



CORNELL PUMP COMPANY

# FOOD INDUSTRY

PUMPS FOR TRANSPORT AND PROCESSING



EFFICIENT BY DESIGN





# FOOD PUMPS

## Oil-lubricated bearing frame

Standard for consistent cooling and lubrication of the bearings

## Stainless steel sleeves

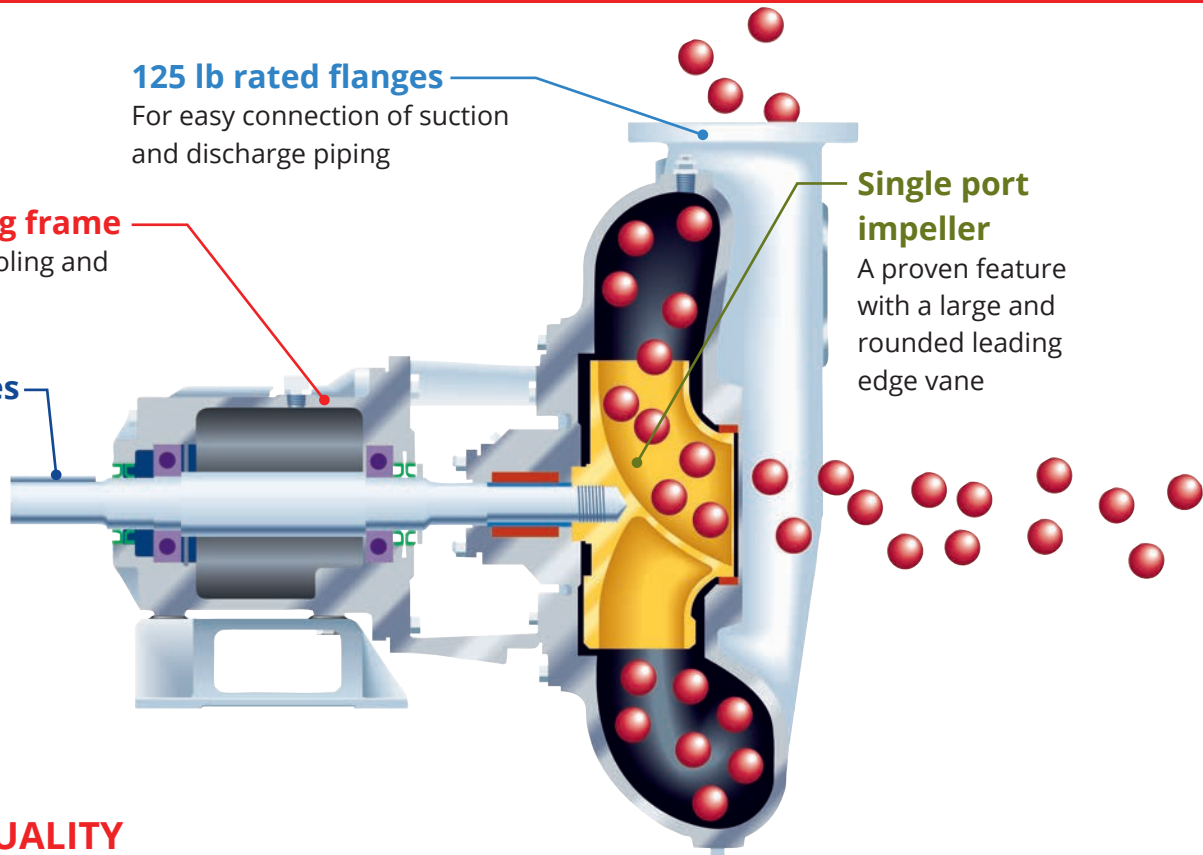
Standard to protect shaft from abrasion and corrosion

## 125 lb rated flanges

For easy connection of suction and discharge piping

## Single port impeller

A proven feature with a large and rounded leading edge vane



## INNOVATION & QUALITY

Cornell engineers understand the important role food handling pumps play in today's marketplace. Our innovative single port impeller configuration, with its unique offset volute, provides the end user with a food handling pump capable of transporting even the most delicate food products.

