

CORNELL PUMP COMPANY

WATER TRANSFER

HYDRAULIC FRACTURING / FOR OIL & GAS APPLICATIONS



WATER TRANSFER PUMPS

WATER TRANSFER PUMPS FOR OILFIELD SERVICE

You need uptime and efficiencies to take advantage of market conditions and spend less on maintenance and repairs.

Cornell Pump has been producing robust, high-efficiency pumps since 1946, and our innovative pumps have provided unmatched value. Cornell offers a wide range of pump models and configurations, and we responded to the oilfield service industry's changing needs, providing models best suited for today's water transfer pumping requirements.

Reliability: many of our pumps have seen continuous service for years in harsh conditions, such as shale oil fields, frac sand mines, rock quarries, fixed chemical refineries, and more.

Robust construction: thick-walled castings, durable frames, and oversize bearings keep the pump in the field rather than at your repair depot.

High Efficiency: Many of our pumps beat industry averages by four or five percent—that can mean thousands of dollars in operating costs EVERY YEAR.

Solids Handling: Cornell pumps easily handle solids up to 10", depending on the model.

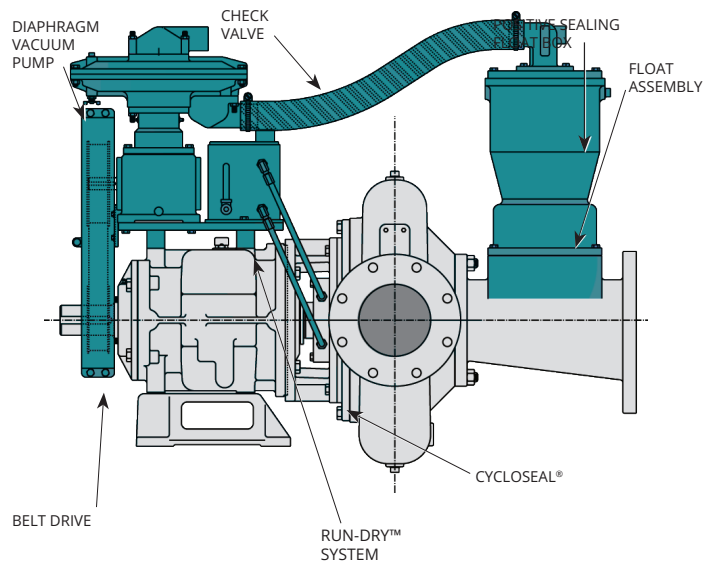
Innovative Design: We've created great designs in Portland, Oregon, since 1946. Our ingenuity, responsiveness, and know-how benefit you.

Specialty Seals: No leaks mean easier clean up and reduced environmental concerns.

Wide Variety of Pumps: We have dozens of options for water transfer, so we should have a pump to meet your conditions.

FEATURES & BENEFITS

- Heads up to 800 feet possible
- Designed priming system (RediPrime®) eliminates liquid carry-over
- Suction lifts to 28 feet
- Handles large size solids
- Industry leading two-year warranty
- Fully automated priming and repriming
- Run dry pumps
- Handles air/liquid mixtures with ease
- Patented Cycloseal®, Redi-Prime®, and RunDry™ options
- Extend pump life with hardened metal options



REDI-PRIME® SYSTEM ALLOWS TRANSFER PUMPS TO PRIME AND REPRIME

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.

