CGW®

CAMEL GRINDING WHEELS

Advanced Grinding Solutions for the Engineering Industry

Highest Quality + Excellent Service = Cost Effectiveness

January 2010

CGW Offers GRINDING SOLUTIONS for the Aerospace Industry

CGW®
CAMEL GRINDING WHEELS

CERTIFIED QMS SI ISO 9001: 2000
THE STANDARDS INSTITUTION OF ISRAEL

Organization for the Safety of Abrasives OSA®

EN 12413

CONTENTS

CGW Abrasives

Established in 1956, CGW has gained international recognition as a world-class manufacturer of bonded and coated abrasive products. The quality and cost-effectiveness of CGW products have made CGW the choice of leading corporations in Europe and the USA.

CGW's well-equipped R&D department, staffed by highly experienced engineers, enables the development of vitrified and resin bonded wheels for special applications, according to customer requirements, as well as ongoing analysis and grinding performance tests in support of product development. The R&D team collaborates with the Technion Haifa - Institute of Technology on a number of development projects.

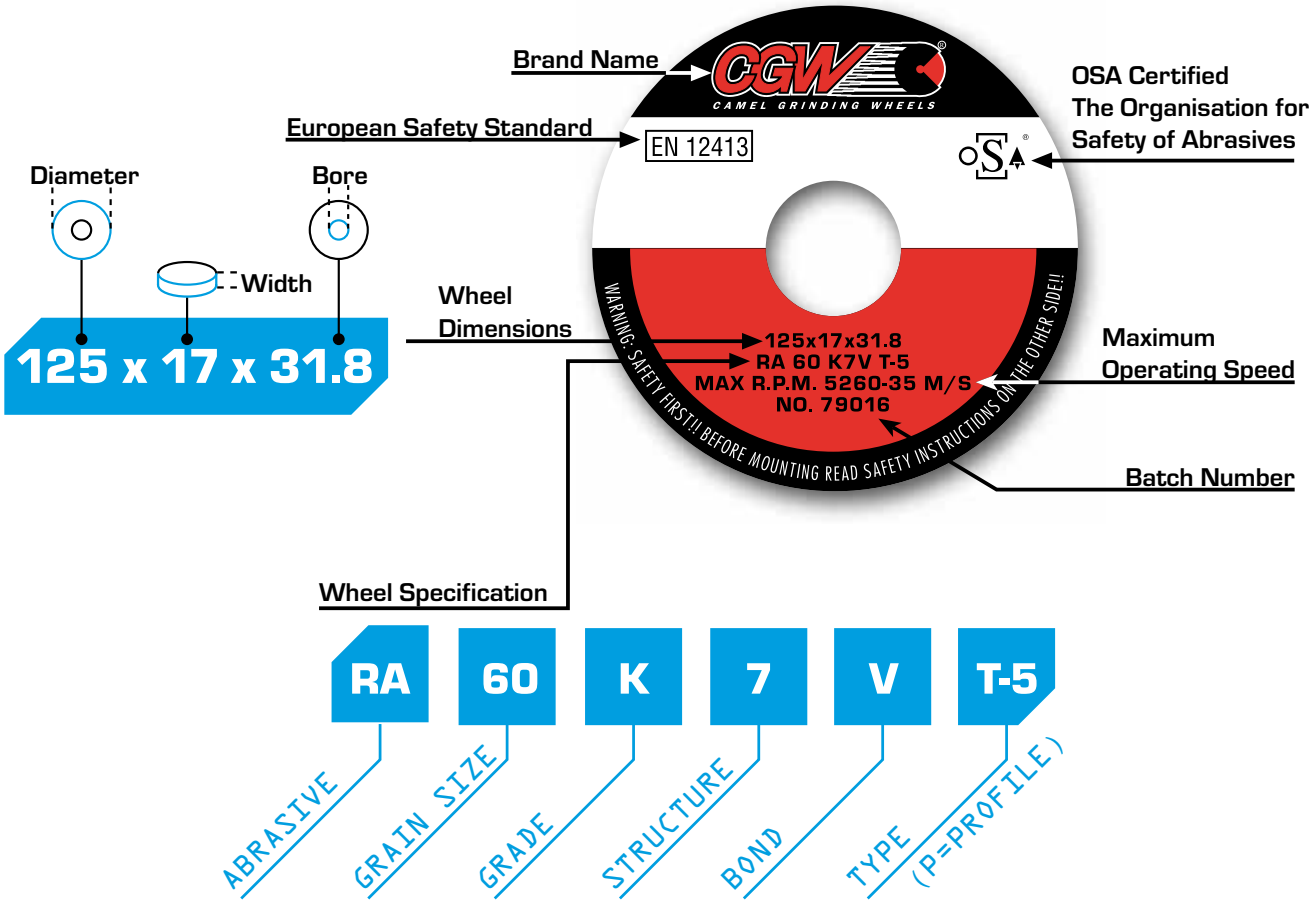
CGW specializes in abrasive products for the aerospace and land-based turbine blades industry. Thanks to its excellent engineers, technical support, short lead time, and competitive prices, CGW has become a major supplier of abrasive wheels and diamond rolls to this industry, serving the world's leading manufacturers.

CGW vitrified bonded wheels, resin bonded discs, and coated abrasive products are also a preferred choice worldwide for grinding and cut-off applications of all kinds, in the metal, construction, rail, and other industries.

CGW has experienced an accelerated growth rate of 20% per annum during the past three years, and plans to sustain this rate of growth for the next three years.

CGW markets its products in Europe, North America, Latin America, Australia, Asia, and Africa. Its US subsidiary, CGW-USA, maintains a 90,000 sq. ft. warehouse, from which CGW products are shipped throughout North America.

CGW products are manufactured under strict quality control. CGW is certified to the highest industrial standards: EN 12413, EN 13743, ANSI B7.1, OSA and ISO 9001:2000.



Abrasive

A	Brown Aluminium Oxide
WA	White Aluminium Oxide
WAB	White Aluminium Oxide + Blue Bond
WAG	White Aluminium Oxide + Special Bond I
WAP	White Aluminium Oxide + Special Bond II
WAR	White Aluminium Oxide + Red Bond
WAY	White Aluminium Oxide + Yellow Bond
PA	Pink Aluminium Oxide
RA	Ruby Aluminium Oxide
AS1	10% Ceramic Aluminium Oxide
AS3	30% Ceramic Aluminium Oxide
AS5	50% Ceramic Aluminium Oxide
DA	White & Brown Aluminium Oxide
SA	Semi-Friable Aluminium Oxide
HA	Monocrystal Aluminium Oxide
KA	Bubble Alumina
WBH	Special grain and bond
ZA	Zirconia
GC	Green Silicon Carbide
C	Black Silicon Carbide

Grain Size

Coarse:	8, 10, 12, 14, 16, 20, 24
Medium:	30, 36, 46, 54, 60
Fine:	80, 100, 120, 150, 180,
Very Fine:	220, 240, 280, 320, 400, 600

Grade

Soft:	B, D, E, F, G, H
Medium:	I, J, K, L, M, N, O, P
Hard;	Q, R, S, T, U, V, W, X

Structure

Dense ← → Open/Porous

5 6 7 8 9 10 11 12 13 14 15

Bond

V:	Vitrified
B:	Resin
BF:	Reinforced Resin
RX:	Natural Rubber

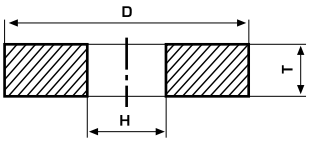
Wheel Dimentions

External Diameter: Up to 1,200 mm
Width: Up to 508 mm
Internal Diameter (Bore): Up to 508 mm

Standard Wheel Types and Shapes

Types and profiles of CGW abrasives are marked in accordance with international standards.

A,B Width of segment or abrasive wheel
C Height (of segments)
D Outer diameter
E Thickness around bore
F Depth of recess
G Depth of second recess
H Diameter of bore
J Diameter of flat outer surface
K Diameter of flat inner surface
L Length of segment or abrasive wheel
N Depth of release on one side
O Depth of release on other side
P Diameter of recess
R Radius
T Thickness (general)
U Thickness of edge
V Angle (of profiles)
V1 Second angle (of profiles)



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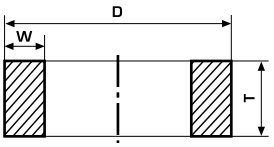

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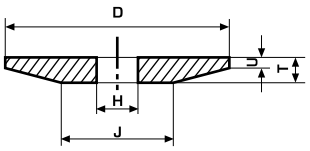

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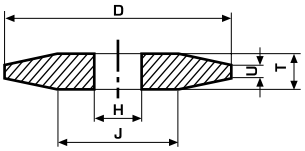

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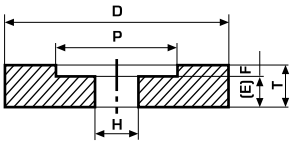

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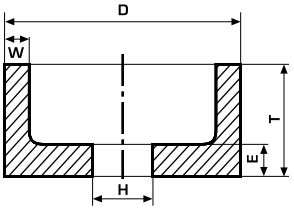
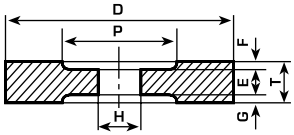
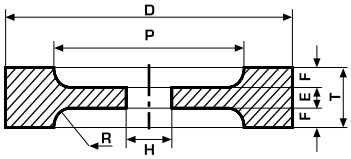


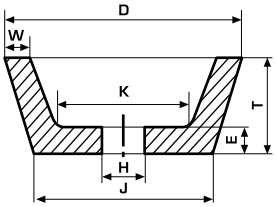
6 DxTxH-W..E..



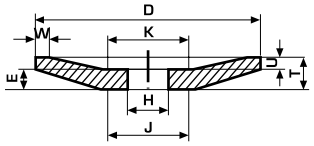
7 DxTxH-PxF
or if recesses are not the same size:
DxTxH-PxF/G



9 DxTxH-PxF R..



11 D/JxTxH-W..E..K



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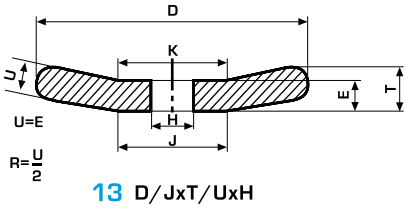

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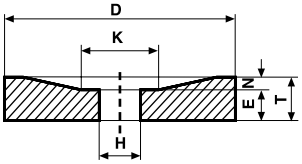

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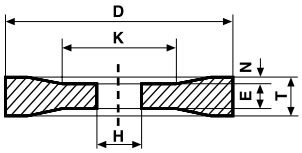

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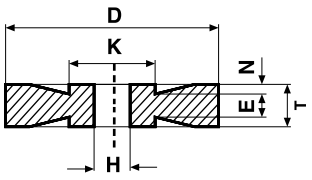
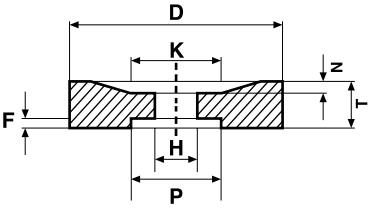


21A D/KxT/NxH



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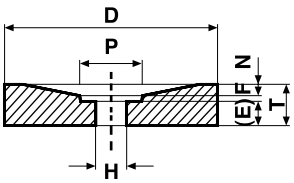

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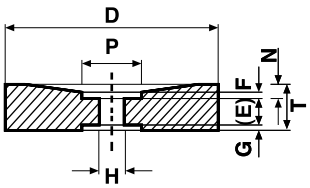

24 DxT/NxH-PxF
or if recesses are
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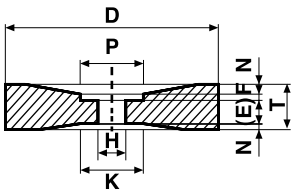
DxT/NxH-PxF/G



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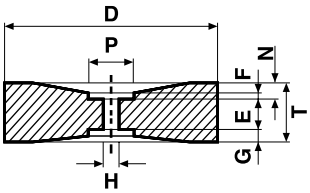

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or if recesses are
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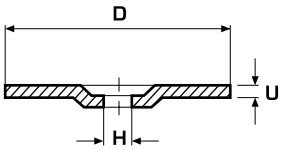
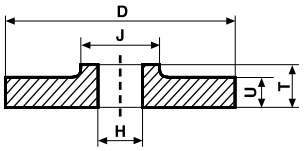
DxT/NxH-PxF/G



27 DxUxH



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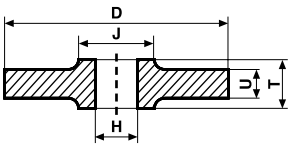

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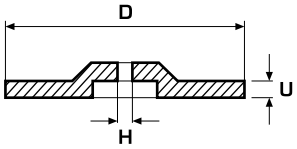
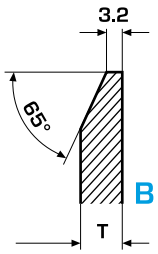


43 DxUxH

Standard Profiles



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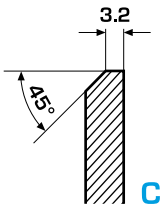

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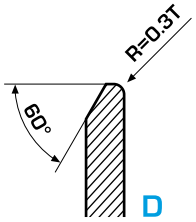

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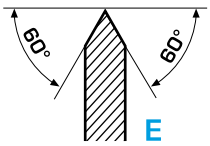

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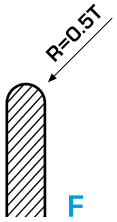

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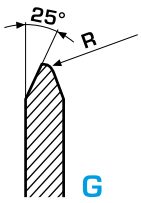
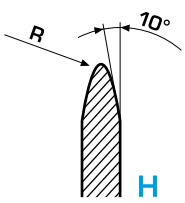


G

$R=\frac{T}{8}$



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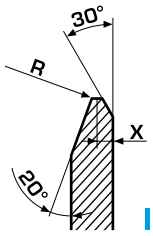
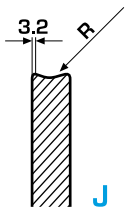


I

$R=\frac{T}{8}$ $X=\frac{T}{3}$



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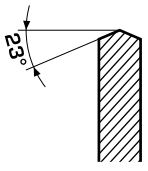

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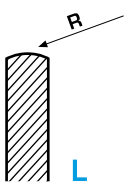
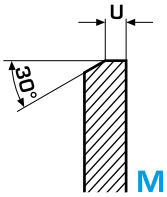


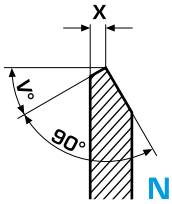
L

R=T



M

$U=\frac{T}{3}$



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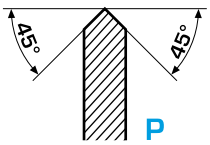


P

The CGW grinding wheel is made up of abrasive grains held together by a bond. By varying the properties of the abrasive, the type of bond, and the structure of the wheel, it is possible to produce innumerable grinding characteristics.

The Abrasive

There are two main categories of grain:
Aluminium Oxide - For grinding high tensile steel, i.e. hardened or high speed steels.
Silicon Carbide - Low tensile steels, i.e. cast iron and non-ferrous metals.

Bond

The function of the bond is to hold the abrasive grains in a definite spacing to form a product of defined size and shape. The most commonly used bonds are:
Vitrified - The rigidity of this bond is excellent for precision grinding and fast stock removal.
Resin - Organic bond makes the wheel tougher, suited for heavy-duty operations, high operating speeds, rough grinding, and cut-off applications.

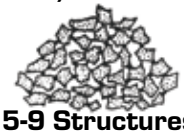
Structure

Structure is defined according to the spacing of the grain in the wheel, held in position by the bond. The closer the grains (the smaller the pores), the denser the structure. The farther apart the grains (the larger the pores), the more open the structure.

Open / Porous

10-15 Structures

Closed / Dense



5-9 Structures

CGW Grain Types

A - Brown Aluminium Oxide: The most common of all grains. This grain is used for heavy-duty general purpose work.
SA (94A) - Semi-Friable Aluminium Oxide: Its principal use is in cylindrical and centreless grinding wheels. It can be used to grind both soft and hard steels.
WA - White Aluminium Oxide: The high friability of this grain gives it the characteristic of fast and cool cutting. Suitable for light grinding of steels of all kinds, particularly on tool and die steel.
WAB (AZ) - White Aluminium Oxide + Blue Bond: Particularly suited for grinding HSS over 55 RC. Provides exceptionally cool, fast cutting action. Requires minimum dressing.
Available also as **WAR - White Aluminium Oxide + red bond** - when there is a need to differentiate from AS.
AS - Ceramic Aluimium Oxide: Ceramic grain, blended with white aluminium oxide, creates a wheel with maximum grinding performance and life. Excellent for form and corner holding. Available in AS1, AS3, and AS5.
PA - Pink Aluminium Oxide: Good general purpose wheel. The grain is tough but friable, excellent on large surface areas.
RA - Red Aluminium Oxide (Ruby): This grain is harder than PA and WAB. Good for high-chromium steel.
DA (91A) - White & Brown Aluminium Oxide: Mixed grain Combining A and WA. Ideal for precision grinding operations such as large surface grinding.
WAY - White Aluminium Oxide + Yellow Bond: Used primarily in wheels with very open structure. For creep feed grinding with continuos dressing.
Saturn - WAG - White Aluminium Oxide + Latest CGW-Developed Bond: Used primarily in wheels with very open structure. Excellent for creep feed grinding with non-continuos dressing.
Jupiter - WAP - Special wheels for blade grinding at 80 M/S.
Meteor - WBH: Special wheel designed for creep-feed grinding. Contains a unique combination of special grain and bond which enables improved form holding and longer life span. The wheel is characterized by interconnected pores, which enable maximum cooling action and stock removal.

HA (32A)- Monocrystal Aluminium Oxide: A strong, sharp grain, suitable for a wide range of materials and applications. Especially good for high alloy steels that are sensitive to heat.
C (72C) - Black Silicon Carbide: Sharper than Aluminium Oxide and therefore more effective in grinding low tensile materials and non-ferrous metals.
GC - Green Silicon Carbide: More friable than C, recommended for grinding cemented carbide cutting tools.
KA - Bubble Alumina: for grinding soft, malleable materials such as rubber and polyester.
ZA - Zirconia Aluminium: a blend of ZrO2 and AL2O3 gives this type of grain extremely high mechanical strength. Suitable for coarse grinding of steel castings.

Additional combinations of the basic grain types are possible, in order to achieve a broader range of characteristics:
VA - a mixture of RA and WA
XA - a mixture of HA and SA
AC - a mixture of A and C

Wheels for the Gas Turbine Industry

Very soft, excellent burn prevention in sensitive inconel parts, especially in large turbine blades

ABRASIVE — PA/WA
GRAIN SIZE — 60
GRADE — D
STRUCTURE — P
BOND — V

Wheels for the Aerospace Industry

WAY — ABRASIVE
70 — GRAIN SIZE
F — GRADE
15 — STRUCTURE
V — BOND

>COOL GRINDING
>OPEN STRUCTURE
>CONTINUOUS DRESSING

CGW is proud to introduce the eco-friendly grinding wheel for eco-friendly industries

METEOR

NEW!

METEOR

The latest development from CGW's R&D team. The Meteor features:
1. Superior profile holding
2. High G-ratio for both high and low stock-removal rates.
3. Unique cool cutting properties.
4. Improved surface integrity.

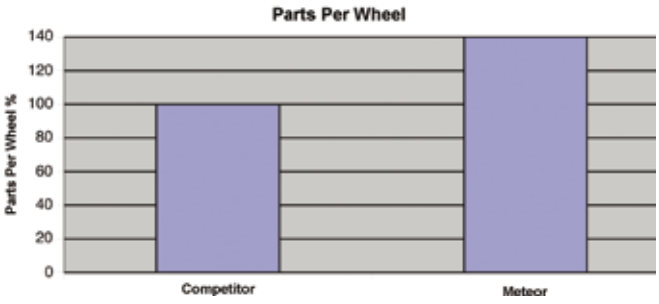
The new Meteor wheel has been developed by CGW's application engineers and R&D team, in response to customer demands. It offers a unique combination of an innovative ceramic bond with special advanced aluminium oxide and interconnected pores. The Meteor has been rigorously tested on CGW's new creep-feed application grinding machine.

CGW's new creep-feed application grinding machine

The Part: Turbine blade root form

The Machine: Blohm creep-feed grinder

The Goals:
1. Avoid thermal damage
2. Improve form holding
3. Reduce grinding costs

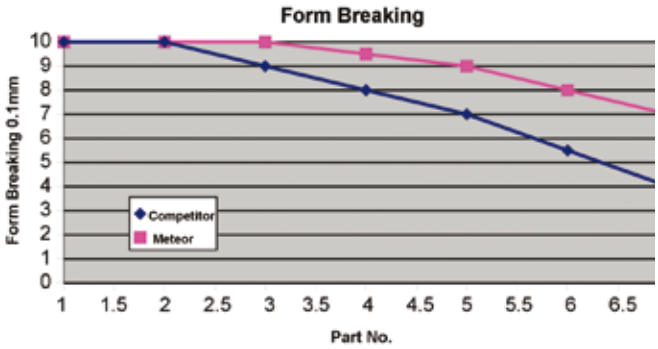


The Meteor gives 40% more parts per wheel than the competitor

The Wheel: The Meteor (WBH60/2 F13VS) from CGW - optimized using the GKS - Grinding Knowledge System (see page 18).

Technical information:
diameter up to 635 mm
thickness up to 200 mm
grit size from 46 to 120
cutting speeds of up to 63 M/S
structure 10-15
feed rate up to 10,000 mm/min
cutting depth range up to 10 mm

The Application Method: Using the GKS, CGW's experienced application engineers will optimize your grinding operation, ensuring the establishment of high-process CPK as well as improved quality and higher production rates.



The Meteor maintains better form than the competitor

The Meteor edge: The new bond, specially designed for creep-feed grinding applications using either continuous or non-continuous dressing, gives the Meteor an indisputable advantage. The Meteor has been developed especially for aerospace, turbine, gear grinding, and all creep-feed applications.

The CGW Edge: By examining and addressing the entire grinding process, CGW provides a holistic approach to issues involving application parameters as well as dressing, coolant, filtration, and clamping.

Grinding wheels ***and*** grinding solutions - that's the CGW edge.

SATURN

>FORM HOLDING
>COOL GRINDING
>CREEP FEED WITH
NON-CONTINUOUS DRESSING

The part Turbine blade root form

The machine Blohm creep-feed grinder

The goals
1. Eliminate visible burn
2. Ensure no "white layer"
3. Reduce wheel consumption

The wheel The Saturn from CGW
Optimized with GKS - Grinding Knowledge System

The method Assess the entire process with GKS
Optimize the Saturn wheel to achieve the goals above

The Saturn edge The Saturn wheel has been specifically designed by the CGW R&D team to achieve a "controlled hardness". In other words, the bond material achieves the delicate balance between self-sharpening and form-holding.

	original parameters, competitor's wheel		modified parameters, Saturn wheel		
	1st pass	2nd pass	1st pass	2nd pass	3rd pass
wheel speed	22 m/s	34 m/s	22 m/s	25 m/s	34 m/s
depth of cut	10 mm	0.1 mm	9.8 mm	0.2 mm	0.1 mm
table speed	90 mm/min	550 mm/min	90 mm/min	555 mm/min	600 mm/min
dressing in-feed rate	0.2 µm/rev	none	none	2 µm/rev	none
time of traverse	75 s	9 s	75 s	9 s	8 s

Dressing only 0.2 µm/rev may reduce wheel consumption, but it dulls the wheel, resulting in excessive heat generation and burn.

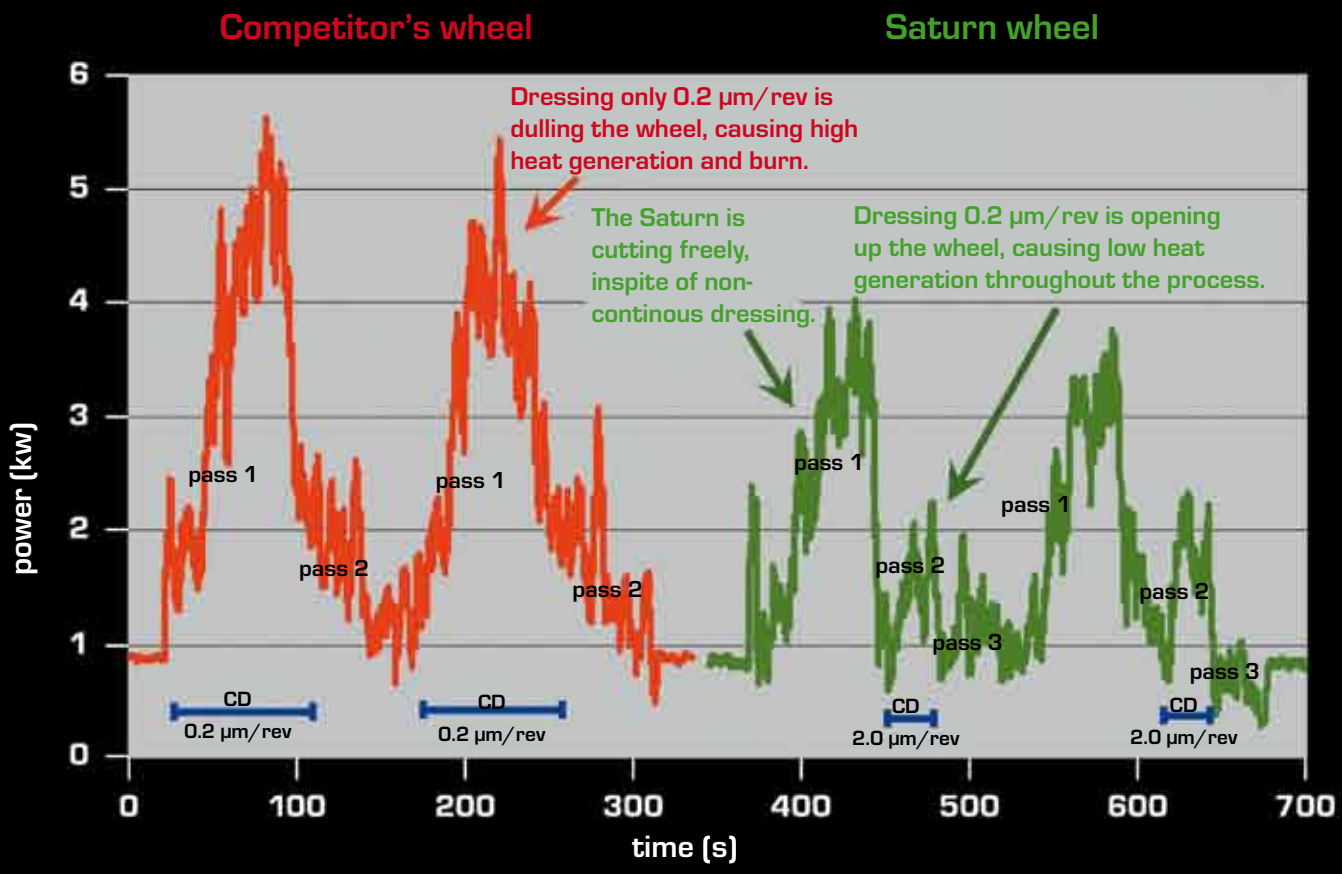
Continuous dressing for 75 seconds causes excessive wheel consumption.

During the first roughing pass we don't dress the wheel. This is what the Saturn was designed for. The wheel self-sharpens during use, keeping heat down but maintaining form.

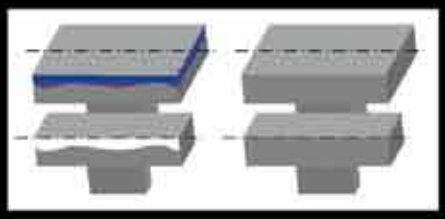
Here we dress the wheel 2 µm/rev to create a sharp wheel that generates less heat.

But because we do it on this fast, finishing pass, we can increase the speed, requiring only 9 seconds, meaning less wheel consumption.

The CGW Edge CGW engineers not only have extensive experience in grinding, they also have an in-depth understanding of grinding fundamentals, enabling them to assess the entire grinding process and make major improvements.



Power signal from the GKS for the competitor's wheel and the Saturn wheel. By dressing aggressively and using the controlled-hardness Saturn wheel, GKS engineers were able to reduce power and heat generation by 25% – and reduce wheel consumption.



Visible burn and white layer

Current cycle with competitor's wheel

- severe visible burn
- white layer
- 1.01 mm/part wheel consumption
- 85 parts/wheel
- 340 second cycle time

Modified cycle with CGW's Saturn wheel

- NO visible burn, perfectly clean
- NO white layer
- 0.54 mm/part wheel consumption
- 45% wheel cost savings per part
- 160 parts/wheel
- 350 second cycle time

The CGW Edge

CGW understands that grinding involves not only the wheel, but the optimum speeds and feeds, wheel speed, dressing parameters and coolant application for **that particular wheel.** Let our engineers come to your facility with our equipment and optimize your process for higher productivity, lower costs and better quality.
Grinding wheels AND grinding solutions – that's the CGW edge.

JUPITER

Enables blade grinding at 80 M/S. Utilizing advanced tooling techniques.

Jupiter, the latest in CGW's line of blade grinding wheels, developed in response to today's market demands for improved advanced production methods.
Jupiter provides the following features and advantages:

- Jet blade grinding at 80 m/s
- Cool grinding
- Excellent form holding
- Non-continuous dressing
- High G values (longer life)
- High throughput of blades per wheel

Technical Information

- Diameter up to 300 mm**
- Thickness up to 40 mm**
- Grit size from 60 to 120
- Cutting speeds of up to 80 M/S
- Hardness - J-N
- Structure 10-12
- Feed-rate up to 80,000 mm/min
- Cutting depth of 0.05 mm

**For larger sizes contact your CGW representative.

>INNOVATIVE VITRIFIED TECHNOLOGY FOR HIGH SPEED JET BLADE GRINDING
>COOL CUTTING
>EXCELLENT COST EFFECTIVENESS

Innovation

The new concept of high speed grinding focuses on light and fast passes [low thickness grinding] over the blade so that any heat generated during the operation will be dissipated on chips rather than onto the surface of the blade. CGW's R&D team has developed a quality high performance 80 M/S grinding wheel, while maintaining the highest levels of .safety and reliability

INTERNAL GRINDING WHEELS

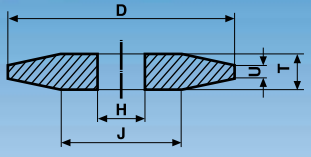
The recommended wheel for internal grinding has a diameter of up to 2/3 of the final bore required.
For grinding inside surfaces of bearings, rings, cylinders, and bores.
Internal grinding wheels are available in all sizes up to 6" (150 mm) in diameter Types: 1, 5, 6.
Abrasive types: WA, RA, AS, PA, GC.
Special abrasive types are available on request.

SUPER FINISHING STONES

CGW offers sticks, honing stones, and precision-finishing grinding wheels up to 1200 grit size.
In standard abrasives and CBN Vitrified.

High-performance grinding wheels with cutting speed up to 80 m/s.
Soft and very hard wheels, with open and closed structure and
fine grits up to 150 mesh.

GEAR GRINDING WHEELS



4 D/JxT/UxH

CGW specializes in customized solutions for the gear-grinding industry.

With a broad perspective on the constant technical progress in the gear-grinding industry, CGW has developed a wide range of grinding wheels to cope with complex demands in this field:

- In In standard or ceramic grain. In open or closed structure, straight or pre-profiled.
- Diameter: up to 450 mm; 500, 610, 635 mm by special order
- Thickness: all thicknesses required for gear grinding
- All the standard bore sizes: 76.2, 100, 127, 152.4, 160, 203.2, 254, 304.8 mm

THREAD GRINDING WHEELS

CGW thread-grinding wheels offer cool cutting with excellent form holding to meet strict tolerance requirements.
These wheels are manufactured with very high performance grains, using our special blue bond.

- Grits: up to 220
- Diameter: up to 20”
- Thickness: up to 25 mm (more if required - please check with our technical office)
- Bore size up to 304.8 mm
- Cutting speed up to 80 m/s

ADVANCED DIAMOND ROLLS AND ELECTRO PLATED C.B.N.

CGW diamond rolls (profilers and dressers for abrasive wheels) have applications in various sectors of the mechanical industry: production of valves, bearings, constant velocity joints, injectors, ball screws, shafts, and gears. They are also used in the production of blades for the aerospace industry and land-based turbines.

Diamond rolls can be produced with well- defined profiles for dressing grinding wheels and faithfully reproducing the profile on the work piece, profiles for dressing abrasive wheels, enabling the abrasive wheels to precisely reproduce the profile on the work piece.

In addition to diamond rolls, the company also produces electro-plated CBN grinding wheels (boron crystals) which are gradually replacing the diamond roll and the abrasive wheel. Used on mechanical and aeronautical components, especially gears (straight and helical teeth, both internal and external).

EL-DS

EG

SN

EB

CHOOSING ABRASIVES

General Recommendations for Choosing Abrasives Depending on Grinding and Material Types

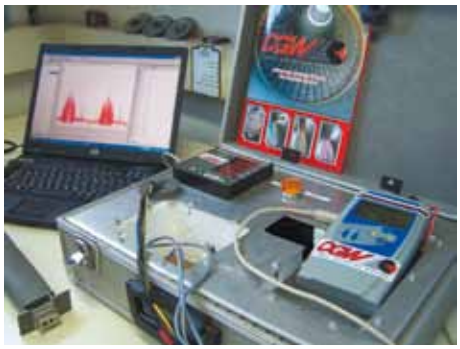
		Grinding Type		
Material		**Bench**	**Cylindrical (OD)**	**Surface (wheels)**
General Purpose (Universal)		A46N6V	WA60H8V	WA46H8V
Steel	Soft, untempered	A36P5V	A60M6V	WA46H8V
	Tempered (up to 55 Hrc)	WA46K7V	WA60H8V	WA46K7V
	Tempered (above 55 Hrc)	WA60K7V	AS360J10V PA80J10V	AS360J7V
Stainless Steel	Soft	A36P5V	A60M6V	DA46H8V
	Hard	A46N6V	WA60K7V	WA46K7V
Chrome Plated		WA60K7V	PA80J10V	AS360M3V
Nickel Alloy		WA60K7V	WAG80H8V	WAG60F15V
HSS and Tool Steel		WA60K7V	AS346H8V GC60J7V	AS360I13V
Titanium		GC60J7V	C60J7V	GC46H12V
Carbide/ Tungstan		GC60J7V	GC60J7V	GC60J7V
Casted	Gray Cast	A36P5V	C60K7V	C46H8V
	Steel Cast	A46M6V	PA60J7V	WA46H8V
Non-Ferros Metals	Aluminium, Copper, Brass, etc.	GC60J7V	C60E12V	GC60J7V
Ceramics		GC60J7V	GC60J7V	GC60J7V
Plastics		KA2-3H10B	KA2-3H10B	KA2-3H10B
Rubber		KA2-3H10B	KA2-3H10B	KA2-3H10B

Grinding Type					
Surface (segments)	**Internal (ID)**	**Centreless**	**Tools**		**Material**
PA/ WA30D9V	WA60K7V	A60L7V	WA60K7V		**General Purpose (Universal)**
DA36G10V	WA60K7V	A60L7V		Soft, untempered	**Steel**
DA36G10V	RA60J7V	PA60J7V		Tempered (up to 55 Hrc)	
AS336D12V	AS360J8V	AS360K7V		Tempered (above 55 Hrc)	
DA36G8V	WA46K7V	DA60K7V		Soft	**Stainless Steel**
WAR36E8V	WA46H8V	GC80L7V		Hard	
WAR36E8V	RA46J7V	AS360K7V			**Chrome Plated**
WAB46D12V	WAY60G10V	WAG80H8V			**Nickel Alloy**
WA36D8B AS336D13V	AS360J8V GC46J5V	AS360K7V GC80L7V	AS360J8V PA60L7V		**HSS and Tool Steel**
GC36H8V	GC60J7V	C60H8V			**Titanium**
GC36H8V	GC60J7V	GC60J7V	GC60J7V		**Carbide/ Tungstan**
C36G8V	C60J7V			Gray Cast	**Casted**
PA/ WA30D9V	RA46J7V			Steel Cast	
PA/ WA30D9V	GC60J7V	GC60J7V		Aluminium, Copper, Brass, etc.	**Non-Ferros Metals**
GC36H8V	GC60J7V				**Ceramics**
	KA2-3H10B				**Plastics**
	KA2-3H10B				**Rubber**

TECHNICAL SUPPORT
GKS - GRINDING KNOWLEDGE SYSTEM

As part of CGW's commitment to providing you not only with state-of-the-art grinding wheels, but also with superior customer service and expertise in using our products on the shop floor, we have developed The Grinding Knowledge System, or the GKS.

