



CORNELL PUMP COMPANY

# AGRICULTURE

IRRIGATION AND MANURE PUMPS

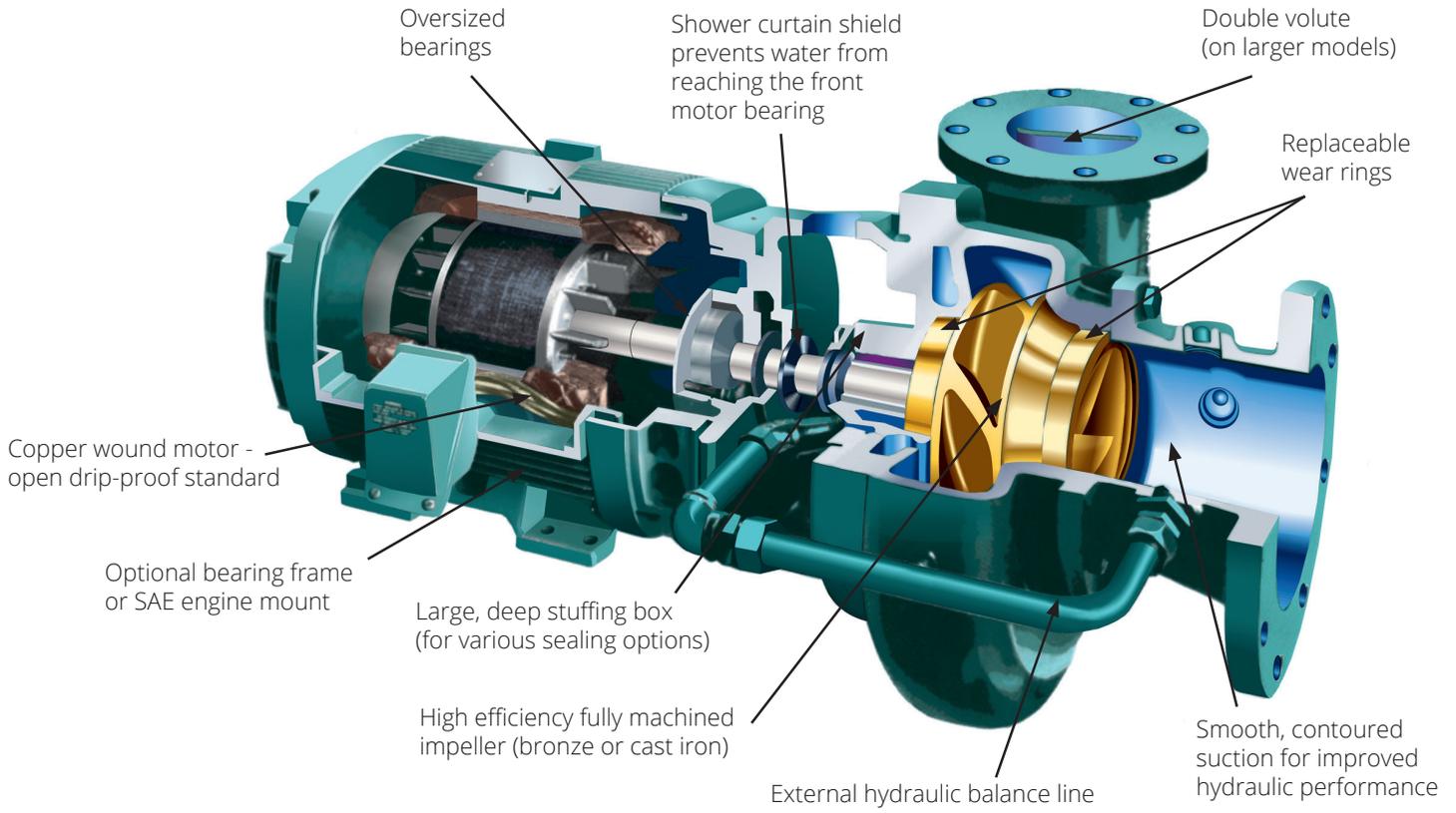


EFFICIENT BY DESIGN



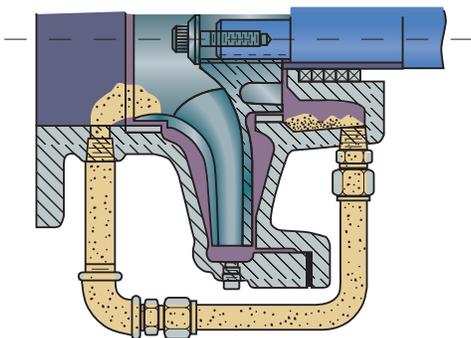


# IRRIGATION PUMPS



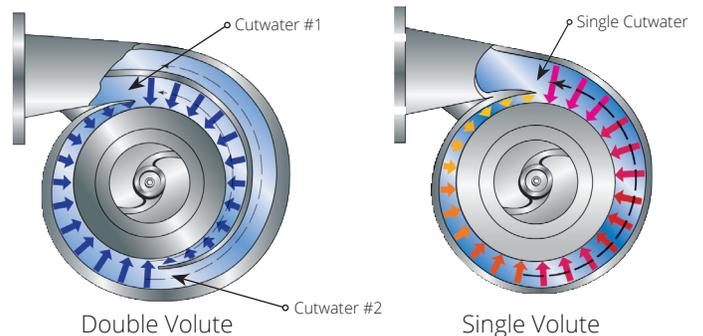
## EXTERNAL HYDRAULIC BALANCE LINE

Cornell's external hydraulic balance line equalizes pressure between the impeller hub area and the pump suction to reduce axial loading acting on the impeller, shaft and bearings. The balance line also assists in moving sand and silt from the stuffing box to the low pressure area at the pump suction, reducing wear of the wetted parts.



## DOUBLE VOLUTE

Cornell introduced the double volute as an industry first more than 30 years ago. The double volute system effectively balances forces within the pump to reduce radial load, shaft deflection and fatigue. This eliminates shaft breakage and extends the service life of packing and mechanical seals, wear rings and bearings while maintaining high hydraulic efficiency.



