Waukesha Cherry-Burrell

UNIVERSAL II

SERIES

PUMPS

ROTARY POSITIVE DISPLACEMENT PUMPS

New levels of sanitary performance. Long-life engineering features.

For more than half a century, Waukesha Cherry-Burrell has been a leader in the design, manufacturing and application of external circumferential, piston (ECP) style, rotary positive displacement pumps. Waukesha Cherry-Burrell PD pumps are in service around the world in food, dairy, canning, bakery, beverage and pharmaceutical processing, as well as challenging chemical and industrial applications.

Users of Waukesha Cherry-Burrell PD pumps benefit from decades of continuing product improvement. Steady advances in design, metallurgy and fabrication techniques have yielded progressively higher levels of performance and service life.

THE UNIVERSAL II SERIES of pumps is the latest expression of this tradition. They combine 3-way mounting versatility introduced by the Universal with new features that extend pump life and improve sanitary performance. Pump is available in COP or CIPable configurations.

New Sanitation Features

- ***CIP capability available.*** Pump body has optional internal flat body profile and will free drain with vertical ports. Optional rotor and body hub drilling provided for difficult CIP cleaning applications.
- ***Cover is free draining*** in horizontal or vertical port positions.
- ***Rotor/shaft connection sealed*** from product zone.
- ***Mechanical seals standard.*** Single or flushed double.
- ***Seal flush*** optional: seal areas interconnected to improve circulation and draining of seal flush fluid. ***Steam-In-Place*** also is optional.
- ***Stainless steel bearing frame*** optional.
- ***Aseptic ports*** optional.

Long-life features

- ***Up to 500 (34.5 bar) psi pressure capability.***
- ***Rotor nut*** designed for extended service without loosening.
- ***No bearing in product zone.***
- ***Larger diameter 17-4 PH shafts*** in seal area for greater strength and stiffness. Helps eliminate vibration; extends seal life.
- ***Heavy duty bearing frame*** (stainless steel available as an option).
- ***Double tapered roller bearings on all models.*** Contribute further to precise rotor movement and longer seal life.
- ***Greased lubed bearings*** for positive lubrication to all bearings over entire speed, temperature and pressure range.
- ***Body retaining screws*** for maintaining mechanical seal contact during Inspection.
- ***Extended outer seal life.*** A wave spring, instead of an O-ring, mechanically loads the seal.
- ***O-Ring on inner seal,*** seals on clean surface as seal moves due to wear.
- ***3 full-radius drive pin grooves*** reduce stress/increase durability of seals.

Universal II Series

Shown with optional stainless steel gearcase

Shown with optional flat body profile

Installation flexibility

- ***Bi-directional flow***. Rotors, locked with belleville washers and torqued nuts, rotate securely in either direction. No more flow direction/shaft position specifications.
- ***Interchangeable installation dimensions*** with Universal and Universal Lobe PD pumps.
- ***Versatile 3-Way mounting*** of gear case, including vertical alignment of ports.
- ***Upper or lower shaft position.***
- ***Jacketed or vented cover*** optional.
- ***Exclusive, non-galling Waukesha "88" alloy rotors standard;*** permits running at tighter clearances and pumping a wide range of viscosities. 316 stainless steel lobe rotors also available.
- ***316 stainless steel pump body and cover;*** 316L optional.
- Electro-polish of product contact surfaces, optional.

EHEDG APPROVED

Typical product applications

Bakery
Batters
Flavorings
Frostings
Fruit Fillings
Fats & Oils
Sweeteners
Yeast Slurry

Beverage
Beer, Wort, Yeast
Soft Drinks
Fruit Concentrates
Fruit Drinks

Canning
Baby Foods, Soups, Stews
Tomato Paste
Fruit Puree
Vegetables, Diced, Slurries
Puddings, Jams. Jellies
Salad Dressings, Mayonnaise

Confectionery
Syrups
Cream Fillings
Chocolate

Cosmetics
Face Creams & Lotions
Hair Styling Gels & Liquids
Essential Oils
Dyes & Alcohols

