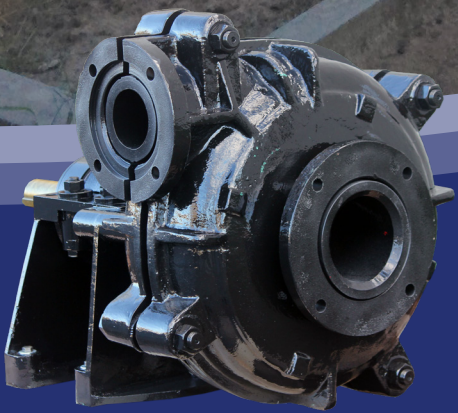


CORNELL PUMP COMPANY

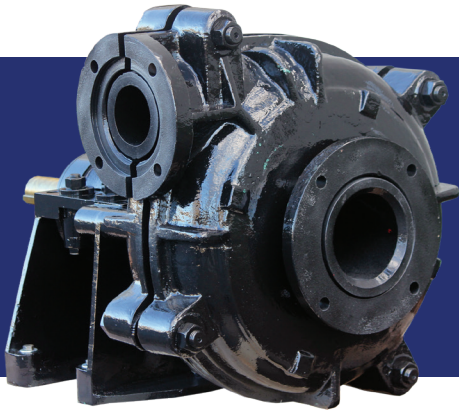
# SLURRY PUMPS

SP SERIES

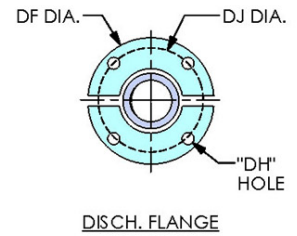
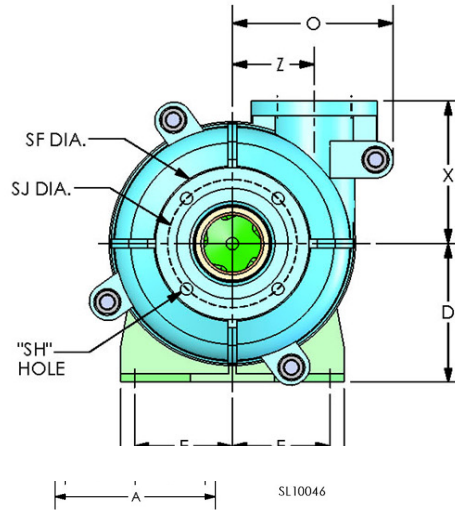
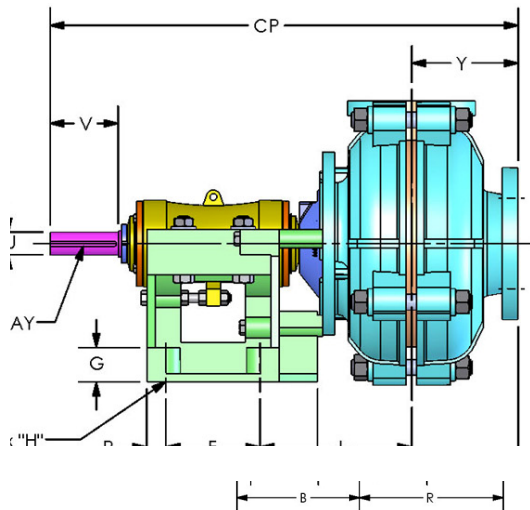




# SP SERIES SLURRY PUMPS



Cornell's SP Series are designed to handle abrasive applications in the mining process industry, expanding our dewatering pumping solutions. These pumps are equipped with our patented Cycloseal® technology, eliminating the need for flush water.



**NOTES:**

1. Do not use for construction unless certified.
2. Dimension "U" and Keyway are in millimeters. All other dimensions in inches.

MODEL	FLANGE DIMENSION					
	DISCHARGE			SUCTION		
	DF	DJ	DH	SF	SJ	SH
2SP	7.25	5.75	4x.75	8.5	7	4x.75
3SP	9.02	7.52	4x.87	10.98	9.25	4x.87
4SP	10.98	9.25	4x.87	13.27	11.5	4x.87
6SP	14.49	12.76	8x.83	15.98	14.02	8x.87
8SP	17.01	14.76	8x1.14	19.76	17.52	8x1.14
10SP	20.75	18.5	12x.98	20.75	18.5	8x.98
12SP	21.73	19.49	12x.98	23.03	20.51	12x.98

MODEL	WEIGHT (LB)	
	METL.	RUBB.
2SP	420	340
3SP	580	520
4SP	1380	1000
6SP	3250	2165
8SP	8270	6900
10SP	4520	7400
12SP	14130	10300

