



# CORNELL PUMP COMPANY

# SELF-PRIMING PUMPS

## STX, STL & STH SERIES

INDUSTRY LEADING  
EFFICIENCY WITH  
CYCLOSEAL® SYSTEM

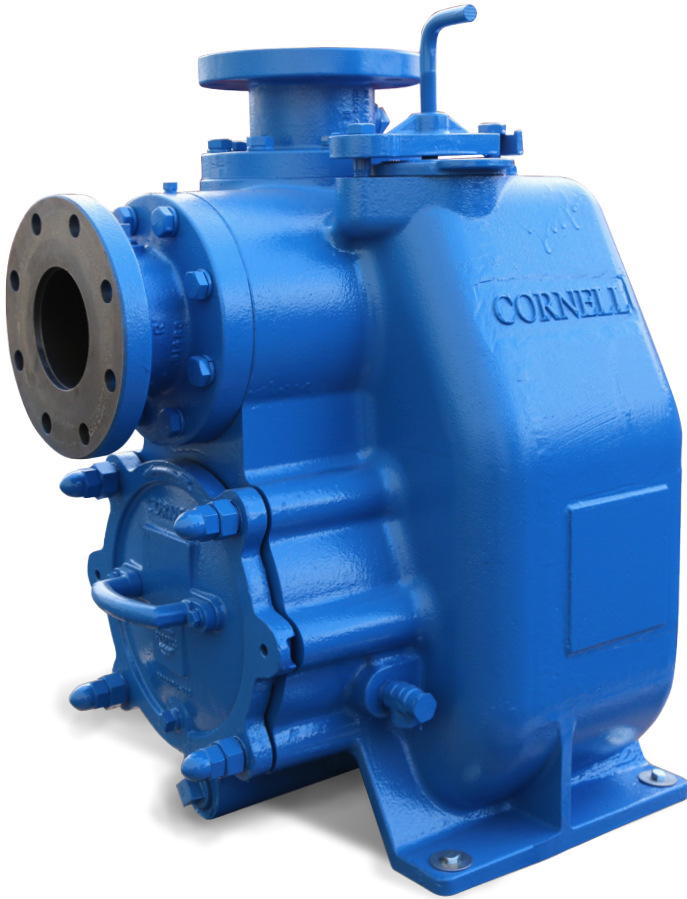


**FIVE-YEAR  
WARRANTY**

**EFFICIENT BY DESIGN**



# SELF-PRIMING PUMPS



**EFFICIENT, DURABLE, INNOVATIVE** and dependable are all words that people use to describe Cornell pumps. The Cornell STX, STL & STH Self-Priming Lines are the newest products from Cornell Pump following a tradition of building world-class pumping equipment.

Efficient by Design is not only our mantra, but it is also our priority when designing our equipment. The Self-Priming Line exceeds the efficiency ratings of the competition by multiple efficiency points, without sacrificing lift capability. This improvement translates into energy cost savings over the life of the pump.

In addition to being focused on efficiency, Cornell Pump is also known for its innovative features. The Self-Priming Pumps follow this tradition by the addition of the Cycloseal® sealing system, which will extend your seal life.

Have an existing self-priming installed? Contact Cornell Pump regarding the retrofit program, which allows the Cornell STX rotating assemblies to retrofit into your existing pump volute.

## SELF PRIMING PUMP

### FEATURES AND BENEFITS

**CORNELL CYCLOSEAL® SEALING SYSTEM** with Run-Dry™, Type 2 silicon carbide seal and grit removal system.

**CORNELL PUMP FIVE-YEAR WARRANTY** is standard on all STX STL, & STH pumps.

**17-4 PH STAINLESS STEEL SHAFT** and oversized bearings extends the operating range and reduces shaft breakage.

**HIGH-EFFICIENCY DESIGN** pumps more liquid using less energy for substantial savings over the life of the pump.

**ADJUSTABLE WEAR PLATE** is abrasion resistant and easily accessible for replacement.

**MODULAR DESIGN** rotating assembly for easy conversion to SAE engine driven applications.

**DOUBLE-LIP SEALS** with atmospheric vents provide added protection for bearings.

**DUCTILE IRON CONSTRUCTION** for increased durability and resistance to wear.

**HIGH RPM CAPACITY** for high-head and engine driven applications.

**DROP-IN REPLACEMENT** for many existing installations.

**OVERSIZED OIL RESERVOIR** provides superior bearing cooling.

**THREADED IMPELLER** for increased strength.



## STX/STH/STL

### SPECIFICATIONS

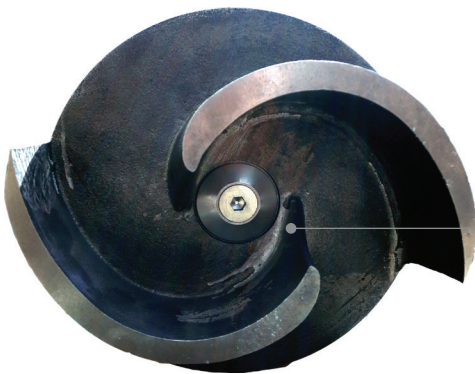
HOUSING MATERIAL	DUCTILE IRON ASTM A536
IMPELLER MATERIAL	DUCTILE IRON ASTM A536
BACK PLATE	DUCTILE IRON ASTM A536
DISCHARGE SIZES	2", 3", 4", 6", 8" AND 10"
FLOW RATES	UP TO 4,200GPM / 954 M <sup>3</sup> /H
TDH	UP TO 253' / 77 M
SEAL TYPE	TYPE II, MECHANICAL
SOLIDS HANDLING DIAMETER	UP TO 3"
IMPELLER TYPE	SEMI-OPEN
SHAFT	17-4 PH STAINLESS STEEL

### STX/STH/STL OPTIONS

- Discharge check valve
- CD4MCu pump end
- Self-cleaning wear plate
- Complete replacement rotating assembly
- Optional hardened ductile impeller
- Optional hardened steel wear plate
- V-belt drive
- SAE engine mount
- Air-release valve

#### REMOVABLE COVER PLATE

Cornell STX, STL & STH Pumps have a removable coverplate that provides quick access to the pump's impeller.



