CORNELL PUMP COMPANY

SELF-PRIMING PUMPS
STX, STL & STH SERIES

EFFICIENT BY DESIGN

INDUSTRY LEADING EFFICIENCY WITH CYCLOSEAL® SYSTEM

FIVE-YEAR WARRANTY

EFFICIENT BY DESIGN
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. 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-primer installed? Contact Cornell Pump regarding the retrofit program, which allows the Cornell STX rotating assemblies to retrofit into your existing pump volute.

**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 extend 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.
SELF-PRIMING PUMPS

REMOVABLE COVER PLATE
Cornell STX, STL & STH Pumps have a removable cover plate that provides quick access to the pump's impeller.

STX/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”, and 8”
- **FLOW RATES:** Up to 2,400GPM / 545 m³/h
- **TDH:** up to 156’ / 48 m
- **SEAL TYPE:** Type II, Mechanical
- **SOLIDS HANDLING DIAMETER:** Up to 3”
- **IMPELLER TYPE:** Semi-open
- **SHAFT:** 17-4 PH Stainless steel

STX/STL OPTIONAL ACCESSORIES

- 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

INNOVATIVE FEATURES

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

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.

CYCLOSEAL® BENEFITS

**Extended Seal Life:** Cornell’s Cycloseal® design has proven itself in the toughest applications from manure slurry to starch recovery to clear water, food processing, self-priming and hot cooking oil 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**

Cycloseal utilizes Type II seals as part of the Cycloseal system.

- **SELF-ALIGNING:** Automatic adjustment compensates for abnormal shaft movement, primary sealing wear, and machinery tolerances.
- **NON-PUSHER DESIGN:** No dynamic O-rings to hang up.

All seal movement occurs in the bellows.

- **NO SET SCREWS:** Nothing to mar the shaft or sleeve.
- **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.
- **NON-CLOGGING SINGLE COIL SPRING:** Greater dependability than multiple spring designs.

*Consult Factory for high temperature applications

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Watch the Cycloseal video online to see it in action: [http://www.cornellpump.com/support/videos.html](http://www.cornellpump.com/support/videos.html)
FEATURES A FIVE YEAR WARRANTY

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.

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

DUAL PROTECTION OF BEARINGS—Atmospheric barrier and double lip seals provide bearing protection in the event of seal failure.
BRINGING HIGHER HEAD, GREATER FLOW, AND MARKED EFFICIENCY, WITHOUT THE NEED FOR A BOOSTER PUMP! STH FEATURE LARGER IMPELLERS THAN STANDARD SELF-PRIMERS FOR THE SAME DISCHARGE SIZE—MOST 25% LARGER.

SPECIFICATIONS

HOUSING MATERIAL: Ductile Iron ASTM A536
IMPELLER MATERIAL: Ductile Iron ASTM A536
BACK PLATE: Ductile Iron ASTM A536
DISCHARGE SIZES: 2", 3", and 4"
FLOW RATES: Up to 2000 GPM / 454 m³/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

OPTIONAL ACCESSORIES

- Discharge check valve
- 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

STH PERFORMANCE

With greater flow, head, efficiency, and lower NPSHr, the STH series sets a new standard for self-primers.

<table>
<thead>
<tr>
<th>PUMP</th>
<th>BEP FLOW</th>
<th>BEP HEAD</th>
<th>BEP Eff</th>
<th>NPSHR @ BEP</th>
<th>MAX HEAD</th>
<th>MAX FLOW</th>
<th>MAX SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornell 2STH</td>
<td>310 GPM</td>
<td>128' 39 m</td>
<td>49%</td>
<td>10' 3 m</td>
<td>182' 55 m</td>
<td>490 GPM</td>
<td>2950 RPM</td>
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<tr>
<td>2&quot; Discharge / 2950 RPM</td>
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<tr>
<td>Leading Competitor</td>
<td>200 GPM</td>
<td>93' 28 m</td>
<td>45%</td>
<td>14' 4.2 m</td>
<td>122' 37 m</td>
<td>220 GPM</td>
<td>2900 RPM</td>
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<tr>
<td>2&quot; discharge / 2900 RPM</td>
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</tr>
<tr>
<td>Cornell 3STH</td>
<td>860 GPM</td>
<td>196' 58 m</td>
<td>59%</td>
<td>18' 5.5 m</td>
<td>253' 77 m</td>
<td>1050 GPM</td>
<td>2200 RPM</td>
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<tr>
<td>3&quot; Discharge / 2200 RPM</td>
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<tr>
<td>Leading Competitor</td>
<td>600 GPM</td>
<td>140' 43 m</td>
<td>57%</td>
<td>18' 5.5 m</td>
<td>183' 56 m</td>
<td>700 GPM</td>
<td>2600 RPM</td>
</tr>
<tr>
<td>3&quot; discharge / 2150 RPM</td>
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<tr>
<td>Cornell 4STH</td>
<td>1325 GPM</td>
<td>156' 48 m</td>
<td>60%</td>
<td>18' 5.5 m</td>
<td>207' 63 m</td>
<td>2025 GPM</td>
<td>2100 RPM</td>
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<tr>
<td>4&quot; Discharge / 2100 RPM</td>
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</tr>
<tr>
<td>Leading Competitor</td>
<td>960 GPM</td>
<td>132' 40 m</td>
<td>58%</td>
<td>19' 5.8 m</td>
<td>182' 55 m</td>
<td>1120 GPM</td>
<td>2400 RPM</td>
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<tr>
<td>4&quot; discharge / 1950 RPM</td>
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</tbody>
</table>
Performs shown are for S.G. 1.0 60°F water, close-coupled configuration. Other mounting styles or S.G. may require curve adjustments.

2STH
BEP 49%
10' NPSHR @ BEP

Cornell Pump Company • Clackamas, Oregon
02/03/15 CTG AE TYPE SELF PRIMING CURVE NO 2STHVA
SELF-PRIMING PUMP CURVES

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

**3STH**

**BEP 59%**

18' NPSHR @ BEP

**4STH**

**BEP 60%**

18' NPSHR @ BEP
SELF-PRIMING PUMP CURVES

3STX

BEP 56%
18' NPSHR @ BEP

4STX

BEP 55%
15' NPSHR @ BEP
Municipalities choose the Cornell Self-Priming Pump for its **RELIABILITY**.

The Cornell Self-Priming Pump’s **VERSATILITY** makes is popular as a rental pump.

**CORNELL SELF-PRIMERS FEATURE:**
- Industry leading efficiency
- Five year warranty
- STX drop-in replacement for systems
- Cycloseal® sealing system
- High RPM operable—engine mountable
- Oversize oil-reservoir
- Oversize Shaft and Bearings
- Heavy duty construction

Agricultural users appreciate the **DURABILITY** of the Cornell Self-Priming Pump.

**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.

The CORNELL TEST LAB verifies the performance of all Cornell 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

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: 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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