

CORNELL PUMP COMPANY

# SELF-PRIMING PUMPS

STX, STL & STH SERIES



6

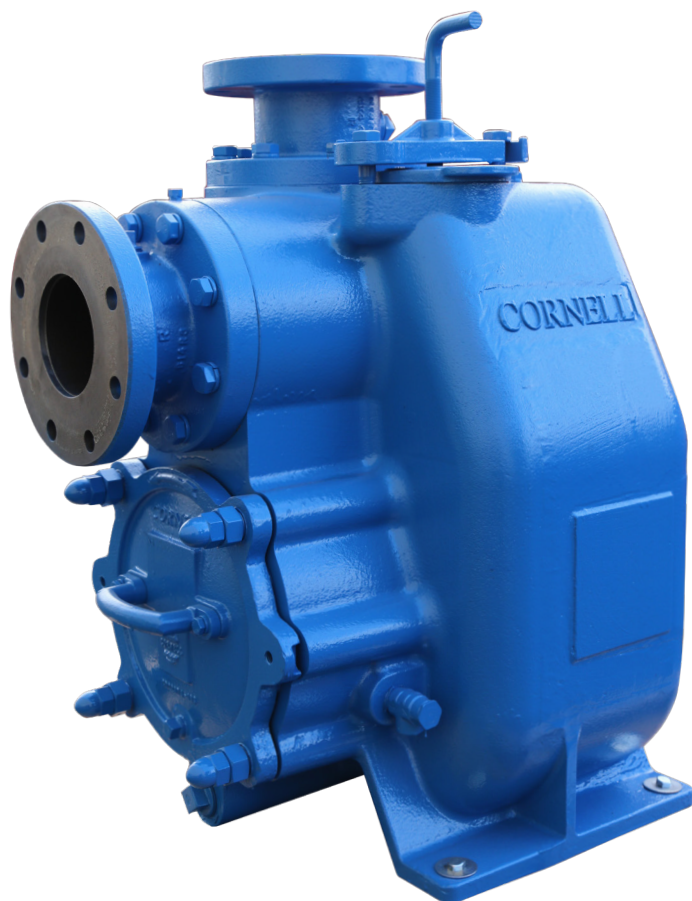
Conventional Washer Formulae

Formula	Temp	Time	Chemical
1	120	15	1.0
2	120	30	1.0
3	120	45	1.0
4	120	60	1.0
5	120	90	1.0
6	120	120	1.0
7	120	150	1.0
8	120	180	1.0
9	120	210	1.0
10	120	240	1.0
11	120	270	1.0
12	120	300	1.0
13	120	330	1.0
14	120	360	1.0
15	120	390	1.0
16	120	420	1.0
17	120	450	1.0
18	120	480	1.0
19	120	510	1.0
20	120	540	1.0
21	120	570	1.0
22	120	600	1.0
23	120	630	1.0
24	120	660	1.0
25	120	690	1.0
26	120	720	1.0
27	120	750	1.0
28	120	780	1.0
29	120	810	1.0
30	120	840	1.0
31	120	870	1.0
32	120	900	1.0
33	120	930	1.0
34	120	960	1.0
35	120	990	1.0
36	120	1020	1.0
37	120	1050	1.0
38	120	1080	1.0
39	120	1110	1.0
40	120	1140	1.0
41	120	1170	1.0
42	120	1200	1.0

FIVE YEAR WARRANTY

# SELF-PRIMING PUMPS

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EFFICIENT, DURABLE, INNOVATIVE and dependable are all words 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 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 adding the Cycloseal® sealing system, extending your seal life.

Have an existing self-primer 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

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

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

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

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

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

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MODULAR DESIGN rotating assembly for easy conversion to SAE engine driven applications. The unique case design immediately identifies it as a Cornell pump.

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

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DUCTILE IRON CONSTRUCTION for increased durability and resistance to wear.

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

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DROP-IN REPLACEMENT for many existing installations.

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OVERSIZED OIL RESERVOIR provides superior bearing cooling.

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THREADED IMPELLER for increased strength.

# SELF-PRIMING PUMPS



## STX/STH/STL

### SPECIFICATIONS

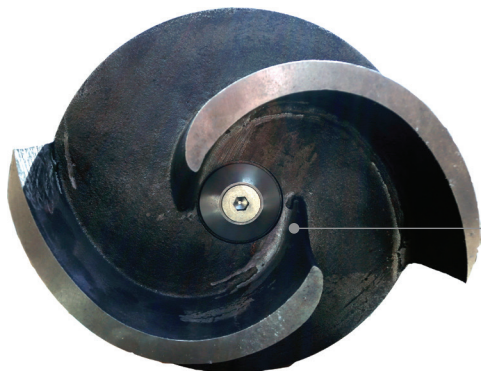
HOUSING MATERIAL	DUCTILE IRON ASTM A536
IMPELLER MATERIAL	DUCTILE IRON ASTM A536
BACK PLATE	DUCTILE IRON ASTM A536
DISCHARGE SIZES	2", 3", 4", 6", 8" AND 10"
FLOW RATES	UP TO 4,200GPM / 954 M <sup>3</sup> /H
TDH	UP TO 253' / 77 M
SEAL TYPE	TYPE II, MECHANICAL
SOLIDS HANDLING DIAMETER	UP TO 3"
IMPELLER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

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.