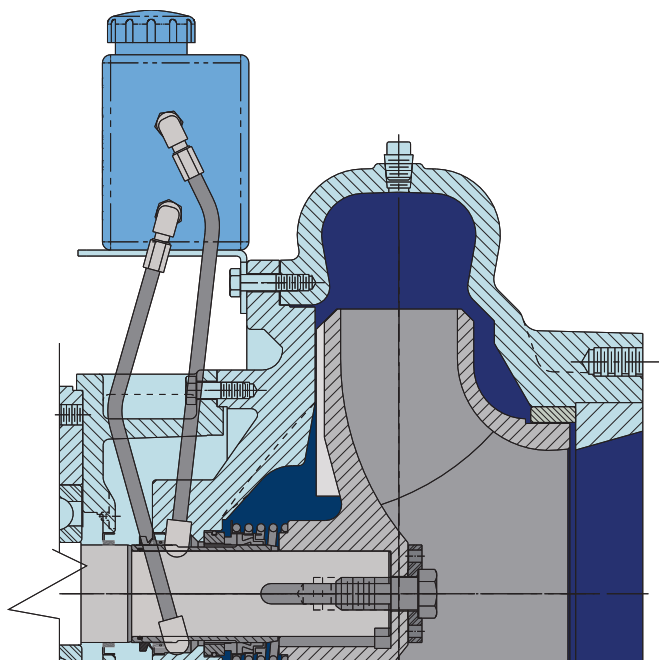
To ensure environmental safety, the Redi-Prime system utilizes a positive sealing float box and a diaphragm vacuum pump, which prevents any water carry-over that could contaminate the environment. The system can be easily installed on most Cornell pumps.

The Redi-Prime system offers the following benefits:

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



WATER TRANSFER PUMPS



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®

CYCLOSEAL® DESIGN: ADVANTAGES IN WATER TRANSFER

THE PATENTED, PREMIUM MECHANICAL SEAL SYSTEM THAT DISTINGUISHES OUR PUMPS FROM ALL OTHERS

No Flush Water or Packing: Cycloseal eliminates the need for flush water or packing by utilizing the backplate and sweeping vanes, saving on expenses and service time and avoiding messy drips.

Extended Seal Life: Cornell's Cycloseal design has demonstrated its effectiveness in the most demanding applications, often extending the seal life to more than three times the expected lifespan.

System Savings: The Cycloseal system eliminates the need for external water flush, filters, grease cups, or piping typically required for packing or mechanical seals in other pumps. This results in a longer-lasting seal, reducing downtime and lower maintenance costs throughout the pump's lifespan.

Better for Abrasive Applications: Cycloseal is more resilient than packing and standard mechanical seals exposed to abrasives. It prevents solids from reaching the seal area, reducing wear.

Greater Reliability: The positive seating of the Cycloseal system allows end-users to confirm a perfect fit. Its enhanced ability to withstand grit results in longer service intervals.

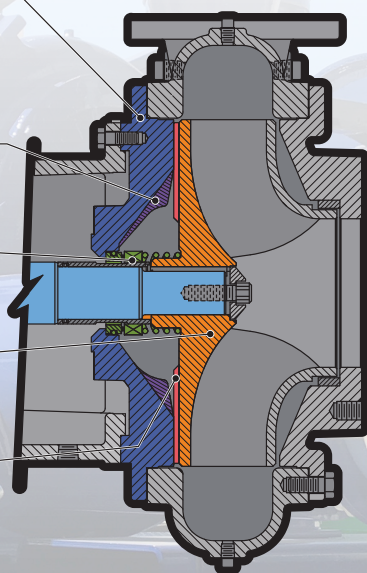
DISHED BACKPLATE

BACKPLATE
DEFLECTOR VANES

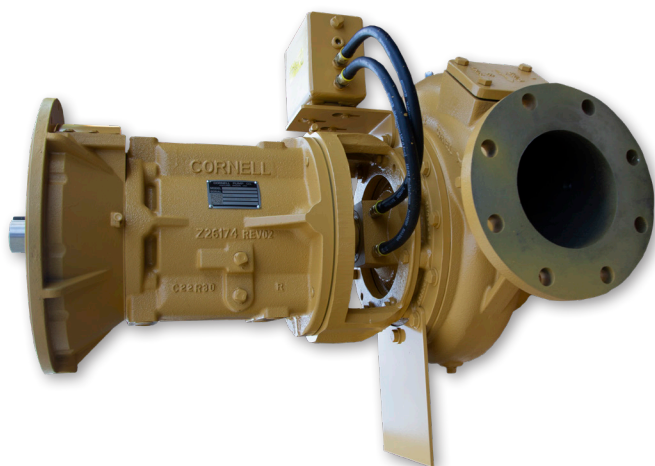
QUALITY MECHANICAL
SEAL

SPECIFICALLY
CALIBRATED IMPELLER

IMPELLER BACK VANES*



WATER TRANSFER PUMPS



N-SERIES SOLIDS HANDLING PUMPS

Discharge sizes up to 24", flows up to 36,000 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



DURAPRIME SERIES CONSTRUCTION PUMPS

Robust DURAPRIME construction pumps are ideal for rental and construction applications. The Duraprime series feature a rebuildable pump design, robust construction, efficient operation, and competitive pricing.