## ENERGY EFFICIENCY

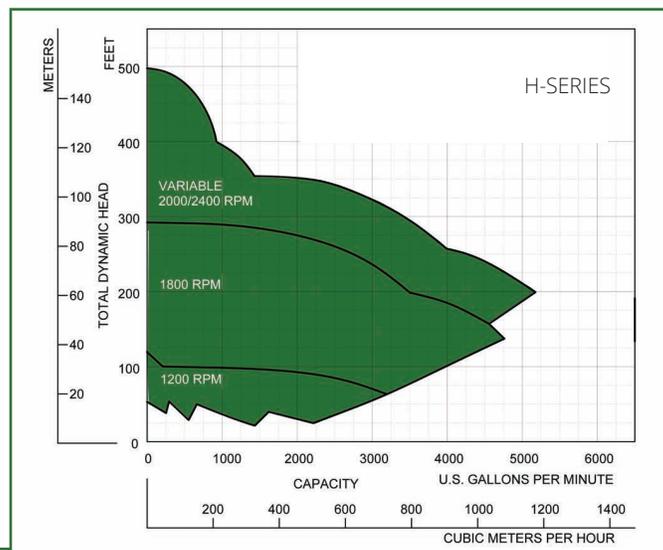
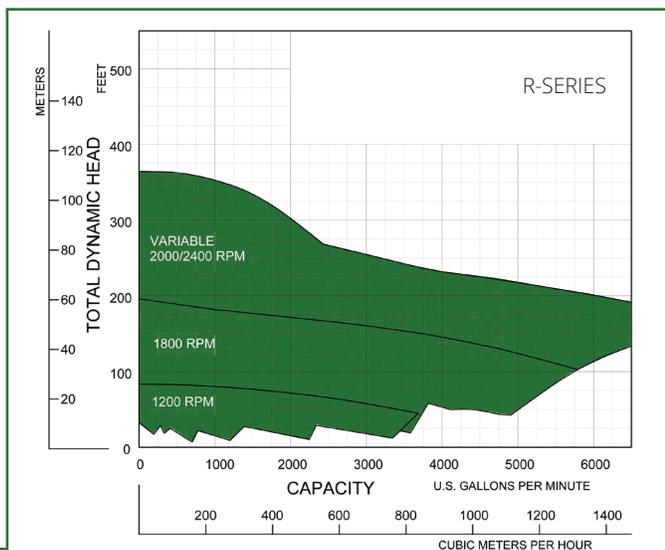
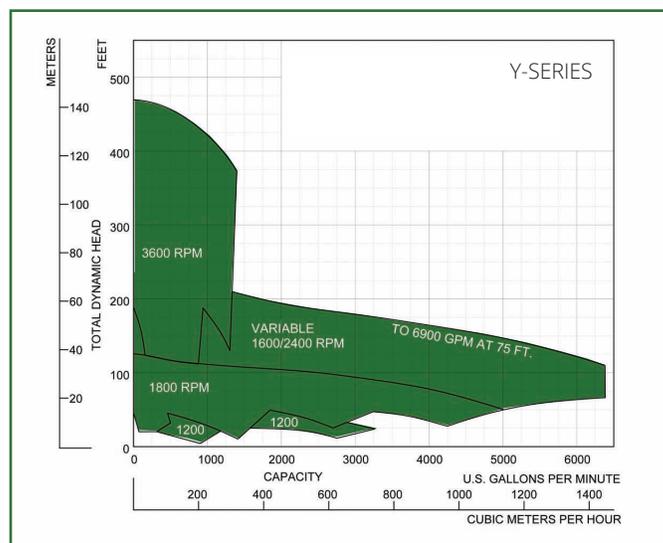
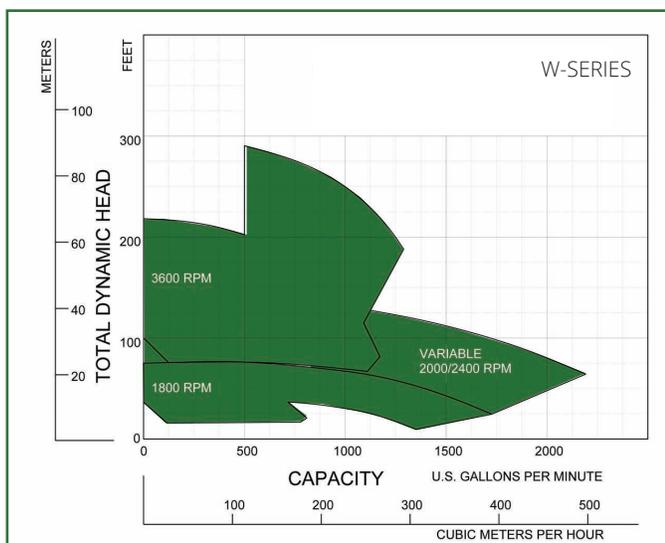
Cornell Pumps are designed to deliver best in class efficiency. Depending on operating hours, fuels, and horsepower required, you can save \$3,000 per year (or more) in energy costs. Cornell manufactures more than 35 IRRIGATION pump models that meet or exceed optimum efficiency standards for centrifugal pumps, including recent DOE minimum efficiency requirements.