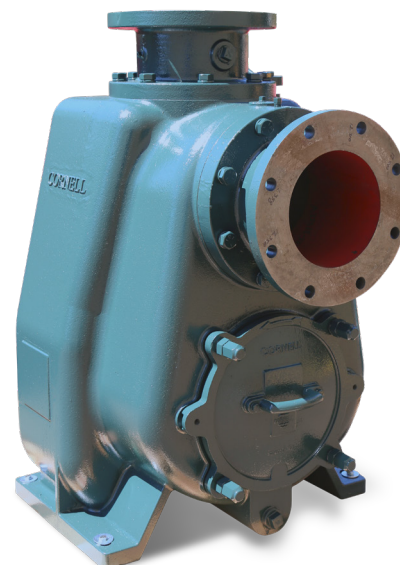
PERFORMANCE	
DISCHARGE SIZES	3", 4", 6", 8", & 10"
FLOW RATES	Up to 4200 GPM / 954 m <sup>3</sup> /h
TDH	9,000 GPM
SOLIDS HANDLING DIA.	625'



## STH SERIES

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

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



## STL SERIES

The STL series offers large flow rates while maintaining a 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.

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



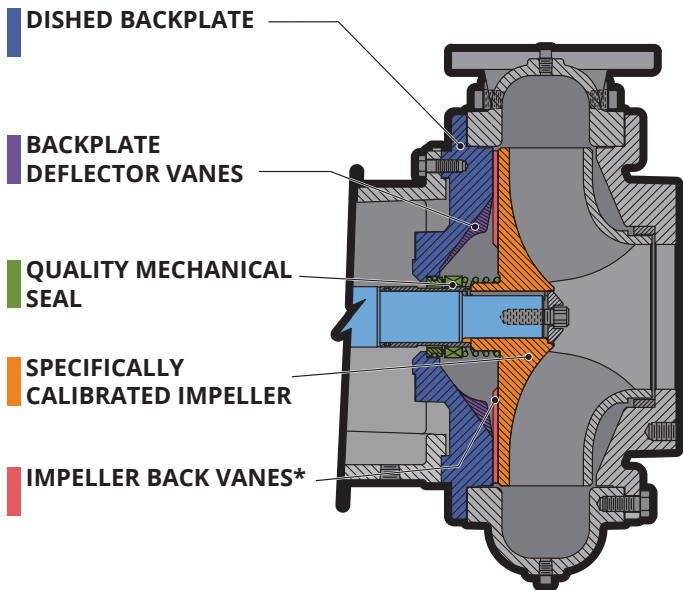
## WE PUT OUR BEST IDEAS TO THE TEST

Cornell's state-of-the-art hydraulics laboratory is the testing ground for all our pumps. We aim to provide the most efficient pumps when energy costs rise. Under the guidance of Registered Professional Engineers, our team of expert technicians conducts certified performance tests to determine the performance and NPSH required for specific design conditions with precision.

The research facility features an 80,000-gallon closed-loop system that allows us to conduct accurate low-pressure tests. The system can circulate up to 60,000 gallons of water per minute. All test motors are calibrated and adhere to the Hydraulic Institute Standards. We can test pumps up to 4,000 horsepower at various speeds. Upon request, we can perform additional tests.

# SELF-PRIMING PUMPS

## CYCLOSEAL® SAVES YOUR FROM FLUSHING AWAY MONEY!



Each pump requiring flush water can incur costs of \$6,000 or more. For instance, a typical 6" pump uses 3 gallons per minute, which may not seem like much. Still, it adds up to over 1.57 million gallons (5,950 m3) annually. Larger pumps, such as 8" and 16" to 24" pumps, consume even more water, with some using 8 million gallons (30,300 m3) or more per year. When you factor in multiple pumps per location and several locations per organization, the amount of water utilized just for seals is HUGE.

Cycloseal® provides an answer:

- REQUIRES NO FLUSH WATER.
- Uses inexpensive and easy-to-change type 1 or 2 mechanical seals.
- Saves \$6,000 or more in flush costs.
- More environmentally friendly alternative.
- Plus Cornell Pumps are high-efficiency and can save your operation even more money.

## 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.



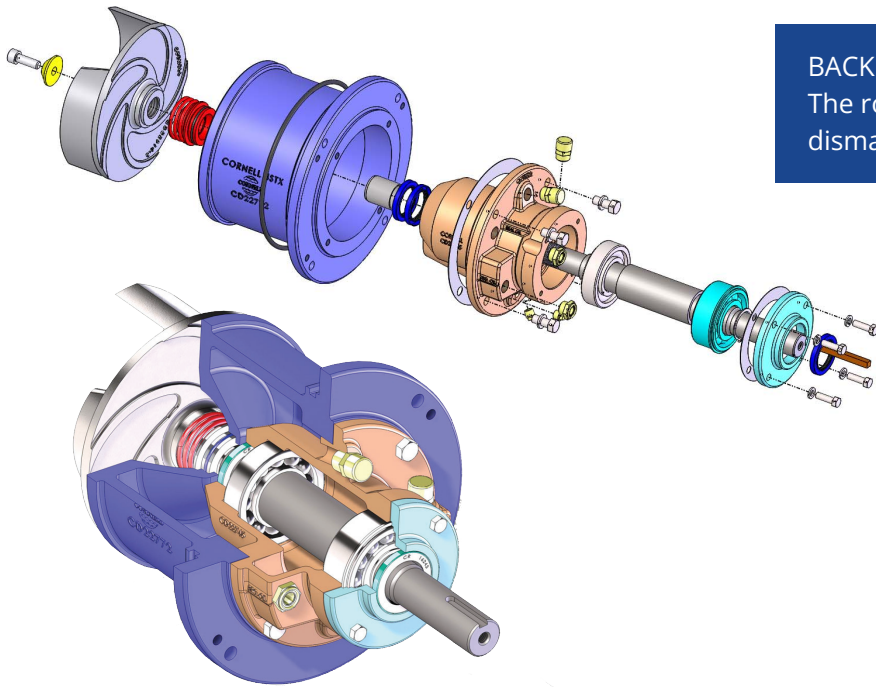
*Photograph reprinted with the permission of John Crane. ©John Crane 2014*

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

\*Consult Factory for high temperature applications

Watch the Cycloseal video online to see it in action:  
<https://www.cornellpump.com/cycloseal-system/>