At Cornell, we've built our worldwide reputation on quality and reliability. Our centrifugal pumps are engineered and manufactured to provide continuous and trouble-free operation. Many Cornell pumps sold in the 1950's are still providing the same dependable service they did the day they were installed. No one is more committed to making your ownership a truly rewarding experience than Cornell.

Many Cornell innovations have evolved from our commitment to the food processing industry and an ongoing effort to work with customers to provide optimal solutions for food handling applications.

## EFFICIENCY

In addition to having reliable operation, today's food process systems must also be efficient and economical. As energy costs rise, conservation and efficiency become critical issues for end-users striving to minimize expenses associated with energy consumption. Cornell pumps maintain superb hydraulic operating efficiencies and are coupled with energy-efficient motors.

**THE BOTTOM LINE: CORNELL PUMPS COST LESS TO OPERATE.**



## QUALITY ASSURANCE

Cornell Pump Company proudly maintains its ISO 9001:2015 certification which validates that Cornell is in compliance with all necessary processes to meet customer requirements.

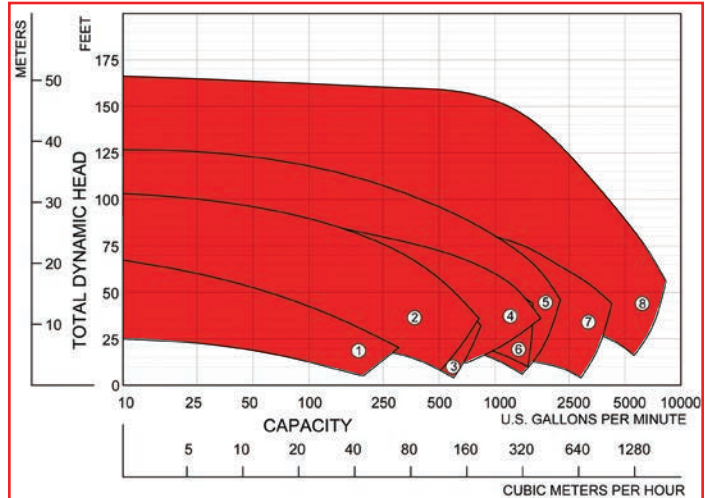
The elements associated with ISO 9001:2015 certification include such areas as contract review, design and development, production, purchasing, quality control and service.

# HYDRO-TRANSPORT FOOD PUMPS

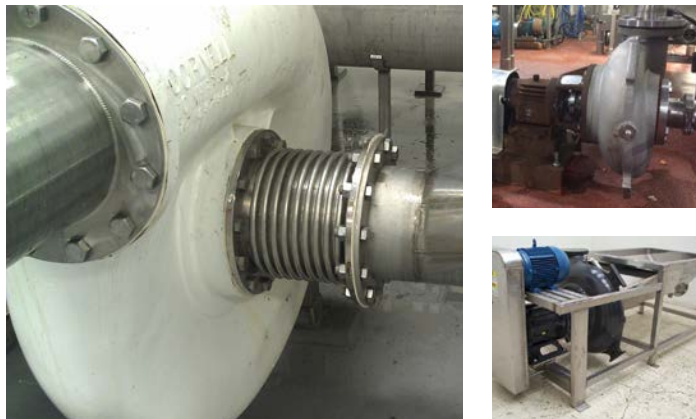


## P & PP SERIES SPECIFICATIONS

Discharge Size Range	3" to 12" / 76mm to 305mm
Max Solids Handling	8.75" X 14" / 222mm to 356mm
Max Flow	8,000 GPM / 1,817 m <sup>3</sup> /h
Max Head	120' / 36.6m



1. 3NLP	2. 4NMP	3. 4NMPP	4. 6NHP
5. 6NHPP	6. 8NHPP	7. 10NHPP	8. 12NHPP



## PERFORMANCE-FOCUSED PUMP DESIGN

Cornell's distinctive volute design allows food to pass through the pump and exit through the center of the discharge nozzle while minimizing contact with any pump surface. The single port impeller, a proven feature consisting of a large and rounded leading edge vane, was designed specifically for handling whole or processed foods. Together, these features significantly reduce product damage and abrasion, thus insuring product integrity.