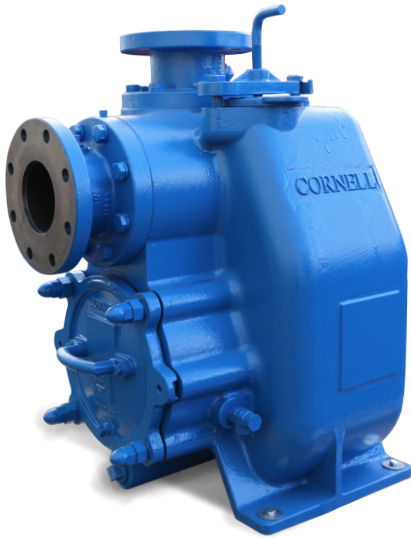
#### SOLIDS HANDLING IMPELLER

Ductile iron two-blade impeller handles solids up to 3" in diameter. Impeller backvanes reduce the buildup of foreign matter and pressure in the stuffing box.

**THE INNOVATIVE CORNELL CYCLOSEAL® SEALING SYSTEM** Eliminates air and gas pockets and keeps solids away from the seal area, extending seal life up to 3 times the industry average.



# SELF-PRIMING PUMPS



## STX SERIES

<b>DISCHARGE SIZES</b>	3", 4", 6", 8", & 10"
<b>FLOW RATES</b>	Up to 4200 GPM / 954 m <sup>3</sup> /h
<b>TDH</b>	Up to 205' / 62 m
<b>SOLIDS HANDLING DIA.</b>	Up to 3"

STX pumps offer better efficiency than competitors, while maintaining flange-to-flange interchangeability. More robust than standard self-primers, the oversize bearing frame and Cycloseal® design mean longer pump life and less maintenance than industry standards.



## STH SERIES

<b>DISCHARGE SIZES</b>	2", 3", and 4"
<b>FLOW RATES</b>	Up to 2000 GPM / 454 m <sup>3</sup> /h
<b>TDH</b>	Up to 253' / 77 m
<b>SOLIDS HANDLING DIA.</b>	Up to 3"

STH series is high head WITHOUT requiring a booster pump. With heads up to 253', excellent efficiencies and flow, the STH series is able to tackle the most demanding applications. No booster pump means reduced maintenance and a simpler, more reliable solution.



## STL SERIES

<b>DISCHARGE SIZE</b>	8"
<b>FLOW RATES</b>	Up to 2400 GPM / 545 m <sup>3</sup> /h
<b>TDH</b>	Up to 140' / 43m
<b>SOLIDS HANDLING DIA.</b>	Up to 3"

The STL series offers large flow rates, while maintaining lower head. The small form factor of the STL can fit into tight work areas, while delivering flows up to 2,400 GPM. Good solids handling capability, Cornell Quality, and Cycloseal® design set it apart.

## WE PUT OUR BEST IDEAS TO THE TEST

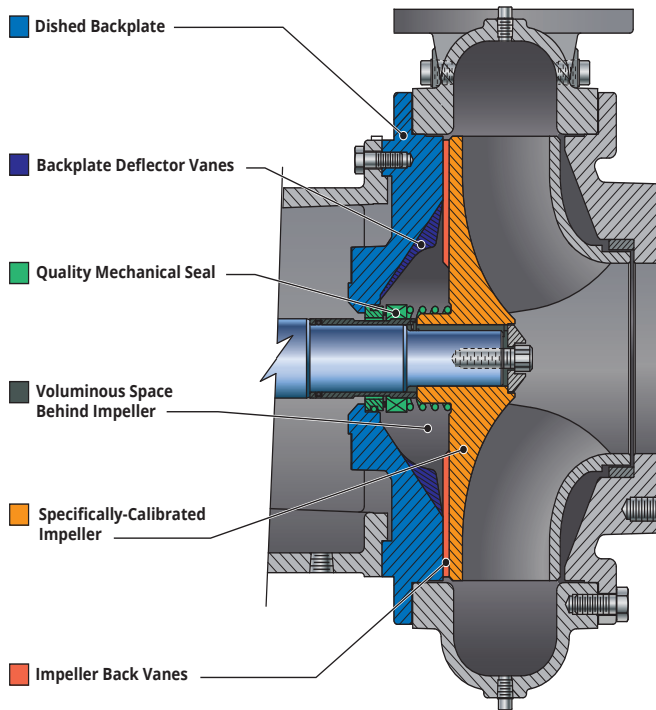
Our modern hydraulics lab is the proving ground for all Cornell pumps. Our goal is to deliver the most efficient pumps at a time when energy costs are escalating. Technicians, under the direction of Registered Professional Engineers, conduct certified performance tests that precisely determine the performance and NPSH required for particular design conditions.

The focal point of the research facility is a 80,000 gallon (302,833 liters) closed loop system for running accurate low pressure tests. It can circulate up to 60,000 gallons (227,125 liters) of water per minute. All test motors are calibrated, and adhere to the Hydraulic Institute Standards in testing. A variable frequency drive will allow us to test pumps up to 4,000 horsepower at various speeds. Additional tests can be conducted upon customer request.



# SELF-PRIMING PUMPS

INNOVATIVE FEATURES



## CYCLOSEAL® DESIGN

The patented, premium mechanical seal system that distinguishes our pumps from all others.

One of the main reasons STX pumps have a distinctive edge on competitors is Cornell's patented Cycloseal design that removes solids and abrasive material from the seal area, while purging air and gas pockets. This innovative cyclonic action extends seal life and eliminates the need for venting or flush water.

**EXTENDED SEAL LIFE:** Cornell's Cycloseal® design has proven itself in the toughest applications — in some cases more than tripling the normally expected mechanical seal life.

**SYSTEM SAVINGS:** The Cycloseal® system requires no external water flush, filters, grease cups, piping or instrumentation normally associated with packing or double mechanical seals.

