |
|                         | IPA60-EH26VTX | 00310303107                |
|                         | IPA80-ME26VTX | 00310303109                |
| 16 x 4 x 5              | IPA60-HA29VTX | 00310312485                |
|                         | IPA60-ME26VTX | 00310312486                |
| 20 x 2-1/2 x 8          | IPA60-ME17VTX | 00310303131                |
|                         | IPA60-ME26VTX | 00310303130                |
|                         | IPA80-HA29VTX | 00310303132                |
| 20 x 4 x 8              | IPA60-HA29VTX | 00310303133                |
|                         | IPA60-ME26VTX | 00310303134                |
| 24 x 4 x 8              | IPA60-EH26VTX | 00310303135                |

**GRADE/HARDNESS KEY: HA = HARD • ME = HARDER • EH = EXTRA HARD**

There are many finished sizes and specifications available. Contact your local Norton distributor or salesperson with your size and specification requirements for quantity guidelines, quotations and helpful ordering instructions.

*Please note “48-hour delivery request” if needed, on your order.*

## SPECcheck



### Key Program Features

- Standard lead time: 5 days
- 48-hour lead time: available with 25% price premium
- Alteration Parameters:
  - Diameter may be altered to 2" smaller than the original blank stock diameter
  - Thickness may be altered to 1/2 the original blank stock thickness
  - Bore may be altered to parameters shown in chart

| D X T X H      | UNFINISHED SIZE | FINISHED SIZE                      | WIDTH (NO THINNER THAN) | BORE (MAX.) |
|----------------|-----------------|------------------------------------|-------------------------|-------------|
|                |                 | OUTSIDE DIAMETER (NO SMALLER THAN) |                         |             |
| 16 x 1 x 5     |                 | 14                                 | 1/2                     | 8           |
| 16 x 2-1/2 x 5 |                 | 14                                 | 1-1/4                   | 8           |
| 16 x 4 x 5     |                 | 14                                 | 2                       | 8           |
| 20 x 2-1/2 x 8 |                 | 18                                 | 1-1/4                   | 12          |
| 20 x 4 x 8     |                 | 18                                 | 2                       | 12          |
| 24 x 4 x 8     |                 | 22                                 | 2                       | 12          |

# 55A BLANK STOCK – FASTTRACK SERVICE

## 55A-VH Blank Stock Wheels

These competitively-priced, monocrystalline grain wheels are specifically engineered for numerous carbon steel applications requiring moderate to heavy stock removal rates. They can be altered to your specific needs within two weeks of receipt of your order.

### Typical Applications and Industries

- Centerless plunge and throughfeed grinding
- Surface grinding
- Cylindrical grinding



### BETTER 55A-VH Wheels – For precision grinding of carbon steel and cast iron

#### FEATURES

- Advanced combination of monocrystalline 55A aluminum oxide abrasive and superior VH bond

#### BENEFITS

- Superior performance on centerless plunge and throughfeed, surface, and cylindrical grinders
- Up to 2X the life of competitive aluminum oxide wheels
- Ideal for simple- to complex-shaped components
- Increased productivity; more quality parts at lowest cost per part

| SIZE D X T X H  | GRIT | GRADE | BETTER                     |
|-----------------|------|-------|----------------------------|
|                 |      |       | UNFINISHED BLANK STOCK NO. |
| 20 x 1 x 8      | 60   | J     | 00310020909                |
|                 | 60   | K     | 00310020910                |
|                 | 100  | I     | 00310020913                |
| 20 x 1 x 12     | 100  | K     | 00310302177                |
|                 | 120  | K     | 00310302220                |
|                 | 120  | M     | 00310064512                |
| 20 x 1-1/2 x 12 | 80   | K     | 00310302221                |
|                 | 100  | K     | 00310302222                |
| 20 x 2 x 8      | 80   | K     | 00310020918                |
|                 | 80   | M     | 00310020919                |
|                 | 100  | K     | 00310020920                |
|                 | 120  | M     | 00310064252                |
| 20 x 6 x 12     | 60   | K     | 00310020963                |
|                 | 60   | L     | 00310020964                |
|                 | 80   | L     | 00310020966                |
| 24 x 1 x 8      | 80   | K     | 00310021884                |
| 24 x 1 x 12     | 60   | K     | 00310020921                |
|                 | 60   | M     | 00310020922                |
|                 | 80   | M     | 00310020923                |
| 24 x 1-1/4 x 12 | 60   | M     | 00310302224                |
| 24 x 1-1/2 x 8  | 80   | K     | 00310302223                |
| 24 x 1-1/2 x 12 | 80   | K     | 00310302225                |
|                 | 80   | M     | 00310302226                |
| 24 x 2 x 8      | 80   | K     | 00310021885                |
| 24 x 2 x 12     | 60   | K     | 00310020924                |
|                 | 60   | M     | 00310020925                |
|                 | 80   | I     | 00310020926                |
| 24 x 3 x 8      | 80   | K     | 00310021757                |
| 24 x 5 x 12     | 60   | L     | 00310302227                |
| 24 x 6 x 12     | 60   | K     | 00310020968                |
| 24 x 8 x 12     | 60   | L     | 00310020971                |
|                 | 100  | K     | 00310302228                |
| 24 x 10 x 12    | 80   | K     | 00310020972                |
| 30 x 2 x 12     | 60   | L     | 00310020929                |
|                 | 80   | L     | 00310031274                |
| 30 x 3 x 12     | 60   | L     | 00310020930                |
| 42 x 1-1/2 x 12 | 60   | M     | 00310020931                |

There are many finished sizes and specifications available. Contact your local Norton distributor or salesperson with your size and specification requirements for quantity guidelines, quotations and helpful ordering instructions.

*Please note "Two-week delivery request" if needed, on your order.*



# GEAR WHEEL BLANK STOCK – FASTTRACK SERVICE

## VPLS and VPHS Worm Profile Wheels

Norton 38A, X25A, SG blended, TG blended, and BRG open-structured, high performance, non-stock gear wheels are designed to produce high metal removal rates with less power draw.

The BRGL, a sharp ceramic grain, wheels are available through this FastTrack Service.

## VPAP Angle Profile Wheels

These quality non-stock wheels are available in X25A, SG blends and TG blends. An X25A-VPAP blank stock line is offered for the FastTrack Service.

All Norton profile wheels are altered on state-of-the-art CNC controlled machines and are finished using Saint-Gobain dressing wheels. The Saint-Gobain dressing wheels and machines give these wheels excellent accuracy and repeatability.



GEAR WHEEL BLANK STOCK – FASTTRACK SERVICE

## Worm Profile Wheels

### VPLS – 43m/s Low Speed

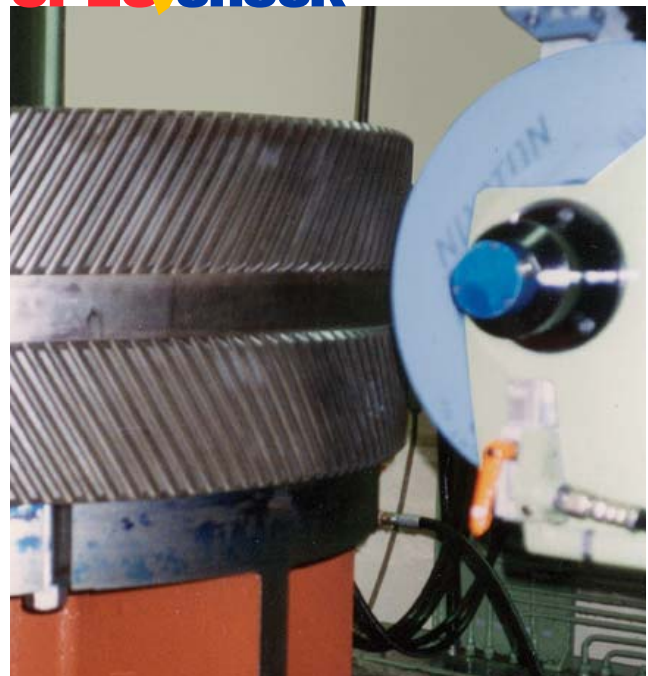
| SIZE D X T X H        | SPECIFICATION | BETTER                     |
|-----------------------|---------------|----------------------------|
|                       |               | UNFINISHED BLANK STOCK NO. |
| 350mm x 104mm x 160mm | BRGL80-FVPLS  | 00310066975                |
|                       | BRGL80-GVPLS  | 00310066976                |
|                       | BRGL80-HVPLS  | 00310066977                |
|                       | BRGL100-FVPLS | 00310066979                |
|                       | BRGL100-GVPLS | 00310066991                |
|                       | BRGL100-HVPLS | 00310066992                |
|                       | BRGL120-FVPLS | 00310066993                |
|                       | BRGL120-GVPLS | 00310066994                |
|                       | BRGL120-HVPLS | 00310066995                |

### VPHS – 60m/s High Speed

| SIZE D X T X H        | SPECIFICATION | BETTER                     |
|-----------------------|---------------|----------------------------|
|                       |               | UNFINISHED BLANK STOCK NO. |
| 350mm x 104mm x 160mm | BRGL80-GVPHS  | 00310048274                |
|                       | BRGL80-HVPHS  | 00310048277                |
|                       | BRGL100-GVPHS | 00310048278                |
|                       | BRGL100-HVPHS | 00310048279                |
|                       | BRGL120-GVPHS | 00310048280                |
|                       | BRGL120-HVPHS | 00310048281                |

## Angle Profile Wheels

| SIZE D X T X H       | SPECIFICATION  | BETTER                     |
|----------------------|----------------|----------------------------|
|                      |                | UNFINISHED BLANK STOCK NO. |
| 400mm x 50mm x 127mm | X25A54-F19VPAP | 00310066998                |
|                      | X25A54-G19VPAP | 00310066999                |
|                      | X25A54-H19VPAP | 00310067000                |
|                      | X25A70-F19VPAP | 00310067011                |
|                      | X25A70-G19VPAP | 00310067012                |
|                      | X25A70-H19VPAP | 00310067013                |
|                      | X25A90-G19VPAP | 00310067014                |



### Key Program Features

- Standard lead time: 5 days
- 48-hour lead time: available with 25% price premium. Please note "48-hour delivery request", if needed, on order.
- Alteration Parameters:
  - Diameter may be altered to 2" smaller than the original blank stock diameter
  - Thickness may be altered to 1/2 the original blank stock thickness

For more information, order copies of A Complete Line of Grinding Wheels Engineered for Superior Worm and Angle Gear Grinding brochure, form #7943

Please note "Two-week delivery request" if needed, on your order.

[www.nortonabrasives.com](http://www.nortonabrasives.com)



# DIAMOND TOOLS

DIAMOND TOOLS

Norton provides the industry's most comprehensive line of stock and made-to-order truing and dressing products. In addition to these catalog stock stationary tools, Norton manufactures a full line of custom stationary tools, rotary diamond dressers and truing/dressing devices to meet all your specific application needs. Contact us at 1-800-438-4773.

## Typical Applications

- Truing and dressing conventional and superabrasive wheels
- Straight, step, radius and form dressing

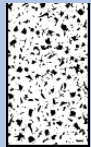


## SPECcheck

### Selecting the Correct Diamond Tool

To determine the type of Norton dressing tool to use, it is best to think about the desired shape of the wheel face. Finished wheel face shapes are generally categorized into six types, as illustrated below.

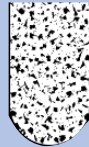
### Typical Wheel Forms Dressed by Stationary Diamond Tools



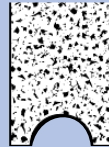
Straight



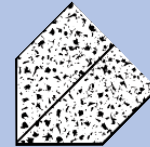
Tapered



Convex



Concave



Angled



Multi-Angled

## Single Point Tools

The Norton line of single point tools sets the industry standard for straight and simple form dressing applications. It includes: resettable and non-resettable products, tools for all abrasive types (conventional and advanced ceramic grains) and the technology-leading Norton "Indexable" tool design.

Wheel Forms Dressed by These Tools



Straight



Tapered



Convex



### Single Point Diamond Tools

#### FEATURES

- Sharp, long-lasting diamond
- Steeper 60° included head design

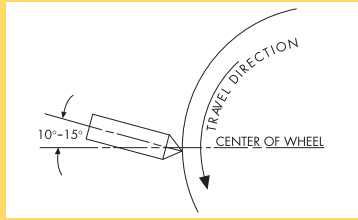
#### BENEFITS

- Long life, fast truing and dressing action
- Consistent performance from tool to tool
- Greater machine and part clearance produce forms with tighter tolerances.



## TECHtips

- Rigidly mount Single Point tools at a 10° - 15° angle to the wheel centerline with a line drawn through the center of the wheel, pointing in the direction of wheel travel.
- Point of contact should be slightly below centerline of wheel as shown.
- Use coolant whenever possible.
- Normal infeed is .001" per pass.
- Lead values range from .002" - .010" per wheel revolution.
- Rotate the tool 1/4 turn periodically to maintain a sharp point.



To optimize applications using SG (ceramic) abrasives and/or tools, normal dressing parameters must change. Reduce infeed by 25%. Significant reductions in the amount of infeed and frequency of dress will result in substantially lower cost per part ground.

### Single Point Dress Traverse Rate

Select a Lead Value based on desired Surface Finish and run the formula below.

| FINISH                             | LEAD VALUE (PER WHEEL REVOLUTIONS) |
|------------------------------------|------------------------------------|
| For Coarse Finish (approx. 64 RMS) | .008" to .010"                     |
| For Medium Finish (approx. 32 RMS) | .005" to .009"                     |
| For Fine Finish (approx. 16 RMS)   | .002" to .004"                     |

LEAD VALUE X WHEEL SPEED (RPM) = TRAVERSE RATE IN INCHES/MINUTE

- Slower traverse rates result in a closed wheel face and lower surface finish readings on the workpiece.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.



It is the user's responsibility to refer to and comply with ANSI B7.1

## SPECcheck

### Selection Guide

#### Stock Tools for SG (ceramic) Abrasive Wheels

**SG** Engineered for use on SG and Targa wheels but may also provide significant benefits when used on conventional abrasive products. These tools are furnished with top quality specially selected diamonds.

**BCSG** Economical alternative to an "SG" tool. Best choice when a disposable tool is preferred.

#### Stock Tools for Conventional Abrasive Wheels

**NS** Engineered for use on conventional abrasives. These high quality, value-priced tools can be used for a variety of dressing applications.

**BC** Economical alternative to an "NS" tool. Best choice when a disposable tool is preferred.

### Selecting the Correct Single Point Tool:

- Identify the wheel abrasive type: A/O, S/C or SG (ceramic)
- Determine the wheel diameter – to select the optimum carat weight
- Determine the tool holder size – to select the appropriate shank diameter

### Examples of Single Point Tool Selection

Wheel Spec: 32A46-IVBE 7" x 1/2" x 1-1/4"  
The machine has a 7/16" tool holder

Tool Selections: Resettable: NS2M7 or NSUD2 (Indexable)  
Non-Resettable: BC2M7 or BCUD2 (Indexable)

Wheel Spec: 5SG60-JVS 10" x 1" x 3"  
The machine has a 3/8" tool holder

Tool Selections: Resettable: SG3M6  
Non-Resettable: BCSG3M6

### Stock Single Point Tool Marking System

| DIAMOND QUALITY | DIAMOND SIZE        | SHANK DESIGN | SHANK DIAMETER |
|-----------------|---------------------|--------------|----------------|
| SG              | 1 = 1/5 (.20) carat | M            | 6 = 3/8"       |
| NS              | 2 = 1/4 (.25) carat | J            | 7 = 7/16"      |
| BCSG            | 3 = 1/3 (.33) carat |              |                |
| BC              | 5 = 1/2 (.50) carat |              |                |
|                 | 7 = 3/4 (.75) carat |              |                |
|                 | 10 = 1 carat        |              |                |

Example:

**SG 2 M 6**

## Single Point Tools for Truing/Dressing SG (Ceramic) Abrasives

### SG Single Point Tools

| FEATURES  | BENEFITS   |
|---|--|
| • Specially selected broad-shaped, diamond  | • Withstands the increased grinding pressures of SG abrasive                                       |
| • Each diamond is hand selected for stone shape, quality and structural integrity | • Consistent tool performance  |
| • Multi-purpose   | • Accommodates most straight dressing and minor form dressing applications                         |
|   | • Stands up to SG ceramic abrasive sharpness: but may also be used to dress conventional abrasives |



### BEST Resettable SG Single Point Tools

- Norton high quality diamond and a proactive resetting program will usually result in the lowest dressing cost per part

### GOOD Non-resettable BCSG Single Point Tools

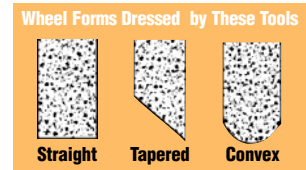
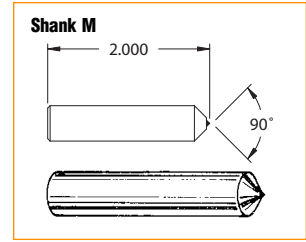
- The best selection when a resetting program is not feasible, or low initial cost is the primary purchasing consideration

# SINGLE POINT DIAMOND TOOLS

## Single Point Tools (CONTINUED)

| WHEEL DIAMETER   | TOOL CARAT WEIGHT | TOOL LENGTH | TOOL DIAMETER | BEST           |                                   | GOOD               |                            |
|--|-------------------|-------------|---------------|----------------|-----------------------------------|--------------------|----------------------------|
|  |                   |             |               | PRODUCT NO.    | 3 SETTABLE PTS (2 RESETS) UPC NO. | PRODUCT NO.        | NON-RESETTABLE UPC NO.     |
| <b>SINGLE POINT TOOLS FOR TRUING/DRESSING SG ABRASIVES</b> |                   |             |               |                |                                   |                    |                            |
| Up to 7"   | 1/4 (.25)         | 2"          | 3/8"<br>7/16" | SG2M6<br>SG2M7 | 66260195365<br>66260195366        | BCSG2M6<br>BCSG2M7 | 66260157007<br>66260156905 |
| 8" to 10"  | 1/3 (.33)         | 2"          | 3/8"<br>7/16" | SG3M6<br>SG3M7 | 66260195367<br>66260195368        | BCSG3M6<br>BCSG3M7 | 66260157008<br>66260156906 |
| 11" to 14"   | 1/2 (.50)         | 2"          | 3/8"<br>7/16" | SG5M6<br>SG5M7 | 66260195369<br>66260195370        | BCSG5M6<br>BCSG5M7 | 66260157009<br>66260156907 |
| 15" to 20"   | 3/4 (.75)         | 2"          | 3/8"<br>7/16" | SG7M6<br>SG7M7 | 66260195371<br>66260195372        | BCSG7M7            | 66260156908                |
| 21"+   | 1 (1.00)          | 2"          | 7/16"         |                |                                   | BCSG10M7           | 66260157010                |

STANDARD PACKAGE = 1 TOOL  
NON-STOCK SG RESETTABLE SINGLE POINT TOOLS ARE ALSO AVAILABLE.



## Single Point Tools for Truing/Dressing Conventional Abrasives

| Conventional Single Point Tools          |   |
|--|---|
| FEATURE                                  | BENEFIT   |
| • Consistent diamond structure and shape | • Repeatable dressing performance   |
| • Well defined, sharp diamond point      | • Durable; maximum cost effectiveness for dressing conventional abrasives   |
| • Steeper 60° included head design       | • Greater machine and part clearance produce forms with tighter tolerances. |



### BETTER Resetable NS (Norton Standard) Single Point Tools

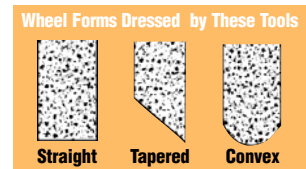
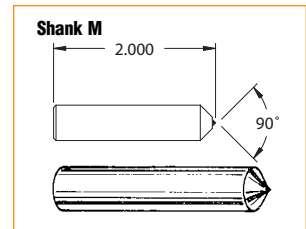
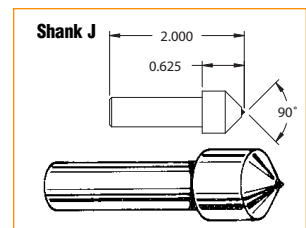
- High quality diamonds, value priced
- Selection of the correct tool and a proactive resetting program will result in the lowest dressing cost per part

### GOOD Non-resettable BC Single Point Tools

- The best selection when a resetting program is not feasible, or low initial cost is the primary purchasing consideration

| WHEEL DIAMETER  | TOOL CARAT WEIGHT | TOOL DIAMETER       | BEST                         |   | GOOD             |                            |
|---|-------------------|---------------------|------------------------------|---|------------------|----------------------------|
|   |                   |                     | PRODUCT NO.                  | RESETTABLE UPC NO.                        | PRODUCT NO.      | NON-RESETTABLE UPC NO.     |
| <b>SINGLE POINT TOOLS FOR TRUING/DRESSING CONVENTIONAL ABR.</b> |                   |                     |                              |   |                  |                            |
| Internal Wheels   | 1/5 (.20)         | 3/8<br>7/16         |                              |   | BC1M6<br>BC1M7   | 66260195021<br>66260195022 |
| Up to 7"  | 1/4 (.25)         | 3/8<br>7/16         | NS2M6<br>NS2M7               | 66260195116<br>66260195117                | BC2M6<br>BC2M7   | 66260195000<br>66260195001 |
| 8" to 10"   | 1/3 (.33)         | 3/8<br>7/16         | NS3M6<br>NS3M7               | 66260195121<br>66260195122                | BC3M6<br>BC3M7   | 66260195002<br>66260195003 |
| 11" to 14"  | 1/2 (.50)         | 3/8<br>7/16         | NS5M6<br>NS5M7               | 66260195126<br>66260195127                | BC5M6<br>BC5M7   | 66260195004<br>66260195005 |
| 15" to 20"  | 3/4 (.75)         | 3/8<br>7/16         | NS7M6<br>NS7M7               | 66260195131<br>66260195132                | BC7M6<br>BC7M7   | 66260195006<br>66260195007 |
| 21" +   | 1 (1.00)          | 3/8<br>7/16<br>7/16 | NS10M6<br>NS10M7<br>NS10J7 * | 66260195136<br>66260195137<br>66260195135 | BC10M6<br>BC10M7 | 66260195008<br>66260195009 |

\* J-SHANK TOOLS ARE 7/16" DIAMETER WITH A 5/8" HEAD.  
STANDARD PACKAGE = ONE TOOL





# INDEXABLE SINGLE POINT DIAMOND TOOLS

## Single Point Tools (CONTINUED)

### Indexable Single Point Tools

Indexable tools are specifically designed to alleviate any misalignment issues and are the tool of choice for CNC grinders. They feature a two-part construction with the head and shank as separate pieces. After the initial installation, operators simply turn the indexable head with a wrench, while the tool shank remains secure (and aligned) in the tool holder.

| Indexable Single Point Tools  |   |
|---|---|
| FEATURE   | BENEFIT   |
| <ul style="list-style-type: none"> <li>Easily turned without removing tool from the holder</li> </ul>               | <ul style="list-style-type: none"> <li>Easier for operators to turn than conventional tools – increasing frequency of beneficial tool turning</li> <li>Extended life; less downtime and increased productivity</li> </ul> |
| <ul style="list-style-type: none"> <li>U-Dex-It and Mini-Dex tools have a 60° included angle head design</li> </ul> | <ul style="list-style-type: none"> <li>Provides additional form versatility through machine and part clearance</li> <li>Excellent choice for regulating wheels</li> </ul>   |



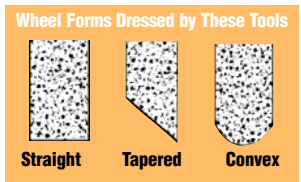
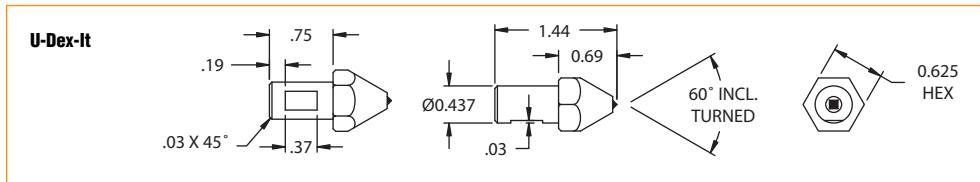
### Indexable Single Point Tools for Truing/Dressing SG (Ceramic) Abrasives

