

CORNELL PUMP LLC

INDUSTRIAL



CORNELL'S INDUSTRIAL PRODUCT LINE

WHAT SETS CORNELL INDUSTRIAL PUMPS APART

Since 1946, Cornell Pump has been a trusted manufacturer of durable and high-efficiency pumps for the industrial market, delivering unparalleled value to our customers. Our clear liquid, solids handling, and grit/slurry pumps are engineered to meet the demanding requirements of industrial applications, providing unparalleled reliability and interchangeability. With a broad range of pump models and configurations, we can easily integrate our pumps into your existing systems. Moreover, we offer custom system designs to meet your specific needs. Our team of technical and engineering experts is among the best in the industry and can provide innovative pump solutions of the highest quality.

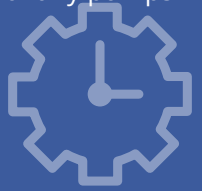
PUMPS DESIGNED FOR SPECIFIC JOBS

Our team of expert engineers designs 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.



SELECT HIGH-EFFICIENCY PUMP MODELS

8H	88% efficient
6RB	89% efficient
5RB	86% efficient
4RB	85% efficient

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®.



ROBUST CONSTRUCTION

Cornell pumps are built using superior materials selected for suitability to each pump's intended application. Heavier casting walls, thicker shafts, and fully-machined impellers make Cornell pumps more rugged and durable than other pumps.



QUALITY ASSURANCE

Cornell Pump proudly maintains its ISO 9001:2008 certification that validates Cornell complies with all necessary processes to meet customer requirements.

The elements associated with ISO 9001:2015 certification include contract review, design and development, production, purchasing, quality control, and service.



PUMPS FOR INDUSTRY



Z SERIES ANSI PROCESS PUMPS

Cornell's ANSI-standard dimension pumps merge Cornell's well-known robust and highly efficient design with an easy-to-use and replaces form for industrial processes. Their ANSI construction facilitates the replacement of existing pumps, and the combination of ductile iron or CD4MCu construction with a sturdy bearing frame enables these pumps to run for more extended periods compared to competitors. These pumps also have an integrated balance line for superior impeller efficiency and hydraulic balancing. With open and enclosed impeller designs, there are 21 different models.

PERFORMANCE

DISCHARGE SIZE RANGE	1.5" TO 10"
MAX SOLIDS HANDLING	2.5"
MAX FLOW	5,000 GPM
MAX HEAD	320'

MATERIALS OF CONSTRUCTION

- Ductile Iron (DI) wet ends
- Cast iron bearing frames
- Shafts of carbon steel or stressproof steel
- Cast iron wear rings
- CD4MCU Material Std.
- Cartridge or Cyclo seal

FEATURES

- ANSI standard dimensions
- Centerline construction
- Frame Mounted, Engine Mounted or Close Coupled
- Enclosed impeller
- High-efficiency design
- Hydraulic balance line
- Cornell Co-Pilot™ pump monitor ready
- Two-year warranty
- Ready-Prime available
- Large Oil Sump for Cooling



CLEAR LIQUID PUMPS

Cornell's Clear Liquid pumps are versatile and can be used in various applications ranging from agriculture, irrigation, municipal potable water, and industrial water transfer to refrigeration and specialized food processing. These pumps can handle some solids in the mixture and, depending on the specific pump model, can manage a solid up to 1.25 inches in size.

EXTERNAL HYDRAULIC BALANCE LINE: helps to reduce axial thrust and prolong bearing, shaft, and seal life. This balance line equalizes pressure between the impeller hub area and the pump suction, minimizing the axial loading on the impeller, shaft, and bearings.

PERFORMANCE

DISCHARGE SIZE RANGE	1" TO 10"
MAX FLOW	10 TO 10,000 GPM
MAX HEAD	400'

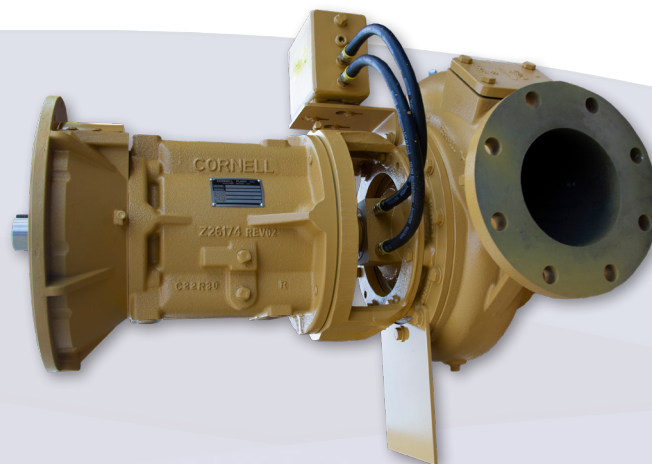
MATERIALS OF CONSTRUCTION

- All iron pump end construction
- Cast iron bearing frames
- Shafts of carbon steel or stressproof steel
- Cast iron wear rings
- Single Component or Cartridge Seals available