**MAINTENANCE SAVINGS:** Longer seal life which translates into less pump down time and lower maintenance costs.

## TYPE II SEALS

*Part of the Cycloseal system*

**SELF-ALIGNING SEALS** compensate for shaft movement, primary sealing wear, and machine tolerances.

**NON-PUSHER DESIGN** has no dynamic O-rings to hang up. All seal movement occurs in the bellows.

**NON-CLOGGING SINGLE COIL SPRING** is more dependable than multiple spring designs.

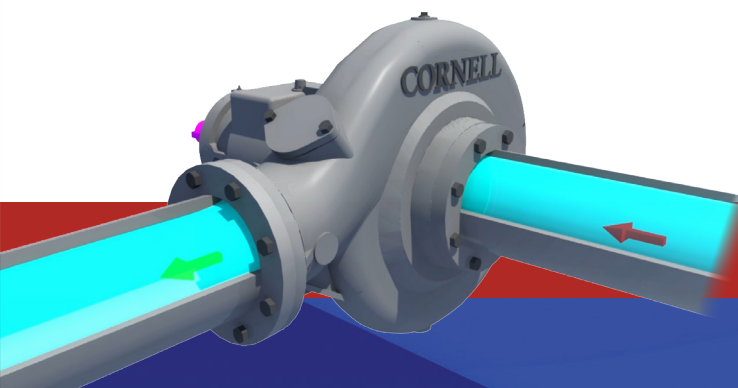
**NO SET SCREWS** to mar the shaft or sleeve.



Photograph reprinted with the permission of John Crane. ©John Crane 2014

<b>TEMPERATURE LIMITS</b>	-40°F/-40°C to +160°F/70°C (Buna); -40°F/-40°C to +400°F/200°C (Viton®).*
<b>SEAL FACES</b>	Silicon carbide vs. silicon carbide.
<b>ELASTOMERIC BELLOWS</b>	Buna-N, Viton® .
<b>HARDWARE</b>	Stainless steel.

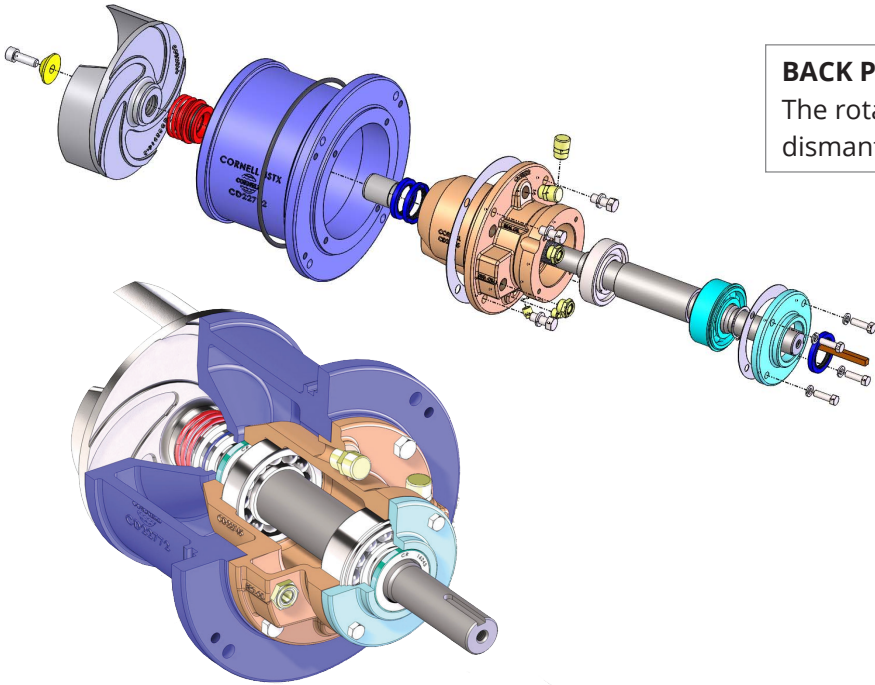
\*Consult Factory for high temperature applications



Watch the Cycloseal video online to see it in action:  
<http://www.cornellpump.com/support/videos.html>



# FEATURES A FIVE YEAR WARRANTY



## BACK PULL-OUT DESIGN

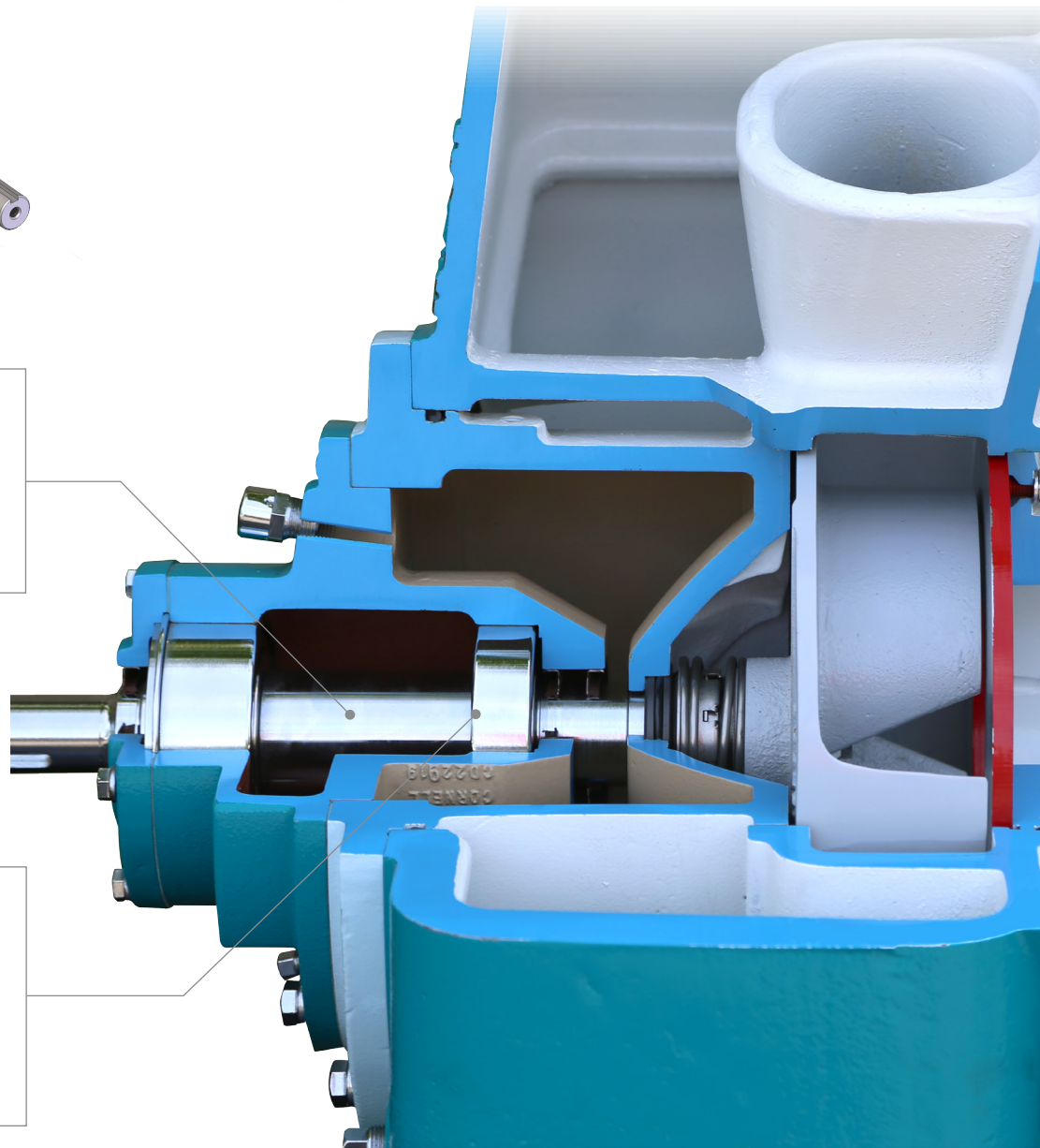
The rotating assembly can be removed without dismantling the pump or disturbing the piping.