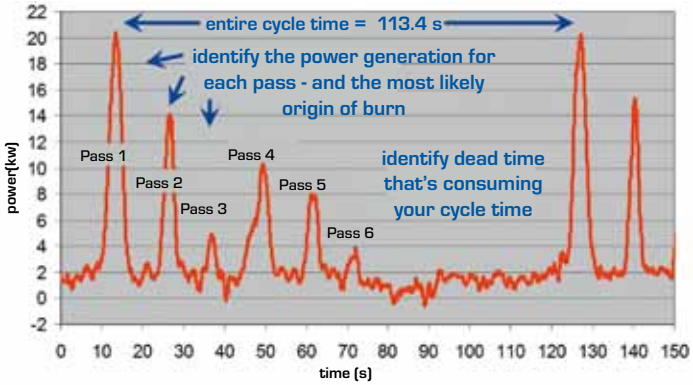
The GKS is a simple yet powerful tool that measures the power consumption in the wheelhead motor of a production grinding machine. This gives valuable information as to how the grinding cycle is behaving. The GKS can also measure wheelhead and table displacement, giving even more information on the grinding process.



Our field engineers will come to your facility and spend a few hours on your machine. The GKS takes about five minutes to hook up. Then, while you are running regular production, we will spend a few hours recording data, mapping out your entire grinding cycle and looking at how your cycle time is being taken up, and the source of any burn. Next, we'll sit down with you and discuss what you want to accomplish: cycle-time reduction, elimination of burn and "white layer", reduction in wheel consumption, or any other issue.

Cycle-time reduction

The GKS tells us what is happening in every second of the cycle, enabling us to identify bottlenecks and other areas that are unnecessarily consuming cycle time.



Mapping out of the entire cycle using the GKS

Grinding burn and "white layer"

Because the GKS's primary output is power – and higher power means higher heat and temperatures – it is extremely useful in finding just the right parameters that eliminate "white layer", without having to rely on erratic visual burn or time-consuming examination in the lab.

Wheel consumption

Because the GKS tells us what is happening in the entire process, it is very useful in reducing wheel consumption, both in continuous and non-continuous dressing mode.

Wheel optimization

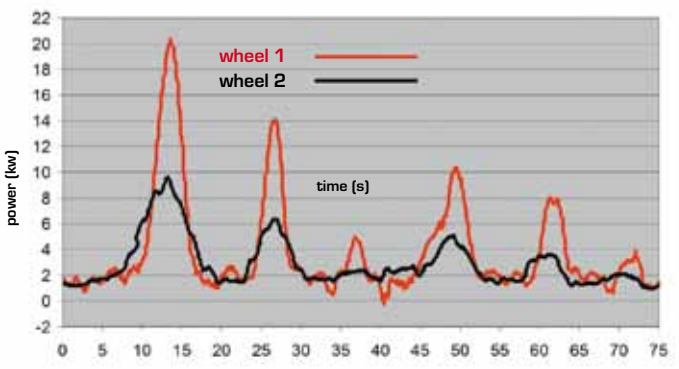
The GKS tells you how your wheel is behaving during grinding. Is the power increasing drastically? Then your wheel is probably too hard. Is power rising and then falling? Then you may have loading. Is it generating more heat during continuous dressing? Perhaps your dressing feedrate is too low.

Wheel comparison

Often when trying out a new grinding wheel, operators adopt the "stick it on and see what happens" approach. The GKS allows for a scientifically sound comparison between wheels.

Parameter variation

The GKS allows you to vary your parameters in the process – speeds, feeds, dressing, number of passes – to see exactly how they affect heat generation and cycle time.



The GKS is useful for comparing wheels. Wheel 2 is generating much less heat.

Processo

Because the GKS maps out the process and gives output for several cycles, it is a very useful tool in identifying unknown problems in the cycle. Is the table stalling in the middle due to excessive load from the grinding? The GKS will identify this. Is there an unnecessary dwell in the cycle? The GKS will pinpoint it.

What we need from you

- 10 minutes of down-time to hook up the GKS.
- Let us record data for a few hours during regular production.

What you'll get from us

- We'll optimize your process for whatever you are looking for: higher productivity, reduced burn, less wheel consumption, better surface finish, etc.
- We'll give you a method to truly assess the performance of new wheels.
- We'll work with you in the long term to improve your process one step at a time.

An example

Our field engineers at CGW spent a day at the production facility of one of our customers grinding root-forms for the aerospace industry. The process was consuming about a dollar's worth of abrasive on every part and exhibited sporadic "white layer". They had spent months with the "trial and error" approach, trying to eliminate burn while trying not to consume too much wheel. We spent 10 minutes hooking up the GKS and then several hours recording data during regular production. We then spent an hour analyzing this data and getting an understanding of what was happening in the process. Next, we devised a new set of parameters, changing the dressing parameters and speeds and feeds based on what we learned from the GKS. The final cycle reduced heat generation by 40%, eliminated visual burn and white layer, and decreased wheel consumption by 40% – all without any increase in cycle time.

At your facility

Do you want to achieve similar results at your facility? It's not going to be done simply by choosing a better wheel. It's going to be done by choosing a better wheel and optimizing that wheel. Let CGW's field engineers help you achieve results you never thought possible.

Precision Grinding Wheels

CGW engineers have developed specially formulated wheels for resharpening single- and multi-point cutting tools, for surface, cylindrical, and all other grinding operations.
For grinding steels and high-speed steels (HSS), CGW offers a large selection of abrasive types: white, blue, red and pink aluminium oxide, and AS (ceramic abrasive). For tungsten carbide applications, we recommend green silicon carbide.
Standard types: 1, 5, 6, 7, 11 & 12. Special types are available on request.

Creep Feed Grinding Wheels

CGW offers a broad range of creep feed grinding wheels for both continuous dressing and periodic (non-continuous) dressing. Our R&D department has developed bonds with high porosity for wheels of different abrasive types: WAG, WAB, WAY, WAR, AS, RA, PA.
Our large finishing department is equipped with CNC machines that profile wheels according to customer requirements.

Surface Grinding Wheels

Surface grinding wheels are used for heavy stock removal and precision surface grinding.
CGW offers a wide range of sizes, with diameters of up to 25" (625mm), in all types and grits.
Standard types: 1, 2, 5, 6, 7. Segments and special types by request.
Abrasive types WA, PA, AZ, RA, AS, GC, DA, C.

Cylindrical Grinding Wheels

Wheels for general purpose cylindrical grinding applications (O.D. - outside diameter grinding) are available in all abrasive types and profiles, up to 25" (625mm) in diameter.
Standard types: 1, 5, 6, 7, 20, 21, profile N. Special profiles are available on request.
Abrasive types: WA, PA, AZ, RA, AS, GC, DA.

Centreless Grinding Wheels

CGW manufactures a wide range of dimensions in centreless and regulating wheels, for three types of feed grinding:
Thrufeed - the workpiece passes between the grinding and regulating wheels, from one side of the machine to the other.
Infeed - the workpiece is placed on the work-rest between the grinding and the regulating wheels and held in position against the end-stop.
Endfeed - used to produce tapered cylindrical parts. The grinding wheel, the regulating wheel and the workpiece are set in fixed positions, and the workpiece fed from the front to a fixed end-stop.

Regulating wheels:
Diameter up to 350mm (14")
Thickness up to 500mm (20").

Centreless wheels:
Diameter up to 635mm (25")
Thickness up to 500mm (20")

Tool Room Grinding Wheels

Tool room wheels are available in the following abrasive types:
WA (white) for light stock removal, multi-purpose.
PA (pink) for medium stock removal, good for holding form.
AZ (WAB) (blue) for medium stock removal, good for holding form and for heat-sensitive materials.
RA (red) for heavy stock removal, good for holding form and for heat-sensitive materials.
AS (blue ceramic abrasive grit) for heavy stock removal, good for holding form, long life.
GC (green) for grinding carbide and non-ferrous metals.
Standard types: 1, 6, 11, 12. Additional shapes available on request.

Internal Grinding Wheels

For grinding internal diameters (I.D.), one of the most challenging grinding processes. The recommended wheel for internal grinding has a diameter of up to 2/3 of the final bore required.
CGW offers all sizes up to 150mm (6") in diameter, types: 1, 5, 6.
Abrasive types: WA, RA, AS, PA, GC. Special types available on request.

Bench Grinding Wheels

Straight T-1 wheels are used for off-hand tool sharpening and grinding.
General purpose vitrified wheels for use on bench and pedestal grinders,
CGW bench wheels are available in diameters of up to 450mm (18").
A - Aluminium oxide for steel and metal
GC - Green silicon carbide for carbide or non-ferrous metals
WA/PA - White or pink aluminium oxide for high-speed steel (HSS).

Dressing Wheels, Blocks and Sticks

CGW produces all types and dimensions of dressing wheels for diamond and CBN wheels, by customer request.
All types of sticks and blocks are available for various applications such as cleaning and knife sharpening (single- or double-layered).

Mounted Points

CGW offers a complete range of shaped and cylindrical mounted points.
Standard abrasive types:
PA for general purpose grinding
A for stainless steel (resin bond)
C for stone
All abrasive types are available on request.
Group A: shaped mounted point wheels with 6mm (1/4") shank, for general purpose off-hand applications.
Group B: shaped mounted point wheels with 3mm (1/8") shank, for light deburring of small areas.
Group W: cylindrical mounted points with 6mm (1/4") or 3mm (1/8") shank, used in off-hand and precision grinding operations for medium to heavy stock removal.

SPEED CONVERSION TABLE

High Cutting Speed Wheels are colour-coded in accordance with EN safety standard:

50 M/S	63 M/S	80 M/S	100 M/S
blue stripe	yellow stripe	red stripe	green stripe

Speed conversion table for speed of rotation and peripheral operating speed depending on the outside diameter of bonded abrasive products.

Wheel Diameter		Cutting speed (M/S)					
		10	16	20	25	32	35
inch	mm						
1/4	6	31,900	51,000	64,000	80,000	102,000	112,000
5/16	8	24,000	38,200	48,000	60,000	76,500	84,000
3/8	10	19,100	30,600	38,200	48,000	61,200	67,000
1/2	13	14,700	23,550	29,500	35,600	47,100	51,500
5/8	16	11,950	19,100	23,900	29,850	38,200	41,800
3/4	20	9,550	15,300	19,100	23,900	30,600	33,500
1	25	7,650	12,300	15,300	19,100	24,500	26,800
1-1/2	40	4,800	7,650	9,550	11,950	15,300	16,750
2	50	3,850	6,150	7,650	9,550	12,250	13,400
2-1/2	63	3,050	4,850	6,100	7,600	9,750	10,650
3	78/80	2,400	3,850	4,800	6,000	7,650	8,400
4	100/102	1,950	3,100	3,850	4,800	6,150	6,700
4-1/2	115	1,700	2,700	3,350	4,200	5,350	5,850
5	125	1,550	2,450	3,100	3,850	4,900	5,350
6	150/155	1,300	2,050	2,550	3,200	4,100	4,500
7	175/180	1,100	1,700	2,150	2,700	3,400	3,750
8	200/205	955	1,550	1,950	2,400	3,100	3,350
9	230	830	1,350	1,700	2,100	2,700	2,950
10	250/254	765	1,250	1,550	1,950	2,450	2,700
12	300/305	640	1,050	1,300	1,600	2,050	2,250
14	350/356	550	875	1,100	1,400	1,750	1,950
16	400/406	480	765	960	1,200	1,550	1,700
18	450/457	425	680	850	1,100	1,400	1,500
20	500/508	385	615	765	960	1,250	1,350
24	600/610	320	510	640	800	1,050	1,150
30	750/762	255	410	510	640	820	895
32	800/813	240	385	480	600	765	840
36	900/914	215	340	425	535	680	750
40	1000/1015	195	310	385	480	615	670

*mm sizes are approximate cutting speed = peripheral operating speed

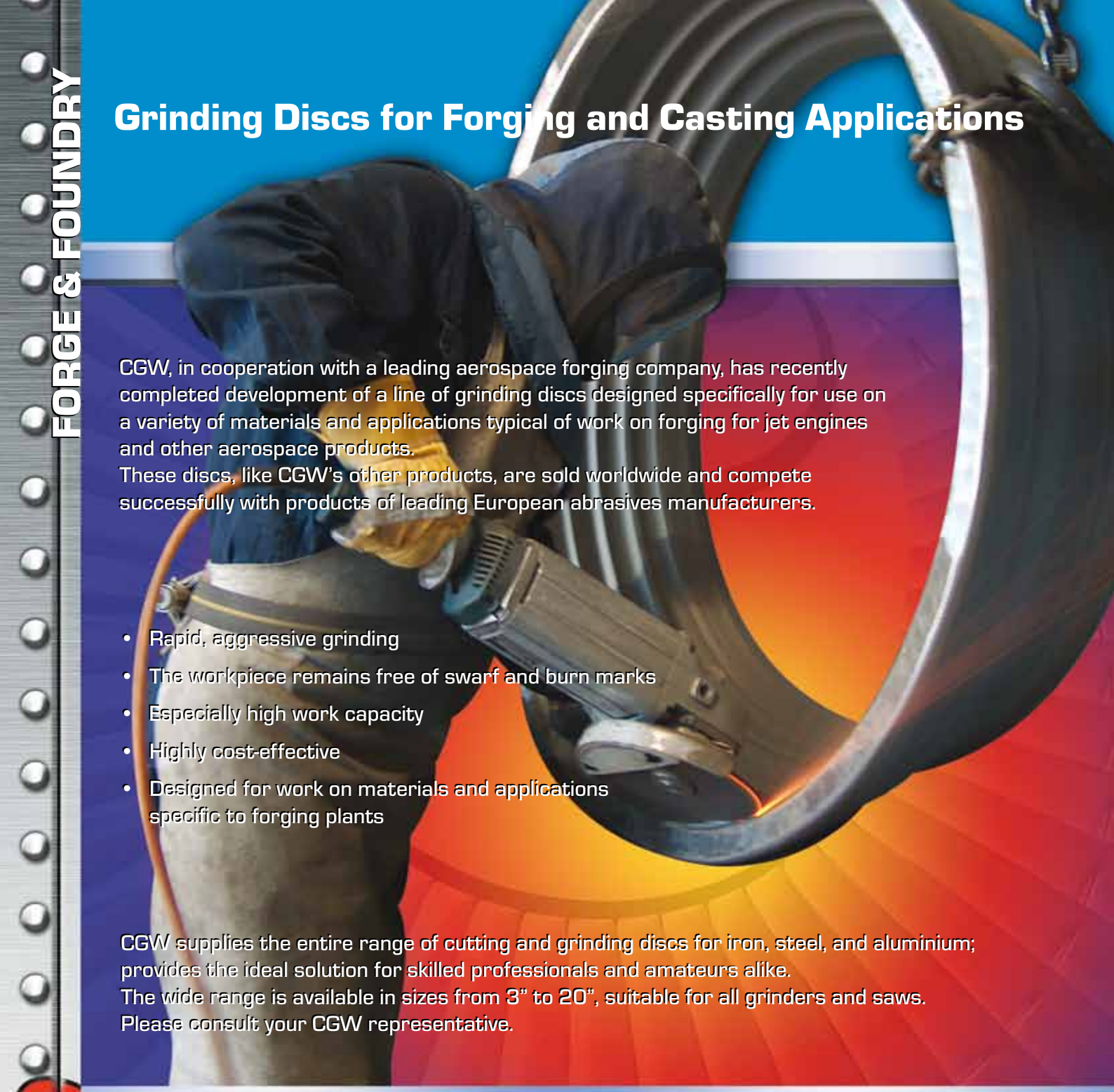
Equation for cutting speed (M/S) conversion to R.P.M. and back:

$$\frac{\text{cutting speed (M/S) x 60,000}}{\text{wheel diameter (mm) x 3.14}} = \text{R.P.M.}$$

$$\frac{\text{R.P.M. x wheel diameter (mm) x 3.14}}{\text{60,000}} = \text{cutting speed (M/S)}$$

Cutting speed (M/S)						Wheel Diameter	
40	50	63	80	100	125	inch	mm
128,000	160,000	201,000				1/4	6
95,500	120,000	150,500	191,000			5/16	8
76,500	95,500	120,500	153,000	191,000		3/8	10
58,800	73,500	92,100	118,000	147,000	184,000	1/2	13
47,800	59,700	75,200	95,500	120,000	150,000	5/8	16
38,200	47,800	60,200	76,500	95,500	120,000	3/4	20
30,000	38,200	48,200	61,200	76,500	95,500	1	25
19,100	23,900	30,100	38,200	47,200	59,700	1-1/2	40
15,300	19,100	24,100	30,600	38,200	47,750	2	50
12,150	15,200	19,100	24,300	30,250	37,900	2-1/2	63
9,500	12,000	15,100	19,100	23,900	29,850	3	78/80
7,650	9,550	12,100	15,000	19,100	23,900	4	100/102
6,650	8,350	10,500	13,300	16,650	20,800	4-1/2	115
6,150	7,650	9,650	12,250	15,300	19,100	5	125
5,100	6,400	8,050	10,200	12,700	16,000	6	150/155
4,250	5,350	6,700	8,500	10,650	13,300	7	175/180
3,850	4,800	6,050	7,650	9,300	11,650	8	200/205
3,350	4,200	5,250	6,650	8,350	10,400	9	230
3,100	3,850	4,850	6,150	7,650	9,400	10	250/254
2,550	3,200	4,050	5,100	6,400	8,000	12	300/305
2,200	2,750	3,450	4,400	5,500	6,850	14	350/356
1,950	2,400	3,050	3,850	4,800	6,000	16	400/406
1,700	2,150	2,700	3,400	4,250	5,350	18	450/457
1,550	1,950	2,450	3,100	3,850	4,800	20	500/508
1,300	1,600	2,050	2,550	3,200	4,000	24	600/610
1,050	1,300	1,650	2,050	2,550	3,200	30	750/762
960	1,200	1,550	1,950	2,400	3,000	32	800/813
850	1,100	1,350	1,700	2,150	2,700	36	900/914
765	960	1,250	1,550	1,950	2,400	40	1000/1015

Grinding Discs for Forging and Casting Applications



CGW, in cooperation with a leading aerospace forging company, has recently completed development of a line of grinding discs designed specifically for use on a variety of materials and applications typical of work on forging for jet engines and other aerospace products.
These discs, like CGW's other products, are sold worldwide and compete successfully with products of leading European abrasives manufacturers.

- Rapid, aggressive grinding
- The workpiece remains free of swarf and burn marks
- Especially high work capacity
- Highly cost-effective
- Designed for work on materials and applications specific to forging plants

CGW supplies the entire range of cutting and grinding discs for iron, steel, and aluminium; provides the ideal solution for skilled professionals and amateurs alike.
The wide range is available in sizes from 3" to 20", suitable for all grinders and saws.
Please consult your CGW representative.

SIZE (mm)	SPECIFICATION	TYPE	M/S	Max. R.P.M.	Package Qty	APPLICATION
180 x 8 x 22.23	A 24 N BF	T-27	80	8,500	25	WASPALOY
230 x 8 x 22.23	A 24 N BF	T-27	80	6,650	25	WASPALOY
180 x 7 x 22.23	C 24 R BF	T-27	80	8,500	25	TITANIUM
230 x 7 x 22.23	C 24 R BF	T-27	80	6,650	25	TITANIUM
180 x 7 x 22.23	ZA 24 T BF	T-27	80	8,500	25	INCONEL
230 x 7 x 22.23	ZA 24 T BF	T-27	80	6,650	25	INCONEL

* Other sizes are available upon request


FLAP DISCS
CGW supplies the entire range of coated abrasive products: flap-discs in a variety of grains and sizes, fiber discs of all types, flap wheels on shafts, Garnet Paper sheets, and paper rolls with aluminium oxide or silicon carbide.
CGW
CAMEL GRINDING WHEELS
camelflap-

ELECTROPLATED GRINDING PINS

Description and principle use:

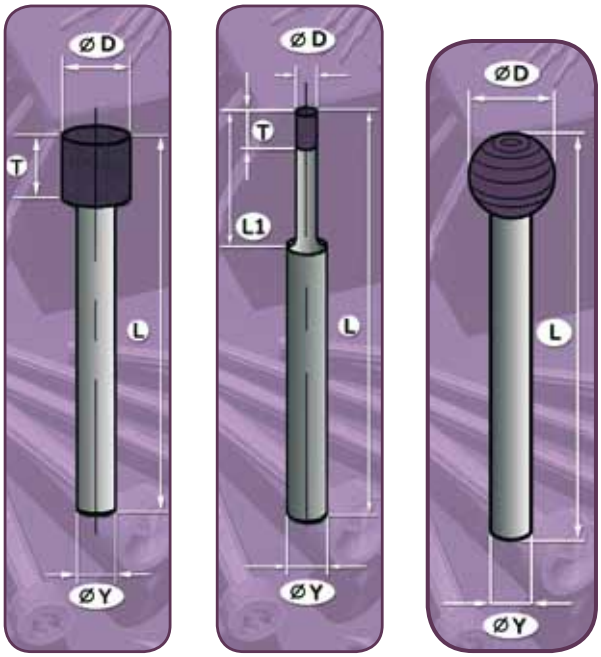
CGW's pins are used for grinding carbide, ceramics, glass, and hardened steels. Commonly used on die grinders. May also be used on internal grinding machines.

Grit Size:
Available in D from grit 30 up to 252.
Addtional grit sizes are available upon request.

Shank sizes of Ø8 and Ø10mm, as well as carbide shanks, are also available.
Tolerance: D<Ø2mm = ±0.05mm,
D>Ø2mm= ±0.15mm, T= ±1.0mm, L1= ±1.0mm,
Y= h6, L= ±1.0mm

All PM grinding pins are available in diameters, grit sizes and in inch measurements, upon request.

D = Diamond
B = CBN



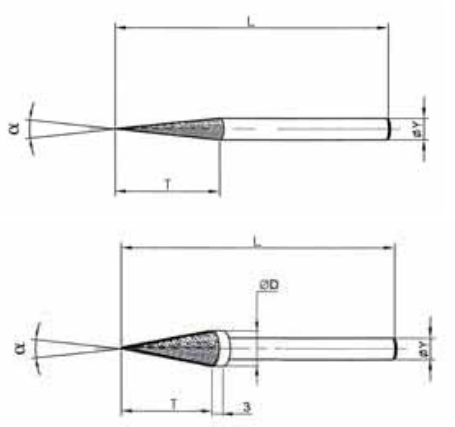
PK Pins for grinding tungsten carbide wire drawing dies

Description and principle use:

CGW's diamond-plated tapered pins are ideal for grinding or ripping tungsten carbide drawing dies for the wire and tube industries. They are also used for cold heading dies.

Grit Size:
Available in D or B91 (#170/200), D or B126 (#120/140), D or B181 (#80/100).
Additional grit sizes are available upon request.

Cat. no.	D	T	Y	L	α
PK3x8-01	3	19	3	55	8
PK3x10-01	3	17	3	55	10
PK3x12-01	3	14	3	55	12
PK3x15-01	3	11	3	55	15
PK3x20-01	3	8.5	3	55	20
PK5x8-01	5	36	6	75	8
PK6x10-01	6	33	6	100	10
PK6x12-01	6	29	6	100	12
PK6x14-01	6	24	6	100	14
PK6x16-01	6	21	6	62	16
PK6x20-01	6	18	6	58	20
PK6x30-01	6	12	6	52	30
PK⅛x8-01	⅛	21	⅛	63	8
PK⅛x10-01	⅛	17	⅛	63	10
PK⅛x12-01	⅛	14	⅛	63	12
PK¼x8-01	¼	44	¼	76	8
PK¼x10-01	¼	35	¼	76	10
PK¼x12-01	¼	29	¼	76	12
PK⅜x8-01	⅜	67	¼	100	8
PK⅜x10-01	⅜	53	¼	89	10
PK⅜x12-01	⅜	44	¼	76	12



Minimum clamping length = half of total length: Le=0.5xL
Shank sizes of Ø8 and Ø10mm, as well as carbide shanks, are also available.
Grinding pins are available in inch measurements.
For this type of custom-made shape pin, please refer to the PK drawing.

NF ELECTROPLATED DIAMOND NEEDLE FILES

Description and principle use:

CGW's medium-sized needle files are a popular choice for grinding a range of metals and hard materials, such as tungsten carbide, steels of 40Hrc and harder, ceramic materials, and glass. They are a must in any tool and die shop, and in extrusion and repair of hardened alloys and ceramics. The NF file has a round shank of Ø3.0mm, suitable for handle (available upon request).

Sizes:
Needle files are manufactured in 2 lengths:
NF - Total length 140mm; diamond-coated length 70mm.
NFB - Total length 160mm; diamond-coated length 85mm.

Grit size:
Standard grit sizes: D91 (#170/200), D126 (#120/140), D181 (#80/100).
Additional grit sizes and profiles are available upon request.

Set: Cat. no. 4205 Includes the following 5 profiles:
2112 ▭, 2132 △, 2142 ▯, 2152 ◠, 2162 ●.
Available in grit sizes: D30, D54, D91, D126, D181.

Set: Cat. no. 4205B Includes the following 5 profiles:
2112B ▭, 2132B △, 2142B ▯, 2152B ◠, 2162B ●.
Available in grit sizes: D91, D126, D181.

Profile	Description	Size mm*	Item no.	
	Barrette	5.0x1.7 5.2x2.0	2102T 2102TB	
	Equalling	5.1x1.4 5.7x1.6	2112 2112B	
	Equalling One Side	4.8x1.3	2112-1	
	Equalling Round Edge	5.1x1.5	2112R	
	Warding	5.2x1.4	2122	
	Crochet	5.0x1.5	2122R	
	Three Square	3.9 4.3	2132 2132B	
	Square	2.5 2.7	2142 2142B	
	Half Round	5.4x1.9 5.9x2.2	2152 2152B	
	Round	3.0 3.2	2162 2162B	
	Knife	5.4X1.6	2172	
	Slitting	5.1X2.3	2182	
	Crossing	4.7X2.2	2192	

HB ELECTROPLATED DIAMOND FILES

Description and principle use:

CGW's HB files are manufactured in large dimensions for long life on heavy duty applications. Especially suitable for filing large areas of various metals, hard plastics, fiberglass, graphite, and epoxy materials. The HB file has a square shank, suitable for handle (available upon request).

Size:
Total length 220mm; diamond-coated length 110mm.

Grit Size:
Standard grit sizes: D91 (#170/200), D126 (#120/140), D181 (#80/100).
Additional grit sizes are available upon request.

Cat. no. HB2627
The HB set includes one of each of the above files.

Profile	Description	Size mm*	Item no.	
	Equalling	10.4x2.8	HB2601	
	Half Round	12.6x3.9	HB2602	
	Three Square	9.7	HB2607	
	Square	6.1	HB2608	
	Round	6.8	HB2610	

MI ELECTROPLATED ESCAPEMENT FILES

Description and principle use:

CGW's Mini files are used in a variety of applications that require fine and accurate work. Mini files are manufactured in 7 popular profiles. The compact Mini set fits easily into a pocket.

Size:
Total length 140mm, diamond-coated length 40mm.

Grit Size:
Available in grit sizes: D30 (#600), D54 (#325/400), D91 (#170/200), D126 (#120/140), D181 (#80/100).
Additional grit sizes are available upon request.

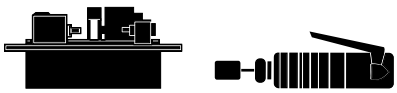
Cat. no. MI8632
The Mini set includes 5 files: 8608, 8614, 8617, 8619 and 8621.

	Half Round	4.3x1.8	MI8608	
	Crossing	4.2x1.8	MI8609	
	Barrette	3.9x1.4	MI8610	
	Three Square	3.1	MI8614	
	Equalling	3.9x1.1	MI8617	
	Square	2.0	MI8619	
	Round	1.7	MI8621	

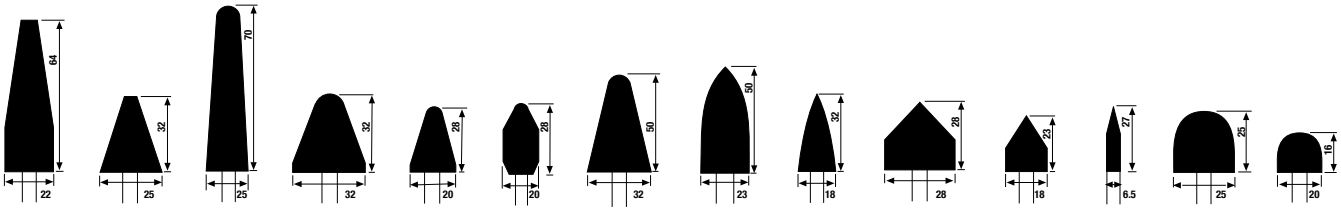
MOUNTED POINTS

CGW offers a full range of mounted points:

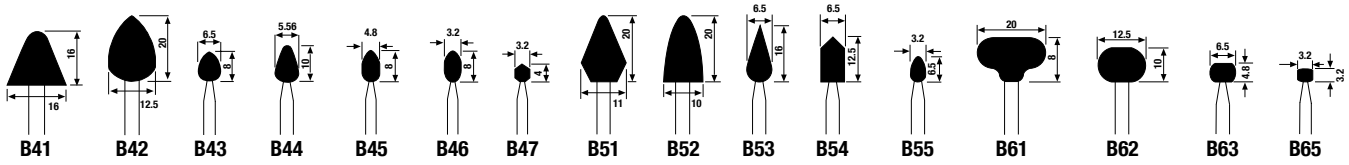
General purpose: PA60P/QV
Heavy duty use: PA36P/QV
Non-ferrous metals and stone: C36QV
Stainless steel: A46QB
Castings: A/PA20S5V

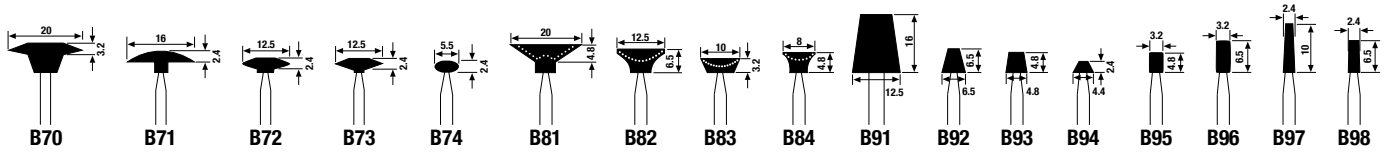


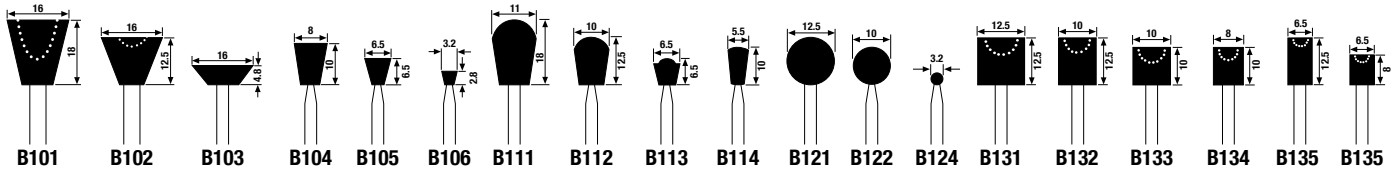
GROUP A (6mm mandrel)



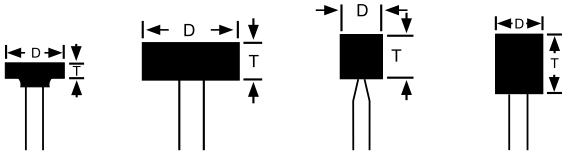
GROUP B (3mm mandrel)







GROUP W (3mm and 6mm mandrel)



D = diameter (from 3.2mm to 50 mm)

T = height (from 3.2mm to 50 mm)

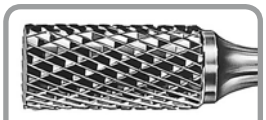
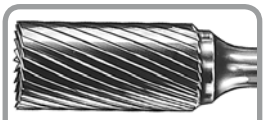
* All mounted points are available in packages of 10 or 50 pcs.
To order special items, please consult your CGW representative.

CARBIDE ROTARY BURRS


DIE GRINDER

Carbide burrs or rotary files are made in a variety of shapes and types, and are used for deburring, drilling, milling, and finishing numerous shapes and materials, including aluminium, copper, plastic, stainless steel, iron, castings, and titanium. For use on hand-held pneumatic and electric die grinders.

Matching burr type to application

BURR TYPE / APPLICATION	 ALU	 C	 D	 S
Aluminium	●			
Copper		●	●	●
Fibreglass			●	
Cast iron		●	●	●
Plastic	●	●	●	●
Hard rubber	●	●	●	●
Iron alloys			●	
Stainless steel		●	●	●
Nickel		●	●	●
Titanium			●	●
Zinc alloys	●			
Magnesium	●			

S Standard tooth formation for general-purpose deburring
D Diamond tooth for use on hard metals. Produces high surface quality, very small metal shavings and no blockage (double tooth)
C For general-purpose deburring on high-tensile steel; small shavings, fast and easy (double tooth)
ALU Aluminium tooth for processing non-metals and soft materials. Quick, easy stock removal.

Recommended operating speeds, by application

	Ø 3 mm	Ø 6 mm	Ø 10 mm	Ø 12 mm	Ø 16 mm
Steel	60,000 - 90,000	45,000 - 60,000	30,000 - 40,000	22,500 - 30,000	18,000 - 24,000
Hardened steel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Stainless steel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Grey castings	45,000 - 90,000	22,500 - 60,000	15,000 - 40-000	11,000 - 30,000	9,000 - 24,000
Titanium	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Nickel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Copper	45,000 - 90,000	22,500 - 60,000	15,000 - 40-000	11,000 - 30,000	9,000 - 24,000
Aluminium	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000
Plastic	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000

* All burrs are available separately.
To order individual items, please consult your CGW representative.