FEATURES

- Excellent hydraulic efficiencies
- Exceptional shaft and bearing life
- Replaceable wear rings and shaft sleeves
- Fully-machined impellers
- Shower curtain shield
- Double volute design
- Two-year warranty
- Frame Mounted, Engine Mounted or Close Coupled
- Redi-Prime available

PUMPS FOR INDUSTRY



REDI-PRIME[®] PUMPS

Cornell Pump offers Redi-Prime, a patented priming and repriming system that can be installed on many of our pump models. Redi-Prime enables the pumps to be operated without an attendant, utilizing a positive sealing float box and a diaphragm vacuum pump to prevent water carry-over and environmental contamination. This system is available on all Cornell industrial pumps and can be installed on virtually every other pump we manufacture.

PERFORMANCE	
DISCHARGE SIZE RANGE	1.25" TO 30"
MAX SOLIDS HANDLING	10.2"
MAX FLOW	38,000 GPM
MAX HEAD	850'

MATERIALS OF CONSTRUCTION

- Ductile or cast iron pump casings
- Some models available in CD4MCu
- Ductile, cast iron, or CD4MCu impellers
- Stressproof or heat treated steel shafts (stainless on CD4MCu)
- SAE 1144 stressproof steel
- 420HT wear rings and shaft sleeve available

FEATURES

- Fully automatic priming and repriming
- Handles air/liquid mixtures with ease
- Rapidly primes and re-primed completely unattended
- Environmentally safe priming system designed to prevent product leakage
- Handles large sized solids
- High suction lift capability up to 28 feet
- Premium hydraulic efficiency for reduced energy consumption

N-SERIES SOLIDS HANDLING PUMPS

Discharge sizes up to 30", flows up to 38,000 GPM, and solids up to 10.2".

IMPELLER CHOICES: choose from the Delta style impeller for heavy sludge, two and three-port enclosed impellers for large solids, and three or four-bladed, semi-open impeller with cutting action for the worst slurries/solids.

PERFORMANCE	
DISCHARGE SIZE RANGE	3" TO 30"
MAX SOLIDS HANDLING	10.2"
MAX FLOW	38,000 GPM
MAX HEAD	500'

MATERIALS OF CONSTRUCTION

- Ductile or cast iron pump casings
- Some models available in CD4MCu
- Ductile, cast iron, or CD4MCu impellers
- Stressproof or heat treated steel shafts (stainless on CD4MCu)
- SAE 1144 stressproof steel
- H20HT wear rings and shaft sleeve available

FEATURES CONTINUED

- Cycloseal[®] grit removal system
- High-efficiency design
- Run-Dry Option
- Redi-Prime Option
- Excellent NPSHr
- Ruggedness and durability
- Two-year warranty
- Minimum 3 inch solids handling

PUMPS FOR INDUSTRY



PUMPS FOR COARSE ABRASIVES

MP Series pumps are unlined slurry pumps designed for coarse abrasives and solids up to 3". The MP series offers exceptional wear resistance for reduced maintenance and long life in harsh environments.

ADJUSTABLE WEAR PLATE: to maintain lost efficiency while in service.

PERFORMANCE	
DISCHARGE SIZE RANGE	2" TO 8"
MAX SOLIDS HANDLING	3"
MAX FLOW	9,000 GPM
MAX HEAD	625'

MATERIALS OF CONSTRUCTION

- Available in a ductile iron, chrome iron, or hybrid construction
- 17-4PH stainless steel shafts
- Hardness rating > 650BHN

FEATURES

- Cycloseal® grit removal system
- High-efficiency design
- Run-Dry Option
- Redi-Prime Option
- Heavy-duty construction for aggressive applications
- Replaceable wear plates
- Two-year warranty

SELF-PRIMING PUMPS

STX, STL, and STH pumps offer rugged construction and efficiencies up to 68%.