# FEATURES A FIVE YEAR WARRANTY



## BACK PULL-OUT DESIGN

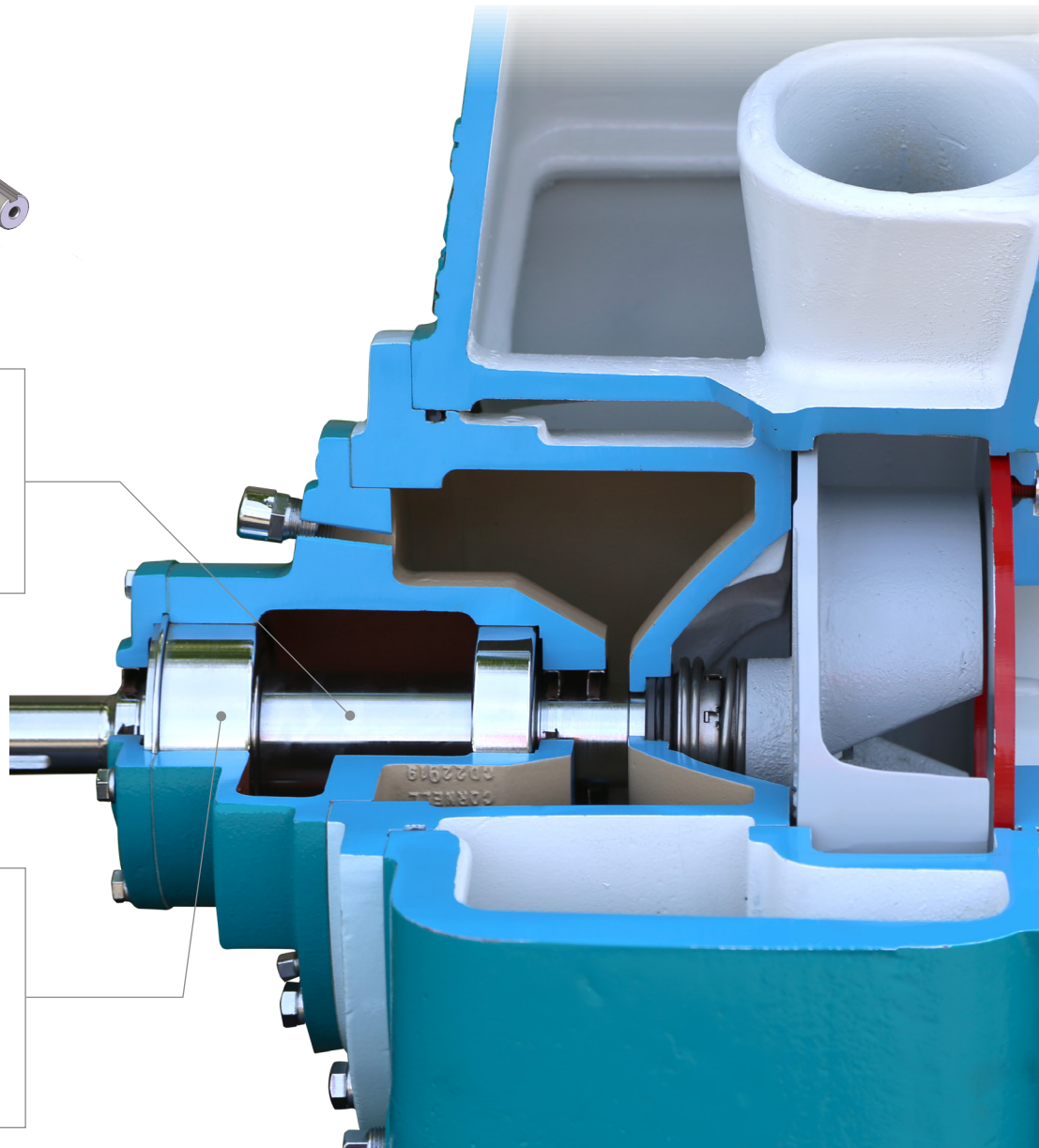
The rotating assembly can be removed without dismantling the pump or disturbing the piping.

## 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

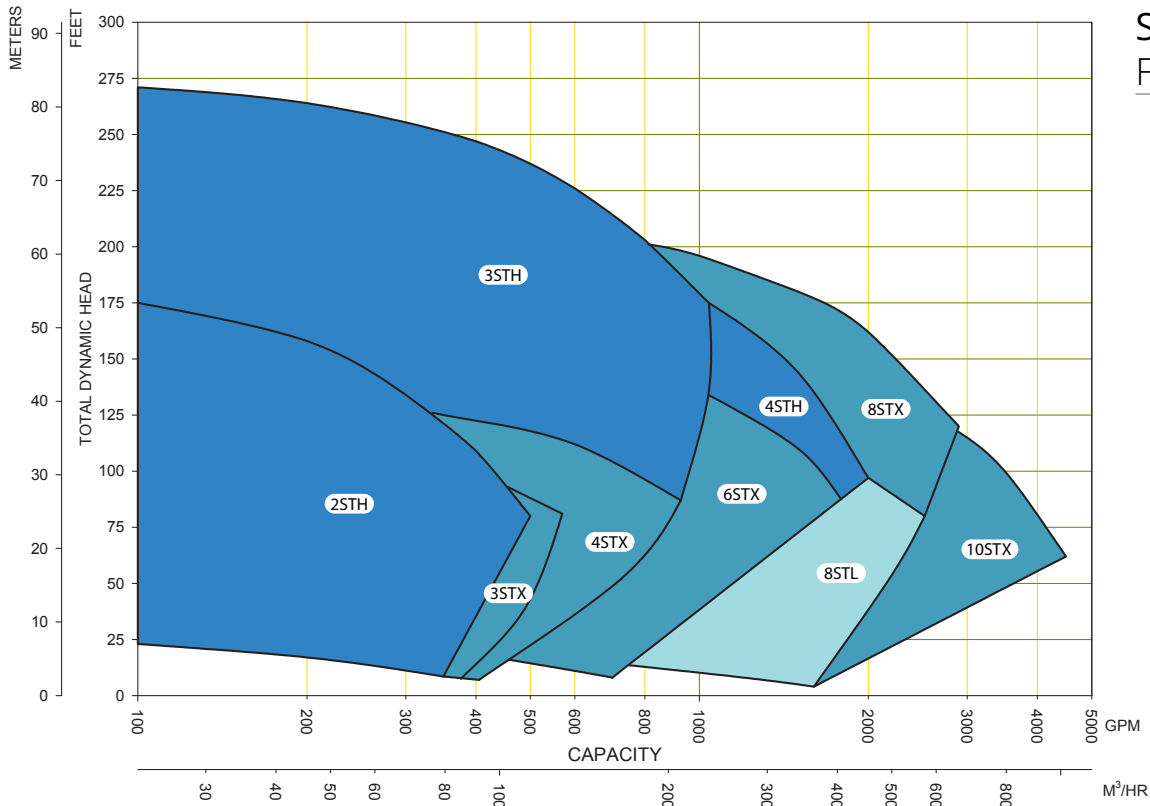
Heavy-duty thrust bearings with Separate Oil Reserve sized for V-belt drive loads. Separate oil filling plugs for bearings and mechanical seals with sight gauges.