MODEL	FRAME	CONNECTION		PUMP DIMENSIONS																	KEYWAY
		DISCH.	SUCT.	A	B	CP	D	E	F	G	H	L	O	P	R	U	V	X	Y	Z	
		2SP	C	2	3	15.98	12.24	30.24	10	7	6.89	1.89	0.75	9.17	9.37	1.26	11.06	42mm	4.76	8.27	
3SP	C	3	4	15.98	12.24	33.19	10	7	6.89	1.89	0.75	10.63	11.5	1.26	13.94	42mm	4.76	10.31	7.4	5.87	12mm x 8mm
4SP	D	4	6	19.37	14.33	40.2	13	8.5	8.39	2.52	0.87	12.52	15.98	1.5	16.57	65mm	6.46	13.31	8.5	9.02	18mm x 11mm
6SP	E	6	8	24.49	17.64	51.26	17.99	10.75	10.12	2.99	1.14	15.83	21.69	2.13	21.93	80mm	8.74	18.11	11.5	12.52	22mm x 14mm
8SP	ST	8	10	45.28	30.71	68.82	25.59	17.72	24.41	4.92	1.89	17.28	26.5	3.15	27.24	120mm	11.02	25	13.11	16.5	32mm x 18mm
10SP	ST	10	12	45.28	30.71	71.5	25.59	17.72	24.41	4.92	1.89	16.38	29.72	3.15	30	120mm	11.02	26.54	16.26	18.27	32mm x 18mm
12SP	ST	12	14	45.28	30.71	73.74	25.59	17.72	24.41	4.92	1.89	19.13	36.89	3.15	31.87	120mm	11.02	32.76	18.74	24.76	32mm x 18mm

## APPLICATIONS

Dewatering  
Cyclone feed  
Regrind  
Flotation

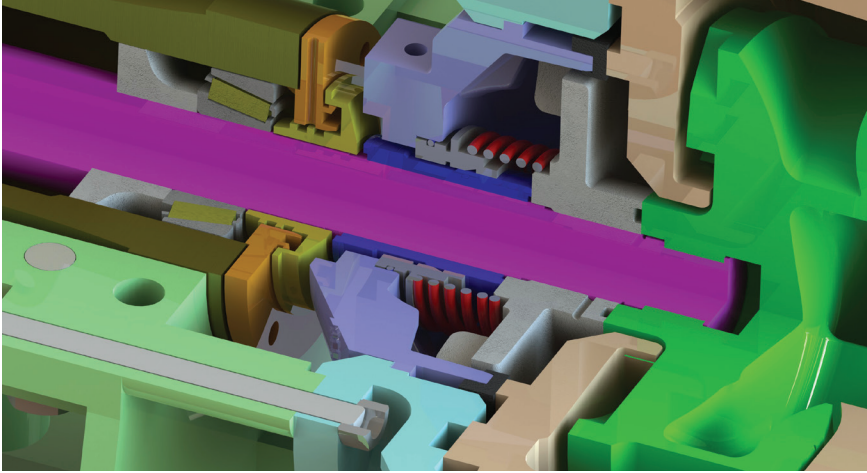
Mill discharge  
Tailings and mine refuse

Mining and mineral processing  
Heavy duty abrasive slurries

Medium duty abrasive slurries  
In-plant slurry transfer pumps

# SP SERIES SLURRY PUMPS

## CYCLOSEAL®: THE INNOVATION THAT DISTINGUISHES THE SP SERIES AS CORNELL TOUGH



The Cycloseal® technology from Cornell features deflector vanes and an expeller that work together to create a cyclo-action, removing abrasive materials and solids from the seal area while also purging air and gas pockets. This design increases the lifespan of the seal and eliminates the need for venting or water flush.

Cycloseal® technology not only extends seal life but also reduces spray-over during operation, and decreases the frequency of off-lining pumps for maintenance.

### CYCLOSEAL® BENEFITS:

Cornell's Cycloseal® design offers numerous benefits, including **extended seal life** that has been proven in demanding applications such as manure slurry, starch recovery, clean water, food processing, self-priming, and hot cooking oil applications. In some cases, it has more than tripled the expected mechanical seal life.

The Cycloseal® system also offers a **Run-Dry™** option, which lubricates the seal faces even when the pump

casing is dry. This feature is essential for situations where the pump must run dry for several hours or may suddenly lose its prime without being shut off.

In addition to the extended seal life and Run-Dry™ option, the Cycloseal® system offers **system and maintenance savings**. It requires no external water flush, filters, grease cups, piping, or instrumentation typically associated with packing or double mechanical seals. This translates into less pump downtime and lower maintenance costs.