MODULAR DESIGN: Easy conversion to SAE engine-driven applications.

OVERSIZED OIL RESERVOIR: superior bearing cooling.

PERFORMANCE	
DISCHARGE SIZE RANGE	2" TO 10"
MAX SOLIDS HANDLING	3"
MAX FLOW	4,500 GPM
MAX HEAD	275'

MATERIALS OF CONSTRUCTION

- Ductile iron volute casing, backplate, and impeller
- 17-4PH stainless steel shafts
- Optional CD4MCu on 3STX, 4STX, and 6STX pump models

FEATURES

- Cycloseal® grit removal system
- High-efficiency design
- High RPM capacity for engine driven applications.
- High head capacity
- Modular design
- ANSI, NPT, and DIN flanges available
- Five-year warranty

HIGH HEAD PUMPS

Cornell's MX high head mining pump series provide heads up to 825', long service life, and industry-leading efficiency.

PERFORMANCE	
DISCHARGE SIZE RANGE	2" TO 8"
MAX SOLIDS HANDLING	2.38"
MAX FLOW	8,000 GPM
MAX HEAD	825'

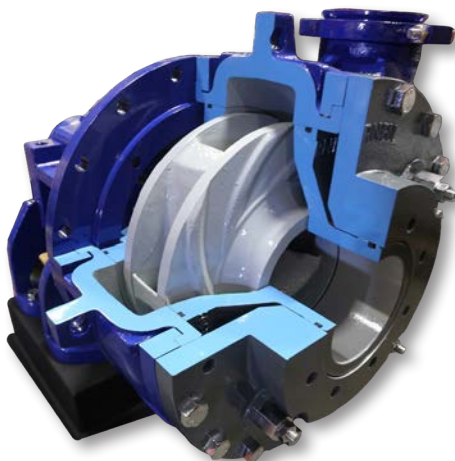
MATERIALS OF CONSTRUCTION

- Ductile iron casings
- 17-4PH stainless steel shafts
- CA6NM impellers
- Optional hardened wear ring and shaft sleeves.

FEATURES

- Cycloseal® grit removal system
- High-efficiency design
- Run-Dry Option
- Redi-Prime Option
- High operating pressures
- Two-year warranty

PUMPS FOR INDUSTRY



SM SERIES HEAVY DUTY SLURRY PUMPS

The SM Series of pumps from Cornell is designed to handle a wide range of slurry applications and are especially effective for series pumping. These pumps are robust and durable with their unlined high chrome white iron wet ends. They are equipped with Cycloguard® and Cycloseal® innovations that extend their seal life and keep solids away from the seal area for reduced wear. The pumps are designed to operate at a maximum working pressure of 600 PSI.

PERFORMANCE	
DISCHARGE SIZE RANGE	2" TO 10"
MAX SOLIDS HANDLING	4"
MAX FLOW	12,000 GPM
MAX HEAD	330'

MATERIALS OF CONSTRUCTION

- Chrome Iron Impeller, volute, volute casing, wear palte, backplate, and expeller
- 4140 Steel Shaft
- 420 Stainless Shaft Sleeve
- Cast Iron suction cover

FEATURES

- Back pullout design to simplify maintenance
- 600 PSI rated pressure
- CycloGuard™ to reduce inlet recirculation
- Infinitely variable volute and discharge position

FEATURES CONTINUED

- Axially adjustable suction wear plate = no frame adjustment needed or realignment of belts/piping
- Available in any pipe flange standard
- Standard CycloSeal® – no flush water required
- Other shaft seal arrangements available
- Grease or oil lubricated bearing frame
- High-capacity bearings available
- Ideal for series/multistage pumping applications
- Handles high solids concentrations



PUMPS FOR SLURRY APPLICATIONS

SP-SERIES PUMPS pass up to 4.1" solids. Rubber or metal lined, handles pH from 1 to 14 depending on configuration. Capable of pumping slurries that are up to 40% solids by volume.

