

Universal SP Series ECP Pumps

SP-U2, SP-5000, SP-420/520



Uniquely designed and engineered specifically for the pulp and paper industry.

For more than half a century, Waukesha Cherry-Burrell has been a leader in the design, manufacture and application of external circumferential, piston (ECP) style, rotary positive displacement pumps. Waukesha Cherry-Burrell PD pumps are in thousands of challenging chemical and industrial applications.

The Waukesha ECP positive displacement pump offers a number of unique advantages. The pump will handle settled slurries that jam up lobe pumps or progressing cavity pumps with ease. The pump imparts very low shear forces to the pumped product, far lower shear than lobe pumps or progressive cavity pumps. The pump is designed for 300° F and is not damaged by hot products. If we flush the mechanical seal, the pump can run dry forever as there is no internal contact.

The Waukesha ECP positive displacement pump has features the paper industry has demanded for a long time.

Features

- **316 stainless steel pump body and cover.**
- **Pumps with water flush seals will run dry indefinitely w/ water.**
- **Up to 500 (34.5 bar) psi pressure capability.**
- **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 on SP-U2 and SP-420/520.
- **Heavy duty bearing frame.**
- **Double tapered roller bearings on all models.** Contribute further to precise rotor position and longer seal life.
- **Grease lubed bearings** for positive lubrication to all bearings over entire speed, temperature and pressure range.
- **Operates up to 300°F** capacity upon application.
- **No internal rotor contact** eliminates need to rely on pump fluid as a lubrication.
- **NPT or ANSI flange configuration available.**

Installation Flexibility

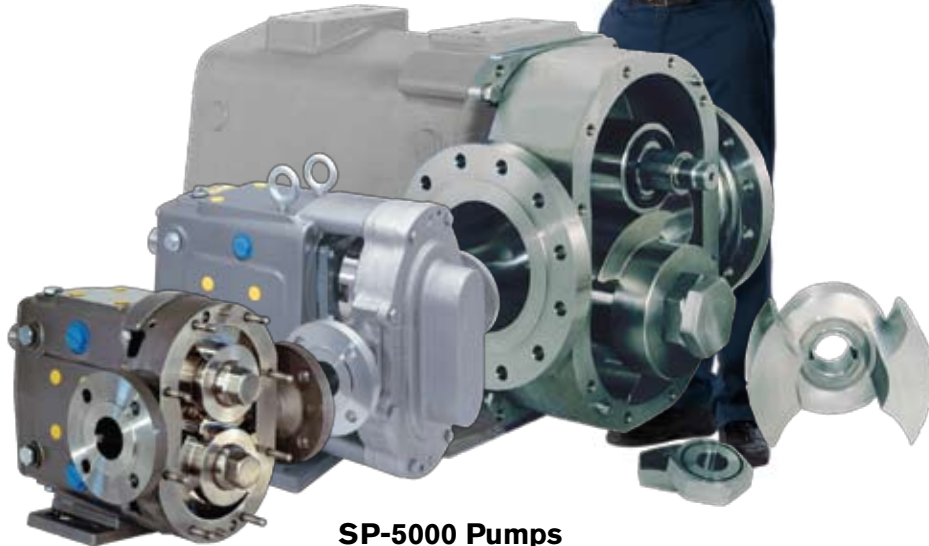
- **Bi-directional flow.** Rotors rotate securely in either direction, locked with belleville washers and torqued nuts.
- **Versatile 3-Way mounting** of gear case, including vertical alignment of ports on SP-U2 and SP-5000.
- **Upper or lower drive shaft position.**

Typical product applications

Coating Pigments
Polymers
Starch Slurry
GCC Fillers
PCC Fillers
TiO₂ Fillers
Kaolin
Cooked Starch
Emulsions
Resins
Retention Aids
TiO₂ Slurry
Specialty Chemicals

SP-420/520 UHC pumps

(6" and 8") for high-volume capacities up to 830 GPM (187 m³/hr)



SP-5000 Pumps

(1.5" to 6") for pressures up to 200 psi (13.8 bar).