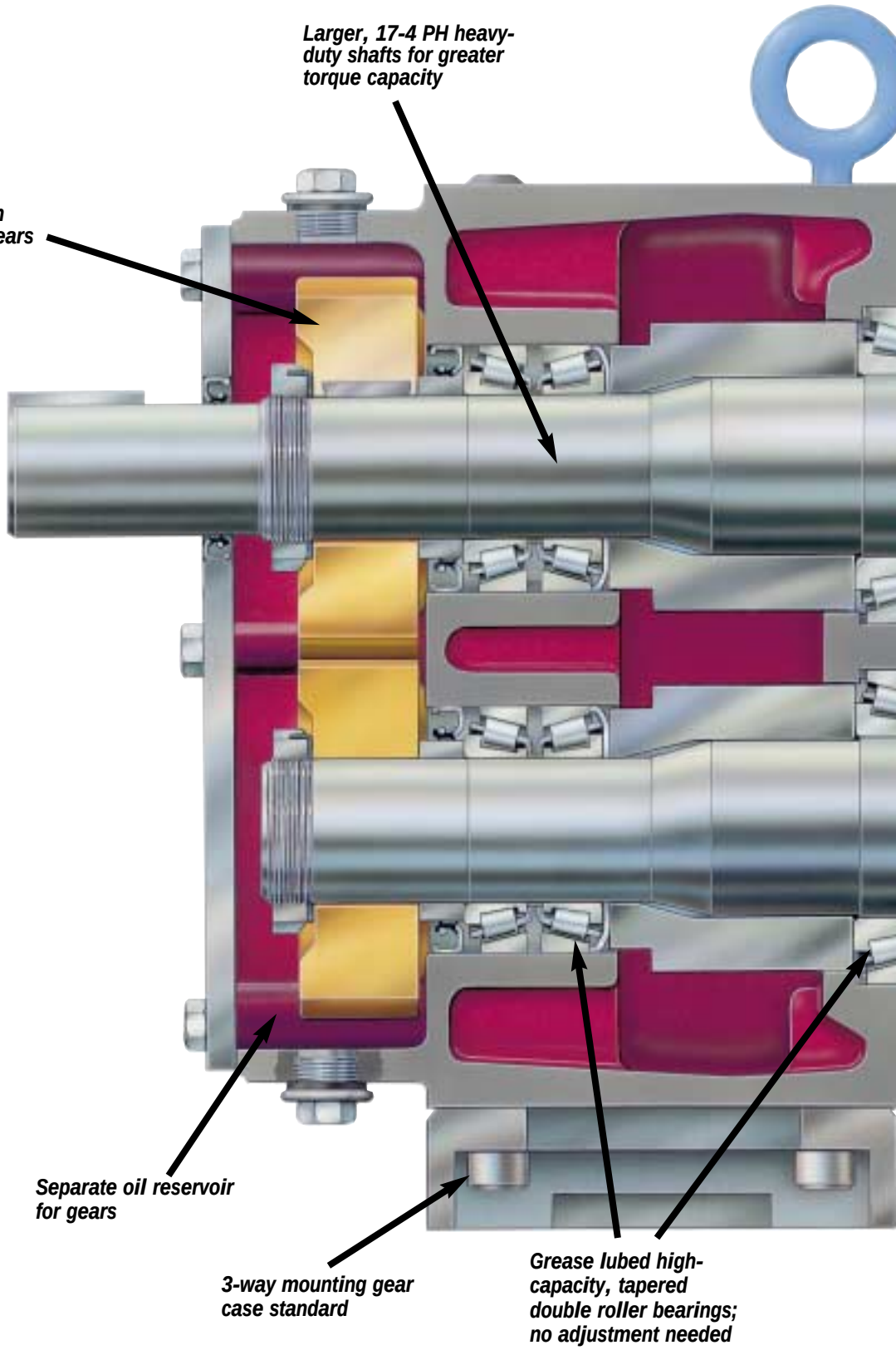
Dairy
Cream, Milk
Cheese Curd & Whey
Cottage Cheese
Yogurt

Meat Packing
Meat-Emulsions
Ground Meats
Pet Foods
Ruffle & Caul Fat

Pharmaceutical
Pill Pastes
Syrups
Extracts
Emulsions
Slurries

Chemical/Industrial
Solvents
Fuels
Oils & Lubricants
Paints
Resins & Polymers
Soaps
Sludges

Performance and long life through engineering.