PERFORMANCE	
DISCHARGE SIZE RANGE	3" TO 6"
MAX SOLIDS HANDLING	3"
MAX FLOW	3050 GPM
MAX HEAD	205'

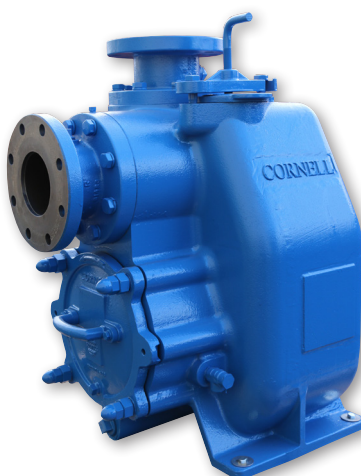
MATERIALS OF CONSTRUCTION

- Ductile iron casings
- 17-4PH stainless steel shafts
- 303 Shaft sleeves
- Ductile Iron impellers

FEATURES CONTINUED

- Cycloseal® grit removal system
- High-efficiency design; up to 82%
- Run-Dry™, Venturi-Prime, Redi-Prime®, and bare pump options
- Easy servicing and upkeep of pumps
- Long life and low maintenance costs
- Two-year warranty

WATER TRANSFER PUMPS



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

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

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

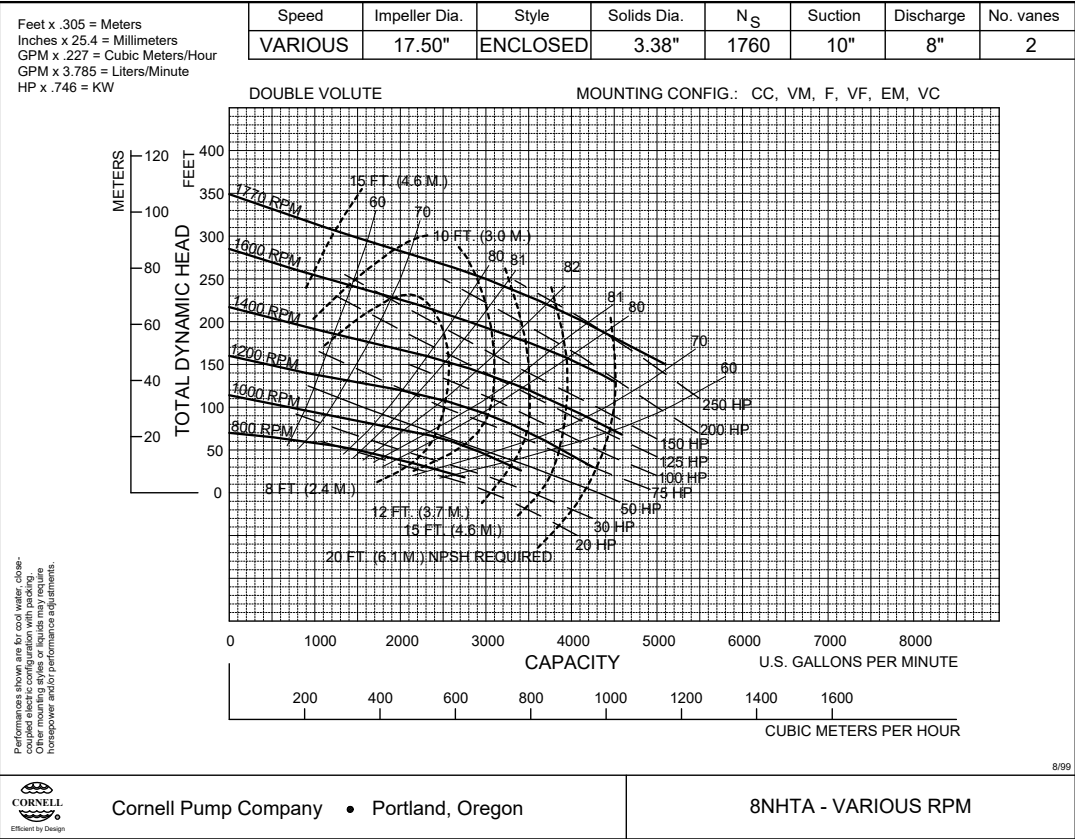
FEATURES

- 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
- Two-year warranty

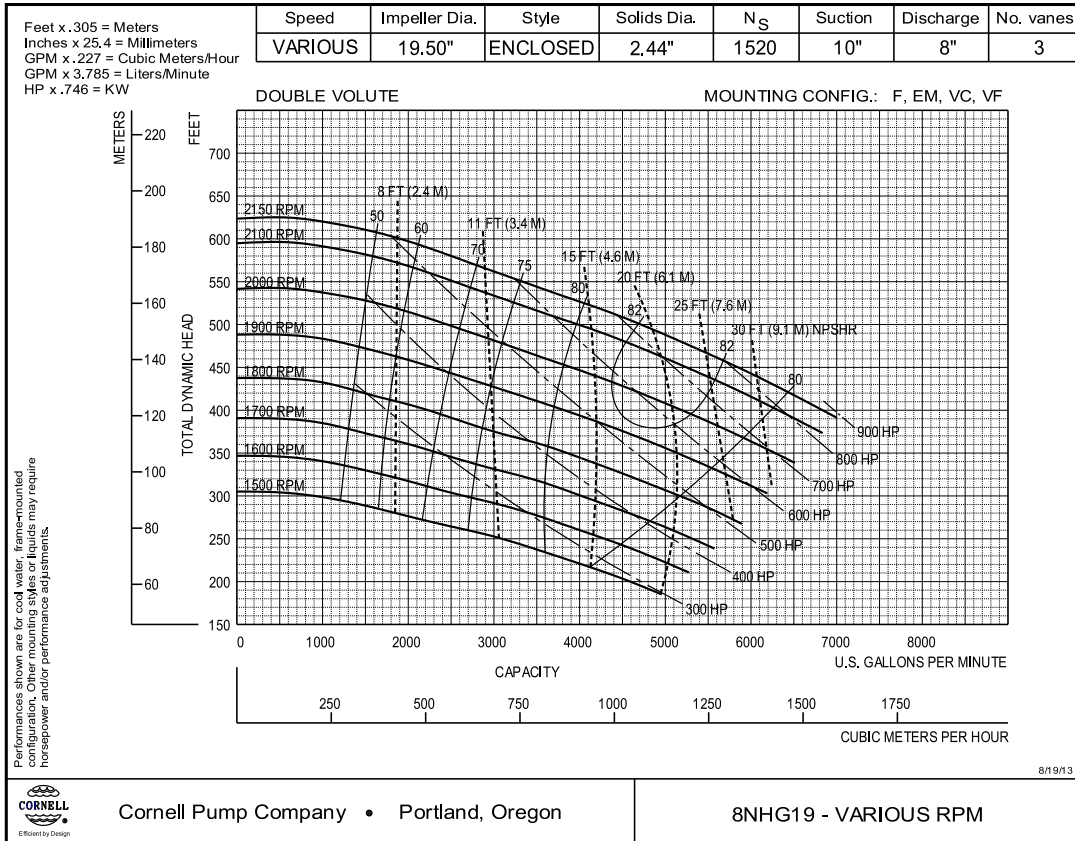
TYPICAL PUMP MODELS

Following are performance curves for several pump models that are extremely popular with hydraulic fracturing operations. There are over 80 models from the series listed previously; Cornell will have the right pump for flow, head, and solids handling conditions, with great efficiency, strong design, and robust build. Please see our website, e-catalog or Pump-Flo sizing program for additional curves.