## ROTATING ASSEMBLY

Cornell's STX rotating assembly allows for retrofits of existing installations to upgrade your existing pump with Cornell Pump quality and features.

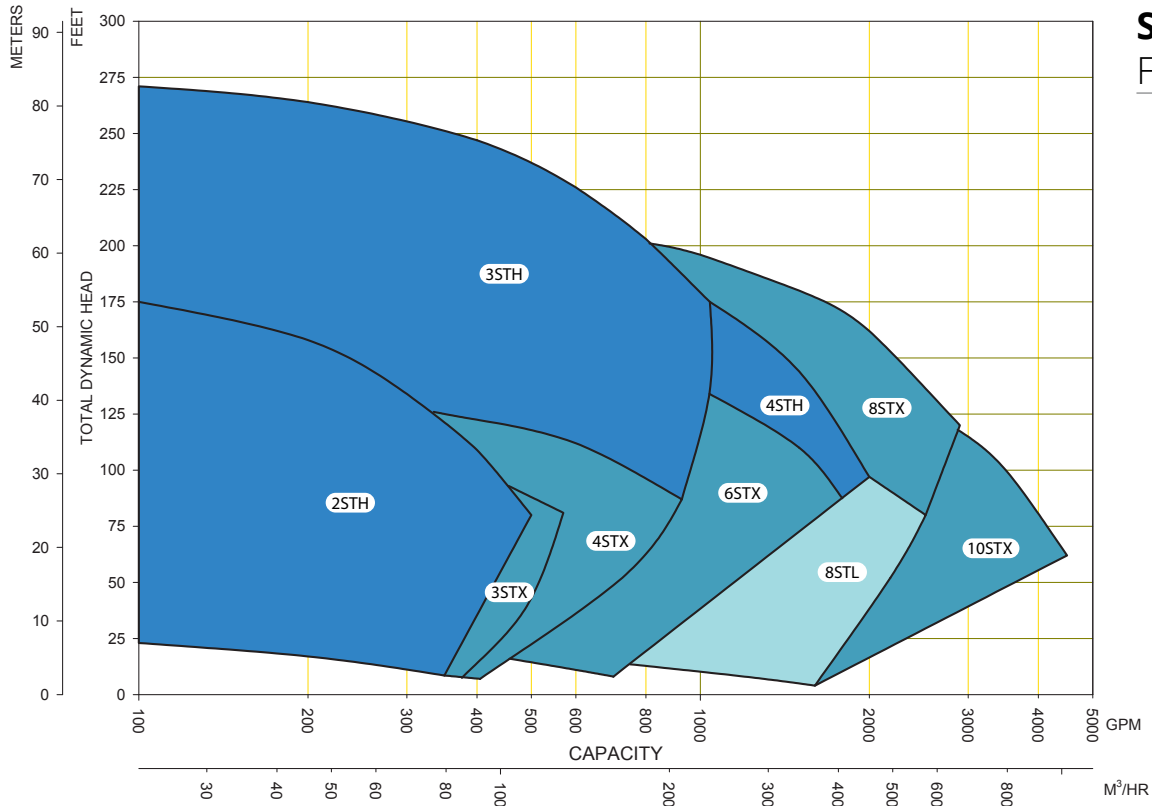
## HEAVY-DUTY BEARINGS

Heavy-duty thrust bearings with Separate Oil Reserve sized for V-belt drive loads. Separate oil filling plugs for bearings and mechanical seals with sight gauges.



**DUAL PROTECTION OF BEARINGS** — Atmospheric barrier and double lip seals provide bearing protection in the event of seal failure.