High pressure capability, *up to 500 psi/34.5 bar*, for more demanding jobs.*

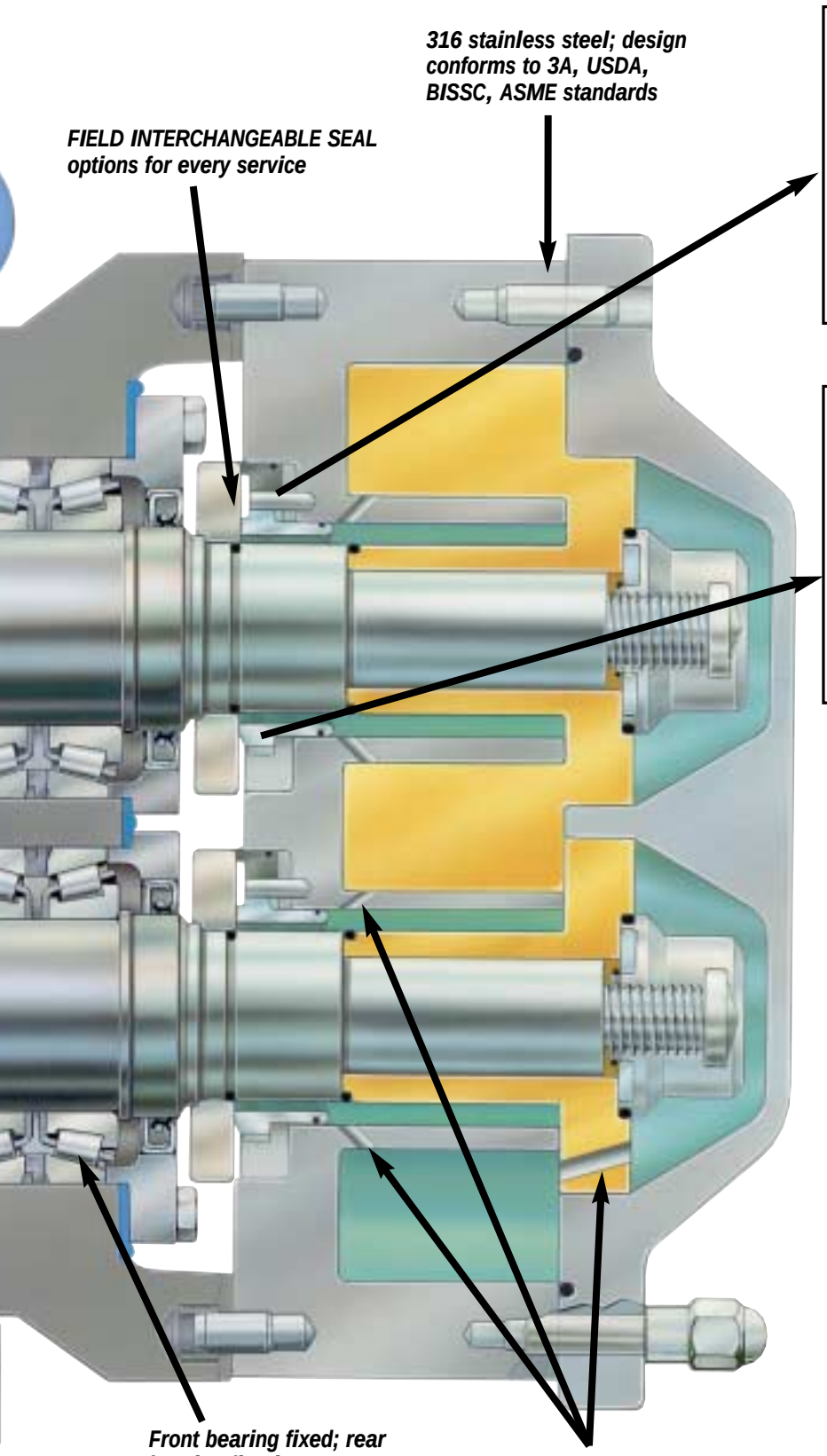
Longer service life *resulting from fresh engineering approach and high capacity components.*