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

# SELF-PRIMING PUMP CURVES

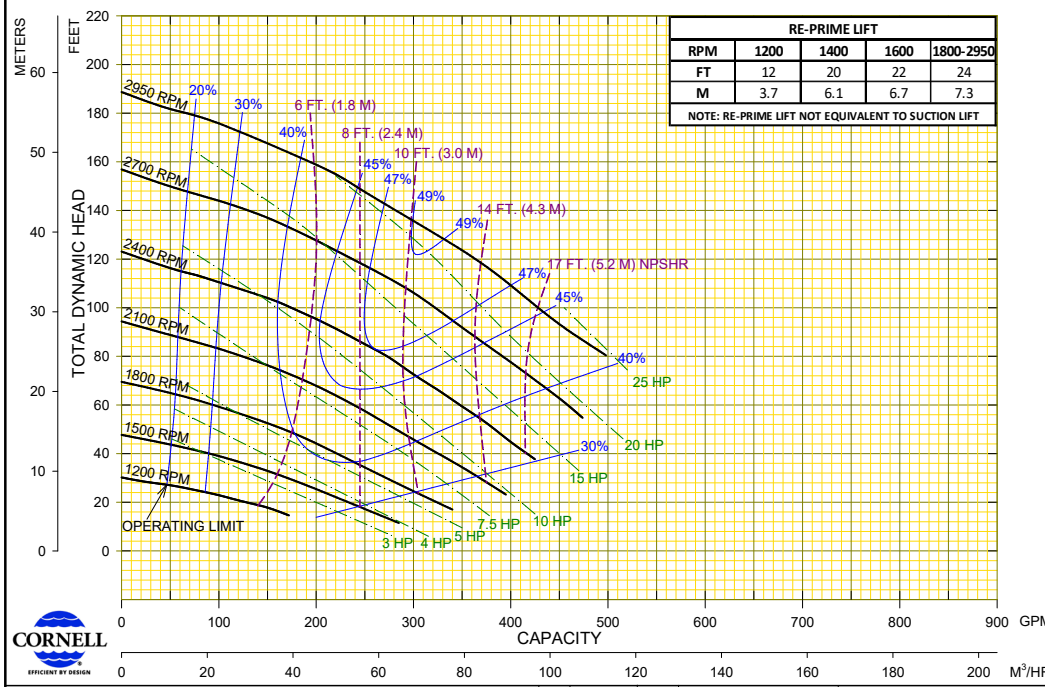
## STX/STH/STL FAMILY MAP



Performances shown are for S.G. 1.0 60°F water, flange mount configuration. Other mounting styles or S.G. may require curve adjustments.	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

