CORNELL PUMP COMPANY

REFRIGERATION

HT & CB SERIES

CORNELL®
EFFICIENT BY DESIGN

ARCTIC KING™

REFRIGERATION PUMPS

WHAT SETS CORNELL REFRIGERATION PUMPS APART

With over 50 years of experience, Cornell Pump Company has become a leading name in containment system pumps. Our innovative designs have been instrumental in numerous successful installations. We continuously embrace new technologies and have offered our renowned hermetic pumps for over a decade. No matter which system you opt for, you can count on Cornell Pump's unwavering commitment to quality. Our reputation for excellence and dependability extends globally. Our open-drive pumps are known for their efficiency, high-quality U.S. manufacturing, exceptional durability, ability to handle solids, low NPSHR, cost-effective operation, and widespread availability.

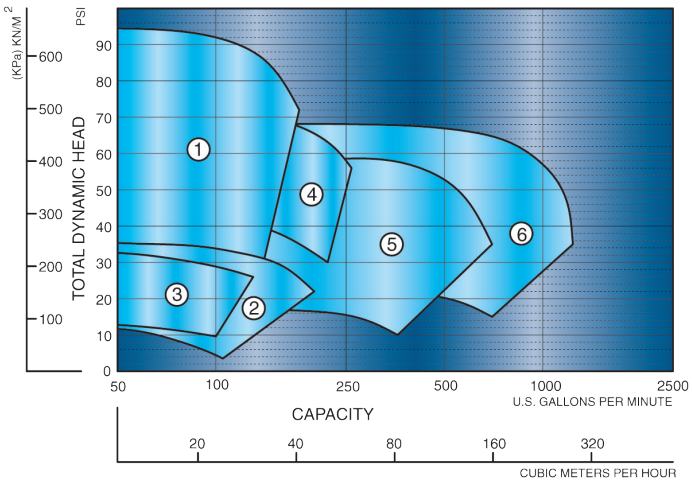
PROVEN PERFORMANCE

Cornell's liquid overfeed pumps have been used successfully in various applications, including cold storage, food processing, refrigeration, ice production, and turbine inlet cooling. Cornell refrigerant pumps are commonly employed in liquid overfeed and transfer pump applications utilizing anhydrous ammonia, aqueous ammonia, halocarbons such as R-22, and other approved refrigerants.

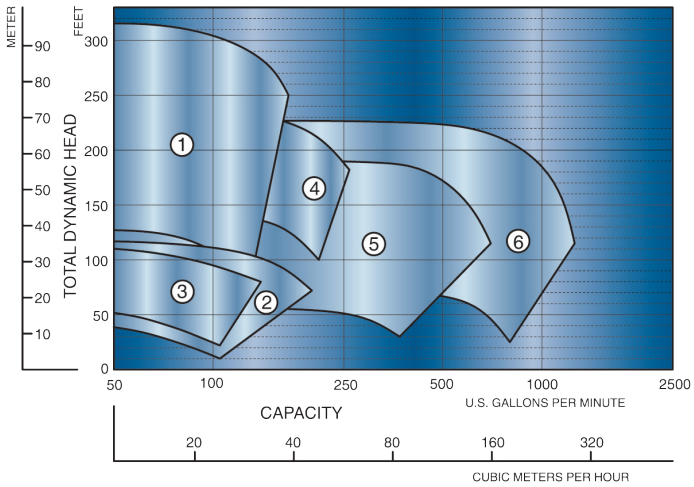
CB SERIES – 800-2200 RPM

1. 1.5CBH
2. 2CB
3. 2CBSR
4. 2.5CBH
5. 3CB
6. 4CB

CB SERIES - AMMONIA



CB SERIES - FLUOROCARBON



PRODUCT INTERCHANGEABILITY: CLOSE-COUPLED CB AND HERMETIC HT PUMPS ARE DIMENSIONALLY INTERCHANGEABLE WITH THEIR CORRESPONDING SISTER PUMPS AND WITH SOME COMPETITIVE HERMETIC PUMP LINES.