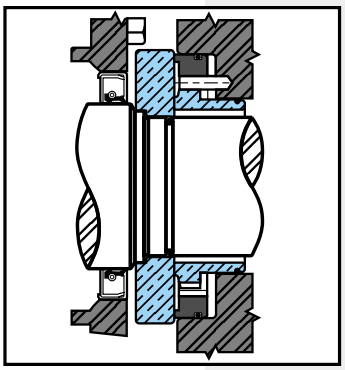
The right seal *for every application, plus interchangeability when needed.*

Metal rotor: *Waukesha "88" non-galling alloy, for close running clearance.*

*For higher pressures, consult the factory.

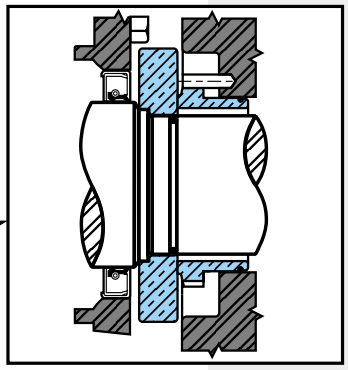
Seal Options





Double Concentric Mechanical Seal*

Used with flushing fluid to cool, lubricate, flush away residue. Best arrangement for severe service.



Single Mechanical Seal*

Carbon-to-ceramic faces standard. Alternate materials available for abrasive service.

Elastomer choices for "O" rings:

- *Buna-N*
- *Flurocarbon*
- *EPDM*
- *Silicone*
- *Kalrez®*
- *PTFE Encapsulated*

Mechanical seal material options:

- *Carbon*
- *Ceramic*
- *Silicon Carbide*
- *Tungsten Carbide*

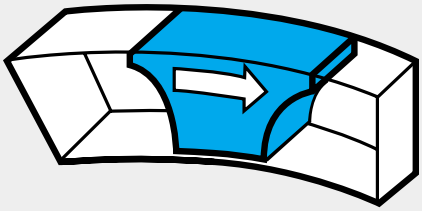
Universal II Series
Specifications

MODEL	DISPLACEMENT PER REVOLUTION	NOMINAL CAPACITY* TO	INLET/ OUTLET	OPTIONAL INLET/ OUTLET	PRESSURE RANGE UP TO**	MAXIMUM RPM	TEMP RANGE
006-U2	.0082 GAL. (.031 LITER)	8 GPM (1.8 m^3/hr.)	1"	1½"	300 PSI (20.7 bar)	1000	
015-U2	.0142 GAL. (.054 LITER)	11 GPM (2.5 m^3/hr.)	1½"	–	250 PSI (17.2 bar)	800	
018-U2	.029 GAL. (.110 LITER)	20 GPM (4.5 m^3/hr.)	1½"	2"	200 PSI (13.8 bar)	700	
030-U2	.060 GAL. (.227 LITER)	36 GPM (8.2 m^3/hr.)	1½"	2"	250 PSI (17.2 bar)	600	(-)40ÞF /C
045-U2	.098 GAL. (.371 LITER)	58 GPM (13.2 m^3/hr.)	2"	–	450 PSI (31.0 bar)	600	to
060-U2	.153 GAL. (.579 LITER)	90 GPM (20.4 m^3/hr.)	2½"	3"	300 PSI (20.7 bar)	600	300ÞF (149ÞC)
130-U2	.253 GAL. (.958 LITER)	150 GPM (34.1 m^3/hr.)	3"	–	200 PSI (13.8 bar)	600	
180-U2	.380 GAL. (1.438 LITER)	230 GPM (52.2 m^3/hr.)	3"	–	450 PSI (31.0 bar)	600	
210-U2	.502 GAL. (1.900 LITER)	300 GPM (68.1 m^3/hr.)	4"	–	500 PSI (34.5bar)	600	
220-U2	.521 GAL. (1.972 LITER)	310 GPM (70.4 m^3/hr.)	4"	–	300 PSI (20.7 bar)	600	
320-U2	.752 GAL. (2.847 LITER)	450 GPM (102 m^3/hr.)	6"	–	300 PSI (20.7 bar)	600	