**GOOD** Non-resettable BCSGUD U-Dex-It Indexable Single Point Tools

- These U-Dex-It tools contain specially selected diamonds to withstand increased ceramic grinding pressures
- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible, or low initial cost is the primary purchasing consideration

| WHEEL DIAMETER   | TOOL CARAT WEIGHT | TOOL SIZE                      | GOOD        |                        |
|--|-------------------|--------------------------------|-------------|------------------------|
|  |                   |                                | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| <b>INDEXABLE SINGLE POINT TOOLS FOR TRUING/DRESSING SG (CERAMIC) ABRASIVES</b> |                   |                                |             |                        |
| Up to 7"   | 1/4 (.25)         | 7/16" x 1-7/16" with 5/8" head | BCSGUD2     | 66260162669            |
| 8" to 10"  | 1/3 (.33)         | 7/16" x 1-7/16" with 5/8" head | BCSGUD3     | 66260162668            |
| 11" to 14"   | 1/2 (.50)         | 7/16" x 1-7/16" with 5/8" head | BCSGUD5     | 66260159894            |

STANDARD PACKAGE = ONE TOOL



### Indexable Single Point Tools for Truing/Dressing Conventional Abrasives

**BETTER** Resettable Norton Standard U-Dex-It NSUD Indexable Single Point Tools

- High quality diamonds, value priced
- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

**BETTER** Resettable Norton Standard Mini-Dex NSMD Indexable Single Point Tools

- High quality diamonds, value priced
- Use a standard 7/16" wrench to turn; designed for internal, bearing race and twist drill flute machines
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

**GOOD** Non-resettable U-Dex-It BCU D Indexable Single Point Tools

- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible, or low initial cost is the primary purchasing consideration

# INDEXABLE SINGLE POINT DIAMOND TOOLS

## Single Point Tools (CONTINUED)

### Indexable Single Point Tools for Truing/Dressing Conventional Abrasives (CONTINUED)

| WHEEL DIAMETER | TOOL CARAT WEIGHT | TOOL SIZE  | BETTER         |                                  | GOOD        |                        |
|----------------|-------------------|--|----------------|----------------------------------|-------------|------------------------|
|                |                   |  | PRODUCT NO.    | 2 SETTABLE PTS (1 RESET) UPC NO. | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| Up to 7"       | 1/4 (.25)         | 7/16" x 1-7/16" with 5/8" head<br>1/4" x 1-3/16" with 7/16" head | NSUD2<br>NSMD2 | 66260195161<br>66260195171       | BCUD2       | 66260195023            |
| 8" to 10"      | 1/3 (.33)         | 7/16" x 1-7/16" with 5/8" head<br>1/4" x 1-3/16" with 7/16" head | NSUD3<br>NSMD3 | 66260195162<br>66260195172       | BCUD3       | 66260195024            |
| 11" to 14"     | 1/2 (.50)         | 7/16" x 1-7/16" with 5/8" head<br>1/4" x 1-3/16" with 7/16" head | NSUD5<br>NSMD5 | 66260195163<br>66260195173       | BCUD5       | 66260195025            |
| 15" to 20"     | 3/4 (.75)         | 7/16" x 1-7/16" with 5/8" head                                   | NSUD7          | 66260195164                      |             |                        |
| 21" +          | 1 (1.00)          | 7/16" x 1-7/16" with 5/8" head                                   | NSUD10         | 66260195165                      |             |                        |

Wheel Forms Dressed by These Tools



Straight



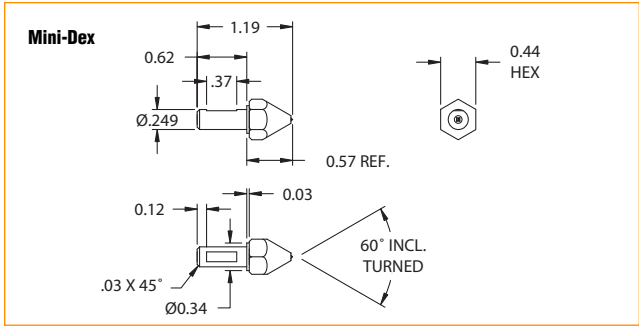
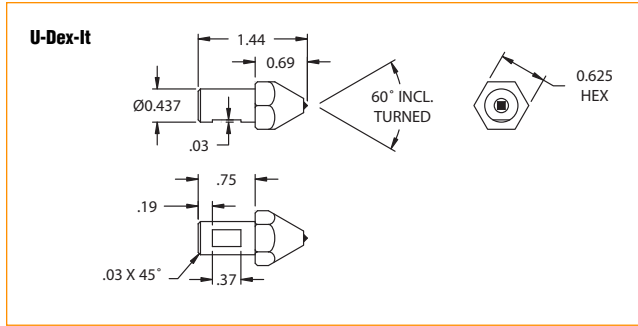
Tapered



Convex

#### INDEXABLE SINGLE POINT TOOLS FOR TRUING/DRESSING CONVENTIONAL ABR.

STANDARD PACKAGE = ONE TOOL

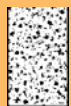


## MULTI-POINT DIAMOND TOOLS

### Multi-Point (Grit) Tools

Since Norton conventional and high-performance Multi-Point tools never need turning or resetting, they are the most economical way to accomplish a variety of straight, tapered and step dressing operations on all sizes of cylindrical, centerless, surface and toolroom grinding wheels.

Wheel Forms Dressed by These Tools



Straight



Tapered



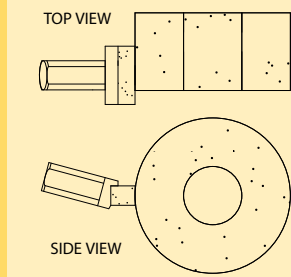
#### Norton Multi-Point Tools

| FEATURES   | BENEFITS  |
|--|---|
| <ul style="list-style-type: none"> <li>Uniformly distributed diamonds in a tough, durable matrix</li> <li>Fresh, multiple diamond points exposed in truing operation; no turning or resetting required</li> <li>Overall diamond weight exceeds equivalent single point tool</li> </ul> | <ul style="list-style-type: none"> <li>Consistent performance throughout tool life</li> <li>Faster, more consistent straight face dressing with maximum efficiency and longer tool life than single point tools</li> <li>The most economical way to dress straight and tapered forms</li> </ul> |

## Multi-Point Tools (CONTINUED)

### TECHtips

- Multi-Point Tools – Straight Face Dressing and Truing
- Most multi-point tools are used for straight face dressing.
- Tool should have full face contact with the wheel.
- With new tool, 3–5 passes at .005" per pass should be taken to expose diamonds.
- Infeed per pass .001" - .002"
- Use coolant whenever possible.
- Use appropriate lead (and traverse rate).
- Contact Norton for proper tool selection for Targa wheels.



### Multi-Point Dress Traverse Rate

Select a Lead Value based on desired Surface Finish and run the formula below.

| FINISH                             | LEAD VALUE (PER WHEEL REVOLUTIONS) |
|------------------------------------|------------------------------------|
| For Coarse Finish (approx. 64 RMS) | .023" to .030" (.58mm - .76mm)     |
| For Medium Finish (approx. 32 RMS) | .013" to .022" (.33mm - .57mm)     |
| For Fine Finish (approx. 16 RMS)   | .006" to .012" (.15mm - .33mm)     |

$$\text{LEAD VALUE} \times \text{WHEEL SPEED (RPM)} = \text{TRAVERSE RATE IN INCHES/MINUTE}$$

- Slower traverse rates result in a closed wheel face that produces less stock removal and improved workpiece finish.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.



It is the user's responsibility to refer to and comply with ANSI B7.1

## SPECcheck

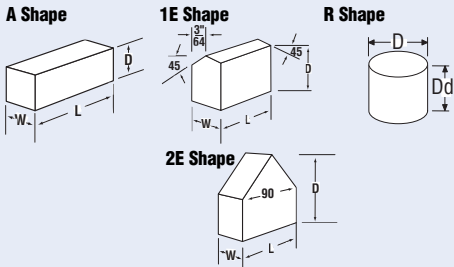
### Selecting the Correct Multi-Point Tool

- Identify the wheel abrasive type: SG (ceramic), A/O, or S/C
- Determine the wheel diameter and grit size
- Determine the tool's approach angle to the centerline of the wheel
- Identify the tool holder diameter
- Use 1E shape for angular wheel slide, cylindrical grinding and for shoulder or step truing

### Examples of Multi-Point Tool Selection

Conventional Wheel Spec: 32A46-IVBE 7" x 1/2" x 1-1/4"  
 The machine has a 3/8" tool holder  
 Tool Selection: 1R6J6

SG Wheel Spec: 5SG60-JVS 10" x 1" x 3"  
 The machine has a 7/16" tool holder  
 Tool Selections: SG1R6J7



A Shape is used primarily for straight face dressing.

E Shape (double angle top face) is used for standard N-Face wheels, angular wheels, face and side truing of cylindrical wheels, and in step dressing.

R Shape is used for straight face dressing where the tool holder is perpendicular to the wheel face (no drag angle), and on thread grinding machines

### Multi-Point Tool Marking System

| DIAMOND SHAPE | TOOL DIAMOND SIZE | TO DRESS GRINDING WHEELS WITH GRIT SIZE OF: | SHANK DESIGN                         | SHANK DIAMETER |
|---------------|-------------------|---|--------------------------------------|----------------|
| 1A            | 4                 | = 46 grit                                   | See Page 178 for shank configuration | 6 = 3/8"       |
| 2A            | 6                 | = 54 - 100 grit                             |                                      | 7 = 7/16"      |
| 3A            | 8                 | = 120 - 150 grit                            |                                      | 8 = 1/2"       |
| 1E            | 12                | = 150+ grit                                 |                                      |                |
| 2E            | 14                | = Special Applications                      |                                      |                |
| 1R            |                   |   |                                      |                |
| 2R            |                   |   |                                      |                |

Example:

1A 6 A 7



### Multi-Point Tool Diamond Section Specifications

| SHAPE | WIDTH      | LENGTH | DEPTH | TOOL APPROACH ANGLE TO WHEEL | FOR WHEEL DIAMETER |
|-------|------------|--------|-------|------------------------------|--------------------|
| 1A    | 1/4"       | 3/4"   | 5/16" | 0°                           | Over 20"           |
| 2A    | 1/4"       | 1/2"   | 3/8"  | 0°                           | 15" - 20"          |
| 3A    | 5/32"      | 3/8"   | 1/4"  | 0°                           | Over 20"           |
| 1E    | 5/32"      | 3/8"   | 5/16" | -                            |                    |
| 2E    | 1/4"       | 1/2"   | 1/2"  | -                            | 20" x 2" and up    |
| 1R    | 1/4" Round |        | 1/4"  | 0°                           | Up to 10"          |
| 2R    | 3/8" Round |        | 3/8"  | 0°                           | 11" - 14"          |

## Multi-Point Tools (CONTINUED)

### Multi-Point Tools for Truing and Straight Dressing SG (ceramic) Abrasives

**BEST** **SG Multi-Point Tools**

- Designed specifically for use on SG (ceramic) abrasives, SG tools contain a higher diamond concentration to withstand the increased grinding pressures generated by the SG abrasive. These tools have improved life and dress quality; they can also offer significant benefits in many applications using conventional abrasives.

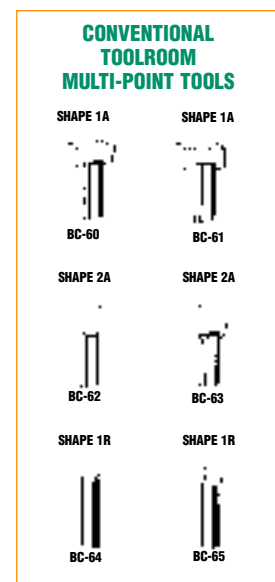
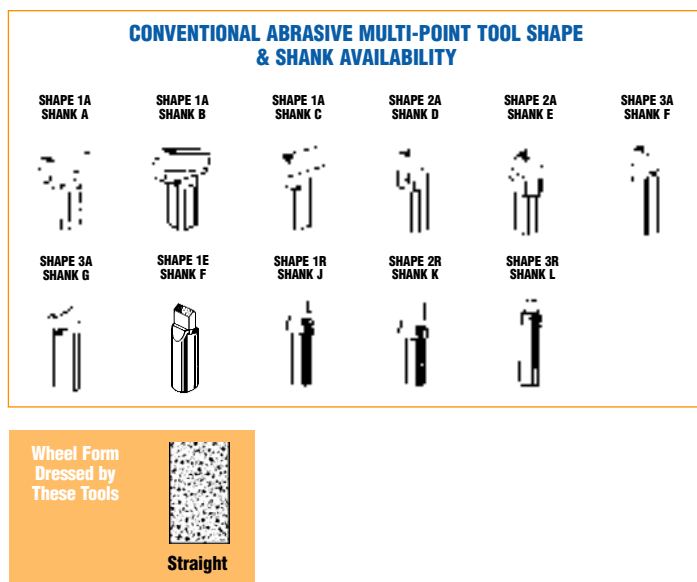
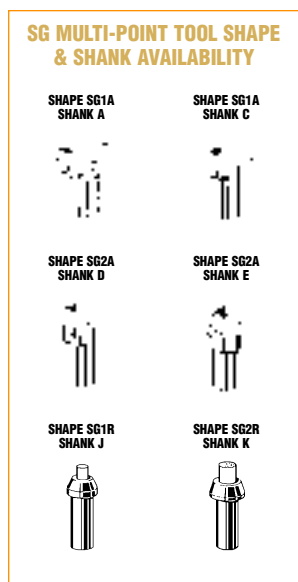
### Multi-Point Tools for Truing/Dressing Conventional Abrasives

**BETTER** **Standard Multi-Point Tools**

- The best selection for use on conventional abrasives in high-production applications

**GOOD** **BC Multi-Point Tools**

- General purpose tools are the ideal selection for conventional toolroom applications



| WHEEL DIAMETER | WHEEL GRIT SIZE               | TOOL APPROACH ANGLE | TOOL DIAMETER | BEST                     |             | BETTER                             |             | GOOD                              |             |       |             |      |             |
|----------------|-------------------------------|---------------------|---------------|--------------------------|-------------|------------------------------------|-------------|-----------------------------------|-------------|-------|-------------|------|-------------|
|                |                               |                     |               | SG ABRASIVES PRODUCT NO. | UPC NO.     | CONVENTIONAL ABRASIVES PRODUCT NO. | UPC NO.     | CONVENTIONAL TOOLROOM PRODUCT NO. | UPC NO.     |       |             |      |             |
| Up to 10"      | 54 to 100                     | 0°                  | 7/16          | SG1R6J7                  | 66260195377 | 1R6J7                              | 66260195088 | BC64                              | 66260195014 |       |             |      |             |
|                |                               | 0°                  | 3/8           |                          |             | 1R6J6                              | 66260195085 |                                   |             |       |             |      |             |
| 11" to 14"     | 46<br>54 to 100<br>120 to 150 | 0°                  | 7/16          | SG2R6K7                  | 66260195378 | 2R4K7                              | 66260195095 | BC65                              | 66260195015 |       |             |      |             |
|                |                               | 0°                  | 7/16          |                          |             | 2R6K7                              | 66260195096 |                                   |             |       |             |      |             |
|                |                               | 0°                  | 7/16          |                          |             | 2R8K7                              | 66260195097 |                                   |             |       |             |      |             |
| 15" to 20"     | 46                            | 0°                  | 7/16          |                          |             | 2A4D7                              | 66260195045 |                                   |             |       |             |      |             |
|                |                               | 15°                 | 7/16          |                          |             | 2A4E7                              | 66260195048 |                                   |             |       |             |      |             |
|                | 54 to 100                     | 0°                  | 7/16          |                          |             | SG2A6D7                            | 66260195375 |                                   |             | 2A6D7 | 66260195046 | BC62 | 66260195012 |
|                |                               | 15°                 | 7/16          |                          |             | SG2A6E7                            | 66260195376 |                                   |             | 2A6E7 | 66260195049 | BC63 | 66260195013 |
| 120 to 150     | 0°                            | 7/16                | 7/16          | 2A8D7                    | 66260195047 |                                    |             |                                   |             |       |             |      |             |
|                |                               | 15°                 | 7/16          | 2A8E7                    | 66260195050 |                                    |             |                                   |             |       |             |      |             |
|                |                               | 7/16                | 7/16          |                          |             |                                    |             |                                   |             |       |             |      |             |
| 21" +          | 46                            | 0°                  | 7/16          |                          |             | 1A4A7                              | 66260195030 |                                   |             |       |             |      |             |
|                |                               | 15°                 | 7/16          |                          |             | 1A4C7                              | 66260195038 |                                   |             |       |             |      |             |
|                | 54 to 100                     | 0°                  | 7/16          |                          |             | SG1A6A7                            | 66260195373 |                                   |             | 1A6A7 | 66260195031 | BC61 | 66260195011 |
|                |                               | 15°                 | 7/16          |                          |             |                                    |             |                                   |             | 1A6B7 | 66260195035 |      |             |
| 15°            |                               | 7/16                | SG1A6C7       | 66260195374              | 1A6C7       | 66260195039                        | BC60        | 66260195010                       |             |       |             |      |             |

STANDARD PACKAGE = ONE TOOL

See our catalog #106 "Norton Stationary Diamond Dressing Tools" for more information and non-stock, custom-made diamond tool availability.

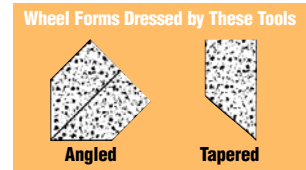
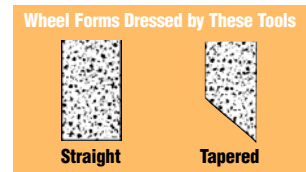


# MULTI-POINT DIAMOND TOOLS

## Multi-Point Tools (CONTINUED)

### Form, Shape, or Step Truing, and Angular Dressing Conventional Abrasives

| WHEEL DIAMETER  | WHEEL GRIT SIZE | TOOL APPROACH ANGLE | TOOL DIAMETER | BETTER      |             |
|---|-----------------|---------------------|---------------|-------------|-------------|
|   |                 |                     |               | PRODUCT NO. | UPC NO.     |
| <b>MULTI-POINT TOOLS FOR FORM, SHAPE OR STEP TRUING</b> |                 |                     |               |             |             |
| All   | 54 to 100       | 0°                  | 7/16          | 3A6F7       | 66260195055 |
|   |                 | 15°                 | 7/16          | 3A6G7       | 66260195975 |
|   | 120 to 150      | 15°                 | 7/16          | 3A8G7       | 66260195058 |

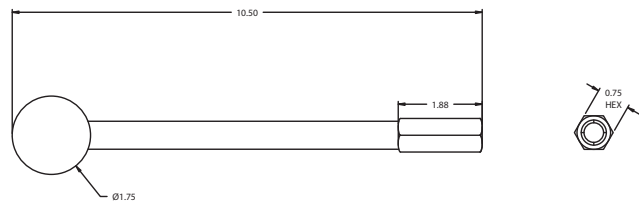


| <b>MULTI-POINT TOOLS FOR ANGULAR DRESSING CONVENTIONAL ABRASIVES</b> |           |    |       |       |             |
|--|-----------|----|-------|-------|-------------|
| All  | 54 to 100 | 0° | 7/16" | 1E6F7 | 66260195080 |

STANDARD PACKAGE = ONE TOOL

### Tool Holder/Hand Dresser

Designed for use when offhand truing and dressing on tool and cutter, or benchstand grinders. This hand dresser is rust-free, 10-1/2" long, with a hollow shaft that accepts any tool shank length from 3/4" to 9". The 1-3/4" diameter plastic knob ensures a firm grip. The collet accepts a 7/16" diameter tool shank.



| DESCRIPTION  | UPC NUMBER  |
|--------------|-------------|
| Hand Dresser | 66260195020 |

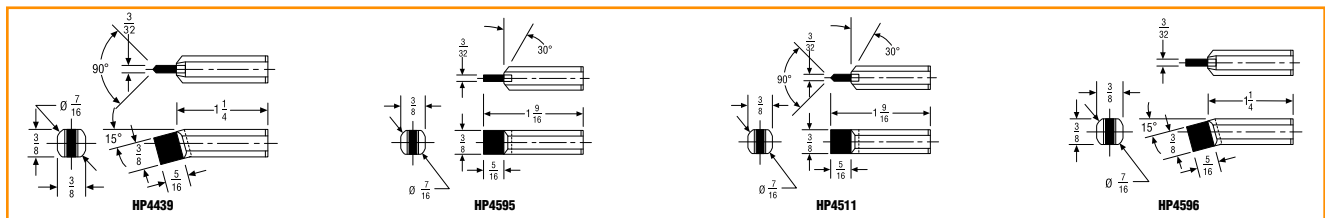
## HIGH PERFORMANCE GRIT TOOLS

Norton High Performance Grit Tools are used in the same manner as multi-point tools, but are designed to produce a superior finish. They are used on 120 - 150 grit wheels. The traverse rates are equal to or faster than ordinary tools. Mounted on standard shanks, standard High Performance Grit Tools have a 3/8" wide by .100" thick diamond impregnated blade with a greater number of sharp points than in conventional multi-point tools.

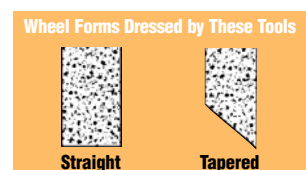
Since High Performance Grit Tools contain a higher concentration of diamond than found in standard multi-point tools, they are well suited for Norton SG (ceramic) applications.

### Typical Machines and Applications

- HP4439: cylindrical machines, grinding thrust walls, bearing diameters and multi-diameter shafts with radii
- HP4511: angular machines plunge grinding multi-diameter shafts and plunge grinding on dual-wheel forms
- HP4595: cylindrical machines grinding main bearing and lobes on camshafts
- HP4596: centerless machines step grinding and machines dual-wheel grinding transmission shafts



| WHEEL DIAMETER                | WHEEL GRIT SIZE | TOOL APPROACH ANGLE | TOOL LENGTH | SHANK DIAMETER | BETTER      |             |
|-------------------------------|-----------------|---------------------|-------------|----------------|-------------|-------------|
|                               |                 |                     |             |                | PRODUCT NO. | UPC NO.     |
| <b>HIGH PERFORMANCE TOOLS</b> |                 |                     |             |                |             |             |
| Up to 20"                     | 120 to 150      | 15°                 | 1-9/16      | 7/16           | HP4439      | 66260195270 |
|                               |                 | Perpendicular       | 1-9/16      | 7/16           | HP4511      | 66260195271 |
|                               | 120 to 150      | Perpendicular       | 1-9/16      | 7/16           | HP4595      | 66260195272 |
|                               |                 | 15°                 | 1-9/16      | 7/16           | HP4596      | 66260195273 |



STANDARD PACKAGE = ONE TOOL

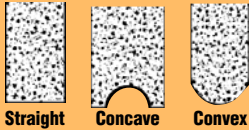
# TOOLROOM DRESSING DIAMOND TOOLS

## Toolroom Dressing Tools

Norton Toolroom Dressing Tools are primarily used on surface grinders to form the grinding wheel to an exact concave or convex radius. Although some tools are designed for use on a specific machine, many radius tools can be used on any grinder having the correct set-up.

Primarily used on 8" diameter and smaller vitrified toolroom wheels, Norton offers a selection of three types of radius tools and phono-point tools.

Wheel Forms Dressed by These Tools



## TECHtips

### How to Use Toolroom Tools

- We recommend dressing with coolant. However, if dressing totally dry, allow three to five seconds between passes for diamond to cool.
- Use extremely light cuts from .0002" to .001" maximum.
- Rotate tool if the application and set-up allow.

## Radius Tools

### Concave Radius Tools

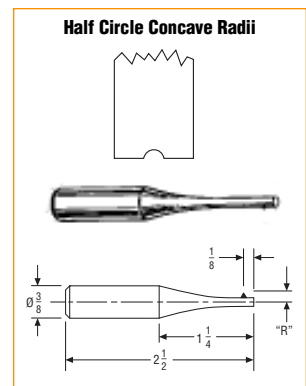
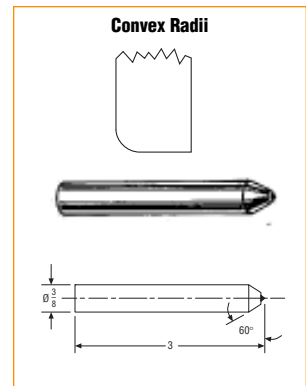
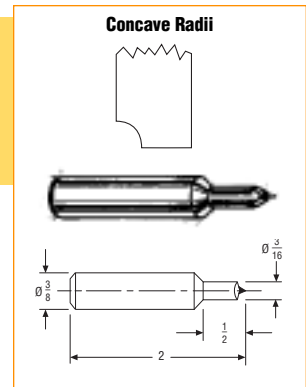
A specially-shaped single point diamond, designed for forming concave radii on small diameter grinding wheels. Not resettable.