# SELF-PRIMING PUMP CURVES

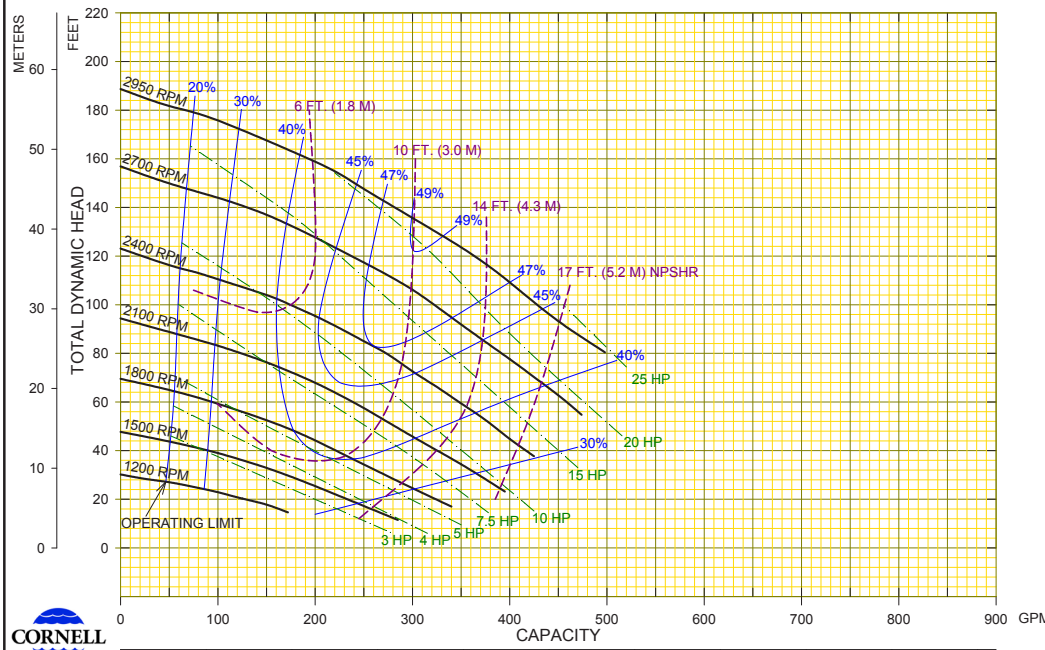


## STX/STH/STL FAMILY MAP

Speed	Impeller Dia.	Style	Volute	Solids Dia.	N <sub>s</sub>	Suction	Discharge	No. Vanes
VARIOUS	8.00"	SEMI-OPEN	SINGLE	1.5"	1330	3"	2"	2

## 2STH

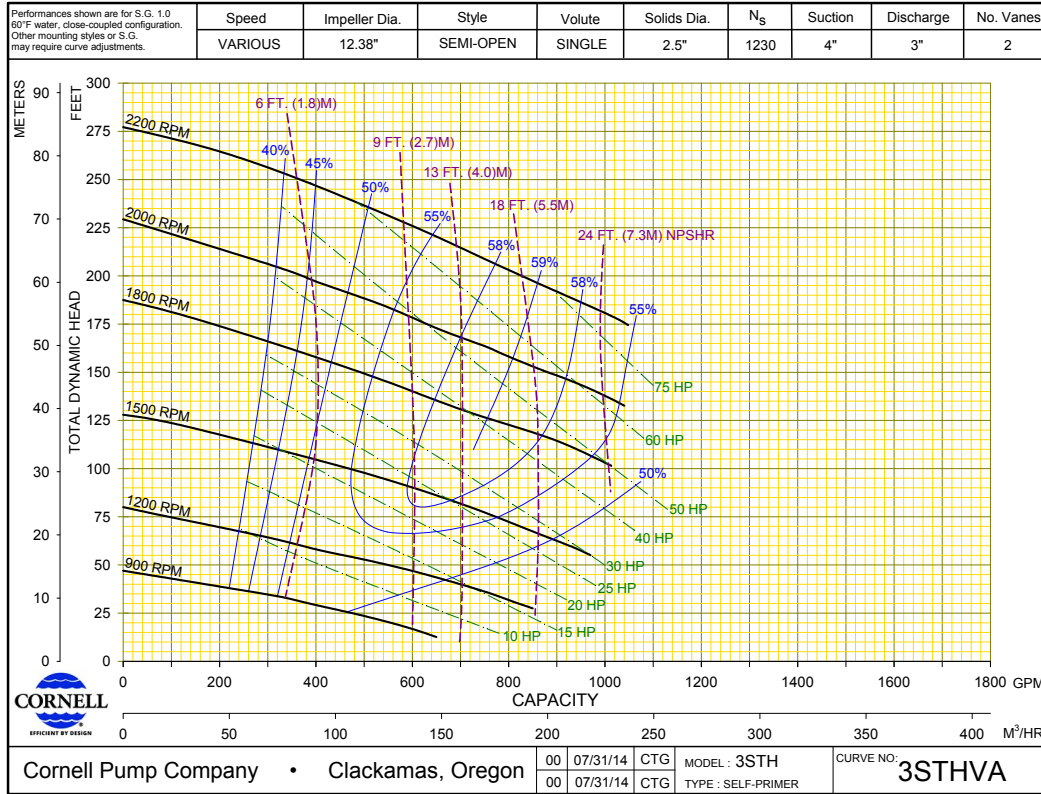
BEP 49%  
8" IMPELLER DIA.



Cornell Pump Company • Clackamas, Oregon	02	03/23/15	CTG	MODEL : 2STH	CURVE NO: 2STHVA
	00	01/14/14	AE	TYPE :SELF PRIMING	

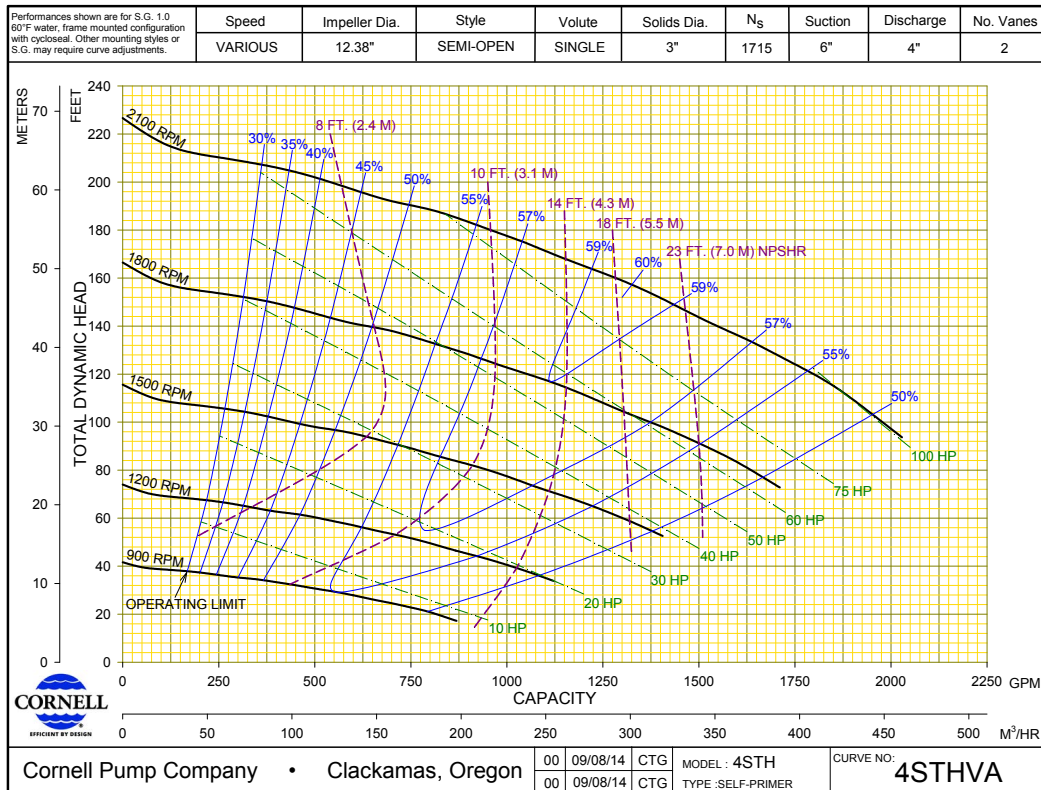


# SELF-PRIMING PUMP CURVES



## 3STH

BEP 59%  
12.38" IMPELLER DIA.