*For capacities above 450 to 935 GPM, see bulletin FH-1725 on 420/520 UHC (ECP Rotors) and FH-1733 on 420/520 UHCL (Lobe Rotors).
**Contact application engineering for higher pressure or higher temperature applications.

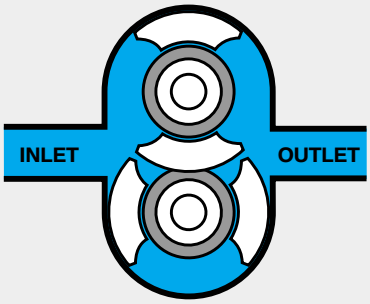
Time-tested Waukesha Cherry-Burrell rotary pump; circumferential-piston operating principle

In the Waukesha Cherry-Burrell design, arc-shaped “pistons” (rotor wings) travel in annular-shaped cylinders machined in the pump body; the resulting long sealing path reduces slippage and produces a smooth flow of product without destructive pulses or pressure peaks and without valves or complex parts.

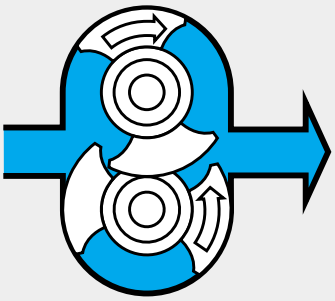


Exclusive Waukesha Cherry-Burrell design features

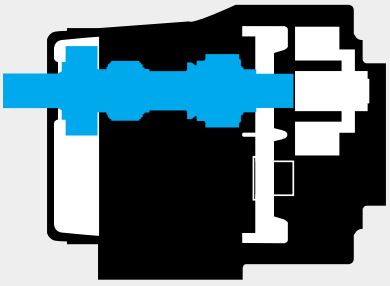
For Low Viscosity Fluids, Rotors, made of exclusive Waukesha “88” alloy, can be run with close clearance to the 316 stainless steel fluid head, without galling or seizing should inadvertent pressure surges cause contact. The close clearances combined with the rotor geometry, which gives a long sealing path between the pump inlet and outlet, means low slip operation. As a result, you achieve: high efficiency, good priming ability, metering capability and good flow control.



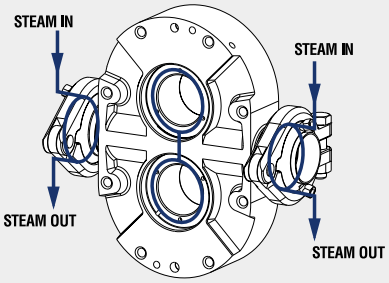
For High Viscosity Fluids, the large fluid cavities of the rotors ... plus the large, easy entry anti-cavitation ports ... allow efficient pumping of high viscosity fluids, slurries or even liquids with large chunks or particles.



For Non-Lubricating and Abrasive Fluids, the unique Waukesha Cherry-Burrell design has no bearings in the fluid being pumped, no sliding or rolling contact and no rotor-to-rotor contact. This produces MAXIMUM SERVICE LIFE even under severe operating conditions.