PERFORMANCE	
DISCHARGE SIZE RANGE	2" TO 12"
MAX SOLIDS HANDLING	4.1"
MAX FLOW	18,000 GPM
MAX HEAD	290'

MATERIALS OF CONSTRUCTION

- Chrome iron impellers
- Ductile iron volute casings
- Volute lining either chrome iron or rubber
- 4140 steel shafts
- Ductile iron bearing housing and cast iron bearing frames

FEATURES

- Cycloseal® grit removal system
- Enclosed impeller for higher efficiency
- Run-Dry Option
- Redi-Prime Option
- Superior abrasive and corrosive wear life
- No seal flush, vent line or lubrication required
- Various materials of construction
- Ruggedness and durability
- Two-year warranty

PUMPS FOR INDUSTRY



WASTE WARRIOR AUGER CUTTER PUMP

Cornell offers cutter pumps to break up solids and ranges in the waste stream. Can tackle aggressive plugging issues

PERFORMANCE

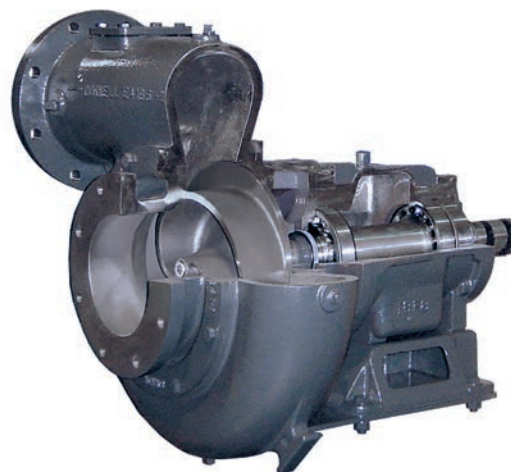
DISCHARGE SIZE RANGE	4" TO 16"
MAX SOLIDS HANDLING	5.2"
MAX FLOW	15,000 GPM
MAX HEAD	360'

MATERIALS OF CONSTRUCTION

- Ductile or cast iron pump casings
- Some models available in CD4MCu
- Ductile, cast iron, or CD4MCu impellers
- Stressproof or heat treated steel shafts (stainless on CD4MCu)
- SAE 1144 stressproof steel
- 420HT wear rings and shaft sleeve available

FEATURES

- Labor savings by reducing clean-out events
- Minimal energy consumption for solution
- Designed to break up clogs/ragging
- Hardened cutter material
- Adjustable clearances
- Minimal flow restrictions
- Does not change external pump dimensions
- Retrofittable



THE DELTA™ IMPELLER PUMPS

Cornell's **Delta™** impeller is a reliable solution for pumping liquids that contain solids, rags, stringy materials, and hard-to-handle wastewater without clogging. The impeller creates two distinct vortices that efficiently pass solids through the pump. The impeller's rounded vane edges wash solids smoothly down the slope of the impeller and into the pump discharge, preventing "hair pinning" or hang-up of stringy materials. Additionally, the absence of sharp corners and edges on the impeller effectively breaks up larger solids by the comminuting action of the impeller vanes.

PERFORMANCE

DISCHARGE SIZE RANGE	3" TO 10"
MAX SOLIDS HANDLING	4"
MAX FLOW	5,000 GPM
MAX HEAD	450'

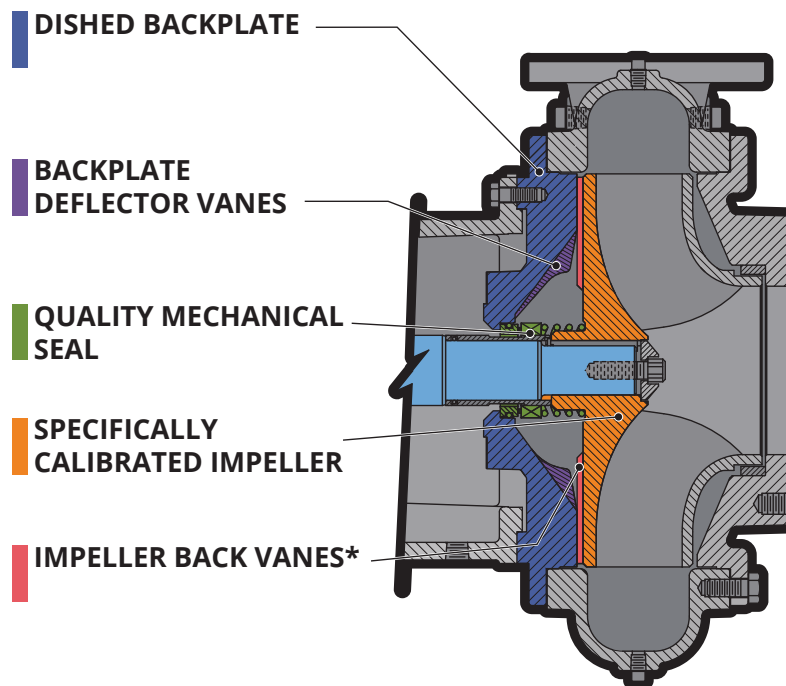
MATERIALS OF CONSTRUCTION

- Ductile or cast iron pump casings
- Some models available in CD4MCu
- Ductile, cast iron, or CD4MCu impellers
- Stressproof or heat treated steel shafts (stainless on CD4MCu)
- SAE 1144 stressproof steel
- 420HT wear rings and shaft sleeve available