CB SERIES	CORNELL HERMETIC HT SERIES
1.5CBH-5-4	Dimensional interchangeability with 1.5HT-5-4
1.5CBH-7.5-4	Dimensional interchangeability with 1.5HT-7.5-4
2CB/CBS-3-4	Dimensional interchangeability with 2HT/HTS-3-4
2CB/CBS-5-4	Dimensional interchangeability with 2HT/HTS-5-4
2.5CBH-10-4	Dimensional interchangeability with 2.5HT-10-4
2.5CBH-15-4	Dimensional interchangeability with 2.5HT-15-4
3CB-10-6	Dimensional interchangeability with 3HT-10-6
3CB-15-6	Dimensional interchangeability with 3HT-15-6

SUPERIOR VAPOR HANDLING CHARACTERISTICS

REFRIGERATION PUMPS

COMMITTED TO IMPROVEMENT

Enhanced vapor handling and NPSHR characteristics are central to Cornell's latest liquid overfeed pump innovations. Cornell has incorporated these design features into our liquid overfeed pumps while maintaining four-pole or six-pole operating speed for close-coupled units. Since introducing our innovative refrigerant series of high-head, low-speed pumps, Cornell has been working with our customers to address the increasing requirement for ultra-reliability and superior performance characteristics.

CORNELL HAS YOU COVERED

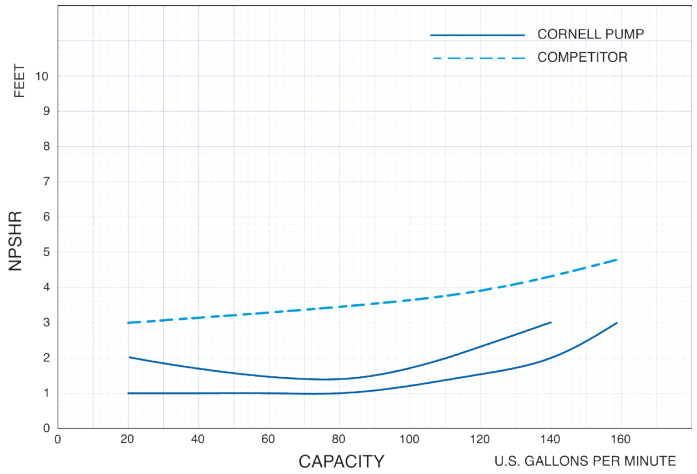
The choice is yours: Cornell also offers hermetic-style refrigeration pumps with operating capabilities and dimensions similar to our standard CB pumps. The HT series is perfect for stable operating systems with minimal vapor entrainment or cavitation issues. And with Cornell Arctic King HT Series pumps, you still get the advantage of low operating speed, better NPSH, experience, and an industry-leading 3-year warranty.

UNATTENDED MONITORING

The CB series sealing technology consists of an evolutionary double mechanical seal design with a pressurized barrier fluid reservoir, fluid level indicator, and limit switch. This configuration allows unattended fluid level monitoring and a safety shutdown feature. When packaged with the Hansen Pump Guardian System, the HT series has an optional shutdown feature. The Pump Guardian uses a pressure cutout if the pump starts cavitating. This feature prevents the bearings from running dry by shutting down the pump when cavitation is sensed.

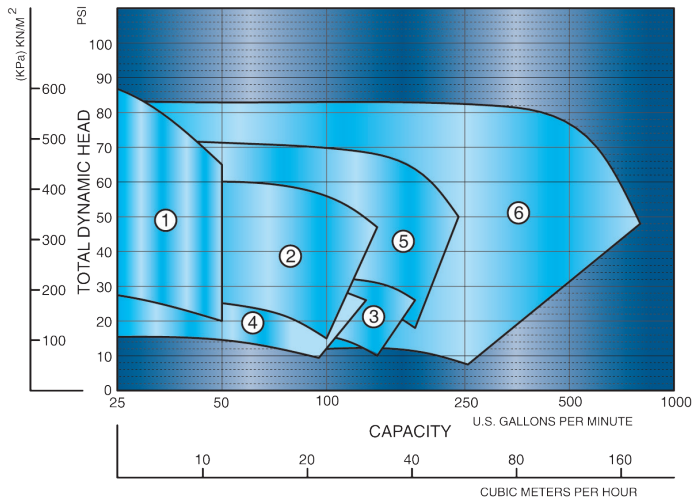
BEARING MONITOR FOR HERMETIC PUMPS

- Bearing condition is continually monitored while the pump is running
- The first (green) range indicates that the bearings are in normal operating condition
- The second (yellow) range indicates that the bearings have increased wear and should be replaced
- The third (red) range indicates that one or more bearings are failing and need immediate replacement to avoid permanent damage to the pump
- Incorrect rotation is displayed on start-up if the dial immediately goes up to the maximum