### Convex Radius Tools

A specially-shaped single point diamond, designed for forming convex radii on small diameter grinding wheels. Not resettable.

### Half-Circle Concave Radius Tools

A specially-shaped diamond set in the side of the shank for forming half-circle radii on small diameter grinding wheels. The tool is rotated to form the radius. Commonly called a "rat tail dresser." Not resettable.



| RADIUS SIZE TO BE DRESSED               | SHANK DIAMETER | TOOL LENGTH | BEST        |                        | GOOD        |                        |
|---|----------------|-------------|-------------|------------------------|-------------|------------------------|
|   |                |             | PRODUCT NO. | NON-RESETTABLE UPC NO. | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| <b>CONCAVE RADIUS TOOLS</b>             |                |             |             |                        |             |                        |
| .010" to .015"                          | 3/8"           | 2"          | NR1P6       | 66260195210            |             |                        |
| .016" to .020"                          | 3/8"           | 2"          | NR2P6       | 66260195211            |             |                        |
| .021" to .032"                          | 3/8"           | 2"          | NR3P6       | 66260195212            |             |                        |
| .033" to .062"                          | 3/8"           | 2"          | NR4P6       | 66260195213            | BCRD        | 66260195016            |
| .063" to .125"                          | 3/8"           | 2"          | NR5P6       | 66260195214            | BCRD        | 66260195016            |
| .126" to .250"                          | 3/8"           | 2"          | NR6P6       | 66260195215            | BCRD        | 66260195016            |
| <b>CONVEX RADIUS TOOLS</b>              |                |             |             |                        |             |                        |
| .020" to .125"                          | 3/8"           | 3"          | NR2M6       | 66260195216            | BCRD        | 66260195016            |
| .126" to .250"                          | 3/8"           | 3"          | NR12M6      | 66260195217            | BCRD        | 66260195016            |
| .251" to .500"                          | 3/8"           | 3"          | NR25M6      | 66260195218            |             |                        |
| <b>HALF CIRCLE CONCAVE RADIUS TOOLS</b> |                |             |             |                        |             |                        |
| .032"                                   | 3/8"           | 2-1/2"      | NR3N6       | 66260195219            |             |                        |
| .062"                                   | 3/8"           | 2-1/2"      | NR6N6       | 66260195220            |             |                        |
| .125"                                   | 3/8"           | 2-1/2"      | NR12N6      | 66260195221            |             |                        |

STANDARD PACKAGE = ONE TOOL

# TOOLROOM DRESSING DIAMOND TOOLS

## Toolroom Dressing Tools (CONTINUED)

### Phono-Point Tools

For general toolroom concave and convex dressing on small diameter grinding wheels. Not reseta-ble.

| INCLUDED ANGLE           | SHANK DIAMETER        | TOOL LENGTH | BETTER                  |   | GOOD        |                        |
|--------------------------|-----------------------|-------------|-------------------------|---|-------------|------------------------|
|                          |                       |             | PRODUCT NO.             | NON-RESETTABLE UPC NO.                    | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| <b>Phono-Point Tools</b> |                       |             |                         |   |             |                        |
| 60°                      | 1/8"<br>3/16"<br>1/4" | 1"          | NP1M2<br>NP1M3<br>NP1M4 | 66260195225<br>66260195226<br>66260195227 | BCPP-60     | 66260195017            |
| 75°                      | 1/8"<br>3/16"<br>1/4" | 1"          | NP2M2<br>NP2M3<br>NP2M4 | 66260195228<br>66260195229<br>66260195230 | BCPP-75     | 66260195018            |
| 90°                      | 1/8"<br>3/16"<br>1/4" | 1"          | NP3M2<br>NP3M3<br>NP3M4 | 66260195231<br>66260195232<br>66260195233 | BCPP-90     | 66260195019            |

STANDARD PACKAGE = ONE TOOL

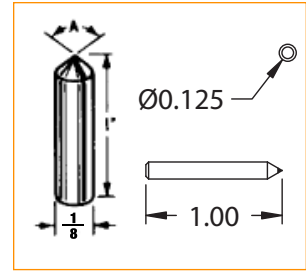
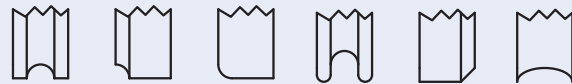


#### Phono-Point Tool Marking System

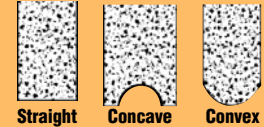
| TOOL TYPE | INCLUDED ANGLE ON DIAMOND | SHANK STYLE | SHANK DIAMETER |
|-----------|---------------------------|-------------|----------------|
| NP        | 1 = 60°                   | M           | 2 = 1/8"       |
| BCPP      | 2 = 75°                   |             | 3 = 3/16"      |
|           | 3 = 90°                   |             | 4 = 1/4"       |

Example: NP 1 M 3

#### Typical Wheel Forms



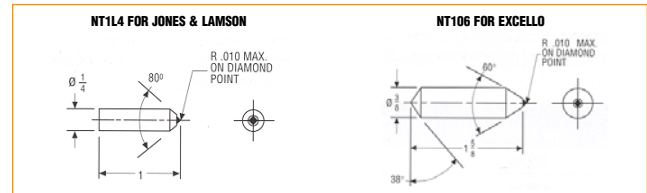
#### Wheel Forms Dressed by These Tools



## Specialty Dressing Tools

### Thread Grinding Tools

These tools are used on J & L and Excello thread grinding machines to accurately dress the grinding wheels that form the desired thread configuration (non-reseta-ble).



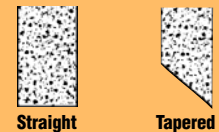
| MACHINE TYPE | SHANK DIAMETER | TOOL LENGTH | INCLUDED ANGLE | MAX RADIUS ON POINT |
|--------------|----------------|-------------|----------------|---------------------|
| J & L        | 1/4"           | 1"          | 80°            | .010"               |
| EXCELLO      | 3/8"           | 1-5/8"      | 60°            | .010"               |

STANDARD PACKAGE = 1 TOOL

#### BEST

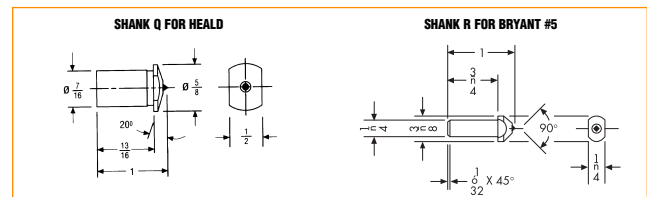
| PRODUCT NO. | NON-RESETTABLE UPC NO. |
|-------------|------------------------|
| NT114       | 66260195187            |
| NT106       | 66260195190            |

#### Wheel Forms Dressed by These Tools



### Internal Grinding Tools

Q style shank is used on a Heald internal grinder (reseta-ble).  
R style shank is used on a Bryant #5 internal grinder (reseta-ble).

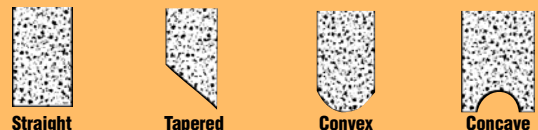


#### BEST

| MACHINE TYPE | CARAT WEIGHT | SHANK DIAMETER | TOOL LENGTH | PRODUCT NO. | 2 SETTABLE PTS (1 RESET) UPC NO. |
|--------------|--------------|----------------|-------------|-------------|----------------------------------|
| HEALD        | 1/5 (.20)    | 7/16"          | 1"          | NI21Q7      | 66260195180                      |
| BRYANT       | 1/5 (.20)    | 1/4"           | 1"          | NI21R4      | 66260195181                      |

STANDARD PACKAGE = 1 TOOL

#### Wheel Forms Dressed by These Tools



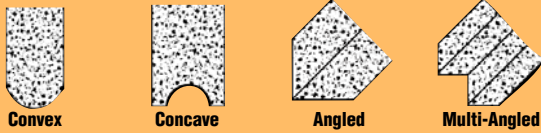
NORTON

## Form Tools

Norton Form Tools have diamond lapped to specific angles and radii required for a particular application, machine, contour dressing system, or CNC operation. Due to the high degree of accuracy necessary, the diamond is of special shape and quality.



Wheel Forms Dressed by These Tools



## TECHtips

### How to Use Form Dressing Tools

- Form Tools should be used in compliance with the guidelines established for the machine or dress.
- Proper centerline and light infeeds are essential to minimize side pressure. Excessive pressure will cause the diamond to fracture.
- Cone point tools should be rotated approximately 1/4 turn daily.
- Chisel Point Tools should be rotated 180° when dulling or contour problems occur.

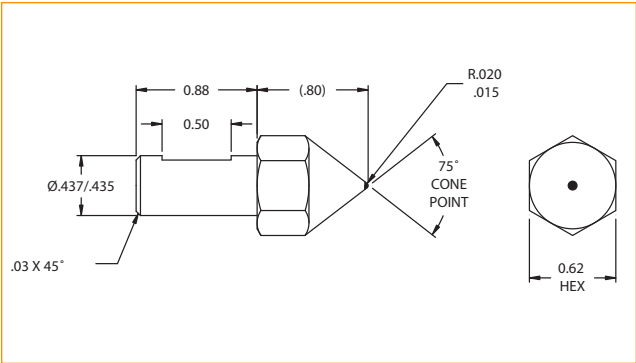
## Cone Point Tools

### BEST Cone Point Tools

- The Norton vacuum braze technology used in the manufacturing of cone points surpasses all traditional diamond retention methods.
- Benefits of this revolutionary technology include absolute diamond retention, diamond pullout prevention during the dressing cycle, and longer tool life through multiple relaps.
- Because the diamond is accurately coned to the specific included angle and radius, these tools are ideal when the most intricate, precise forms and radii are required.
- Can be relapped.

### U-Dex-It Cone Point Tool

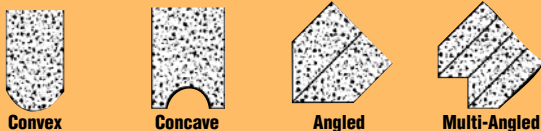
Used for precision dressing of intricate forms and radii. Specially designed with 5/8" indexable head for easy turning during use. These tools can be relapped.



| INCLUDED ANGLE ON DIAMOND | RADIUS ON DIAMOND | TOOL CARAT WEIGHT | SHANK DIAM. | TOOL LENGTH | BEST        |                    |
|---------------------------|-------------------|-------------------|-------------|-------------|-------------|--------------------|
|                           |                   |                   |             |             | PRODUCT NO. | RELAPPABLE UPC NO. |
| 75°                       | .020"             | .50               | 7/16"       | 1.678"      | CPUD720-7   | 66260158981        |

STANDARD PACKAGE = ONE TOOL

Wheel Forms Dressed by These Tools



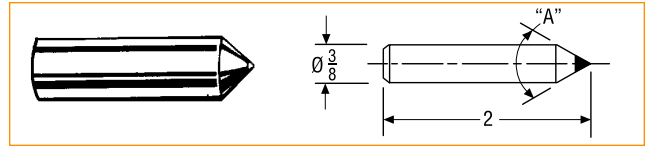
See our catalog #106 "Norton Stationary Diamond Dressing Tools" for more information and non-stock, custom-made diamond tool availability.



## Form Tools (CONTINUED)

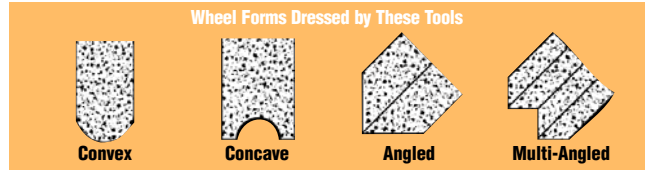
### Standard Cone Point Tool

These tools are used for precision dressing when the most intricate forms and radii are required. Can be relapped.



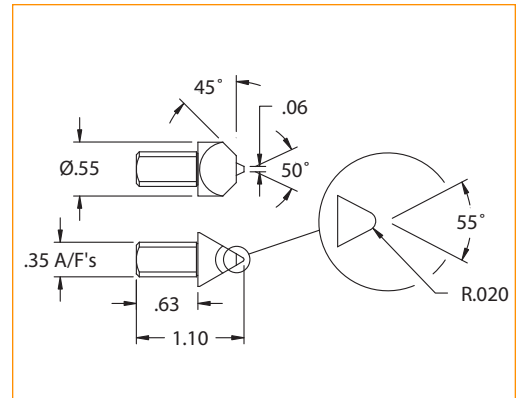
| INCLUDED ANGLE ON DIAMOND | RADIUS ON DIAMOND | TOOL CARAT WEIGHT | SHANK DIAM. | TOOL LENGTH | BEST        |                    |
|---------------------------|-------------------|-------------------|-------------|-------------|-------------|--------------------|
|                           |                   |                   |             |             | PRODUCT NO. | RELAPPABLE UPC NO. |
| 60°                       | .010"             | .20 - .25         | 3/8"        | 2"          | CP610M-6    | 66260195240        |

STANDARD PACKAGE = ONE TOOL



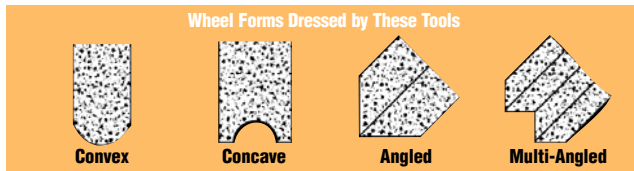
### Chisel Point Tool for Toyoda Grinders

High precision chisel point tool designed for forming intricate shapes and radii. Specifically engineered to fit Toyoda® machine series GL32 and GL4, it can also be used on various straight and angle-head grinders – for dressing conventional and ceramic abrasive wheels, sizes 12" to 24". This tool can be reset/relapped.



| INCLUDED ANGLE ON DIAMOND | RADIUS ON DIAMOND | TOOL CARAT WEIGHT | SHANK DIAM. | TOOL LENGTH | BEST        |                               |
|---------------------------|-------------------|-------------------|-------------|-------------|-------------|-------------------------------|
|                           |                   |                   |             |             | PRODUCT NO. | RESETTABLE/RELAPPABLE UPC NO. |
| 55°                       | .020"             | 3/4 (.75)         | 7/16"       | 1.10"       | CHT520-7    | 66260103741                   |

STANDARD PACKAGE = ONE TOOL



## TECHtip

Chisel Point Tools should be rotated 180° when dulling or contour problems occur.

## Blade Tools (REFER TO CATALOG #106 FOR MORE ON THESE NON-STOCK BLADE TOOLS)

**BEST** **USB (Uniform Synthetic Blade) Blade Tools**

- Synthetic diamond with a controlled diamond shape provides a constant cross section of diamond to the wheel throughout the life of the tool
- Economical, long-lasting alternative to chisel-type tools for centerless form grinding
- Provides consistent wheel conditioning from the first dress to last
- Ideal for close tolerance wheel dressing on manual and CNC grinders, long production runs, and critical form and finish applications (e.g. automotive cam, crank and valve grinding)
- The best choice to lower your overall dressing cost per part

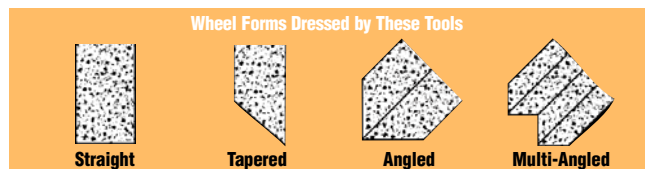
**BETTER** **Multi-Cut Blade Tools**

- Manufactured with top quality elongated-shaped natural diamond
- The best choice when natural diamond is preferred on surface, cylindrical and centerless grinders
- Durable performing tools in a medium price range

**GOOD** **Long Life Blade Tools**

- Manufactured with processed elongated shaped natural diamond
- Developed as the first generation of the blade tool line for surface, cylindrical and centerless grinders
- The choice when initial price is the primary purchasing consideration

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.



## Blade Tools (CONTINUED)



### USB Blade Tool Marking System

| SYNTHETIC DIAMOND TYPE | NUMBER OF DIAMONDS | TOOL APPROACH ANGLE | DIAMOND SETTING POSITION | SHANK DIAMETER | MINIMUM RADIUS TO BE DRESSED |
|------------------------|--------------------|---------------------|--------------------------|----------------|------------------------------|
| USC = CVD              | 2                  | 0°                  | A = Angled               | 7 = 7/16"      | .008"                        |
|                        | 3                  | 10°                 |                          | 6 = 3/8"       | .0"                          |
|                        | 5                  | 15°                 |                          | 11 = 11mm      | .05"                         |

Example:

**USC 3 10 A 7**

### Multi-Cut Blade Tool Marking System

| TOOL TYPE           | NUMBER OF DIAMONDS        | APPROX. DIAMETER OF DIAMONDS | MINIMUM AND CONCAVE RADIUS TO BE DRESSED |
|---------------------|---------------------------|------------------------------|--|
| MC = 15° Drag Angle | 2 = 1 layer of 2 diamonds | 55 = .055"                   | .028"                                    |
| MCS = 0° Drag Angle | 3 = 1 layer of 3 diamonds | 75 = .075"                   | .038"                                    |
|                     |                           | 90 = .090"                   | .045"                                    |

Example:

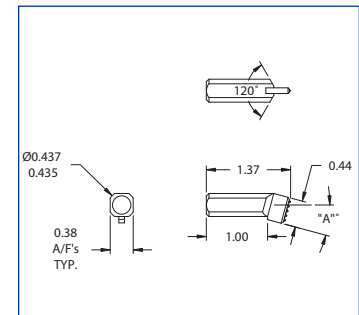
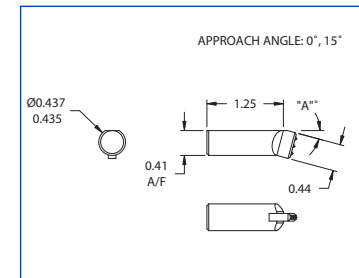
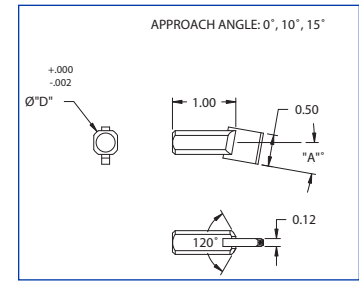
**MC 3 75**

### Long Life Blade Tool Marking System

| TOOL TYPE | STYLE                            | NUMBER OF LAYERS  | APPROX. DIAMETER OF DIAMONDS        | MINIMUM RADIUS TO BE DRESSED |
|-----------|----------------------------------|---|-------------------------------------|------------------------------|
| LL =      | 20 = 5 diamonds @ 15° Drag Angle | 1 = 1 layer   | A = .030"                           | .015"                        |
| Long Life | 27 = 5 diamonds @ 0° Drag Angle  | Non-stock:<br>2 and 3 layers<br>are available<br>on request | B = .040"<br>C = .050"<br>D = .060" | .020"<br>.025"<br>.030"      |

Example:

**LL 20 1 A**



### USB TOOLS

### MULTI-CUT TOOLS

### LONG LIFE TOOLS

#### BEST

#### BETTER

#### GOOD

| WHEEL DIAMETER<br>(WIDTH < 9") | TOOL APPROACH ANGLE | SHANK DIAMETER | USB TOOLS   |             | MULTI-CUT TOOLS |             | LONG LIFE TOOLS |             |
|--------------------------------|---------------------|----------------|-------------|-------------|-----------------|-------------|-----------------|-------------|
|                                |                     |                | PRODUCT NO. | UPC NO.     | PRODUCT NO.     | UPC NO.     | PRODUCT NO.     | UPC NO.     |
| <b>Stock Blade Tools</b>       |                     |                |             |             |                 |             |                 |             |
| 12" TO 17"                     | 15°                 | 7/16"          |             |             | MC355           | 66260195266 |                 |             |
| 18" TO 29"                     | 15°                 | 7/16"          |             |             | MC375           | 66260195267 |                 |             |
| <b>Non-Stock Blade Tools</b>   |                     |                |             |             |                 |             |                 |             |
| UP TO 11"                      | 0°                  | 7/16"          |             |             | MCS255          | 66260148412 | LL271A          | 66260196447 |
|                                | 10°                 | 7/16"          |             |             |                 |             | LL201A          | 66260196446 |
|                                | 15°                 | 7/16"          |             |             | MC255           | 66260195265 |                 |             |
| 12" TO 17"                     | 0°                  | 7/16"          | USC20A7     | 66260103532 | MCS355          | 66260195268 | LL271B          | 66260196449 |
|                                | 10°                 | 7/16"          | USC210A7    | 66260103534 |                 |             | LL201B          | 66260196448 |
|                                | 15°                 | 7/16"          | USC215A7    | 66260103535 |                 |             |                 |             |
| 18" TO 29"                     | 0°                  | 7/16"          | USC30A7     | 66260103305 | MCS375          | 66260148417 | LL271C          | 66260196451 |
|                                | 10°                 | 7/16"          | USC310A7    | 66260103545 |                 |             | LL201C          | 66260196450 |
|                                | 15°                 | 7/16"          | USC315A7    | 66260103303 |                 |             |                 |             |
| 30" TO 36"                     | 0°                  | 7/16"          | USC50A7     | 66260103306 | MCS390          | 66260148418 | LL271D          | 66260196453 |
|                                | 10°                 | 7/16"          | USC510A7    | 66260103555 |                 |             | LL201D          | 66260196452 |
|                                | 15°                 | 7/16"          | USC515A7    | 66260103307 | MC390           | 66260196266 |                 |             |

STANDARD PACKAGE = ONE TOOL  
 THESE TOOLS ARE NOT RESETTABLE OR RELAPPABLE.  
 OTHER SHANK DIAMETERS AND CONFIGURATIONS ARE AVAILABLE.  
 BLADE TOOLS FOR DRESSING WHEEL WIDTHS > 9" ARE ALSO AVAILABLE.

# CLUSTER TOOLS

## Cluster Tools

Norton Cluster Tools are designed specifically for straight face dressing of large diameter, coarse grit grinding wheels on single or double disc, centerless or surface grinders.



DIAMOND TOOLS

Wheel Forms Dressed by These Tools



Straight



Tapered

## TECHtips

- Cluster and Dia-Pak Tools – Straight face dressing of hard/ coarse wheels:
  - Tool should approach the wheel at a 15° angle and be rotated periodically to keep 3 diamonds in contact with the wheel at all times.
  - Tools can also be used at a 90° to the wheel face.
  - Multi-Point Cluster Tools should be rotated at frequent intervals.
  - Infeed per pass should not exceed .0015" (.001" with Norton Ceramic SG and Targa wheels).
  - Use coolant whenever possible.
  - These tools permit a faster traverse rate providing a freer cutting wheel than when dressed by a conventional single-point tool.



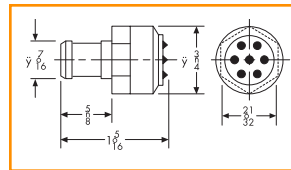
It is the user's responsibility to refer to and comply with ANSI B7.1

## Multi-Point Cluster Tools

Multi-Point Cluster tools are typically used for straight face dressing on disc and centerless operations. For greatest efficiency, these tools should be mounted at a 15° angle so that three diamonds are in contact with the wheel face at all times. The tool should be rotated at frequent intervals. Not resettable.

| DIAMONDS ON FACE                 | SHANK DIAMETER | TOOL LENGTH | BETTER      |                        |
|----------------------------------|----------------|-------------|-------------|------------------------|
|                                  |                |             | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| <b>Multi-Point Cluster Tools</b> |                |             |             |                        |
| 7                                | 7/16"          | 1-5/16"     | NC7K7       | 66260195206            |

STANDARD PACKAGE = 1 TOOL



Wheel Forms Dressed by These Tools



Straight



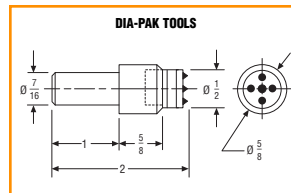
Tapered

## Dia-Pak Tools

Dia-Pak tools are primarily used in straight face disc grinding, but are extremely versatile and may also be used in centerless and surface operations. Designed for maximum economy, three layers of diamond are carefully arranged so that a new layer is exposed before the previous layer is completely worn away. Not resettable.

| FOR WHEEL DIAMETERS  | DIAMONDS PER LAYER | SHANK DIAM. | TOOL LENGTH | BETTER      |                        |
|----------------------|--------------------|-------------|-------------|-------------|------------------------|
|                      |                    |             |             | PRODUCT NO. | NON-RESETTABLE UPC NO. |
| <b>Dia-Pak Tools</b> |                    |             |             |             |                        |
| UP TO 14"            | 5-4-5              | 7/16"       | 2"          | DP20        | 66260195200            |
| UP TO 20"            | 7-6-7              | 7/16"       | 2"          | DP30        | 66260195201            |
| ANY                  | 7-6-7              | 7/16"       | 2"          | DP35        | 66260195202            |

STANDARD PACKAGE = 1 TOOL



Wheel Forms Dressed by These Tools



Straight



Tapered

See our catalog #106 "Norton Stationary Diamond Dressing Tools" for more information and non-stock, custom-made diamond tool availability.