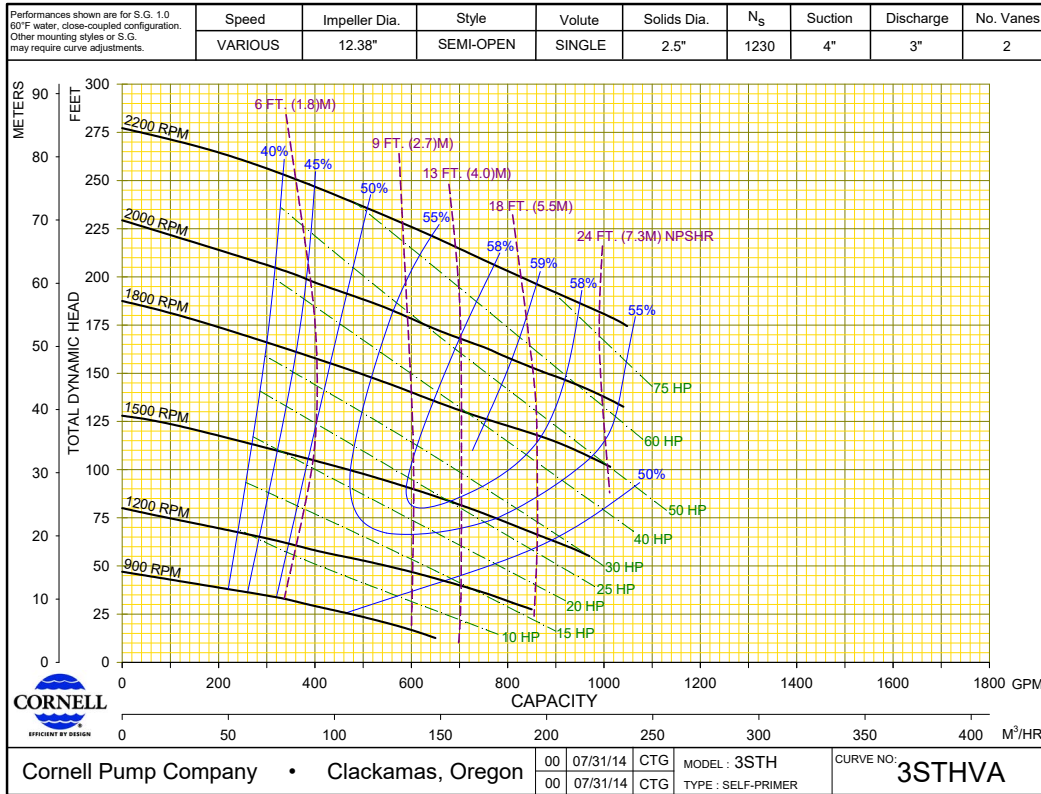
## 2STH

BEP 49%  
8" IMPELLER DIA.



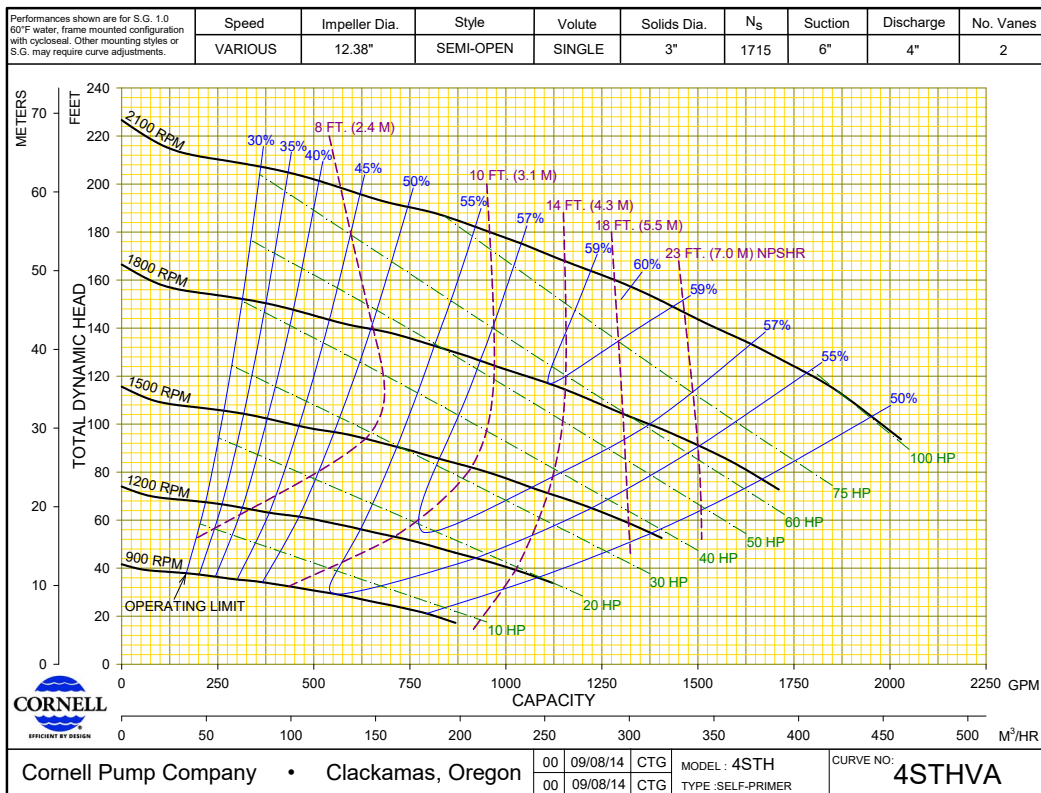
Cornell Pump Company • Clackamas, Oregon	04 08/01/19 FM 00 01/14/14 AE	MODEL: 2STH TYPE: SELF PRIMING	CURVE NO: <b>2STHVA</b>
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# SELF-PRIMING PUMP CURVES



## 3STH

BEP 59%  
12.38" IMPELLER DIA.