## MATERIALS OF CONSTRUCTION

- Ductile iron or 304SS construction on PP series
- Cast iron or ductile iron on P series
- Standard SAE 1144 Stressproof steel shaft; 17-4PH shaft optional
- 416SS shaft sleeve
- 304SS impellers standard on 4NMP, 4NMPP, 6NHP, 6NHPP, and 8NHPP
- Other construction materials available, including 316 stainless steel

## FEATURES

- PP series pumps have Cornell's exclusive offset and expanded volute
- Food grade packing standard
- Available Cycloseal® sealing system with tungsten carbide vs. silicon carbide faces
- Electro-polish on 304 Stainless Steel Pumps
- Optional clean-out port
- Two-year warranty



# HOT OIL AND REFRIGERATION



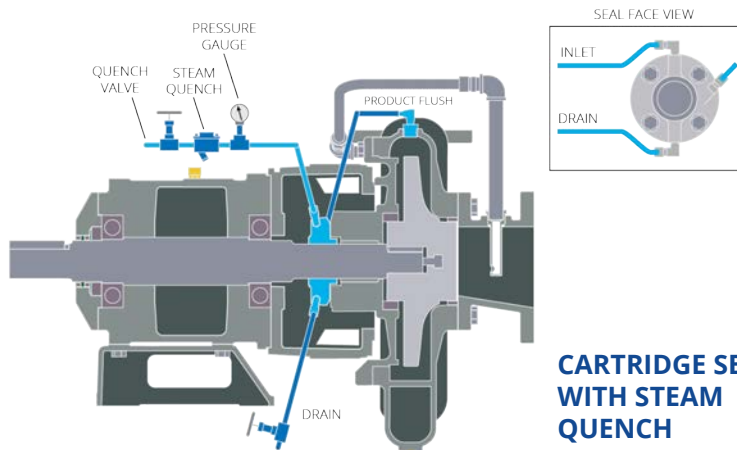
## HOT COOKING OIL PUMPS

Enhanced vapor handling and improved sealing technology are central to Cornell's latest hot cooking oil pump innovations. When fresh product passes through a fryer, water tends to travel along the bottom of the fryer in a liquid phase at 392°F (200°C), until it reaches the pump suction where the action of the impeller breaks up the water into smaller droplets that flash into steam. Ordinarily, entrained steam would impair the pump's head and flow, but Cornell's innovative anti-cavitation system prevents this situation.

## CARTRIDGE SEAL WITH QUENCH OPTION

An enhanced sealing option now available on Cornell's hot oil pumps, the cartridge seal offers these benefits:

- Safeguard employees and plant by guarding against leaks and failures
- Enhanced seal life against coking and product build-up
- Brief periods of dry running possible because of seal design
- Installation and repairs are easy to carry out, and galling less likely on shaft
- Enhanced heat range. Seals are usable up to 450° F/ 232C
- Quench with steam or water
- Prevents solids build-up on atmospheric side of seal
- Quench pressure should be limited to 0.2 BAR (3PSI) or less



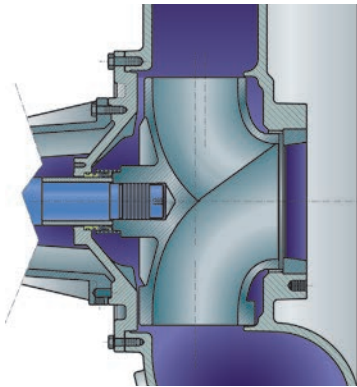
**CARTRIDGE SEAL WITH STEAM QUENCH**



## REFRIGERATION PUMPS

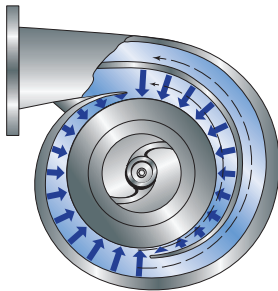


Cornell's liquid overfeed pumps have been used successfully in a variety of applications including cold storage, food processing, refrigeration, ice production, and turbine inlet cooling. Cornell refrigerant pumps are commonly employed in liquid overfeed and transfer pump applications utilizing anhydrous ammonia, aqueous ammonia and halocarbons such as R-22 and other approved refrigerants. Cornell also offers hermetic style refrigeration pumps which have operating capabilities and dimensions similar to our standard CB pumps. The Arctic King HT series is perfect for stable operating systems that have minimal vapor entrainment or cavitation issues.