FEATURES

- Handles light Slurries and Sludges with abrasive particles
- Interchangeable with Enclosed Impeller solids handling pumps
- Heavy duty construction
- No wear rings required
- No axial clearance adjustments are necessary
- A variety of Mounting Configurations
- Available in 2 or 3 vane Semi-open design

CYCLOSEAL®



CYCLOSEAL® — THE SEALING SYSTEM INTEGRAL TO CORNELL PUMPS

Cornell's manure pumps come equipped with the patented Cycloseal sealing system, which leverages cyclonic action to extract solids and abrasive substances from the seal area while simultaneously purging air and gas pockets. This groundbreaking technology extends the lifespan of the seal and eliminates the requirement for venting or flushing water.

No Flush Water or Packing: Cycloseal technology eradicates the need for packing or flushing water with its backplate and wide vanes, leading to cost savings, less service time, and no messy drips.

Extended Seal Life: Cornell's Cycloseal is highly durable in harsh conditions such as manure slurry, starch recovery, clear water, food processing, and self-priming applications, with the potential to triple the expected seal lifespan.

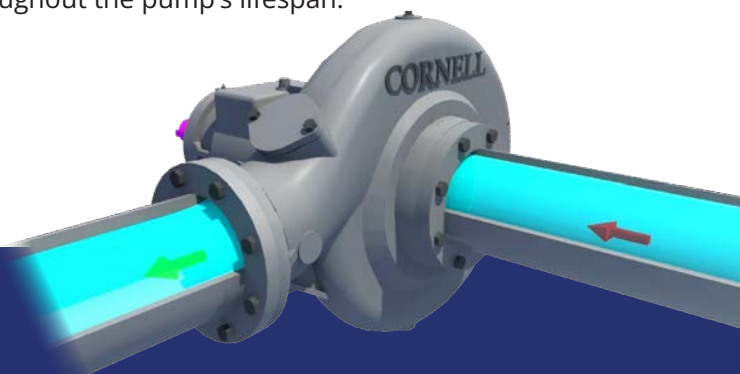
Run-Dry™ Option: Cornell's Cycloseal system-equipped pumps have an optional Run-Dry feature that lubricates the seal faces even without liquid in the pump casing. The Run-Dry feature is indispensable in scenarios where the pump must operate dry for an extended duration or may lose prime unexpectedly without being turned off.

System Savings: Cycloseal system eliminates the need for external water flush, filters, grease cups, or piping typically found in pumps with packing or mechanical seals.

Better for Abrasive Applications: Cycloseal is more durable than packing and regular mechanical seals that come into contact with grit and other substances, as it prevents solids from entering the seal area, resulting in less seal wear.

Greater Reliability: With positive seating, end users can easily detect when the Cycloseal is correctly installed, leading to longer service intervals due to its increased ability to withstand grit.

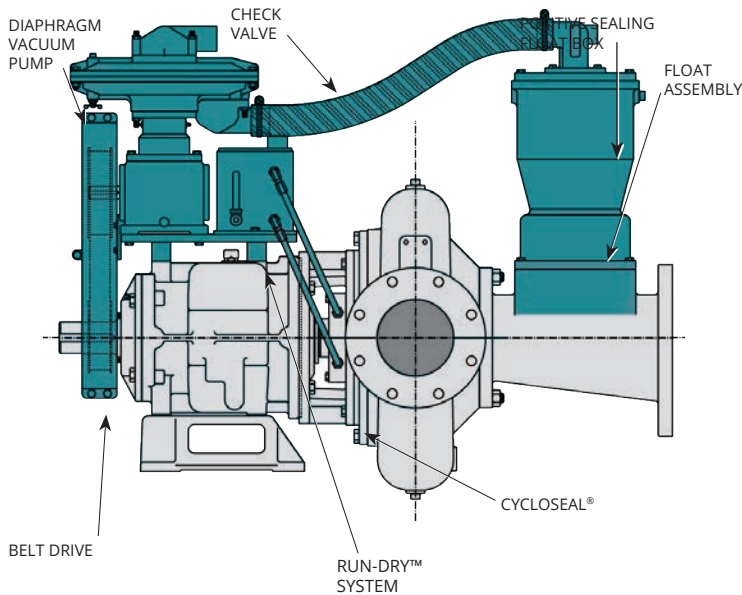
Maintenance Savings: A more durable seal results in less pump downtime and lower maintenance expenses throughout the pump's lifespan.