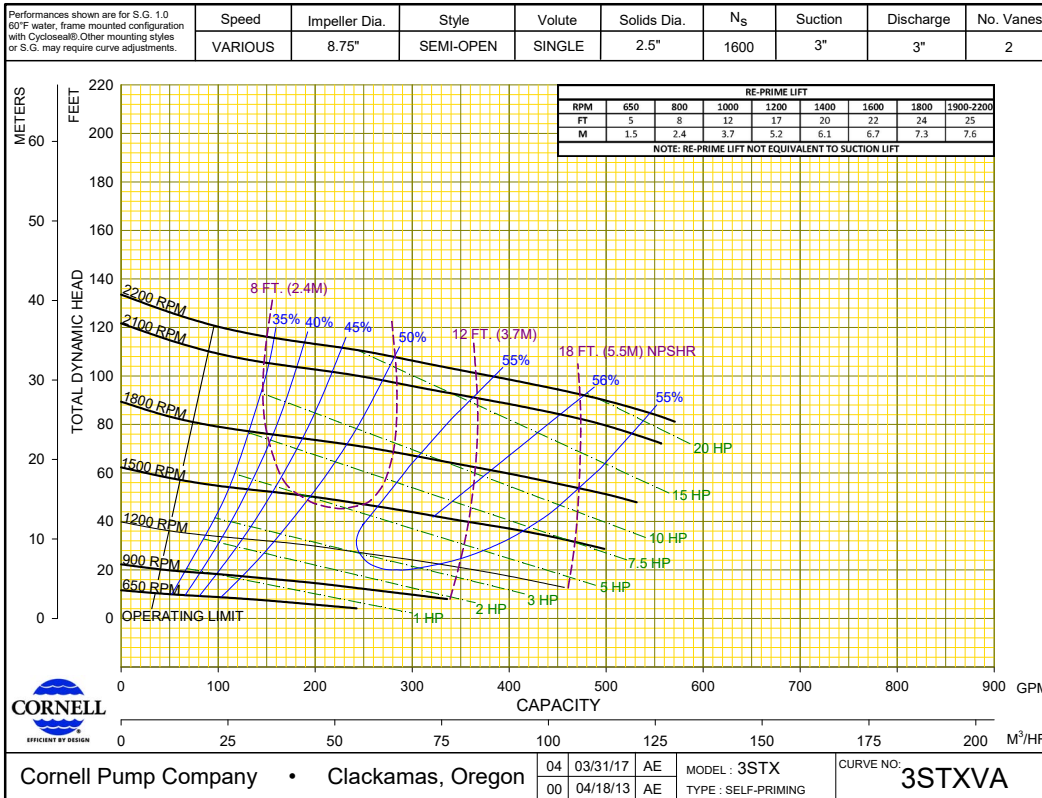


## 4STH

BEP 60%  
12.38" IMPELLER DIA.