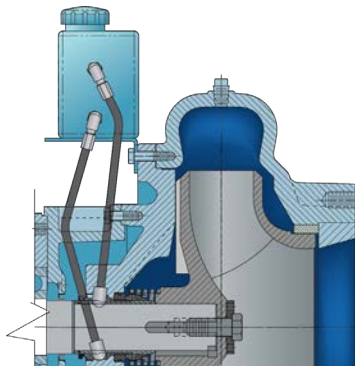
## CYCLOSEAL®

The Cycloseal system is a self-contained single mechanical seal upgrade for the standardized food grade packing feature. It requires no external flushing which is ideal for eliminating the water usage normally associated with mechanical seals. Cycloseal uses stationary 'vaness' cast into the pump backplate to create pressure gradients that move solids away from the seal faces. As a result, the requirement for an external water flush line for abrasive service is avoided, and seal life is extended to at least three times the life of a standard seal. The Cycloseal design is available in all food handling pumps except for hot oil pumps.



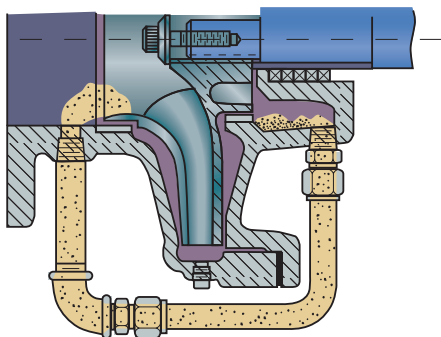
## DOUBLE VOLUTE DESIGN

The double volute system enables Cornell single-stage, end-suction centrifugal pumps to easily perform big volume and high pressure jobs. On single volute pumps, the increasing pressure acts against the impeller area and creates unbalanced radial forces. By contrast, the Double Volute System effectively balances these forces around the impeller to reduce shaft flexure and fatigue for longer seal life, bearing life, and shaft life.



## RUN-DRY™ OPTION

Run your pump dry without the use of expensive water systems and without mechanical seal damage. Cornell's Run-Dry system consists of an auxiliary gland which provides containment for an application-specific lubricant present at the inside diameter of the mechanical seal faces. This lubricant prevents dry running of the seal faces while priming, re-priming, and on standby. The Run-Dry gland is connected to a lubricant reservoir via inlet and outlet lines which are oriented tangentially to the pump shaft so that shaft rotation provides circulation and subsequent cooling of the lubricant.



## EXTERNAL HYDRAULIC BALANCE LINE

Cornell's external hydraulic balance line equalizes pressure between the impeller hub area and the pump suction to reduce axial loading acting on the impeller, shaft and bearings. The balance line also assists in moving sand and silt from the stuffing box to the low pressure area at the pump suction, reducing wear of the wetted parts for hot oil pumps.

## RESEARCH & DEVELOPMENT

Cornell Pump Company is known for its innovative designs. We are constantly striving to improve and expand our range of highly engineered products using solid engineering practices plus aggressive research and development to maintain leadership in the food processing marketplace. Many unique and innovative 'firsts' have resulted from Cornell's willingness and ability to adapt to changing market requirements.



# MARKET AND PRODUCT LINE



AGRICULTURE



FOOD PROCESS



INDUSTRIAL



MINING



MUNICIPAL



WATER TRANSFER



REFRIGERATION



CONSTRUCTION



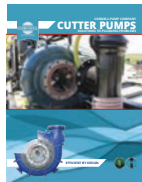
SLURRY



SLURRY SM



MANURE



CUTTERS



SELF PRIMING



HIGH FLOW



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.

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