SP-U2 Pumps

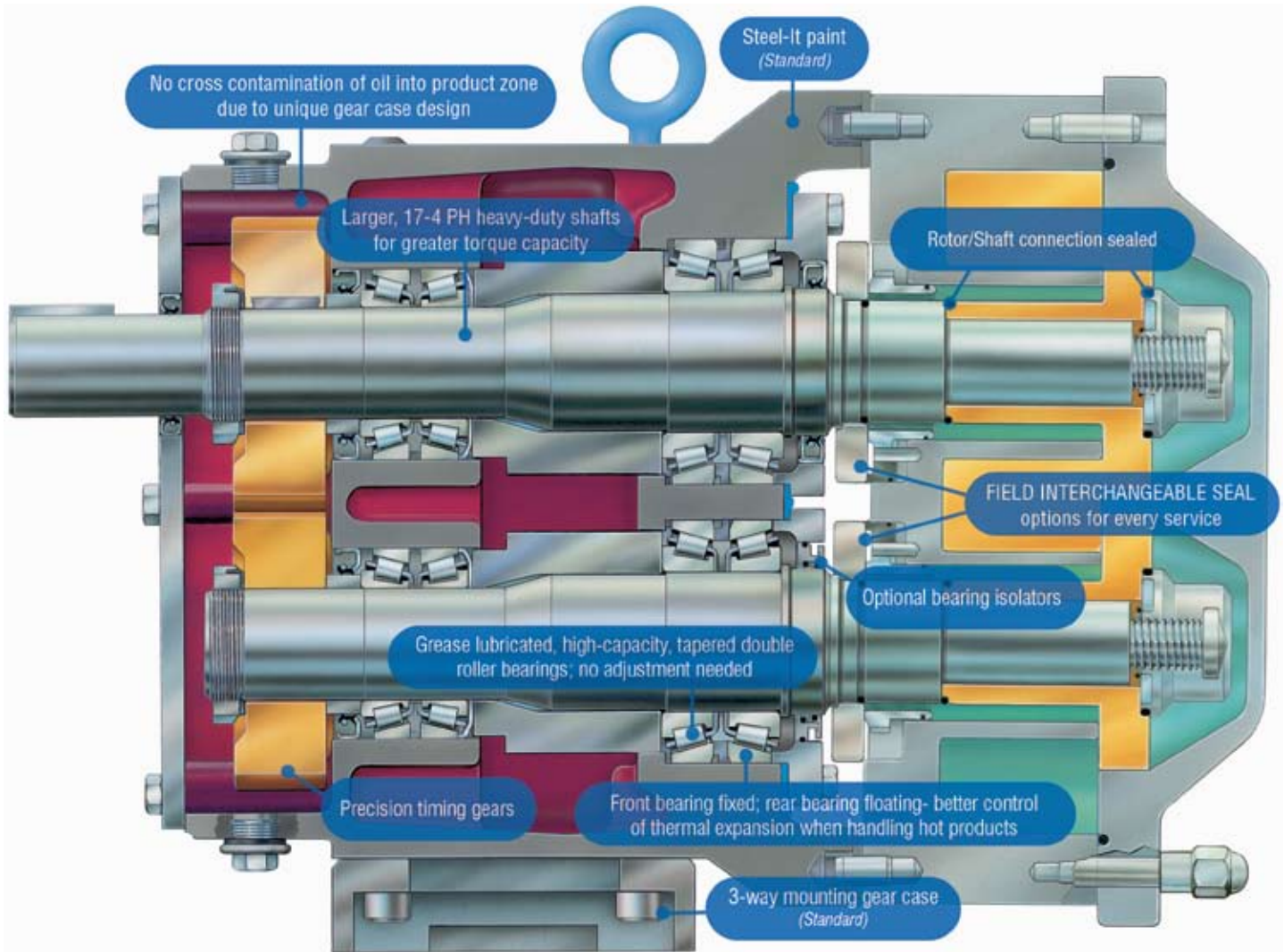
(1" to 6") for pressures up to 500 psi (34.4 bar).

Benefits of Universal SP Series

- Pumps with water flushed seals can run dry indefinitely
- Pumps filled with settled slurries will start without damaging pump or seals
- Will not damage shear sensitive products
- Smooth pulsation free flow
- No internal rotor contact
- Requires less horsepower than Progressing Cavity Pumps
- Shaft timing is not critical like on lobe pump designs
- No cross contamination of oil into product zone due to unique gear case design



Performance and long life through engineering.