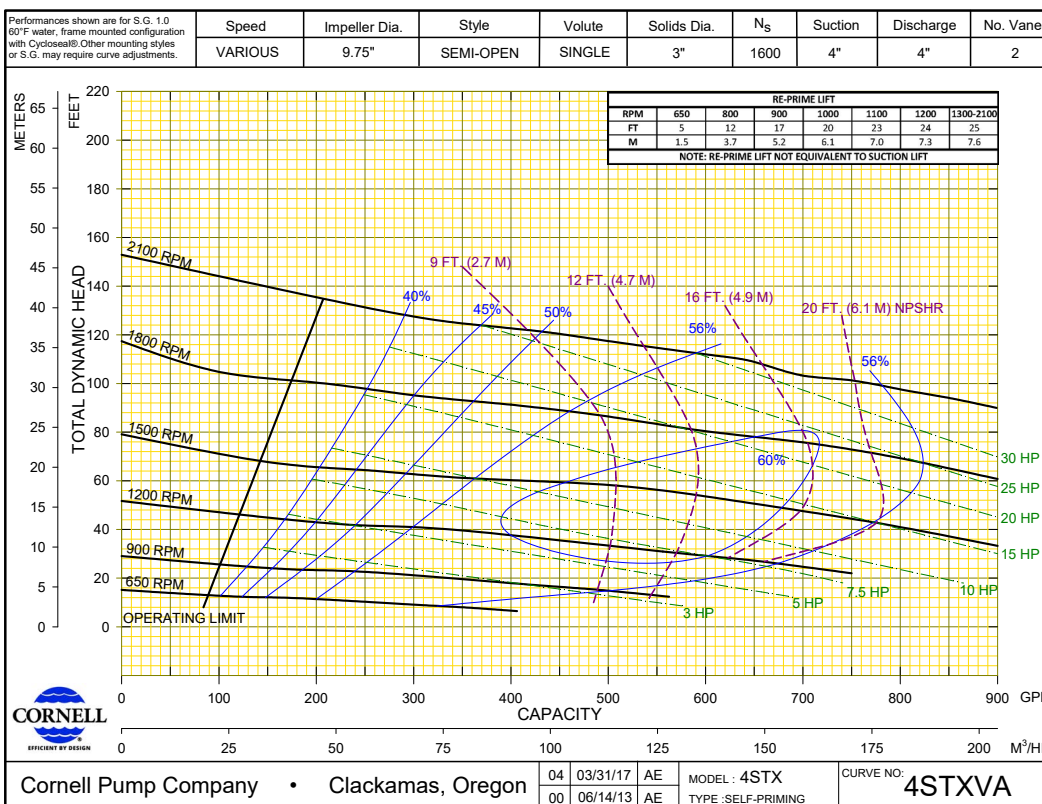


# SELF-PRIMING PUMP CURVES



3STX

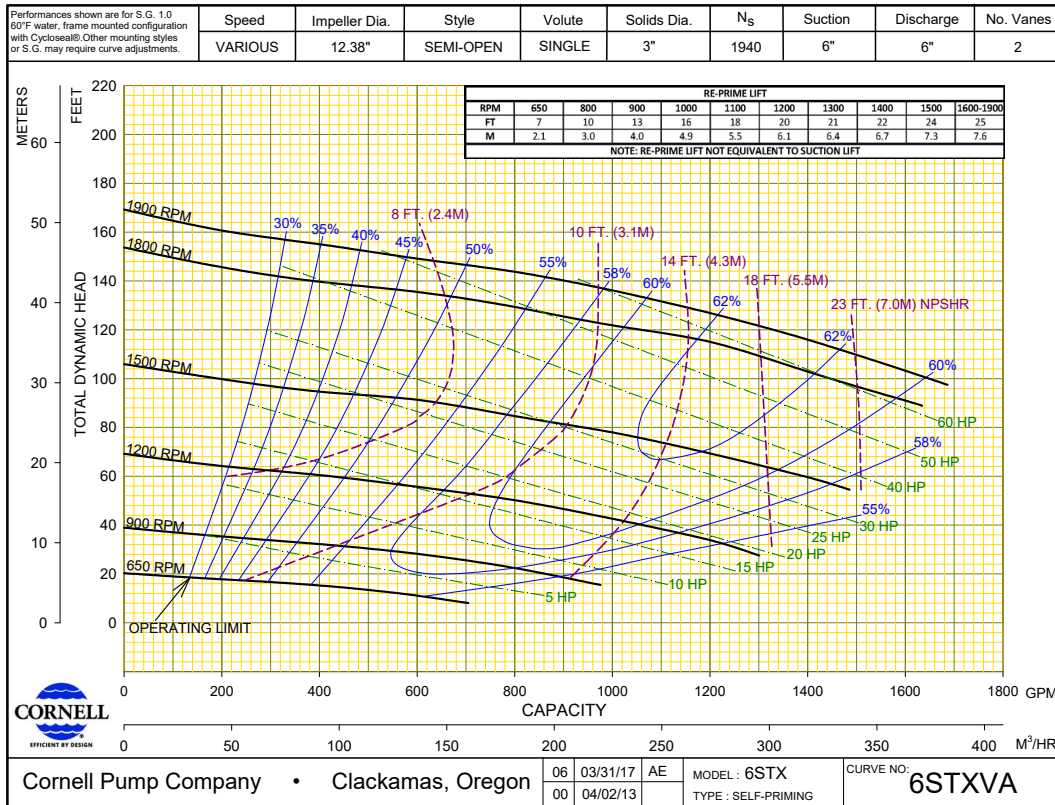
BEP 56%  
2200 RPM



4STX

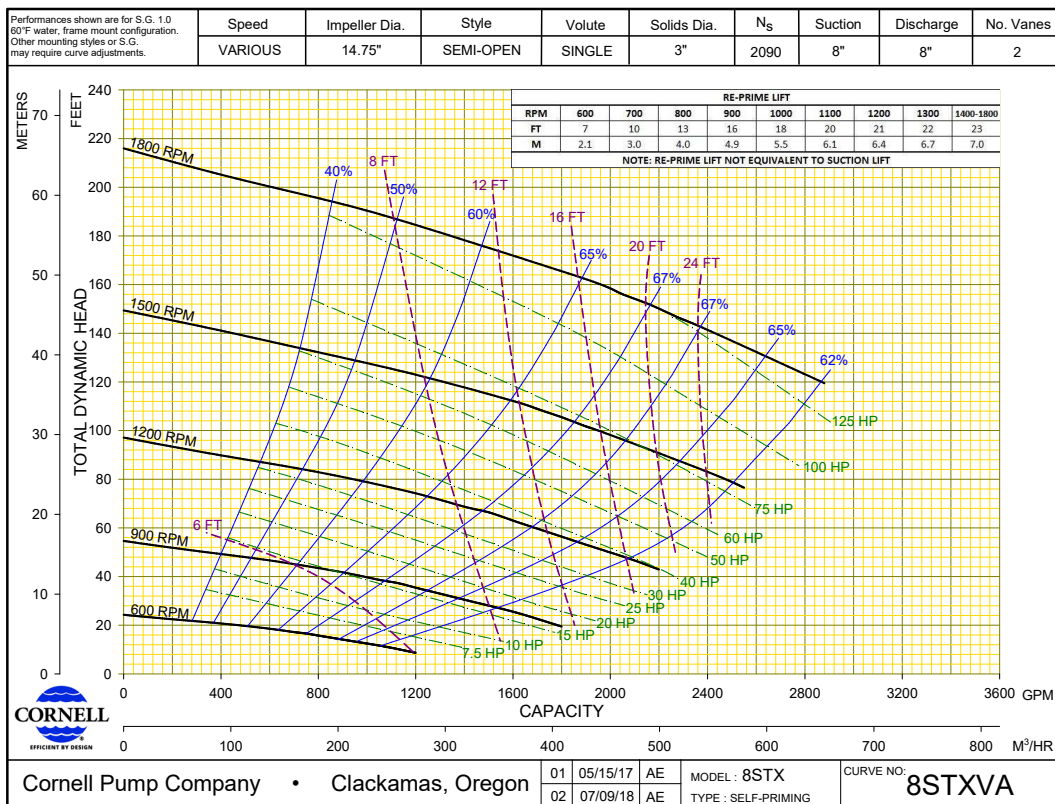
BEP 60%  
2100 RPM

# SELF-PRIMING PUMP CURVES



6STX

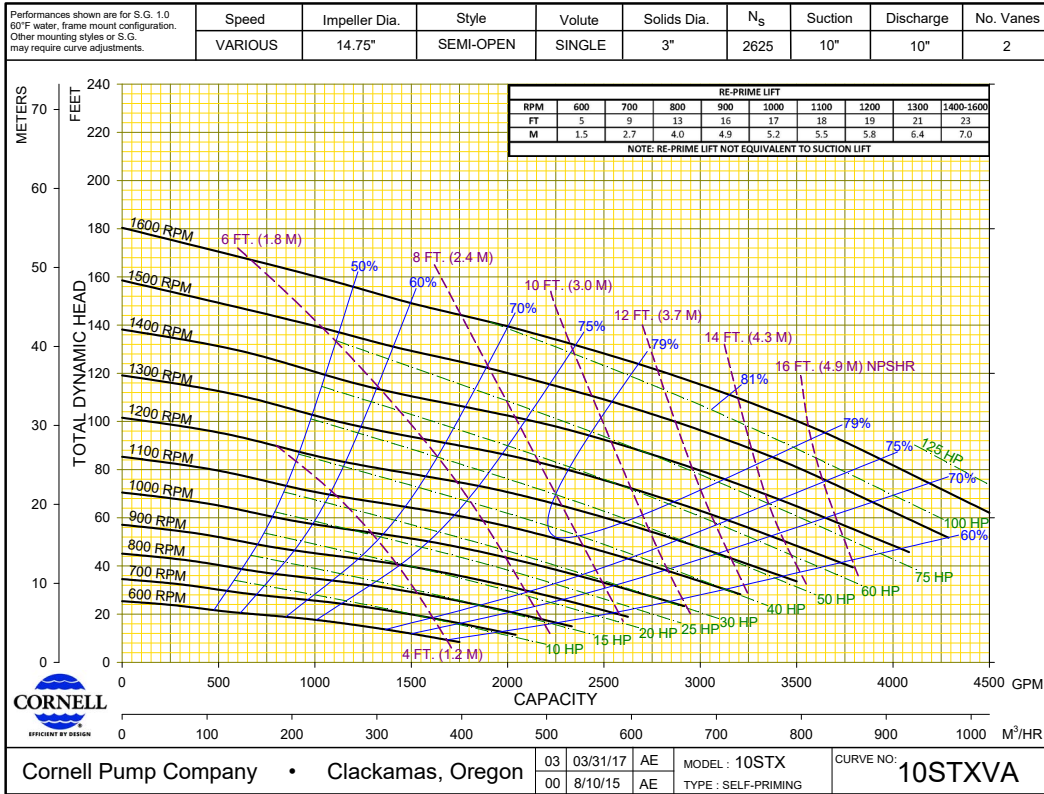
BEP 62%  
1900 RPM



8STX

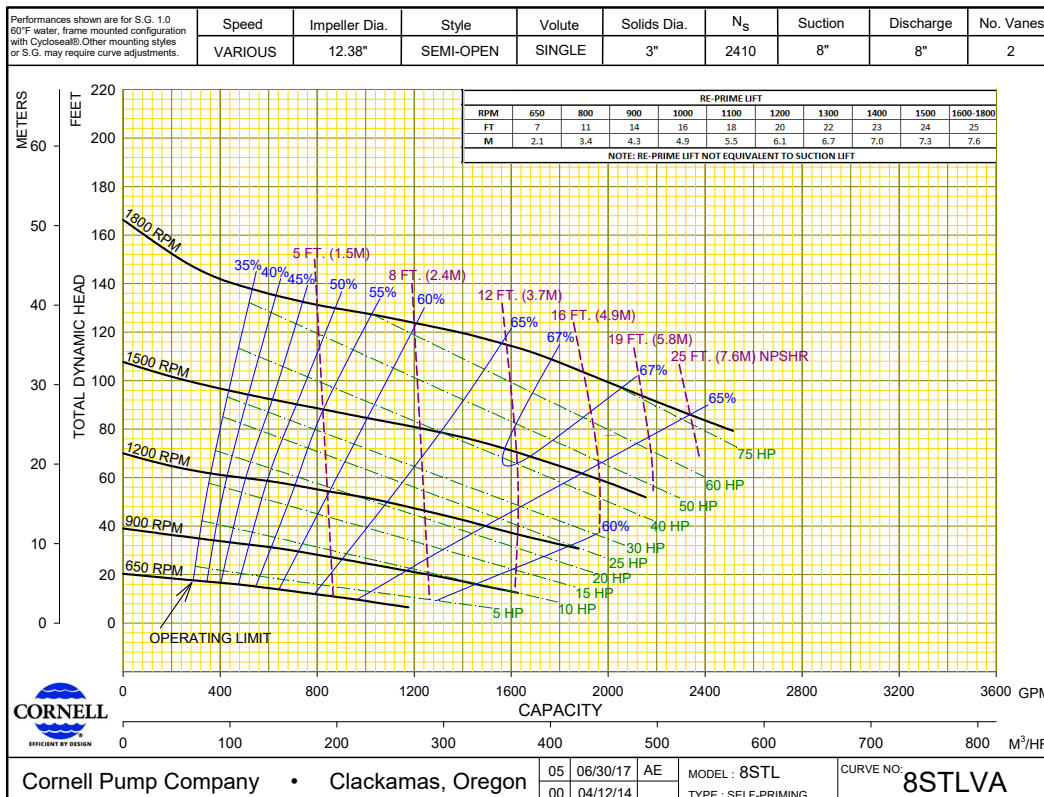
BEP 67%  
1800 RPM

# SELF-PRIMING PUMP CURVES



10STX

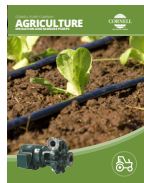
BEP 81%  
1600 RPM



8STL

BEP 67%  
1800 RPM

# CORNELL PUMP COMPANY MARKET & PRODUCT LINE



AGRICULTURE



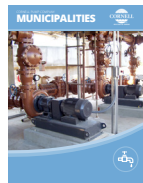
FOOD PROCESS



INDUSTRIAL



MINING



MUNICIPAL



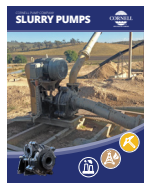