SETS OF CARBIDE BURRS

Set of 10 burrs

EAN code: 597 482

Contents:
1 pc each of 10 assorted shapes
Shank diameter: 6mm

Set of 20 or 40 burrs

EAN code: 753 789

Contents:
1 or 2 pcs each of the following 20 different shapes:

1402D
1502D
1602D
1702D-1
3400D
3500D
3600D
3700D-1
9400D
9500D
9600D
9700D
6400D
6450D
6800D
4400D
4500D
4600D-1
4700D

IQNet®

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and
THE STANDARDS INSTITUTION OF ISRAEL
hereby certify that the organization

C.G.W - CAMEL GRINDING WHEEL WORKS
SARID LTD.
SARID

for the following field of activities

MANUFACTURE OF ABRASIVE GRINDING WHEELS, ABRASIVE CUT-OFF DISCS, COATED ABRASIVES, MOUNTED POINTS AND FLAPDISCS.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard/s

ISO 9001:2008

Issued on :	*16 . 07 . 2009*
Date of expiration:	*16 . 09 . 2012*
Date of initial approval:	*26 . 09 . 1996*

Registration number: ***IL- 48763***

IQNet

René Wasmer
President of IQNet

Dire

IQNet Partners*: AENOR *Spain* AFAQ AFNOR *France* AIB-Vincotte International *Belgium* ANCE CQC *China* CQM *China* CQS *Czech Republic* Cro Cert *Croatia* DQS *Germany* DS *Denmark* ELOT *Greece* HKQAA *Hong Kong China* ICONTEC *Colombia* IMNC *Mexico* Inspecta Certification *Finland* IRAM *Argentina* Nemko AS *Norway* NSAI *Ireland* PCBC *Poland* QMI *Canada* Quality Austria *Austria* RR SII *Israel* SIQ *Slovenia* SIRIM QAS International *Malaysia* SQS *Switzerland* SRAC *Romania* TE IQNet is represented in the USA by: AFAQ AFNOR, CISQ, DQS, NSAI Inc., C
* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is av

Membership Certificate

The Organization for the Safety of Abrasives (oSa®)

herewith grants to the company

C.G.W. - CAMEL GRINDING WHEELS

based on the Application Form, oSa®-Constitution and Conditions of Use for the oSa® Trademark the right until withdrawn to use the oSa® mark in the described colours for the abrasives notified.

The membership also covers affiliated companies on condition that these fulfill the requirements stipulated in § 6 para. 1 of the oSa®-Constitution and § 2.4 of the Conditions of Use for the oSa®-Trademark respectively.

This right applies to the designation of the registered tools as well as their packaging or labelling.

Bonn, 01 August 2003

Executive Board

Organization for the Safety of Abrasives (oSa®) · Oxfordstraße 8 · D-53111 Bonn · Germany

CGW
CAMEL GRINDING WHEELS

CAMEL GRINDING WHEELS (Israël)

awarded

by

Philippe DANIEL LAMAZIERE

Deputy Purchasing General Manager

for the

Best non producting purchasing supplier - Snecma 2008

J.-P. Louis	B. Delahaye	E. Dautriat	D. Vaugier	P. Daniel Lamazière
VP Industrial Operations	*Purchasing General Manager*	*VP Quality*	*General Manager Supply Chain*	*Deputy Purchasing General Manager*

Ce diplôme a été remis officiellement par les membres du jury Snecma à l'occasion du Symposium Fournisseurs 2008.

Snecma
SAFRAN Group

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Worldwide Headquarters:
Kibbutz Sarid 36589, Israel
E-mail: david@cgwheels.com
Tel: +972 4 6507216
Fax: +972 4 6540899

U.S. Subsidiary:
7525 N. Oak Park Ave.,
Niles IL 60714
Tel: +1 800 447 4248

Website: www.cgwheels.com

STANDARD VITRIFIED ABRASIVES CATALOGUE

The CGW advantage

Quality and cost-effectiveness have made CGW products the choice of leading corporations in 56 countries the world over.

R&D engineers and a modern lab enable CGW product development for special applications, to meet customer requirements.

CGW's application engineers provide fast, effective technical support.

Unique eco-friendly technology sets CGW apart from other abrasives manufacturers.

Specialising in abrasives for the
- aerospace industry
- land-based turbine industry
- gear industry

and supplying a vast range of other abrasives applications, CGW's main markets are Europe and North America, where it maintains a production and marketing subsidiary.

CGW products are manufactured under strict quality control. CGW is certified to the highest industrial standards: EN 12413, EN 13743, ANSI B7.1, OSA and ISO 9001:2000.

About the catalogue

CGW is happy to present the complete catalogue of standard vitrified bonded abrasives. The catalogue contains hundreds of products, all marked with a six-digit code. Please refer to this code when ordering or requesting information, for your convenience and to help us serve you better.

The technical guide at the beginning of the catalogue contains detailed explanations on a number of subjects, including types of abrasive grains, bonds and structures, as well as initial recommendations for choosing the most suitable wheel for a specific job.

Custom production requires purchase of a minimum quantity (see table below). Lead time for a specially-produced order or out-of-stock standard items is usually six weeks. Please note that CGW keeps a wide variety of standard products in stock, so when a non-standard item is required, it is often possible to adapt a standard item to the dimensions required. This process involves an additional fee, but saves time and avoids the requirement of minimum quantities for special production.

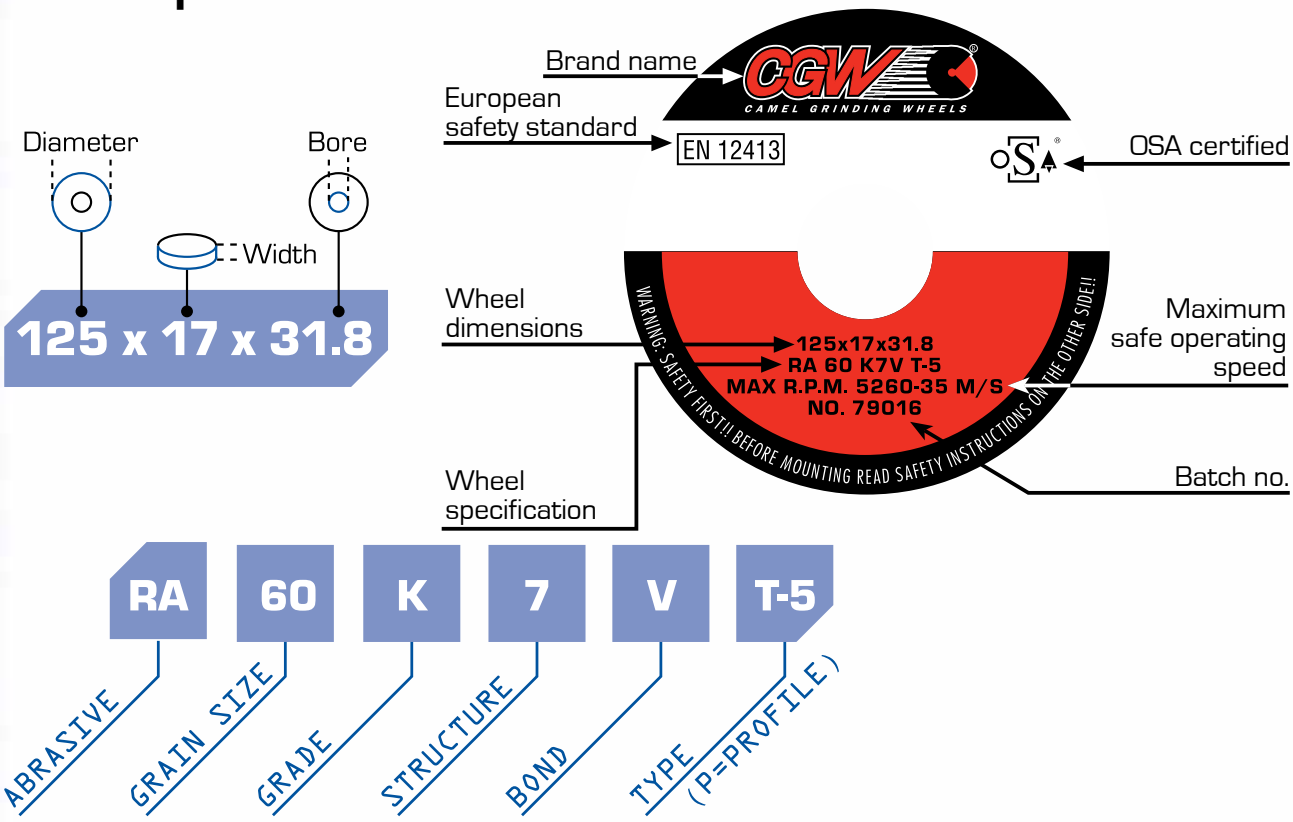
Minimum quantities for production of vitrified abrasive products

	Qty		Qty
Segments, blocks	50	Wheel diameter 10" - 12"	10
Sticks	100	Wheel diameter 14" - 16"	5
Mounted points	200	Wheel diameter 18"- 25"	2
Wheel diameter less than 3"	100	Non-reinforced cutting discs	200
Wheel diameter 4" - 5"	50	Reinforced cutting discs	500
Wheel diameter 6", 7", 8"	40	Wheel thickness up to 5mm, diameter up to 250mm	50

S E R V I C E I S O U R F I R S T P R I O R I T Y

Contents

Wheel specifications



Abrasive

A	Brown Aluminium Oxide
WA	White Aluminium Oxide
WAB	White Aluminium Oxide+Blue Bond
WAR	White Aluminium Oxide+Red Bond
WAY	White Aluminium Oxide+Yellow Bond
WAG	White Aluminium Oxide+Special Bond I
WAP	White Aluminium Oxide+Special Bond II
WBH	Special grain and bond
PA	Pink Aluminium Oxide
RA	Ruby Aluminium Oxide
AS1	10% Ceramic Aluminium Oxide
AS3	30% Ceramic Aluminium Oxide
AS5	50% Ceramic Aluminium Oxide
DA	White and Brown Aluminium Oxide
SA	Semi-friable Aluminium Oxide
HA	Monocrystal Aluminium Oxide
KA	Bubble alumina
ZA	Zirconia aluminium
GC	Green Silicon Carbide
C	Black Silicon Carbide

Grain Size

Coarse	8, 10, 12, 14, 16, 20, 24
Medium	30, 36, 46, 54, 60
Fine	80, 100, 120, 150, 180
Very Fine	220, 240, 280, 320, 400, 600

Grade

Soft	B, D, E, F, G, H
Medium	I, J, K, L, M, N, O, P
Hard	Q, R, S, T, U, V, W, X

Structure

Dense							Open/Porous			
5	6	7	8	9	10	11	12	13	14	15

Bond

V	Vitrified
B	Resinoid
BF	Reinforced Resinoid
RX	Natural Rubber

Wheel Dimensions

External Diameter	up to 635 mm
Width	up to 500 mm
Internal diameter (bore)	up to 406 mm

The CGW grinding wheel is made up of abrasive grains held together by a bond. By varying the properties of the abrasive, the type of bond, and the structure of the wheel, it is possible to produce innumerable grinding characteristics.

Abrasive Grain

There are two main categories of grain:
Aluminium Oxide, for grinding high-tensile steels, i.e. hardened or high-speed steels;
Silicon Carbide, for grinding low-tensile steels, cast iron and non-ferrous metals.

CGW Grain Types

A - Brown Aluminium Oxide: the most common of all grains, this grain is used for heavy-duty general-purpose work.

SA (94A) - Semi-friable Aluminium Oxide: its principal use is in cylindrical and centreless grinding wheels. It can be used to grind both soft and hard steels.

WA - White Aluminium Oxide: the high friability of this grain enables fast and cool cutting. Suitable for light grinding of steels of all kinds, particularly tool steel.

WAB (AZ) - White Aluminium Oxide + Blue Bond: particularly suited for grinding HSS over 55 RC. Provides exceptionally cool, fast cutting action. Requires minimum dressing. Also available as **WAR - White Aluminium Oxide + Red Bond**, when there is a need to differentiate from AS.

AS - Ceramic Aluminium Oxide: ceramic grain, blended with white aluminium oxide, creates a wheel with maximum grinding performance and long life. Excellent for form and corner holding.

PA - Pink Aluminium Oxide: this tough but friable grain makes a good general-purpose wheel, excellent on large surface areas.

RA - Ruby (Red) Aluminium Oxide: harder than PA and WAB, this grain is good for use on high-chromium steel.

DA - White & Brown Aluminium Oxide: the combination of A and WA is ideal for precision grinding operations such as large surface grinding.

WAY - White Aluminium Oxide + Yellow Bond: used primarily in wheels that require a very open structure. For creep-feed grinding with continuous dressing.

SATURN - WAG - White Aluminium Oxide + New CGW-developed Bond: used primarily in wheels with a very open structure. Excellent for creep-feed grinding with non-continuous dressing.

JUPITER - WAP - White Aluminium Oxide + New CGW-developed Bond: special wheels for 80 M/S cutting speed. Designed to perform light, fast passes over the blade or other workpiece.

METEOR - WBH: Special wheel designed for creep-feed grinding. Contains a unique combination of special grain and bond which enables improved form holding and longer life span. The wheel is characterized by interconnected pores, which enable maximum cooling action and stock removal.

HA (32A) - Monocrystalline Aluminium Oxide: a strong, sharp grain, suitable for a wide range of materials and applications. Especially suitable for use on high-alloy steels that are sensitive to heat.

C - Black Silicon Carbide: sharper than aluminium oxide and therefore more effective in grinding low-tensile materials and non-ferrous metals.

GC - Green Silcon Carbide: more friable than C, recommended for grinding cemented carbide cutting tools.

KA - Bubble Alumina: for grinding soft, malleable materials such as rubber and polyester.

ZA - Zirconia Aluminium: a blend of ZrO_2 and AL_2O_3 gives this type of grain extremely high mechanical strength. Suitable for coarse grinding of steel castings.

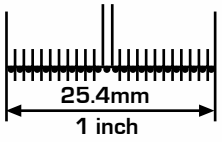
Additional combinations of the basic grain types are possible, in order to achieve a broader range of characteristics:

VA - a mixture of RA and WA
XA - a mixture of HA and SA
AC - a mixture of A and C

Grain Size

Grain size ("MESH" size) is determined by the number of openings per linear inch in the smallest standard mesh through which the given grain will pass and larger grains will not. Thus a fine grain will be designated by a larger number than a coarse grain.

$$1\text{mm} \approx = \frac{25.4}{24} = \text{grit 24 MESH}$$



Grade (Hardness)

The grade of a wheel is designated by a letter of the alphabet from A (soft) to Z (hard) and indicates the ability of the bond to hold the abrasive grains together. The type and amount of bond used determine the hardness of the wheel. In a soft grade wheel, grains that have been worn down are released quickly in order to expose new, sharper grains. In a hard wheel, the eroded grains are retained and can only be released by dressing the wheel.

HARDNESS-STRUCTURE DIAGRAM

	GRADE	CLOSED ← STRUCTURE → OPEN						
		5	6	7	8	9	10	11
SOFT	H	H5	H6	H7	H8	H9	H10	H11
↕	I	I5	I6	I7	I8	I9	I10	I11
	J	J5	J6	J7	J8	J9	J10	J11
	K	K5	K6	K7	K8	K9	K10	K11
	L	L5	L6	L7	L8	L9	L10	L11
HARD	M	M5	M6	M7	M8	M9	M10	M11

Structure

"Structure" refers to the spacing of the abrasive grain within the bond, and is measured in terms of the volume content of the abrasive in the wheel. In a dense structure, the grains are close together and the pores small. In a more open structure, the grains are relatively far apart and the pores larger.

Structures 5-9: closed/dense

Structures 10-15: open/porous

Bond

The function of the bond is to hold the abrasive grains in a defined spacing to form a product of specified size and shape. Most commonly used are vitrified and resinoid bonds.

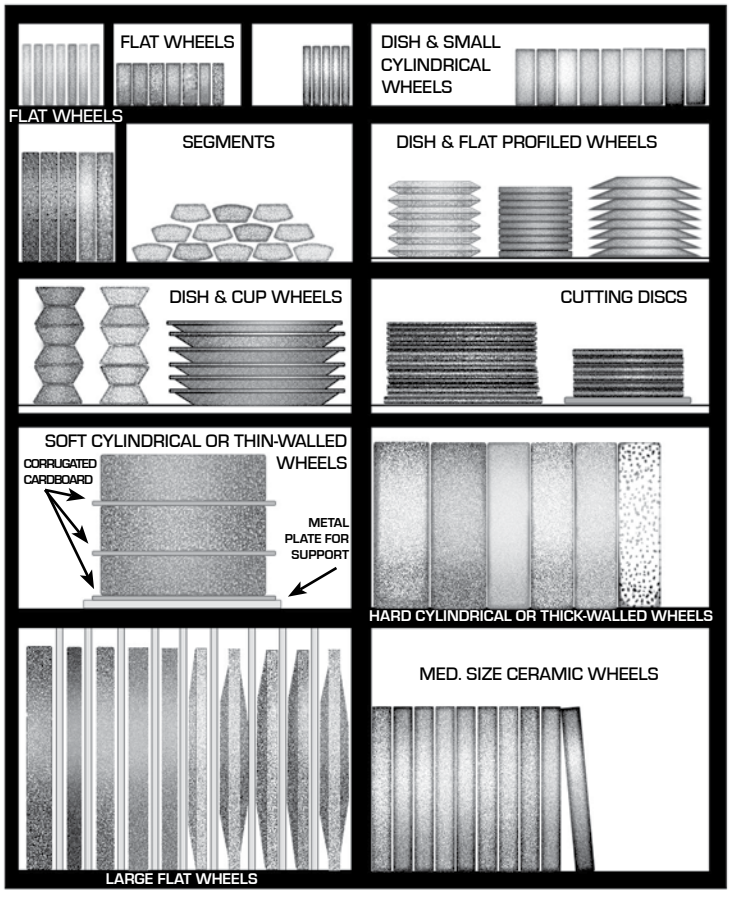
Vitrified Bond: various clays or ceramics are used to form bonds that allow for a wide range of structures, each with its special properties and grinding characteristics. Their strength is developed by firing in kilns to temperatures of up to 1000°C. Vitrified-bonded wheels are excellent for precision grinding and fast stock removal because of their rigidity and friability.

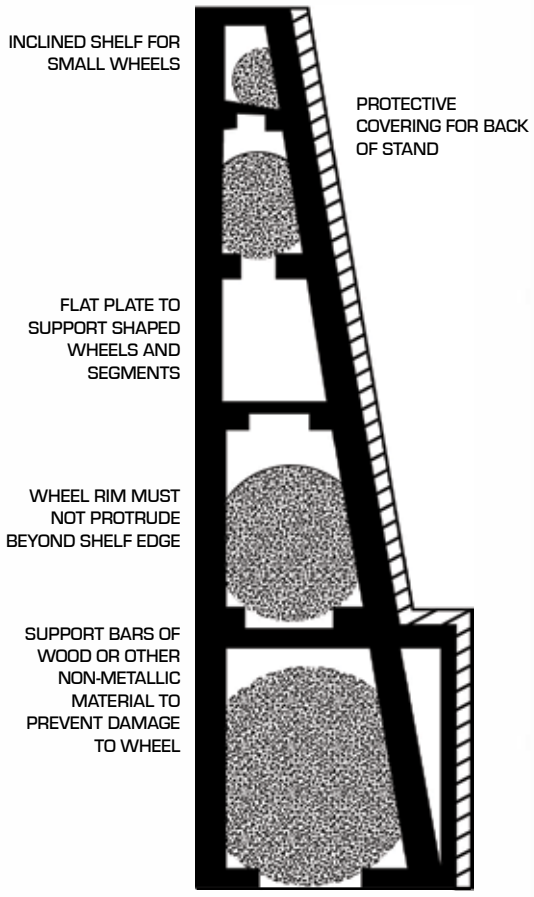
Resinoid bond: various forms of resin, an organic material, are used, often with the addition of a fiberglass reinforcement, and the wheels heated to a temperature of 180°C. Due to their toughness, resin-bonded wheels are best suited to heavy-duty operations, high operating speeds, rough grinding, and cut-off applications.

Grain size conversion table

MESH	INCHES	MICRONS	MESH	INCHES	MICRONS	RADIUS FROM - TO	MESH	INCHES	MICRONS	RADIUS FROM - TO
4	.2577	6848	36	.0280	710		180	.0034	86	
6	.2117	5630	46	.0200	508	xx - 0.5	220	.0026	66	0.07 - 0.12
8	.1817	4620	54	.0170	430	0.43 - 0.5	240	.00248	63	
10	.1366	3460	60	.0160	406	0.4 - 0.5	280	.00175	44	
12	.1003	2550	70	.0131	328		320	.00128	32	
14	.0830	2100	80	.0105	266	0.25 - 0.5	400	.00090	23	
16	.0655	1660	90	.0085	216		500	.00065	16	
20	.0528	1340	100	.0068	173	0.2 - 0.25	600	.00033	8	
24	.0408	1035	120	.0056	142	0.12 - 0.2	900	.00024	6	
30	.0365	930	150	.0048	122	0.1 - 0.15				

Special stand for proper storage of grinding wheels

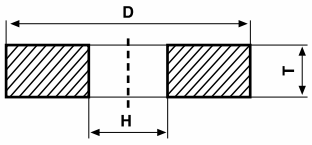




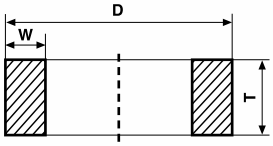
Standard types and shapes of abrasive wheels

Types and profiles of CGW abrasives are marked in accordance with international standards.

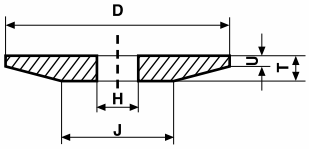
D - Outer diameter
E - Thickness around bore
F - Depth of recess
G - Depth of second recess
H - Diameter of bore
J - Diameter of flat outer surface
K - Diameter of flat inner surface
L - Length of segment or abrasive wheel
N - Depth of release on one side
O - Depth of release on other side
P - Diameter of recess
R - Radius
T - Thickness (general)
U - Thickness of edge
V - Angle of profiles
V1 - Second angle of (profiles)
W - Width of wall



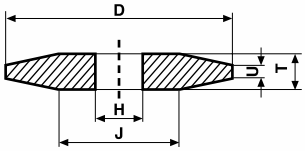
1 DxTxH



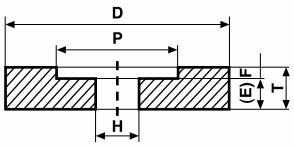
2 DxTxW



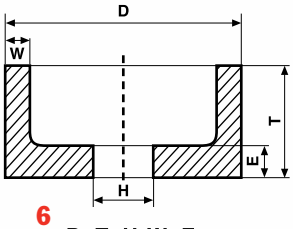
3 D/JxT/UxH



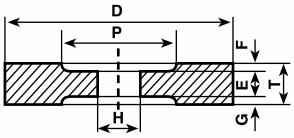
4 D/JxT/UxH



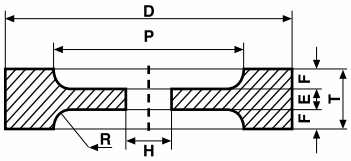
5 DxTxH-PxF



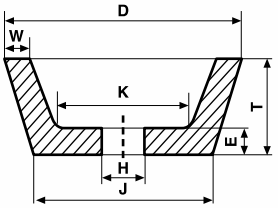
6 DxTxH-W..E..



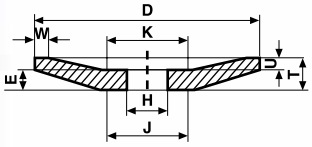
7 DxTxH-PxF
or if recesses are not the same size:
DxTxH-PxF/G



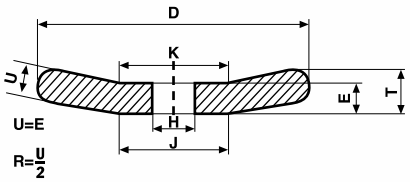
9 DxTxH-PxF R..



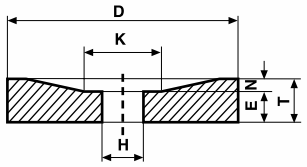
11 D/JxTxH-W..E..K



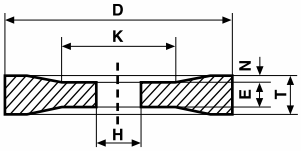
12 D/JxT/UxH



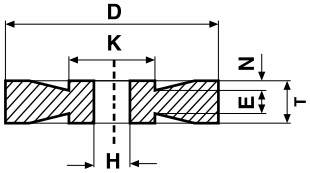
13 D/JxT/UxH



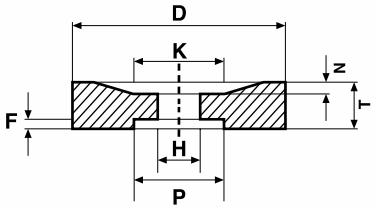
20 D/KxT/NxH



21 D/KxT/NxH

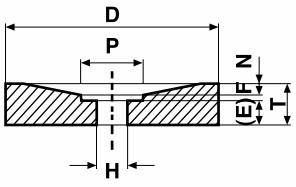


21A D/KxT/NxH

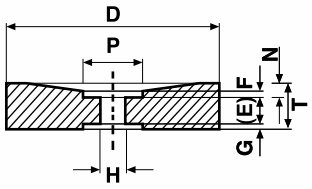


22 D/KxT/NxH-PxF

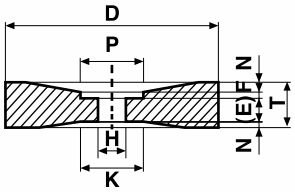
Standard types and shapes of abrasive wheels (cont.)



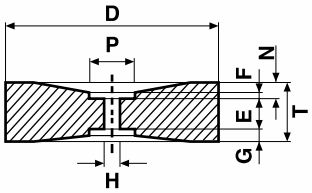
23 DxT/NxH-PxF



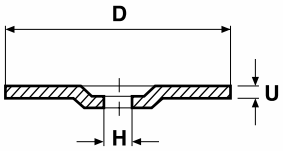
24 DxT/NxH-PxF
or if recesses are not the same size:
DxT/NxH-PxF/G



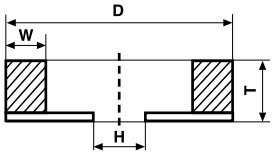
25 DxT/NxH-PxF



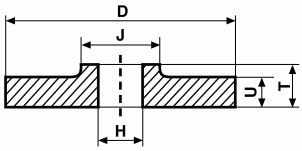
26 DxT/NxH-PxF
or if recesses are not the same size:
DxT/NxH-PxF/G



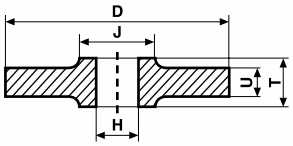
27 DxUxH



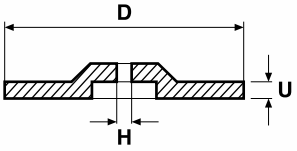
35 DxTxH-W
attached to plate



38 D/JxT/UxH

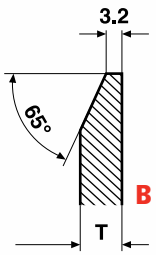


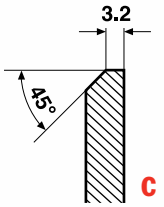
39 D/JxT/UxH

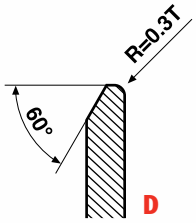


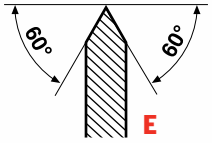
43 DxUxH

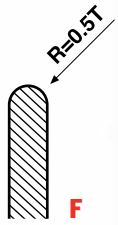
Standard profiles

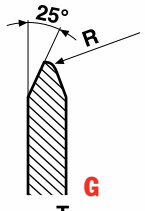




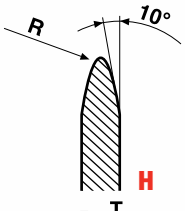




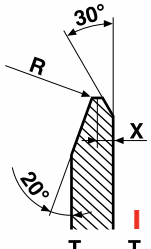




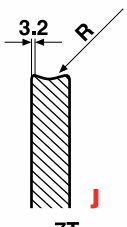
R=T/8



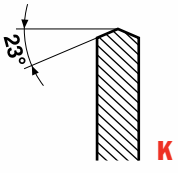
R=T/8

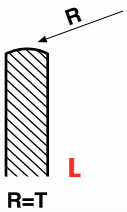


R=T/8 X=T/3

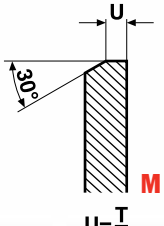


R=7T/10





R=T



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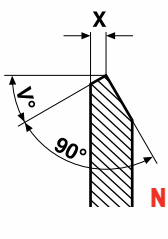
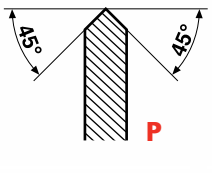




Speed conversion table

High-cutting-speed wheels are colour-coded in accordance with EN safety standard:

50 M/S	63 M/S	80 M/S	100 M/S
blue stripe	yellow stripe	red stripe	green stripe

Speed conversion table for speed of rotation and peripheral operating speed depending on the outside diameter of bonded abrasive products.

Wheel diameter		Cutting speed (M/S)					
		10	16	20	25	32	35
inch	mm						
1/4	6	31,900	51,000	64,000	80,000	102,000	112,000
5/16	8	24,000	38,200	48,000	60,000	76,500	84,000
3/8	10	19,100	30,600	38,200	48,000	61,200	67,000
1/2	13	14,700	23,550	29,500	35,600	47,100	51,500
5/8	16	11,950	19,100	23,900	29,850	38,200	41,800
3/4	20	9,550	15,300	19,100	23,900	30,600	33,500
1	25	7,650	12,300	15,300	19,100	24,500	26,800
1-1/2	40	4,800	7,650	9,550	11,950	15,300	16,750
2	50	3,850	6,150	7,650	9,550	12,250	13,400
2-1/2	63	3,050	4,850	6,100	7,600	9,750	10,650
3	78/80	2,400	3,850	4,800	6,000	7,650	8,400
4	100/102	1,950	3,100	3,850	4,800	6,150	6,700
4-1/2	115	1,700	2,700	3,350	4,200	5,350	5,850
5	125	1,550	2,450	3,100	3,850	4,900	5,350
6	150/155	1,300	2,050	2,550	3,200	4,100	4,500
7	175/180	1,100	1,700	2,150	2,700	3,400	3,750
8	200/205	955	1,550	1,950	2,400	3,100	3,350
9	230	830	1,350	1,700	2,100	2,700	2,950
10	250/254	765	1,250	1,550	1,950	2,450	2,700
12	300/305	640	1,050	1,300	1,600	2,050	2,250
14	350/356	550	875	1,100	1,400	1,750	1,950
16	400/406	480	765	960	1,200	1,550	1,700
18	450/457	425	680	850	1,100	1,400	1,500
20	500/508	385	615	765	960	1,250	1,350
24	600/610	320	510	640	800	1,050	1,150
30	750/762	255	410	510	640	820	895
32	800/813	240	385	480	600	765	840
36	900/914	215	340	425	535	680	750
40	1000/1015	195	310	385	480	615	670

mm sizes are approximate

cutting speed = peripheral operating speed

Equation for converting cutting speed (M/S) to and from R.P.M.

$$\frac{\text{cutting speed (M/S)} \times 60{,}000}{\text{wheel diameter (mm)} \times 3.14} = \text{R.P.M.}$$

$$\frac{\text{R.P.M.} \times \text{wheel diameter (mm)} \times 3.14}{60{,}000} = \text{cutting speed (M/S)}$$

Cutting speed (M/S)						Wheel diameter	
40	50	63	80	100	125	inch	mm
128,000	160,000	201,000				1/4	6
95,500	120,000	150,500	191,000			5/16	8
76,500	95,500	120,500	153,000	191,000		3/8	10
58,800	73,500	92,100	118,000	147,000	184,000	1/2	13
47,800	59,700	75,200	95,500	120,000	150,000	5/8	16
38,200	47,800	60,200	76,500	95,500	120,000	3/4	20
30,000	38,200	48,200	61,200	76,500	95,500	1	25
19,100	23,900	30,100	38,200	47,200	59,700	1-1/2	40
15,300	19,100	24,100	30,600	38,200	47,750	2	50
12,150	15,200	19,100	24,300	30,250	37,900	2-1/2	63
9,500	12,000	15,100	19,100	23,900	29,850	3	78/80
7,650	9,550	12,100	15,000	19,100	23,900	4	100/102
6,650	8,350	10,500	13,300	16,650	20,800	4-1/2	115
6,150	7,650	9,650	12,250	15,300	19,100	5	125
5,100	6,400	8,050	10,200	12,700	16,000	6	150/155
4,250	5,350	6,700	8,500	10,650	13,300	7	175/180
3,850	4,800	6,050	7,650	9,300	11,650	8	200/205
3,350	4,200	5,250	6,650	8,350	10,400	9	230
3,100	3,850	4,850	6,150	7,650	9,400	10	250/254
2,550	3,200	4,050	5,100	6,400	8,000	12	300/305
2,200	2,750	3,450	4,400	5,500	6,850	14	350/356
1,950	2,400	3,050	3,850	4,800	6,000	16	400/406
1,700	2,150	2,700	3,400	4,250	5,350	18	450/457
1,550	1,950	2,450	3,100	3,850	4,800	20	500/508
1,300	1,600	2,050	2,550	3,200	4,000	24	600/610
1,050	1,300	1,650	2,050	2,550	3,200	30	750/762
960	1,200	1,550	1,950	2,400	3,000	32	800/813
850	1,100	1,350	1,700	2,150	2,700	36	900/914
765	960	1,250	1,550	1,950	2,400	40	1000/1015

Surface quality

Surface quality is affected qualitatively and quantatively by a number of factors. In the diagram below, the longer arrows indicate factors that exert a greater influence on surface quality.

Variables	Good surface quality (low Ra)	Poor surface quality (high Ra)
Dressing	fine ⟷	coarse
Condition of diamond in dresser	dull ⟷	sharp
Grit size*	fine ⟷	coarse
Type of bond	rubber ⟷ bakelite ⟷	vitrified
Grinding ratio	low ⟷	high
Type of workpiece	hard to grind ⟷	easy to grind
Hardness of workpiece	hard ⟷	soft
Type of coolant	oil ⟷ emulsion ⟷	water
Condition of coolant	clean ⟷	dirty
Stability of machine	high ⟷	low
Wheel speed (M/S)	fast ⟷	slow
Workpiece speed (M/S)	slow ⟷	fast
Feed rate	slow ⟷	fast
Workpiece mounting	stable ⟷	flexible

* Grit size after dressing

Inch/millimetre conversion table

Serial No,	inches	mm	Serial No,	inches	mm	Serial No,	inches	mm	Serial No,	inches	mm
1	1/64	0.397	23	9/16	14.287	45	1-15/16	49.212	67	6	152.400
2	1/32	0.794	24	5/8	15.875	46	2	50.800	68	7	177.800
3	3/64	1.190	25	11/16	17.462	47	2-1/8	53.975	69	8	203.200
4	1/16	1.587	26	3/4	19.050	48	2-1/4	57.150	70	9	228.600
5	5/64	1.984	27	13/16	20.637	49	2-3/8	60.325	71	10	254.000
6	3/32	2.381	28	7/8	22.225	50	2-1/2	63.500	72	11	279.400
7	7/64	2.778	29	15/16	23.812	51	2-5/8	66.675	73	12	304.800
8	1/8	3.175	30	1	25.400	52	2-3/4	69.850	74	13	330.200
9	9/64	3.571	31	1-1/16	26.987	53	2-7/8	73.025	75	14	355.600
10	5/32	3.968	32	1-1/8	28.575	54	3	76.200	76	15	381.000
11	3/16	4.762	33	1-3/16	30.162	55	3-1/8	79.375	77	16	406.400
12	7/32	5.556	34	1-1/4	31.750	56	3-1/4	82.550	78	17	431.800
13	1/4	6.350	35	1-5/16	33.337	57	3-3/8	85.725	79	18	457.200
14	9/32	7.144	36	1-3/8	34.925	58	3-1/2	88.900	80	19	482.600
15	5/16	7.937	37	1-7/16	36.512	59	3-5/8	92.075	81	20	508.000
16	11/32	8.731	38	1-1/2	38.100	60	3-3/4	95.250	82	21	533.400
17	3/8	9.525	39	1-9/16	39.687	61	3-7/8	98.425	83	22	558.800
18	13/32	10.319	40	1-5/8	41.275	62	4	101.600	84	23	584.200
19	7/16	11.112	41	1-11/16	42.862	63	4-1/4	107.950	85	24	609.600
20	15/32	11.906	42	1-3/4	44.450	64	4-1/2	114.300	86	25	635.000
21	1/2	12.700	43	1-13/16	46.037	65	4-3/4	120.650	87	26	660.400
22	17/32	13.494	44	1-7/8	47.625	66	5	127.000	88	27	685.800

Selecting grinding wheels

For maximum efficiency in any grinding operation, it is essential to have the right wheel for the job.