## Brake Controlled Truing Devices

Designed for truing diamond and CBN wheels rapidly, effectively and with a minimum of superabrasive loss.

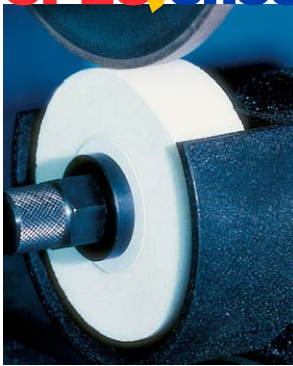
### Typical Applications

Truing 1A1, 11V9, 11A2, 6A2 and 12A2 wheels:

- Straight wheels, used on chip breaker, tool and cutter, surface and cylindrical grinding machines
- Cup wheels, used on vertical spindle surface grinders
- Internal grinding wheels
- Cut-off wheels



## SPECcheck



### Truing Diamond and CBN Wheels

| SUPERABRASIVE WHEEL             | TRUING WHEEL SPECIFICATION |
|---------------------------------|----------------------------|
| <b>RESIN AND VITRIFIED BOND</b> |                            |
| 80, 100 and 120 grit            | 38A60-MVBE, 37C60-MVK      |
| 150, 180 and 220 grit           | 38A80-MVBE, 37C80-MVK      |
| 320 and finer grits             | 37C100-HVK                 |
| <b>METAL BOND</b>               |                            |
| 80, 100 and 120 grit            | 38A60-MVBE                 |
| 150, 180 and 220 grit           | 38A80-MVBE                 |
| 240 and finer grits             | 37C80-HVK                  |

### 4597 Brake Controlled Truing Device

The 4597 is engineered for heavier and more frequent truing applications. The adjustable speeds allow for varying conditions (between 1050 and 1500 SFPM). It comes complete with a reusable case, "True to Form, Dress to Cut" training video, two 3" 38A60-M8VBE vitrified wheels, Truing Device Tips book and a dressing stick. It can be rebuilt using the 4597RK Rebuild Kit.

**Worn #4597 Brake Controlled Truing Devices (UPC 66260195350) in need of reconditioning (beyond new shoes and springs) may be returned to be rebuilt. Contact Diamond Tool Customer Service for return instructions and quote.**

### 3597 Pacesetter Brake Controlled Truing Device

The Pacesetter model is ideal for light duty use. The pre-set brake speed requires no adjusting. This model includes one 3" 38A60-M8VBE vitrified wheel and can be rebuilt using the 3597RK Rebuild Kit.

### 4597RK and 3597RK Rebuild Kits

You can rebuild your truing device with these kits, consisting of three brake shoes, three springs and three screws.

## TECHtips

- Prior to truing the wheel, run a wax crayon over the wheel face. Important: do NOT use any liquid-based ink on superabrasive wheels.
- Any crayon left on the wheel face after truing will reveal untrued areas.
- Indicate the superabrasive wheel runout before starting... usually within .001" to .002", to minimize wheel loss.
- Mount the device spindle parallel to the wheel spindle to ensure proper straight face truing.
- For cup wheels, the device spindle will be mounted perpendicular to the wheel spindle.
- Always use the Brake Controlled Truing Device dry.
- Bring the diamond/CBN wheel and the truing wheel together until they almost touch.
- Start the diamond/CBN wheel to normal speed; spin the truing wheel in the same direction at point of contact.
- Bring the two wheels together until they touch.
- Make sure the truing wheel is spinning at time of contact.
- Traverse the wheel back and forth at 30 to 60 inches/minute.
- Downfeed .0005" to .001" at the end of each traverse.
- At the end of truing, the diamond/CBN wheel should be smooth and in truth.
- Apply a dressing stick to sharpen the truing wheel.



It is the user's responsibility to refer to and comply with ANSI B7.1

| ITEM   | BETTER      |             | GOOD        |             |
|--|-------------|-------------|-------------|-------------|
|  | PRODUCT NO. | UPC NO.     | PRODUCT NO. | UPC NO.     |
| 4597 Brake Controlled Truing Device            | 4597        | 66260195350 |             |             |
| 4597 Rebuild Kit                               | 4597RK      | 66260195351 |             |             |
| 3597 Pacesetter Brake Controlled Truing Device |             |             | 3597        | 66260135578 |
| 3597 Pacesetter Rebuild Kit                    |             |             | 3597RK      | 66260135595 |
| Replacement Wheels 3 x 1 x 1/2                 |             |             | 38A60-MVBE  | 66243529145 |
|  |             |             | 38A80-MVBE  | 66243529146 |
|  |             |             | 37C60-MVK   | 66243529166 |
|  |             |             | 37C80-HVK   | 66243529170 |
|  |             |             | 37C80-MVK   | 66243529171 |
|  |             |             | 37C100-HVK  | 66243529172 |
|  |             |             | 37C100-MVK  | 66243529070 |

# DIAMOND AND CBN PRODUCTS

The “99” line of quality stock Diamond and CBN (cubic boron nitride) grinding products includes resin, vitrified, metal and MSL (metal single layer) bonds. Premium, high performance resin bond diamond and CBN wheels are also available.

## Typical Applications

### NORTON B99 DIAMOND WHEELS

- Sharpening cemented carbide cutting tools
- Cutting off carbide rod
- Grinding or cutting off nonferrous materials such as ceramics or glass
- Surface grinding dies
- O.D. grinding spray coatings

### NORTON B99 CBN WHEELS

- Sharpening high-speed (M2, D2, T15, etc.) steel cutting tools
- Surface and ID grinding hardened steel die components
- Precision grinding steel parts Rc 50 or harder



## Diamond Wheels

| FEATURES                                | BENEFITS   |
|---|--|
| • High quality synthetic diamond        | • High material removal rates; longer wheel life vs. conventional green silicon carbide wheels                       |
| • Pre-engineered resin bond – B99       | • Free cutting; superior form holding; efficient wet or dry  |
| • Premium, heavy-duty resin bond – B105 | • Ideal for dry toolroom reconditioning applications   |
| • Metal bond – M99                      | • Ideal for 1A1R cut-off applications and grinding glass or ceramic materials  |
| • MSL (metal single layer) diamond      | • Fast stock removal, cool cutting; excellent for dry offhand finishing of carbide tools; no wheel dressing required |
| • Vitrified bond – V99                  | • Most durable under high grinding forces; excellent for wet, offhand finishing of carbide tools                     |

## CBN Wheels

| FEATURES   | BENEFITS  |
|--|---|
| • CBN (Cubic Boron Nitride) abrasive material is second in hardness to diamond | • Easily cuts difficult-to-grind steel parts Rc 50 or harder                    |
| • Pre-engineered resin bond – B99  | • Highly wear resistant and thermally stable                                    |
| • Premium Aztec III resin bond   | • Free cutting, superior form holding   |
| • Premium Aztec .007 resin bond  | • Most efficient for dry tool resharpening                                      |
|  | • Most efficient for dry tool resharpening where heavy stock removal is desired |

## TECHtips

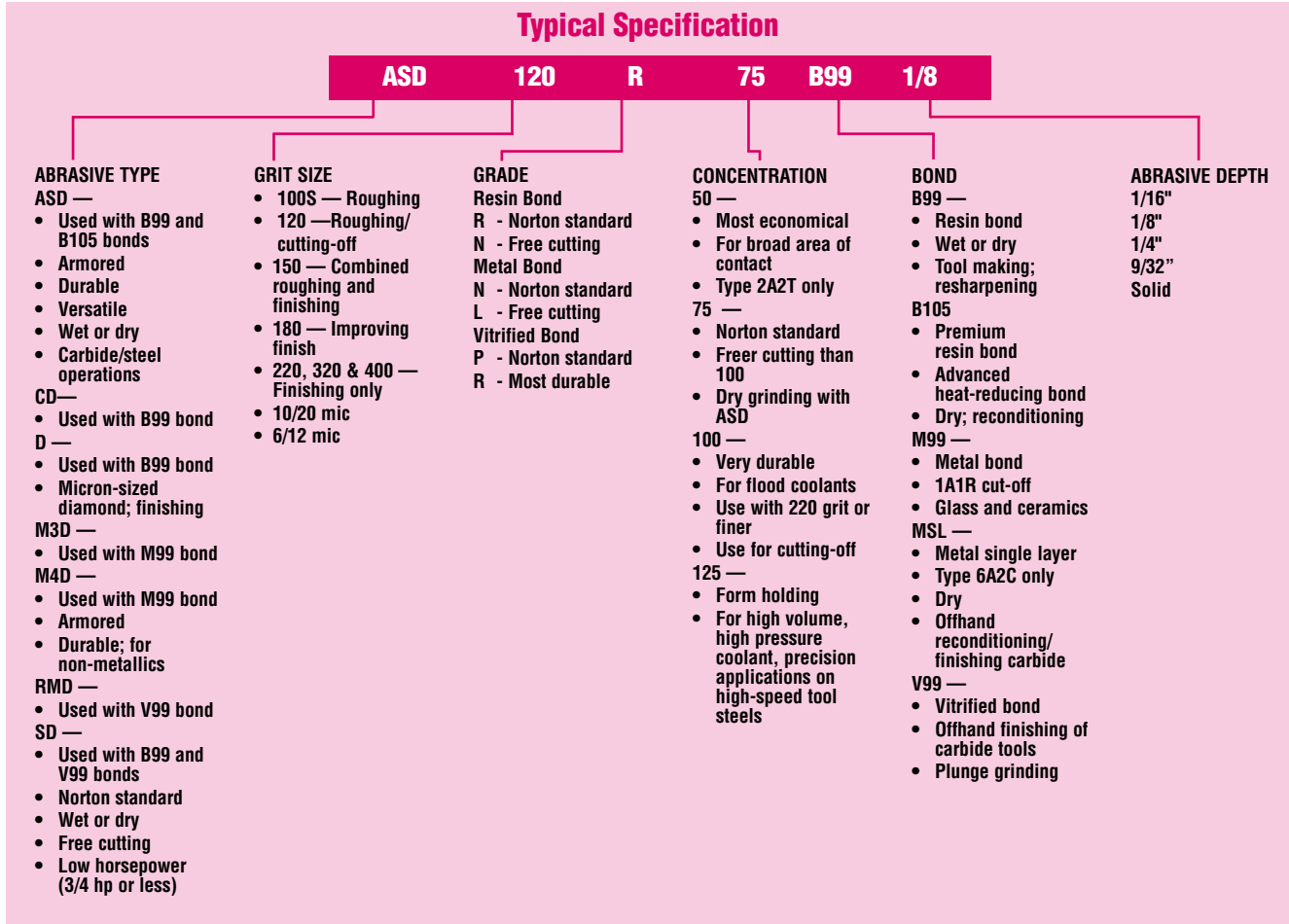
- Truing makes the wheel concentric with the spindle.
- Dressing opens the wheel’s cutting face.
- Always true and dress diamond and CBN wheels prior to use.
- Diamond and CBN wheels with grit sizes 100–180 can be trued with a Brake Controlled Truing Device.

- Refer to the “Mounting, Truing and Dressing Guide” for more information.

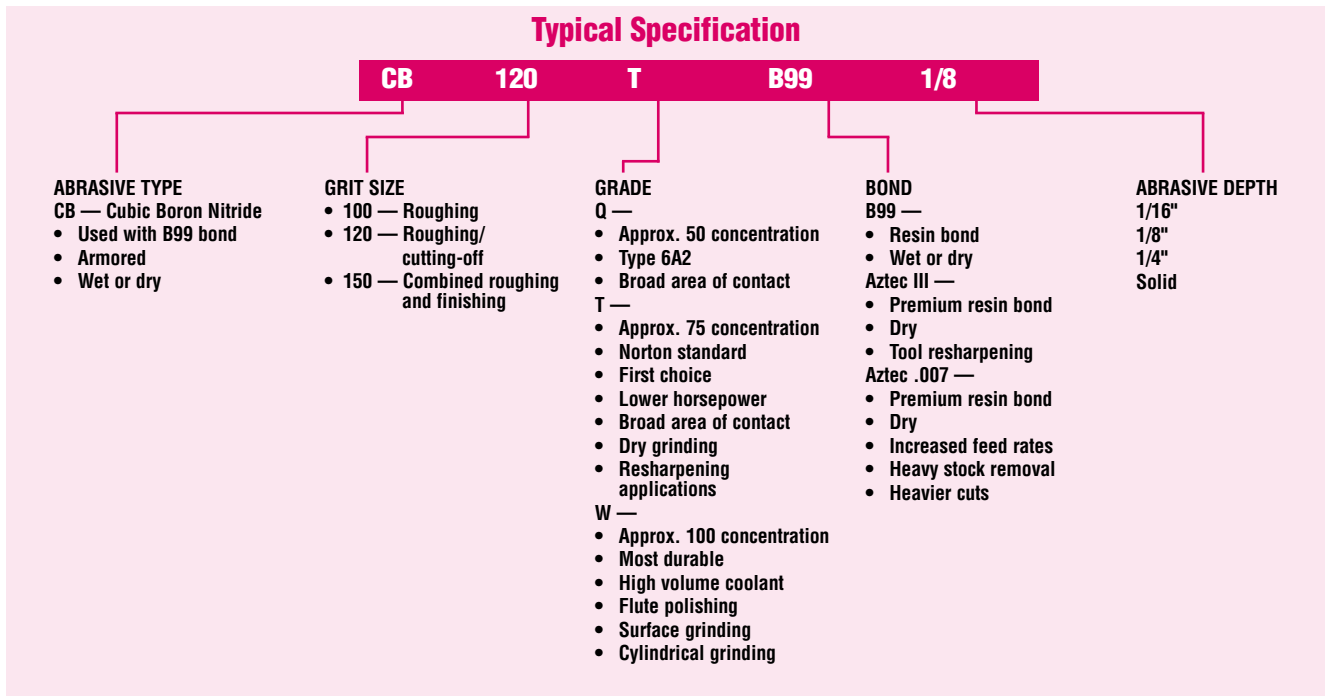


It is the user’s responsibility to refer to and comply with ANSI B7.1

## Norton Diamond Product Identification System/Usage Information



## Norton CBN Product Identification System/Usage Information





## Diamond Wheel Starting Recommendations

| <b>APPLICATION OR COMMON MACHINE TYPE</b>                             | <b>COMMON WHEEL SIZE, TYPE &amp; BLUEPRINT</b>  | <b>APPLICATION VARIABLES</b>   | <b>RECOMMENDED SPECIFICATION</b>   |
|---|---|--|--|
| <b>Carbide Grinding – Toolroom Production</b>                         |   |  |  |
| Blanchard Grinding<br>• Vertical Spindle Surface Grinding             | 10", 11", 16" & 18" diameters<br>Type 2A2T  | Wet – solid carbide<br>• 1" or larger pieces – roughing<br>• Small pieces<br>Carbide & steel (combination)   | SD100-R75B99E*<br>ASD100-R75B99E*<br>ASD100-R75B99E*   |
| Hand<br>• Burr Grinding   | 6" x 3/32" x 1-1/4"<br>Type 1V1P<br>V – 20° ME89562                                   | Dry  | ASDC320B-R125B99   |
| Centerless (wet)<br>• Throughfeed Grinding<br>• Unison Dedtru Grinder | 12", 14", 16", 18", & 20" diameters<br>Type 1A1<br>7" x 1" x 1-1/4"<br>Type 1A1       | Roughing   | ASD100-R75B99E*<br>ASD150-R75B99E*   |
| Cutting Off (wet)   | 6" x .035" x 1-1/4"<br>Type 1A1R ME43572<br>10" x .050" x 1-1/4"<br>Type 1A1R ME43565 | • Most durable<br>• Free cutting   | ASD100S-R100B99<br>SD100-R75B99<br>SD120-R100B99   |
| Cylindrical Grinding (wet)  | 10", 12", 14", 16" & 20" diameters<br>Type 1A1  | • Wet, rough grinding of cemented carbides, hard (55 Rc+) plasma and ceramic spray coatings<br>• Wet, finish grinding of all carbides, plasma and ceramic spray coatings                                 | ASD180-R100B99<br>ASD180-R75B99E*<br>ASD150-R75B99<br>ASD120-R75B99<br>SD220-R100B99E*             |
| Tool Sharpener Grinder (wet)<br>• Bench Type                          | 5" x 1" x 1-1/4"<br>Type 6A2H<br>ME27084 Rim Width (W) = 1-1/16                       | Tool sharpening  | SD320-R50B99   |
| Hand Honing (dry)   | Various sizes<br>Type HH1 or HH2  |  | ASD100-R100B99<br>SD320-100V99   |
| Lamination Dies (wet)   | Various sizes<br>Type 1A1   | Surface grinding of carbide  | ASD120-R75B99  |
| Surface Grinding (wet)<br>• Straight Wheels                           | Various sizes<br>Type 1A1   | Roughing<br>• Durable<br>• Free cutting<br>Finishing only<br>General purpose   | ASD100S-R100B99E*<br>SD100S-R100B99<br>SD220-R100B99<br>ASD150-R75B99                              |
| Tool & Cutter Grinding  | Various sizes<br>Type 11V9, 12V9 or 15V9  | Wet or dry   | ASD120-R7599   |
| <b>Carbide Grinding – Offhand</b>                                     |   |  |  |
| Single-Point Carbide Tools  | 6" x 3/4" x 1-1/4"<br>Type 6A2C ME27853   | Wet roughing<br>• Durable<br>• Free cutting<br>Wet finishing<br>• Durable<br>• Free cutting<br>Wet or dry grinding where free cutting and self-dressing wheels are required<br>• Roughing<br>• Finishing | RMD150-P50V99*<br>SD150-P50V99<br>RMD220-P50V99*<br>SD220-P50V99*<br>ASD120-R75B99<br>SD220-R50B99 |

**NOTE: DIAMOND DEPTHS ARE NOT INDICATED IN ABOVE LISTINGS. WHEN ORDERING, BE SURE TO INCLUDE DIAMOND DEPTH (1/16, 1/8, ETC.).**  
**\*NON-STOCK: REFER TO THE NORTON SUPERABRASIVES STANDARD PRODUCT CATALOG FOR B99E EXPRESS MADE-TO-ORDER WHEELS.**



## CBN Wheel Starting Recommendations

| APPLICATION OR COMMON MACHINE TYPE                              | COMMON WHEEL SIZE, TYPE & BLUEPRINT           | APPLICATION VARIABLES | RECOMMENDED SPECIFICATION    |
|---|---|-----------------------|------------------------------|
| <b>Toolroom Grinding</b>  |   |                       |                              |
| Cutter Sharpening<br>• Milling Cutters, Broaches, Reamers, etc. | 3-3/4" x 1-1/2" x 1-1/4"<br>Type 11V9 ME92192 | Dry<br>Wet            | Aztec III 120T<br>CB120-TB99 |
|   | 6" x 1" x 1-1/4"<br>Type 12A2 ME27758         | Wet or dry            | CB120-TB99                   |
|   | 6" x 3/4" x 1-1/4"<br>Type 12V9 ME48666       | Wet or dry            | CB120-TB99                   |
|   | 6" x 3/4" x 1-1/4"<br>Type 15V9 ME40633       | Wet or dry            | CB100-WB99E*                 |
|   | 10" x 1/2" x 3"<br>Type 1A1                   | Wet or dry            | CB100-TB99E*                 |
| Surface Grinding  | 12" x 1/2" x 3"<br>Type 1A1                   | Wet or dry            | CB150-WB99E*                 |
| Cylindrical Grinding  | Thinner Than 1/2"<br>Type DW                  | Wet or dry            | CB100-WB99                   |
| Internal Grinding Tools   | 1/2" or Thicker<br>Type 1A1                   | Wet or dry            | CB120-TB99E*                 |
|   | 7" x .040" x 1-1/4"<br>Type 1A1R              | Water-base coolant    | CB120-WB99E*                 |

**NOTE: CBN DEPTHS ARE NOT INDICATED IN ABOVE LISTINGS. WHEN ORDERING, BE SURE TO INCLUDE CBN DEPTH (1/16, 1/8, ETC.)**  
**\* NON-STOCK: REFER TO THE NORTON SUPERABRASIVES STANDARD PRODUCT CATALOG FOR B99E EXPRESS MADE-TO-ORDER WHEELS.**

## Expected Surface Finish by Grit Size

Use these charts as guides only. Surface finish is affected by a number of variables i.e., machine type and condition, type of material ground, coolant, wheel speed, bond system, etc.

| DIAMOND GRIT SIZE | EXPECTED FINISH MICRO INCH AA | MAXIMUM DEPTH OF CUT PER PASS FOR GRIT SIZE | CBN GRIT SIZE | EXPECTED FINISH WITH OSCILLATION | EXPECTED FINISH PLUNGE |
|-------------------|-------------------------------|---|---------------|----------------------------------|------------------------|
| 100               | 24 to 32                      | 0.001" to 0.002"                            | 100           | 35 – 40                          | 40 – 45                |
| 120               | 16 to 18                      | 0.001" to 0.002"                            | 120           | 30 – 35                          | 35 – 40                |
| 150               | 14 to 16                      | 0.001" to 0.002"                            | 150           | 25 – 30                          | 30 – 35                |
| 180               | 12 to 14                      | 0.0007" to 0.001"                           | 180           | 20 – 25                          | 25 – 30                |
| 220               | 10 to 12                      | 0.0007" to 0.001"                           | 220           | 15 – 20                          | 20 – 25                |
| 320               | 8                             | 0.0004" to 0.0006"                          | 320           | 10 – 15                          | 15 – 20                |
| 400               | 7 to 8                        | 0.0003" to 0.0005"                          | 400           | 4 – 8                            | 5 – 10                 |

## Recommended Wheel Speeds for Diamond and CBN Wheels

|                                | WET GRINDING                      |                                   | DRY GRINDING                      |                                   |
|--------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                                | CUP WHEELS                        | PERIPHERAL WHEELS                 | CUP WHEELS                        | PERIPHERAL WHEELS                 |
| <b>Diamond Grinding Wheels</b> |                                   |                                   |                                   |                                   |
|                                | 11V9, 12V9, 15V9, etc.            | 1A1, 1V1, 1A1R, etc.              | 11V9, 12V9, 15V9, etc.            | 1A1, 1V1, 1A1R, etc.              |
| Resin Bond Wheels              | 4921 to 7874 SFPM<br>25 to 40 m/s | 4921 to 7874 SFPM<br>25 to 40 m/s | 2756 to 3543 SFPM<br>14 to 18 m/s | 2756 to 3543 SFPM<br>14 to 18 m/s |
| Metal Bond Wheels              |                                   | 3937 to 5906 SFPM<br>20 to 30 m/s |                                   |                                   |
| Vitrified Bond Wheels          | 2953 to 5906 SFPM<br>15 to 30 m/s | 2953 to 5906 SFPM<br>15 to 30 m/s |                                   |                                   |
| <b>CBN Grinding Wheels</b>     |                                   |                                   |                                   |                                   |
| Resin Bond Wheels              | 5906 to 9843 SFPM<br>30 to 50 m/s | 5906 to 9843 SFPM<br>30 to 50 m/s | 2953 to 5906 SFPM<br>15 to 30 m/s | 2953 to 5906 SFPM<br>15 to 30 m/s |

**NOTE: THESE ARE NOT THE MAXIMUM OPERATING SPEEDS (MOS). CONSULT ANSI B7.1 OR CALL YOUR NORTON REPRESENTATIVE FOR MOS.**





## TECHtips

### ■ Avoid Grinding Steel

- Avoid steel when grinding with diamond wheels. Keep the amount of steel ground to an absolute minimum.
- On brazed tools, use an aluminum oxide wheel to back off the steel shank.
- A high lubricity grinding fluid should be used.
- For some steels, an armored (AMD) diamond wheel may prove most economical.

### ■ Work Support – Use Rigid Work Support

- All workpieces should be supported firmly during the grinding process. Any amount of vibration will cause wheel wear and produce chatter or wave marks on the ground surface.
- On work ground between centers, centerholds should be properly prepared.
- Minimize work overhang.
- If the ground work is supported by a work finger, ensure the finger is strong enough to provide vibration-free support.