**Watch the Cycloseal® video
online to see it in action:**

<http://www.cornellpump.com/support/videos.html>

REDI-PRIME & RUN DRY



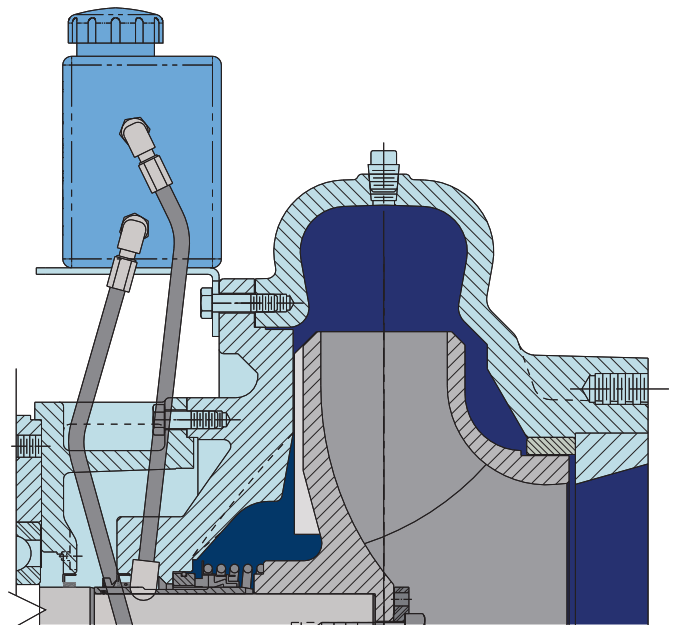
REDI-PRIME®

CORNELL'S REDI-PRIME SYSTEM is a patented technology that enables pumps to prime or re-prime themselves automatically without constant monitoring. With oversized suctions the Redi-Prime pumps provide greater flow, reduced friction losses, and higher suction lift. The system can handle large solids and air/liquid mixtures while maintaining premium hydraulic efficiency and lower energy consumption.

To ensure environmental safety, the Redi-Prime system utilizes a positive sealing float box and a diaphragm vacuum pump, which prevents any water carry-over that could contaminate the environment. The system can be easily installed on most Cornell pumps.

The Redi-Prime system offers the following benefits:

- Fully automatic priming and repriming
- Efficiently handles air/liquid mixtures
- Rapidly primes and re-primes completely unattended
- Environmentally safe priming system designed to prevent product leakage
- Premium hydraulic efficiency for reduced energy consumption



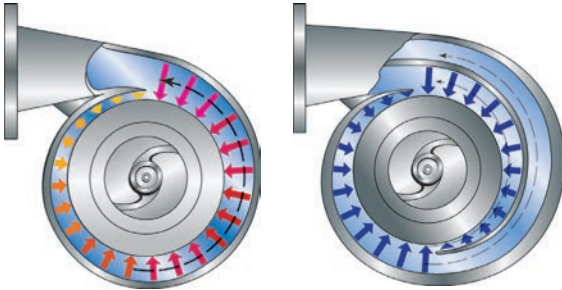
RUN-DRY™

CORNELL'S RUN-DRY™ SYSTEM offers a solution for applications where the pump may operate in a dry condition. The system comprises an auxiliary gland and oil reservoir that lubricates the seal faces and prevents dry running during priming, re-priming, or standby operation. The gland is connected to a lubricant reservoir through inlet and outlet lines to ensure continuous circulation and cooling of the lubricant and seal faces. The Run-Dry system allows your pump to run dry for extended periods without causing damage to the mechanical seal. It can be used with Cycloseal® and Redi-Prime® for optimal performance.