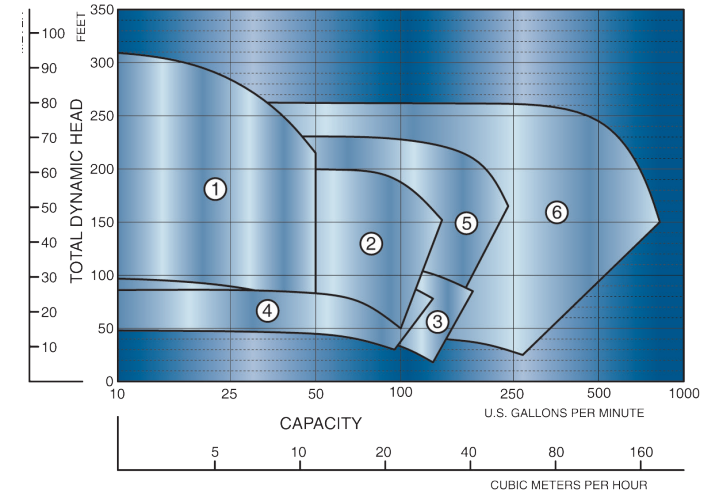


CORNELL'S 2CB AND 2HT HAVE SUPERIOR NPSHR

HT SERIES - AMMONIA



HT SERIES - FLOUROCARBON



HT SERIES (1200 - 1800 RPM)

1. 1.25HT
2. 1.5HT
3. 2HT
4. 2HTS
5. 2.5HT
6. 3HT

FEATURES & BENEFITS

Integrated Bearing Monitor allows for continuous monitoring while the pump is operating.

Better information saves money and downtime.

IMPROVED NSPR at 1800 RPM VERSUS OTHER PUMPS OPERATING AT 3600 RPM

REMOTE 4-20 mA OUTPUT

In addition to the local monitor mounted on the pump, the bearing monitor includes a 4-20 mA output connected to an external DCS (distributed control system), PLC (programmable logic controller), or other process control devices for monitoring. The output signal is directly related to the local monitor indicator value and can be used to check bearing conditions, improper rotation direction, and lost phase or incorrect connection.

You can utilize the table below to calculate the relationship between the output current and indicator value:

INDICATOR VALUE	OUTPUT CURRENT (MA)
0 - 0.5	4.0 - 9.6
0.5 - 0.75	9.6 - 14.8
0.75 - 1.0	14.8 - 20

CORNELL HT-SERIES SEMI-HERMETIC, CLOSE-COUPLED REFRIGERANT PUMP

- Class 150 Flanged suction and discharge
- 250 PSIG working pressure
- Constructed of ASTM A536
- 60-40-18 Ductile Iron
- Industry leading three year warranty
- Four pole (1800 / 1500 RPM) operating speed
- Six pole (1200 / 900 RPM) operating speed

Motor Specification:

- Totally enclosed, liquid cooled
- Class 150 1/2” flanged liquid coolant recirculation connection
- Varied voltages available
- Stainless Steel motor liner
- 200°C thermal protection
- Secondary containment
- Replaceable hydrodynamic motor bearings
- Suitable for VFD applications

Hermetic Technology

- Allows the pump to operate without the need for a mechanical shaft seal

NPSHR

- Exceptional NPSHR characteristics
- Characteristics are enhanced throughout the entire operating range due to the single stage impeller and 1800/1500 RPM lower operating speeds

Vapor Handling

- Enhanced vapor handling abilities

FEATURES & BENEFITS

Product Interchangability

The HT and CB Series are dimensionally interchangeable with like models and similar in operating performance.

REFRIGERANT EMISSION FREE™ SEALING TECHNOLOGY

- A reliable system consisting of two mechanical seals mounted back-to-back
- The inboard seal prevents the escape of refrigerant from the pump casing
- The outboard seal acts as a fail-safe or backup and provides containment of a system-compatible barrier fluid
- Solids handling capability up to 3/8 inch
- Thousands of installations – many still running original Cornell equipment from the 1960s.

NPSHR

- Exceptional NPSHR characteristics
- Characteristics are enhanced throughout the entire operating range due to the single stage impeller and the four and six pole operating speed

Vapor Entrainment

- Seals are oil lubricated and do not rely on the presence of pumpage for lubrication or cooling
- The double mechanical sealing system allows the pump to continue to run until the system stabilizes and the pump re-primes itself – nuisance-tripping is avoided.

CORNELL CB-SERIES OPEN-DRIVE REFRIGERANT PUMP

Close-coupled Refrigerant Pump:

- Class 150 flanged suction and discharge
- 250 PSIG working pressure
- Constructed of ASTM A536 60-40-18 Ductile Iron
- Industry leading three year warranty
- Four pole (1800/1500RPM) operating speed
- Six pole (1200/900RPM) operating speed
- Optional mounting configurations available.

