CORNELL: WHAT SETS OUR SOLIDS HANDLING LINE APART

Cornell Pump has been producing robust, highly efficient pumps since 1946 and our innovative pump concepts have provided unmatched value. Cornell clear liquid, solids handling, and grit/slurry pumps provide the reliability and interchangeability demanded in many applications. Cornell offers a wide range of pump models and configurations to fit into existing installations. We’ll also work with you to create a custom system to satisfy your needs. Our technical and engineering staff is the best in the business at providing quality solutions.

A WIDE VARIETY OF SIZES AND CONFIGURATIONS
Models range in size from 1” to 30” and a range of configuration options are available for each model – including frame and engine mount options and Cornell features like Run-Dry™ and Redi-Prime®.

PUMPS DESIGNED FOR SPECIFIC JOBS
Our team of expert engineers design pumps to meet the varying demands of industry applications, such as solids handling, slurry, and head requirements.

OUTSTANDING EFFICIENCIES
We put our experience and knowledge to work to produce tested designs with some of the highest efficiencies of any pumps on the market.

ROBUST CONSTRUCTION
Cornell pumps are built using superior materials selected for their suitability to each pump’s intended application. Heavier casting walls, thicker shafts, and fully-machined impellers are part of what make Cornell pumps more rugged and durable than other pumps.
**N SERIES PUMPS**

Cornell has produced solids handling pumps since the 1950’s. Cornell offers a wide range of solids handling pumps, from 3” though 30” discharge size, to handle the most difficult solids applications.

The N series fill the need of medium-duty solids handling capabilities, with efficiencies up to 82%, solids handling sizes of up 10.2", and flows up to 38,000 GPM. Cornell’s N series pumps can be found in a wide range of applications in the Municipal, Agricultural, and Industrial markets; and are available in a variety of mounting configurations including close-coupled, SAE engine mount, horizontal, and vertical mounted.

**CHOPPERS & CUTTERS**

Chopper impellers (4NC/6NC) and cutter assemblies expand the capabilities of N-series pumps to handle difficult solids. Many N series pumps are also available in CD4MCu for resistance to corrosion and pitting caused by abrasive solids.

**SP & MP SERIES PUMPS**

The Cornell SP & MP series pumps are also designed for solids handling and offer greater wear resistance at higher operating pressures, ideal for the worst slurry and sluge in mining and agricultural applications.

**BUILT TO LAST**

Cornell N and T Series pumps are designed and built to superior standards to withstand the most demanding applications. Cornell pumps offer excellent hydraulic efficiencies, low maintenance and operating costs, and are backed by a two-year warranty.

- Replaceable wear parts including wear rings and shaft sleeves
- Dynamically-balanced impellers
- Oversized bearings with min. 20,000 hour life
- Various materials of construction for abrasive or hard to handle solids
- High suction lift
- Heavy walled castings for durability
- Double volutes for balancing internal pressures
- Low shaft deflection
- Patented CycloSeal design (#5489187)
- No seal flush needed
Cycloseal® is patented system with a self-contained single mechanical seal with a dished line. The Cycloseal pattern cast into the pump backplate in conjunction with contoured impeller back vanes and a dished backplate creates pressure gradients that move solids and entrained vapor away from the seal faces. The Cycloseal system is only available on Cornell pump series.

- Removes grit from pump seal compartment
- Extends pump seal life three times standard mechanical
- No drips/mess at application site
- Reduced maintenance costs
- Increased uptime and reliability
SOLIDS HANDLING IMPELLERS

ENCLOSED TWO, THREE, AND FOUR PORT
SPHERICAL SOLIDS
Large spherical solids pass through the pump while offering optimal head and efficiency.
- 2” or larger solids
- 3” to 30” discharge sizes
- Flows to 40,000 GPM and heads to 450’

THREE OR FOUR BLADED, SEMI-OPEN
SLURRY
Cutting action allows the semi-open impeller to handle the worst slurries at high heads.
- 1” or larger soft solids
- 1.25” to 10” discharge size

DELTA STYLE
STRAW AND STRINGY MATERIALS
Trailing edges on impeller vanes reduce low pressure areas. Vortices are created which pass solids through the impeller. No “hair pinning” or hang-up of stringy materials. Larger solids are broken up.
- For difficult solids
- 3” to 10” discharge size
- Flows to 5000 GPM and heads to 400’

CHOPPER
WASTE MATERIALS
Available on the 4NC and 4NC units, Cornell’s Chopper impeller is ideally suited for chopping solids. Featuring heat-treated cast steel, the impeller easily chops solids up to 2” continuously.
- 2” or smaller solids
- Low flows possible
- heads to 380’