# SP SERIES SLURRY PUMPS

## ABOUT THE SP SERIES

The SP series is designed to transport heavy abrasive slurry with a high concentration of solids at pH levels 1 to 13 (rubber lined) and 3 to 14 (metal). Pumps are available in chrome iron and rubber lining configurations. SP series pumps are designed to handle abrasive high-density slurries in mining, metallurgical, coal, manure, and other industrial applications.

## BENEFITS

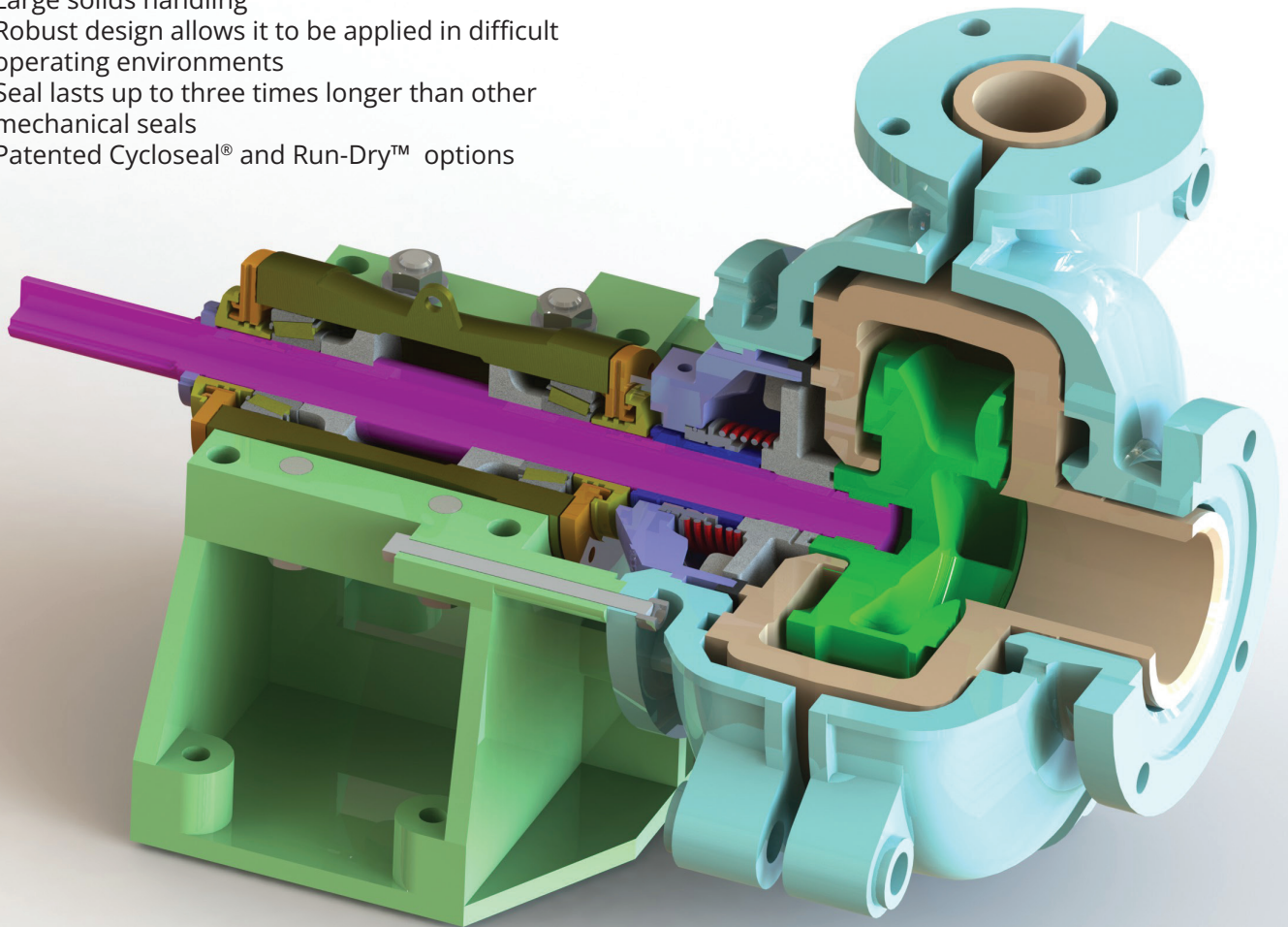
- Solids handling up to 3.5"
- Heads up to 235' at BEP
- No Flush Water Required
- Industry leading two year warranty
- Superior abrasive and corrosive wear life
- Handles pH level 4 to 13 in metal or rubber lined
- Available in rubber lined or chrome-iron configuration

## FEATURES

- Specific lining allows for various material handling
- Large solids handling
- Robust design allows it to be applied in difficult operating environments
- Seal lasts up to three times longer than other mechanical seals
- Patented Cycloseal® and Run-Dry™ options