It is the user's responsibility to refer to and comply with ANSI B7.1

### ■ Coolant – Grind Wet

- Diamond wheels should be used with a full flood coolant properly directed toward the grinding zone. Water with a rust inhibitor is recommended.
- Vitriified diamond wheels should be used only with a coolant.
- When a flood application can not be used, try a mist or spray application.
  - Use compressed air to “atomize” water or soluble oil.
  - Direct the spray at the grinding zone to help dissipate heat and prevent heat damage to the work.

### ■ Feeds – Avoid Excessive Feeds

- Excessive feeds will result in premature wheel wear. Excessive feed rates are characterized by:
  - A hard grinding sound
  - Chatter
  - Burn
  - High wheel wear rate
  - Vibration

## SPECcheck

### Troubleshooting Guide – Dry Grinding

| PROBLEM                  | POSSIBLE CAUSES  | SUGGESTED CORRECTION   |
|--------------------------|--|--|
| Burning (excessive heat) | Wheel loaded or glazed<br>Excessive feed rate<br>Wheel too durable | Dress wheel with a dressing stick<br>Reduce infeed of wheel or workpiece<br>Use freer cutting specification or slow down wheel speed |
| Poor finish              | Grit size too coarse<br>Excessive feed rate                        | Select a finer grit size<br>Reduce infeed of wheel or workpiece  |
| Chatter                  | Wheel out of truth   | True wheel; ensure it is not slipping on mount (See “Mounting, Truing and Dressing Guide”)   |

### Troubleshooting Guide – Wet Grinding

| PROBLEM                  | POSSIBLE CAUSES   | SUGGESTED CORRECTION   |
|--------------------------|---|--|
| Burning (excessive heat) | Wheel glazed or loaded<br>Poor coolant placement<br>Excessive material removal rate           | Re-dress wheel<br>Apply coolant directly to wheel/workpiece interface<br>Reduce downfeed and/or crossfeed  |
| Poor finish              | Excessive dressing<br><br>Grit size too coarse<br>Poor coolant flow or location               | Use lighter dressing pressure<br>Stop dressing as soon as wheel starts to consume stick rapidly<br>Select a finer grit size<br>Apply heavy flood so it reaches wheel/work interface    |
| Chatter                  | Wheel out of truth  | True wheel; ensure it is not slipping on mount   |
| Wheel will not cut       | Glazed by truing<br>Wheel loaded  | Dress lightly until wheel opens up<br>Dress lightly until wheel opens up<br>Increase coolant flow to keep wheel surface clean<br>Never run wheel with coolant turned off               |
| Slow cutting             | Low feeds and speeds  | Increase feed rate; increase wheel speed (Observe maximum wheel speed)   |
| Short wheel life         | Incorrect coolant flow<br>Low wheel speed<br>Excessive dressing<br>Wheel too soft or too hard | Apply coolant to flood wheel/work surface<br>Increase wheel speed (observe maximum operating speed)<br>Use lighter dressing pressure<br>Change grit or grade; use higher concentration |

### Wheel Speed Calculation:

|   |   |
|---|---|
| TO CONVERT M/S TO SFPM: MULTIPLY M/S X 196.85 = SFPM          | EXAMPLE: 40 M/S X 196.85 = 7874 SFPM                |
| TO CONVERT SFPM TO M/S: DIVIDE SFPM BY 196.85 = M/S           | EXAMPLE: 5423 SFPM ÷ 196.85 = 27.5 M/S              |
| TO CONVERT RPM TO SFPM: MULTIPLY WHEEL DIAMETER X RPM X 0.262 | EXAMPLE: 6" DIAMETER X 3450 RPM X 0.262 = 5423 SFPM |

M/S = Meters/Second      RPM = Revolutions Per Minute      SFPM = Surface Feet Per Minute

## Diamond and CBN Wheel Mounting, Truing and Dressing Guide

To achieve the best results using Norton diamond and CBN products, the following steps for mounting, truing and dressing should be practiced:

### MOUNTING – Putting Wheel on Machine Spindle

- Examine wheel flanges and spindle carefully.
- Be sure flanges' surfaces are clean and free of damage.
- Ensure that the mounting flanges are flat and of equal diameter, especially on wheels with rigid centers, such as vitrified bond wheels.
- Inspect machine spindle for excessive runout.
  - TIR (Total Indicated Runout) should be no greater than 0.0002".
- Mount wheel between hand-tightened flanges.
- Using a dial indicator, tap the wheel lightly with a rubber or wooden block to minimize runout to less than .0010".
- Tighten flange securely and recheck with indicator.
- Allow a newly mounted wheel to operate for one full minute before grinding.
- The use of one permanent mounting for the life of the wheel is recommended whenever possible:
  - If the grinding machine has a tapered spindle, mount each straight, flaring cup or dish wheel on a separate collet or adapter.
  - When changing wheels the entire unit is removed, keeping the wheel in running truth.
  - When needed again, the entire unit can be placed directly on the spindle or arbor, thereby eliminating the time and abrasive lost in retrueing.

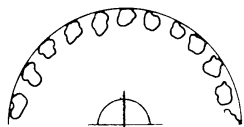
### TRUING – Making Wheel Round and Concentric with the Spindle Axis

- Prior to truing the wheel, run a wax crayon over the wheel face. Important: do not use any liquid based ink on superabrasive wheels.
- Any crayon left on the wheel face after truing will reveal untrued areas.
- Indicate the superabrasive wheel runout before starting... usually within .001" to .002", to minimize wheel loss.
- Norton Brake Controlled Truing Devices are most commonly used to true Diamond and CBN straight, cup and cylinder wheels.
  - Mount the device spindle parallel to the wheel spindle to ensure proper straight face truing.
  - For cup wheels, the device spindle will be mounted perpendicular to the wheel spindle.
  - Always use Brake Controlled Truing Device dry.
  - Bring the diamond/CBN wheel and the truing wheel together until they almost touch.
- Start the diamond/CBN wheel to normal speed; start the truing wheel in the same direction.
- Bring the two wheels together until they touch.
- Make sure the truing wheel is spinning at time of contact.
- Traverse the wheel back and forth at 30 to 60 inches per minute.
- Downfeed .0005" to .001" at the end of each traverse.
- At the end of truing, the diamond/CBN wheel should be smooth and in truth.
- Apply a dressing stick to sharpen the truing wheel.
- See the "Diamond Tool" section for Brake Controlled Truing Devices and wheel operating recommendations.

### DRESSING – Opening the Face of a Trued Wheel

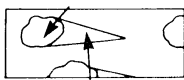
- Dressing the abrasive – a cleaning/sharpening process to expose sharp, free-cutting grit:
  - For resinoid and vitrified bond wheels, the dressing stick should be one or two grit sizes finer than the abrasive in the diamond/CBN wheel – in a soft grade such as H or I.
  - For metal bond wheels, choose a stick with the same grit or one grit coarser than the wheel abrasive – in a medium grade (K – M).
  - See the "Dressing Stick" section for recommendations.
- Dressing the core – The core material (the part of the wheel that holds and supports the abrasive-bearing section) should never contact the work piece during grinding; rubbing will generate excessive heat. As the abrasive section of a cup wheel wears, the core material might become exposed, necessitating dressing.
  - Use a single-point carbide or steel tool to dress an exposed resaloy core.
  - Clamp the tool in a vise.
  - Direct the cutting edge accurately to leave a 1/16" of abrasive section exposed.

#### PROPERLY DRESSED WHEEL FACE

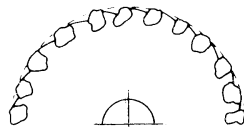


**AFTER TRUING  
THE WHEEL FACE IS SMOOTH AND  
CLOSED**

**AFTER DRESSING CBN GRIT**

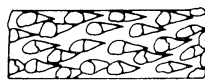


**TAIL  
(BOND SUPPORTING GRIT)**



**AFTER DRESSING  
THE WHEEL FACE IS OPEN WITH THE  
GRITS EXPOSED, READY FOR  
EFFICIENT GRINDING ACTION**

**AFTER DRESSING**



**PATH CONNECTING THE TAILS FOR  
COOLANT AND CHIP FLOW**

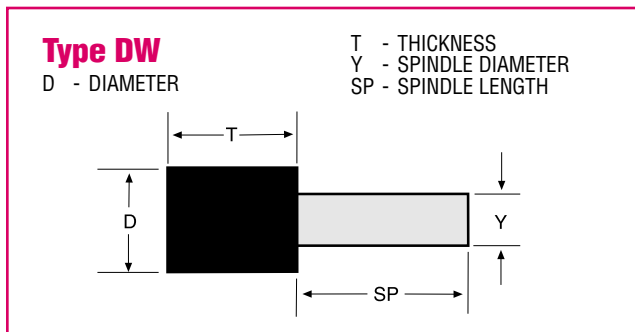
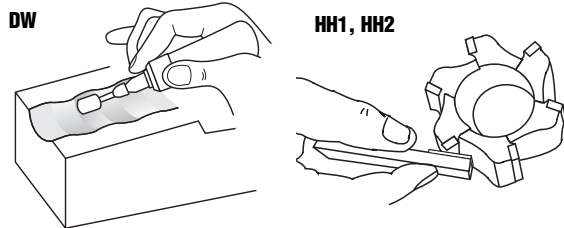


**NORTON**

| SIZE<br>D X T                           | BETTER                                      |                            |
|---|---|----------------------------|
|   | SPEC  | UPC NO.                    |
| <b>TYPE DW MOUNTED POINTS – DIAMOND</b> |   |                            |
| 1/8 x 1/4<br>Steel Spindle 1/8 x 1-1/2  | SD150-R100B99-SOLID<br>SD220-R100B99-SOLID  | 69014192235<br>69014192236 |
| 3/16 x 1/4<br>Steel Spindle 1/8 x 1-1/2 | SD100-R100B99-SOLID                         | 69014192238                |
| 1/4 x 1/4<br>Steel Spindle 1/8 x 1-1/2  | SD100-R100B99-SOLID                         | 69014192240                |
| 3/8 x 1/4<br>Steel Spindle 1/8 x 1-1/2  | SD100S-R100B99-SOLID                        | 69014192243                |
| 1/2 x 1/2<br>Steel Spindle 1/4 x 1-1/2  | SD100S-R100B99-SOLID<br>SD220-R100B99-SOLID | 69014192248<br>69014192249 |
| 3/4 x 3/8<br>Steel Spindle 1/4 x 1-1/2  | SD150-R100B99-SOLID                         | 69014192251                |
| 1 x 1/2<br>Steel Spindle 1/4 x 1-1/2    | SD100-R100B99-SOLID                         | 69014192428                |

| <b>TYPE DW MOUNTED POINTS – CBN</b>        |                  |             |
|--|------------------|-------------|
| 3/16 x 1/4<br>Carbide Spindle .125 x 1-3/4 | CB150-WB99-SOLID | 69014192258 |
| 1/4 x 1/4<br>Carbide Spindle .125 x 1-3/4  | CB120-WB99-SOLID | 69014192260 |
| 3/8 x 3/8<br>Carbide Spindle .250 x 2-1/4  | CB100-WB99-SOLID | 69014192266 |
| 1/2 x 1/2<br>Carbide Spindle .250 x 2-1/4  | CB100-WB99-SOLID | 69014192272 |
| 3/4 x 1/4<br>Carbide Spindle .250 x 2-1/4  | CB100-WB99-SOLID | 69014192276 |
| 1 x 1/4<br>Carbide Spindle .250 x 2-1/4    | CB100-WB99-SOLID | 69014192277 |

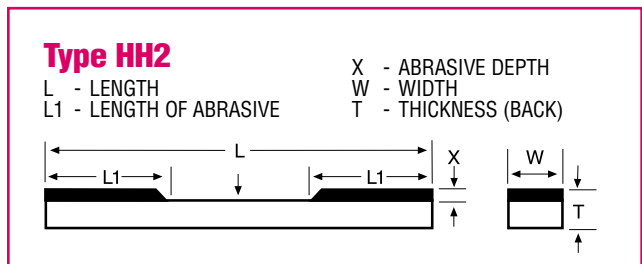
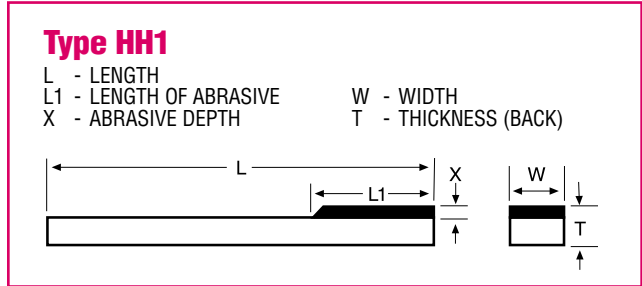
STANDARD PACKAGE = 1 MOUNTED POINT



| SIZE<br>T X W X L   | BETTER                                 |                            |
|---|--|----------------------------|
|   | SPEC                                   | UPC NO.                    |
| <b>TYPE HH1 HAND HONES – DIAMOND</b>                                |  |                            |
| 1/4 x 1/4 x 6<br>One 1/16 deep<br>1" long insert in one 1/4 surface | ASD220-R100B99-1/16                    | 69014192139                |
| 1/4 x 3/8 x 4<br>One 1/16 deep<br>1" long insert in one 3/8 surface | ASD100-R100B99-1/16                    | 69014192141                |
|   | ASD180-R100B99-1/16                    | 69014192142                |
|   | ASD220-R100B99-1/16                    | 69014191670                |
|   | ASD320-R100B99-1/16                    | 69014191672                |
|   | ASD400-R100B99-1/16                    | 69014192143                |
|   | D10/20MIC-R100B99-1/16                 | 69014192144                |
|   | SD220-100V99-1/16<br>SD320-100V99-1/16 | 69014191671<br>69014192140 |

| <b>TYPE HH2 HAND HONES – DIAMOND</b>                                   |                         |             |
|--|-------------------------|-------------|
| 1/4 x 3/8 x 4<br>Two 1/16 deep 1" long<br>inserts in one 3/8 surface   | ASD120/220-R100B99-1/16 | 69014192150 |
|  | ASD150/320-R100B99-1/16 | 69014192177 |
|  | ASD220/320-R100B99-1/16 | 69014192178 |
|  | ASD220/400-R100B99-1/16 | 69014192179 |
|  | ASD320/400-R100B99-1/16 | 69014192180 |
|  | SD220/320-100V99-1/16   | 69014192149 |
| 1/4 x 7/16 x 4<br>Two 1/16 deep 1" long<br>inserts in one 7/16 surface | SD320/400-100V99-1/16   | 69014192182 |

STANDARD PACKAGE = 1 HAND HONE



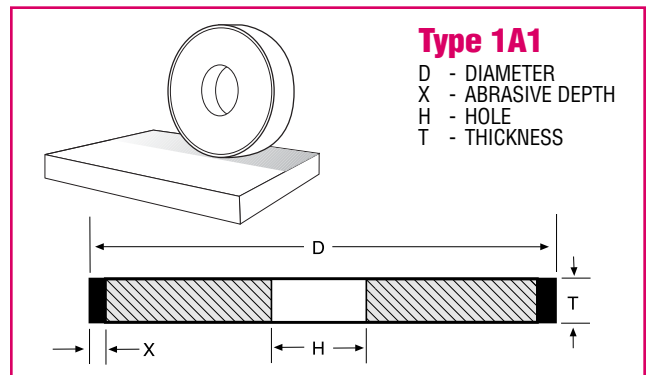
# DIAMOND AND CBN PRODUCTS

| SIZE<br>D X T X H                  | BETTER               |             |
|------------------------------------|----------------------|-------------|
|                                    | SPEC                 | UPC NO.     |
| <b>TYPE 1A1 STRAIGHT – DIAMOND</b> |                      |             |
| 3/4 x 1/4 x 1/4                    | ASD150-R100B99-1/8   | 69014192174 |
| 1 x 1/4 x 1/4                      | SD100-R100B99-1/8    | 69014192175 |
| 1-1/2 x 1/2 x 1/2                  | D6/12MIC-N100B99-1/8 | 69014192176 |
| 2 x 1/8 x 1/4                      | SD100-R100B99-1/8    | 69014192184 |
| 3 x .006 x 1/2 (ME12098)           | M3D220-N75M99-1/8    | 69014192342 |
| 3 x .010 x 1/2 (ME12098)           | M4D220-L100M99-1/8   | 69014192345 |
| 3 x 1/4 x 3/4                      | SD180-R100B99-1/8    | 69014192187 |
| 4 x .020 x 1-1/4                   | SD320-R100B99-1/8    | 69014192188 |
| 4 x 1/32 x 1-1/4                   | SD100S-R100B99-1/4   | 69014192192 |
| 4 x 1/16 x 1-1/4                   | SD100S-R100B99-1/4   | 66260273583 |
|                                    | SD150-R100B99-1/4    | 66260273584 |
|                                    | SD220-R100B99-1/4    | 66260273586 |
| 4 x 1/8 x 3/4                      | SD150-R100B99-1/8    | 69014192024 |
| 4 x 1/8 x 1-1/4                    | SD150-R100B99-1/8    | 69014191677 |
| 4 x 1/4 x 1/2                      | SD150-R100B99-1/4    | 66260273590 |
| 4 x 1/4 x 3/4                      | SD150-R100B99-1/4    | 66260273592 |
| 4 x 1/4 x 1-1/4                    | SD100S-R100B99-1/4   | 66260273587 |
|                                    | SD120-R100B99-1/4    | 66260273588 |
|                                    | SD150-R100B99-1/4    | 66260273589 |
| 4 x 1/2 x 1-1/4                    | SD150-R100B99-1/4    | 66260273594 |
| 6 x 1/32 x 1-1/4                   | SD220-R100B99-1/8    | 69014192197 |
| 6 x 1/16 x 1-1/4                   | SD100-R100B99-1/4    | 66260273596 |
|                                    | SD150-R100B99-1/4    | 66260273597 |
|                                    | SD180-R100B99-1/4    | 66260273598 |
|                                    | SD220-R100B99-1/4    | 66260273599 |
| 6 x 1/8 x 1-1/4                    | ASD150-R75B99-1/4    | 66260273617 |
|                                    | SD100-R100B99-1/4    | 66260273611 |
|                                    | SD120-R100B99-1/4    | 66260273612 |
|                                    | SD150-R100B99-1/4    | 66260273613 |
|                                    | SD180-R100B99-1/4    | 66260273614 |
|                                    | SD220-R100B99-1/4    | 66260273615 |
| 6 x 1/4 x 1-1/4                    | ASD100S-R75B99-1/8   | 69014192205 |
|                                    | ASD120-R75B99-1/8    | 69014191689 |
|                                    | ASD150-R75B99-1/8    | 69014191690 |
|                                    | ASD120-R75B99-1/4    | 69014192769 |
|                                    | ASD150-R75B99-1/4    | 66260273609 |
|                                    | ASD180-R75B99-1/4    | 69014192770 |
|                                    | ASD220-R75B99-1/4    | 69014192771 |
|                                    | ASD320-R75B99-1/4    | 69014192772 |
|                                    | RMD180-P100V99-1/8   | 69014192203 |
|                                    | SD120-R100B99-1/8    | 69014191691 |
|                                    | SD150-R100B99-1/8    | 69014191692 |
|                                    | SD180-R100B99-1/8    | 69014191693 |
|                                    | SD220-R100B99-1/8    | 69014191694 |
|                                    | SD220-R100B99-1/4    | 69014192764 |
| 6 x 3/8 x 1-1/4                    | ASD150-R75B99-1/8    | 69014191695 |
|                                    | ASD120-R75B99-1/4    | 69014192773 |
|                                    | SD150-R100B99-1/8    | 69014191696 |
| 6 x 1/2 x 1-1/4                    | ASD120-R75B99-1/8    | 69014191697 |
|                                    | ASD150-R75B99-1/8    | 69014191698 |
|                                    | ASD120-R75B99-1/4    | 69014192777 |
|                                    | ASD220-R75B99-1/4    | 69014192779 |
|                                    | ASD320-R75B99-1/4    | 69014192780 |

CONTINUED

| SIZE<br>D X T X H                  | BETTER             |             |
|------------------------------------|--------------------|-------------|
|                                    | SPEC               | UPC NO.     |
| <b>TYPE 1A1 STRAIGHT – DIAMOND</b> |                    |             |
| 6 x 1/2 x 1-1/4                    | SD120-R100B99-1/8  | 66260273557 |
|                                    | SD150-R100B99-1/8  | 69014191699 |
|                                    | SD180-R100B99-1/8  | 69014191700 |
|                                    | SD150-R100B99-1/4  | 66260273561 |
| 7 x 1/4 x 1-1/4                    | ASD150-R75B99-1/8  | 69014191701 |
|                                    | SD100S-R100B99-1/8 | 69014192210 |
|                                    | SD120-R100B99-1/8  | 69014191702 |
|                                    | SD150-R100B99-1/8  | 69014191703 |
|                                    | SD180-R100B99-1/8  | 69014191704 |
|                                    | SD220-R100B99-1/8  | 69014191705 |
|                                    | SD120-R100B99-1/4  | 66260273566 |
| 7 x 3/8 x 1-1/4                    | ASD150-R75B99-1/8  | 69014191848 |
|                                    | SD120-R100B99-1/8  | 69014191849 |
|                                    | SD220-R100B99-1/8  | 69014191852 |
| 7 x 1/2 x 1-1/4                    | ASD100-R75B99-1/8  | 69014192211 |
|                                    | ASD150-R75B99-1/8  | 69014191853 |
|                                    | ASD180-R75B99-1/8  | 69014192212 |
|                                    | SD120-R100B99-1/8  | 69014191854 |
|                                    | SD150-R100B99-1/8  | 69014191855 |
|                                    | SD180-R100B99-1/8  | 69014191856 |
|                                    | SD220-R100B99-1/8  | 69014191857 |
| 8 x 1/2 x 1-1/4                    | SD150-R100B99-1/8  | 66260273574 |
| 10 x 1/2 x 3                       | ASD120-R75B99-1/8  | 69014192305 |
|                                    | ASD180-R100B99-1/8 | 69014192306 |
| 12 x 1/2 x 3                       | ASD150-R75B99-1/8  | 69014192310 |
| 12 x 1/2 x 5                       | ASD150-R75B99-1/8  | 69014192311 |
| 12 x 1 x 3                         | ASD120-R75B99-1/8  | 69014192312 |
| 12 x 1 x 5                         | ASD120-R75B99-1/8  | 69014192313 |
| 14 x 1/2 x 5                       | ASD150-R75B99-1/8  | 69014192314 |
| 14 x 1 x 5                         | ASD120-R75B99-1/8  | 69014192316 |
| 20 x 1 x 12                        | ASD120-R75B99-1/8  | 69014192325 |

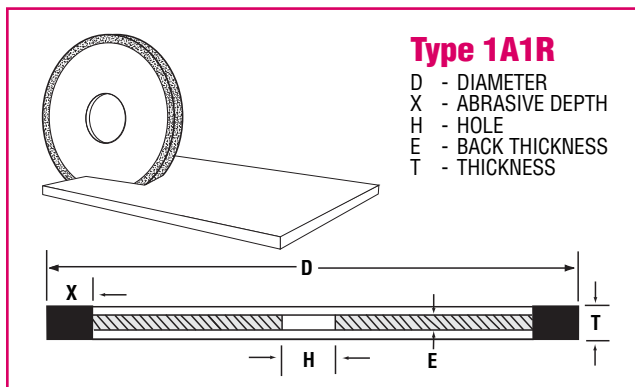
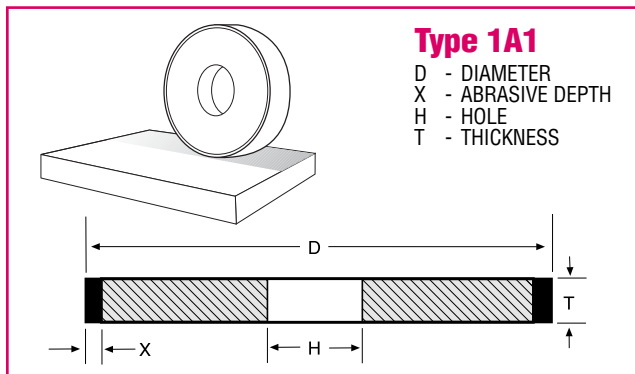
STANDARD PACKAGE = 1 WHEEL



Refer to "Brake Controlled Truing Devices" and "Dressing Sticks" sections for truing and dressing products.