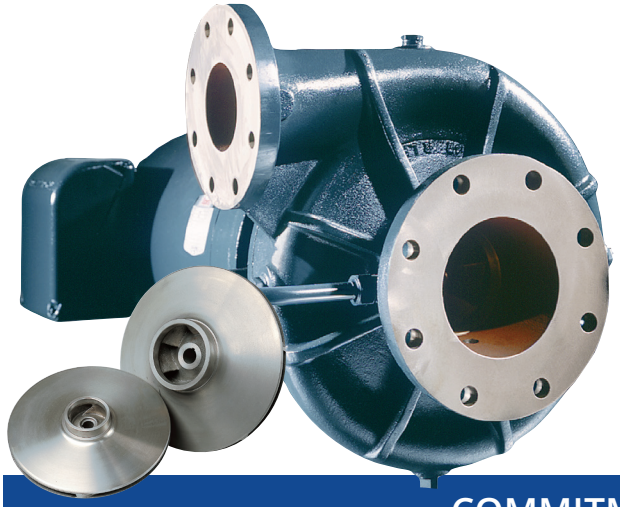
Mechanical Seal:

- Double mechanical shaft seal with pressurized barrier fluid lubrication system
- Low oil limit switch
- Seal chamber heater to maintain proper barrier oil viscosity.

Motor Specification:

- Totally enclosed, fan cooled, refrigerant atmosphere, hostile environment, premium efficiency motor
- Class “F” insulation
- Suitable for VFD applications.

CLEAR LIQUID OVERFEED



SELECT HIGH-EFFICIENCY PUMP MODELS

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

COMMITMENT TO EXCELLENCE

Cornell Pump Company proudly maintains its ISO 9001:2015 certification, which validates that 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.

Cornell's refrigeration product group is not limited to liquid overfeed pump applications. Our clear liquid pumps are frequently used in cooling tower, chilled water, glycol, brine, condenser spray tree and many other HVAC applications. Cornell's clear liquid pumps are constructed entirely of iron or cast iron and fitted with bronze components. Many optional metalurgies are also available. Standard features include fully machined impellers, heavy duty shafts with replaceable shaft sleeves, and peripheral wear rings.

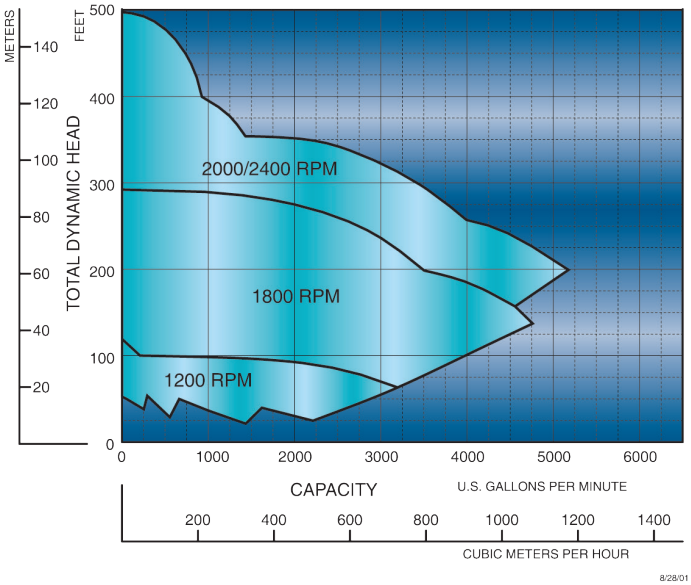
TRANSFER PUMP APPLICATIONS

Cornell's refrigerant pumps are available for transfer applications and have been successfully used for compressor oil, liquid transfer systems, and booster pump applications. Whether you require a liquid overfeed or transfer pump, Cornell's engineers and technical sales personnel can provide you with expert application assistance.