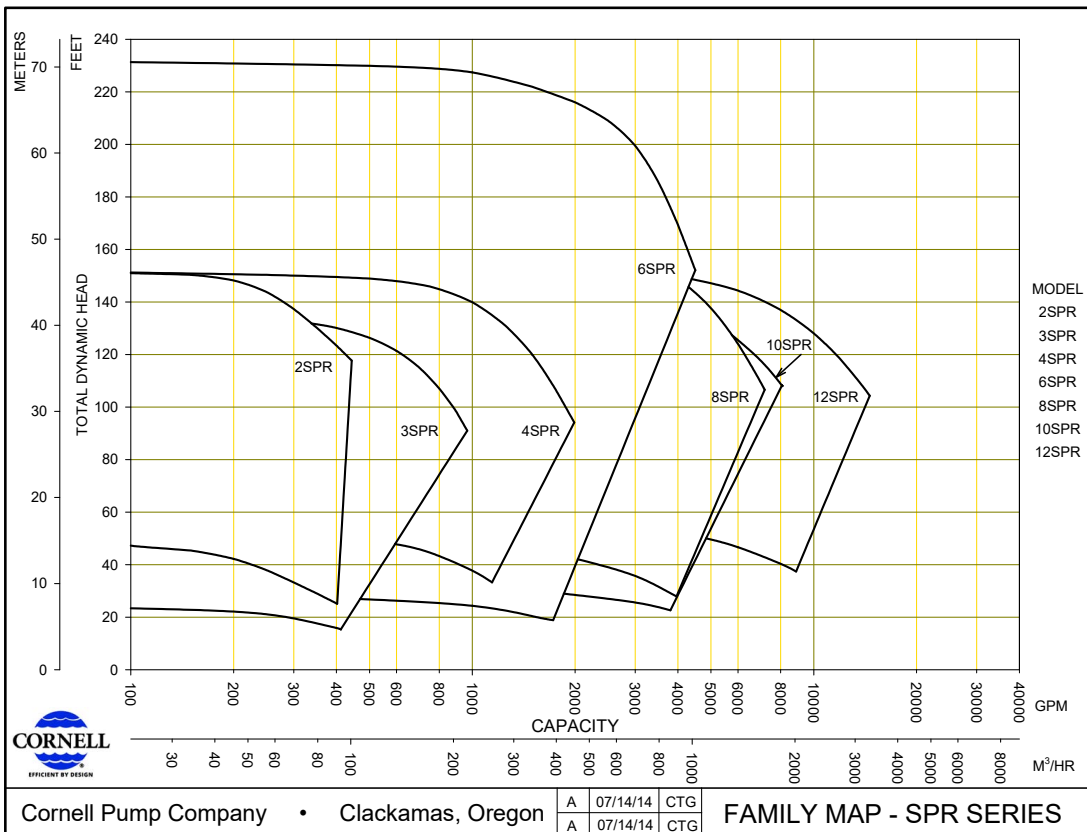
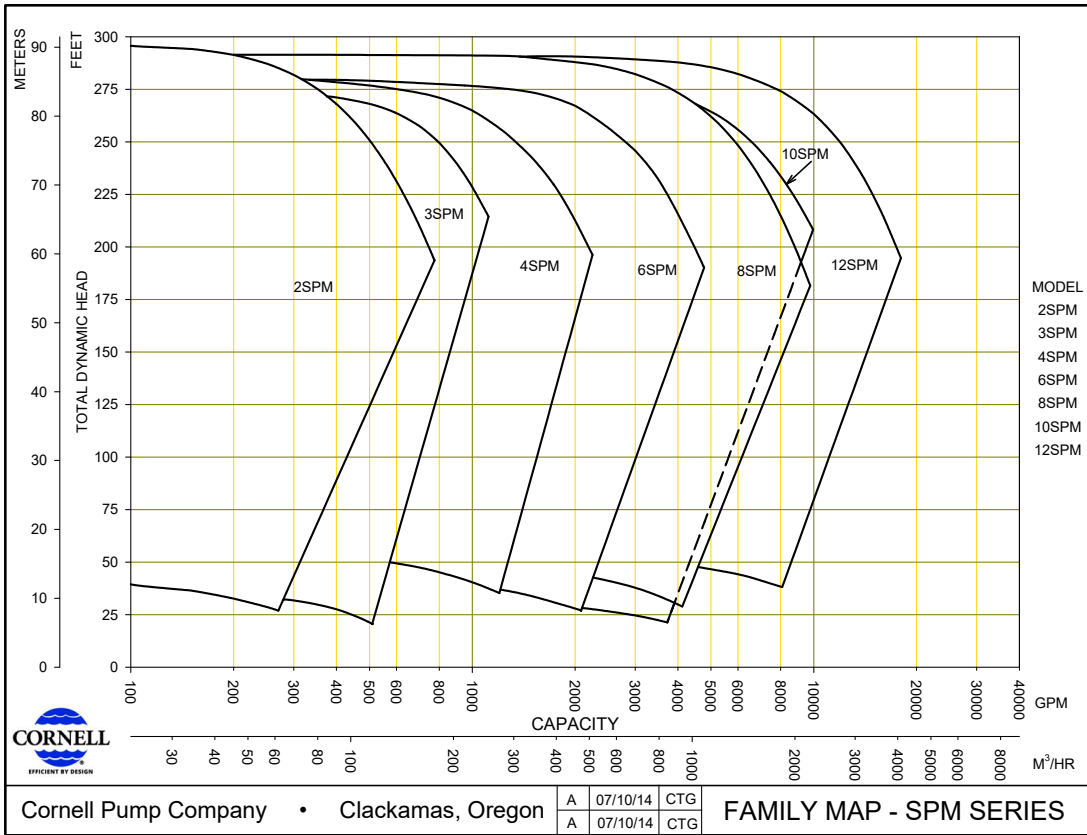
## SPECIFICATIONS