| SIZE<br>D X T X H              | BETTER         |             |
|--------------------------------|----------------|-------------|
|                                | SPEC           | UPC NO.     |
| <b>TYPE 1A1 STRAIGHT – CBN</b> |                |             |
| 6 x 1/8 x 1-1/4                | CB120-TB99-1/8 | 66260273601 |
| 6 x 1/4 x 1-1/4                | CB120-TB99-1/8 | 66260273605 |
| 6 x 1/2 x 1-1/4                | CB120-TB99-1/8 | 66260273607 |
| 7 x 1/4 x 1-1/4                | CB120-TB99-1/8 | 69014192021 |
| 7 x 1/2 x 1-1/4                | CB120-TB99-1/8 | 66260273567 |
| 12 x 1/2 x 5                   | CB150-TB99-1/8 | 66260273560 |
| 12 x 1 x 5                     | CB150-TB99-1/8 | 66260273562 |

STANDARD PACKAGE = 1 WHEEL



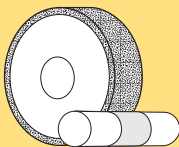
| SIZE<br>D X T X H                  | BETTER   |   |
|------------------------------------|--|---|
|                                    | SPEC   | UPC NO.                                   |
| <b>TYPE 1A1R CUT-OFF – DIAMOND</b> |  |   |
| 3 x .020 x 1/2<br>(ME104177)       | M4D150-N50M99-1/8  | 69014192060                               |
| 4 x .012 x 1/2<br>(ME104180)       | M4D180-N75M99-1/8<br>M4D220-N75M99-1/8                         | 69014192063<br>69014192064                |
| 4 x .020 x 1/2<br>(ME104180)       | M4D220-N100M99-1/8   | 69014192067                               |
| 4 x .030 x 1/2<br>(ME104180)       | M4D150-N75M99-1/8  | 69014192068                               |
| 4 x 1/32 x 3/4<br>(ME43570)        | SD100S-R100B99-1/4<br>SD120-R100B99-1/4                        | 69014192151<br>69014191706                |
| 4 x 1/32 x 1-1/4<br>(ME43570)      | SD100S-R100B99-1/4   | 69014192152                               |
| 5 x .015 x 1/2<br>(ME104180)       | M4D150-N100M99-1/8<br>M4D220-N100M99-1/8                       | 69014192069<br>69014192070                |
| 6 x .017 x 1-1/4<br>(ME104180)     | M4D150-N100M99-1/8<br>M4D220-N100M99-1/8                       | 69014192082<br>69014192083                |
| 6 x .025 x 1-1/4<br>(ME104180)     | M4D150-N100M99-1/8   | 69014192086                               |
| 6 x .035 x 5/8<br>(ME104177)       | M4D100-N75M99-1/8  | 69014192088                               |
| 6 x .035 x 1-1/4<br>(ME43572)      | ASD120-R75B99-1/4<br>SD100-R75B99-1/4                          | 69014191707<br>69014192155                |
|                                    | ASD100S-R100B99-1/4<br>ASD120-R100B99-1/4                      | 69014192158<br>69014192159                |
|                                    | SD100-R100B99-1/4<br>SD100S-R100B99-1/4<br>SD220-R100B99-1/4   | 69014191858<br>69014192156<br>69014192157 |
| 6 x .035 x 1-1/4<br>(ME73316)      | ASD100S-R100B99-9/32<br>ASD120-R100B99-9/32                    | 69014192164<br>69014192165                |
|                                    | SD100-R100B99-9/32<br>SD120-R100B99-9/32<br>SD150-R100B99-9/32 | 69014192161<br>69014192162<br>69014192163 |
| 6 x .045 x 1-1/4<br>(ME83991)      | SD100-R50B99-1/8   | 69014192166                               |
| 6 x .055 x 1-1/4<br>(ME104177)     | M4D100-N75M99-1/8  | 69014192099                               |
| 7 x .035 x 1-1/4<br>(ME82347)      | ASD100-R100B99-1/4   | 66260238686                               |
| 7 x .040 x 1-1/4<br>(ME104177)     | M4D120-N75M99-1/8  | 69014192105                               |
| 7 x .055 x 1-1/4<br>(ME104177)     | M4D120-N100M99-1/8   | 69014192108                               |
| 8 x .030 x 1-1/4<br>(ME104180)     | M4D180-N75M99-1/8  | 69014192110                               |

CONTINUED

## TECHtips

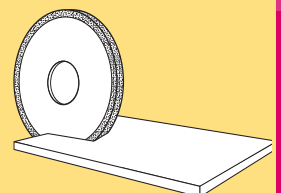
### ■ Cylindrical grinding applications – 1A1 wheels:

- Include all outside grinding of round parts, even though the finished product is not always a true cylinder.
- Infeed at both ends of the traverse to keep wheel face flat.
- Use work supports to prevent deflection.
- Rough grinding traverse speed should be 1/2 to 2/3 of the thickness of the wheel per work revolution.
- Finishing grinding traverse speed should be 1/2" or less per work revolution.



### ■ Cut-off applications – 1A1R wheels:

- Use the largest diameter flanges possible
  - Use flanges of equal diameter
  - Use the thickest wheel possible for increased stiffness and straightness of cut
- CBN wheels are used on hardened steels.  
 ■ Diamond wheels are used to cut or slot carbide, glass or ceramic parts.



It is the user's responsibility to refer to and comply with ANSI B7.1

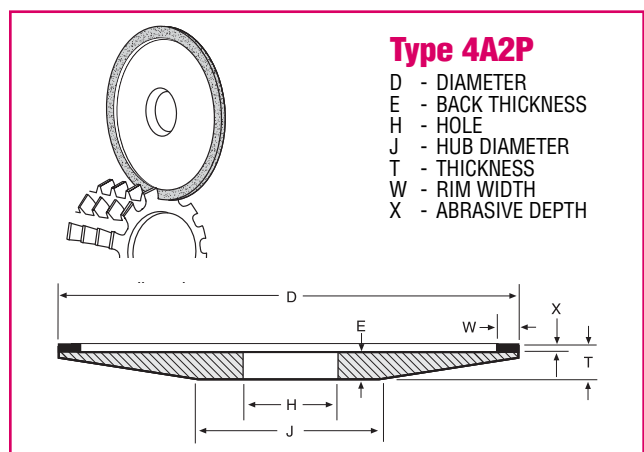
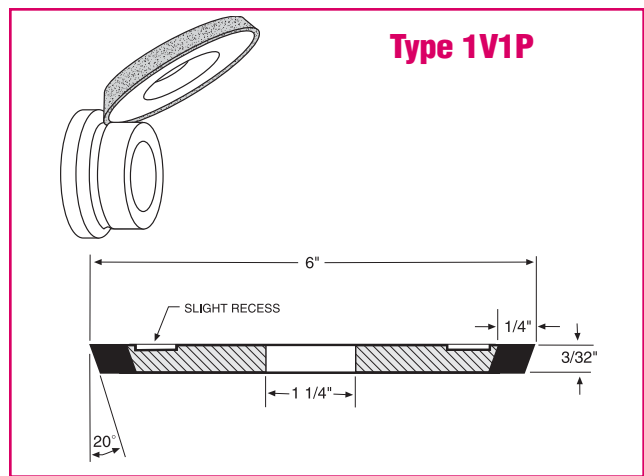
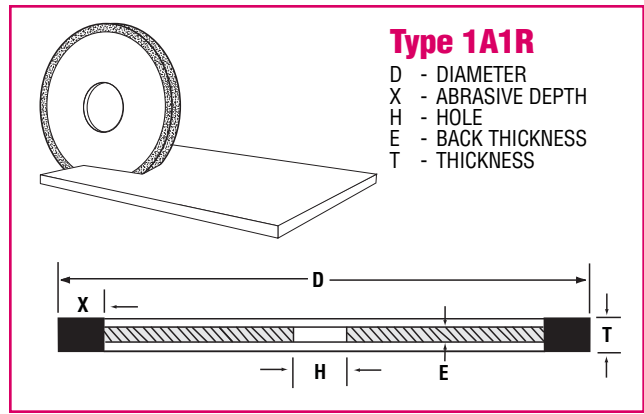
| SIZE<br>D X T X H                           | BETTER   |   |
|---|--|---|
|   | SPEC   | UPC NO.                                   |
| <b>TYPE 1A1R CUT-OFF – DIAMOND (CONT'D)</b> |  |   |
| 8 x .045 x 5/8<br>(ME43569)                 | SD120-R100B99-1/4  | 69014192167                               |
| 8 x .045 x 1<br>(ME43569)                   | SD120-R100B99-1/4  | 69014192168                               |
| 8 x .045 x 1-1/4<br>(ME43569)               | SD120-R100B99-1/4  | 69014192169                               |
| 8 x .050 x 1-1/4<br>(ME104180)              | M4D180-N75M99-1/8  | 69014192114                               |
| 10 x .050 x 1-1/4<br>(ME 43565)             | ASD120-R100B99-1/4<br>CD100-R100B99-1/4<br>SD120-R100B99-1/4 | 66260230236<br>69014192815<br>69014192170 |
| 10 x .050 x 3<br>(ME 43565)                 | ASD100S-R75B99-1/4   | 69014192172                               |
| 12 x .070 x 3/4<br>(ME 43567)               | SD150-R100B99-1/4  | 69014192173                               |
| 14 x .070 x 3/4<br>(ME 106589)              | SD120-R100B99-1/4  | 66260259011                               |

|                                |                |             |
|--------------------------------|----------------|-------------|
| <b>TYPE 1A1R CUT-OFF – CBN</b> |                |             |
| 6 x .035 x 1-1/4<br>(ME43572)  | CB100-WB99-1/4 | 69014192160 |

|   |   |                            |
|---|---|----------------------------|
| <b>TYPE 1V1P FLUTING – DIAMOND</b>  |   |                            |
| 6 x 3/32 x 1-1/4<br>Face Bevel 1 Side<br>20 Deg<br>Copper Core<br>(ME89562) | ASD320B-R125B99-1/4<br>ASDC320C-R100B99-1/4 | 69014192302<br>69014192761 |

|  |                    |             |
|--|--------------------|-------------|
| <b>TYPE 4A2P DISH – DIAMOND</b>                |                    |             |
| 6 x 3/8 x 1-1/4<br>Rim Width 1/4"<br>(ME88369) | ASD120-R75B99-1/16 | 69014192280 |

STANDARD PACKAGE – 1 WHEEL



## TECHtips

**DIAMOND GRINDS:**

- Cemented carbide
- Ceramics
- Plastics
- Abrasives
- Glass
- Fiberglass
- Stone
- Electronic components and materials

**CBN GRINDS:**

- High speed tool steels
- Hardened carbon steels
- Aerospace alloys
- Abrasion-resistant ferrous materials
- Die steels
- Alloy steels
- Hard stainless steel

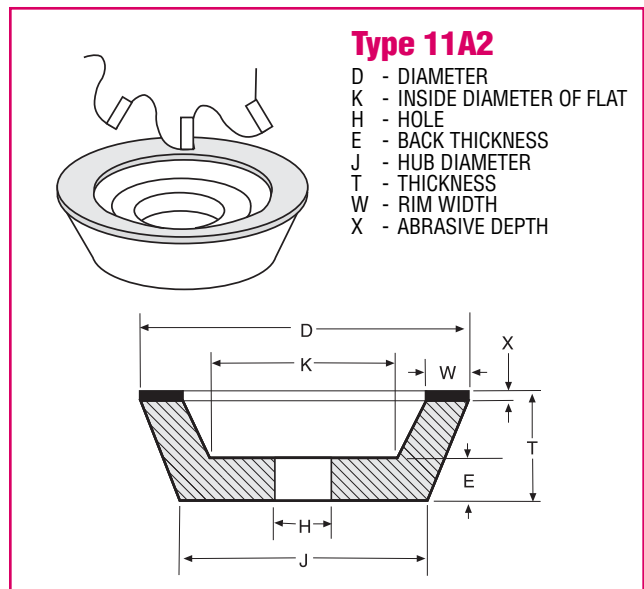
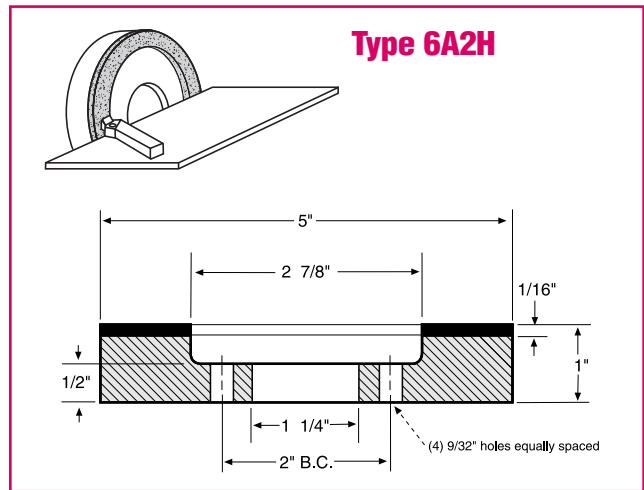
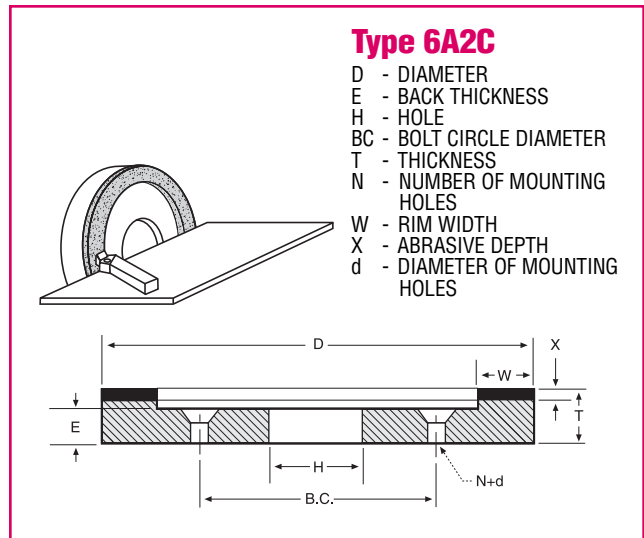
| SIZE<br>D X T X H                                 | BETTER             |             |
|---|--------------------|-------------|
|   | SPEC               | UPC NO.     |
| <b>TYPE 6A2C STRAIGHT CUP – DIAMOND</b>           |                    |             |
| 6 x 7/16 x 1-1/4<br>Rim Width 1"<br>(0640185M)    | D120/140-H-MSL     | 66260269172 |
| 6 x 3/4 x 1-1/4<br>Rim Width 3/4"<br>(ME27853)    | SD220-R50B99-1/16  | 69014191665 |
|   | ASD120-R75B99-1/16 | 69014191860 |
|   | ASD120-R75B99-1/8  | 69014192786 |
| 6 x 3/4 x 1-1/4<br>Rim Width 1/2"<br>(ME30621)    | SD150-P50V99-1/16  | 69014192217 |
|   | SD220-R50V99-1/16  | 69014191623 |
| 6 x 3/4 x 1-1/4<br>Rim Width 1/2"<br>(ME30621)    | ASD120-R75B99-1/8  | 66260273565 |
| <b>TYPE 6A2H STRAIGHT CUP – DIAMOND</b>           |                    |             |
| 5 x 1 x 1-1/4<br>Rim Width 1-1/16"<br>(ME27084)   | SD320-R50B99-1/16  | 69014192221 |
| <b>TYPE 11A2 FLARING CUP – DIAMOND</b>            |                    |             |
| 6 x 1-1/2 x 1-1/4<br>Rim Width 1/4"<br>(ME128467) | ASD150-R100B99-1/4 | 69014192799 |

STANDARD PACKAGE = 1 WHEEL

**Can't Find Your Specification Here? Refer to our B99 Express Made-To-Order Wheels Service**



The Norton B99 Express line is designed to offer you up to 65,000 made-to-order choices of resin bond Diamond and CBN wheels. 25 wheel shapes are available. Size and shape availability are shown in the Norton Superabrasive Standard Product Catalog. 12" and less diameter B99 Express wheels will ship within two weeks from the date the order is received by Norton. 14" and greater diameter B99 made-to-order wheels will ship within standard lead-times.

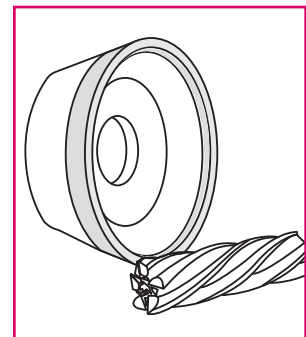


**Refer to "Brake Controlled Truing Devices" and "Dressing Sticks" sections for truing and dressing products.**

# DIAMOND AND CBN PRODUCTS

| <b>BEST ASD Diamond / B105 Bond Wheels – Ideal for dry grinding carbide tools</b> |   |
|---|---|
| <b>FEATURES</b>   | <b>BENEFITS</b>   |
| • Premium quality diamond   | • Produces keen cutting tools that hold their shape, are easier to sharpen, and require fewer reconditionings   |
| • Advanced, heat-reducing bond  | • Minimizes heat generation and thermal damage to tool<br>• Increases tool life and productivity<br>• Lasts more than 2X as long as standard diamond wheels<br>• Lowest total wheel costs; highest productivity |
| • Self-lubricating bond   | • No steel or braze loading<br>• Uses less power  |
| • Unique self-dressing core   | • Eliminates wheel core damage<br>• Eliminates downtime to dress core   |

| SIZE<br>D X T X H  | BEST                 |                   | BETTER              |             |
|--|----------------------|-------------------|---------------------|-------------|
|  | SPEC                 | UPC NO.           | SPEC                | UPC NO.     |
| <b>TYPE 11V9 FLARING CUP – DIAMOND</b>                   |                      |                   |                     |             |
| 3 x 1-1/4 x 3/4<br>Insert Length 3/8"<br>(ME93912)       |                      |                   | ASD120-R75B99-1/16  | 69014192291 |
|  |                      |                   | ASD150-R75B99-1/16  | 69014192292 |
|  |                      |                   | SD150-R100B99-1/16  | 69014192293 |
| 3-3/4 x 1-1/2 x 3/4<br>Insert Length 3/8"<br>(ME92192)   |                      |                   | ASD120-R75B99-1/16  | 69014192022 |
| 3-3/4 x 1-1/2 x 1-1/4<br>Insert Length 3/8"<br>(ME92192) |                      |                   | ASD150C-R50B99-1/8  | 69014190751 |
|  | ASD100S-R75B105-1/16 | 69014191904       | ASD120-R75B99-1/16  | 69014191660 |
|  | ASD120-R75B105-1/16  | 69014191905       | ASD150-R75B99-1/16  | 69014191725 |
|  | ASD150-R75B105-1/16  | 69014191906       | ASD180-R75B99-1/16  | 69014191658 |
|  |                      |                   | ASD220-R75B99-1/16  | 69014192363 |
|  | ASD100S-R75B105-1/8  | 69014191908       | ASD100S-R75B99-1/8  | 69014191653 |
|  | ASD120-R75B105-1/8   | 69014191909       | ASD120-R75B99-1/8   | 69014191652 |
|  | ASD150-R75B105-1/8   | 69014191910       | ASD150-R75B99-1/8   | 69014191651 |
|  |                      |                   | ASD180-R75B99-1/8   | 69014191650 |
|  |                      |                   | SD120-R100B99-1/16  | 69014191657 |
|  |                      |                   | SD150-R100B99-1/16  | 69014191656 |
|  |                      |                   | SD220-R100B99-1/16  | 69014191654 |
|  |                      |                   | SD320-R100B99-1/16  | 69014192814 |
|  |                      |                   | SD100S-R100B99-1/8  | 69014192427 |
|  |                      |                   | SD120-R100B99-1/8   | 69014191649 |
|  |                      | SD150-R100B99-1/8 | 69014191648         |             |
|  |                      | SD180-R100B99-1/8 | 69014191647         |             |
|  |                      | SD220-R100B99-1/8 | 69014191646         |             |
| 5 x 1-3/4 x 1-1/4<br>Insert Length 7/16"<br>(ME98298)    | ASD120-R75B105-1/16  | 69014191913       | ASD100S-R75B99-1/16 | 69014191645 |
|  | ASD150-R75B105-1/16  | 69014191914       | ASD120-R75B99-1/16  | 69014191644 |
|  |                      |                   | ASD150-R75B99-1/16  | 69014191643 |
|  | ASD100S-R75B105-1/8  | 69014191916       | ASD100S-R75B99-1/8  | 69014191637 |
|  | ASD120-R75B105-1/8   | 69014191917       | ASD120-R75B99-1/8   | 69014191636 |
|  | ASD150-R75B105-1/8   | 69014191918       | ASD150-R75B99-1/8   | 69014191635 |
|  |                      |                   | ASD180-R75B99-1/8   | 69014191634 |
|  |                      |                   | ASD320-R75B99-1/8   | 69014192810 |
|  |                      |                   | SD120-R100B99-1/16  | 69014191641 |
|  |                      |                   | SD150-R100B99-1/16  | 69014191640 |
|  |                      |                   | SD180-R100B99-1/16  | 69014191639 |
|  |                      |                   | SD220-R100B99-1/16  | 69014191638 |
|  |                      |                   | SD150-R100B99-1/8   | 69014191632 |
|  |                      |                   | SD180-R100B99-1/8   | 69014191631 |



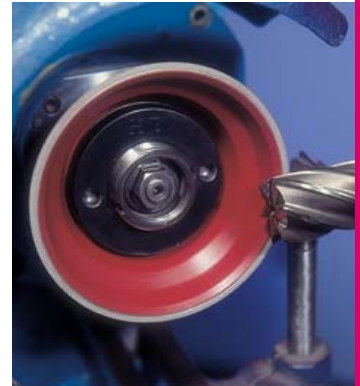
STANDARD PACKAGE = 1 WHEEL



# DIAMOND AND CBN PRODUCTS

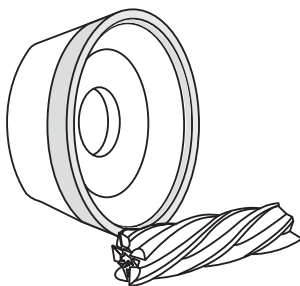
| <b>BEST</b> Norton Aztec CBN Wheels – Ideal for dry tool reshaping   |  |
|--|--|
| <b>FEATURES</b>  | <b>BENEFITS</b>  |
| <ul style="list-style-type: none"> <li>• Consistent, high quality CBN abrasive</li> <li>• Advanced heat-reducing bond conducts heat away from the workpiece</li> </ul> | <ul style="list-style-type: none"> <li>• 85% longer life than standard CBN wheels</li> <li>• Eliminates heat build-up and damage</li> <li>• Extends wheel life</li> <li>• Freer cutting action</li> <li>• Maintains cutting tool steel integrity</li> <li>• Extends cutting tool life</li> </ul> |
| <b>AZTEC III</b>   |  |
| <ul style="list-style-type: none"> <li>• Lubricating bond</li> </ul>   | <ul style="list-style-type: none"> <li>• Eliminates steel and braze loading</li> <li>• Reduces drag</li> <li>• Allows greater infeeds</li> </ul>   |
| <b>AZTEC .007</b>  |  |
| <ul style="list-style-type: none"> <li>• Allows increased infeed (start at .007)</li> </ul>  | <ul style="list-style-type: none"> <li>• High stock removal rate</li> <li>• Heaviest cuts with less wheel wear</li> <li>• Lower grinding forces</li> <li>• Elimination of chatter</li> </ul>   |

| SIZE<br>D X T X H  | BEST                |                     | BETTER          |                 |             |
|--|---------------------|---------------------|-----------------|-----------------|-------------|
|  | SPEC                | UPC NO.             | SPEC            | UPC NO.         |             |
| <b>TYPE 11V9 FLARING CUP – CBN</b>                           |                     |                     |                 |                 |             |
| 3-3/4 x 1-1/2 x 1-1/4<br>Insert Length 3/8"<br><br>(ME92192) | AZTEC .007-100-1/16 | 69014195683         |                 |                 |             |
|  | AZTEC .007-150-1/16 | 69014195679         |                 |                 |             |
|  | AZTEC .007-150-1/8  | 69014195680         |                 |                 |             |
|  | AZTEC III 100T-1/16 | 69014191832         | CB100-TB99-1/16 | 69014191719     |             |
|  | AZTEC III 120T-1/16 | 69014191833         |                 |                 |             |
|  | AZTEC III 150T-1/16 | 69014191834         |                 |                 |             |
|  | AZTEC III 100T-1/8  | 69014191838         | CB100-TB99-1/8  | 69014191722     |             |
|  | AZTEC III 120T-1/8  | 69014191839         | CB120-TB99-1/8  | 69014191723     |             |
|  | AZTEC III 150T-1/8  | 69014191840         | CB150-TB99-1/8  | 69014191724     |             |
|  |                     | AZTEC III 100W-1/16 | 69014191835     | CB120-WB99-1/16 | 69014191720 |
|  | AZTEC III 150W-1/16 | 69014191837         | CB150-WB99-1/16 | 69014191721     |             |
| 5 x 1-3/4 x 1-1/4<br><br>Insert Length 7/16"<br>(ME98298)    | AZTEC .007-100-1/16 | 69014195685         |                 |                 |             |
|  | AZTEC .007-100-1/8  | 69014195686         |                 |                 |             |
|  | AZTEC .007-150-1/8  | 69014195682         |                 |                 |             |
|  | AZTEC III 100T-1/16 | 69014191841         | CB100-TB99-1/16 | 69014191711     |             |
|  | AZTEC III 120T-1/16 | 69014191842         | CB150-TB99-1/16 | 69014192300     |             |
|  | AZTEC III 150T-1/16 | 69014191843         |                 |                 |             |
|  |                     | AZTEC III 100T-1/8  | 69014191844     | CB120-TB99-1/8  | 69014191715 |
|  |                     |                     |                 | CB150-TB99-1/8  | 69014191716 |



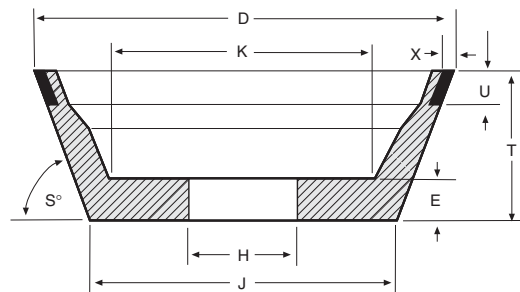
STANDARD PACKAGE – 1 WHEEL

Refer to “Brake Controlled Truing Devices” and “Dressing Sticks” sections for truing and dressing products.