8NHTA

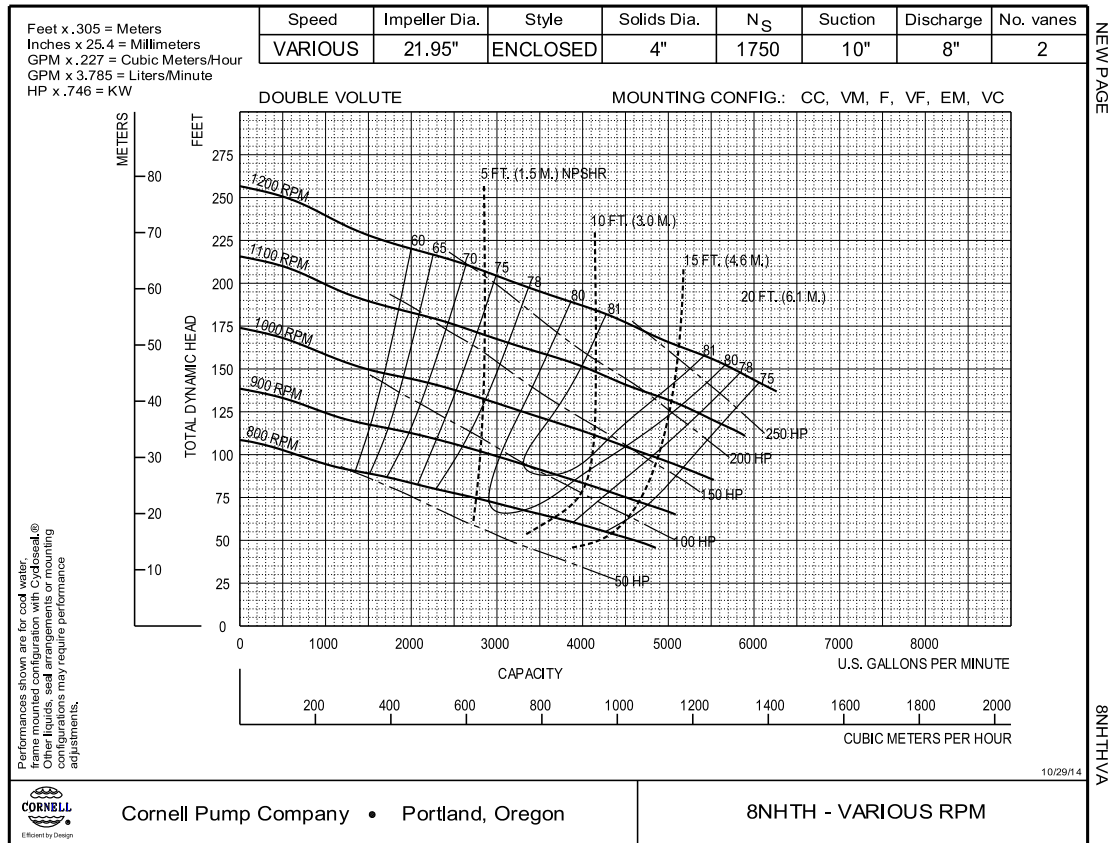
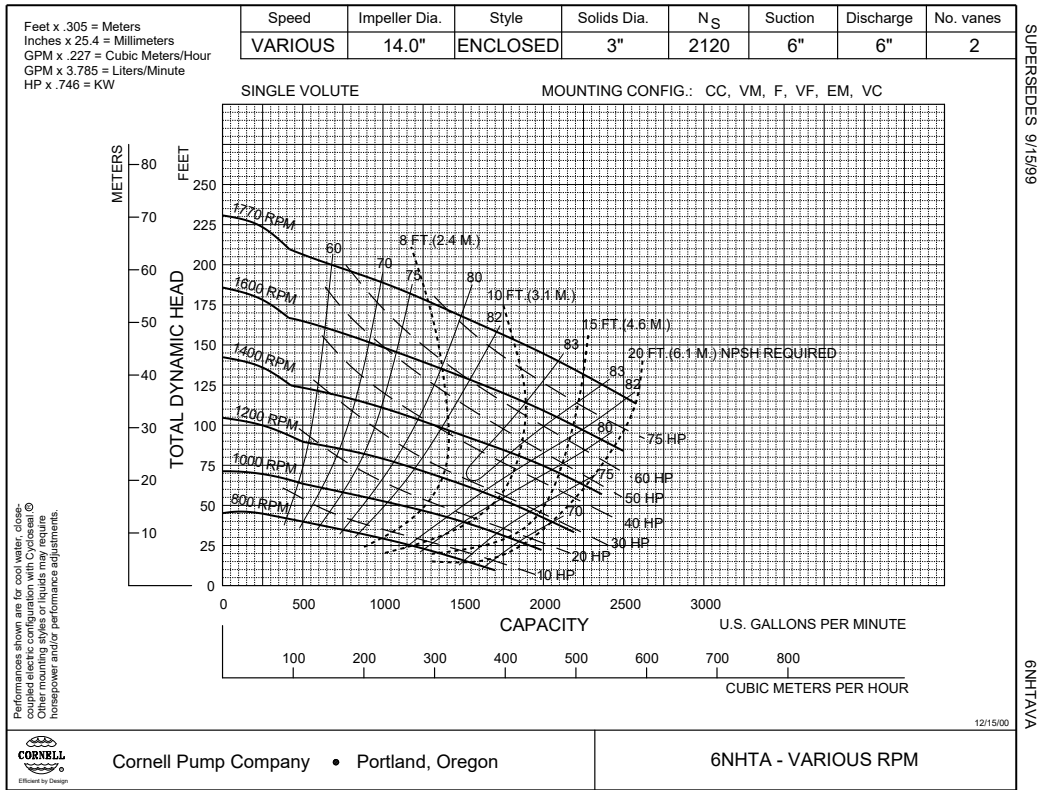