Factors to be considered when selecting a grinding wheel:

Workpiece

- Type and hardness of the material: the harder the material, the softer the grade of wheel required.
  Aluminium Oxide: most efficient for grinding high-tensile materials such as steel and ferrous castings. The more friable types of alumina are preferred for use on harder steels.
  Silicon Carbide: for materials with low tensile strength, and non-metallic materials.

Stock removal

- The amount of stock to be removed affects the choice of grain size and bond type:
  - A coarse grit (14-30 MESH) is suitable for high stock removal rates.
  - Fine grits are best for fine finishes and low tolerances.

Surface finish

High surface finish is achieved using a fine grit. The best quality surface finish also requires, in addition to a fine grit, an organic bond such as resin or rubber.

Grinding machine

- The power available defines the rate of stock removal. The greater the power available, the harder the grade of wheel required for efficient operation.
- Deterioration in machine condition leads to vibration and early breakdown of the wheel.

Grinding fluids

- Grinding fluids are used to provide cooling and/or lubrication. Correct use is an important factor in achieving satisfactory results.
- Coolants and lubricants are capable of reducing grinding forces. The relative importance of cooling vs. lubrication determines whether a water-based coolant or an oil-based lubricant is used. Coolants are usually able to transfer the heat away from the workpiece, but are unable to prevent heat from developing.
- In dry grinding, the temperature at the grinding point is not much higher than in wet grinding, but the rate of heat formation is much higher.

Speeds in cylindrical grinding

The rotating speed of the wheel, the rotating speed of the workpiece, and the plunge feed rate/traverse feed rate - all affect the choice of wheel. The influence of these factors on the grinding process can be described as follows:

1. wheel speed increases ——————————wheel acts harder
   wheel speed decreases ——————————wheel acts softer
2. workpiece speed increases ——————————wheel acts harder
   workpiece speed decreases ——————————wheel acts softer
3. speed of progress increases ——————————wheel acts harder (temperature rises)
   speed of progress decreases ——————————wheel acts softer (temperature decreases)
4. plunge feed rate/traverse feed rate increases ——wheel acts harder
   plunge feed rate/traverse feed rate decreases——wheel acts softer

Selecting abrasive wheels

The following are some general recommendations for selecting abrasives according to type of grinding and material

		Type of grinding		
Material		**Bench**	**Cylindrical (OD)**	**Surface (wheels)**
General purpose (universal)		A46N6V	WA60H8V	WA46H8V
Steel	Soft/untempered	A36P5V	A60M6V	WA46H8V
	Tempered (up to 55 Hrc)	WA46K7V	WA60H8V	WA46K7V
	Tempered (above 55 Hrc)	WA60K7V	AS360J10V PA80J10V	AS360J7V
Stainless steel	Soft	A36P5V	A60M6V	DA46H8V
	Hard	A46N6V	WA60K7V	WA46K7V
Chrome plated		WA60K7V	PA80J10V	AS360M3V
Nickel alloy		WA60K7V	WAG80H8V	WAG60F15V
HSS and tool steel		WA60K7V	AS346H8V GC60J7V	AS360I13V
Titanium		GC60J7V	C60J7V	GC46H12V
Carbide/tungsten		GC60J7V	GC60J7V	GC60J7V
Castings	Gray castings	A36P5V	C60K7V	C46H8V
	Cast steel	A46M6V	PA60J7V	WA46H8V
Non-ferrous metals	Aluminium, copper, brass, etc.	GC60J7V	C60E12V	GC60J7V
Ceramics		GC60J7V	GC60J7V	GC60J7V
Plastics		KA2-3H10B	KA2-3H10B	KA2-3H10B
Rubber		KA2-3H10B	KA2-3H10B	KA2-3H10B

Type of grinding					
Surface (segments)	Internal (ID)	Centreless	Tools		Material
PA/WA30D9V	WA60K7V	A60L7V	WA60K7V		**General purpose (universal)**
DA36G10V	WA60K7V	A60L7V		Soft/untempered	**Steel**
DA36G10V	RA60J7V	PA60J7V		Tempered (up to 55 Hrc)	
AS336D12V	AS360J8V	AS360K7V		Tempered (above 55 Hrc)	
DA36G8V	WA46K7V	DA60K7V		Soft	**Stainless steel**
WAR36E8V	WA46H8V	GC80L7V		Hard	
WAR36E8V	RA46J7V	AS360K7V			**Chrome plated**
WAB46D12V	WAY60G10V	WAG80H8V			**Nickel alloy**
WA36D8B AS336D13V	AS360J8V GC46J5V	AS360K7V GC80L7V	AS360J8V PA60L7V		**HSS and tool steel**
GC36H8V	GC60J7V	C60H8V			**Titanium**
GC36H8V	GC60J7V	GC60J7V	GC60J7V		**Carbide/tungsten**
C36G8V	C60J7V			Gray castings	**Castings**
PA/WA30D9V	RA46J7V			Cast steel	
PA/WA30D9V	GC60J7V	GC60J7V		Aluminium, copper, brass, etc.	**Non-ferrous metals**
GC36H8V	GC60J7V				**Ceramics**
	KA2-3H10B				**Plastics**
	KA2-3H10B				**Rubber**

Safety guide for the use of abrasive wheels

Bonded abrasive products are breakable and shall therefore by handled with utmost care. The use of damaged, improperly mounted or improperly used abrasive products is dangerous and can cause serious injuries. For your safety, we suggest you benefit from the experience of others and carefully follow the few basic rules listed below.

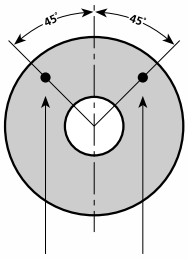
- ✓ Always handle and store wheels in a careful manner.
- ✓ Before mounting, visually inspect and ring test all wheels for possible damage (Illus. 1 and 2).
- ✓ Check machine speed against the established maximum safe operating speed marked on the wheel.
- ✓ Check mounting flanges for equal and correct diameter (Illus 3).
- ✓ Use mounting blotters when supplied with wheels (Illus 3).
- ✓ Be sure work rest is properly adjusted: level with or above center of wheel; no more than 1/8" away from wheel (Illus. 4).
- ✓ Always use a safety guard covering at least one-half of the grinding wheel (Illus 4).
- ✓ Allow newly-mounted wheels to run at operating speed, with guard in place, for at least one minute before grinding.
- ✓ Always wear safety glasses or some type of eye protection when grinding.
- ✓ Be sure to employ dust controls and/or protective measures appropriate to the material being ground.
- ✓ When shutting down a wet grinding operation, the fluid must first be shut off and the wheel allowed to rotate until the coolant has been spun out.

- ✗ Don't use a cracked wheel or one that has been dropped or has become damaged.
- ✗ Don't force a wheel onto the machine or alter the size of the mounting hole: if the wheel won't fit the machine, get one that will.
- ✗ Don't alter the shape of the wheel in any way.
- ✗ Never exceed the maximum operating speed established for the wheel.
- ✗ Don't use mounting flanges on which the bearing surfaces are not clean, flat and free of burrs.
- ✗ Don't tighten the mounting nut excessively.
- ✗ Don't stand or allow another person to stand directly in front of or in line with a grinding wheel when the grinding machine is started.
- ✗ Don't grind on the side of the wheel (see safety code for exception).
- ✗ Don't start the machine until the wheel guard is in place.
- ✗ Don't forcefully jam the workpiece into the wheel.
- ✗ Don't force grinding so that the machine slows noticeably or the workpiece becomes overheated.

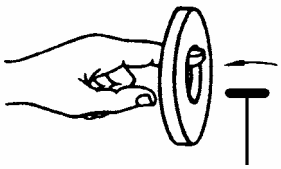
Ring test

The noticeable difference between the sharp, clean tone produced by an intact abrasive wheel, and the dull tone producd by a cracked wheel, makes it possible to further examine the wheel, in addition to visual inspection, by performing a ring test on it before mounting (Illus. 1 and 2).

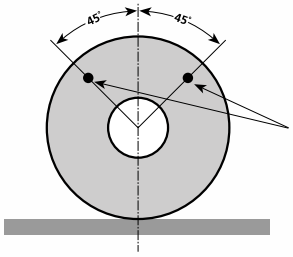
1. Ring testing small wheels



Tap at these points



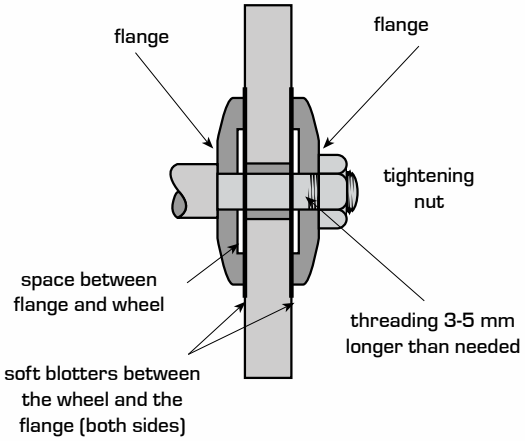
2. Ring testing large wheels



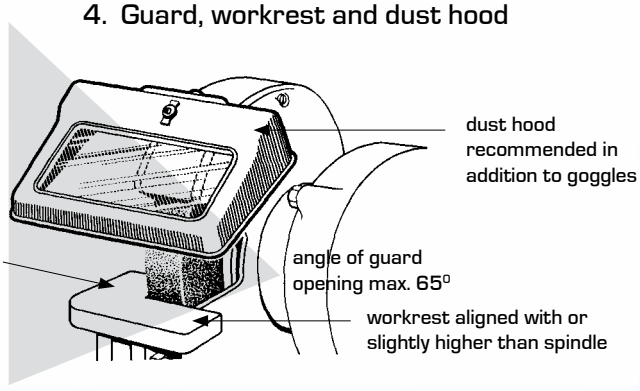
Tap at these points

Place large and heavy wheels on a clean, hard surface

3. Mounting



4. Guard, workrest and dust hood



Brown aluminium oxide (A) grinding wheels

Type 1

Principle use:

For grinding steel and iron

Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

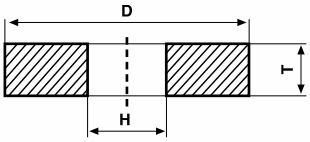
For a set of adapters, see p. 44.

Diamond and stick dressers: see pp. 70-72

PEDESTAL GRINDER

BENCH GRINDER

Type 1 D = diameter
T = thickness
H = bore



EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
052 295	64x12.7x7.94	2-1/2x1/2x5/16	A60M6V	35	10,650
052 301	64x12.7x7.94	2-1/2x1/2x5/16	A80M6V	35	10,650
052 318	64x12.7x7.94	2-1/2x1/2x5/16	A100M6V	35	10,650
267 958	64x12.7x9.52	2-1/2x1/2x3/8	A60M6V	35	10,650
306 916	64x12.7x9.52	2-1/2x1/2x3/8	A100M6V	35	10,650
052 387	78x12.7x12.7	3x1/2x1/2	A60M6V	35	8,360
052 394	78x12.7x12.7	3x1/2x1/2	A80M6V	35	8,360
052 400	78x12.7x12.7	3x1/2x1/2	A100M6V	35	8,360
052 493	102x12.7x12.7	4x1/2x1/2	A60M6V	35	6,680
052 745	127x12.7x31.75	5x1/2x1-1/4	A60M6V	35	5,350
052 868	127x15.9x31.75	5x5/8x1-1/4	A36P5V	35	5,350
052 875	127x15.9x31.75	5x5/8x1-1/4	A46N6V	35	5,350
052 882	127x15.9x31.75	5x5/8x1-1/4	A60M6V	35	5,350
052 899	127x15.9x31.75	5x5/8x1-1/4	A80M6V	35	5,350
052 950	127x19x31.75	5x3/4x1-1/4	A24Q5V	35	5,350
052 967	127x19x31.75	5x3/4x1-1/4	A36P5V	35	5,350
052 974	127x19x31.75	5x3/4x1-1/4	A46N6V	35	5,350
052 981	127x19x31.75	5x3/4x1-1/4	A60M6V	35	5,350

Brown aluminium oxide (A) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
052 998	127x19x31.75	5x3/4x1-1/4	A80M6V	35	5,350
053 018	127x19x31.75	5x3/4x1-1/4	A100M6V	35	5,350
053 230	150x12.7x31.75	6x1/2x1-1/4	A60M6V	35	4,500
053 315	150x15.9x31.75	6x5/8x1-1/4	A60M6V	35	4,500
053 339	150x15.9x31.75	6x5/8x1-1/4	A80M6V	35	4,500
053 544	150x19x31.75	6x3/4x1-1/4	A24Q5V	35	4,500
053 575	150x19x31.75	6x3/4x1-1/4	A36P5V	35	4,500
053 599	150x19x31.75	6x3/4x1-1/4	A46N6V	35	4,500
053 605	150x19x31.75	6x3/4x1-1/4	A60M6V	35	4,500
053 636	150x19x31.75	6x3/4x1-1/4	A80M6V	35	4,500
053 643	150x19x31.75	6x3/4x1-1/4	A100M6V	35	4,500
053 803	150x25.4x31.75	6x1x1-1/4	A24Q5V	35	4,500
053 834	150x25.4x31.75	6x1x1-1/4	A36P5V	35	4,500
053 841	150x25.4x31.75	6x1x1-1/4	A46N6V	35	4,500
053 858	150x25.4x31.75	6x1x1-1/4	A60M6V	35	4,500
053 872	150x25.4x31.75	6x1x1-1/4	A80M6V	35	4,500
053 889	150x25.4x31.75	6x1x1-1/4	A100M6V	35	4,500
053 926	177x12.7x31.75	7x1/2x1-1/4	A46N6V	35	3,750
053 933	177x12.7x31.75	7x1/2x1-1/4	A60M6V	35	3,750
054 077	177x19x31.75	7x3/4x1-1/4	A24Q5V	35	3,750
054 107	177x19x31.75	7x3/4x1-1/4	A36P5V	35	3,750
054 114	177x19x31.75	7x3/4x1-1/4	A46N6V	35	3,750
054 121	177x19x31.75	7x3/4x1-1/4	A60M6V	35	3,750
054 145	177x19x31.75	7x3/4x1-1/4	A80M6V	35	3,750
054 152	177x19x31.75	7x3/4x1-1/4	A100M6V	35	3,750
054 282	177x25.4x31.75	7x1x1-1/4	A24Q5V	35	3,750
054 312	177x25.4x31.75	7x1x1-1/4	A36P5V	35	3,750
054 329	177x25.4x31.75	7x1x1-1/4	A46N6V	35	3,750
054 336	177x25.4x31.75	7x1x1-1/4	A60M6V	35	3,750
054 343	177x25.4x31.75	7x1x1-1/4	A80M6V	35	3,750
054 350	177x25.4x31.75	7x1x1-1/4	A100M6V	35	3,750
054 718	200x19x31.75	8x3/4x1-1/4	A24Q5V	35	3,350
054 756	200x19x31.75	8x3/4x1-1/4	A36P5V	35	3,350
054 794	200x19x31.75	8x3/4x1-1/4	A46N6V	35	3,350
054 817	200x19x31.75	8x3/4x1-1/4	A60M6V	35	3,350
054 831	200x19x31.75	8x3/4x1-1/4	A80M6V	35	3,350

Brown aluminium oxide (A) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
054 848	200x19x31.75	8x3/4x1-1/4	A100M6V	35	3,350
054 886	200x22.2x31.75	8x7/8x1 1/4	A36P5V	35	3,350
055 050	200x25.4x31.75	8x1x1-1/4	A24Q5V	35	3,350
055 074	200x25.4x31.75	8x1x1-1/4	A36P5V	35	3,350
055 081	200x25.4x31.75	8x1x1-1/4	A46N6V	35	3,350
055 104	200x25.4x31.75	8x1x1-1/4	A60M6V	35	3,350
055 128	200x25.4x31.75	8x1x1-1/4	A80M6V	35	3,350
055 135	200x25.4x31.75	8x1x1-1/4	A100M6V	35	3,350
055 241	200x31.8x31.75	8x1-1/4x1-1/4	A24Q5V	35	3,350
055 265	200x31.8x31.75	8x1-1/4x1-1/4	A36P5V	35	3,350
055 272	200x31.8x31.75	8x1-1/4x1-1/4	A46N6V	35	3,350
055 289	200x31.8x31.75	8x1-1/4x1-1/4	A60M6V	35	3,350
055 296	200x31.8x31.75	8x1-1/4x1-1/4	A80M6V	35	3,350
082 025	254x25.4x31.75	10x1x1-1/4	A16QB	50	3,850
055 579	254x25.4x31.75	10x1x1-1/4	A36P5V	35	2,700
055 593	254x25.4x31.75	10x1x1-1/4	A46N6V	35	2,700
055 609	254x25.4x31.75	10x1x1-1/4	A60M6V	35	2,700
055 623	254x25.4x31.75	10x1x1-1/4	A80M6V	35	2,700
082 056	254x31.8x31.75	10x1-1/4x1-1/4	A16QB	50	3,850
055 784	254x31.8x31.75	10x1-1/4x1-1/4	A36P5V	35	2,700
350 643	254x31.8x31.75	10x1-1/4x1-1/4	A46N6V	35	2,700
055 814	254x31.8x31.75	10x1-1/4x1-1/4	A60M6V	35	2,700
055 821	254x31.8x31.75	10x1-1/4x1-1/4	A80M6V	35	2,700
082 063	254x38.1x31.75	10x1-1/2x1-1/4	A16QB	50	3,850
055 920	254x38.1x31.75	10x1-1/2x1-1/4	A36P5V	35	2,700
055 944	254x38.1x31.75	10x1-1/2x1-1/4	A46N6V	35	2,700
055 951	254x38.1x31.75	10x1-1/2x1-1/4	A60M6V	35	2,700
055 975	254x38.1x31.75	10x1-1/2x1-1/4	A80M6V	35	2,700
082 070	305x25.4x31.75	12x1x1-1/4	A16QB	50	3,200
056 170	305x25.4x31.75	12x1x1-1/4	A36P5V	35	2,250
056 194	305x25.4x31.75	12x1x1-1/4	A46N6V	35	2,250
056 200	305x25.4x31.75	12x1x1-1/4	A60M6V	35	2,250
495 863	305x25.4x76.2	12x1x3	A16Q4B	50	3,200
056 279	305x25.4x127	12x1x5	A36P5V	35	2,250
056 286	305x25.4x127	12x1x5	A46N6V	35	2,250
056 323	305x25.4x127	12x1x5	A60M6V	35	2,250
082 087	305x31.8x31.75	12x1-1/4x1-1/4	A16QB	50	3,200

Brown aluminium oxide (A) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
351 152	305x31.8x31.75	12x1-1/4x1-1/4	A36P5V	35	2,250
056 453	305x31.8x31.75	12x1-1/4x1-1/4	A46N6V	35	2,250
056 460	305x31.8x31.75	12x1-1/4x1-1/4	A60M6V	35	2,250
056 477	305x31.8x31.75	12x1-1/4x1-1/4	A80M6V	35	2,250
056 514	305x31.8x127	12x1-1/4x5	A60M6V	35	2,250
082 117	305x38.1x31.75	12x1-1/2x1-1/4	A16QB	50	3,200
056 576	305x38.1x31.75	12x1-1/2x1-1/4	A36P5V	35	2,250
380 435	305x38.1x31.75	12x1-1/2x1-1/4	A46N6V	35	2,250
380 442	305x38.1x31.75	12x1-1/2x1-1/4	A60M6V	35	2,250
056 620	305x38.1x31.75	12x1-1/2x1-1/4	A80M6V	35	2,250
082 124	305x38.1x38.1	12x1-1/2x1-1/2	A16QB	50	3,200
082 148	305x50.8x31.75	12x2x1-1/4	A16QB	50	3,200
056 811	305x50.8x31.75	12x2x1-1/4	A36P5V	35	2,250
056 835	305x50.8x31.75	12x2x1-1/4	A46N6V	35	2,250
056 859	305x50.8x31.75	12x2x1-1/4	A60M6V	35	2,250
057 252	350x38.1x38.1	14x1-1/2x1-1/2	A60M6V	35	1,950
057 375	350x50.8x31.75	14x2x1-1/4	A36P5V	35	1,950
380 534	350x50.8x31.75	14x2x1-1/4	A46N6V	35	1,950
057 412	350x50.8x31.75	14x2x1-1/4	A60M5V	35	1,950
057 436	350x50.8x31.75	14x2x1-1/4	A80M6V	35	1,950
057 634	350x50.8x127	14x2x5	A36P5V	35	1,950
057 665	350x50.8x127	14x2x5	A60M6V	35	1,950
448 463	406x25.4x38.1	16x1x1 1/2	A46N6V	35	1,700
271 092	406x38.1x38.1	16x1 1/2x1 1/2	A36P5V	35	1,700
057 962	406x50..8x38.1	16x2x1 1/2	A36P5V	35	1,700
058 020	406x50..8x38.1	16x2x1 1/2	A46M6V	35	1,700

Green silicon carbide (GC) grinding wheels
Type 1

Principle use:

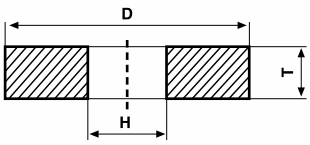
For grinding carbide, tungsten, titanium, copper, brass, aluminium and other non-ferrous metals.

Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers: see pp. 70-72

Type 1 D = diameter
T = thickness
H = bore



PEDESTAL GRINDER

BENCH GRINDER

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
074 075	78x12.7x12.7	3x1/2x1/2	GC60J7V	35	8,400
074 082	78x12.7x12.7	3x1/2x1/2	GC80J7V	35	8,400
074 129	78x12.7x28.57	3x1/2x1-1/8	GC60J7V	35	8,400
074 136	78x12.7x28.57	3x1/2x1-1/8	GC120J7V	35	8,400
074 143	78x12.7x28.57	3x1/2x1-1/8	GC150J7V	35	8,400
487 028	78x25.4x12.7	3x1x1/2	GC100J7V	35	8,400
074 174	78x25.4x12.7	3x1x1/2	GC100M6V	35	8,400
512 980	78x25.4x12.7	3x1x1/2	GC120J11V	35	8,400
074 198	78x25.4x12.7	3x1x1/2	GC150J7V	35	8,400
074 204	78x25.4x12.7	3x1x1/2	GC280J7V	35	8,400
555 932	78x25.4x12.7	3x1x1/2	GC320J7V	35	8,400
074 457	127x12.7x31.75	5x1/2x1-1/4	GC60J7V	35	5,350
074 464	127x12.7x31.75	5x1/2x1-1/4	GC80J7V	35	5350
074 471	127x12.7x31.75	5x1/2x1-1/4	GC100J7V	35	5,350
300 808	127x12.7x31.75	5x1/2x1-1/4	GC120J7V	35	5,350
074 518	127x15.9x31.75	5x5/8x1-1/4	GC60J7V	35	5,350
074 525	127x15.9x31.75	5x5/8x1-1/4	GC80J7V	35	5,350
074 556	127x19x31.75	5x3/4x1-1/4	GC46J7V	35	5,350
074 563	127x19x31.75	5x3/4x1-1/4	GC60J7V	35	5,350

Green silicon carbide (GC) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
074 587	127x19x31.75	5x3/4x1-1/4	GC80J7V	35	5,350
074 600	127x19x31.75	5x3/4x1-1/4	GC100J7V	35	5,350
297 566	127x19x31.75	5x3/4x1-1/4	GC120J7V	35	5,350
586 851	150x6.3x31.75	6x1/4x1-1/4	GC46J7V	35	4,500
074 662	150x6.3x31.75	6x1/4x1-1/4	GC60J7V	35	4,500
074 679	150x6.3x31.75	6x1/4x1-1/4	GC80J7V	35	4,500
074 693	150x6.3x31.75	6x1/4x1-1/4	GC120K7V	35	4,500
435 463	150x10x32	6x3/8x32mm	GC80J7V	35	4,500
547 500	150x10x20	6x3/8x20mm	GC120J7V	35	4,500
437 078	150x10x20	6x3/8x20mm	GC180L7V	35	4,500
633 746	150x9.6x20	6x3/8x20mm	GC320I8V	35	4,500
074 785	150x12.7x31.75	6x1/2x1-1/4	GC60J7V	35	4,500
074 808	150x12.7x31.75	6x1/2x1-1/4	GC80J7V	35	4,500
074 815	150x12.7x31.75	6x1/2x1-1/4	GC100J7V	35	4,500
598 588	150x12.7x31.75	6x1/2x1-1/4	GC120J7V	35	4,500
299 027	150x12.7x31.75	6x1/2x1-1/4	GC150J7V	35	4,500
074 877	150x15.9x31.75	6x5/8x1-1/4	GC60J7V	35	4,500
074 884	150x15.9x31.75	6x5/8x1-1/4	GC80J7V	35	4,500
074 907	150x15.9x31.75	6x5/8x1-1/4	GC120J7V	35	4,500
075 010	150x19x31.75	6x3/4x1-1/4	GC46J7V	35	4,500
075 041	150x19x31.75	6x3/4x1-1/4	GC60J7V	35	4,500
075 072	150x19x31.75	6x3/4x1-1/4	GC80J7V	35	4,500
075 096	150x19x31.75	6x3/4x1-1/4	GC100J7V	35	4,500
075 126	150x19x31.75	6x3/4x1-1/4	GC120J7V	35	4,500
075 133	150x19x31.75	6x3/4x1-1/4	GC150J7V	35	4,500
540 143	150x19x31.75	6x3/4x1-1/4	GC180J7V	35	4,500
075 317	150x25.4x31.75	6x1x1-1/4	GC46J7V	35	4,500
075 331	150x25.4x31.75	6x1x1-1/4	GC60J7V	35	4,500
075 379	150x25.4x31.75	6x1x1-1/4	GC80J7V	35	4,500
075 393	150x25.4x31.75	6x1x1-1/4	GC100J7V	35	4,500
075 423	150x25.4x31.75	6x1x1-1/4	GC120J7V	35	4,500
075 430	150x25.4x31.75	6x1x1-1/4	GC150J7V	35	4,500
286 249	177x9.5x31.75	7x3/8x1-1/4	GC80J7V	35	3,750
370 603	177x9.5x31.75	7x3/8x1-1/4	GC120J7V	35	3,750
075 614	177x12.7x31.75	7x1/2x1-1/4	GC46J7V	35	3750
667 222	177x12.7x31.75	7x1/2x1-1/4	GC60J7V	35	3,750
075 676	177x12.7x31.75	7x1/2x1-1/4	GC80J7V	35	3,750

Green silicon carbide (GC) grinding wheels, Type 1 (cont.)

075 690	177x12.7x31.75	7x1/2x1-1/4	GC100J7V	35	3,750
654 819	177x15.9x31.75	7x5/8x1-1/4	GC60J7V	35	3,750
075 737	177x15.9x31.75	7x5/8x1-1/4	GC80J7V	35	3,750
300 853	177x15.9x31.75	7x5/8x1-1/4	GC120J7V	35	3,750
075 805	177x19x31.75	7x3/4x1-1/4	GC46J7V	35	3,750
075 829	177x19x31.75	7x3/4x1-1/4	GC60J7V	35	3,750
075 843	177x19x31.75	7x3/4x1-1/4	GC80J7V	35	3,750
075 850	177x19x31.75	7x3/4x1-1/4	GC100J7V	35	3,750
075 867	177x19x31.75	7x3/4x1-1/4	GC120J7V	35	3,750
075 935	177x25.4x31.75	7x1x1-1/4	GC46J7V	35	3,750
075 959	177x25.4x31.75	7x1x1-1/4	GC60J7V	35	3,750
075 973	177x25.4x31.75	7x1x1-1/4	GC80J7V	35	3,750
075 997	177x25.4x31.75	7x1x1-1/4	GC100J7V	35	3,750
076 024	177x25.4x31.75	7x1x1-1/4	GC120J7V	35	3,750
277 247	177x25.4x31.75	7x1x1-1/4	GC150J7V	35	3,750
338 702	200x6.3x31.75	8x1/4x1-1/4	GC80J7V	35	3,350
576 746	200x9.5x31.75	8x3/8x1-1/4	GC46J7V	35	3,350
076 215	200x9.5x31.75	8x3/8x1-1/4	GC60J7V	35	3,350
514 489	200x10x32	8x3/8x32mm	GC80J7V	35	3,350
076 239	200x9.5x31.75	8x3/8x1-1/4	GC100J7V	35	3,350
076 246	200x9.5x31.75	8x3/8x1-1/4	GC120J7V	35	3,350
076 376	200x12.7x31.75	8x1/2x1-1/4	GC80J7V	35	3,350
281 718	200x15.9x31.75	8x5/8x1-1/4	GC60J7V	35	3,350
300 891	200x15.9x31.75	8x5/8x1-1/4	GC100J7V	35	3,350
076 444	200x19x31.75	8x3/4x1-1/4	GC46J7V	35	3,350
076 475	200x19x31.75	8x3/4x1-1/4	GC60J7V	35	3,350
076 499	200x19x31.75	8x3/4x1-1/4	GC80J7V	35	3,350
076 529	200x19x31.75	8x3/4x1-1/4	GC100J7V	35	3,350
076 543	200x19x31.75	8x3/4x1-1/4	GC120J7V	35	3,350
076 659	200x25.4x31.75	8x1x1-1/4	GC46J7V	35	3,350
076 680	200x25.4x31.75	8x1x1-1/4	GC60J7V	35	3,350
076 727	200x25.4x31.75	8x1x1-1/4	GC80J7V	35	3,350
076 765	200x25.4x31.75	8x1x1-1/4	GC100J7V	35	3,350
076 796	200x25.4x31.75	8x1x1-1/4	GC120J7V	35	3,350
076 888	200x31.8x31.75	8x1-1/4x1-1/4	GC60J7V	35	3,350
076 901	200x31.8x31.75	8x1-1/4x1-1/4	GC80J7V	35	3,350

Green silicon carbide (GC) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
077 144	254x25.4x31.75	10x1x1-1/4	GC46J7V	35	2,700
077 175	254x25.4x31.75	10x1x1-1/4	GC60J7V	35	2,700
077 199	254x25.4x31.75	10x1x1-1/4	GC80J7V	35	2,700
077 212	254x25.4x31.75	10x1x1-1/4	GC100J7V	35	2,700
667 772	254x25.4x76.2	10x1x3	GC80J7V	35	2,700
477 807	254x25.4x76.2	10x1x3	GC100J7V	35	2,700
432 967	254x25.4x127	10x1x5	GC80J7V	35	2,700
641 611	254x31.8x31.75	10x1-1/4x1-1/4	GC60J7V	35	2,700
077 304	254x31.8x31.75	10x1-1/4x1-1/4	GC80J7V	35	2,700
077 359	254x38.1x31.75	10x1-1/2x1-1/4	GC80J7V	35	2,700
440 214	254x38.1x50.8	10x1-1/2x2	GC60J7V	35	2,700
389 834	254x50.8x31.75	10x2x1-1/4	GC80J7V	35	2,700
077 472	305x25.4x127	12x1x5	GC46J7V	35	2,250
077 489	305x25.4x127	12x1x5	GC60J7V	35	2,250
077 526	305x25.4x127	12x1x5	GC100J7V	35	2,250
328 338	305x25.4x127	12x1x5	GC120J7V	35	2,250
077 557	305x31.8x76.2	12x1-1/4x3	GC46J7V	35	2,250
665 280	305x31.8x76.2	12x1-1/4x3	GC60J7V	35	2,250
077 663	305x38.1x127	12x1-1/2x5	GC46J7V	35	2,250
077 670	305x38.1x127	12x1-1/2x5	GC60J7V	35	2,250
482 702	305x50.8x32	12x2x32mm	GC46J7V	35	2,250
482 719	305x50.8x32	12x2x32mm	GC60J7V	35	2,250
077 878	350x25.4x127	14x1x5	GC60J7V	35	1,950
077 946	350x25.4x203.2	14x1x8	GC60J7V	35	1,950
114 108	350x31.8x31.75	14x1-1/4x1-1/4	GC60J7V	35	1,950
545 254	350x38.1x127	14x1-1/2x5	GC60J7V	35	1,950
077 984	350x38.1x127	14x1-1/2x5	GC120J7V	35	1,950
385 348	350x50.8x31.75	14x2x1-1/4	GC60J7V	35	1,950
507 726	350x50.8x127	14x2x5	GC60J7V	35	1,950

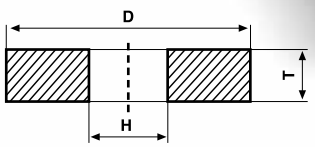
Aluminium oxide grinding wheels hardened with resin bond Type 1

Principle use:

For grinding stainless steel and steel.

Diamond and stick dressers:
see pp. 70-72

Type 1 D = diameter
T = thickness
H = bore



PEDESTAL GRINDER

BENCH GRINDER

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
081 318	50x12.7x9.52	2x1/2x3/8	A24QB	50	19,100
081 332	50x12.7x12.7	2x1/2x1/2	A24QB	50	19,100
081 349	50x19x9.52	2x3/4x3/8	A24*Q4B	50	19,100
081 509	78x6.3x6.35	3x1/4x1/4	A36P/QB	50	12,000
081 523	78x6.3x6.35	3x1/4x1/4	A46*P/Q9B	50	12,000
081 530	78x6.3x9.52	3x1/4x3/8	A46QB	50	12,000
081 615	78x12.7x9.52	3x1/2x3/8	A46P/QB	50	12,000
292 974	78x19x12.7	3x3/4x1/2	A24Q4B	50	12,000
081 707	78x25.4x12.7	3x1x1/2	A24Q9B	50	12,000
081 752	102x12.7x9.52	4x1/2x3/8	A46QB	50	9,550
081 769	102x12.7x12.7	4x1/2x1/2	A20QB	50	9,550
081 820	102x19x12.7	4x3/4x1/2	A24QB	50	9,550
081 844	102x25.4x15.88	4x1x5/8	A24QB	50	9,550
081 882	127x20x20	5"x20 ת"ת x20 ת"ת	A16Q4B	50	7,650
081 899	127x25.4x15.88	5x1x5/8	A24QB	50	7,650
081 905	150x19x31.75	6x3/4x1-1/4	A24QB	50	6,400
081 936	150x25.4x15.88	6x1x5/8	A16QB	50	6,400

White aluminium oxide (WA) grinding wheels

Type 1

Principle use:

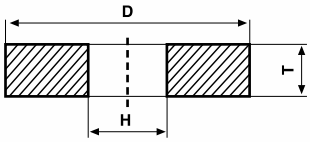
For grinding steel, tool steel and HSS.

Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers: see pp. 70-72

Type 1 D = diameter
T = thickness
H = bore




BENCH GRINDER


PEDESTAL GRINDER


SURFACE GRINDING


CYLINDRICAL GRINDING

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
061 549	78x12.7x12.7	3x1/2x1/2	WA60K7V	35	8,400
061 563	78x12.7x12.7	3x1/2x1/2	WA80K7V	35	8,400
061 730	102x12.7x12.7	4x1/2x1/2	WA60K7V	35	6,700
061 747	102x12.7x12.7	4x1/2x1/2	WA80K7V	35	6,700
281 121	102x19x31.75	4x3/4x1-1/4	WA80K7V	35	6,700
062 003	127x6.3x31.75	5x1/4x1-1/4	WA60K7V	35	5,350
062 010	127x6.3x31.75	5x1/4x1-1/4	WA100K7V	35	5,350
674 039	127x12.7x31.75	5x1/2x1-1/4	WA46K7V	35	5,350
062 089	127x12.7x31.75	5x1/2x1-1/4	WA60K7V	35	5,350
062 096	127x12.7x31.75	5x1/2x1-1/4	WA80K7V	35	5,350
305 797	127x12.7x31.75	5x1/2x1-1/4	WA100K7V	35	5,350
640 713	127x12.7x31.75	5x1/2x1-1/4	WA120K7V	35	5,350
062 126	127x15.9x31.75	5x5/8x1-1/4	WA46K7V	35	5,350
062 133	127x15.9x31.75	5x5/8x1-1/4	WA60K7V	35	5,350
062 140	127x15.9x31.75	5x5/8x1-1/4	WA80K7V	35	5,350
062 157	127x15.9x31.75	5x5/8x1-1/4	WA120K7V	35	5,350

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
062 188	127x19x31.75	5x3/4x1-1/4	WA46K7V	35	5,350
062 201	127x19x31.75	5x3/4x1-1/4	WA60K7V	35	5,350
062 218	127x19x31.75	5x3/4x1-1/4	WA80K7V	35	5,350
062 232	127x19x31.75	5x3/4x1-1/4	WA100K7V	35	5,350
326 013	127x19x31.75	5x3/4x1-1/4	WA120K7V	35	5,350
062 263	127x25.4x31.75	5x1x1-1/4	WA80K7V	35	5,350
062 416	150x6.3x31.75	6x1/4x1-1/4	WA46K7V	35	4,500
062 430	150x6.3x31.75	6x1/4x1-1/4	WA60K7V	35	4,500
062 454	150x6.3x31.75	6x1/4x1-1/4	WA80K7V	35	4,500
062 478	150x6.3x31.75	6x1/4x1-1/4	WA100K7V	35	4,500
062 485	150x6.3x31.75	6x1/4x1-1/4	WA120K7V	35	4,500
062 508	150x8x31.75	6x5/16x1-1/4	WA46K7V	35	4,500
062 539	150x8x31.75	6x5/16x1-1/4	WA80K7V	35	4,500
062 553	150x8x31.75	6x5/16x1-1/4	WA120K7V	35	4,500
062 577	150x9.5x31.75	6x3/8x1-1/4	WA46K7V	35	4,500
062 584	150x9.5x31.75	6x3/8x1-1/4	WA60K7V	35	4,500
062 607	150x9.5x31.75	6x3/8x1-1/4	WA80K7V	35	4,500
062 614	150x9.5x31.75	6x3/8x1-1/4	WA100K7V	35	4,500
062 676	150x12.7x31.75	6x1/2x1-1/4	WA46K7V	35	4,500
062 713	150x12.7x31.75	6x1/2x1-1/4	WA60K7V	35	4,500
062 751	150x12.7x31.75	6x1/2x1-1/4	WA80K7V	35	4,500
062 775	150x12.7x31.75	6x1/2x1-1/4	WA100K7V	35	4,500
062 829	150x15.9x31.75	6x5/8x1-1/4	WA46K7V	35	4,500
062 836	150x15.9x31.75	6x5/8x1-1/4	WA60K7V	35	4,500
062 850	150x15.9x31.75	6x5/8x1-1/4	WA80K7V	35	4,500
301 805	150x15.9x31.75	6x5/8x1-1/4	WA100K7V	35	4,500
062 928	150x19x31.75	6x3/4x1-1/4	WA46K7V	35	4,500
062 942	150x19x31.75	6x3/4x11/4	WA60K7V	35	4,500
062 966	150x19x31.75	6x3/4x1-1/4	WA80K7V	35	4,500
062 997	150x19x31.75	6x3/4x1-1/4	WA100K7V	35	4,500
063 000	150x19x31.75	6x3/4x1-1/4	WA120K7V	35	4,500
063 062	150x25.4x31.75	6x1x1-1/4	WA46K7V	35	4,500
063 086	150x25.4x31.75	6x1x1-1/4	WA60K7V	35	4,500
063 109	150x25.4x31.75	6x1x1-1/4	WA80K7V	35	4,500
063 185	177x3.2x31.75	7x1/8x1-1/4	WA60K7V	35	3,750
063 222	177x3.2x31.75	7x1/8x1-1/4	WA100K7V	35	3,750
063 253	177x3.2x31.75	7x1/8x1-1/4	WA120K7V	35	3,750

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
063 260	177x3.2x31.75	7x1/8x1-1/4	WA150K7V	35	3,750
063 277	177x3.2x31.75	7x1/8x1-1/4	WA180K7V	35	3,750
063 413	177x6.3x31.75	7x1/4x1-1/4	WA46K7V	35	3,750
063 451	177x6.3x31.75	7x1/4x1-1/4	WA60K7V	35	3,750
346 073	177x6.3x31.75	7x1/4x1-1/4	WA80K7V	35	3,750
063 567	177x6.3x31.75	7x1/4x1-1/4	WA100K7V	35	3,750
346 097	177x6.3x31.75	7x1/4x1-1/4	WA120K7V	35	3,750
346 103	177x6.3x31.75	7x1/4x1-1/4	WA150K7V	35	3,750
063 680	177x9.5x31.75	7x3/8x1-1/4	WA46K7V	35	3,750
063 703	177x9.5x31.75	7x3/8x1-1/4	WA60K7V	35	3,750
681 020	177x9.5x31.75	7x3/8x1-1/4	WA80K7V	35	3,750
063 741	177x9.5x31.75	7x3/8x1-1/4	WA100K7V	35	3,750
063 796	177x12.7x31.75	7x1/2x1-1/4	WA46H12V	35	3,750
346 158	177x12.7x31.75	7x1/2x1-1/4	WA46H7V	35	3,750
346 189	177x12.7x31.75	7x1/2x1-1/4	WA46K7V	35	3,750
577 910	177x12.7x31.75	7x1/2x1-1/4	WA60H12V	35	3,750
346 196	177x12.7x31.75	7x1/2x1-1/4	WA60H7V	35	3,750
063 949	177x12.7x31.75	7x1/2x1-1/4	WA60K7V	35	3,750
063 963	177x12.7x31.75	7x1/2x1-1/4	WA80H7V	35	3,750
346 233	177x12.7x31.75	7x1/2x1-1/4	WA80K7V	35	3,750
064 014	177x12.7x31.75	7x1/2x1-1/4	WA100H7V	35	3,750
346 240	177x12.7x31.75	7x1/2x1-1/4	WA100K7V	35	3,750
346 257	177x12.7x31.75	7x1/2x1-1/4	WA120K7V	35	3,750
346 264	177x12.7x31.75	7x1/2x1-1/4	WA150K7V	35	3,750
280 902	177x15.9x31.75	7x5/8x1-1/4	WA46K7V	35	3,750
064 090	177x15.9x31.75	7x5/8x1-1/4	WA60K7V	35	3,750
064 168	177x19x31.75	7x3/4x1-1/4	WA46K7V	35	3,750
064 205	177x19x31.75	7x3/4x1-1/4	WA60K7V	35	3,750
064 243	177x19x31.75	7x3/4x1-1/4	WA80K7V	35	3,750
064 250	177x19x31.75	7x3/4x1-1/4	WA100K7V	35	3,750
064 267	177x19x31.75	7x3/4x1-1/4	WA120K7V	35	3,750
064 311	177x25.4x31.75	7x1x1-1/4	WA46K7V	35	3,750
631 353	177x25.4x31.75	7x1x1-1/4	WA80K7V	35	3,750
064 359	177x25.4x31.75	7x1x1-1/4	WA80K7V	35	3,750
064 366	177x25.4x31.75	7x1x1-1/4	WA100K7V	35	3,750
598 076	177x31.8x31.75	7x1-1/4x1-1/4	WA46K7V	35	3,750
369 522	177x31.8x31.75	7x1-1/4x1-1/4	WA60K7V	35	3,750
370 412	177x31.8x31.75	7x1-1/4x1-1/4	WA100K7V	35	3,750

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
064 588	200x6.3x31.75	8x1/4x1-1/4	WA46K7V	35	3,350
346 639	200x6.3x31.75	8x1/4x1-1/4	WA60K7V	35	3,350
346 653	200x6.3x31.75	8x1/4x1-1/4	WA80K7V	35	3,350
064 670	200x6.3x31.75	8x1/4x1-1/4	WA100K7V	35	3,350
064 687	200x6.3x31.75	8x1/4x1-1/4	WA120K7V	35	3,350
346 677	200x6.3x31.75	8x1/4x1-1/4	WA150K7V	35	3,350
271 870	200x9.5x31.75	8x3/8x1-1/4	WA46K7V	35	3,350
064 779	200x9.5x31.75	8x3/8x1-1/4	WA60K7V	35	3,350
064 816	200x9.5x31.75	8x3/8x1-1/4	WA80K7V	35	3,350
496 693	200x9.5x31.75	8x3/8x1-1/4	WA120K7V	35	3,350
607 143	200x9.5x31.75	8x3/8x1-1/4	WA320F8V	35	3,350
064 892	200x12.7x31.75	8x1/2x1-1/4	WA46H7V	35	3,350
064 939	200x12.7x31.75	8x1/2x1-1/4	WA46K7V	35	3,350
064 953	200x12.7x31.75	8x1/2x1-1/4	WA60H7V	35	3,350
346 783	200x12.7x31.75	8x1/2x1-1/4	WA60K7V	35	3,350
346 790	200x12.7x31.75	8x1/2x1-1/4	WA80K7V	35	3,350
065 042	200x12.7x31.75	8x1/2x1-1/4	WA100K7V	35	3,350
335 343	200x12.7x31.75	8x1/2x1-1/4	WA150K7V	35	3,350
314 072	200x12.7x31.75	8x1/2x1-1/4	WA180K7V	35	3,350
302 154	200x15.9x31.75	8x5/8x1-1/4	WA60H7V	35	3,350
065 080	200x15.9x31.75	8x5/8x1-1/4	WA60K7V	35	3,350
302 185	200x15.9x31.75	8x5/8x1-1/4	WA100K7V	35	3,350
065 202	200x19x31.75	8x3/4x1-1/4	WA46K7V	35	3,350
065 257	200x19x31.75	8x3/4x1-1/4	WA60K7V	35	3,350
065 288	200x19x31.75	8x3/4x1-1/4	WA80K7V	35	3,350
065 295	200x19x31.75	8x3/4x1-1/4	WA100K7V	35	3,350
065 332	200x19x50.8	8x3/4x2	WA46K7V	35	3,350
065 349	200x19x50.8	8x3/4x2	WA60K7V	35	3,350
440 061	200x19x50.8	8x3/4x2	WA120K7V	35	3,350
065 448	200x25.4x31.75	8x1x1-1/4	WA46K7V	35	3,350
065 486	200x25.4x31.75	8x1x1-1/4	WA60K7V	35	3,350
065 516	200x25.4x31.75	8x1x1-1/4	WA80K7V	35	3,350
065 523	200x25.4x31.75	8x1x1-1/4	WA100K7V	35	3,350
065 561	200x25.4x50.8	8x1x2	WA46K7V	35	3,350
065 578	200x25.4x50.8	8x1x2	WA60K7V	35	3,350
065 592	200x25.4x50.8	8x1x2	WA80K7V	35	3,350
361 724	200x25.4x76.2	8x1x3	WA46K7V	35	3,350
362 431	200x25.4x76.2	8x1x3	WA60K7V	35	3,350
521 463	200x25.4x76.2	8x1x3	WA80K7V	35	3,350

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
367 719	200x25.4x76.2	8x1x3	WA100K7V	35	3,350
065 622	200x31.8x31.75	8x1-1/4x1-1/4	WA46K7V	35	3,350
065 639	200x31.8x31.75	8x1-1/4x1-1/4	WA60K7V	35	3,350
065 646	200x31.8x31.75	8x1-1/4x1-1/4	WA80K7V	35	3,350
459 643	230x25.4x50.8	9x1x2	WA60K7V	35	2,950
573 066	254x9.5x31.75	10x3/8x1-1/4	WA80K7V	35	2,700
065 936	254x12.7x76.2	10x1/2x3	WA46H7V	35	2,700
065 967	254x12.7x76.2	10x1/2x3	WA46K7V	35	2,700
066 001	254x12.7x76.2	10x1/2x3	WA60K7V	35	2,700
066 025	254x12.7x76.2	10x1/2x3	WA80K7V	35	2,700
066 049	254x12.7x76.2	10x1/2x3	WA100K7V	35	2,700
339 594	254x15.9x31.75	10x5/8x1-1/4	WA100K7V	35	2,700
658 527	254x15.9x76.2	10x5/8x3	WA80K7V	35	2,700
302 260	254x19x31.75	10x3/4x1-1/4	WA46H7V	35	2,700
066 070	254x19x31.75	10x3/4x1-1/4	WA60HPV	35	2,700
066 087	254x19x31.75	10x3/4x1-1/4	WA60K7V	35	2,700
066 094	254x19x31.75	10x3/4x1-1/4	WA80K7V	35	2,700
682 812	254x19x50.8	10x3/4x2	WA60K7V	35	2,700
347 155	254x19x76.2	10x3/4x3	WA46H7V	35	2,700
066 162	254x19x76.2	10x3/4x3	WA46K7V	35	2,700
066 209	254x19x76.2	10x3/4x3	WA60K7V	35	2,700
066 223	254x25.4x31.75	10x1x1-1/4	WA46K7V	35	2,700
066 230	254x25.4x31.75	10x1x1-1/4	WA60K7V	35	2,700
066 254	254x25.4x31.75	10x1x1-1/4	WA80K7V	35	2,700
066 261	254x25.4x31.75	10x1x1-1/4	WA100K7V	35	2,700
610 952	254x25.4x50.8	10x1x2	WA46H7V	35	2,700
066 315	254x25.4x50.8	10x1x2	WA46K7V	35	2,700
640 508	254x25.4x50.8	10x1x2	WA60H7V	35	2,700
066 339	254x25.4x50.8	10x1x2	WA60K7V	35	2,700
347 230	254x25.4x76.2	10x1x3	WA46H7V	35	2,700
066 421	254x25.4x76.2	10x1x3	WA46K7V	35	2,700
066 469	254x25.4x76.2	10x1x3	WA60K7V	35	2,700
066 506	254x25.4x76.2	10x1x3	WA80K7V	35	2,700
066 537	254x25.4x76.2	10x1x3	WA100K7V	35	2,700
280 889	254x25.4x127	10x1x5	WA60K7V	35	2,700

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
664 306	254x25.4x127	10x1x5	WA80K7V	35	2,700
066 544	254x31.8x31.75	10x1-1/4x1-1/4	WA46K7V	35	2,700
066 599	254x31.8x76.2	10x1-1/4x3	WA80K7V	35	2,700
339 785	254x38.1x31.75	10x1-1/2x1-1/4	WA46K7V	35	2,700
295 968	254x38.1x31.75	10x1-1/2x1-1/4	WA60K7V	35	2,700
543 953	254x38.1x31.75	10x1-1/2x1-1/4	WA100K7V	35	2,700
066 643	254x50.8x76.2	10x2x3	WA46K7V	35	2,700
066 650	254x50.8x76.2	10x2x3	WA80K7V	35	2,700
631 063	305x6.3x31.75	12x1/4x1-1/4	WA100K7V	35	2,250
367 511	305x9.5x127	12x3/8x5	WA60K7V	35	2,250
630 431	305x9.5x127	12x3/8x5	WA180K7V	35	2,250
630 929	305x12.7x31.75	12x1/2x1-1/4	WA60K7V	35	2,250
066 735	305x12.7x127	12x1/2x5	WA46K7V	35	2,250
066 742	305x12.7x127	12x1/2x5	WA60K7V	35	2,250
066 766	305x12.7x127	12x1/2x5	WA100K7V	35	2,250
402 878	305x15.9x127	12x5/8x5	WA120K7V	35	2,250
682 201	305x15.9x127	12x5/8x5	WA150K7V	35	2,250
066 865	305x19x76.2	12x3/4x3	WA46HPV	35	2,250
666 096	305x19x76.2	12x3/4x3	WA60K7V	35	2,250
066 971	305x19x127	12x3/4x5	WA60K7V	35	2,250
302 437	305x19x127	12x3/4x5	WA80K7V	35	2,250
302 451	305x25.4x31.75	12x1x1-1/4	WA46K7V	35	2,250
067 008	305x25.4x31.75	12x1x1-1/4	WA60K7V	35	2,250
067 015	305x25.4x31.75	12x1x1-1/4	WA80K7V	35	2,250
067 022	305x25.4x31.75	12x1x1-1/4	WA100K7V	35	2,250
347 421	305x25.4x76.2	12x1x3	WA46H7V	35	2,250
067 114	305x25.4x76.2	12x1x3	WA46K7V	35	2,250
347 506	305x25.4x76.2	12x1x3	WA60K7V	35	2,250
067 213	305x25.4x76.2	12x1x3	WA180H7V	35	2,250
347 520	305x25.4x127	12x1x5	WA46H7V	35	2,250
067 275	305x25.4x127	12x1x5	WA46K7V	35	2,250
067 299	305x25.4x127	12x1x5	WA60H7V	35	2,250
347 605	305x25.4x127	12x1x5	WA60K7V	35	2,250
067 374	305x25.4x127	12x1x5	WA80K7V	35	2,250
067 381	305x25.4x127	12x1x5	WA100K7V	35	2,250
067 473	305x31.8x31.75	12x1-1/4x1-1/4	WA46K7V	35	2,250
067 480	305x31.8x31.75	12x1-1/4x1-1/4	WA60K7V	35	2,250

White aluminium oxide (WA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
302 611	305x31.8x76.2	12x1-1/4x3	WA46H7V	35	2,250
067 510	305x31.8x76.2	12x1-1/4x3	WA60K7V	35	2,250
067 534	305x31.8x76.2	12x1-1/4x3	WA80K7V	35	2,250
374 809	305x31.8x127	12x1-1/4x5	WA60K7V	35	2,250
067 619	305x38.1x31.75	12x1-1/2x1-1/4	WA46K7V	35	2,250
067 626	305x38.1x31.75	12x1-1/2x1-1/4	WA60K7V	35	2,250
067 671	305x38.1x76.2	12x1-1/2x3	WA60K7V	35	2,250
067 701	305x38.1x127	12x1-1/2x5	WA46H7V	35	2,250
067 725	305x38.1x127	12x1-1/2x5	WA46K7V	35	2,250
067 770	305x38.1x127	12x1-1/2x5	WA60K7V	35	2,250
592 685	305x50.8x38.1	12x2x1-1/2	WA46K7V	35	2,250
067 848	305x50.8x127	12x2x5	WA46K7V	35	2,250
067 855	305x50.8x127	12x2x5	WA60K7V	35	2,250
629 411	350x12.7x76.2	14x1/2x3	WA60K7V	35	1,950
503 582	350x19x76.2	14x3/4x3	WA60K7V	35	1,950
684 816	350x19x127	14x3/4x5	WA60K7V	35	1,950
347 858	350x25.4x127	14x1x5	WA46H7V	35	1,950
068 111	350x25.4x127	14x1x5	WA46K7V	35	1,950
347 926	350x25.4x127	14x1x5	WA60K7V	35	1,950
068 203	350x25.4x127	14x1x5	WA80K7V	35	1,950
068 227	350x25.4x127	14x1x5	WA100K7V	35	1,950
068 234	350x31.8x76.2	14x1-1/4x3	WA46K7V	35	1,950
068 272	350x31.8x127	14x1-1/4x5	WA80K7V	35	1,950
348 015	350x38.1x127	14x1-1/2x5	WA46H7V	35	1,950
068 340	350x38.1x127	14x1-1/2x5	WA46K7V	35	1,950
068 395	350x38.1x127	14x1-1/2x5	WA60K7V	35	1,950
633 173	350x44.5x127	14x1-3/4x5	WA80K7V	35	1,950
068 449	350x50.8x127	14x2x5	WA46H7V	35	1,950
068 470	350x50.8x127	14x2x5	WA46K7V	35	1,950
068 531	350x50.8x127	14x2x5	WA60K7V	35	1,950
303 137	350x50.8x127	14x2x5	WA80K7V	35	1,950

White aluminium oxide (WA) grinding wheels
Type 5: recess one side

Principle use:

For grinding steel, tool steel and HSS.

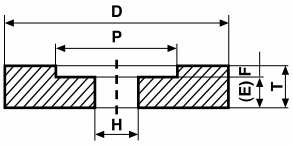
Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers:
see pp. 70-72

Type 5

D = diameter
T = thickness
H = bore
P = diameter of recess
F = depth of recess
E = thickness around bore



SURFACE GRINDING

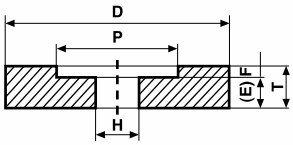
CYLINDRICAL GRINDING

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.	Recess (inches) P x F
346 363	177x19x31.75	7x3/4x1-1/4	WA46H7V	35	3,750	3x1/4
346 400	177x19x31.75	7x3/4x1-1/4	WA60H7V	35	3,750	3x1/4
346 431	177x19x31.75	7x3/4x1-1/4	WA60K7V	35	3,750	3x1/4
346 509	177x25.4x31.75	7x1x1-1/4	WA46K7V	35	3,750	3x1/2
346 547	177x25.4x31.75	7x1x1-1/4	WA60K7V	35	3,750	3x1 /2
111 985	200x19x31.75	8x3/4x1-1/4	WA46H7V	35	3,350	3x1/4
065 202	200x19x31.75	8x3/4x1-1/4	WA46K7V	35	3,350	3x1/4
346 875	200x19x31.75	8x3/4x1-1/4	WA60H7V	35	3,350	3x1/4
346 905	200x19x31.75	8x3/4x1-1/4	WA60K7V	35	3,350	3x1/4
346 981	200x25.4x31.75	8x1x1-1/4	WA46K7V	35	3,350	3x1/2
347 025	200x25.4x31.75	8x1x1-1/4	WA60K7V	35	3,350	3x1/2
304 417	200x25.4x31.75	8x1x1-1/4	WA80K7V	35	3,350	3x1/2

White aluminium oxide (WA) grinding wheels, Type 5: recess one side (cont.)

347 612	305x38.1x76.2	12x1-1/2x3	WA46H7V	35	2,250	7-1/2x1/2
347 650	305x38.1x76.2	12x1-1/2x3	WA60H7V	35	2,250	7-1/2x1/2
347 681	305x38.1x76.2	12x1-1/2x3	WA60K7V	35	2,250	7-1/2x1/2
347 698	305x38.1x127	12x1-1/2x5	WA46H7V	35	2,250	7-1/2x1/2
347 728	305x38.1x127	12x1-1/2x5	WA46K7V	35	2,250	7-1/2x1/2
112 876	305x38.1x127	12x1-1/2x5	WA60H7V	35	2,250	7-1/2x1/2
347 766	305x38.1x127	12x1-1/2x5	WA60K7V	35	2,250	7-1/2x1/2
113 132	305x50.8x127	12x2x5	WA60K7V	35	2,250	8x1

Type 5: Standard dimensions



Millimetre dimensions			Inch dimensions		
D x T x H	P	F	D x T x H	P	F
177 x 19 x 31.75	78	6.3	7 x 3/4 x 1-1/4	3	1/4
177 x 25.4 x 31.75	78	12.7	7 x 1 x 1-1/4	3	1/2
200 x 19 x 31.75	78	6.3	8 x 3/4 x 1-1/4	3	1/4
200 x 25.4 x 31.75	78	12.7	8 x 1 x 1-1/4	3	1/2
305 x 38.1 x 76.2	190	12.7	12 x 1-1/2 x 3	7-1/2	1/2
305 x 38.1 x 127	190	12.7	12 x 1-1/2 x 5	7-1/2	1/2
305 x 50.8 x 127	200	25.4	12 x 2 x 5	8	1
350 x 38.1 x 127	200	12.7	14 x 1-1/2 x 5	8	1/2
350 x 50.8 x 127	200	25.4	14 x 2 x 5	8	1

Millimetre dimensions, with the exception of bore dimensions, are approximate.

White aluminium oxide (WA) grinding wheels
Type 6: straight cup

Principle use:

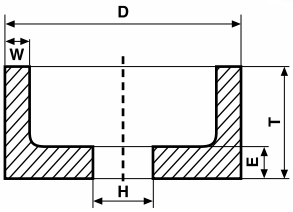
For grinding steel, tool steel and HSS.

Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers: see pp. 70-72

Type 6
D = diameter
T = thickness
H = bore
P = diameter of recess
E = thickness of base
F = thickness of wall

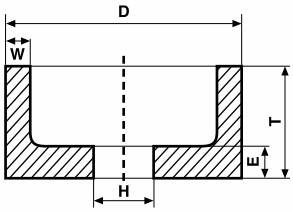


EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.	Recess (inches) W	E
300 396	78x38x12.7	3x1-1/2x1/2	WA60K7V	35	8,400	1/4	3/8
284 245	78x38x12.7	3x1-1/2x1/2	WA120L7V	35	8,400	1/4	3/8
370 610	78x38x20	3x1-1/2x20mm	WA46K7V	35	8,400	1/4	3/8
109 692	78x38x31.75	3x1-1/2x1-1/4	WA60K7V	35	8,400	1/4	3/8
505 463	102x38.x31.75	4x1-1/2x1-1/4	WA46K7V	35	6,700	5/16	3/8
109 999	102x38x31.75	4x1-1/2x1-1/4	WA60K7V	35	6,700	5/16	3/8
330 737	102x38x31.75	4x1-1/2x1-1/4	WA80K7V	35	6,700	5/16	3/8
110 094	102x51x20	4x2x20mm	WA60K7V	35	6,700	3/8	3/8
110 100	102x51x20	4x2x20mm	WA80K7V	35	6,700	3/8	3/8
110 148	102x51x19.05	4 x2x3/4	WA46K7V	35	6,700	3/8	3/8
110 247	102x51x31.75	4x2x1-1/4	WA46K7V	35	6,700	3/8	3/8
110 278	102x51x31.75	4x2x1-1/4	WA60K7V	35	6,700	3/8	3/8
110 292	102x51x31.75	4x2x1-1/4	WA80K7V	35	6,700	3/8	3/8
110 315	102x51x31.75	4x2x1-1/4	WA100K7V	35	6,700	3/8	3/8

White aluminium oxide (WA) grinding wheels, Type 6: straight cup (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.	Recess (inches) W	E
349 302	127x38x31.75	5x1-1/2x1-1/4	WA46K7V	35	5,350	3/8	3/8
349 340	127x38x31.75	5x1-1/2x1-1/4	WA60K7V	35	5,350	3/8	3/8
349 364	127x38x31.75	5x1-1/2x1-1/4	WA80K7V	35	5,350	3/8	3/8
110 759	127x51x31.75	5x2x1-1/4	WA46K7V	35	5,350	3/8	3/8
110 780	127x51x31.75	5x2x1-1/4	WA60K7V	35	5,350	3/8	3/8
110 803	127x51x31.75	5x2x1-1/4	WA80K7V	35	5,350	3/8	3/8
111 183	150x51x31.75	6x2x1-1/4	WA46K7V	35	4,500	1/2	1/2
349 418	150x51x31.75	6x2x1-1/4	WA60K7V	35	4,500	1/2	1/2
111 251	150x51x31.75	6x2x1-1/4	WA80K7V	35	4,500	1/2	1/2
300 730	150x51x31.75	6x2x1-1/4	WA100K7V	35	4,500	1/2	1/2
264 704	150x76x31.75	6x3x1-1/4	WA60K7V	35	4,500	15mm	15mm
300 754	177x51x31.75	7x2x1-1/4	WA46K7V	35	3,750	13mm	15mm
111 794	177x51x31.75	7x2x1-1/4	WA60K7V	35	3,750	13mm	15mm

Type 6: Standard dimensions



Millimetre dimensions			Inch dimensions		
D x T x H	W	E	D x T x H	W	E
78 x 38 x 20	6.5	10	3 x 1-1/2 x 20mm	1/4	3/8
102 x 51 x 31.75	10	10	4 x 2 x 1-1/4	3/8	3/8
127 x 38 x 31.75	10	10	5 x 1-/12 x 1-1/4	3/8	3/8
127 x 51 x 31.75	10	10	5 x 2 x 1-1/4	3/8	3/8
150 x 51 x 31.75	13	13	6 x 2 x 1-1/4	1/2	1/2

Millimetre dimensions, with the exception of bore dimensions, are approximate.

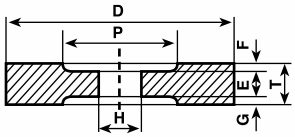
White aluminium oxide (WA) grinding wheels
Type 7: recess both sides

Principle use:

For grinding steel, tool steel and HSS.

Diamond and stick dressers: see pp. 70-72

Type 7
D = diameter
T = thickness
H = bore
P = diameter of recess
F = depth of recess
G = depth of second recess



DxTxH-PxF
or if recesses are not the same size:
DxTxH-PxF/G


SURFACE GRINDING


CYLINDRICAL GRINDING

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.	Recess (inches) P x F
113 002	305x50.8x76.2	12x2x3	WA60H7V	35	2,200	165mm x12
113 019	305x50.8x76.2	12x2x3	WA60K7V	35	2,200	165mm x12
347 773	305x50.8x127	12x2x5	WA46H7V	35	2,200	7-1/2x1/2
113 101	305x50.8x127	12x2x5	WA60H7V	35	2,200	7-1/2x1/2
288 830	350x50.8x127	14x2x5	WA60K7V	35	1,950	7-1/2x1/2

White aluminium oxide (WA) grinding wheels
Type 11: flared cup

Principle use:

For grinding steel, tool steel and HSS.

Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers: see pp. 70-72

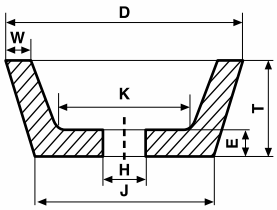
Type 11 D = diameter
T = thickness
H = bore
W= thickness of wall
E = thickness of base
J = diameter of flat outer surface
K = diameter of flat inner surface

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
300 662	78x32x20	3x1-1/4x20mm	WA46K7V	35	8,400
109 623	78x32x20	3x1-1/4x20mm	WA60K7V	35	8,400
349 036	102x38.1x31.75	4x1-1/2x1-1/4	WA46J7V	35	6,700
349 043	102x38.1x31.75	4x1-1/2x1-1/4	WA46K7V	35	6,700
109 982	102x38.1x31.75	4x1-1/2x1-1/4	WA60J7V	35	6,700
349 081	102x38.1x31.75	4x1-1/2x1-1/4	WA60K7V	35	6,700
349 098	102x38.1x31.75	4x1-1/2x1-1/4	WA80K7V	35	6,700
110 049	102x38.1x31.75	4x1-1/2x1-1/4	WA100K7V	35	6,700
110 254	102x50.8x31.75	4x2x1-1/4	WA46K7V	35	6,700
110 285	102x50.8x31.75	4x2x1-1/4	WA60K7V	35	6,700
110 308	102x50.8x31.75	4x2x1-1/4	WA80K7V	35	6,700
110 322	102x50.8x31.75	4x2x1-1/4	WA100K7V	35	6,700
110 377	102x76.2x31.75	4x3x1-1/4	WA60K7V	35	6,700

White aluminium oxide (WA) grinding wheels, Type 11: flared cup (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
110 766	127x50.8x31.75	5x2x1-1/4	WA46K7V	35	5,350
110 797	127x50.8x31.75	5x2x1-1/4	WA60K7V	35	5,350
110 810	127x50.8x31.75	5x2x1-1/4	WA80K7V	35	5,350
300 693	127x50.8x31.75	5x2x1-1/4	WA100K7V	35	5,350
111 190	150x50.8x31.75	6x2x1-1/4	WA46K7V	35	4,400
111 237	150x50.8x31.75	6x2x1-1/4	WA60K7V	35	4,400
111 268	150x50.8x31.75	6x2x1-1/4	WA80K7V	35	4,400

Type 11: Standard dimensions



D/JxTxH-W..E..K

Millimetre dimensions					Inch dimensions				
D x T x H	W	E	J	K	D x T x H	W	E	J	K
78 x 32 x 20	6.5	8	57	45	3 x 1-1/4 x 20mm	1/4	5/16	2-1/4	1-3/4
90 x 38 x 31.75	6.5	8	57	45	3-1/2 x 1-1/2 x 1-1/4	1/4	5/16	2-1/4	1-3/4
102 x 38 x 31.75	8	13	80	67	4 x 1-1/2 x 1-1/4	5/16	1/2	3-1/4	2-5/8
102 x 50.8 x 31.75	8	13	80	67	4 x 2 x 1-1/4	5/16	1/2	3-1/4	2-5/8
127 x 45 x 31.75	8	13	95	78	5 x 1-3/4 x 1-1/4	5/16	1/2	3-3/4	3
127 x 50.8 x 31.75	8	13	95	78	5 x 2 x 1-1/4	5/16	1/2	3-3/4	3
150 x 50.8 x 31.75	10	13	115	95	6 x 2 x 1-1/4	3/8	1/2	4-1/2	3-3/4

Millimetre dimensions, with the exception of bore dimensions, are approximate.

White aluminium oxide (WA) grinding wheels
Type 12: dish

Principle use:

For grinding steel, tool steel and HSS.

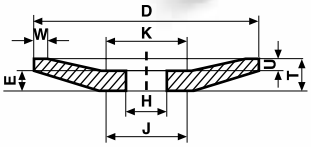
Plastic adapters (bushings) can be purchased to alter the bore from 1-1/4" to various smaller sizes.