High pressure capability:

SP-U2 - Up to 500 psi/34 bar*, for more demanding jobs.

*For higher pressures, consult the factory.

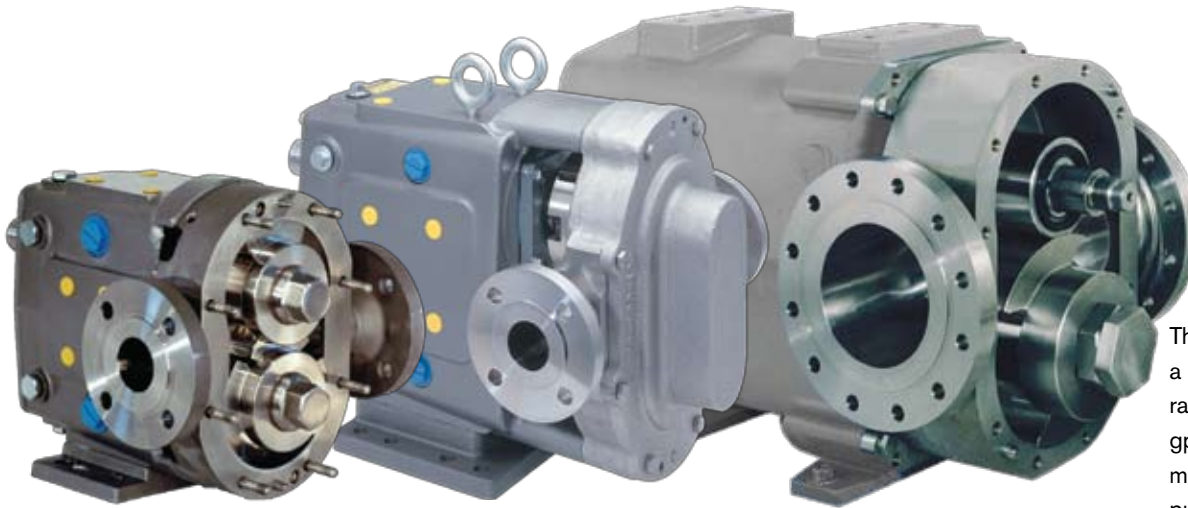
SP-420/520 UHC - 6" & 8" for high volume capacity up to 830gpm (187 m³/hr)
Pressure capacity 200psi/13.7bar

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

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

SP-5000 - Commercial Mechanical Seals or packing available.

Specifications



The SP Series covers a range of nominal flow rates from 7 gpm to 830 gpm and at 100 CC per minute the SP series pump can be used as a metering pump!