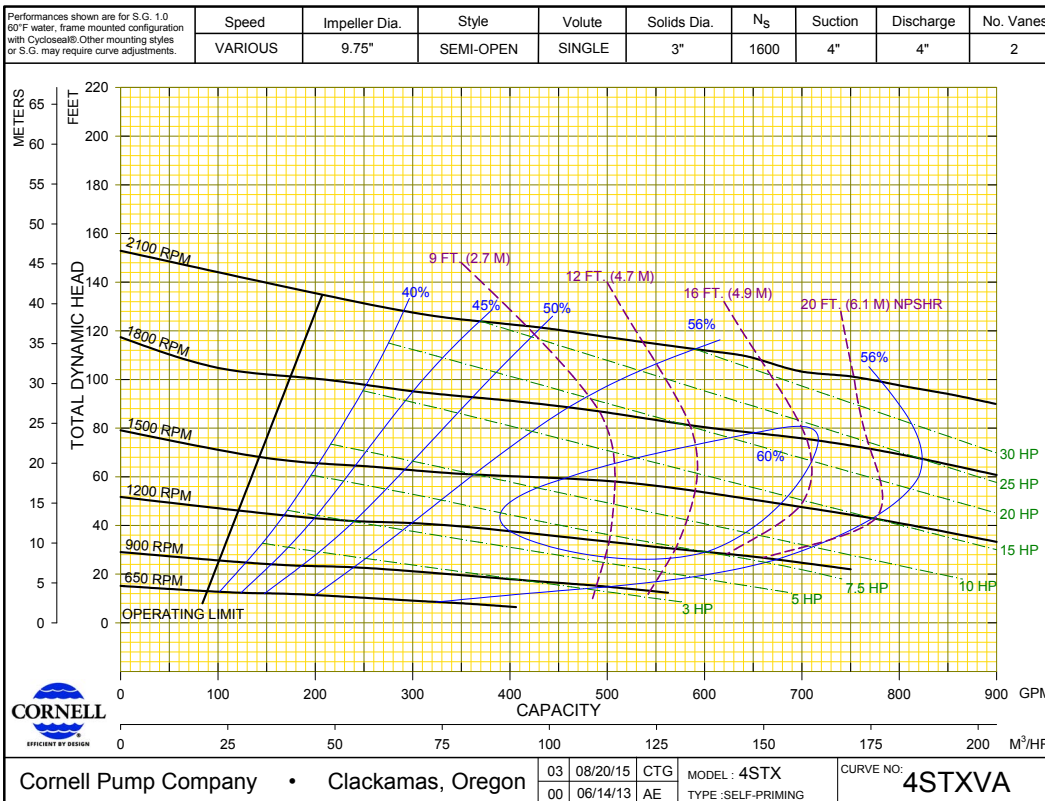
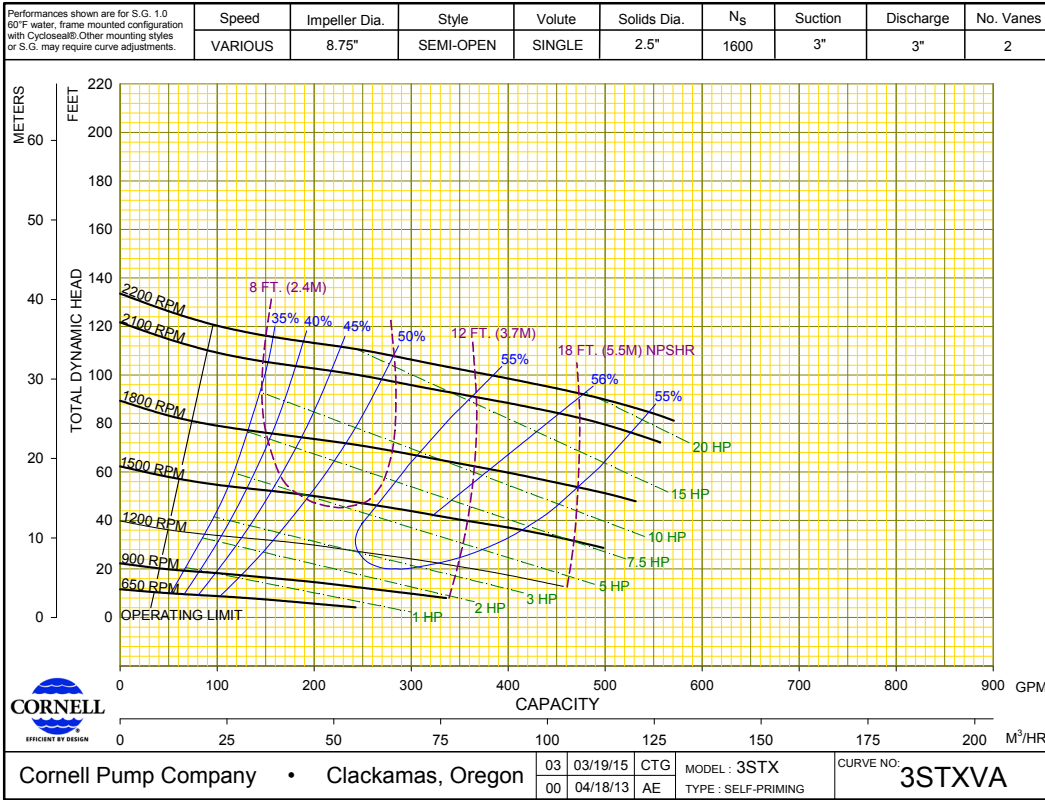


## 4STH

BEP 60%  
12.38" IMPELLER DIA.

