



**Waukesha  
Cherry-Burrell**

**PULP & PAPER**

**INDUSTRY**

**SP-U2**

**SP-420/520 UHC**

**SP-5000**



**ROTARY POSITIVE DISPLACEMENT PUMPS**

**SP SERIES**

# 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, manufacturing 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.**

# Universal SPU2 Series



SP-420/520 UHC pumps  
(6" and 8") for high-volume  
capacities up to 830 GPM  
(187 m<sup>3</sup>/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  
450 psi (31.0 bar).

## Typical Product Applications

**Coating Pigments**

**Polymers**

**Starch Slurry**

**GCC Fillers**

**PCC Fillers**

**TiO<sub>2</sub> Fillers**

**Kaolin**

**Cooked Starch**

**Emulsions**

**Resins**

**Retention Aids**

**TiO<sub>2</sub> Slurry**

**Specialty Chemicals**

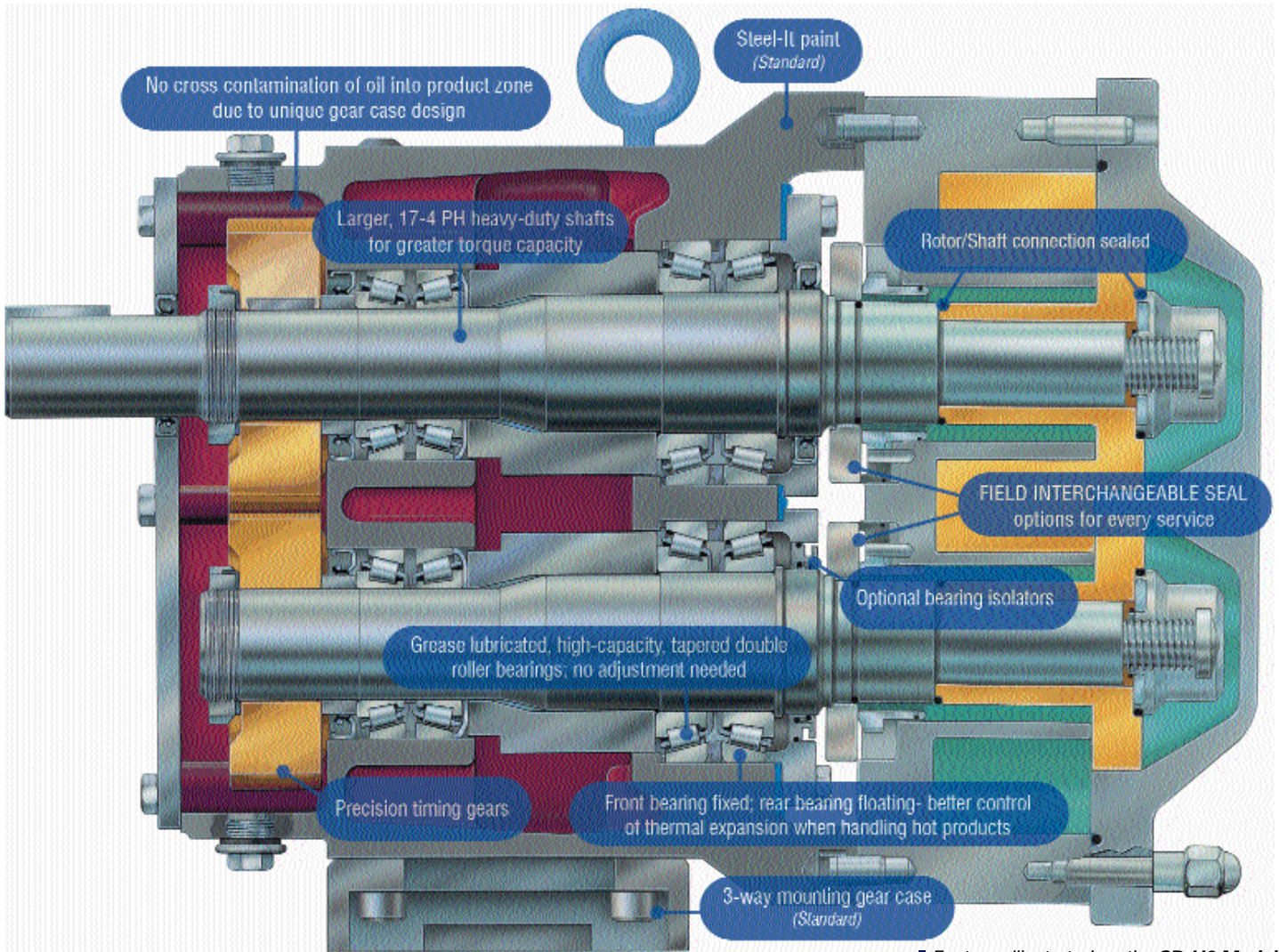
## Benefits of Universal SP Series

- *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.