For a set of adapters, see p. 44

Diamond and stick dressers: see pp. 70-72

Type 12

D = diameter
T = thickness
H = bore
W = thickness of wall
E = thickness of base
J = diameter of flat outer surface
K = diameter of flat inner surface
U = thickness of rim



D/JxT/UxH

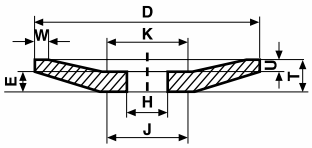
TOOL GRINDER

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
109 531	78x12.7x12.7	3x1/2x1/2	WA60K7V	35	8,400
278 237	78x12.7x12.7	3x1/2x1/2	WA80K7V	35	8,400
367 733	102x12.7x12.7	4x1/2x1/2	WA46K7V	35	6,700
109 814	102x12.7x12.7	4x1/2x1/2	WA60K7V	35	6,700
109 838	102x12.7x20	4x1/2x20mm	WA60K7V	35	6,700
109 845	102x12.7x20	4x1/2x20mm	WA100K7V	35	6,700
338 016	102x12.7x31.75	4x1/2x1-1/4	WA80K7V	35	6,700
337 521	127x12.7x31.75	5x1/2x1-1/4	WA46K7V	35	5,350
110 407	127x12.7x31.75	5x1/2x1-1/4	WA60K7V	35	5,350
300 648	127x12.7x31.75	5x1/2x1-1/4	WA100K7V	35	5,350

White aluminium oxide (WA) grinding wheels, Type 12: dish (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
349 425	150x12.7x31.75	6x1/2x1-1/4	WA46K7V	35	4,500
349 449	150x12.7x31.75	6x1/2x1-1/4	WA60K7V	35	4,500
349 456	150x12.7x31.75	6x1/2x1-1/4	WA80K7V	35	4,500
110 995	150x12.7x31.75	6x1/2x1- 1/4	WA100K7V	35	4,500
111 350	177x12.7x31.75	7x1/2x1-1/4	WA46K7V	35	3,750
111 381	177x12.7x31.75	7x1/2x1-1/4	WA60K7V	35	3,750
111 411	177x12.7x31.75	7x1/2x1-1/4	WA80K7V	35	3,750
346 240	177x12.7x31.75	7x1/2x1-1/4	WA100K7V	35	3,750

Type 12: Standard dimensions



D/JxT/UxH

Millimetre dimensions					Inch dimensions				
D x T x H	J=K	U	E	W	D x T x H	J=K	U	E	W
78 x 12.7 x 12.7	38	2.5	6.5	4.0	3 x 1/2 x 1/2	1-1/2	3/32	1/4	5/32
102 x 12.7 x 20	51	3.0	6.5	5.0	4 x 1/2 x 20mm	2	1/8	1/4	3/16
127 x 12.7 x 31.75	63	3.0	6.5	6.5	5 x 1/2 x 1-1/4	2-1/2	1/8	1/4	1/4
150 x 12.7 x 31.75	78	3.2	8.0	10.0	6 x 1/2 x 1-1/4	3	1/8	5/16	3/8
177 x 12.7 x 31.75	90	3.2	8.0	13	7 x 1/2 x 1-1/4	3-1/2	1/8	5/16	1/2

Millimetre dimensions, with the exception of bore dimensions, are approximate.

Pink aluminium oxide (PA) grinding wheels
Type 1

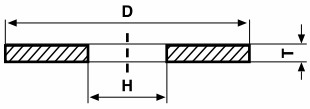
Principle use:

For sharpening teeth of HSS saws (circular and belt).

Diamond and stick dressers: see pp. 70-72

Type 1

D = diameter
T = thickness
H = bore



EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
070 701	150x1.5x32	6 x1/16x32mm	PA80M5V	35	4,500
070 725	150x2.0x32	6x5/64x32mm	PA80M5V	35	4,500
577 651	150x2.5x32	6x3/32x32mm	PA80L8V	35	4,500
317 165	150x2.5x32	6x3/32x32mm	PA80M5V	35	4,500
070 756	150x2.5x31.75	6x3/32x1-1/4	PA80N7V	35	4,500
550 470	150x3x32	6x1/8x32mm	PA80L5V	35	4,500
070 800	150x3x32	6x1/8x32mm	PA80M5V	35	4,500
697 083	150x3x32	6x1/8x32mm	PA80N7V	35	4,500
677 245	150x3x32	6x1/8x32mm	PA80N8V	35	4,500
452 996	150x3.5x20	6x9/64x20mm	PA80M7V	35	4,500
582 792	150x4x20	6x5/32x20mm	PA60L/MV	35	4,500
070 862	150x4x32	6x5/32x32mm	PA80M5V	35	4,500
672 943	150x4x32	6x5/32x32mm	PA80M7V	35	4,500
676 996	150x4x32	6x5/32x32mm	PA80N8V	35	4,500
655 403	150x4.5x32	6 x3/16x32mm	PA80M5V	35	4,500
578 771	150x5x20	6x3/16x 20mm	PA80M5V	35	4,500
070 947	150x5x31.75	6x3/16x 1-1/4	PA80M5V	35	4,500
070 879	150x5x32	6x3/16x32mm	PA80M8V	35	4,500
697 090	150x5x32	6x3/16x32mm	PA80N7V	35	4,500
450 909	177x2.5x32	7x3/32x32mm	PA80K7V	35	3,750
497 904	177x3.0x32	7x1/8x32mm	PA80M6V	35	3,750
564 590	177x3.2x31.75	7x1/8x1-1/4	PA80K7V	35	3,750
071 203	177x4x31.75	7x5/32x1-1/4	PA60M8V	35	3,750
071 210	177x4x50.8	7x5/32x2	PA80H7V	35	3,750
071 258	177x5x31.75	7x3/16x 1-1/4	PA80M7V	35	3,750

Pink aluminium oxide (PA) grinding wheels, Type 1 (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
586 905	200x1.3x32	8x3/64x32mm	PA80N5V	35	3,350
071 708	200x1.5x32	8x1/16x32mm	PA80L7V	35	3,350
424 771	200x1.5x32	8x1/16x32mm	PA80M5V	35	3,350
071 722	200x1.7x32	8x1/16x32mm	PA80L8V	35	3,350
373 499	200x1.7x32	8x1/16x32mm	PA80L5V	35	3,350
071 739	200x2.0x32	8x5/64x32mm	PA80L5V	35	3,350
071 746	200x2.0x32	8x5/64x32mm	PA80L8V	35	3,350
071 753	200x2.0x32	8x5/64x32mm	PA80M5V	35	3,350
325 818	200x2.5x32	8x3/32x32mm	PA80K7V	35	3,350
071 845	200x2.5x32	8x3/32x32mm	PA80L8V	35	3,350
071 852	200x2.5x32	8x3/32x32mm	PA80M7V	35	3,350
541 744	200x2.7x32	8x7/64x32mm	PA80L5V	35	3,350
071 777	200x3x31.75	8x1/8x1-1/4	PA80M5V	35	3,350
322 206	200x3x32	8x1/8x32mm	PA80L5V	35	3,350
661 343	200x3x32	8x1/8x32mm	PA80M5V	35	3,350
522 750	200x3.5x32	8x9/64x32mm	PA60L5V	35	3,350
315 840	200x3.5x32	8x9/64x32mm	PA60L8V	35	3,350
071 876	200x3.5x32	8x3.5mm x32mm	PA80L8V	35	3,350
522 224	200x3.75x32	8x9/64x32mm	PA60L5V	35	3,350
071 814	200x4x31.75	8x5/32x1-1/4	PA60K8V	35	3,350
287 840	200x4x32	8x5/32x32mm	PA60L5V	35	3,350
071 838	200x4x31.75	8x5/32x1-1/4	PA80M8V	35	3,350
287 857	200x4.5x32	8x4.5x32mm	PA60L5V	35	3,350
345 106	200x5x32	8x3/16x32mm	PA60K5V	35	3,350
287 864	200x5x32	8x3/16x32mm	PA60L5V	35	3,350
682 546	200x5x32	8x3/16x32mm	PA80L7V	35	3,350
071 913	200x5x32	8x3/16x32mm	PA80M8V	35	3,350
330 706	254x1.5x32	10x1/16x32mm	PA80M5V	35	2,700
255 276	254x2.0x32	10x5/64x32mm	PA80N6V	35	2,700
072 415	254x2.5x32	10x3/32x32mm	PA80M5V	35	2,700
072 477	254x3x32	10x1/8x32mm	PA80M5V	35	2,700
072 422	254x3.5x32	10x9/64x32mm	PA80M5V	35	2,700
072 439	254x4x32	10x5/32x32mm	PA60M5V	35	2,700
072 446	254x4x32	10x5/32x32mm	PA80M5V	35	2,700
269 716	254x5x31.75	10x3/16x1-1/4	PA60M7V	35	2,700
072 453	254x5x31.75	10x3/16x1-1/4	PA80M8V hardened	35	2,700
484 980	254x5.0x32	10x3/16 x32mm	PA80M5V	35	2,700

Plastic adapters (bushings) to fit wheel bore to machine arbour

EAN code	Bore dimensions (mm)		Bore dimensions (inches)		Bag Qty.
	from ø.....to ø	height	from ø.....to ø	height	
000 678	31.75–12.7	6	1-1/4–1/2	1/4	10
001 057	32—15	6	32mm–15mm	1/4	10
000 685	31.75–15.88	6	1-1/4–5/8	1/4	10
000 692	31.75–19.05	6	1-1/4–3/4	1/4	10
000 968	31.75–20	6	1-1/4–20mm	1/4	10
000 708	31.75–22.2	6	1-1/4–7/8	1/4	10
000 715	31.75–25.4	6	1-1/4–1	1/4	10
000 722	31.75–28.44	19	1-1/4–1-1/8	3/4	10
000 982	51–32	9	51mm–32mm	3/8	10

Choose a set of two items.

Inch/mm conversion for thickness measurements is approximate.

Non-reinforced cutting discs

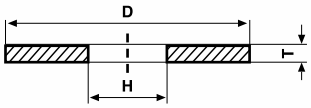
Principle use:

For sharpening teeth of HSS saws (circular and belt), and for cutting HSS tools.

For use on machines that operate at a maximum peripheral speed of 63 M/S.

Diamond and stick dressers: see p. 70-72

Type 1 D = diameter
T = thickness (inch measurements are approximate)
H = bore



EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
436 606	127x0.53x10	5x0.53mmx10mm	A80RB	63	9,650
447 978	127x0.73x10	5x0.73mmx10mm	A80RB	63	9,650
088 119	150x0.8x31.75	6x1/32x1-1/4	WA60QB	63	8,050
443 147	150x0.9x10	6x0.9mmx10mm	A80RB	63	8,050
088 126	150x1.0x31.75	6x1.0mmx1-1/4	WA60QB	63	8,050
361 991	150x1.3x31.75	6x1.3mmx1-1/4	WA60QB	63	8,050
088 157	150x1.5x31.75	6x1/16x1-1/4	WA60QB	63	8,050
088 164	150x2.0x15.88	6x5/64x5/8	WA60QB	63	8,050
088 195	150x2.0x31.75	6x5/64x1-1/4	WA60QB	63	8,050
088 201	150x2.5x31.75	6x3/32x1-1/4	WA60QB	63	8,050
658 992	150x3.0x31.75	6x1/8x1-1/4	WA60QB	63	8,050
087 440	150x3.0x31.75	6x1/8x1-1/4	A46RB	63	8,050
087 464	150x3.0x32	6x1/8x32mm	A46RB	63	8,050
088 225	150x3.2x31.75	6x1/8x1-1/4	WA60QB	63	8,050
087 471	150x3.5x31.75	6x9/64x1-1/4	A46RB	63	8,050
252 619	150x4.0x20	6x5/32x20mm	A46NB	63	8,050
087 488	150x4.0x31.75	6x5/32x1-1/4	A46RB	63	8,050

Non-reinforced cutting wheels (cont.)

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
088 256	177x0.8x31.75	7x1/32x1-1/4	WA60QB	63	6,700
088 263	177x1.0x31.75	7x1.0mmx1-1/4	WA60QB	63	6,700
088 287	177x1.2x31.75	7x3/64x1-1/4	WA60QB	63	6,700
088 294	177x1.5x31.75	7x1/16x1-1/4	WA60QB	63	6,700
088 300	177x2.0x31.75	7x5/64x1-1/4	WA60QB	63	6,700
088 331	177x2.5x31.75	7x3/32x1-1/4	WA60QB	63	6,700
088 362	177x3.0x31.75	7x1/8x1-1/4	WA60QB	63	6,700
533 435	177x3.0x41.3	7x1/8x1-5/8	WA60QB	63	6,700
088 355	177x3.2x19.05	7x1/8x3/4	WA60QB	63	6,700
088 386	200x0.8x31.75	8x1/32x1-1/4	WA60QB	63	6,050
088 393	200x1.0x31.75	8x1.0mmx1-1/4	WA60QB	63	6,050
088 430	200x1.5x31.75	8x 1/16x1-1/4	WA60QB	63	6,050
088 461	200x2.0x31.75	8x5/64x1-1/4	WA60QB	63	6,050
088 478	200x2.5x19.05	8x3/32x3/4	WA60QB	63	6,050
088 485	200x2.5x31.75	8x3/32x1-1/4	WA60QB	63	6,050
088 492	200x3.0x31.75	8x1/8x1-1/4	WA60QB	63	6,050
088 515	230x1.6x31.75	9x1/16x1-1/4	WA60QB	63	5,250
088 522	230x2x32	9x5/64x32mm	WA60QB	63	5,250
279 760	230x2.5x32	9x3/32x32mm	WA60QB	63	5,250
660 445	230x3x32	9x1/8x32mm	WA60QB	63	5,250
048 519	254x1.8x32	10x1/16x32mm	WA60MB	63	4,850
411 252	300x1.8x32	12x1/16x32mm	WA60QB	63	4,050
088 577	300x2x32	12x5/64x32mm	WA60MB	63	4,050

Reinforced cutting discs

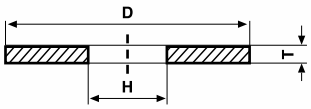
Principle use:

For sharpening teeth of HSS saws (circular and belt), and for cutting HSS tools.

For use on machines that operate at a maximum peripheral speed of 80 M/S.

Diamond and stick dressers: see p. 70-72

Type 1 D = diameter
T = thickness (inch measurements are approximate)
H = bore



EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
355 556	150x1x12.7	6x.040x1/2	A60Q/PBF	80	10,200
089 222	150x1x25.4	6x0.040x1	A60Q/PBF	80	10,200
089 239	150x1x31.75	6x0.040x1-1/4	A60Q/PBF	80	10,200
355 587	150x1.5x12.7	6x.060x1/2	A60Q/PBF	80	10,200
089 253	150x1.6x15.88	6x1/16x5/8	A60Q/PBF	80	10,200
355 600	150x1.6x31.75	6x.060x1-1/4	A60Q/PBF	80	10,200
089 284	150x2x25.4	6x5/64x1	A60Q/PBF	80	10,200
089 345	177x0.8x31.75	7x1/32x1-1/4	A60Q/PBF	80	8,500
089 369	177x1x12.7	7x.040x1/2	A60Q/PBF	80	8,500
355 624	177x1x15.88	7x.040x5/8	A60Q/PBF	80	8,500
355 631	177x1x31.75	7x.040x1-1/4	A60Q/PBF	80	8,500
355 648	177x1.5x12.7	7x.060x1/2	A60Q/PBF	80	8,500
355 655	177x1.5x15.88	7x.060x5/8	A60Q/PBF	80	8,500
355 662	177x1.5x31.75	7x.060x1-1/4	A60Q/PBF	80	8,500
355 686	200x1x15.88	8x.040x5/8	A60Q/PBF	80	7,650
355 693	200x1x31.75	8x.040x1-1/4	A60Q/PBF	80	7,650
355 709	200x1.5x12.7	8x.060x1/2	A60Q/PBF	80	7,650
355 716	200x1.5x15.88	8x.060x5/8	A60Q/PBF	80	7,650
358 991	200x1.5x19.05	8x.060x3/4	A60Q/PBF	80	7,650
355 723	200x1.5x31.75	8x.060x1-1/4	A60Q/PBF	80	7,650

Mounted points

Principle use:

For grinding and deburring of bores, grooves, fluting, and internal parts.

See below our guide for selection of mounted points.


DIE GRINDER


CYLINDRICAL GRINDING

Guide for selection of mounted points

General purpose: PA60P/QV

Heavy duty use: PA36P/QV

Finishing and polishing: Camel Rubber Points

Non-ferrous metals and stone: C36QV

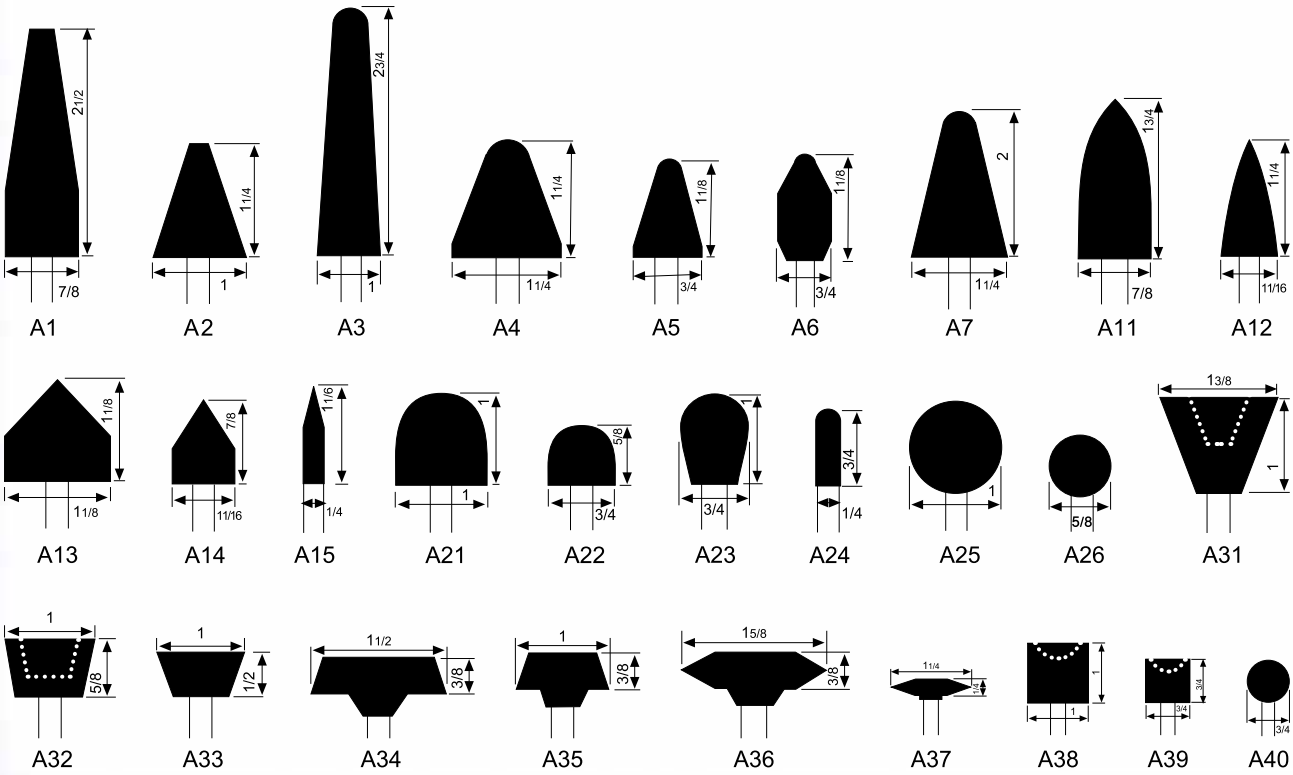
Stainless steel: A46QB

Castings: VA20QV

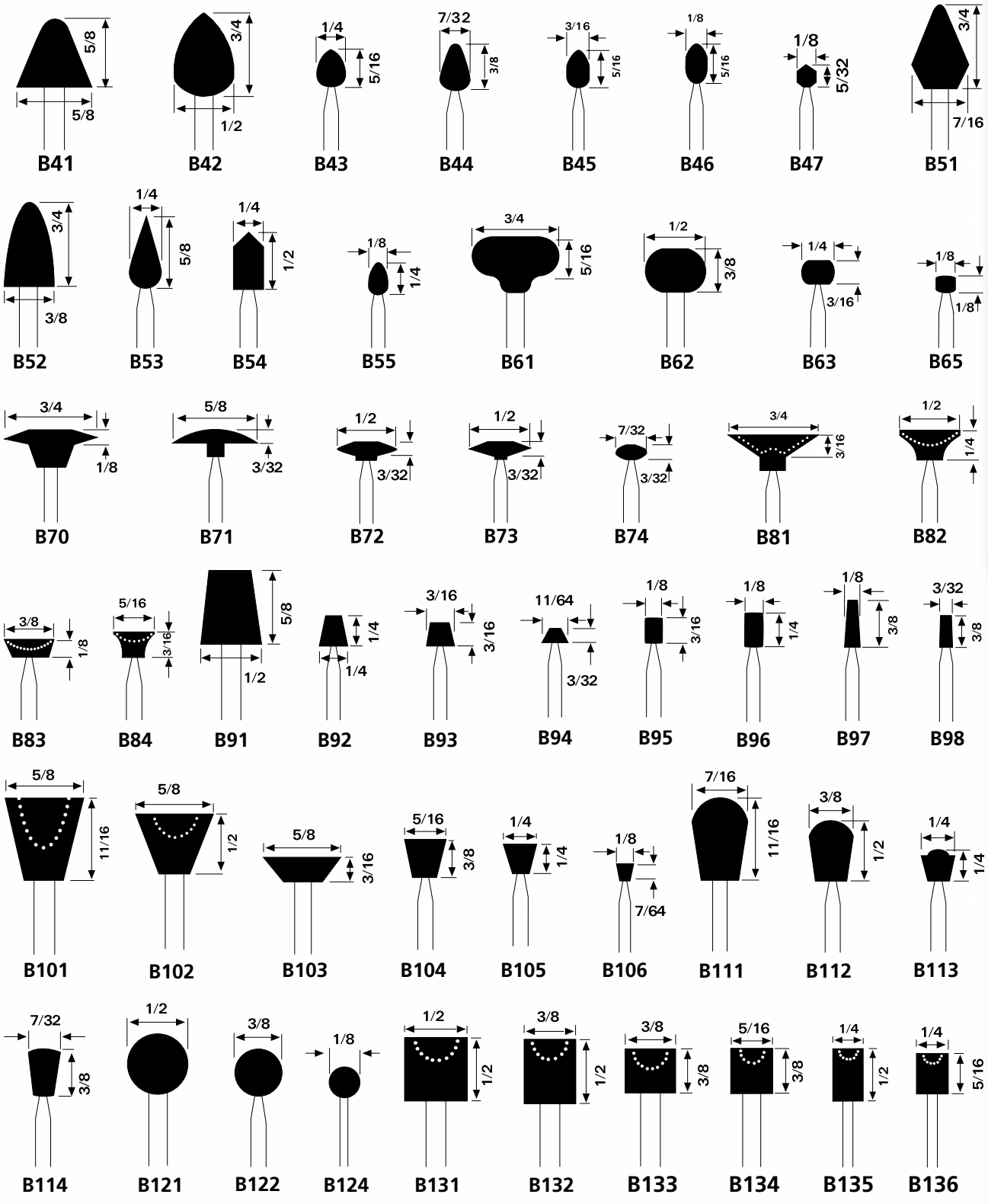
Special orders: mounted points can be manufactured to almost any specification, and are available with 1/8", 3mm, 1/4", or 6mm mandrel.

To place a special order, contact your CGW representative.

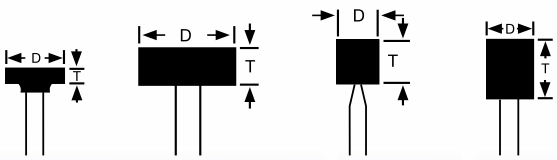
GROUP A: Shaped mounted points / 6mm (1/4") mandrel



GROUP B: Shaped mounted points / 3mm (1/8") mandrel



Group W: Cylindrical mounted points /3mm (1/8") and 6mm (1/4") mandrel



D = diameter
T = height

Safety guide for the use of mounted points

1. General

Bonded abrasive products are breakable and shall therefore be handled with utmost care. The use of damaged or improperly mounted or used abrasive products is dangerous and can cause serious injuries.

2. Delivery, handling and storage

Abrasive products shall be handled and transported with care, and stored in such a manner that they are not subjected to mechanical damage or harmful environmental influences.

3. Selection of the abrasive product

Mounted points shall only be used to grind materials for which the wheel composition is designed. The type of mounted point used on any machine shall only be of a type for which the machine is designed.

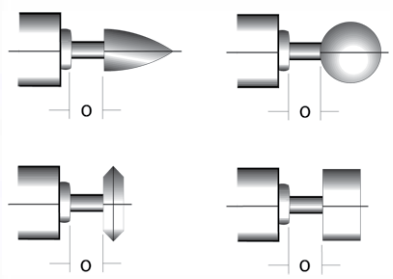
4. Inspection

Prior to mounting, all wheels shall be inspected for damage and cracks. Wheels which show evidence of cracks, abusive handling or abusive storage must not be used.

5. Operating speed

Maximum safe operating speed for mounted points is determined by the following four factors:

a) shape and size of the wheel
b) size of the mandrel
c) mandrel overhang ("o" - distance from clamp to wheel base, see illustration below)
d) wheel specification.
Maximum operating speeds for tools of hard and medium hardness, calculated according to these factors, can be found in the accompanying tables. For soft tools, consult your CGW representative. Do not under any circumstances exceed the maximum permissible operating speed.



6. Mounting

The mounting of abrasive products shall be carried out by a qualified trained person, according to the instructions provided by both the wheel and the machine manufacturers.

The fit of the wheel mandrel shall be free, but not loose. Tighten inserted tool with collet nut to prescribed torque.

All newly mounted wheels shall be run at operating speed in a protected enclosure for at least one minute before applying to workpiece. Out-of-balance wheels which set up vibrations can result in damage and wheel failure. Wheels which cannot be corrected for imbalance by the user must not be used.

7. Personal protection

Safety goggles or safety spectacles shall be worn by all personnel exposed to grinding operations where dust or flying particles are generated. Where necessary, additional personal protective equipment shall be used, such as face protection, ear protection, respiratory protective devices, aprons, protective footwear, protective gloves and other protective clothing.

8. Operation

No one shall stand in front of or in line with the wheel during operation, and the maximum safe operating speed shall not be exceeded.

Pressure between the wheel and the workpiece shall not be so heavy that excessive springing of the mandrel results, as this can cause the mandrel to buckle.

9. Stopping the machine

Coolant, if used, shall be turned off before stopping the wheel, to avoid creating an out-of-balance condition.

Before placing the hand-held grinding machine on the workbench or on the floor it must be turned off, and the abrasive product must have come to a complete stop.

Group A: Shaped mounted points /6mm mandrel

For general use on steel and iron

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base	
				R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
093 816	A-1	20x63	7/8x2-1/2	19,800	16,500
093 847	A-2	25x32	1x1-1/4	38,200	32,620
093 915	A-3	20x70	7/8x2-3/4	16,100	13,080
093 953	A-4	32x32	1-1/4x1-1/4	30,560	24,750
094 004	A-5	20x28	3/4x1-1/8	45,000	33,750
094 028	A-6	20x28	3/4x1-1/8	39,000	29,700
094 059	A-7	32x50	1-1/4x2	16,100	13,080
094 127	A-11	23x50	7/8x2	19,860	15,100
094 158	A-12	18x32	11/16x1-1/4	48,000	35,250
094 189	A-13	28x28	1-1/8x1-1/8	33,950	32,250
094 219	A-14	18x23	11/16x 7/8	55,560	40,500
094 240	A-15	6.5x27	1/4x1-1/16	72,750	47,620
094 295	A-21	25x25	1x1	34,500	26,250
094 318	A-22	20x16	3/4x5/8	50,930	40,500
094 332	A-23	20x25	3/4x1	39,370	30,370
094 363	A-24	6.5x20	1/4x3/4	76,500	49,500
094 387	A-25	25x25	1x1	35,620	27,370
094 400	A-26	16x16	5/8x5/8	61,120	46,500
094 448	A-31	38x25	1-3/8x1	27,780	26,250
094 462	A-32	25x16	1x5/8	38,200	38,200
094 486	A-33	25x12.5	1x1/2	38,200	38,200
094 516	A-34	40x10	1-1/2x3/8	25,470	25,470
094 530	A-35	25x10	1x3/8	38,200	38,200
094 561	A-36	40x10	1-1/2x3/8	23,520	23,520
094 585	A-37	32x6.5	1-1/4x1/4	30,560	30,560
094 615	A-38	25x25	1x1	34,500	26,250
094 646	A-39	20x20	3/4x3/4	47,250	35,250
094 660	A-40	20x20	3/4x3/4	47,250	35,250

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, each mounted point has two maximum operating speeds: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

Group B: Shaped mounted points /3mm mandrel

For general use on steel and iron

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
094 677	B-41	16x16	5/8x5/8	33,750	23,250
094 707	B-42	12.5x20	1/2x3/4	33,750	23,250
094 721	B-43	6.5x8	1/4x5/16	81,370	51,000
094 738	B-44	5.56x10	7/32x3/8	68,400	42,370
094 769	B-45	4.8x8	3/16x5/16	104,250	61,870
094 783	B-46	3.2x8	1/8x5/16	105,000	64,500
094 790	B-47	3.2x4	1/8x5/32	105,000	64,500
094 813	B-51	11x20	7/16x3/4	45,370	28,500
094 837	B-52	10x20	3/8x3/4	45,370	28,500
094 868	B-53	6.5x16	1/4x5/8	60,000	38,020
094 899	B-54	6.5x12.5	1/4x1/2	60,000	38,020
094 912	B-55	3.2x6.5	1/8x1/4	105,000	64,500
094 936	B-61	20x8	3/4x5/16	38,250	24,370
094 950	B-62	12.5x10	1/2x3/8	41,020	26,400
094 974	B-63	6.5x4.8	1/4x3/16	92,400	57,370
094 998	B-65	3.2x3.2	1/8x1/8	105,000	64,500
095 001	B-70	20x3.2	3/4x1/8	50,930	41,250
095 025	B-71	16x2.4	5/8x3/32	61,120	48,000
095 049	B-72	12.5x2.4	1/2x3/32	73,500	43,650
095 063	B-81	20x4.8	3/4x3/16	50,930	41,250
295 777	B-82	12.5x6.5	1/2x1/4	76,390	51,000
095 094	B-83	10x3.2	3/8x1/8	87,600	53,250
432 899	B-84	8x4.8	5/16x3/16	105,500	64,500
095 117	B-91	12.5x16	1/2x5/8	34,500	22,500
095 131	B-92	6.5x6.5	1/4x1/4	81,370	51,000
095 155	B-93	4.8x4.8	3/16x3/16	105,500	64,500
426 157	B-94	4.4x2.4	11/64x3/32	105,500	64,500
095 162	B-95	3.2x4.8	1/8x3/16	105,500	64,500
095 179	B-96	3.2x6.5	1/8x1/4	105,500	64,500
095 209	B-97	2.4x10	3/32x3/8	105,500	64,500
095 223	B-98	2.4x6.5	3/32x1/4	105,500	64,500

Group B: Shaped mounted points /3mm mandrel (cont.)

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
095 247	B-101	16x18	5/8x11/16	33,750	23,250
095 261	B-102	16x12.5	5/8x1/2	45,370	28,500
095 292	B-103	16x4.8	5/8x3/16	61,120	41,250
095 322	B-104	8x10	5/16x3/8	68,400	42,370
095 346	B-105	6.5x6.5	1/4x1/4	104,250	61,870
338 825	B-106	3.2x2.8	1/8x7/64	105,000	64,500
095 353	B-111	11x18	7/16x11/16	33,750	23,250
095 384	B-112	10x12.5	3/8x1/2	45,370	28,500
095 407	B-113	6.5x6.5	1/4x1/4	81,370	51,000
601 158	B-114	5.5x10	7/32x3/8	68,400	42,370
095 414	B-121	12.5x12.5	1/2x1/2	45,370	28,500
095 445	B-122	10x10	3/8x3/8	61,650	37,720
095 506	B-131	12.5x12.5	1/2x1/2	34,500	22,500
095 537	B-132	10x12.5	3/8x1/2	45.370	28,500
095 568	B-133	10x10	3/8x3/8	54,000	33,000
095 582	B-134	8x10	5/16x3/8	61,650	37,720
095 605	B-135	6.5x12.5	1/4x1/2	60,000	38,020
095 636	B-136	6.5x8	1/4x5/16	77,350	45,920

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, each mounted point has two maximum operating speeds: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

Group W: Cylindrical mounted points/3mm mandrel

For general use on steel and iron

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
095 650	W-143	3.2x3.2	1/8x1/8	105,000	46,500
095 674	W-144	3.2x6.5	1/8x1/4	105,000	46,500
095 698	W-145	3.2x10	1/8x3/8	105,000	46,500
095 735	W-146	3.2x12.5	1/8x1/2	105,000	46,500
601 172	W-147	3.2x16	1/8x5/8	105,000	46,500
095 766	W-149	4x6.5	5/32x1/4	105,000	46,500
601 189	W-151	4.8x3.2	3/16x1/8	105,000	46,500
095 780	W-152	4.8x6.5	3/16x1/4	105,000	46,500
095 810	W-153	4.8x10	3/16x3/8	80,850	52,500
095 841	W-154	4.8x12.5	3/16x1/2	70,500	45,600
601 196	W-158	6.5x3.2	1/4x1/8	105,000	64,500
095 865	W-159	6.5x4.8	1/4x3/16	92,400	57,370
095 872	W-160	6.5x6.5	1/4x1/4	81,370	51,000
601 202	W-161	6.5x8	1/4x5/16	77,250	45,970
095 926	W-162	6.5x10	1/4x3/8	68,400	42,370
095 964	W-163	6.5x12.5	1/4x1/2	60,000	38,020
096 008	W-164	6.5x20	1/4x3/4	45,900	30,000
306 329	W-166	8x3.2	5/16x1/8	96,970	57,000
306 336	W-167	8x6.5	5/16x1/4	75,000	45,750
096 046	W-168	8x8	5/16x5/16	68,400	41,770
096 077	W-169	8x10	5/16x3/8	61,650	37,720
096 107	W-170	8x12.5	5/16x1/2	52,500	33,000
096 138	W-171	8x20	5/16x3/4	37,120	25,500
096 152	W-173	10x3.2	3/8x1/8	87,600	53,250
601 219	W-174	10x6.5	3/8x1/4	69,000	41,250
096 183	W-175	10x10	3/8x3/8	54,000	33,000
096 220	W-176	10x12.5	3/8x1/2	45,370	28,500
096 268	W-177	10x20	3/8x3/4	33,750	23,250
601 226	W-178	10x25	3/8x1	26,250	18,750
511 013	W-182	12.5x3.2	1/2x1/8	73,500	43,650
096 398	W-183	12.5x6.5	1/2x1/4	51,750	31,870
280 841	W-184	12.5x10	1/2 x 3/8	41,020	26,400
096 442	W-185	12.5x12.5	1/2x1/2	34,500	22,500

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, each mounted point has two maximum operating speeds: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

Group W: cylindrical mounted points/3mm mandrel (cont.)