WATER TRANSFER



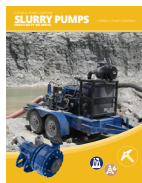
REFRIGERATION



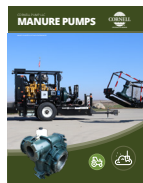
CONSTRUCTION



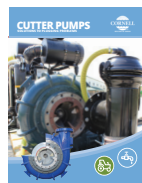
SLURRY



SLURRY SM



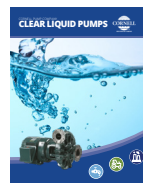
MANURE



CUTTERS



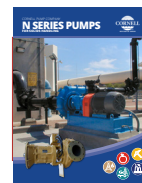
SELF PRIMING



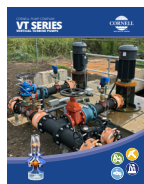
CLEAR LIQUIDS



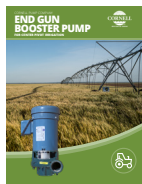
MX SERIES



N SERIES



CYCLONE™



EDGE™



HYDRAULIC SUBS



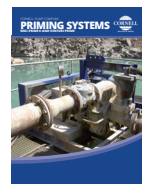
IMMERSIBLE



CD4MCU



RUN-DRY™



PRIMING SYSTEMS



CYCLOSEAL®

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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