New levels of performance

MODEL	DISPLACEMENT PER REVOLUTION	NORMAL CAPACITY TO:	INLET/OUTLET	PRESSURE RANGE**	MAXIMUM RPM***	APPLICABLE WEIGHTS
SP-U2-006	.0082 GAL. (.031 LITER)	8 GPM (1.8 m ³ /hr.)	1"	300 PSI (20.7 bar)	1000	55 lbs.
SP-U2-015	.014 GAL. (.054 LITER)	11 GPM (2.5 m ³ /hr.)	1.5"	250 PSI (17.2 bar)	800	60 lbs.
SP-U2-018	.029 GAL. (.110 LITER)	20 GPM (4.5 m ³ /hr.)	1.5"	200 PSI (13.8 bar)	700	60 lbs.
SP-U2-030	.060 GAL. (.227 LITER)	36 GPM (8.2 m ³ /hr.)	1.5"	250 PSI (17.2 bar)	600	120 lbs.
SP-U2-040	.076 GAL. (.228 LITER)	46 GPM (10.4 m ³ /hr.)	2"	150 PSI (10.50 bar)	600	120 lbs.
SP-U2-045	.098 GAL. (.371 LITER)	58 GPM (13.2 m ³ /hr.)	2"	450 PSI (31.0 bar)	600	120 lbs.
SP-U2-060	.153 GAL. (.579 LITER)	90 GPM (20.4 m ³ /hr.)	2.5"	300 PSI (20.7 bar)	600	270 lbs.
SP-U2-130	.253 GAL. (.958 LITER)	150 GPM (34.1 m ³ /hr.)	3"	200 PSI (13.8 bar)	600	300 lbs.
SP-U2-180	.380 GAL. (1.438 LITER)	230 GPM (52.2 m ³ /hr.)	3"	450 PSI (31.0 bar)	600	505 lbs.
SP-U2-210	.502 GAL. (1.900 LITER)	300 GPM (68.1 m ³ /hr.)	4"	500 PSI (34.5 bar)	600	505 lbs.
SP-U2-220	.521 GAL. (1.972 LITER)	310 GPM (70.4 m ³ /hr.)	4"	300 PSI (20.7 bar)	600	505 lbs.
SP-U2-320	.752 GAL. (2.847 LITER)	450 GPM (102 m ³ /hr.)	6"	300 PSI (20.7 bar)	600	850 lbs.
SP-U2-370	1.099 GAL. (4.160 LITER)	660 GPM (150 m ³ /hr.)	6"	200 PSI (13.8 bar)	600	1000 lbs.
SP-420 UHC	1.619 GAL. (6.13 LITER)	648 GPM (147 m ³ /hr.)	6"	200 PSI (13.8 bar)	400	2595 lbs.
SP-520 UHC	2.375 GAL. (8.99 LITER)	830 GPM (187 m ³ /hr.)	8"	150 PSI (10.3 bar)	350	2905 lbs.
SP-5040	0.060 GAL. (0.227 LITER)	36 GPM (8.2 m ³ /hr.)	1.5"	200 PSI (13.8 bar)	600	135 lbs.
SP-5050	0.153 GAL. (0.579 LITER)	90 GPM (20.4 m ³ /hr.)	2"	200 PSI (13.8 bar)	600	275 lbs.
SP-5060	0.254 GAL. (0.961 LITER)	150 GPM (34.1 m ³ /hr.)	2.5"	200 PSI (13.8 bar)	600	285 lbs.
SP-5070	0.440 GAL. (1.666 LITER)	260 GPM (59.1 m ³ /hr.)	4"	200 PSI (13.8 bar)	600	575 lbs.
SP-5080	0.754 GAL. (2.854 LITER)	450 GPM (102 m ³ /hr.)	6"	200 PSI (13.8 bar)	600	940 lbs.

Temperature Range for all models ranges from (-)40OF/C to 300OF (149OC)

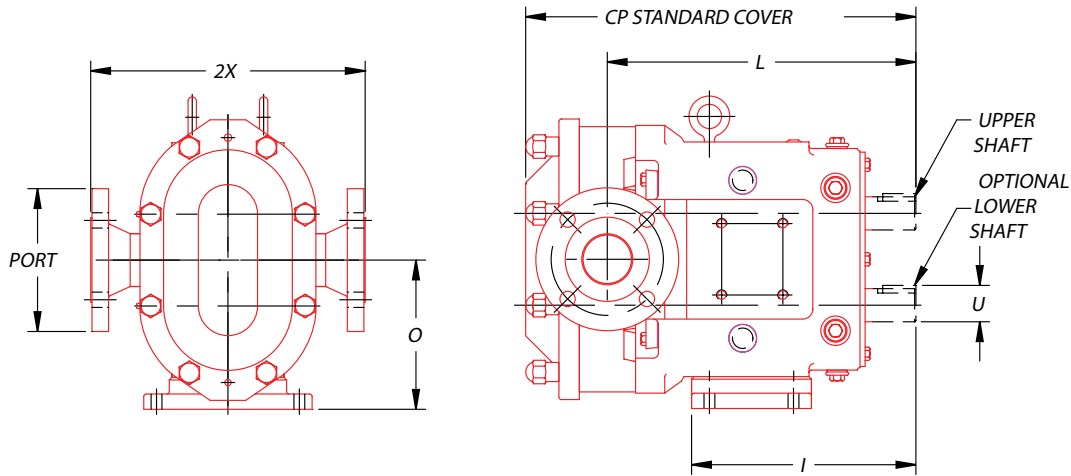
* Optional Inlet and Outlet available for SP-5040 (2"), SP-5050 (2.5"), and SP-5060 (3")