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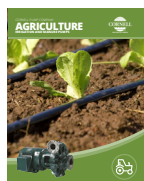


TYPICAL PUMP MODELS

6NHTA



CORNELL PUMP COMPANY MARKET & PRODUCT LINE



AGRICULTURE



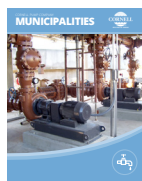
FOOD PROCESS



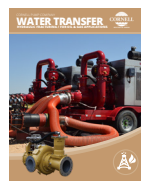
INDUSTRIAL



MINING



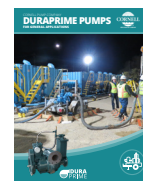
MUNICIPAL



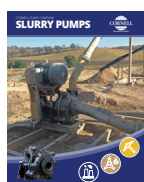
WATER
TRANSFER



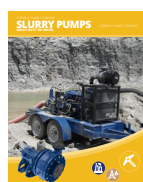
REFRIGERATION



CONSTRUCTION



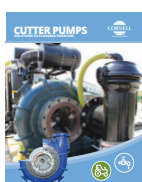
SLURRY



SLURRY SM



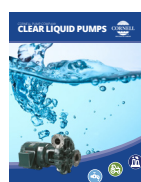
MANURE



CUTTERS



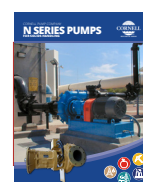
SELF PRIMING



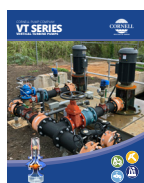
CLEAR LIQUIDS



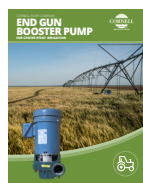
MX SERIES



N SERIES



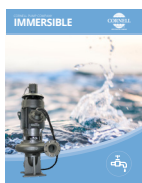
CYCLONE™



EDGE™



HYDRAULIC
SUBS



IMMERSIBLE



CD4MCU



RUN-DRY™



PRIMING
SYSTEMS



CYCLOSEAL®

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

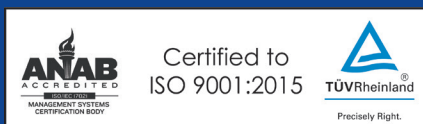
Cornell pumps and products are the subject of one or more of the following U.S. and foreign patents:

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

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Cornell Pump Company
Clackamas, Oregon, USA
P: +1 (503) 653-0330
F: +1 (503) 653-0338