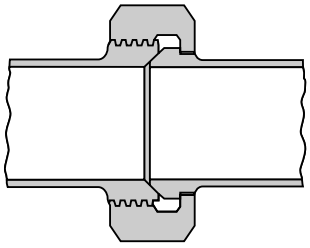


STANDARD OPTIONS

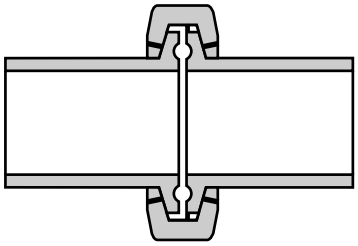


Ports

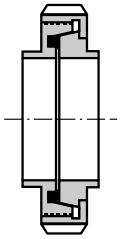
Optional aseptic ports



Bevel Seat Standard



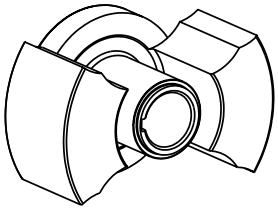
Optional Sanitary Clamp Type Variety of styles including S-Line, I-Line, Q-Line



Optional European Types; DIN, SMS, RJT

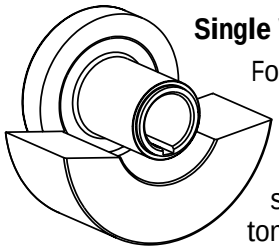
Male NPT and 150 lb. flanges optional on Models 006 through 220 size. 150 lb. flanges standard on Model 320. Contact factory for available rectangular flange inlets.

Rotors



Twin Wing

Standard; suitable for most applications.



Single Wing

For minimum breakage on fluids with discrete particles, such as diced tomato products. Available on 220 and 320.

Rotor Clearance

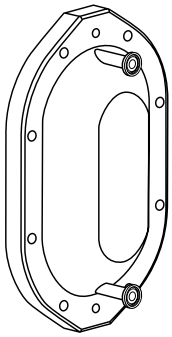
Standard for most applications up to 200°F. Hot clearance rotors option for applications up to 300°F. Other special clearances available.

O-Rings

Elastomer choices for "O" rings:

Standard	Optional	
• Buna-N	• Flurocarbon (FKM)	• Kalrez®
	• EPDM	• PTFE Encapsulates
	• Silicone	

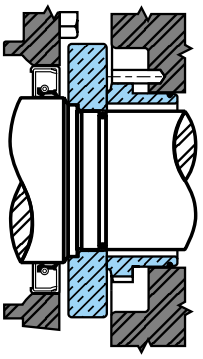
Cover & Gearcase



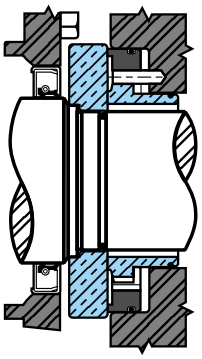
Optional drain and/or vent connections

Shown with optional 3-wing cover nuts

Seals



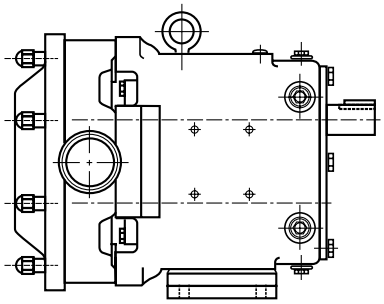
Single Mechanical Seal



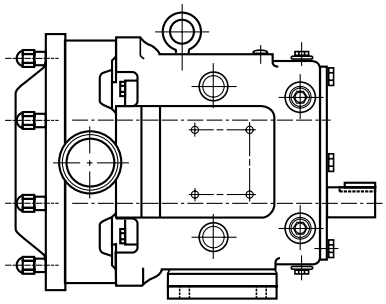
Double Concentric Mechanical Seal

Mechanical seal material options:
- Carbon
- Ceramic
- Silicon Carbide
- Tungsten Carbide