** Contact Application Engineering for higher pressure or higher temperature applications.

*** Actual Max RPM is fluid dependant based on testing at SPX Testing Lab

Specifications

SP-U2



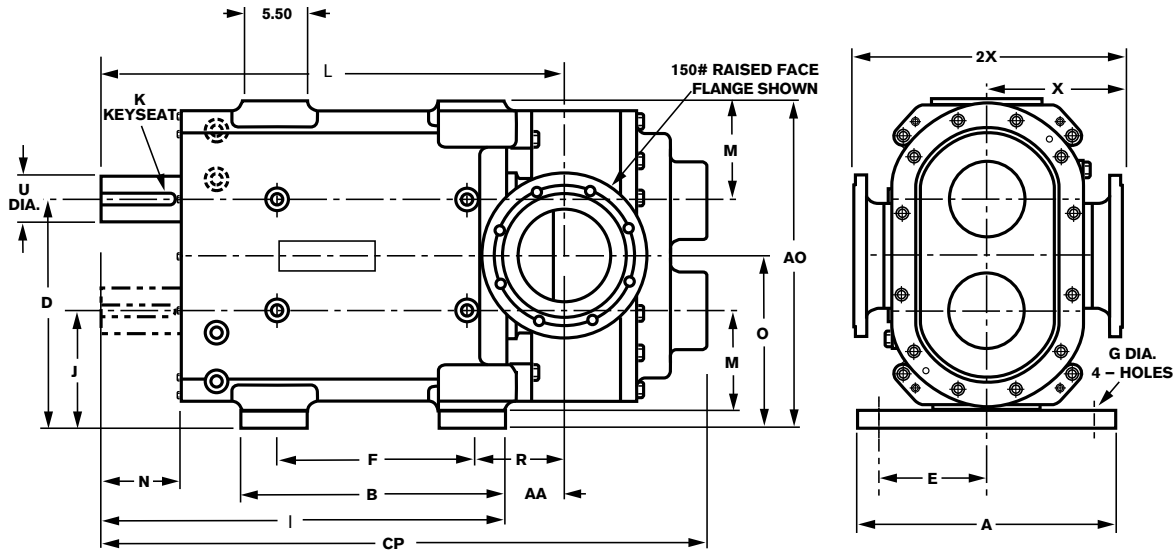
MODEL		CP	I	L	O	PORT SIZE	U +.000 -.001	2X	CP4
006-U2	IN	11.71	7.66	9.61	4.21	1"	.875	6.97	14.92
	mm	297	194	244	107	--	22.23	177	379
015-U2	IN	11.71	7.66	9.61	4.21	1-1/2"	.875	6.97	14.92
	mm	297	194	244	107	--	22.23	177	379
018-U2	IN	12.37	7.66	10.48	4.21	1-1/2"	.875	6.97	15.58
	mm	314	194	266	107	--	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
040-U2	IN	14.87	8.83	11.77	5.21	2"	1.25	8.62	14.87
	mm	378	224	305	132	-----	31.75	219	378
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	7.312	3"	1.625	10.75	23.84
	mm	512	279	401	186	--	41.28	276	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	27.08
	mm	688	452	539	264	-----	60.45	374	688
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	27.66
	mm	703	452	549	264	--	60.45	406	703
370-U2	IN	29.16	17.80	22.32	10.38	6 150# FLG	2.38	17.00	29.16
	mm	741	452	567	264	---	60.5	432	741

* Listed capacity and maximum rpm for intermittent duty only.

Consult Waukesha Cherry-Burrell technical services for recommendations on your pumping requirements.