## MATERIALS OF CONSTRUCTION

All Cornell irrigation pumps are constructed with top quality materials. Cornell irrigation pumps are cast iron, bronze fitted or all iron construction. Optional materials are available for abrasive or caustic applications. Standard features include balanced impellers, heavy-duty shafts, replaceable shaft sleeves, and replaceable wear rings.

## SELECT HIGH-EFFICIENCY PUMP MODELS

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



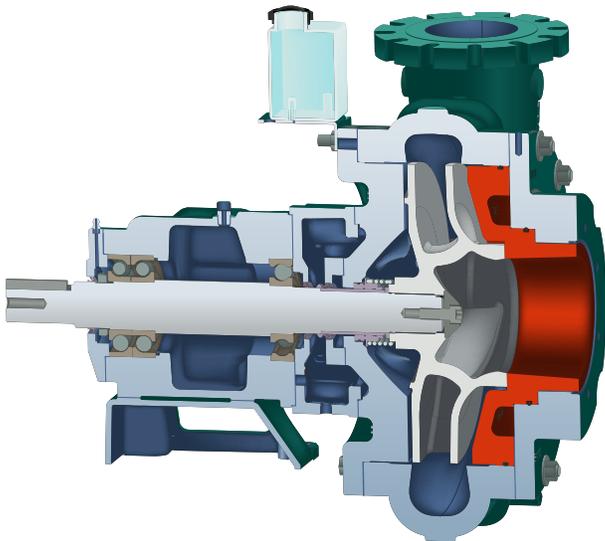


# MANURE PUMPS

Cornell offers more than 60 legacy models of heavy-duty solids handling pumps for the toughest slurry applications. Three unique impeller designs (Enclosed, Semi-Open & Delta), ensure a fit for most applications.