- Housing Material: Ductile iron
- Liner Material: Chrome iron or rubber
- Impeller Material: Chrome iron or rubber
- Backplate: Chrome iron
- Bearing Housing & Pedestal: Cast iron
- Discharge Size: 2" to 12"
- Flow rate: Up to 14,000 GPM
- Seal Type: Cycloseal or gland packing
- Solids Diameter: Up to 3.5"
- Impeller Type: Enclosed
- Head: Up to 235' at BEP





# SP SERIES SLURRY PUMPS



# SP SERIES SLURRY PUMPS

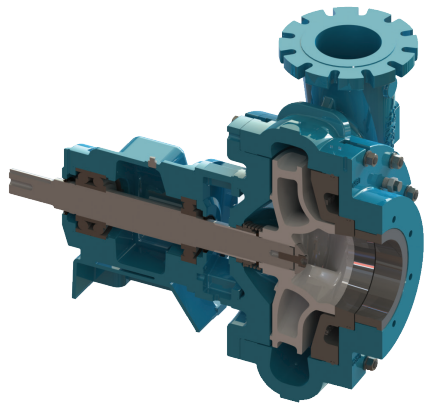
## MX SERIES HIGH PRESSURE PUMPS



The MX SERIES pumps are capable of delivering pressures up to 800 feet of total dynamic head (TDH) and flows of up to 8,000 gallons per minute (GPM). These pumps are engineered to tackle high-head applications, providing a prolonged service life. Their multi-vane, enclosed impellers are specially designed to achieve industry-leading efficiency. The MX SERIES pumps feature an extra thick wall and high-quality construction with CA6NM impellers. They are available in both horizontal frame and SAE-mounted configurations.

- Discharge sizes: 2", 3", 4", 6" and 8" available
- 600' - 800' TDH flows to 8000 GPM
- CA6NM impellers
- Ductile Iron case
- Cornell Pump quality
- Industry leading efficiency
- Two-year warranty

## MP SERIES MINING PUMPS DESIGNED FOR COARSE ABRASIVES



The MP series is a complement to the SP series, catering to applications with high operating pressures. These pumps are specifically engineered to handle coarse abrasive slurry applications, including sand, gravel, coal, manure, and mine dewatering.

- Discharge Sizes: 4", 6", and 8"
- Flow Rates: Up to 9,000 GPM
- Heads: Up to 550'
- Solids Diameter: Up to 3"
- Seal Type: Cycloseal®
- Impeller type: Enclosed
- Available in horizontal frame and SAE mount configurations
- Heavy duty construction for aggressive applications.
- Hardness rating > 650BHN provides better wear properties compared to standard cast or ductile iron.

## MINE DEWATERING



Cornell has been a trusted provider of efficient and reliable high-head dewatering pumps for many years. Our latest innovation, the CD4 Duplex metal volutes, shafts, and impellers, has increased our solids handling capability. Our self-priming pumps have an impressive suction capacity of 28' and can deliver a head of up to 825', making them well-suited to tackle even the most challenging dewatering tasks in the mining industry. Our pumps have been successfully used in various mining applications, including longwall, pier and beam, pit, and strip mining.