BLADE CUTTER
RAGGING MATERIALS
Rotating and stationary cutter blades mounted on the suction end break up clogs and rags before they reach the impeller while keeping efficiencies as high as possible.
- Minimal energy consumption (4% or less)
- Hardened, adjustable cutter blades
- Minimize flow restrictions

WASTE WARRIOR CUTTER
SEVERE RAGGING
A more aggressive solution to troublesome clogs and severe ragging issues. A scythe-like edge sweeps the area where the suction pipe meets the volute to keep materials from clogging in the impeller area.
- Limited energy consumption (around 8%)
- Hardened cutter blades
- Insignificant flow restrictions
**CORNELL FEATURES & BENEFITS**

**DOUBLE VOLUTE DESIGN**
Cornell’s double volute system minimizes radial thrust loads common with high capacity, high-head centrifugal pumps, by balancing the radial forces around the impeller.
- Minimizes radial thrust load
- Eliminates shaft flexing and fatigue
- Greatly extends life of packing/seal, wear rings and bearings
- Effectively meets high pressure and high volume requirements

**RUN-DRY™ SEAL PROTECTION**
Cornell’s Run-Dry system consists of an auxiliary gland and oil reservoir that keeps the seal faces lubricated and prevents dry running of the seal faces during priming, re-priming, or standby operation.
- Run dry for hours without damaging the seal
- Cools and lubricates seal faces
- Ideal for applications that could operate in a dry condition
- Useable in conjunction with Cycloseal® and Redi-Prime®

**REDI-PRIME® DRY-PRIMING OPTION**
Cornell Redi-Prime pumps are designed with oversized suctions to provide more flow, reduced friction losses, and higher suction lift. The priming system was designed with the environment in mind. By using a positive sealing float box and a diaphragm vacuum pump, there is no water carry-over to contaminate the environment. Redi-Prime is offered on all Cornell industrial pumps, and is available in virtually every other pump we design as well.
- Fully automatic priming and repriming
- Handles air/liquid mixtures with ease
- Rapidly primes and re-primes completely unattended
- Environmentally safe priming system designed to prevent product leakage
- Handles large sized solids
- High suction lift capability up to 28’
- Premium hydraulic efficiency for reduced energy consumption

**CD4MCu OPTIONS**
CD4MCu is a duplex stainless steel, with greater corrosive resistance than standard stainless steel. CD4MCu allows the pumps to be used in more abrasive applications, and it won’t pit like regular stainless steel, has a better stress/corrosive cracking resistance than standard stainless, and higher strength than standard stainless steel. And compared with regular cast iron material, it is much more resistant to corrosion and much stronger.

Most of our dealers have access to 11 of Cornell’s most popular models in CD4MCu, allowing us to slash production time and price. Cornell can supply a CD4MCu pump in as little as one to two weeks.
- Clean Steel
- Usable in PH levels of 2 to 13.5
- Brinell hardness up to 275
- Corrosion and pitting resistance
- Higher strength than standard stainless steel
- Improved ductility and weldability
- Better resistance to embrittlement
# N Series Pumps

## CORNELL SOLIDS HANDLING PUMP MODEL DESIGNATIONS

**Example:** 6NHTA

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DISCHARGE SIZE</th>
<th>IMPELLER DIA.</th>
<th>MAX CAPACITY</th>
<th>MAX SOLIDS</th>
<th>MAX HEAD</th>
<th>RPM</th>
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<td>3”</td>
<td>6.50”</td>
<td>400 GPM</td>
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</table>

## IMPPELLER TYPES IN MODEL DESIGNATIONS:

**T:** 2 port, enclosed

**TA:** 2 port enclosed, initial version

**TB:** 2 port enclosed, high head

**TL:** 2 port enclosed, low head

**TR:** 2 port, enclosed, hybrid

**DH:** Delta high head, vortex

**HM:** Semi-open

**P/PP:** Single port, enclosed

**C:** Chopper

## ALTERNATE DESIGNATIONS:

**Example:** 4414T

<table>
<thead>
<tr>
<th>DISCHARGE SIZE (IN INCHES)</th>
<th>SUCTION SIZE (IN INCHES)</th>
<th>MAX. IMPELLER DIA.</th>
<th>IMPELLER TYPE</th>
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Cycloseal® and Redi-Prime® are Registered Trademarks of Cornell Pump Company.

Cornell pumps and products are the subject of one or more of the following U.S. and foreign patents: 3,207,485; 3,282,226; 3,295,456; 3,301,191; 3,630,637; 3,663,117; 3,743,437; 4,335,886; 4,523,900; 5,489,187; 5,591,001; 6,074,554; 6,036,434; 6,079,958; 6,309,169; 2,320,742; 96/8140; 319,837; 918,534; 1,224,969; 2,232,735; 701,979 and are the subject of pending U.S. and foreign patent applications.