Specification: PA 60 P/Q				Max. R.P.M. by distance from clamp to tool base	
EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
096 497	W-186	12.5x20	1/2x3/4	26,250	17,400
601 233	W-187	12.5x25	1/2x1	20,620	13,870
306 343	W-191	16x3.2	5/8x1/8	58,870	34,500
569 250	W-192	16x6.5	5/8x1/4	43,120	27,370
601 240	W-193	16x10	5/8x3/8	32,250	23,020
601 257	W-194	16x12.5	5/8x1/2	29,400	19,120
601 264	W-195	16x20	5/8x3/4	22,120	14,250
601 271	W-196	16x25	5/8x1	17,620	11,620
096 763	W-200	20x3.2	3/4x1/8	50,930	33,520
569 267	W-201	20x6.5	3/4x1/4	38,250	24,370
601 288	W-202	20x10	3/4x3/8	30,600	19,500
601 295	W-203	20x12.5	3/4x1/2	25,500	15,900
096 886	W-204	20x20	3/4x3/4	18,900	12,000
097 067	W-211	23x3.2	7/8x1/8	43,650	27,900
601 301	W-212	23x6.5	7/8x1/4	33,750	20,400
601 318	W-213	23x10	7/8x3/8	27,000	16,870

Group W: Cylindrical mounted points/6mm mandrel
For general use on steel and iron

097 104	W-215	25x3.2	1x1/8	38,200	24,900
096 237	W-176	10x12.5	3/8x1/2	81,000	54,379
096 282	W-177	10x20	3/8x3/4	66,000	46,500
096 312	W-178	10x25	3/8x1	55,200	40,500
096 343	W-179	10x32	3/8x1-1/4	45,750	33,750
096 367	W-180	10x40	3/8x1-1/2	40,250	30,500
096 374	W-182	12.5x3.2	1/2x1/8	76,390	62,400
096 404	W-183	12.5x6.5	1/2x1/4	76,390	54,750
096 428	W-184	12.5x10	1/2x3/8	71,250	47,620
096 466	W-185	12.5x12.5	1/2x1/2	61,500	42,000
096 510	W-186	12.5x20	1/2x3/4	51,000	36,370
096 534	W-187	12.5x25	1/2x1	40,500	30,000
096 565	W-188	12.5x40	1/2x1-1/2	30,370	24,000
096 596	W-189	12.5x2	1/2x2	24,000	18,750
096 602	W-191	16x3.2	5/8x1/8	61,120	60,000

Group W: cylindrical mounted points/6mm mandrel (cont.)

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
096 619	W-192	16x6.5	5/8x1/4	61,120	51,750
096 633	W-193	16x10	5/8x3/8	61,120	45,000
096 657	W-194	16x12.5	5/8x1/2	56,400	39,750
096 671	W-195	16x20	5/8x3/4	46,500	32,400
096 701	W-196	16x25	5/8x1	35,250	27,000
096 732	W-197	16x32	5/8x1-1/4	21,000	16,500
096 749	W-198	16x40	5/8x1-1/2	16,500	12,900
096 756	W-199	16x50	5/8x2	15,000	10,000
096 824	W-201	20x6.5	3/4x1/4	50,930	50,930
096 848	W-202	20x10	3/4x3/8	50,930	44,100
096 862	W-203	20x12.5	3/4x1/2	50,930	36,370
096 916	W-204	20x20	3/4x3/4	42,750	30,750
096 954	W-205	20x25	3/4x1	34,500	25,870
096 992	W-206	20x32	3/4x1-1/4	28,720	21,520
097 029	W-207	20x40	3/4x1-1/2	24,000	18,520
097 050	W-208	20x50	3/4x2	18,750	15,370
097 074	W-211	23x3.2	7/8x1/8	43,650	43,650
601 134	W-212	23x76.5	7/8x1/4	43,650	43,650
097 081	W-213	23x10	7/8x3/8	43,650	40,870
097 111	W-215	25x3.2	1x1/8	38,200	38,200
097 142	W-216	25x6.5	1x1/4	38,200	38,200
097 166	W-217	25x10	1x3/8	38,200	38,200
097 180	W-218	25x12.5	1x1/2	38,200	32,700
097 197	W-219	25x20	1x3/4	35,100	24,520
097 234	W-220	25x25	1x1	25,500	19,120
097 258	W-221	25x40	1x1-1/2	19,120	14,620
097 272	W-222	25x50	1x2	15,900	12,370
097 319	W-225	32x6.5	1-1/4x1/4	30,560	30,560
097 333	W-226	32x10	1-1/4x3/8	30,560	30,560
097 357	W-227	32x12.5	1-1/4x1/2	30,560	19,620
097 395	W-228	32x20	1-1/4x3/4	30,560	22,500
097 401	W-229	32x25	1-1/4x1	24,000	18,750
097 432	W-230	32x32	1-1/4x1-1/4	20,400	15,900
097 449	W-231	32x40	1-1/4x1-1/2	17,620	13,500

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, each mounted point has two maximum operating speeds: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

Group W: cylindrical mounted points/6mm mandrel (cont.)

Specification: PA 60 P/Q

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
097 463	W-232	32x50	1-1/4x2	14,250	10,650
601 141	W-233	40x3.2	1-1/2x1/8	25,470	25,470
097 487	W-234	40x6.5	1-1/2x1/4	25,470	25,470
097 500	W-235	40x10	1-1/2x3/8	25,470	25,470
097 555	W-236	40x12.5	1-1/2x1/2	25,470	25,470
097 579	W-237	40x25	1-1/2x1	22,500	17,620
097 593	W-238	40x40	1-1/2x1-1/2	15,600	12,000
097 647	W-242	50x25	2x1	19,100	15,950
097 654	W-337	40x20	1-1/2x3/4	24,000	20,800
097 661	W-339	40x32	1-1/2x1-1/4	19,000	10,200
097 609	W-341	50x6.5	2x1/4	23,700	18,700
097 685	W-342	50x10	2x3/8	23,700	18,700
097 692	W-343	50x12.5	2x1/2	21,700	17,200
097 715	W-344	50x16	2x5/8	20,400	16,800
097 722	W-345	50x20	2x3/4	19,900	16,300
097 739	W-346	50x32	2x1-1/4	19,900	16,300
097 746	W-347	50x40	2x1-1/2	19,100	15,950

Set of mounted points

EAN code	Description
309 450	Boxed set of 100 mounted points 10x10 different shapes (custom order)

Group A: Shaped mounted points/6mm mandrel

For stainless steel

Specification: A 46 QB

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
099 146	A-1	20x63	7/8x2-1/2	19,800	16,500
099 153	A-2	25x32	1x1-1/4	38,200	32,620
099 160	A-3	25x70	1x2-3/4	16,100	13,080
099 177	A-4	32x32	1-1/4x1-1/4	30,560	24,750
099 184	A-5	20x28	3/4x1-1/8	45,000	33,750
468 683	A-7	32x50	1-1/4x2	16,100	13,080
099 214	A-11	23x50	7/8x2	19,860	15,100
099 221	A-12	18x32	11/16x1-1/4	48,000	35,250
405 909	A-14	18x23	11/16x 7/8	55,560	40,500
099 238	A-15	6.5x27	1/4x1-1/16	72,750	47,620
099 245	A-21	25x25	1x1	34,500	26,250
099 252	A-24	6.5x20	1/4x3/4	76,500	49,500
099 269	A-25	25x25	1x1	35,620	27,370
099 276	A-26	16x16	5/8x5/8	61,120	46,500
099 283	A-31	38x25	1-3/8x1	27,780	26,250
099 306	A-36	40x10	1-1/2x3/8	23,520	23,520
099 313	A-37	32x6.5	1-1/4x1/4	30,560	30,560
099 320	A-38	25x25	1x1	34,500	26,250
099 337	A-39	20x20	3/4x3/4	47,250	35,250
099 344	A-40	20x20	3/4x3/4	47,250	35,250

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, each mounted point has two maximum operating speeds: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

Group W: Cylindrical mounted points/6mm mandrel
For stainless steel

Specification: A 46 QB

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
099 665	W-207	20x40	3/4x1-1/2	24,000	18,520
099 689	W-208	20x50	3/4x2	18,750	15,370
099 696	W-214	23x12.5	7/8x1/2	43,650	43,650
099 740	W-218	25x12.5	1x1/2	38,200	32,700
099 757	W-219	25x20	1x3/4	35,100	24,520
099 771	W-220	25x25	1x1	25,500	19,120
099 788	W-221	25x40	1x1-1/2	19,120	14,620
099 795	W-225	32x6.5	1-1/4x1/4	30,560	30,560
099 801	W-226	32x10	1-1/4x3/8	30,560	30,560
099 818	W-227	32x12.5	1-1/4x1/2	30,560	19,620
099 825	W-228	32x20	1-1/4x3/4	30,560	22,500
099 832	W-229	32x25	1-1/4x1	24,000	18,750
099 849	W-230	32x32	1-1/4x1-1/4	20,400	15,900
099 856	W-231	32x40	1-1/4x1-1/2	17,620	13,500
099 894	W-234	40x6.5	1-1/2x1/4	25,470	25,470
099 931	W-235	40x10	1-1/2x3/8	25,470	25,470
099 993	W-236	40x12.5	1-1/2x1/2	25,470	25,470
100 019	W-237	40x25	1-1/2x1	22,500	17,620
100 033	W-238	40x40	1-1/2x1-1/2	15,600	12,000
100 040	W-241	50x6.5	2x1/4	23,700	18,700
100 064	W-242	50x25	2x1	19,100	15,950
100 088	W-337	40x20	1-1/2x3/4	24,000	20,800
100 095	W-339	40x32	1-1/2x1-1/4	19,000	10,200
313 341	W-341	50x6.5	2x1/4	23,700	18,700
100 118	W-342	50x10	2x3/8	23,700	18,700
100 132	W-343	50x12.5	2x1/2	21,700	17,200
100 149	W-344	50x16	2x5/8	20,400	16,800
100 163	W-345	50x20	2x3/4	19,900	16,300
100 170	W-346	50x32	2x1-1/4	19,900	16,300
100 187	W-347	50x40	2x1-1/2	19,100	15,950

Mounted points for use on grey castings/6mm mandrel

Note: each item has a different specification

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Specification	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
092 949	A-1	22x64	7/8x2-1/2	A36P5V	61,120	46,500
426 881	A-3	25x70	1x2-3/4	A30P5V	27,780	26,250
432 936	A-3	25x70	1x2-3/4	PAB20P5	23,520	23,520
660 797	A-3	25x70	1x2-3/4	A/PA20S5V	30,560	30,560
092 888	W-207	20x40	3/4x1/2	VA20Q6V	34,500	26,250
314 782	W-208-SP	20x50	3/4x2	PAB20P5V	47,250	35,250
092 895	W-230	32x32	1-1/4x1-1/4	VA20Q6V	47,250	35,250

Rubber-bonded mounted points - stock items

EAN code	Shape	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Grit	Color	Max. R.P.M. by distance from clamp to tool base: R.P.M. 13mm (1/2")	R.P.M. 25mm (1")
474 141	B-53	6.5x16	1/4x5/8	Medium	Yellow	60,000	38,020
467 327	B-53	6.5x16	1/4x5/8	Fine	Blue	60,000	38,020
474 134	B-121	12.5x12.5	1/2x1/2	Medium	Yellow	45,370	28,500
467 341	B-121	12.5x12.5	1/2x1/2	Fine	Blue	45,370	28,500
474 158	W-176	10x12.5	3/8x1/2	Medium	Yellow	45,370	28,500
467 365	W-176	10x12.5	3/8x1/2	Fine	Blue	45,370	28,500
474 165	W-194	16x12.5	5/8x1/2	Medium	Yellow	29,400	19,120
467 389	W-194	16x12.5	5/8x1/2	Fine	Blue	29,400	19,120

The distance between the clamp and the base of the tool determines the maximum safe operating speed; therefore, two maximum operating speeds are indicated for each mounted point: one for a distance of 25mm from the base of the tool to the clamp, the second for a distance of 13mm.

White aluminium oxide (WA) valve seat grinding wheels

Principle use:

For grinding valve seats

Thread size: 9/16" ; release angle: 45°

VALVE SEAT GRINDER

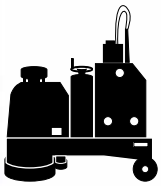
D = diameter
T = thickness

EAN code	Dimensions (mm) D x T	Dimensions (inches) D x T	Specification	M/S	R.P.M.
412 532	25x19	1x3/4	WA60 L/M	35	26,330
399 819	27x19	1-1/16x3/4	WA60 L/M	35	24,770
368 624	28x19	1-1/8x3/4	WA60 L/M	35	23,885
318 957	30x19	1-3/16x3/4	WA60 L/M	35	22,293
043 071	32x19	1-1/4x3/4	WA60 L/M	35	20,900
043 088	33x19	1-5/16x3/4	WA60 L/M	35	20,666
043 095	35x19	1-3/8x3/4	WA60 L/M	35	19,108
043 101	36x19	1-7/16x3/4	WA60 L/M	35	18,580
043 118	38x19	1-1/2x3/4	WA60 L/M	35	17,550
043 125	40x19	1-9/16x3/4	WA60 L/M	35	16,720
043 132	41x19	1-5/8x3/4	WA60 L/M	35	16,312
043 149	43x19	1-11/16x3/4	WA60 L/M	35	15,553
043 156	45x19	1-3/4x3/4	WA60 L/M	35	14,850
043 163	46x19	1-13/16x3/4	WA60 L/M	35	14,540
043 170	48x19	1-7/8x3/4	WA60 L/M	35	13,935
043 187	49x19	1-15/16x3/4	WA60 L/M	35	13,650
043 194	50x19	2x3/4	WA60 L/M	35	13,165
286 768	52x19	2-1/16x3/4	WA60 L/M	35	12,862
043 200	54x19	2-1/8x3/4	WA60 L/M	35	12,385
043 217	56x19	2-3/16x3/4	WA60 L/M	35	11,943
043 224	57x19	2-1/4x3/4	WA60 L/M	35	11,733
043 248	60x19	2-3/8x3/4	WA60 L/M	35	11,146
043 255	64x19	2-1/2x3/4	WA60 L/M	35	10,450

Concrete polishing wheel with 12 x M12 nuts

Principle use:

For grinding concrete surfaces.



POLISHING MACHINE

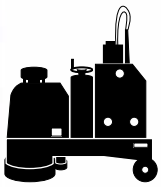
D = diameter
T = thickness
H = bore

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	M/S	R.P.M.
508 464	406x101.6x304.8	16x4x12	C14RB	35	1,700

Concrete grinding stones

Principle use:

For grinding concrete surfaces.



POLISHING MACHINE

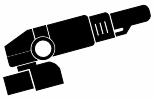
EAN code	Specification
041 770	C16Q5V
041 787	C24Q5V
041 794	C36P5V
041 800	C46N6V
041 817	C60M6V
041 824	C80M6V
041 831	C100M6V
041 848	C120M6V
041 855	GC220M6V

Snagging cup wheels

Principle use:

For use in foundries, and in the stone and marble industries.

T = thread
N = normal bore



ANGLE GRINDER

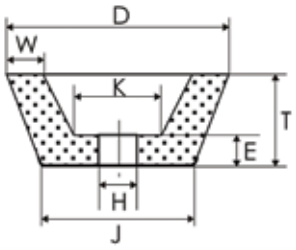
EAN code	Bore	Dimensions (mm) diameter x height	Dimensions (inches) diameter x height	Specification	Type	M/S	R.P.M.
706 051	T	100/76x50xM14	4/3x2xM14	A16Q5B	T-11C	50	9,550
796 069	N	110/90x50x22.2	110/90mmx2x7/8	A16N4B	T-11T	50	8,685
735 235	N	110/90x50x22.2	110/90mmx2x7/8	C24R5B	T-11T	50	8,685
706 068	T	125/100x50x5/8"	5/4x2x5/8	A24Q5B	T-11B	50	8,350
706006	T	125/100x50x5/8"	5/4x2x5/8	C24Q5B	T-11B	50	8,350
706 044	T	125/100x50xM14	5/4x2xM14	C24Q5B	T-11B	50	8,350
706 037	T	125/100x50xM14	5/4x2xM14	C60Q5B	T-11B	50	8,350
359 004	T	*155/120x50x5/8	6x2x5/8	A16Q4B	T-11B	50	6,400
104 826	T	*155/120x50x5/8	6x2x5/8	A24Q4B	T-11B	50	6,400
667 659	T	*155/120x50x5/8	6x2x5/8	C16N5B	T-11B	50	6,400

* Available as 150 or 155 mm

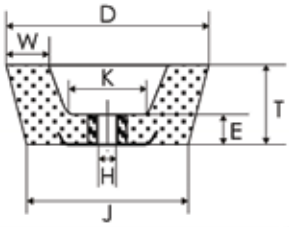
D/J	T	H	W	E	K	Most common grades
100/76	50	22.2 *	20	20	46	A16Q
110/90	50	22.2 *	20	12	45	A24Q
125/100	50	22.2 *	25	18	56	C16N
150/120 155/122	50	*	32	20	63	C30N

* Thread: M14 - 5/8 - M10 - etc.

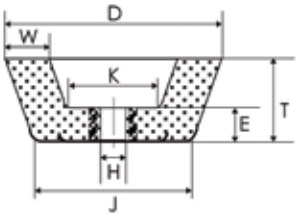
Type 11 Model T



Type 11 Model B



Type 11 Model C



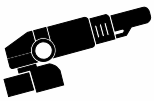
Threaded cones

Principle use:

For coarse grinding in foundries and in the marble industry.

Note:
A = for use on metal
C = for use on concrete and marble

D = diameter
T = thickness
H = thread


ANGLE GRINDER

EAN code	Dimensions (mm) D x T x H	Dimensions (inches) D x T x H	Specification	Type	M/S	R.P.M.
043 316	41x80xm14	1-5/8x3-1/8xM14	A16QB	T-18R	50	23,900
043 347	41x80xm14	1-5/8x3-1/8xM14	C36QB	T-18R	50	23,900
043 323	60x71x5/8"	2-3/8 x2-3/4x5/8"	A16SB	T-17	50	15,200

Resin cup wheels

Principle use:

For use in the railway industry

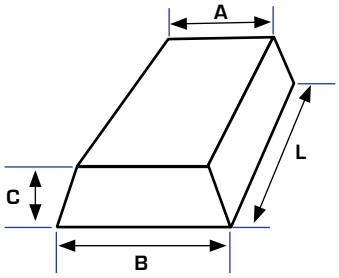
778 638	150x55xM20	A16Q4B	T-6	50	6,400
734 634	155x65x15.88	A16Q4B	T-6	50	6,400
711 178	156x70x57	A16Q4B	4xM8	50	6,400

Surface grinding segments

Principle use:

For surface grinding on vertical spindle rotary tables.

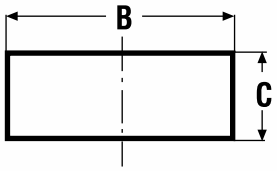
For recommendations on matching segment composition to application, see p. 12: “Selecting abrasive wheels”.



B = large width
A = small width
C = height
L = length

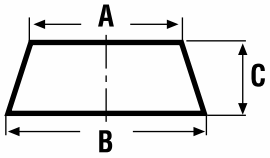
SURFACE GRINDER

EAN code	Type	Dimensions (mm) L x B x C	Specification
647 057	ST-1	210x120x30	WAR36E8V
668 960	ST-1	210x120x30	DA36J8V
664 313	ST-1	210x120x30	WA24G9V
664 320	ST-1	210x120x30	WA36H8V
379 941	ST-2	150x80x30	WAR24D11V
508 044	ST-2	150x80x30	AS324D11V
045 891	ST-30	150x90x35	DA24H8V
594 924	ST-30	150x90x35	DA24H11V
050 857	ST-31	150x80x25	WAB36B 9V
644 742	ST-31	150x80x25	AS330D12V
587 872	ST-31	150x80x25	DA24D12V
045 907	ST-31	150x80x25	DA24I8V
529 490	ST-31	150x80x25	DA30J8V
368 075	ST-32	150x60x25	WAB36B 9V
045 501	ST-32	150x60x25	AS180D8V
615 926	ST-32	150x60x25	AS336B 9V
045 716	ST-32	150x60x25	AS360GPV
046 201	ST-32	150x60x25	WA30/2G8V
419 470	ST-32	150x60x25	WA36FB
718 009	ST-33	100 x50x16	WA46H8V
046 904	ST-34	100x50x12	A46K5B
045 921	ST-35	150x90x30	DA30J8V
046 959	ST-35	150x90x30	WA36G10B
512 652	ST-92	90x70x21	WA46D8V
322 015	ST-92	90x70x21	PA60D8V

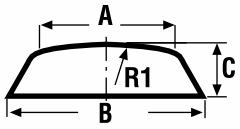


Surface grinding segments (cont.)

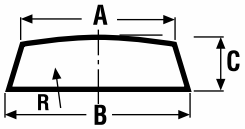
EAN code	Type	Dimensions (mm) L x B/A x C	Specification
046 256	TR-36	100x43/38x20	WA36J8V
598 373	TR-37	70x65/57x20	PA/WA30D9V
414 918	TR-37	70x65/57x20	WAR36D8V
438 402	TR-37	70x65/57x20	C24H7V
046 652	TR-37	70x65/57x20	C36H7V
458 684	TR-38	125x64/45x20	PA/WA30D9V
046 270	TR-38	125x64/45x20	WA36H8V
257 201	TR-38	125x64/45x20	C30G7V
046 676	TR-38	125x64/45x20	C36H7V
300 280	TR-39	150x70/64x25	AS180C12V
660 094	TR-39	150x70/64x25	AS330D12 V
046 317	TR-39	150x70/64x25	WA46D12V
046 331	TR-39	150x70/64x25	WA46H8V
612 116	TR-39	150x70/64x25	WA46J12V
045 532	TR-85	150x60/55x22	AS180D8V
424 603	TR-85	150x60/55x22	AS336G8V
046 546	TR-85	150x60/55x22	WA36G8V



045 617	OR/B-12	203x118/78x45	WAR36E8V
045 747	OR/B-12	203x118/78x45	DA36J8V
260 423	OR/B-12	203x118/78x45	WA24G9V
045 969	OR/B-12	203x118/78x45	WA36E8V
045 976	OR/B-12	203x118/78x45	WA36H8V

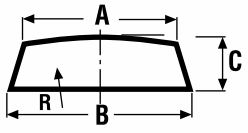


578 894	OR/C-14	203x103/83x38	WAB30G12V
578 917	OR/C-14	203x103/83x38	WAB46G12V
468 287	OR/C-14	203x103/83x38	PA/WA30G12V
578 900	OR/C-14	203x103/83x38	PA/WA46G12V
652 570	OR/C-14	203x103 / 83x38	AS336G12V
630 141	OR/C-14	203x103/83x38	DA30G12V
488 070	OR/C-71	150x103/83x38	WAB24DPV
045 709	OR/C-71	150x103/83x38	WAR36D8V
571 796	OR/C-71	150x103 / 83x38	AS336F12V
580 156	OR/C-71	150x103/83x38	DA36G10V
046 447	OR/C-71	150x103/83x38	WA36I8V
578 733	OR/C-72	150x60/50x22	PA/WA30D9V

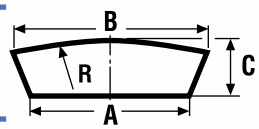


Surface grinding segments (cont.)

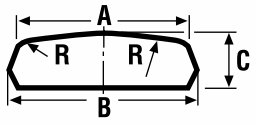
EAN code	Type	Dimensions (mm) L x B/A x C	Specification
046 454	OR/C-72	150x60/50x22	WA36G8V
047 017	OR/C-72	150x60/50x22	C30F10B
372 447	OR/C-72	150x60/50x22	C36G8V
693 030	OR/C-72	*90x60/50x22	C36H7V
525 393	OR/C-73	127x90/70x30	PA/WA30D9V
673 155	OR/C-73	127x90/70x30	WA36H12V
046 478	OR/C-73	127x90/70x30	WA 46H8V
046 799	OR/C-73	127x90/70x30	C36H5V
049 288	OR/C-74	100x66/57x25	PA/WA30D09
336 043	OR/C-74	100x66/57x25	C24CPV
046 829	OR/C-74	100x66/57x25	C36G7V
430 239	OR/C-88	70x60/55x18	WA30I8V
046 850	OR/C-88	70x60/55x18	C36L6V



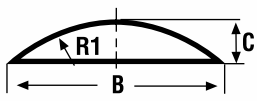
046 072	OR/E-15	150x118/78x44	WA36H8V



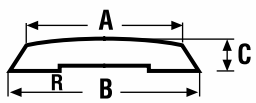
045 655	OR/F-16	150x118/94x44	WAR36D10V
046 096	OR/F-16	150x118/94x44	WA36E8V



718 023	OR/G-11	203x150x48	WA46H8V
045 624	OR/G-13	286x146x62	WAR36C8V

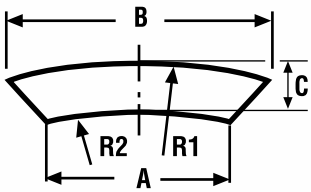


046 553	OR/H-86	100x65/61x18	WA46H8V
047 031	OR/H-86	100x65/61x18	C46K7B

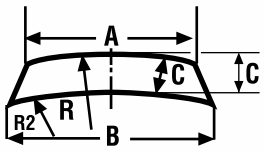


Surface grinding segments (cont.)

EAN code	Type	Dimensions (mm) L x B/A x C	Specification
718 030	IR/A-22	150x76/61x18	WA46H8V
608 065	IR/A-23	200x115/90x26	AS336F8V
718 047	IR/A46	150x73/38x27	WA46H8V
607 112	IR/A-52	120 x95/72x25	WA46G8V
573 400	IR/A-54	150x97/72x25	AS146C10V
045 525	IR/A-54	150x97/72x25	AS180D8V
328 499	IR/A-54	150x97/72x25	AS1100D8V
643 738	IR/A-54	150x 97/72x25	WAR36E8V
046 966	IR/A-54	150x97/72x25	WA36H3B
046 386	IR/A-54	150x97/72x25	WA 46I8V
046 393	IR/A-54	150x97/72x25	WA 60E8V
630 646	IR/A-54	150x97/72x25	WA 60H3B
691 425	IR/A-54	150x97/72x25	WA80H3B
718 054	IR/A-55	150x75/50x25	WA46H8V
718 061	IR/A-82	80x60/45x21	WA46H8V
718 078	IR/A-87	69/63x37/26x26	WA46H8V

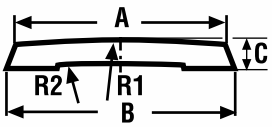


045 884	IR/C-24	150x112/90x36	DA30J8V
429 059	IR/C-53	100x55/46x20	WA36F8V
547 791	IR/C-80	80x51/45x15	AS146DPV
551 491	IR/C-81	100x84/74x21	C46LB
545 018	IR/C-82	100x50/45x20	WA36F8V
696 741	IR/C-83	110x51/45x15	PA/WA30D9V
046 485	IR/C-83	110x51/45x15	WA36H8V
046 492	IR/C-83	110x51/45x15	WA46E9V
046 508	IR/C-83	110x51/45x15	WA46H8V
046 522	IR/C-83	110x51/45x15	WA60G8V
417 483	IR/C-83	110x51/45x15	WA80H8V
624 966	IR/C-83	110x51/45x15	WA80J7V
046 539	IR/C-83	110x51/45x15	WA100H8V
046 843	IR/C-83	110x51/45x15	C36J7V
614 578	IR/C-83	53x51/45x15	C36J7V
718 085	IR/C-84	55x51/45x15	WA46H8V

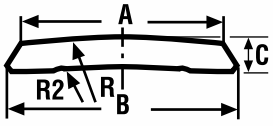


Surface grinding segments (cont.)

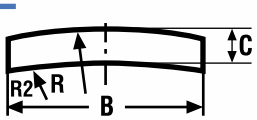
EAN code	Type	Dimensions (mm) L x B/A x C	Specification
545 148	IR/D-51	80x80/70x20	PA/WA30D9V
472 635	IR/D-51	80x80/70x20	GC46H5V
046 683	IR/D-51	80x80/70x20	C24H7V
046 706	IR/D-51	80x80/70x20	C36H8V
430 628	IR/D-51	80x80/70x20	C36K7V



628 292	IR/E-20	155x127/105 x37	WAB24GPV
045 549	IR/E-20	155x127/105x37	PAB24I12V
341 078	IR/E-20	155x127/105x37	PAB30F12V
341 085	IR/E-20	155x127/105x37	PAB30H12V
341 399	IR/E-20	155x127/105x37	PAB30I12V
605 002	IR/E-20	155x127/105x37	AS230F12V
045 853	IR/E-20	155x127/105x37	DA36G12V
365 036	IR/E-20	155x127/105x37	WA 46D12V
046 584	IR/E-20	155x127/105x37	PA30F10V
045 686	IR/E-21	182x120/114x30	WAR36E8V
675 388	IR/E-21	182x120/114x30	WA24G 9V
046 126	IR/E-21	182x120/114x30	WA36H8V



046 638	IR/G-25	50x50/50x15	C36J7V

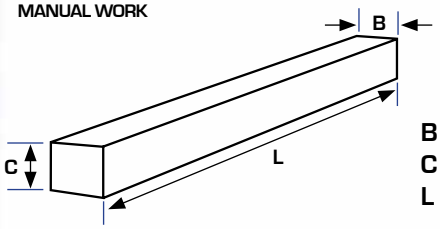


Hand-held stones for truing ceramic wheels

Principle use:

For truing ceramic wheels.

MANUAL WORK



B = width
C = height
L = length

EAN code	Dimensions (mm) B x C x L	Dimensions (inches) B x C x L	Specification
042 883	19x25x150	3/4x1x6	C 36R
042 890	19x25x150	3/4x1x6	C 46R
359 097	25x25x150	1x1x6	C 24S
042 920	25x25x150	1x1x6	C 36R
433 094	25x25x200	1x1x8	C 16R
359 103	25x25x200	1x1x8	C 20R

Single-point diamond dressers

Principle use:

For truing, opening and profiling ceramic wheels.

Note:
Diameter of head and dimensions of the holder - by customer request.

Specification

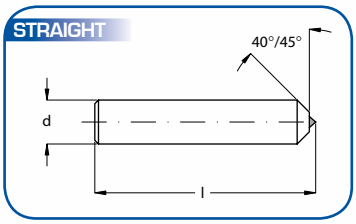
1/4C
1/3C
1/2C
3/4C
1C
1-1/2C

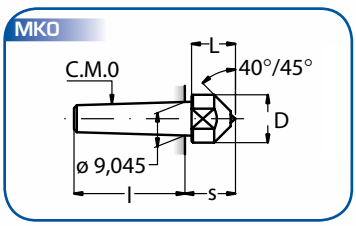
Multi-point diamond dressers

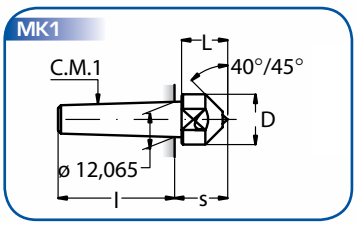
Multi-point dressers can be ordered in a variety of sizes and shapes, and in all types of holders.

Types of holders for diamond dressers

The dresser holder can be ordered in a variety of types and sizes (see diagrams below)







Hand-held dressers

Principle use:

For manual dressing of ceramic wheels.

MANUAL WORK

Hand-held multi-point diamond dressers

EAN code	Head Ø (mm)	Holder L x Ø (mm)	Holder L x Ø (inches)	Specifi-cation
252 909	11	10x90	3/8x3-1/2	B10
293 483	16	13x110	1/2x4-1/3	AAA15

DESMOND hand-held dressers with cutters

EAN code	For wheel sizes (Ø)	Description
267 903	to 10"	#0 handle with cutter
274 017	10" - 16"	#1 handle with cutter
257 478	16" - 36"	#2 handle with cutter

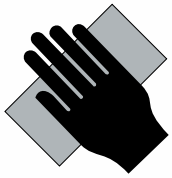
DESMOND cutters

EAN code	For wheel sizes (Ø)	Description
274 048	to 10"	#0 cutter
274 055	10" - 16"	#1 cutter
274 031	16" - 36"	#2 cutter

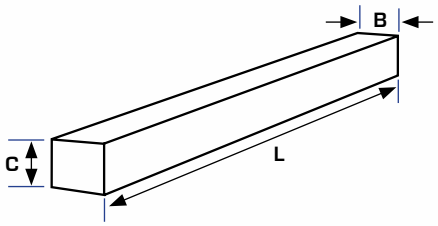
Cleaning sticks for diamond wheels

Principle use:

For truing diamond wheels.



MANUAL WORK



B = width
C = height
L = length

EAN code	Dimensions (mm) B x C x L	Dimensions (inches) B x C x L	Specification
042 128	6x25x100	1/4x1x4	WA280E8V (red)
042 142	13x25x100	1/2x1x4	WA220J8V
367 764	13x25x100	1/2x1x4	WA280E8V (white)
042 159	13x25x100	1/2x1x4	WA280E8V (red)
673 490	13x25x100	1/2x1x4	WA320G8V
042 166	13x25x100	1/2x1x4	WA400H8V
042 234	20x20x160	3/4x3/4x6	WA150I7V
370 160	20x20x200	3/4x3/4x8	WA150I7V

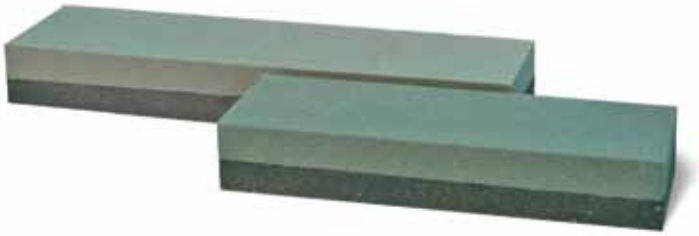
Cleaning stones for diamond wheels

EAN code	Dimensions (mm) B x C x L	Dimensions (inches) B x C x L	Specification
043 330	44/41x56	1-3/4/1-5/8x2-1/4	C30/3R5V

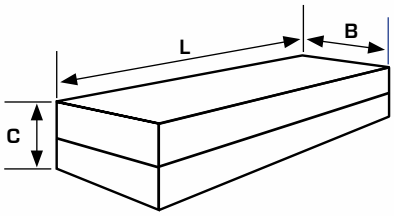
Combination grit sharpening stones

Principle use:

For manual sharpening of knives and planes.

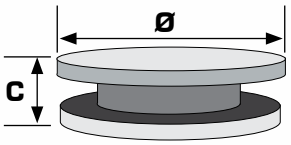


MANUAL WORK



B = width
C = height
L = length
Ø = diameter

EAN code	Dimensions (mm) B x C x L	Dimensions (inches) B x C x L	Specification	Grit
041 930	50.8x25.4x152	2x1x6	C 46/150	coarse/fine
041 947	50.8x25.4x152	2x1x6	C 80/150	medium/fine
041 954	50.8x25.4x152	2x1x6	C180/280	fine/very fine
041 978	50.8x25.4x200	2x1x8	C 46/150	coarse/fine
041 985	50.8x25.4x200	2x1x8	C 80/150	medium/fine
041 992	50.8x25.4x200	2x1x8	C180/280	fine/very fine



	C x Ø	C x Ø		
359 028	38.1x100	1-1/2x4	C150/320	fine/very fine

Rounded/flat scythe stones

Principle use:

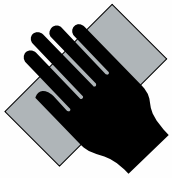
For manual sharpening of scythes and other blades.