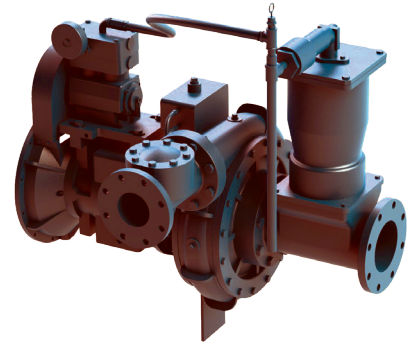


# SP SERIES SLURRY PUMPS

## WATER TRANSFER HYDRAULIC FRACTURING

Cornell's hydraulic fracturing pumps are engineered to withstand the toughest and most challenging environments. They are built to set the standard for hydraulic fracturing, and have been proven to exceed operating expectations from the Antrim to Woodford Shales. These pumps offer hydraulic fracturing companies unparalleled uptime, reliability, and efficiency.

- Heads up to 800'
- Valve eliminates any liquid carry-over
- Hardened Iron extends life of pump
- Fully automated priming and self-priming, dry-run pumps
- Handles Air/liquid mixtures with ease
- High suction lift capabilities up to 28'
- Up to 7,000 GPM flow



## HYDRAULIC SUBMERSIBLE PUMPS

The DuraSub™ by Cornell features a robust pump end and bearing frame that can be directly coupled to a hydraulic motor. Its modular design allows for standard Cornell pump ends to be utilized as a hydraulic submersible pump, offering versatility and efficiency in various applications.

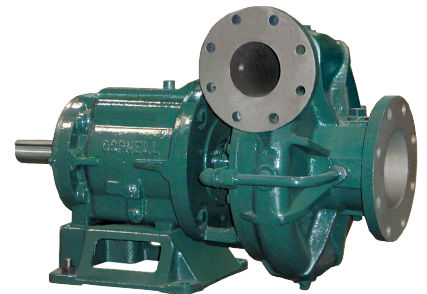
- Available for most Cornell pump models
- Hydraulic motor driven
- Various adapter plates available for hydraulic motor fit
- Heavy duty shaft / bearing frame assembly and wet end construction
- Premium wet end efficiencies reduce horsepower requirements
- Heavy duty pump ends for long service life and reliability



## CLEAR LIQUID PUMPS

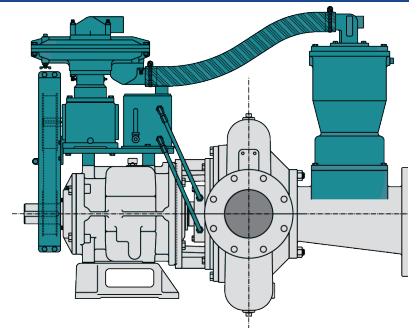
Cornell's Clear Liquid pumps have a wide range of applications, including commercial and residential irrigation, golf course and lawn maintenance, aquaculture, fountains, breweries, laundries, cooling towers, fire fighting, reverse osmosis feed, and water boosting.

The W, Y, R, and H series pumps are available in various materials with discharge sizes ranging from 1" to 10", heads to 450' TDH, and flow rates up to 7,000 GPM.

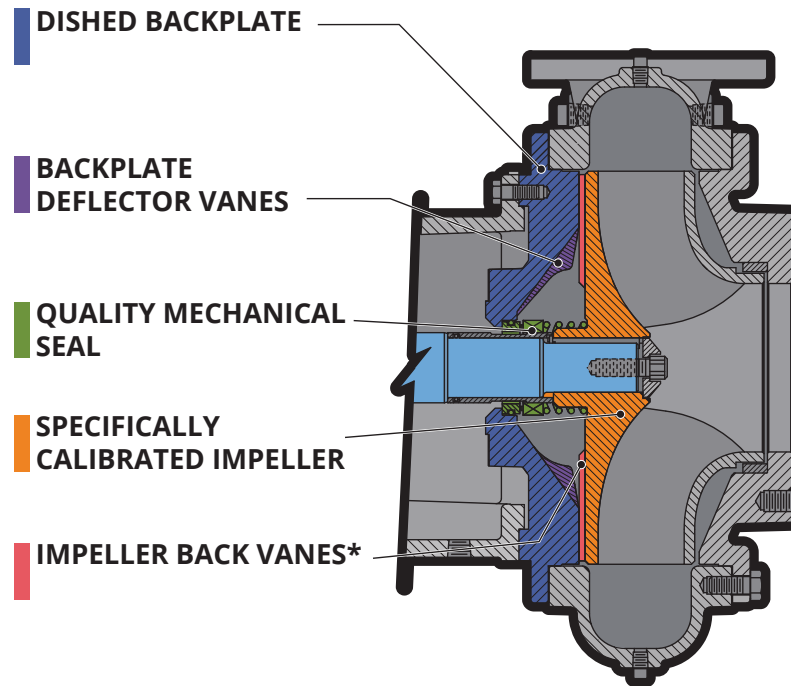


## REDI-PRIME®

The Redi-Prime® pumps from Cornell are equipped with enlarged suctions to increase flow, reduce friction losses, and achieve higher suction lift. To ensure environmental safety, the priming system adopts a positive sealing float box and a diaphragm vacuum pump that prevents water carry-over and avoids contamination. The Redi-Prime® system can be easily installed on most Cornell pumps, which can deliver suction lifts up to 28', heads up to 800', and flow rates of over 38,000 GPM.