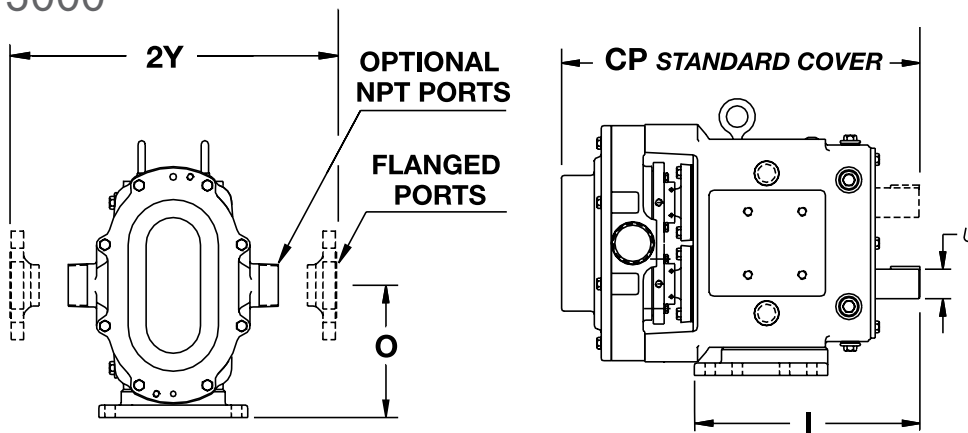
Specifications

SP-420/520 UHC



MODEL		A	AA	AO	B	CP	D	E	F	G	I	J	K	L	M	N	O	R	U	X	2X	
420-UHC	IN	21.00	5.60	27.25	22.00	49.60	18.75	9.00	16.50	1.06	33.60	9.75	1.00	39.19	8.50	6.04	14.25	8.35	3.875	11.25	22.50	ANSI 6"
520-UHC	IN	21.00	5.95	27.25	22.00	51.47	18.75	9.00	16.50	1.06	33.60	9.75	1.00	39.55	8.50	6.04	14.25	8.70	3.875	11.25	22.50	ANSI 8"

SP-5000



MODEL		CP	I	O	PORT SIZE	U +0.000 -0.001	2Y	WEIGHT	
								LBS	KG
5040	IN	16.52	8.83	5.21	1-1/2" - 150# Flange	1.250	11.91	100	45
	mm	419	224	132	--	31.75	303		
5050	IN	19.83	12.49	7.31	2" - 150# Flange	1.625	13.25	240	109
	mm	504	317	186	--	41.28	337		
5060	IN	20.78	12.49	7.31	2-1/2" - 150# Flange	1.625	13.50	245	111
	mm	528	317	186	--	41.28	343		
5070	IN	26.31	15.29	9.38	4" - 150# Flange	2.000	14.75	475	215
	mm	668	388	238	--	50.80	375		
5080	IN	30.17	17.80	10.38	6" - 150# Flange	2.375	16.00	810	367
	mm	766	452	264	--	60.33	406		

Time-tested Waukesha Cherry-Burrell rotary pump; external circumferential piston (ECP) operating principle

In the WCB 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.

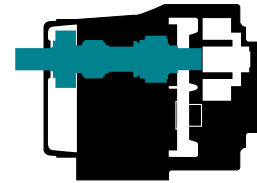
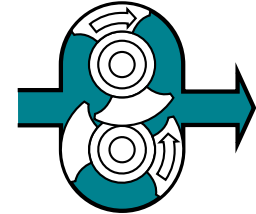
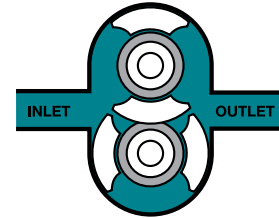
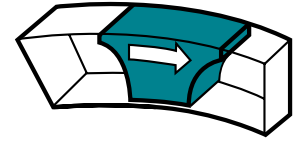
Exclusive Waukesha Cherry-Burrell design features

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 volumetric efficiency 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 WCB 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.

Resuspending solids/slurries. When slurries settle to the bottom of lobe or progressing cavity pumps, many will jam the pump when you attempt to restart it. The unique shape of the Waukesha rotor will resuspend the slurry and with hardly a pulse. Ask for our CD ROM "Waukesha Cherry-Burrell Benefitting the Pulp and Paper Industry" which clearly demonstrates the difference.



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For more information about our worldwide locations, approvals, certifications, and local representatives, please visit www.gowcb.com or www.spxft.com

SPX Corporation reserves the right to incorporate our latest design and material changes without notice or obligation.

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