## MATERIALS OF CONSTRUCTION

Cornell Legacy Manure Slurry pumps are all iron construction with hard face mechanical seals for extended seal life. Optional materials are available for abrasive applications. These pumps have flows to 8,000 GPM and heads to 625 feet (270 psi).



## MP SERIES PUMPS ARE DESIGNED FOR COARSE ABRASIVES

Cornell Pump Company's MP Pump Series combines 65 years of innovative pump manufacturing and design, with our highly-regarded patented Cycloseal® technology. Offering high operating pressures, the MP pumps, with high chrome white iron wet ends, are specifically designed for coarse abrasive slurry applications such as sand, gravel, coal, manure, and mine dewatering.

## SPECIFICATIONS

- Flows to 9,000 GPM
- Heads to 625' (270 PSI)
- Discharge Sizes: 4", 6", and 8"
- High chrome white iron or HT ductile iron pump ends
- Front, adjustable wear plate
- Replaceable hard suction wear plate
- Hardness > 650 BHN available
- Thick cross sections for abrasive wear
- Cycloseal, hard-faced single seal
- Enclosed Impeller

## IMPELLER OPTIONS

Cornell offers three unique impeller designs for liquid waste slurry applications. The **DELTA style** impeller is excellent for handling straw, twine and heavy sludge where there is a low to medium head requirement. Cornell's **two and three port enclosed** impellers are designed to handle large solids with high efficiency and high head requirements. The **three or four bladed, semi-open** impeller has a cutting action which allows it to handle the worst slurries at high heads.



## BLADE CUTTER

Consists of a rotating and stationary cutter, utilizing a standard impeller.

- Minimal energy consumption (4% or less) for solution
- Designed to break up clogs/ragging
- Hardened cutter material
- Adjustable clearances
- Minimal flow restrictions
- Does not change external pump dimensions
- Retrofittable



## WASTE WARRIOR AUGER CUTTER

The more aggressive solution, featuring scythe-like edges from the impeller eye, sweeps the entire area where the suction pipe meets the volute.

- Handles most aggressive and troublesome clogs and ragging
- Limited energy consumption (~ 8%) for solution
- Hardened cutter material
- Insignificant flow restrictions
- Does not change external pump dimensions
- Retrofittable



# CYCLONE VERTICAL TURBINE PUMP



## A NEW TWIST ON A PROVEN DESIGN

Cornell Pump's Cyclone VT pump series relies on our demonstrated superior hydraulics, in a submerged design. The proven quality of the Cornell RB series is recast into a short set vertical turbine pump. Boasting energy efficiencies up to 89%, with no priming required, the Cyclone is the vertical turbine you'd expect from the industry leader in centrifugal pumps. Designed for ponds, rivers, canals, sumps, and dewatering applications, the VT series fills a niche where end users need robust design, quality build, proven hydraulics, and Cornell's renowned two-year warranty for peace of mind.



**NEW!**



## UNIQUE SPIRAL-SHAPED BOWL

The spiral-shaped bowl designed by Cornell engineers allows the pump to use a standard centrifugal impeller, reducing the number of stages required, and using existing high-efficiency impeller hydraulics, in our vertical turbine pump design. An **epoxy lining** further improves the performance and efficiency.