# 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

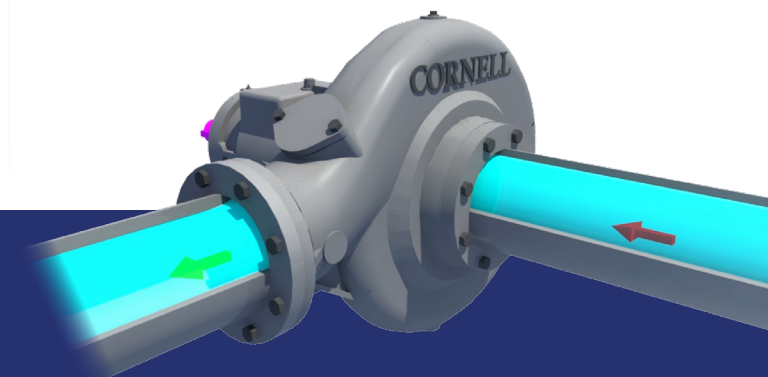
may lose prime unexpectedly without being turned off.

**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>



## FLUID RESERVOIR

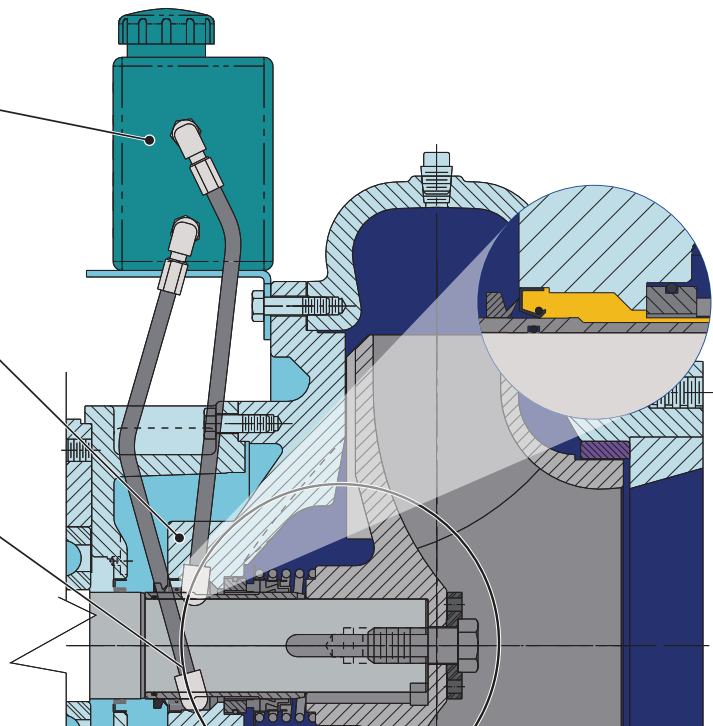
The heart of Cornell's Run-Dry™ system is the ability to deliver lubrication/cooling to the seal during periods of no flow operation. Natural circulation of the fluid in the reservoir removes heat from the seal faces to keep them in pristine condition.

## RUN-DRY™ GLAND

With Cornell's Run-Dry system, seal face cooling is effected by providing for heat exchange/lubrication in the area immediately adjacent to the seal faces. This small cavity is created by adding a gland which is connected to the reservoir to complete the lubrication/cooling circuit.

## CYCLOSEAL®

Cornell's Run-Dry is an addition to the same Cycloseal system that protects our pumps during normal operating conditions. Truly a system, this combination of backplate deflector vanes, impeller backvanes and a quality type I or II mechanical seal, can also run dry, when equipped with the Run-Dry system.



# PROTECTS MECHANICAL SEALS FROM DAMAGE CAUSED BY OPERATING WITHOUT PUMPING FLUID—RUNNING DRY.

Cornell's innovative Run Dry™ system offers a solution for continuous lubrication of mechanical seals. This system features a gland on the backside of the mechanical seal that allows a lubricant to circulate, providing cooling and lubrication to the mechanical seal's hardened faces. The benefit of this technology is prolonged seal life, irrespective of the operating conditions, ranging from maximum flow to no flow. It truly enables running dry without any adverse impact on the seal's performance – hence the name Run-Dry™.

## FEATURES:

- ✓ Seal protection
- ✓ Seal cooling
- ✓ Easily-checked lubricant reservoir
- ✓ Ease in servicing and maintaining pumps
- ✓ Peace of mind if pump runs dry

Dry running can damage, even destroy, and seals in seconds—counteract the wear and leaks with Cornell Run-Dry™.