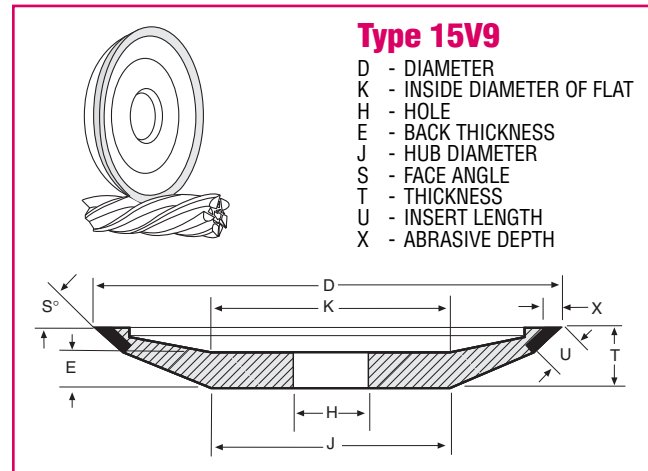
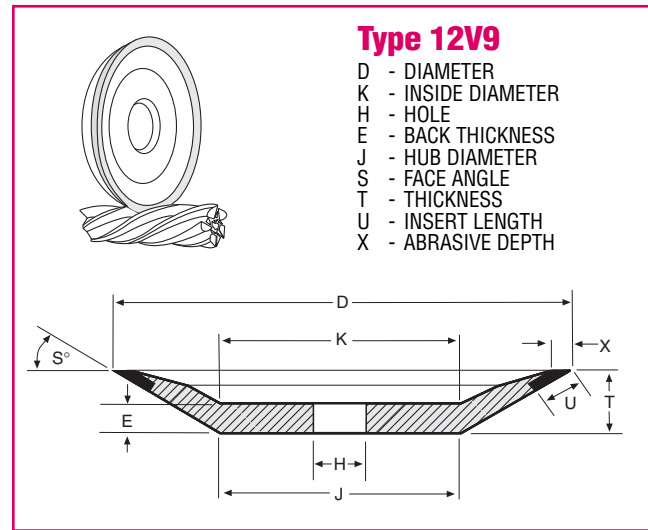
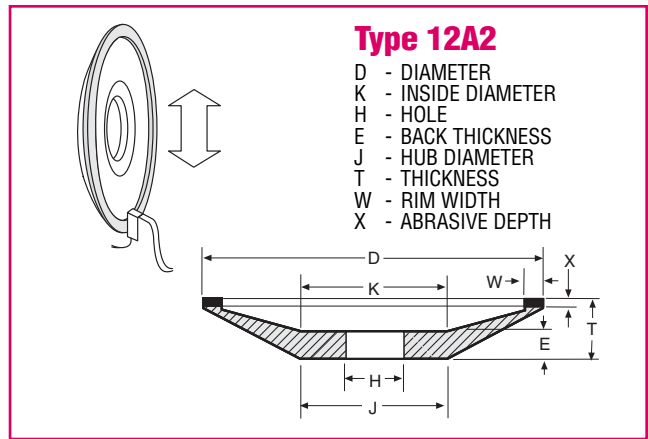
### Type 11V9

- D - DIAMETER
- K - INSIDE DIAMETER OF FLAT
- H - HOLE
- E - BACK THICKNESS
- T - THICKNESS
- J - HUB DIAMETER
- U - INSERT LENGTH
- X - ABRASIVE DEPTH
- S - FACE ANGLE



| SIZE<br>D X T X H                                  | BETTER                                 |                            |
|--|--|----------------------------|
|  | SPEC                                   | UPC NO.                    |
| <b>TYPE 12A2 DISH – DIAMOND</b>                    |  |                            |
| 4 x 1/2 x 1-1/4<br>Rim Width 1/4"<br>(ME40745)     | SD180-R75B99-1/8                       | 69014192223                |
| 6 x 1 x 1-1/4<br>Rim Width 3/16"<br>(ME27758)      | ASD120-R75B99-1/8<br>ASD180-R75B99-1/8 | 69014191630<br>69014192226 |
| <b>TYPE 12A2 DISH – CBN</b>                        |  |                            |
| 6 x 1 x 1-1/4<br>Rim Width 3/16"<br>(ME27758)      | CB120-TB99-1/16                        | 69014192227                |
| <b>TYPE 12V9 DISH – DIAMOND</b>                    |  |                            |
| 3 x 7/16 x 3/4<br>Insert Length 7/16"<br>(ME41755) | SD150-R100B99-1/16                     | 69014192228                |
| 4 x 1/2 x 1-1/4<br>Insert Length 1/4"<br>(ME58734) | SD180-R100B99-1/8                      | 69014191629                |
| 6 x 3/4 x 1-1/4<br>Insert Length 3/8"<br>(ME48666) | ASD150-R75B99-1/16                     | 69014191628                |
| <b>TYPE 12V9 DISH – CBN</b>                        |  |                            |
| 4 x 1/2 x 1-1/4<br>Insert Length 1/4"<br>(ME58734) | CB120-TB99-1/8                         | 69014192229                |
| 6 x 3/4 x 1-1/4<br>Insert Length 3/8"<br>(ME48666) | CB120-TB99-1/8<br>CB150-TB99-1/8       | 69014192020<br>69014192784 |
| <b>TYPE 15V9 DISH – DIAMOND</b>                    |  |                            |
| 6 x 3/4 x 1-1/4<br>Insert Length 3/8"<br>(ME40633) | SD150-R100B99-1/16                     | 69014192230                |

STANDARD PACKAGE = 1 WHEEL



## TECHtips

### DIAMOND GRINDS:

- Cemented carbide
- Ceramics
- Plastics
- Abrasives
- Glass
- Fiberglass
- Stone
- Electronic components and materials



It is the user's responsibility to refer to and comply with ANSI B7.1

### CBN GRINDS:

- High speed tool steels
- Hardened carbon steels
- Aerospace alloys
- Abrasion-resistant ferrous materials
- Die steels
- Alloy steels
- Hard stainless steel

# FLEXIBLE DIAMOND PRODUCTS

## Flexible Diamond Hand Pads

Amplex's color-coded hand pads combine the durability and aggressiveness of diamond on a high strength, flexible backing.

### Typical Applications

#### Conventional Hand Pads

- Shaping, rapid stock removal, touch-up and repair on ceramics, stone, marble, glass, composites and hard materials
- Polishing dies and molds

#### Quadroflex Curved Hand Pads

- Aircraft composites: surface conditioning, repairs, and removing flash and burrs
- Windmill blades: surface conditioning and repairs



### BETTER Diamond Hand Pads – Conventional and Quadroflex curved

#### FEATURES

- Lightweight conformable backing
- Color coded
- Conventional hand pads: precision dot pattern
- Quadroflex curved hand pad **new!**

#### BENEFITS

- Adaptable to a variety of shapes and conditions
- Durable, long life
- Uniform finishes; improved surface quality
- Can be used wet or dry
- No dressing required
- Eases identification
- Aggressive, consistent, fast cut rate, reduces dust and loading
- Ergonomic advantages, overall lower cost

| SIZE<br>L X W            | COLOR                   | GRIT<br>SIZE | BETTER         |             |
|--------------------------|-------------------------|--------------|----------------|-------------|
|                          |                         |              | PRODUCT<br>NO. | UPC NO.     |
| <b>DIAMOND HAND PADS</b> |                         |              |                |             |
| 3-1/2 x 2-1/8            | Green                   | 60           | HP60           | 66260306360 |
|                          | Black                   | 120          | HP120          | 66260306361 |
|                          | Red                     | 200          | HP200A         | 66260306362 |
|                          | Yellow                  | 400          | HP400          | 66260305852 |
|                          | White                   | 800          | HP800          | 66260306363 |
|                          | Blue                    | 1800         | HP1800         | 66260306364 |
|                          | Kit (one each of above) |              |                | HPK-6       |

STANDARD PACKAGE = 1 HAND PAD

| SIZE<br>L X W  | COLOR  | GRIT<br>SIZE | BETTER         |             |
|--|--------|--------------|----------------|-------------|
|  |        |              | PRODUCT<br>NO. | UPC NO.     |
| <b>QUADROFLEX DIAMOND HAND PADS <span style="color: red; font-weight: bold;">new!</span></b> |        |              |                |             |
| 3-1/2 x 2-1/8  | Green  | 60           | QHP60          | 69014121517 |
|  | Black  | 120          | QHP120         | 69014121518 |
|  | Red    | 200          | QHP200         | 69014123529 |
|  | Yellow | 400          | QHP400         | 69014123530 |
|  | White  | 800          | QHP800         | 69014123531 |

STANDARD PACKAGE = 1 HAND PAD

## Flexible Diamond PSA Discs

Diamond PSA (pressure sensitive adhesive backed) discs are used in applications where the sharpness of diamond facilitates fast stock removal. The PSA backing allows for quick and easy mounting and removal.

### Typical Applications

- Grinding glass, ceramics and composites
- Removing rust and scale on other materials
- Producing metallurgical stamps and coupons



# FLEXIBLE DIAMOND PRODUCTS

| SIZE                              | COLOR  | GRIT SIZE | BETTER      |             |
|-----------------------------------|--------|-----------|-------------|-------------|
|                                   |        |           | PRODUCT NO. | UPC NO.     |
| <b>FLEXIBLE DIAMOND PSA DISCS</b> |        |           |             |             |
| 2" x no hole                      | Green  | 60        | FDD2P60     | 66260308159 |
|                                   | Black  | 120       | FDD2P120    | 66260307722 |
|                                   | Red    | 200       | FDD2P200    | 66260307723 |
|                                   | Yellow | 400       | FDD2P400    | 66260308160 |
|                                   | White  | 800       | FDD2P800    | 66260307012 |
| 5" x no hole                      | Green  | 60        | FDD5P60     | 66260307839 |
|                                   | Black  | 120       | FDD5P120    | 66260307838 |
|                                   | Red    | 200       | FDD5P200    | 66260307019 |
|                                   | Yellow | 400       | FDD5P400    | 66260307960 |

STANDARD PACKAGE = 1 DISC

| SIZE                                       | COLOR  | GRIT SIZE | BETTER      |             |
|--|--------|-----------|-------------|-------------|
|  |        |           | PRODUCT NO. | UPC NO.     |
| <b>FLEXIBLE DIAMOND PSA DISCS (CONT'D)</b> |        |           |             |             |
| 6" x no hole                               | Green  | 60        | FDD6P60     | 66260306381 |
|  | Black  | 120       | FDD6P120    | 66260306382 |
|  | Red    | 200       | FDD6P200    | 66260306383 |
|  | Yellow | 400       | FDD6P400    | 66260308161 |
| 8" x No Hole                               | Green  | 60        | FDD8P60     | 66260306389 |
|  | Black  | 120       | FDD8P120    | 66260306387 |
|  | Red    | 200       | FDD8P200    | 66260306388 |
|  | Yellow | 400       | FDD8P400    | 66260311769 |
|  | White  | 800       | FDD8P800    | 66260306386 |
|  | Blue   | 1800      | FDD8P1800   | 66260306390 |

Contact your Norton/Amplex distributor for additional made-to-order, flexible diamond discs (PSA, hook and loop, Speed-Lok), sheets and belts.

## Flexible Diamond Speed-Lok TR Discs

These diamond discs provide improved cut rate and finish on ceramic, glass, composites, carbide and other tough metals and coatings.

### Typical Applications

- Grinding:
  - Ceramic and glass
  - Composites
  - Carbide and ceramic coatings
  - Fiberglass and reinforced plastics



### BETTER Flexible Diamond Speed-Lok TR Discs

| FEATURES                  | BENEFITS   |
|---------------------------|--|
| • Unique abrasive pattern | • Increased aggressiveness, durability and lower costs versus standard diamond discs |
| • Speed-Lok TR fastener   | • Rapid, tool-free disc changes mean maximum grind time                              |
|                           | • Discs stay firmly locked to back-up pad when in use                                |

| SIZE                                       | COLOR  | GRIT SIZE | BETTER      |             |
|--|--------|-----------|-------------|-------------|
|  |        |           | PRODUCT NO. | UPC NO.     |
| <b>FLEXIBLE DIAMOND SPEED-LOK TR DISCS</b> |        |           |             |             |
| 2" Speed-Lok TR                            | Green  | 60        | FDD2SL60    | 66260311778 |
|  | Black  | 120       | FDD2SL120   | 66260311779 |
|  | Red    | 200       | FDD2SL200   | 66260311780 |
|  | Yellow | 400       | FDD2SL400   | 66260311781 |
|  | White  | 800       | FDD2SL800   | 66260311782 |

STANDARD PACKAGE = 12 DISCS

| SIZE                                       | COLOR  | GRIT SIZE | BETTER      |             |
|--|--------|-----------|-------------|-------------|
|  |        |           | PRODUCT NO. | UPC NO.     |
| <b>FLEXIBLE DIAMOND SPEED-LOK TR DISCS</b> |        |           |             |             |
| 3" Speed-Lok TR                            | Green  | 60        | FDD3SL60    | 66260311783 |
|  | Black  | 120       | FDD3SL120   | 66260311784 |
|  | Red    | 200       | FDD3SL200   | 66260311785 |
|  | Yellow | 400       | FDD3SL400   | 66260311786 |
|  | White  | 800       | FDD3SL800   | 66260311787 |

See Coated Abrasives Disc sections for back-up pads.

# DRESSING STICKS

Regular use of properly selected dressing sticks will help you achieve maximum performance from your grinding wheels.

## Typical Applications

- Truing, cleaning and dressing diamond, CBN and conventional abrasive wheels



## Norbide High Performance Sticks

For offhand truing and dressing of medium grit, soft and medium-grade vitrified grinding wheels. Norbide and Boron Carbide are the hardest sticks you can buy. Made from boron nitride, they are well suited for dressing tool and cutter wheels 10" and smaller, especially cup and saucer shapes.

| SIZE<br>T X W X L*                       | STD.<br>PKG. | BEST          |             | BETTER              |             |
|--|--------------|---------------|-------------|---------------------|-------------|
|  |              | SPEC          | UPC NO.     | SPEC                | UPC NO.     |
| <b>HIGH PERFORMANCE LONG LIFE STICKS</b> |              |               |             |                     |             |
| 1/4 x 1/2 x 3                            | 5            |               |             | Boron Carbide Stick | 61463629472 |
| 1/4 x 1/2 x 3                            | 5            | Norbide Stick | 61463610148 |                     |             |

\* THICKNESS X WIDTH X LENGTH

## Vitrified Dressing Sticks

### Aluminum Oxide (White)

For dressing and cleaning CBN wheels; these sticks also work well for diamond wheels.

### Silicon Carbide (Black)

Coarse grit (16 - 46) and hard-grade (R and harder) sticks are used for dressing conventional vitrified wheels. Finer grit and softer grades are used for dressing diamond wheels.

| SIZE<br>T X W X L                      | STD.<br>PKG. | BETTER      |                      |
|--|--------------|-------------|----------------------|
|  |              | SPEC        | UPC NO.              |
| <b>VITRIFIED DRESSING STICKS – A/O</b> |              |             |                      |
| 1/2 x 1/2 x 4                          | 5            | 38A220-HVBE | 61463610555          |
| 1/2 x 1/2 x 6                          | 5            | 38A150-IVBE | 61463610303          |
|  |              | 38A220-HVBE | 61463610103 <i>B</i> |
| 1/2 x 3/4 x 4                          | 5            | 38A60-LVBE  | 61463610415          |
| 3/4 x 3/4 x 4                          | 5            | 38A60-LVBE  | 61463610440          |
|  |              | 38A80-MVBE  | 61463610362          |
|  |              | 38A150-HVBE | 61463610291          |
|  |              | 38A150-IVBE | 61463610368          |
|  |              | 38A220-HVBE | 61463610290          |
| 3/4 x 3/4 x 8                          | 5            | 38A220-HVBE | 61463610280          |
| 1 x 1 x 6                              | 5            | 38A150-HVBE | 61463610405          |
|  |              | 38A150-IVBE | 61463610453          |
|  |              | 38A220-HVBE | 61463610406 <i>B</i> |
| 1 x 1 x 8                              | 5            | 38A120-IVBE | 61463610390          |
|  |              | 38A150-IVBE | 61463610455          |

*B* = BEST SELLER; PERFORMS WELL IN A VARIETY OF APPLICATIONS FOR MANY SATISFIED CUSTOMERS

| SIZE<br>T X W X L                            | STD.<br>PKG. | BETTER          |             |
|--|--------------|-----------------|-------------|
|  |              | SPEC            | UPC NO.     |
| <b>VITRIFIED DRESSING STICKS – S/C</b>       |              |                 |             |
| 1/2 x 1/2 x 6                                | 5            | 37C100-LV       | 61463610201 |
|  |              | 37C150-KV       | 61463610205 |
|  |              | 37C150-LV       | 61463610206 |
|  |              | 37C150-MV       | 61463610207 |
|  |              | 37C220-KV       | 61463610214 |
| 3/4 x 3/4 x 6                                | 5            | 37C150-LV       | 61463610375 |
| 1 x 1 x 6                                    | 5            | 37C20-SVK       | 61463610459 |
|  |              | 37C24-SVK       | 61463610462 |
|  |              | 37C24-TVK       | 61463610354 |
|  |              | 37C46-RVK       | 61463610466 |
|  |              | 37C80-NV        | 61463610393 |
|  |              | 37C150-KV       | 61463610438 |
|  |              | 37C220-KV       | 61463610398 |
| 1 x 1 x 6<br>Retail Carded                   | 5            | S/C Medium Grit | 07660710466 |
| 1 x 1 x 8                                    | 5            | 37C20-SVK       | 61463610469 |
|  |              | 37C24-SVK       | 61463610471 |
| 1 x 2 x 8                                    | 5            | 37C16-TVK       | 61463610482 |
|  |              | 37C24-TVK       | 61463610485 |
| 2 x 2 x 8                                    | 5            | 37C24-SVK       | 61463610490 |
| <b>VITRIFIED ROUND DRESSING STICKS – S/C</b> |              |                 |             |
| 1/2 x 6<br>(Diameter x Length)               | 5            | 37C24-SVK       | 61463610371 |
| 1 x 6  | 5            | S/C VC (JT276)  | 61463687905 |

## Vitrified Superfine Sticks

For dressing superabrasive wheels.

| SIZE<br>T X W X L                 | STD.<br>PKG. | BETTER                         |                            |
|-----------------------------------|--------------|--------------------------------|----------------------------|
|                                   |              | SPEC                           | UPC NO.                    |
| <b>VITRIFIED SUPERFINE STICKS</b> |              |                                |                            |
| 1/2 x 1/2 x 6                     | 5            | NMVC320-J5VCA<br>NMVC400-J5VCA | 61463610599<br>61463650324 |
| 1 x 1 x 6                         | 5            | NMVC320-J5VCA<br>NMVC400-J5VCA | 61463610605<br>61463650450 |
| 1 x 1 x 8                         | 5            | NSA320-H8V                     | 61463610597                |

## Offhand Grinding Wheel Dressing Stick and Holder

This convenient metal holder is widely used by mechanics and foundry-men for truing, dressing and changing the face of the wheel. The JT246 dressing stick – a very coarse grit silicon carbide for dressing conventional vitrified wheels – is firmly held and adjusted by the knurled control.



| SIZE<br>DIAMETER X LENGTH                         | DESCRIPTION   | MIN./STD.<br>PKG. | GOOD           |             |
|---|---|-------------------|----------------|-------------|
|   |   |                   | PRODUCT<br>NO. | UPC NO.     |
| <b>GRINDING WHEEL DRESSING STICK &amp; HOLDER</b> |   |                   |                |             |
| 1/2 x 6 Round                                     | Silicon Carbide Very Coarse Grit Round Dressing Stick | 5/10              | JT246          | 61463687900 |
| 10 Overall  | Dressing Stick Holder                                 | 5/10              | H6             | 61463687895 |



### Dressing Stick Starting Recommendations

Selecting the appropriate dressing stick for each application depends on the wheel size, type, speed, specification and grit size, as well as the workpiece material. Initial starting specifications are listed below. We recommend testing several sticks to find the best one for your application.

| VITRIFIED DRESSING STICKS                              |  |                      |
|--|--|----------------------|
|  | PRODUCT  | SPECIFICATION        |
| <b>SUPERABRASIVE WHEELS - RESIN AND VITRIFIED BOND</b> |  |                      |
| - 80, 100 and 120 Grits                                | Dressing Stick   | 38A150-HVBE          |
| - 150, 180 and 220 Grits                               | Dressing Stick   | 38A220-HVBE          |
| - 320 and Finer Grits                                  | Superfine Stick  | NMVC400-J5VCA        |
| <b>SUPERABRASIVE WHEELS - METAL BOND</b>               |  |                      |
| - 80, 100 and 120 Grits                                | Dressing Stick   | 37C80-NV             |
| - 150, 180 and 220 Grits                               | Dressing Stick   | 37C150-KV            |
| - 240 and Finer Grits                                  | Dressing Stick   | 37C220-KV            |
| <b>CONVENTIONAL VITRIFIED WHEELS - VITRIFIED BOND</b>  |  |                      |
| - 46 Grit and Finer and M Grade and Softer             | High Performance Dressing Stick<br>Conventional Dressing Stick | Norbide<br>37C24-SVK |

## TECHtips

### Dressing Diamond and CBN Wheels

- Resin and Vitrified Bond, Diamond and CBN Wheels
  - Choose a dressing stick one or two grit sizes finer than the abrasive in the wheel – in a soft grade (H or I).
- Metal Bond, Diamond and CBN Wheels
  - Choose a stick the same grit size or one grit size coarser than the abrasive in the wheel – in a medium grade (K–M).



It is the user's responsibility to refer to and comply with ANSI B7.1

For more information on truing and dressing, refer to the “Mounting, Truing and Dressing Guide” in the “Diamond and CBN Product” section.

## Rubber Finishing Sticks

These sticks are used for manual or mechanical honing on machines where they are mounted in holders or fixtures. Intended for use where precision dimensional limits and grade controls are required, such as die polishing.

| SIZE<br>T X W X L | MIN./<br>STD.<br>PKG. | BETTER      |             |
|-------------------|-----------------------|-------------|-------------|
|                   |                       | SPEC.       | UPC NO.     |
| 1/2 x 1/2 x 6     | 5/20                  | 57A120-B2RR | 61463610608 |
| 1/2 x 1 x 6       | 5/20                  | 57A120-B2RR | 61463610609 |

## Blank Stock FastTrack Made-To-Order Microabrasive Superfinishing Sticks

Superfinishing blank stock encompasses a wide range of different specifications. These blanks can be finished to your dimensional requirements within two weeks from the date that the order is received at Norton. Small lots, for test purposes, can be express shipped.



| APPLICATIONS                                 | ABRASIVE TYPE –<br>BOND          | GRIT<br>RANGE | TREATMENT<br>TYPE |
|--|----------------------------------|---------------|-------------------|
| Superfinishing,<br>Finishing and<br>Dressing | NLA – V<br>NMVC – VCA<br>NSA – V | 240 – 1200    | Sulfur, Wax       |
| Honing                                       | SG – VS<br>SGG – VS1             | 54 – 220      | Sulfur, Wax       |

## GUIDELINES FOR SAFE USE

### Safe Operating Practices

Safe operating practices must be part of every grinding wheel user's operation. The greatest efficiency and lowest overall abrasive cost can be realized only if proven care and use techniques become standard practice.