■ Features illustrated on the **SP-U2 Model**

**High pressure capability:**

SP-U2 - Up to 450 psi/31 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 m<sup>3</sup>/hr)  
Pressure capacity 200psi/13.7bar

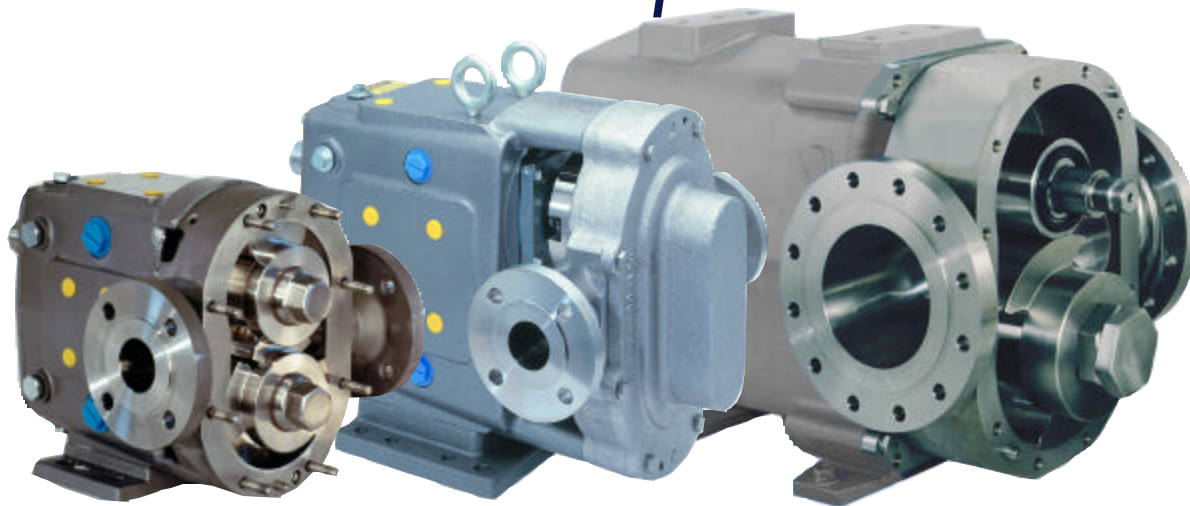
The right seal material for every application, plus interchangeability when needed.

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

SP-5000 - Commercial Mechanical Seals or packing available.

# Universal SPU2 Series Specifications

## New levels of performance



■ 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!