### Dry operation could result from:

- Priming activities
- Blockage in suction piping
- Deliberate operation of the pump in dry conditions
- Accidental loss of prime while pumping

## APPLICATIONS



AGRICULTURE



FOOD PROCESSING (FOOD GRADE LUBRICANT AVAILABLE)



INDUSTRIAL



MINING



OIL & GAS



MUNICIPAL



RENTAL



Any application where there is probability, either planned or unplanned, that the pump could operate in dry condition



## CORNELL Pulse™

An innovative technology that makes monitoring your pump easier than ever.



MONITOR PUMP  
HEALTH ONSITE



LOG REPORTS TO REVIEW  
AND COMPARE



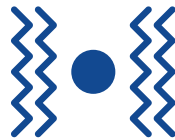
ACCESS INFORMATION VIA  
AN EASY-TO-USE MOBILE APP



GAUGE BEARING FRAME  
TEMPERATURE



USE ONBOARD POWER FOR UP TO  
THREE YEARS FOR CONSISTENT,  
ACCURATE READINGS



MEASURE PUMP VIBRATION  
SEVERITY



DISTINGUISH/RENAME PUMPS  
FOR GREATER CLARITY IN  
MULTIPLE PUMP INSTALLATIONS

## LEADING-EDGE REAL TIME SNAPSHOT

Cornell Pulse is an innovative technology that allows a user to measure a pump's vibration severity and temperature in real time. Pulse is a compact (approx. 1.5"/4CM diameter) pump-mounted wireless device that captures pump data when queried by the end user. Helpful pump measurements, such as temperature and vibration, are viewed by logging into a mobile app for phones and tablets. When coupled with our Remote Pump Maintenance and Monitoring (RPM2®) system, Pulses report data to the cloud and track pump and other rotating equipment conditions. RPM2® can also record the GPS location from where the scan took place. The detection of common pump problems is vital to increasing the lifespan of a pump and its efficiency.

As the name implies, the Pulse allows a user to check a pump's health quickly. The Pulse is a robust wash-down duty unit that can last around three years with daily measurements (more frequent measurements use battery power and reduce service life.)







Connect via Cell Network



5 Sensor Inputs



Remote Control



## 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 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

### MONITORING AT YOUR FINGER TIPS

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

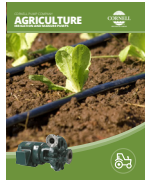
### CORNELL CO-PILOT ALLOWS YOU TO:

- 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.

PART OF RPM<sup>2</sup> ASSET  
MANAGEMENT SYSTEM





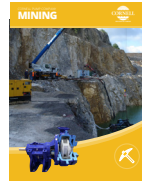
AGRICULTURE



FOOD PROCESS



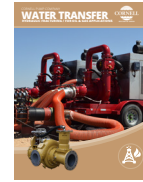
INDUSTRIAL



MINING



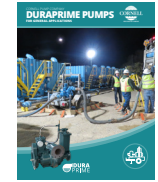
MUNICIPAL



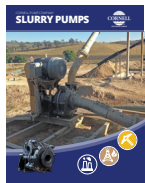
WATER TRANSFER



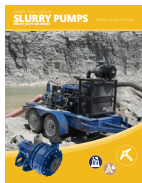
REFRIGERATION



CONSTRUCTION



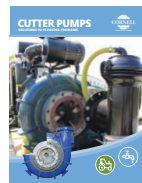
SLURRY



SLURRY SM



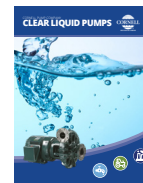
MANURE



CUTTERS



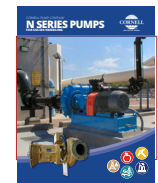
SELF PRIMING



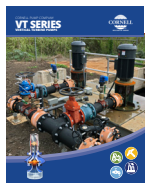
CLEAR LIQUIDS



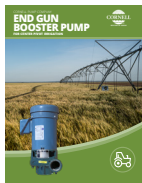
MX SERIES



N SERIES



CYCLONE™



EDGE™



HYDRAULIC SUBS



IMMERSIBLE



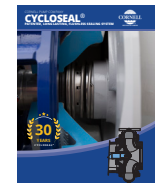
CD4MCU



RUN-DRY™



PRIMING SYSTEMS



CYCLOSEAL®

Cycloseal® and Redi-Prime® are Registered Trademarks of Cornell Pump Company.

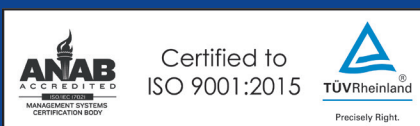
Cornell pumps and products are the subject of one or more of the following U.S. and foreign patents:

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

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