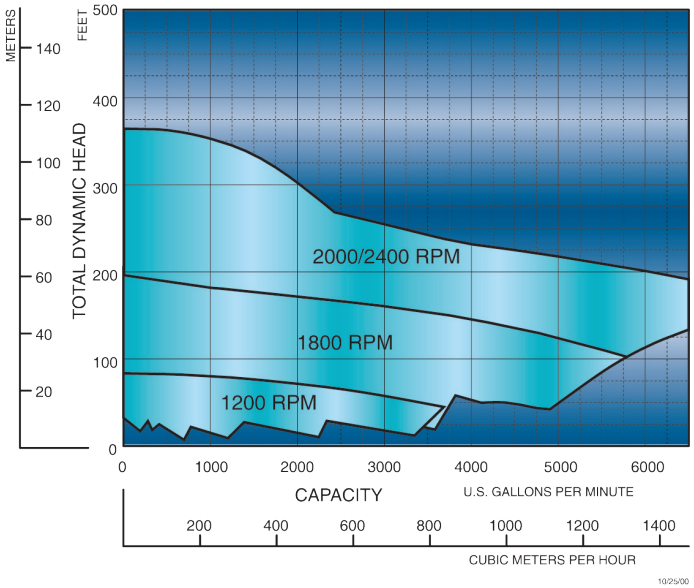
GLYCOL PUMP APPLICATIONS

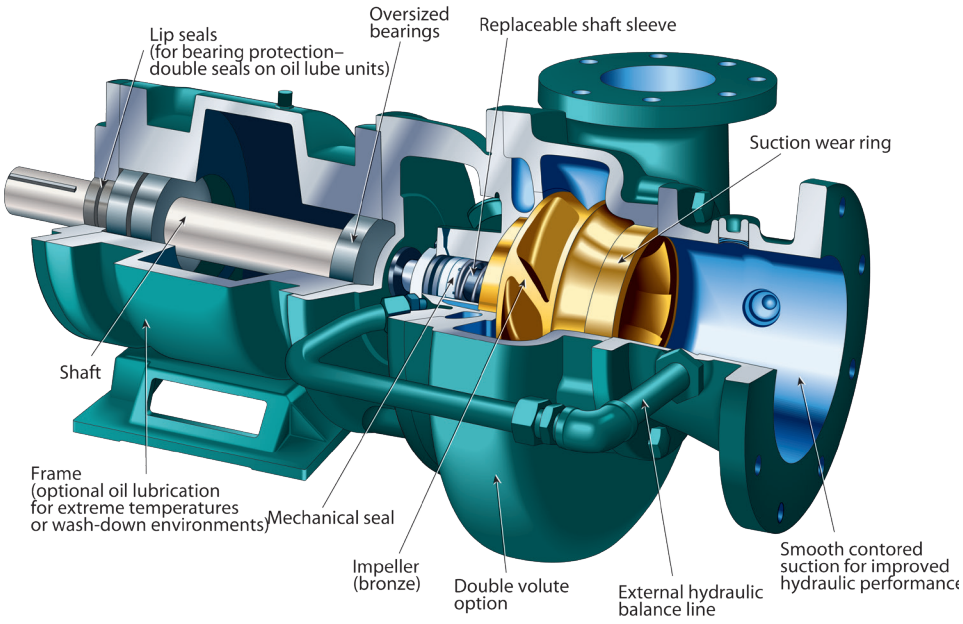
In many refrigeration applications, secondary coolants such as ethylene, propylene glycol, and brines are used as heat transfer media. The glycol or brine is cooled by the primary refrigerant and used to transfer heat without changing state. Cornell's clear liquids handling pumps are commonly used to recirculate these secondary coolants. The clear liquid pumps are rugged, extremely efficient, and designed for long service life.