EAN code	Specification	Description
043 361	C 80 07V	rounded scythe stone
043 378	C150 N7V	flat scythe stone

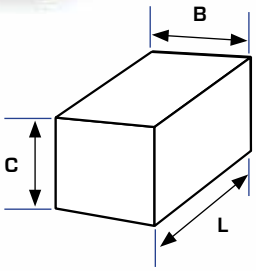
Grinding blocks

Principle use:

Green silicon carbide: for manual grinding of glass, diamond tools
Black silicon carbide: for manual grinding of concrete



MANUAL WORK



B = width
C = height
L = length

Green silicon carbide

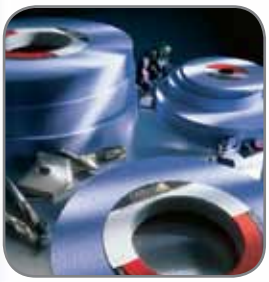
EAN code	Dimensions (mm) B x C x L	Dimensions (inches) B x C x L	Specification
041 497	50x50x100	2x2x4	GC80J7V
331 178	50x50x100	2x2x4	GC100H7V
041 541	50x50x100	2x2x4	GC120H7V
041 558	50x50x100	2x2x4	GC120J7V
041 565	50x50x100	2x2x4	GC120K7V
466 924	50x50x100	2x2x4	GC180J7V

Black silicon carbide

041 602	50x50x100	2x2x4	C 16 Q5V
041 619	50x50x100	2x2x4	C 24 Q5V
041 626	50x50x100	2x2x4	C 36 P5V
041 640	50x50x100	2x2x4	C 46 N6V
041 657	50x50x100	2x2x4	C 60 M6V
041 664	50x50x100	2x2x4	C 80 M6V
041 671	50x50x100	2x2x4	C100 M6V
041 695	50x50x100	2x2x4	C120 D8V
041 725	50x50x100	2x2x4	C120 M6V
331 345	50x50x200	2x2x8	C 16 Q5V
041 756	50x50x200	2x2x8	C 24 Q5V
041 763	50x50x200	2x2x8	C 36 P5V
331 338	50x50x200	2x2x8	C 46 N5V
331 352	50x50x200	2x2x8	C 60 M5V
331 369	50x50x200	2x2x8	C 80 M5V
331 376	50x50x200	2x2x8	C100 M5V

Vitrified abrasive products by category

Precision grinding wheels



CGW engineers have developed specially-formulated wheels for resharpening single- and multi-point cutting tools, for surface, cylindrical, and all other grinding operations.

For grinding steels and high-speed steels (HSS), CGW offers a large selection of abrasive types: white, blue, red and pink aluminium oxide, and AS (ceramic abrasive). For tungsten carbide applications, we recommend green silicon carbide.

Standard types: 1, 5, 6, 7, 11 & 12. Special types are available on request.

Creep-feed grinding wheels

CGW offers a broad range of creep-feed grinding wheels for both continuous dressing and periodic (non-continuous) dressing. Our R&D department has developed bonds with high porosity for wheels of different abrasive types: WAG, WAB, WAY, WAR, AS, RA, PA.

Our large finishing department is equipped with CNC machines that profile wheels according to customer requirements.

Surface grinding wheels

Surface grinding wheels are used for heavy stock removal and precision surface grinding.

CGW offers a wide range of sizes, with diameters of up to 25" (625mm), in all types and grits.

Standard types: 1, 2, 5, 6, 7. Segments and special types by request.

Abrasive types WA, PA, AZ, RA, AS, GC, DA, C.

Cylindrical grinding wheels

Wheels for general-purpose cylindrical grinding applications (O.D. grinding) are available in all abrasive types and profiles, up to 25" (625mm) in diameter.

Standard types: 1, 5, 6, 7, 20, 21, profile N. Special profiles are available on request.

Abrasive types: WA, PA, AZ, RA, AS, GC, DA.

Centreless grinding wheels

CGW manufactures centreless and regulating wheels with a wide range of dimensions, for three types of feed grinding:

Thrufeed - the workpiece passes between the grinding and regulating wheels, from one side of the machine to the other.

Infeed - the workpiece is placed on the work-rest between the grinding and the regulating wheels and held in position against the end-stop.

Endfeed - used to produce tapered cylindrical parts. The grinding wheel, the regulating wheel and the workpiece are set in fixed positions, and the workpiece fed from the front to a fixed end-stop.

Centreless wheels:
Diameter up to 600mm (24")
Thickness up to 500mm (20")

Regulating wheels:
Diameter up to 350mm (14")
Thickness up to 500mm (20")

Toolroom grinding wheels

Toolroom wheels are available in the following abrasive types:
WA (white) for light stock removal, multi-purpose.
PA (pink) for medium stock removal, good for holding form.
AZ (WAB) (blue) for medium stock removal, good for holding form and for heat-sensitive materials.
RA (red) for heavy stock removal, good for holding form and for heat-sensitive materials.
AS (blue ceramic abrasive grit) for heavy stock removal, good for holding form, long life.
GC (green) for grinding carbide and non-ferrous metals.

Standard types: 1, 6, 11, 12. Additional shapes available on request.

Internal grinding wheels

For grinding internal diameters (bores/holes), one of the most challenging grinding processes. The recommended wheel for internal grinding has a diameter of up to 2/3 of the final bore required.

CGW offers all sizes up to 150mm (6") in diameter; types: 1, 5, 6.

Abrasive types: WA, RA, AS, PA, GC. Special types available on request.

Bench grinding wheels

Straight T-1 wheels are used for off-hand tool sharpening and grinding. General purpose vitrified wheels for use on bench and pedestal grinders, CGW bench wheels are available in diameters of up to 450mm (18").

A - Aluminium oxide for metal, iron and general use
GC - Green silicon carbide for carbide or non-ferrous metals
WA/WAB: WA for stainless steel; WAB for high-speed steel (HSS).

Dressing wheels, blocks and sticks

CGW produces all types and dimensions of dressing wheels for diamond and CBN wheels, by customer request.

All types of single- or double-layered sticks and blocks are available for various applications such as cleaning and knife sharpening.

Mounted points

CGW offers a complete range of shaped and cylindrical mounted points.

Standard abrasive types:
PA for general purpose grinding
A for stainless steel (resin bond)
C for stone
All abrasive types are available on request.

Group A: shaped mounted point wheels with 6mm (1/4") shank, for general purpose off-hand applications.

Group B: shaped mounted point wheels with 3mm (1/8") shank, for light deburring of small areas.
Group W: cylindrical mounted points with 6mm (1/4") or 3mm (1/8") shank, used in off-hand and precision grinding operations for medium to heavy stock removal.

Cutting and grinding discs

CGW's comprehensive line of quality products for cutting and grinding iron, steel, concrete, stainless steel, and aluminium, provides the ideal solution for skilled professionals and amateurs alike.
This wide range of discs is available in diameters from 3" to 20", suitable for all grinders and saws.

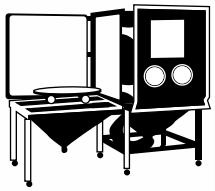
Flap discs

CGW supplies the entire range of coated abrasive products: flap discs in a variety of grains and sizes, fibre discs of all types, flap wheels on shafts, Garnet Paper sheets, and paper rolls with aluminium oxide or silicon carbide grit.

Abrasive grit for sand blasting

Principle use:

For sand blasting
- Packed in 25 kg or 1-ton bags
- All types and sizes of grit are available through your CGW representative.
- Common grit sizes: 14 - 280 mesh.



SAND BLASTING MACHINE

A

Brown aluminium oxide: The most common type of grit on the market. Contains approximately 95% Al_2O_3 and 3% titanium oxide, and has a hardness of 9 on the Mohs scale. Suitable for use on all types of ferrous and non-ferrous metals as well as glass and other materials.

Microscopic photograph

Grit in its natural state

WA

White aluminium oxide: Contains 99% Al_2O_3 and is particularly hard and friable (9 on the Mohs scale).
Especially suited for stainless steel and the dental tool industry.

C

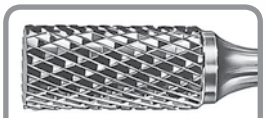
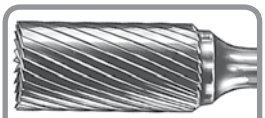
Black silicon carbide: Harder than aluminium oxide (9.5 on the Mohs scale). A sharp grit with very high friability.
Especially suited for aluminium, bronze, glass, ceramics, marble and stone.

Carbide rotary burrs

Carbide burrs or rotary files are made in a variety of shapes and types, and are used for deburring, drilling, milling, and finishing numerous shapes and materials, including aluminium, copper, plastic, stainless steel, iron, castings, and titanium.
For use on hand-held pneumatic and electric die grinders.


DIE GRINDER

Matching burr type to application

BURR TYPE / APPLICATION	 ALU	 C	 D	 S
Aluminium	●			
Copper		●	●	●
Fibreglass			●	
Cast iron		●	●	●
Plastic	●	●	●	●
Hard rubber	●	●	●	●
Iron alloys			●	
Stainless steel		●	●	●
Nickel		●	●	●
Titanium			●	●
Zinc alloys	●			
Magnesium	●			

S Standard tooth formation for general-purpose deburring
D Diamond tooth for use on hard metals. Produces high surface quality, very small metal shavings and no blockage (double tooth)
C For general-purpose deburring on high-tensile steel; small shavings, fast and easy (double tooth)
ALU Aluminium tooth for processing non-metals and soft materials. Quick, easy stock removal.

Recommended operating speeds, by application

	Ø 3 mm	Ø 6 mm	Ø 10 mm	Ø 12 mm	Ø 16 mm
Steel	60,000 - 90,000	45,000 - 60,000	30,000 - 40,000	22,500 - 30,000	18,000 - 24,000
Hardened steel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Stainless steel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Grey castings	45,000 - 90,000	22,500 - 60,000	15,000 - 40-000	11,000 - 30,000	9,000 - 24,000
Titanium	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Nickel	60,000 - 90,000	30,000 - 45,000	19,000 - 30,000	15,000 - 22,500	12,000 - 18,000
Copper	45,000 - 90,000	22,500 - 60,000	15,000 - 40-000	11,000 - 30,000	9,000 - 24,000
Aluminium	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000
Plastic	30,000 - 90,000	15,000 - 70,000	10,000 - 50,000	7,000 - 38,000	6,000 - 30,000

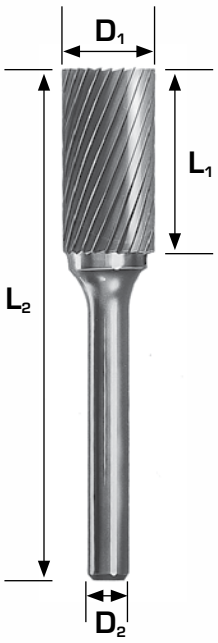
Recommendations for safe, effective use of carbide burrs

- Select the right burr for the job.
- Be sure the burr is inserted correctly into the machine collet.
- Consult the speed chart on the facing page, and adjust speed as needed: for example, hard materials and large burrs require slower speeds.
  Never exceed the maximum safe operating speed.
- Avoid applying excess pressure to the workpiece. Do not permit the burr to overheat.
- Be sure no more than 50% of the burr's circumference is in contact with the workpiece at any one time.
- Wear safety glasses, protective gloves and face mask, and ear protection.
- Do not use a damaged burr.

Burr shapes and specifications

Cylinder

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle

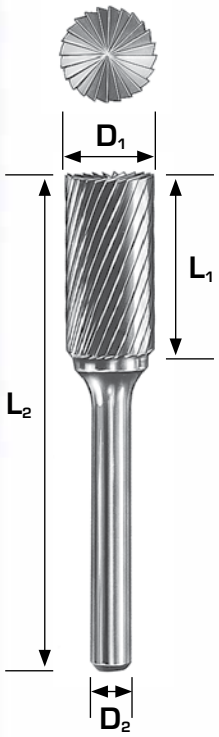


EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
384 419	2.4x13x2.4	38	T1100S	S
437 689	2.4x13x2.4	38	T1100D	D
656 851	3x13x3	38	GT1200S	S
676 224	3x13x3	38	GT1200D	D
384 457	6x13x3	45	T1240S	S
415 342	6x13x3	45	T1240D	D
648 733	6x19x6	65	GT1400S	S
656 967	6x19x6	65	GT1400D	D
671 762	8x19x6	65	GT1500S	S
656 974	8x19x6	65	GT1500D	D
648 801	10x19x6	65	GT1600S	S
676 248	10x19x6	65	GT1600D	D
384 501	12x19x6	65	T1700S	S
388 622	12x19x6	65	T1700D	D
651 856	12x25x6	65	GT1700S-1	S
656 981	12x25x6	65	GT1700D-1	D
654 093	16x25x6	65	GT1800S	S
676 255	16x25x6	65	GT1800D	D
394 111	16x25x6	65	T1800C	C

Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

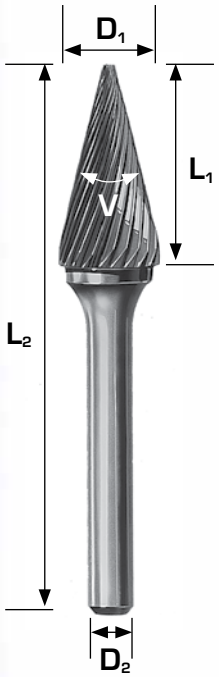
Cut-end cylinder

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
384 532	2.4x13x2.4	38	T1102S	S
728 367	2.4x13x2.4	38	T1102D	D
392 131	2.4x13x2.4	38	T1102C	C
664 337	3x13x3	38	GT1202S	S
670 895	3x13x3	38	GT1202D	D
392 964	3x13x3	38	T1202C	C
384 556	6x13x3	45	T1242S	S
728 374	6x13x3	45	T1242D	D
394 067	6x13x3	45	T1242C	C
656 868	6x19x6	65	GT1402S	S
676 262	6x19x6	65	GT1402D	D
655 557	8x19x6	65	GT1502S	S
656 998	8x19x6	65	GT1502D	D
656 875	10x19x6	65	GT1602S	S
728 381	10x19x6	65	GT1602D	D
384 600	12x19x6	65	T1702S	S
425 587	12x19x6	65	T1702D	D
682 614	12x25x6	65	GT1702S-1	S
657 001	12x25x6	65	GT1702D-1	D
681 464	16x25x6	65	GT1802S	S
681 471	16x25x6	65	GT1802D	D

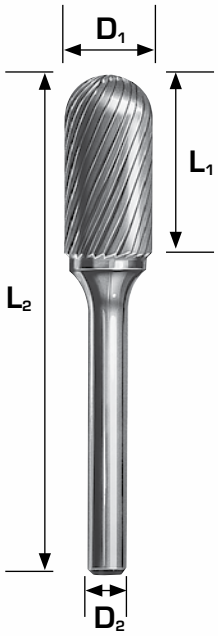
Cone



EAN code	Angle V	Dimensions (mm)		Description	Tooth type
		D_1 x L_1 x D_2	L_2		
648 795	14°	3x11x3	38	GT2200S	S
648 764	14°	3x11x3	38	GT2200D	D
654 079	22°	6x13x3	48	GT2240S	S
415 380	22°	3x13x3	48	T2240D	D
648 863	14°	6x19x6	65	GT2400S	S
648 740	14°	6x19x6	65	GT2400D	D
651 412	28°	10x20x6	65	GT2600S	S
728 398	28°	10x20x6	65	GT2600D	D
392 421	28°	10x16x6	65	T2600C	C
384 679	35°	12x19x6	65	T2700S	S
388 646	35°	12x19x6	65	T2700D	D
654 116	28°	12x22x6	65	GT2700S-1	S
657 049	28°	12x22x6	65	GT2700D-1	D

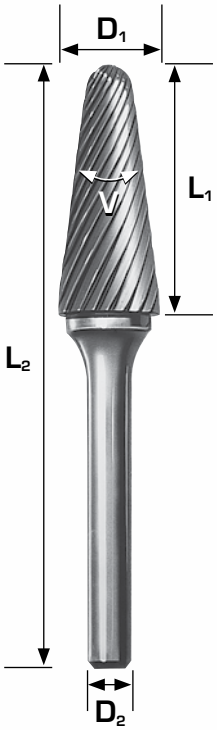
Ball-nosed cylinder

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
648 849	3x13x3	38	GT3200S	S
657 018	3x13x3	38	GT3200D	D
384 709	6x13x3	45	T3240S	S
415 373	6x13x3	45	T3240D	D
656 899	6x19x6	65	GT3400S	S
670 901	6x19x6	65	GT3400D	D
656 905	8x19x6	65	GT3500S	S
664 214	8x19x6	65	GT3500D	D
656 912	10x19x6	65	GT3600S	S
657 025	10x19x6	65	GT3600D	D
384 747	12x19x6	65	T3700S	S
437 658	12x19x6	65	T3700D	D
651 405	12x25x6	65	GT3700S-1	S
648 825	12x25x6	65	GT3700D-1	D
655 564	16x25x6	65	GT3800S	S
664 207	16x25x6	65	GT3800D	D

Ball-nosed cone

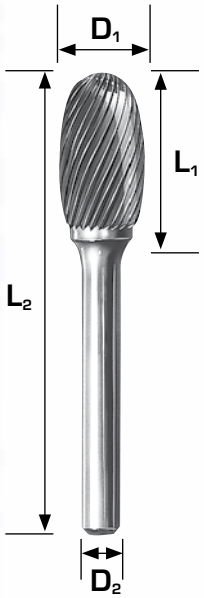


EAN code	Angle V	Dimensions (mm)		Description	Tooth type
		D_1 x L_1 x D_2	L_2		
648 788	14°	3x8x3	55	GT4200S	S
466 382	14°	3x8x3	55	T4200D	D
384 792	14°	6x13x3	45	T4240S	S
728 404	14°	6x13x3	45	T4240D	D
392 537	14°	6x13x3	45	T4240C	S
654 109	14°	6x16x6	65	GT4400S	C
660 711	14°	6x16x6	65	GT4400D	D
651 924	14°	10x25x6	65	GT4600S-1	S
660 728	14°	10x25x6	65	GT4600D-1	D
651 917	14°	12x28x6	80	GT4700S	S
657 056	14°	12x28x6	80	GT4700D	D
728 411	14°	16x33x6	80	GT4800S	S
728 428	14°	16x33x6	80	GT4800D	D

Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

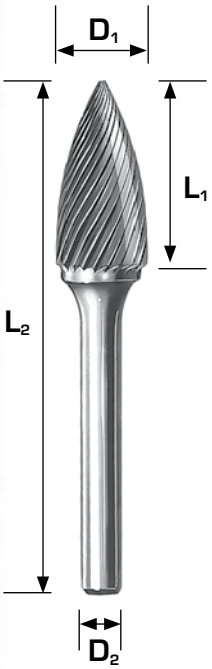
Oval

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
728 435	3x 6x3	38	GT5220S	S
728 442	3x 6x3	38	GT5220D	D
384 860	6x10x3	42	T5240S	S
415 434	6x10x3	42	T5240D	D
660 698	8x13x6	65	GT5300S	S
726806	8x13x6	65	GT5300D	D
674 060	10x16x6	65	GT5500S	S
728 459	10x16x6	65	GT5500D	D
728 466	12x22x6	65	GT5700S	S
657 063	12x22x6	65	GT5700D	D
674 053	16x25x6	65	GT5800S	S
675 753	16x25x6	65	GT5800D	D

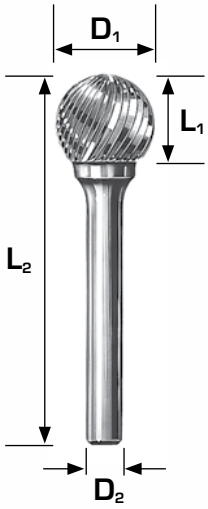
Pointed tree



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
681 457	3x13x3	38	GT6200S	S
657 605	3x13x3	38	GT6200D	D
651 580	6x13x3	45	T6240S	S
425 792	6x13x3	45	T6240D	D
392 650	6x13x3	45	T6240C	C
660 704	6x16x6	65	GT6400S	S
728 473	6x16x6	65	GT6400D	D
648 771	10x19x6	65	GT6500S	S
728 480	10x19x6	65	GT6500D	D
661 978	12x19x6	65	T6700S	S
728 497	12x19x6	65	T6700D	D
656 929	12x25x6	65	GT6800S	S
657 070	12x25x6	65	GT6800D	D
660 681	16x25x6	65	GT6900S	S
728 503	16x25x6	65	GT6900D	D

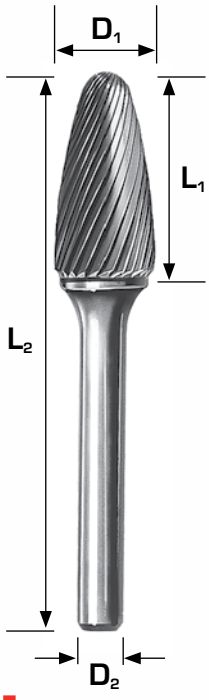
Ball

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
728 510	3x 2.7x3	38	GT7200S	S
648 757	3x 2.7x3	38	GT7200D	D
389 674	6x 5.4x3	38	T7240S	S
728 527	6x 5.4x3	38	T7240D	D
568 949	4x 3.6x3	45	T7300S	S
728 534	4x 3.6x3	45	T7300D	D
728 541	6x 5.4x6	55	GT7400S	S
674 091	6x 5.4x6	55	GT7400D	D
728 558	8x 7.2x6	65	GT7500S	S
728 565	8x 7.2x6	65	GT7500D	D
698 165	10x 9x6	65	GT7600S	S
657 087	10x 9x6	65	GT7600D	D
654 123	12x10.8x6	65	GT7700S	S
728 572	12x10.8x6	65	GT7700D	D
654 130	16x14.4x6	65	GT7800S	S
728 589	16x14.4x6	65	GT7800D	D
728 862	19x17.1x6	63	T7900S	S
728 879	19x17.1x6	63	T7900D	D

Round tree

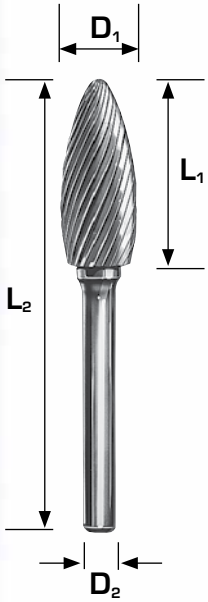


EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
648 818	3x13x3	38	GT9200S	S
466 375	3x13x3	38	T9200D	D
077 991	6x13x3	45	T9240S	S
728 596	6x13x3	45	T9240D	D
674 046	6x16x6	65	GT9400S	S
728 602	6x16x6	65	GT9400D	D
660 735	10x19x6	65	GT9600S	S
670 925	10x19x6	65	GT9600D	D
648 856	12x25x6	65	GT9700S	S
670 932	12x25x6	65	GT9700D	D
728 619	16x25x6	65	GT9800S	S
665 976	16x25x6	65	GT9800D	D

Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

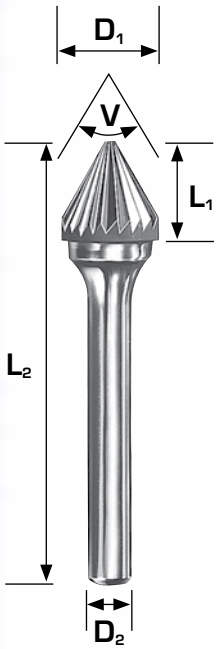
Flame

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
664 634	3x8x3	38	GT5200S	S
674 107	3x8x3	38	GT5200D	D
385 485	6x14x6	65	T5400S	S
728 626	6x14x6	65	GT5400D	D
728 633	8x19x6	65	GT5550S	S
728 657	8x19x6	65	GT5550D	D
656 936	12x32x6	65	GT5600S	S
648 832	12x32x6	65	GT5600D	D

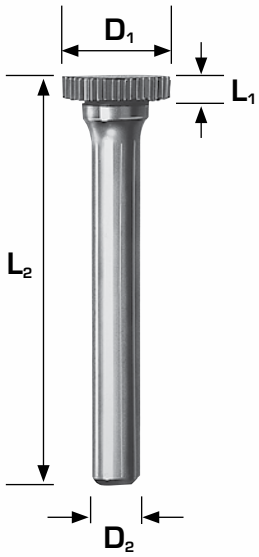
Countersink 90° (60°)



EAN code	Angle V	Dimensions (mm)		Description	Tooth type
		D_1 x L_1 x D_2	L_2		
728 664	90°	10x5x6	55	GT2000S	S
728 671	90°	10x5x6	55	GT2000D	D
673 889	90°	12x6x6	55	GT2840S	S
673 902	90°	12x6x6	55	GT2840D	D
729 319	90°	16x8x6	55	GT2800S	S
729 333	90°	16x8x6	55	GT2800D	D
728 688	60°	12x11x6	55	GT2900S	S
728 695	60°	12x11x6	55	GT2900D	D

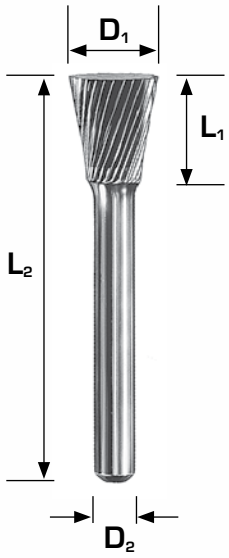
Rim

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
385 584	10x1.6x3	34	T8240S	S
385 607	12x 2.6x6	48	T8700S	S
729 388	25x5.2x8	50	T8100S	S
729 395	25x6.3x8	51	T9100S	S

Inverted cone 10°



EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
409 174	3x7x3	38	T8200S	S
466 351	3x7x3	38	T8200D	D
729 340	6x7x6	65	GT8400S	S
729 357	6x7x6	65	GT8400D	D
729 364	12x13x6	65	GT8500S	S
729 371	12x13x6	65	GT8500D	D

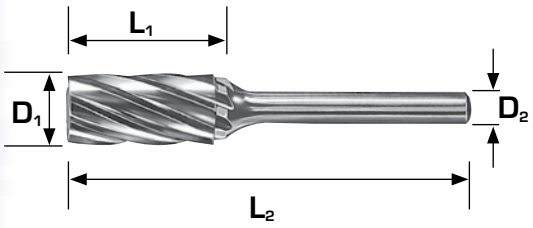
Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

Carbide burrs for non-ferrous metals

Cylinder

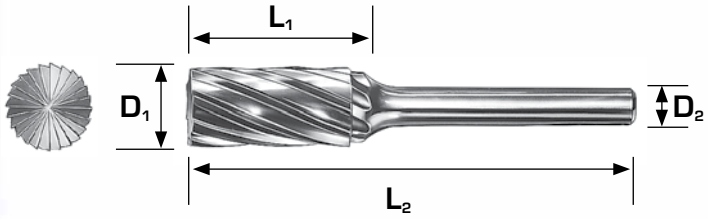
D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle

EAN code	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
385 997	10x19x6	66	TTA260ALU	ALU
386 000	12x25x6	70	TTA270ALU	ALU
729 401	16x25x6	70	TTA280ALU	ALU



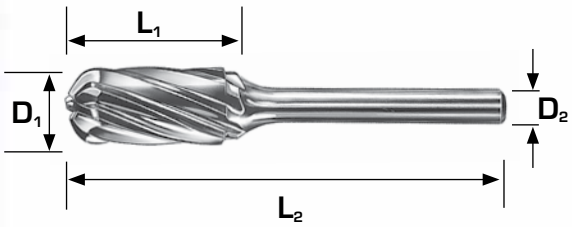
Cut-end cylinder

EAN code	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
386 024	10x19x6	65	TTA160ALU	ALU
386 031	12x25x6	70	TTA170ALU	ALU
729 418	16x25x6	70	TTA180ALU	ALU



Ball-nosed cylinder

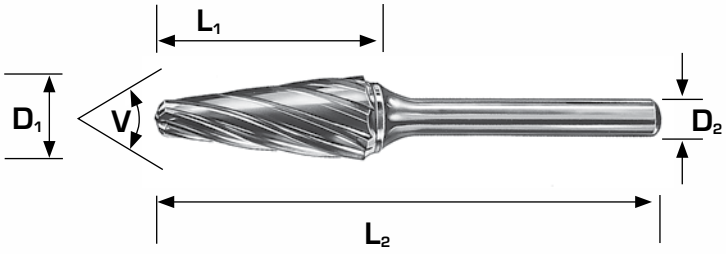
EAN code	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
385 805	10x19x6	65	TTA360ALU	ALU
385 812	12x25x6	70	TTA370ALU	ALU
385 829	16x25x6	70	TTA380ALU	ALU



Ball-nosed cone

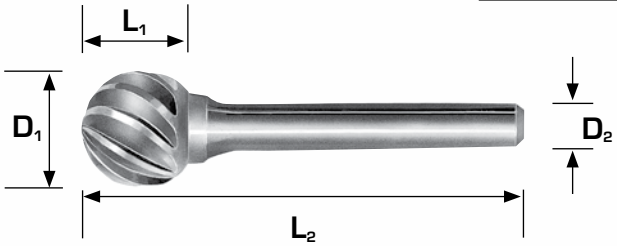
D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle

EAN code	Angle V	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
385 966	14°	10x25x6	70	TTA460ALU	ALU
385 973	14°	12x30x6	75	TTA470ALU	ALU
385 980	14°	16x33x6	78	TTA480ALU	ALU



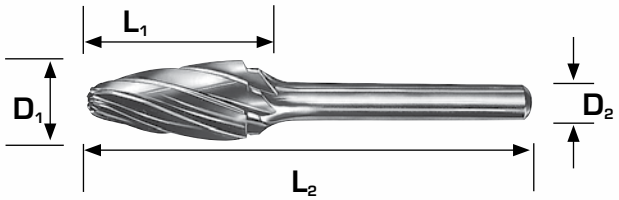
Ball

EAN code	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
385 775	10x 9x6	53	TTA760ALU	ALU
385 782	12x10.8x6	55	TTA770ALU	ALU
385 799	16x14.4x6	60	TTA780ALU	ALU



Round tree

EAN code	Dimensions (mm) $D_1 \times L_1 \times D_2$	Dimensions (mm) L_2	Description	Tooth type
385 935	10x19x6	65	TTA960ALU	ALU
385 942	12x25x6	70	TTA970ALU	ALU
385 959	16x25x6	70	TTA980ALU	ALU



Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

Small, long-shanked carbide burrs

D_1 = cutting diameter
L_1 = cutting length
D_2 = shank diameter
L_2 = total length
V = angle

Cylinder (see illustration on p. 3)

EAN code	Dimensions (mm)		Description	Tooth type
	D_1 x L_1 x D_2	L_2		
386 079	2.4x13x2.4	63	T1100SL	S
728 701	2.4x13x2.4	63	T1100DL	D
394 203	2.4x13x2.4	63	T1100CL	C
386 086	3x13x3	63	T1200SL	S
487 431	3x13x3	63	T1200DL	D
392 872	3x13x3	63	T1200CL	C

Cut-end cylinder (see illustration on p. 4)

386 307	2.4x13x2.4	63	T1102SL	S
445 165	2.4x13x2.4	63	T1102DL	D
392 896	2.4x13x2.4	63	T1102CL	C
386 314	3x13x3	63	T1202SL	S
418 664	3x13x3	63	T1202DL	D
391 257	3x13x3	75	T1202CL	C

Ball-nosed cylinder (see illustration on p. 5)

676 606	3x13x3	50	T3200SL-50	S
676 613	3x13x3	75	T3200SL-75	S
689 804	3x13x3	75	T3200CL-75	C

Pointed tree (see illustration on p. 6)

449 286	3x14x3	50	T6200SL	S

Ball (see illustration on p. 7)

695 959	3x2.7x3	75	T7200DL-75	D
676 620	6x5.4x3	95	T7240SL	S
696 055	6x5.4x6	75	T7400DL-75	D

Ball-nosed cone (see illustration on p. 5)

EAN code	Angle V	Dimensions (mm)		Description	Tooth type
		D_1 x L_1 x D_2	L_2		
696 062	14°	3x 8x3	75	T4200SL-75	S

Carbide burrs can be made by special order in sizes other than those specified in this catalogue, including XL, 150mm-long shank, and double-ended burrs. Please contact your CGW representative for further information.

Sets of carbide burrs

Set of 10 burrs

EAN code: 597 482

Contents:
1 pc each of 10 assorted shapes
Shank diameter: 6mm

Set of 20 or 40 burrs

EAN code: 753 789

Contents:
1 or 2 pcs each of the following 20 different shapes:

1402D
1502D
1602D
1702D-1
3400D
3500D
3600D
3700D-1
9400D
9500D
9600D
9700D
6400D
6450D
6800D
4400D
4500D
4600D-1
4700D


Certificate

This is to certify that the Quality Management System of

C.G.W - CAMEL GRINDING WHEEL WORKS
SARID LTD.
SARID, ISRAEL

has been audited by SII and found to comply with the
Management Standard SI ISO 9001: 2008

scope:

MANUFACTURE OF ABRASIVE GRINDING WHEELS, ABRASIVE CUT-OFF DISCS, COATED ABRASIVES, MOUNTED POINTS AND FLAPDISCS.

The Certificate is granted in accordance with SII's Rules for the Certification of Quality Systems (SII procedure-002). The validity of the Certificate is subject to the continuous maintenance of the Quality System according to the above standard, and the follow-up surveillance performed by SII. Further clarifications regarding the scope of the certificate and applicability of ISO 9001 2008 requirements may be obtained by consulting the organization.

Date of initial approval: 26 . 09 . 1996
Date of expiration: 16 . 08 . 2012

License No: 48763
Date of issue: 16 . 07 . 2009

www.sii.org.il

THE STANDARDS INSTITUTION OF ISRAEL

Doron Tamir
Director General


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and
THE STANDARDS INSTITUTION OF ISRAEL
hereby certify that the organization

C.G.W - CAMEL GRINDING WHEEL WORKS
SARID LTD.
SARID

for the following field of activities

MANUFACTURE OF ABRASIVE GRINDING WHEELS, ABRASIVE CUT-OFF DISCS, COATED ABRASIVES, MOUNTED POINTS AND FLAPDISCS.

has implemented and maintains a

Quality Management System

which fulfills the requirements of the following standard/s

ISO 9001:2008

Issued on: 16 . 07 . 2009
Date of expiration: 16 . 08 . 2012
Date of initial approval: 26 . 09 . 1996

Registration number: IL- 48763

René Wasmer
President of IQNet

Doron Tamir
Director General, SII

CAMEL GRINDING WHEELS

Membership Certificate

The Organization for the Safety of Abrasives (oSa®)

herewith grants to the company

C.G.W. - CAMEL GRINDING WHEELS

based on the Application Form, oSa®-Constitution and Conditions of Use for the oSa® Trademark the right until withdrawn to use the oSa® mark in the described colours for the abrasives notified.

The membership also covers affiliated companies on condition that these fulfill th requirements stipulated in § 6 para. 1 of the oSa®-Constitution and § 2.4 of the Conditions of Use for the oSa®-Trademark respectively.

This right applies to the designation of the registered tools as well as their packaging or labelling.

Bonn, 01 August 2003

Executive Board

Organization for the Safety of Abrasives (oSa®) · Oxfordstraße 8 · D-53111 Bonn · Germany

CISQ Italy
NORMA Venezuela
MSZT Hungary
YUQS Serbia
certification.com

The Standards Institution of Israel

License No. 9531
to mark a commodity
with the Safety Mark

The Standards Institution of Israel in accordance with the article 11 (b) of the Standards law 1953, has licensed :

C.G.W - CAMEL GRINDING WHEEL WORKS

SARID LTD.

To mark with the Safety Mark the following commodities:

BONDED ABRASIVE GRINDING WHEELS: SAFETY SPECIFICATIONS

TYPES: 1 . CUT-OFF WHEELS (FLEX)
2 . GRINDING WHEELS (FLEX)
3 . CERAMIC GRINDING WHEELS

SAFETY MARK SM
THE STANDARDS INSTITUTION OF ISRAEL

These commodities are produced in conformity with the requirements of the:

Israel Standard No. 1836

This license is valid until 31/12/2009

/ 2009

1 / 1

Tel Aviv

Doron Tamir
Director General

9/2008

CGW
CAMEL GRINDING WHEELS

Visit: www.cgwheels.com
E-mail: david@cgwheels.com
Tel: ++972 4 6507216
Fax: ++972 4 6540899