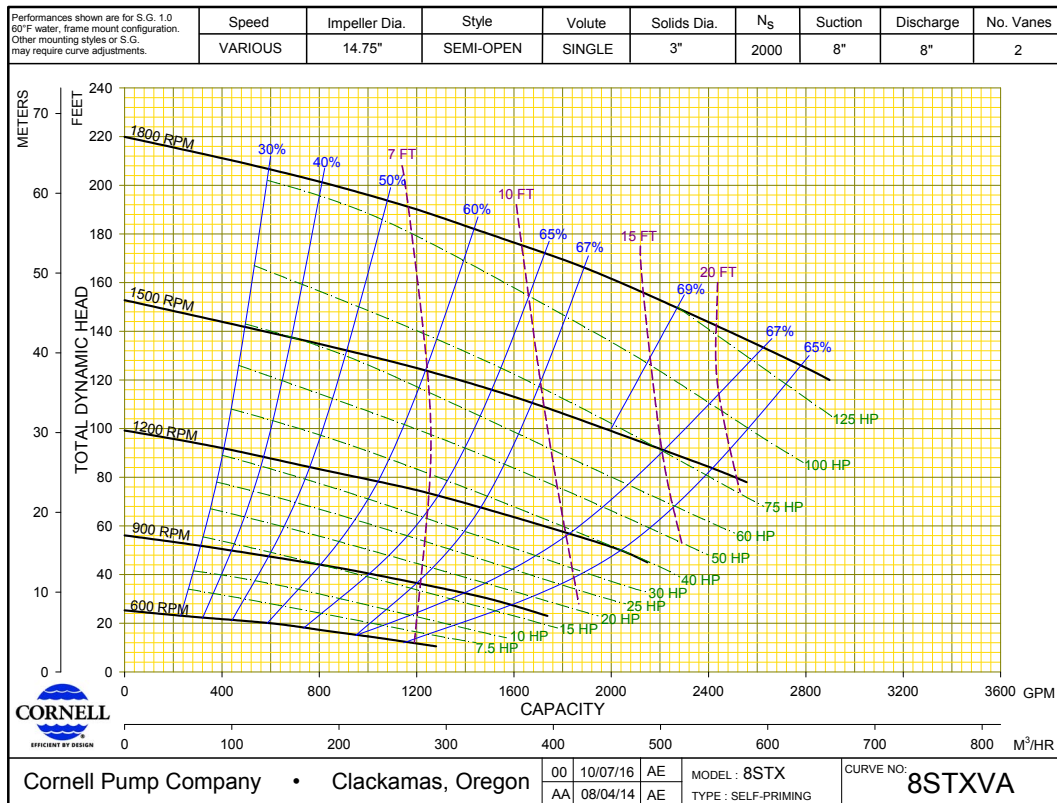
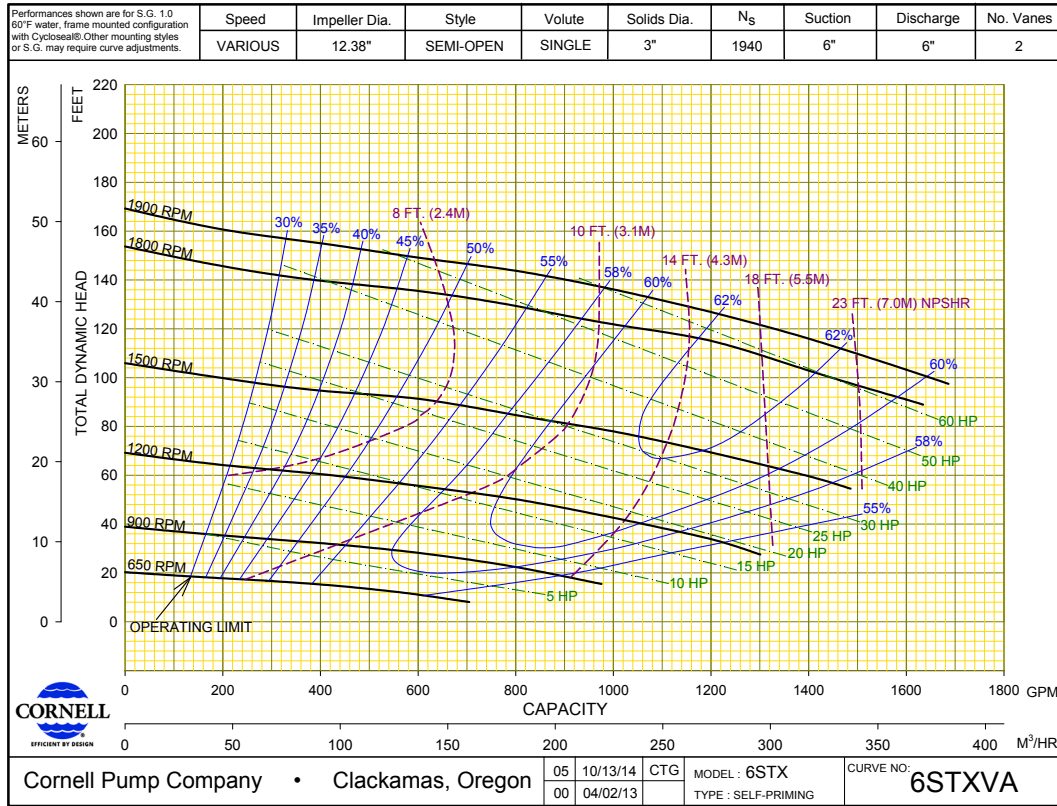