H-SERIES

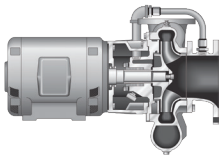


R-SERIES

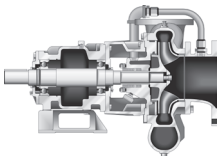




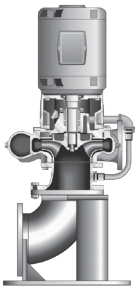
CC - Close coupled



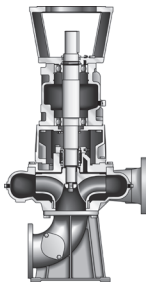
F- Frame mount



VM - Vertical
Close Coupled



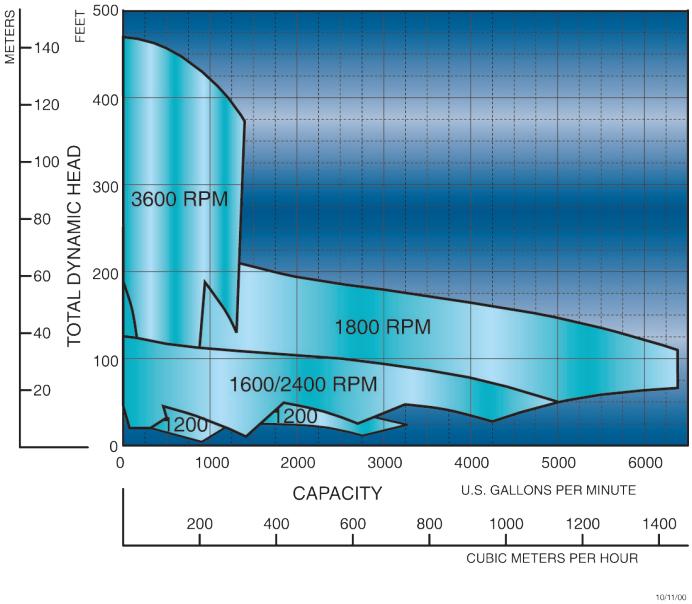
VC - Vertical
Coupled



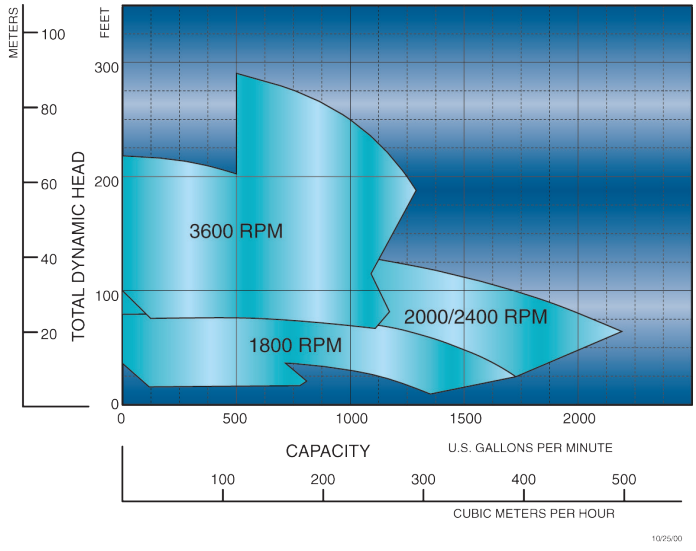
ENERGY EFFICIENT PUMPS

As energy costs rise, conservation and efficiency of operation become critical issues for end users striving to minimize expenses associated with energy consumption. Cornell pumps maintain superb hydraulic operating efficiencies and is coupled with energy-efficient motors. The bottom line – Cornell pumps cost less to operate. Cornell Pumps are designed to deliver best-in-class efficiency. Depending on operating hours, fuelant, and horsepower required, you can save up to $4,000 per year (or more) in energy costs. Cornell manufactures more than 60 clear liquid and non-clog pumps that meet or exceed optimum efficiency standards for centrifugal pumps.

Y-SERIES



W-SERIES



CORNELL PUMP COMPANY

MARKET & PRODUCT LINE

CORNELL
EFFICIENT BY DESIGN

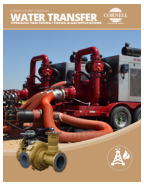
AGRICULTURE

FOOD PROCESS

INDUSTRIAL

MINING

MUNICIPAL



WATER TRANSFER

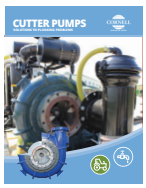
REFRIGERATION

CONSTRUCTION

SLURRY

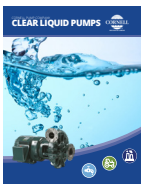
SLURRY SM

MANURE



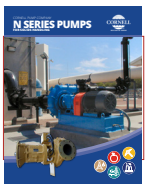
CUTTERS

SELF PRIMING

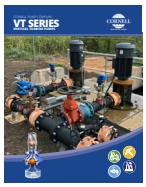


CLEAR LIQUIDS

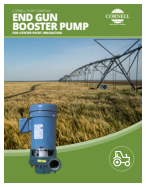
MX SERIES



N SERIES

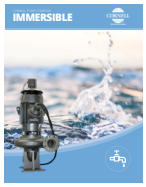


CYCLONE™



EDGE™

HYDRAULIC SUBS



IMMERSIBLE

CD4MCU

RUN-DRY™

PRIMING SYSTEMS

CYCLOSEAL®

24 - RF - BR - 001

CORNELLPUMP.COM

ANAB ACCREDITED ISO 9001 MANAGEMENT SYSTEMS CERTIFICATION BODY

Certified to ISO 9001:2015

TÜVRheinland® Precisely Right.

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