Shaft Position

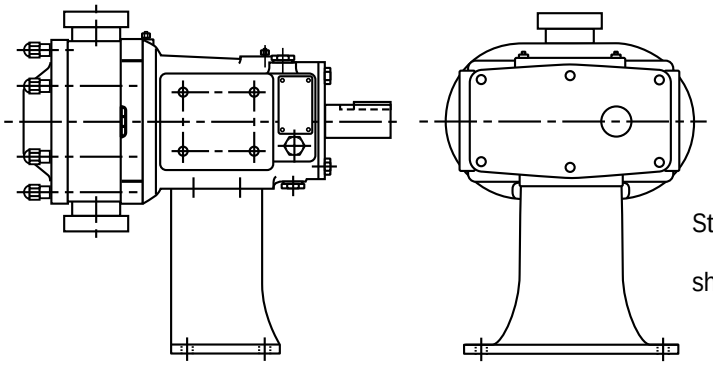


Top Shaft Position Standard



Lower Shaft Position Optional

Mounting



Standard left hand shaft position shown (right hand optional)

Optional Side Mount Gear Case for vertical fluid entry and free draining of body

Bases and Drives

- Plate with adjustable feet or Channel Bases
- 304 SS Plate Bases
- Portable Bases with Rubber Wheels
- Direct connected Gear Motors
- Mechanical and Electronic Variable Speed Drives
- Hydraulic Motor Drives

Engineering

Research, design and application engineers at Waukesha Cherry-Burrell possess extensive backgrounds in their respective fields. You can draw on this experience to solve pumping problems or to counsel on process systems design. The imagination and resourcefulness of our engineers have often helped improve our customers' profits through production efficiencies.

Testing

Ideas do not remain abstract long at Waukesha Cherry-Burrell. Application of our products to our customer's specific needs often requires practical testing using real-world parameters. We have a fully equipped and staffed facility for this purpose. For example, the Rheology Laboratory tests applications involving highly viscous fluids.

Sales & Service Network

Waukesha Cherry-Burrell's trained sales and application engineers are always available for personal consultation to help solve any installation or operational problem. A large number of fully trained Waukesha Cherry-Burrell stocking distributors throughout the country and around the world provide quality Waukesha Cherry-Burrell replacement parts and service.

Quality Control

To maintain the product line's reputation for quality and to assure that every unit is shipped "ready to install," each Waukesha pump is thoroughly inspected at every stage of manufacturing and assembly and then tested for design specification. Following the tests, it is disassembled and reinspected before shipment. ***Waukesha Cherry-Burrell has received ISO 9001 certification.***

Metallurgical Control

Waukesha Cherry-Burrell's reputation for pump reliability under severe operating conditions is directly related to carefully controlled casting production and consistency of metallurgical properties. It is this control that assures castings of uniform analysis that will perform dependably under all operating conditions.

Waukesha Cherry-Burrell Warranty

Seller warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. This warranty shall not apply to products which require repair or replacement due to normal wear and tear or to products which are subjected to accident, misuse or improper maintenance. This warranty extends only to the original Buyer. Products manufactured by others but furnished by Seller are exempted from this warranty and are limited to the original manufacturer's warranty.

Remanufacturing Policy

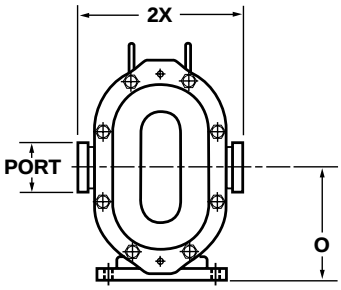
Waukesha Cherry-Burrell pumps are designed so that they may be factory remanufactured twice and backed with a new pump warranty each time.