- 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®



CORNELL FEATURES & BENEFITS



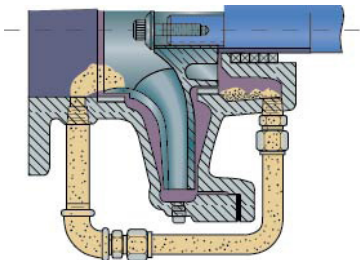
Single Volute

Double Volute

DOUBLE VOLUTE DESIGN

The double volute system from Cornell is designed to reduce radial thrust loads, often associated with high-capacity and high-head centrifugal pumps. By balancing the radial forces around the impeller, this system helps to minimize these loads, improving the overall efficiency and reliability of the pump.

- 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
- Increases bearing life



EXTERNAL HYDRAULIC BALANCE LINE

Cornell uses a more efficient approach to reduce pressure in the stuffing box instead of creating large holes in the impeller. This approach involves an external hydraulic balance line.

- Reduces turbulence and improves hydraulic efficiency
- Increases life of packing (or mechanical seal) and bearings
- Provides positive control of axial forces
- Reduces pump wear because abrasives aren't trapped behind impeller/near shaft



CD4MCU STAINLESS STEEL OPTIONS

CD4MCu is a duplex stainless steel type with superior corrosion resistance compared to 304 stainless steel. It is suitable for use in abrasive environments and is less prone to pitting. CD4MCu also offers better stress and corrosive cracking resistance than 304 stainless steel and greater strength. Compared to cast iron materials, CD4MCu is significantly more corrosion-resistant.