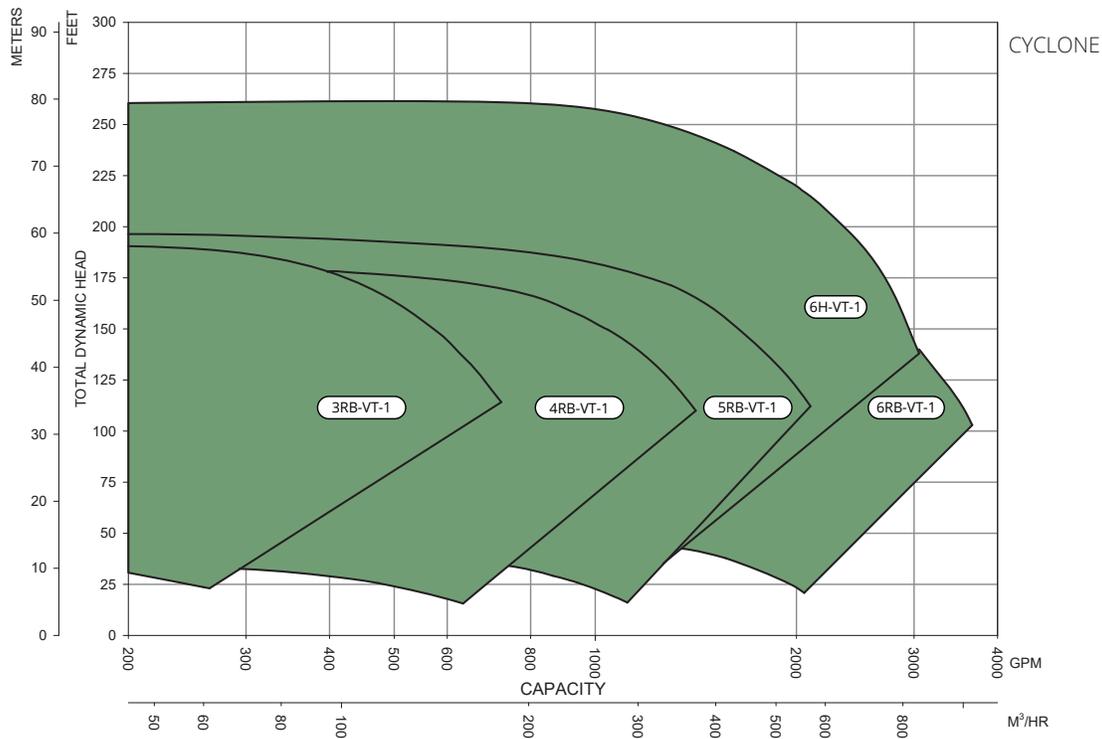
## FEATURES AND BENEFITS

- **Spiral bowl construction:** Improves flow path and pump efficiency.
- **Fewer stages to replace and maintain:** Improved uptime and reduced costs.
- **Two-year warranty:** Industry-leading protection.
- **VFD Operable:** Usable at various speeds for maximum energy savings.
- **Large bearings:** Product lubricated or oil lubricated.
- **Keyed and bolted 316SS impeller** for positive drive.
- **Industry standard cast iron discharge head** configuration for VHS motors.
- **Wider flow range** per model than standard turbine products.
- **Large diameter 416SS shafts** for minimal deflection, less wear.
- **Industry-standard** column, shaft & line-shaft bearing construction.





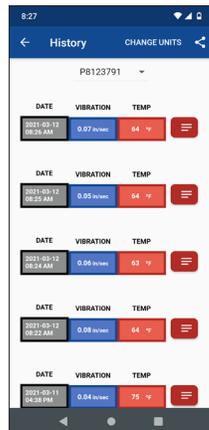
# CYCLONE VERTICAL TURBINE PUMP



# WIRELESS PUMP MONITORS

## PULSE™

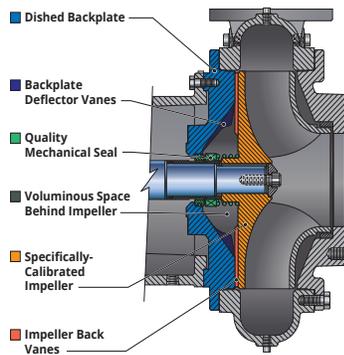
Cornell Pulse is an innovative way to measure pump vibration severity and temperature in real time—the unit itself is a small (less than 2" circumference) pump-mounted with short-range wireless communication that takes pump readings when queried by the end-user. That query comes through a mobile app for phones and tablets that measures temperature and vibration on the pump when the app is initiated. This allows detection of common pump problems, as long as the end user is recording conditions.