- Be sure to read any safety material/ guidelines provided with the abrasive product.
- Always check the wheel for cracks or damage before use.
- Before mounting the wheel, use a tachometer to measure the spindle speed.
- Ensure the mounting flanges, backplate or adapter supplied by the machine manufacturer are properly used and kept in good condition. ANSI Safety Requirement B7.1 provides wheel mounting requirements. Check mounting flanges for equal and correct diameter and use blotters when supplied.
- Never use a grinding wheel with a rated speed less than the grinder.

- Always mount, true and dress the wheel in conformance with the guidelines published in the ANSI Safety Requirements B7.1.
- Ensure the correct wheel guard is in place before starting the wheel. Allow the wheel to come up to full operating speed before starting to grind for a minimum of one minute, and stand out of the plane of rotation.
- NEVER use a high speed air sander as a portable grinder.
- NEVER exceed the maximum operating speed marked on the wheel being used. The following formula may be used to calculate wheel speed:  
SFPM = Spindle Speed in RPM x Wheel Dia. in inches x .262
- Avoid dropping or bumping the wheel.
- When not using the wheel, store the wheel in its original packing materials or according to ANSIB7.1. This protects the wheel and provides easy identification.

For more information on product safety, click on "Safety" on our website: [www.nortonabrasives.com](http://www.nortonabrasives.com) or ask your Norton Distributor for these publications:

- "Primer on Grinding Wheel Safety" (form 474)
- Portable Grinding Safety (form 1406)
- ANSI B7.1 "Safety Requirements for the Use, Care and Protection of Abrasive Wheels"
- ANSI B7.7 "Safety Requirements for Abrading Materials with Coated Abrasive Systems"
- Federal Hazard Communication Standard 29 CFR 1910.95, 1910.132, 1910.133, 1910.134, 1910.138 and 1910.1200.
- Material Safety Data Sheets (MSDS)
- Norton Safety Videos
- Other applicable regulations

### Breakages/Personal Injury

In the event of on-machine breakage of Norton abrasive products, call your local Norton Distributor immediately. Whether involving personal injury or not, the abrasive user should leave the equipment and other evidence undisturbed until a Norton Sales Representative has been notified and conducts an investigation. Prompt action on the part of abrasive users, Distributors and Norton sales personnel is important to ensure swift determination of the breakage cause and to guard against recurrence.

For additional information, please review ANSI, OSHA and literature provided by the grinding wheel and machine manufacturer. You may also contact the Saint-Gobain Product Safety Department at **Tel. 508-795-2317** or **Fax 508-795-5120** or your Saint-Gobain Abrasives, Inc. representative with any safety related questions.

## For Your Protection



### Safety Gloves

Grinding applications are conducted in harsh environments. The use of proper fitting gloves is recommended.



### Face Protection

Always wear government-approved face and eye protection when using abrasive products.



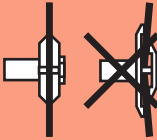
### Speeds

Check machine spindle speed and speed listed on machine against safe maximum operating speed marked on the grinding wheel. Do not overspeed the wheel.



### Hearing Protection

Use of abrasive products may create elevated sound levels. Hearing protection must be worn where required.



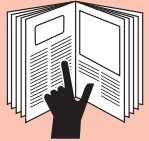
### Flanges

When mounting most grinding wheels, use flanges of equal diameter and bearing surface. For exceptions, see ANSI B7.1.



### Wheel Guard

Always use the wheel guard as supplied by the machine manufacturer, in the proper position.



### Safety Guides, MSDS and Wheel Warning Messages

Before using any abrasive materials, READ:

- The Safety Guides
- Wheel Warning Messages and
- Material Safety Data Sheets (MSDS)

Norton provides information pertaining to the safe use of all products. Please take the time to read it carefully. Contact suppliers of the workpiece and abrasive materials for copies of the MSDS if one is not readily available. Norton abrasives MSDS can be obtained on [www.nortonabrasives.com](http://www.nortonabrasives.com)



### Dust Protection

Exposure to dust generated from workpiece and/or abrasive materials can result in lung damage and/or other physical injury.

Use dust capture or local exhaust as stated in the MSDS. Wear government-approved respiratory protection and eye and skin protection.

Failure to follow this warning can result in serious lung damage and/or physical injury. This is a general dust warning and does not cover specific situations. For more information, refer to the MSDS dust warning provided with your products, and workpiece.



## WARNING

This warning icon appears on our products and packaging. It is intended to draw your attention to the specific safety warning practices outlined after it.

# safetyTIPS

## Depressed Center, Cut-off Wheels and Snagging Wheels

### Do's

- Check all wheels for cracks or damage before use
- Check machine speed against established safe operating speed marked on the wheel
- Always use the guard furnished with machine
- Run wheel in a protected area for one minute at operating speed before grinding

### Don'ts

- Don't use wheels that have been dropped or otherwise damaged
- Don't use heavy side pressure on any thin Type O1 straight cut-off wheel or Type 27 thin depressed center wheel
- Never use a grinding wheel with a rated speed less than that of the grinder

## Toolroom Wheels

### Do's

- Check all wheels for cracks or damage before use
- Always use a safety guard and ensure work rest is properly adjusted on bench grinder
- Always handle and store wheels in a careful manner
- Check mounting flanges for equal and correct diameter and use blotters when supplied
- Check machine speed against established safe operating speed marked on wheel

### Don'ts

- Don't use a cracked wheel or one that has been dropped or damaged
- Don't exceed recommended operating speeds
- Don't tighten the mounting nut excessively
- Don't jam work into the wheel
- Do not sand wood, plastic or any other non-metallic material on bench and pedestal grinders

## A Deadly Equation

### Pistol Grip Air Sander + Grinding Wheel = Certain Injury!

- Never use a high speed air sander as a portable grinder
- Use only sanding discs specifically designed for sanders
- Because the speed of these sanders far exceeds the maximum rated speeds for grinding wheels, a potentially lethal wheel breakage may occur



PISTOL GRIP AIR SANDER



## Safety on the Web

As part of Saint-Gobain Abrasives' ongoing commitment to safety, each month a new safety article is published on the Norton website. Topics include proper abrasive storage, equipment maintenance, proper wheel mounting, using blotters, ring testing a grinding wheel, wheel dressing and much more. Visit the Norton website at [www.ind.nortonabrasives.com](http://www.ind.nortonabrasives.com) and check the "News" section for the newest article. Or click on "Safety" to review our archived safety articles.

[www.nortonabrasives.com](http://www.nortonabrasives.com)



## Starting a Grinding Wheel

### ANSI's Procedure for Starting an Abrasive Wheel

In the past several years we have heard of wheel breakages and accidents involving abrasive wheels breaking on start-up. This article is designed to remind users of the proper procedure when starting a machine with a new abrasive wheel mounted on it, or starting a machine after the machine and wheel have been stored for a period of time, or remounting a wheel. ANSI B7.1-2000 requires the following procedure when starting a newly mounted grinding wheel.

### 9.8 Starting the Wheel (Requirements)

All abrasive wheels shall be run at operating speeds with the safety guard in place or in a protected enclosure for at least one minute before applying work. During this time no one shall stand in front of or in line with the wheel. (See section 4, for safety guard requirements.) This provision shall apply each time one of the following conditions occur: a) a new wheel has been mounted; or b) a used wheel has been remounted.

### E 9.8 Starting the Wheel (Explanatory Information)

An abrasive wheel may be damaged in shipment or storage, or the wheel may be subjected to improper, excessive stresses during mounting. Wheels which have been damaged or are under excessive stress, are likely to fracture within the first minute of rotation at operating speed. While this procedure is most important at the time when an abrasive wheel is mounted or remounted, damage may also occur to a wheel during a shut down of the machine on which it is mounted. The user should evaluate the circumstances and length of machine shut down to determine additional times that the operating rule should be followed.

Improper wheel mounting is a major cause of wheel breakages. Always use proper mounting procedures as outlined in ANSI B7.1, machine manufacturer's instructions and those supplied with the abrasive wheel. Be safe, know and follow the rules! For additional information on this topic or any other abrasive product safety information, please review ANSI, OSHA and literature provided by the grinding wheel and machine manufacturer. You may also contact the Saint-Gobain Product Safety Department at Tel. (508) 795-2317 or Fax. (508) 795-5120 or your Saint-Gobain Abrasives, Inc. representative with any abrasive safety related questions.

## What You Should Know About Grinding Wheel Guards

Reports indicate customers in the grinding wheel industry break approximately one grinding wheel per day. Most of these breakages are caused by human error, do not result in personal injury, and generally go unreported. Grinding wheel guards are one of the key components in keeping these grinding wheel mishaps from becoming a personal injury.

### Dangerous Conditions Caused by the Ineffective Use of Grinding Wheel Guards:

- Incorrect:** Cup wheels such as Type 6 and 11 used on a portable angle grinder with a Type 27, 28 and 29 depressed center grinding wheel guard.
- Explanation:** While a properly adjusted Type 27, 28 and 29 guard works with a Type 27, 28 or 29 wheel, it offers little or no protection with a Type 6 or 11 cup wheel. The cup wheel "hangs" below the guard meant for a Type 27, 28 or 29 wheel and in the event of a wheel breakage; it offers little or no protection.
- Incorrect:** Type 01 straight cut-off wheels used on a portable angle grinder with a Type 27, 28 or 29 depressed center grinding wheel guard.
- Explanation:** Type 27, 28 and 29 guards are open on the bottom to allow for side grinding with raised hub/depressed center wheels. When side grinding with the Type 27, 28 or 29 wheel, the workpiece acts as a portion of the guard, protecting the operator in the event of a wheel breakage. Cut-off wheels are not designed for use on their side and must be used on their outer periphery only. Guards for cut-off wheels must cover a full 180° area on all sides of the wheel. When using a cut-off wheel with a Type 27, 28 or 29 guard, there is no guard on one side of the wheel, protecting the operator in the event of a wheel breakage. Do not use cut-off wheels on angle grinders without the proper guard.
- In Summary:** Grinding wheel guards designed for one type of machine used on another type of machine, or the wrong guards for the type of wheel, are dangerous.

### Ineffective Grinding Wheel Guards:

- The most ineffective guard is the one that has been removed from its machine and is sitting in storage. The removal of a wheel guard on a machine in operation is not only extremely dangerous, but illegal.
- Do not alter or cut back a guard. Using a damaged or altered wheel guard is extremely dangerous to the safety of the operator and bystanders. Guards that are altered, cracked, deformed, bent, or severely worn must be replaced. Once a guard has been damaged, it might become ineffective in a future wheel breakage. If a wheel breakage occurs, the guard must be inspected and if there is any sign of damage, the guard must be replaced.
- Machines with missing wheel guard fasteners are also very dangerous. Sometimes during routine machine maintenance the guard fasteners are damaged and not replaced when the machine is reassembled. During a wheel breakage, the missing fasteners might allow the guard to move, become unattached from the machine or open, exposing the operator to being injured by the guard or not containing the wheel fragments in the event of a wheel break.
- A guard made of paper, tin, cloth, wood or other materials not designed to contain wheel fragments might fail when struck by a wheel fragment. Always use the guard that is recommended for the machine and its operation. Never paint or disguise the wrong material for a proper guard.

### Guards Not Properly Adjusted:

- A wheel guard that is set too high on a portable angle grinder will allow the wheel to hang below the guard. This improper setting may render the guard useless in the event of a wheel breakage.
- The wheel guard of a portable machine positioned improperly. A guard used on a portable machine must be positioned so it is located between the operator and the grinding wheel. Also, bystanders must not be positioned in front of the wheel guard's open area.
- Failure to maintain the proper setting of the adjustable tongue guard (AKA spark arrester) on bench, pedestal, or small floor stand grinder. OSHA requires a maximum clearance of 1/4" between the grinding wheel and the tongue guard. If a wheel breakage should occur, maintaining the proper distance will help to contain the wheel fragments and reduce the probability of an injury.

# SAFETY – WHEEL SPEED CONVERSION CHART

**CONVERSION TABLE – WHEEL SPEEDS**  
**CONVERSION TABLE FOR VARIOUS DIAMETERS OF GRINDING WHEELS TO GIVE SURFACE SPEED IN FEET PER MINUTE AS INDICATED**  
 (FOR WHEEL MARKING PURPOSES THE CALCULATED RPM FIGURES LISTED BELOW ARE ROUNDED OFF TO THE NEXT 5)

| Diam. of Wheel in Inches | Surface Speed in Feet Per Minute (SFPM) |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                          | 4,000                                   | 4,500  | 5,000  | 5,500  | 6,000  | 6,500  | 7,000  | 7,500  | 8,000  | 8,500  | 9,000  | 9,500  | 10,000 | 12,000 | 12,500 | 14,200 | 16,000 | 16,500 | 17,000 | 19,685 | 20,000 |
| 1                        | 15,279                                  | 17,189 | 19,098 | 21,008 | 22,918 | 24,828 | 26,737 | 28,647 | 30,558 | 32,467 | 34,377 | 36,287 | 38,196 | 45,836 | 47,745 | 54,240 | 61,116 | 63,025 | 64,935 | 75,190 | 76,395 |
| 2                        | 7,639                                   | 8,594  | 9,549  | 10,504 | 11,459 | 12,414 | 13,368 | 14,323 | 15,278 | 16,233 | 17,188 | 18,143 | 19,098 | 22,918 | 23,875 | 27,120 | 30,558 | 31,510 | 32,465 | 37,595 | 38,195 |
| 3                        | 5,093                                   | 5,729  | 6,366  | 7,003  | 7,639  | 8,276  | 8,913  | 9,549  | 10,186 | 10,822 | 11,459 | 12,096 | 12,732 | 15,278 | 15,915 | 18,080 | 20,372 | 21,010 | 21,645 | 25,065 | 25,465 |
| 4                        | 3,820                                   | 4,297  | 4,775  | 5,252  | 5,729  | 6,207  | 6,685  | 7,162  | 7,640  | 8,116  | 8,595  | 9,072  | 9,549  | 11,459 | 11,940 | 13,560 | 15,278 | 15,755 | 16,235 | 18,800 | 19,100 |
| 5                        | 3,056                                   | 3,438  | 3,820  | 4,202  | 4,584  | 4,966  | 5,348  | 5,730  | 6,112  | 6,494  | 6,876  | 7,258  | 7,640  | 9,168  | 9,550  | 10,850 | 12,224 | 12,605 | 12,985 | 15,040 | 15,280 |
| 6                        | 2,546                                   | 2,865  | 3,183  | 3,501  | 3,820  | 4,138  | 4,456  | 4,775  | 5,092  | 5,411  | 5,729  | 6,048  | 6,366  | 7,639  | 7,960  | 9,040  | 10,186 | 10,505 | 10,820 | 12,530 | 12,730 |
| 7                        | 2,183                                   | 2,455  | 2,728  | 3,001  | 3,274  | 3,547  | 3,820  | 4,092  | 4,366  | 4,638  | 4,911  | 5,183  | 5,456  | 6,548  | 6,820  | 7,750  | 8,732  | 9,005  | 9,275  | 10,740 | 10,915 |
| 8                        | 1,910                                   | 2,148  | 2,387  | 2,626  | 2,865  | 3,103  | 3,342  | 3,580  | 3,820  | 4,058  | 4,297  | 4,535  | 4,775  | 5,729  | 5,970  | 6,780  | 7,640  | 7,880  | 8,115  | 9,400  | 9,550  |
| 9                        | 1,698                                   | 1,910  | 2,122  | 2,334  | 2,546  | 2,758  | 2,970  | 3,182  | 3,396  | 3,606  | 3,820  | 4,032  | 4,244  | 5,092  | 5,305  | 6,030  | 6,792  | 7,000  | 7,215  | 8,355  | 8,490  |
| 10                       | 1,528                                   | 1,719  | 1,910  | 2,101  | 2,292  | 2,483  | 2,674  | 2,865  | 3,056  | 3,247  | 3,438  | 3,629  | 3,820  | 4,584  | 4,775  | 5,425  | 6,112  | 6,300  | 6,495  | 7,520  | 7,640  |
| 12                       | 1,273                                   | 1,432  | 1,591  | 1,751  | 1,910  | 2,069  | 2,228  | 2,386  | 2,546  | 2,705  | 2,864  | 3,023  | 3,183  | 3,820  | 3,980  | 4,520  | 5,092  | 5,250  | 5,410  | 6,265  | 6,365  |
| 14                       | 1,091                                   | 1,228  | 1,364  | 1,500  | 1,637  | 1,773  | 1,910  | 2,046  | 2,182  | 2,319  | 2,455  | 2,592  | 2,728  | 3,274  | 3,410  | 3,875  | 4,366  | 4,500  | 4,640  | 5,370  | 5,455  |
| 16                       | 955                                     | 1,074  | 1,194  | 1,313  | 1,432  | 1,552  | 1,672  | 1,791  | 1,910  | 2,029  | 2,149  | 2,268  | 2,387  | 2,865  | 2,985  | 3,390  | 3,820  | 3,940  | 4,060  | 4,700  | 4,775  |
| 18                       | 849                                     | 955    | 1,061  | 1,167  | 1,273  | 1,379  | 1,485  | 1,591  | 1,698  | 1,803  | 1,910  | 2,016  | 2,122  | 2,546  | 2,655  | 3,015  | 3,396  | 3,500  | 3,605  | 4,175  | 4,245  |
| 20                       | 764                                     | 859    | 955    | 1,050  | 1,146  | 1,241  | 1,337  | 1,432  | 1,528  | 1,623  | 1,719  | 1,814  | 1,910  | 2,292  | 2,390  | 2,715  | 3,056  | 3,150  | 3,245  | 3,760  | 3,820  |
| 22                       | 694                                     | 781    | 868    | 955    | 1,042  | 1,128  | 1,215  | 1,302  | 1,388  | 1,476  | 1,562  | 1,649  | 1,736  | 2,084  | 2,170  | 2,465  | 2,776  | 2,865  | 2,950  | 3,420  | 3,470  |
| 24                       | 637                                     | 716    | 796    | 875    | 955    | 1,034  | 1,115  | 1,194  | 1,274  | 1,353  | 1,433  | 1,512  | 1,591  | 1,910  | 1,990  | 2,260  | 2,546  | 2,625  | 2,705  | 3,135  | 3,185  |
| 26                       | 588                                     | 661    | 734    | 808    | 881    | 955    | 1,028  | 1,101  | 1,176  | 1,248  | 1,322  | 1,395  | 1,468  | 1,762  | 1,840  | 2,090  | 2,352  | 2,425  | 2,495  | 2,890  | 2,940  |
| 28                       | 546                                     | 614    | 682    | 750    | 818    | 887    | 955    | 1,023  | 1,092  | 1,159  | 1,228  | 1,296  | 1,364  | 1,637  | 1,705  | 1,940  | 2,182  | 2,250  | 2,320  | 2,685  | 2,730  |
| 30                       | 509                                     | 573    | 637    | 700    | 764    | 828    | 891    | 955    | 1,018  | 1,082  | 1,146  | 1,210  | 1,274  | 1,528  | 1,595  | 1,810  | 2,056  | 2,100  | 2,165  | 2,505  | 2,545  |
| 32                       | 477                                     | 537    | 597    | 656    | 716    | 776    | 836    | 895    | 954    | 1,014  | 1,074  | 1,134  | 1,194  | 1,432  | 1,495  | 1,695  | 1,910  | 1,970  | 2,030  | 2,350  | 2,385  |
| 34                       | 449                                     | 505    | 562    | 618    | 674    | 730    | 786    | 843    | 898    | 955    | 1,011  | 1,067  | 1,124  | 1,348  | 1,405  | 1,595  | 1,796  | 1,855  | 1,910  | 2,210  | 2,245  |
| 36                       | 424                                     | 477    | 530    | 583    | 637    | 690    | 742    | 795    | 848    | 902    | 954    | 1,007  | 1,061  | 1,273  | 1,330  | 1,510  | 1,698  | 1,750  | 1,805  | 2,090  | 2,120  |
| 38                       | 402                                     | 452    | 503    | 553    | 603    | 653    | 704    | 754    | 804    | 854    | 904    | 955    | 1,006  | 1,206  | 1,260  | 1,430  | 1,608  | 1,660  | 1,710  | 1,980  | 2,010  |
| 40                       | 382                                     | 430    | 478    | 525    | 573    | 620    | 669    | 716    | 764    | 812    | 860    | 908    | 956    | 1,146  | 1,195  | 1,355  | 1,528  | 1,575  | 1,625  | 1,880  | 1,910  |
| 42                       | 366                                     | 409    | 454    | 500    | 545    | 591    | 636    | 682    | 732    | 775    | 818    | 863    | 908    | 1,090  | 1,140  | 1,295  | 1,464  | 1,500  | 1,545  | 1,790  | 1,820  |
| 44                       | 347                                     | 390    | 434    | 478    | 521    | 564    | 608    | 651    | 694    | 737    | 780    | 824    | 868    | 1,042  | 1,085  | 1,235  | 1,388  | 1,432  | 1,475  | 1,710  | 1,735  |
| 46                       | 333                                     | 375    | 416    | 458    | 500    | 541    | 582    | 624    | 666    | 708    | 750    | 791    | 832    | 1,000  | 1,040  | 1,180  | 1,332  | 1,370  | 1,410  | 1,635  | 1,660  |
| 48                       | 318                                     | 358    | 398    | 438    | 478    | 517    | 558    | 597    | 636    | 676    | 716    | 756    | 796    | 956    | 995    | 1,130  | 1,272  | 1,315  | 1,350  | 1,565  | 1,590  |
| 53                       | 288                                     | 324    | 360    | 395    | 432    | 468    | 503    | 539    | 576    | 612    | 648    | 683    | 720    | 864    | 900    | 1,025  | 1,152  | 1,189  | 1,225  | 1,420  | 1,440  |
| 60                       | 255                                     | 287    | 319    | 350    | 387    | 414    | 446    | 478    | 510    | 542    | 574    | 606    | 638    | 774    | 795    | 905    | 1,020  | 1,050  | 1,080  | 1,255  | 1,275  |
| 72                       | 212                                     | 239    | 265    | 291    | 318    | 345    | 371    | 398    | 424    | 451    | 477    | 504    | 530    | 637    | 665    | 755    | 849    | 875    | 905    | 1,045  | 1,060  |

For intermediate diameters not listed use the formula listed in Section 1.2.10 of ANSI B7.1 (SFPM = .262 x wheel diameter in inches x RPM.)  
 To convert meters per second (m/s) to SFPM: m/s x 196.85 = SFPM. To convert SFPM to m/s: SFPM/196.85 = m/s. To convert RPM to SFPM: Wheel Diameter x RPM x 0.262 = SFPM

# NORTON OFFERS YOU A NO RISK TEST POLICY!

To verify the superiority of our products, we invite in-plant testing against any other brand of abrasive products, or lower performance tiers of our own products. This makes it as easy as possible for you to see the time-, labor- and money-saving advantages of Norton products. And it also allows you to test the many new products in our catalog.

You have absolutely nothing to lose and everything to gain by conducting an in-shop test. Contact your local Norton Distributor to arrange for an in-plant, no-risk product test.



- 1 The test will be conducted in your own shop, on your machines, using your own workpieces.
- 2 If the Norton product tested proves completely unsatisfactory, you will receive a full refund.
- 3 If the Norton product tested performs at a lower level than the product presently being used, you will receive an adjustment to make up the difference in performance.
- 4 YOU ARE THE FINAL JUDGE OF PERFORMANCE!

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[www.nortonabrasives.com](http://www.nortonabrasives.com)



Just like our product innovation, we are also dedicated to being a leader in green practices. As we transition to more electronic communications, our aim is to enhance the speed of information to you, allow you to print on demand just what you need, and give you more online tools to find the products and solutions for the application at hand.



# WHAT'S NEW IN NORTON TECHNOLOGY!



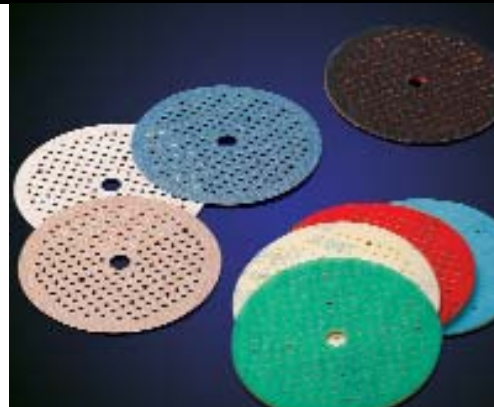
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