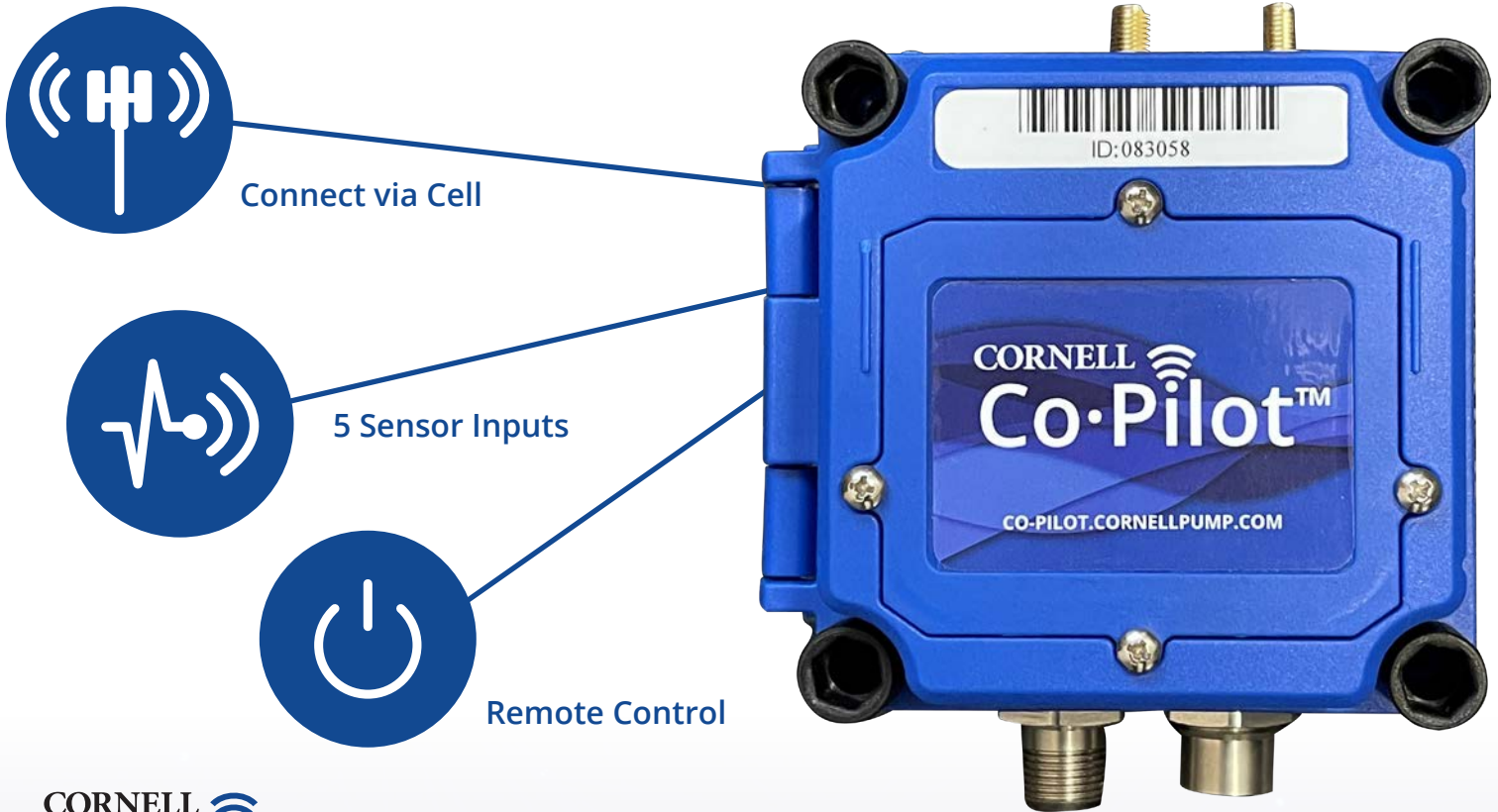


WE PUT OUR BEST IDEAS TO THE TEST

Cornell's state-of-the-art hydraulics laboratory is the testing ground for all our pumps. We aim to provide the most efficient pumps when energy costs rise. Under the guidance of Registered Professional Engineers, our team of expert technicians conducts certified performance tests to determine the performance and NPSH required for specific design conditions with precision.

The research facility features an 80,000-gallon closed-loop system that allows us to conduct accurate low-pressure tests. The system can circulate up to 60,000 gallons of water per minute. All test motors are calibrated and adhere to the Hydraulic Institute Standards. We can test pumps up to 4,000 horsepower at various speeds. Upon request, we can perform additional tests.

CORNELL CO-PILOT



CORNELL
Co·Pilot™

THE POWER OF IOT

Cornell Co-Pilot is a monitoring system that connects to your pump to track temperature, vibration, and location. Co-Pilot can also be powered with a wired connection for continuous monitoring and control system integration. Our Internet of Things (IoT) platform and reflects our dedication to cutting-edge design and meeting customer needs.

USE THE CO-PILOT TO:

- Plan maintenance
- Check operation
- Reduce manual inspections
- Track pump location
- Demonstrate run conditions to customers on warranty claims
- Improve run time through the maintenance program

GET STARTED AT CO-PILOT.CORNELLPUMP.COM

MONITORING AT YOUR FINGER TIPS

Easily monitor your pump's performance with desktop and mobile apps available for iOS and Android. Receive alarms for out-of-condition operations and view the last GPS location of the pump, all in one convenient platform.

CORNELL CO-PILOT ALLOWS YOU TO:

- Monitor pumps using the cloud and IOT
- Monitor temperature, vibration, and GPS location
- Additionally monitor pressure, flow, start/stop operations, and more*
- Track data over time via web-based and mobile apps
- Receive real-time pump data for performance and health monitoring
- Receive alerts for preset running conditions

*Requires external sensors; contact Cornell for details.

CORNELL PUMP COMPANY MARKET & PRODUCT LINE



AGRICULTURE



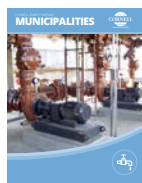
FOOD PROCESS



INDUSTRIAL



MINING



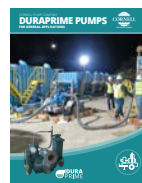
MUNICIPAL



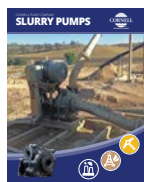
WATER
TRANSFER



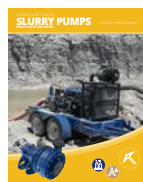
REFRIGERATION



CONSTRUCTION



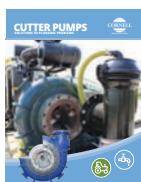
SLURRY



SLURRY SM



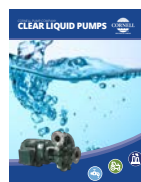
MANURE



CUTTERS



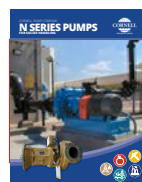
SELF PRIMING



CLEAR LIQUIDS



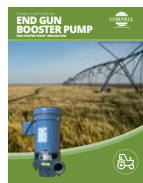
MX SERIES



N SERIES



CYCLONE™



EDGE™



HYDRAULIC
SUBS



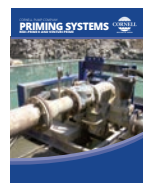
IMMERSIBLE



CD4MCU



RUN-DRY™



PRIMING
SYSTEMS



CYCLOSEAL®

Cyclo Seal® 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:

6,074,554; 6,036,434; 6,079,958; 6,309,169; 6,104,949.

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