## CO-PILOT™

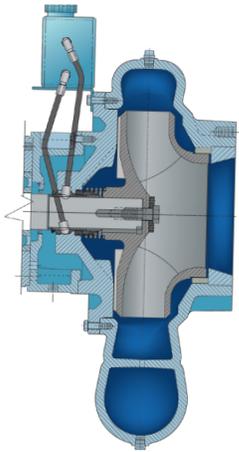
For a wider range of monitoring and protection, including location and predictive maintenance, Cornell Co-Pilot connects to your pump to monitor temperature, vibration, location, pressure, flow, RPMs, start/stop, and more. Co-Pilot also interfaces with control systems such as SCADA. Data is graphed and held in the mobile app or desktop system, and sends alerts for out-of-condition operation.





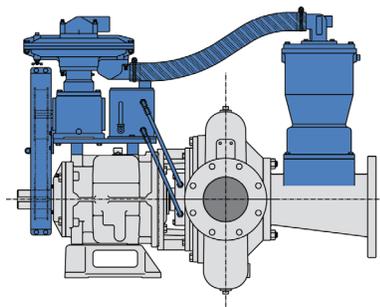
## CYCLOSEAL®

Ideally suited for water and waste water applications, Cornell's patented Cycloseal (U.S. Patent # 5,489,187) is a self-contained single mechanical seal with a dished backplate. This configuration requires no external flushing and eliminates the need for a water flush line. The Cycloseal uses stationary deflector vanes cast into the pump backplate in conjunction with contoured impeller back vanes and a dished backplate to create pressure gradients that moves solids and entrained vapor away from the seal faces. The service life of a Cycloseal mechanical seal can be as much as 10 times longer than a typical mechanical seal.



## RUN-DRY™

For applications where there is the possibility of the pump operating in a dry condition, Cornell's Run-Dry system is the answer. 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. The Run-Dry gland is connected to a lubricant reservoir via inlet and outlet lines such that shaft rotation provides continuous circulation and cooling of the lubricant and seal faces. With the Run-Dry system your pump can run dry for hours without damaging the mechanical seal.

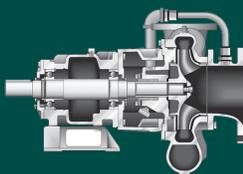


## REDI-PRIME®

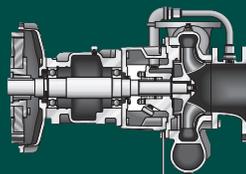
Cornell Redi-Prime pumps are designed with oversized suctions to provide more flow, reduced friction losses, and higher suction lift. The priming system was designed with the environment in mind. By using a positive sealing float box and a diaphragm vacuum pump, there is no water carry-over to contaminate the environment. With suction lifts of up to 28 feet, heads to 800 feet and flow rates exceeding 20,000 GPM, most Cornell pumps can be readily fitted with the Redi-Prime system.

## MOUNTING CONFIGURATIONS

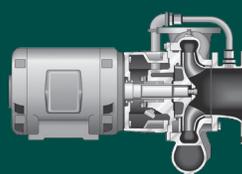
Cornell irrigation pumps are available in a variety of mounting configurations, including horizontal and vertical close-coupled pumps, vertical and horizontal frame-mounted pumps, and pumps with an SAE bell housing mounting directly to an engine.



F  
Frame Mount



EM  
Engine Mount



CC  
Close-Coupled



VM/VC/VF  
Close Coupled  
Coupled  
Frame Mount



# MARKET AND PRODUCT LINE



AGRICULTURE



FOOD PROCESS



INDUSTRIAL



MINING



MUNICIPAL



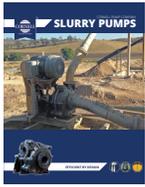
WATER  
TRANSFER



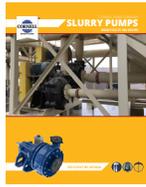
REFRIGERATION



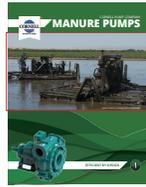
CONSTRUCTION



SLURRY



SLURRY SM



MANURE



CUTTERS



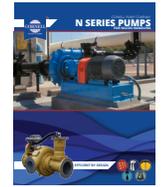
SELF PRIMING



HIGH FLOW



MX SERIES



N SERIES



CYCLONE™



EDGE™



HYDRAULIC  
SUBS



IMMERSIBLE



CD4MCU



RUN-DRY™



PRIMING  
SYSTEMS



CYCLOSEAL®

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

## CORNELLPUMP.COM

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