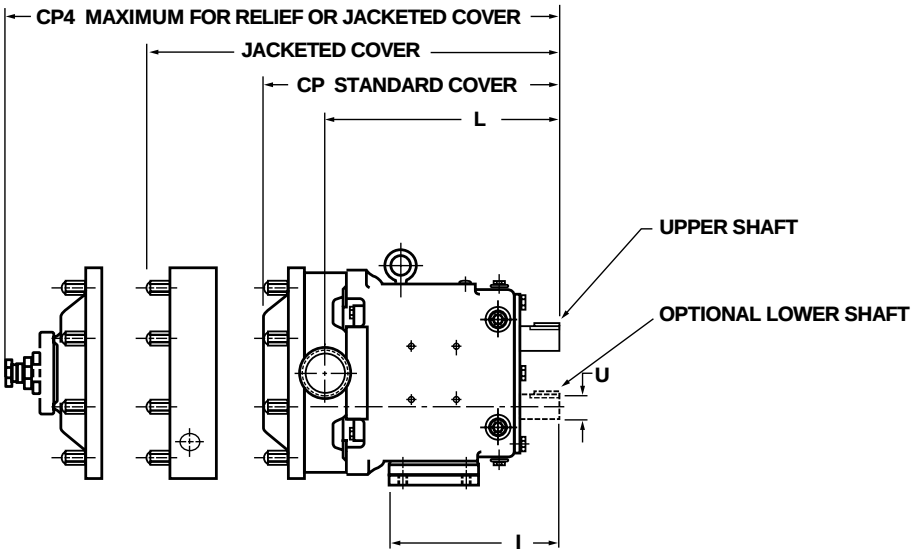
Factory remanufacturing involves replacement of all worn parts, such as shafts, bearings, oil seals, gears, etc. The pump body and cover are remachined. New standard, oversized rotors are installed. Pump rotor-to-body clearances are returned to the original specifications. The pumps are stamped R-1 or R-2, after the serial number, designating that they have been reconditioned once or twice.

Note: It is advisable to contact your local distributor and furnish the serial number of any pump being considered for remanufacturing.

Universal II Series

DIMENSIONS





PUMP MODEL		CP	I	L	O	PORT SIZE	U +.000 -.001	2X	CP4
006-U2	IN	11.71	7.66	9.61	4.21	1”	.875	6.97	14.92
	MM	297	194	244	107	–	22.23	177	379
015-U2	IN	11.71	7.66	9.61	4.21	1-1/2”	.875	6.97	14.92
	MM	297	194	244	107	–	22.23	177	379
018-U2	IN	12.37	7.66	10.48	4.21	1-1/2”	.875	6.97	15.58
	MM	314	194	266	107	–	22.23	177	396
030-U2	IN	14.49	8.83	11.61	5.21	1-1/2”	1.250	8.50	17.58
	MM	368	224	295	132	–	31.75	216	447
045-U2	IN	18.59	10.99	14.86	7.31	2”	1.625	10.75	22.28
	MM	472	279	377	186	–	41.28	273	566
060-U2	IN	19.14	10.99	15.14	7.31	2-1/2”	1.625	10.75	22.83
	MM	486	279	385	186	–	41.28	273	580
130-U2	IN	20.15	10.99	15.77	7.31	3”	1.625	10.75	23.84
	MM	512	279	401	186	–	41.28	273	606
180-U2	IN	23.26	14.80	18.25	9.38	3”	2.000	13.06	28.51
	MM	591	376	464	238	–	50.80	332	724
210-U2	IN	27.08	17.80	21.24	10.38	4”	2.375	14.73	–
	MM	688	452	539	264	–	60.45	374	–
220-U2	IN	24.00	14.80	18.49	9.38	4”	2.000	13.25	29.25
	MM	610	376	470	238	–	50.80	337	743
320-U2	IN	27.66	17.80	21.63	10.38	6 150# FLG	2.375	16.00	–
	MM	703	452	549	264	–	60.45	406	–

NOTE: Dimension “2X” applies for Bevel Seat, “S”-Clamp, “Q”-Clamp, 15I and 14I fittings on Models 006 through 220.
Dimension “2X” applies for 6” 150 lb. RF Flange on Model 320.
Consult factory for available rectangular flange inlets.

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Waukesha Cherry-Burrell®

ISO 9001 CERTIFIED

3A®

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