# SELF-PRIMING PUMP CURVES

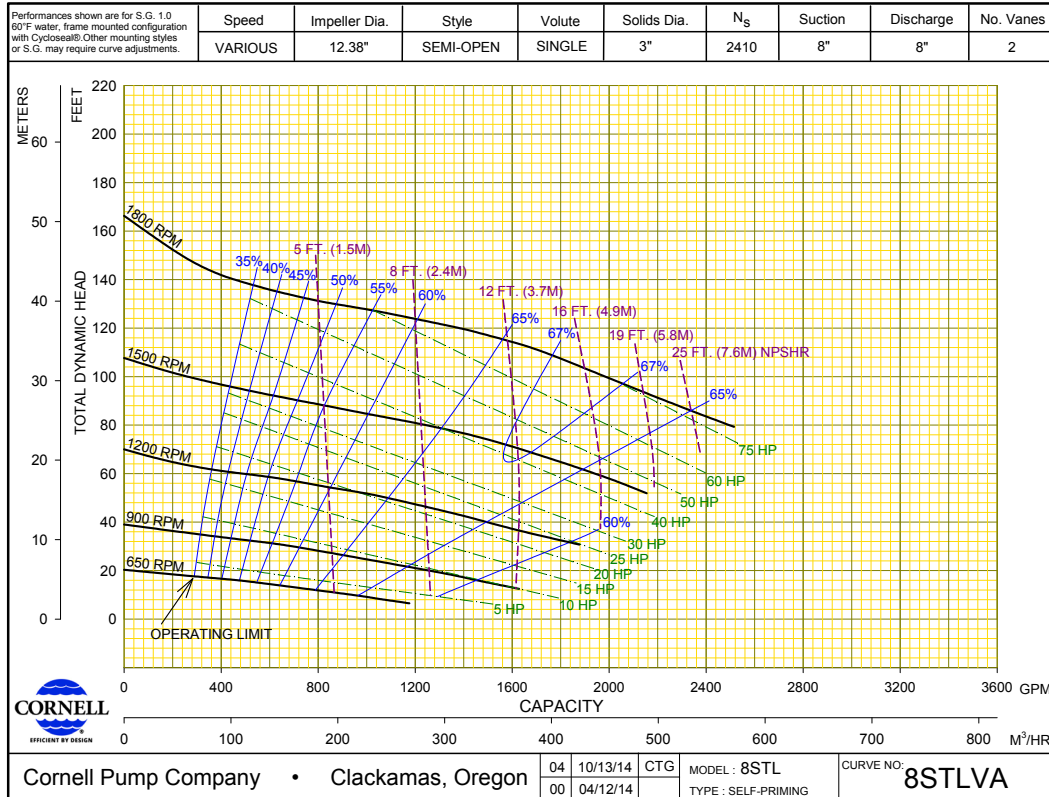
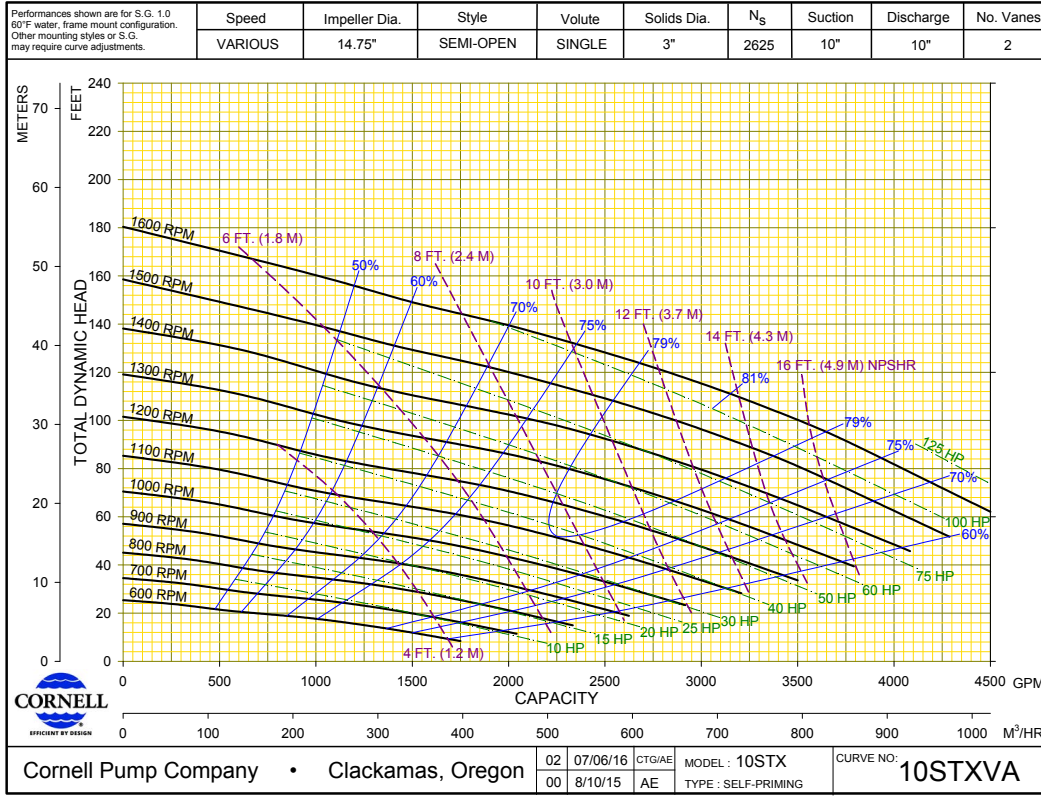




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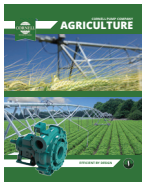


# SELF-PRIMING PUMPS

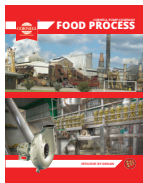




# MARKET AND PRODUCT LINE



AGRICULTURAL



FOOD PROCESS



INDUSTRIAL



MINE DEWATERING



MUNICIPAL



REFRIGERATION



OIL & GAS



CYCLOSEAL®



CHOPPER



CUTTER



EDGE™



HYDRAULIC SUBS



HYDRO TURBINE



IMMERSIBLE



MANURE



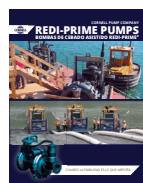
MP SERIES



MX SERIES



MX MINING



REDI-PRIME®



SELF PRIMING



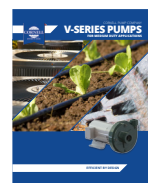
SLURRY



SUBMERSIBLE



WATER TRANSFER



V SERIES

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Cornell pumps and products are the subject of one or more of the following U.S. and foreign patents: 3,207,485; 3,282,226; 3,295,456; 3,301,191; 3,630,637; 3,663,117; 3,743,437; 4,335,886; 4,523,900; 5,489,187; 5,591,001; 6,074,554; 6,036,434; 6,079,958; 6,309,169; 2,320,742; 96/8140; 319,837; 918,534; 1,224,969; 2,232,735; 701,979 and are the subject of pending U.S. and foreign patent applications.

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