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 <sup>3</sup> /hr.)	1"	300 PSI (20.7 bar)	1000	55 lbs
SP-U2 015	.014 2GAL. (.054 LITER)	11 GPM (2.5 m <sup>3</sup> /hr.)	1.5"	250 PSI (17.2 bar)	800	60 lbs
SP-U2 018	.029 GAL. (.110 LITER)	20 GPM (4.5 m <sup>3</sup> /hr.)	1.5"	200PSI (13.8 bar)	700	60 lbs
SP-U2 030	.060 GAL. (.227 LITER)	36 GPM (8.2 m <sup>3</sup> /hr.)	1.5"	250 PSI (17.2 bar)	600	120 lbs
SP-U2 045	.098 GAL. (.371 LITER)	58 GPM (13.2 m <sup>3</sup> /hr.)	2"	450 PSI (31.0 bar)	600	120 lbs
SP-U2 060	.153 GAL. (.579 LITER)	90 GPM (20.4 m <sup>3</sup> /hr.)	2.5"	300 PSI (20.7 bar)	600	270 lbs
SP-U2 130	.253 GAL. (.958 LITER)	150 GPM (34.1 m <sup>3</sup> /hr.)	3"	200 PSI (13.8 bar)	600	300 lbs
SP-U2 180	.380 GAL. (1.438 LITER)	230 GPM (52.2 m <sup>3</sup> /hr.)	3"	450 PSI (31.0 bar)	600	505 lbs
SP-U2 220	.521 GAL. (1.972 LITER)	310 GPM (70.4 m <sup>3</sup> /hr.)	4"	300 PSI (20.7 bar)	600	505 lbs
SP-U2 320	.752 GAL. (2.847 LITER)	450 GPM (102 m <sup>3</sup> /hr.)	6"	300 PSI (20.7 bar)	600	850 lbs
SP-420 UHC	1.619 GAL. (6.13 LITER)	648 GPM (147 m <sup>3</sup> /hr.)	6"	200 PSI (13.8 bar)	400	2595 lbs
SP-520 UHC	2.375 GAL. (8.99 LITER)	830 GPM (187 m <sup>3</sup> /hr.)	8"	150 PSI (10.3 bar)	350	2905 lbs
SP-5040	0.060 GAL. (0.227 LITER)	36 GPM (8.2 m <sup>3</sup> /hr.)	1.5"	200 PSI (13.8 bar)	600	135 lbs
SP-5050	0.153 GAL. (0.579 LITER)	90 GPM (20.4 m <sup>3</sup> /hr.)	2"	200 PSI (13.8 bar)	600	275 lbs
SP-5060	0.254 GAL. (0.961 LITER)	150 GPM (34.1 m <sup>3</sup> /hr.)	2.5"	200 PSI (13.8 bar)	600	285 lbs
SP-5070	0.440 GAL. (1.666 LITER)	260 GPM (59.1 m <sup>3</sup> /hr.)	4"	200 PSI (13.8 bar)	600	575 lbs
SP-5080	0.754 GAL. (2.854 LITER)	450 GPM (102 m <sup>3</sup> /hr.)	6"	200 PSI (13.8 bar)	600	940 lbs

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

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

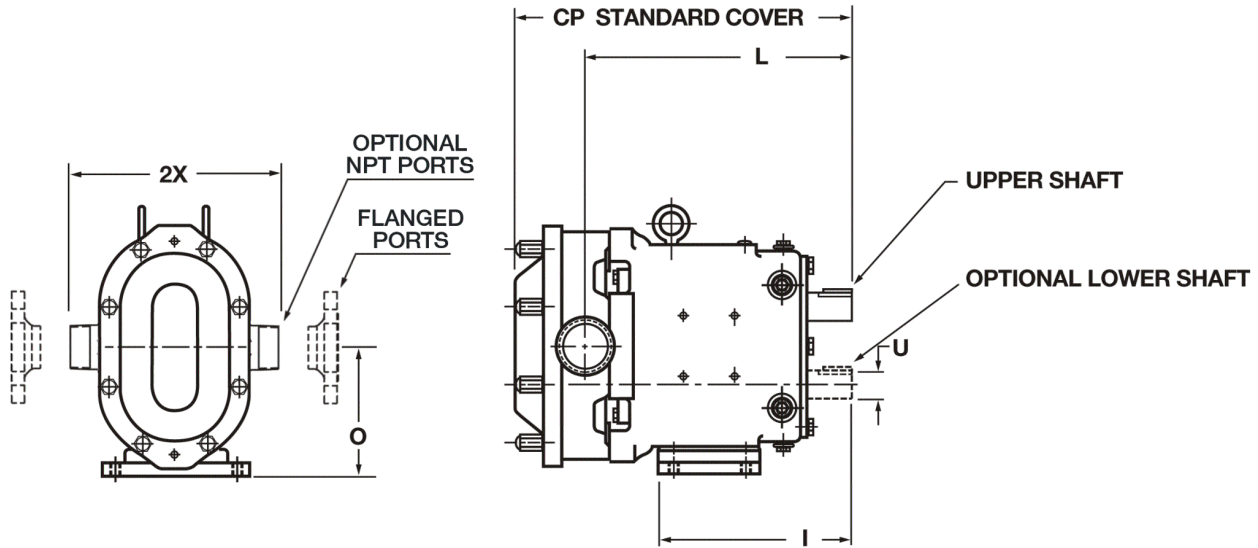
\*\* Contact Application Engineering for higher pressure or higher temperature applications.

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

# Universal SP Series

## SP-U2

# D I M E N



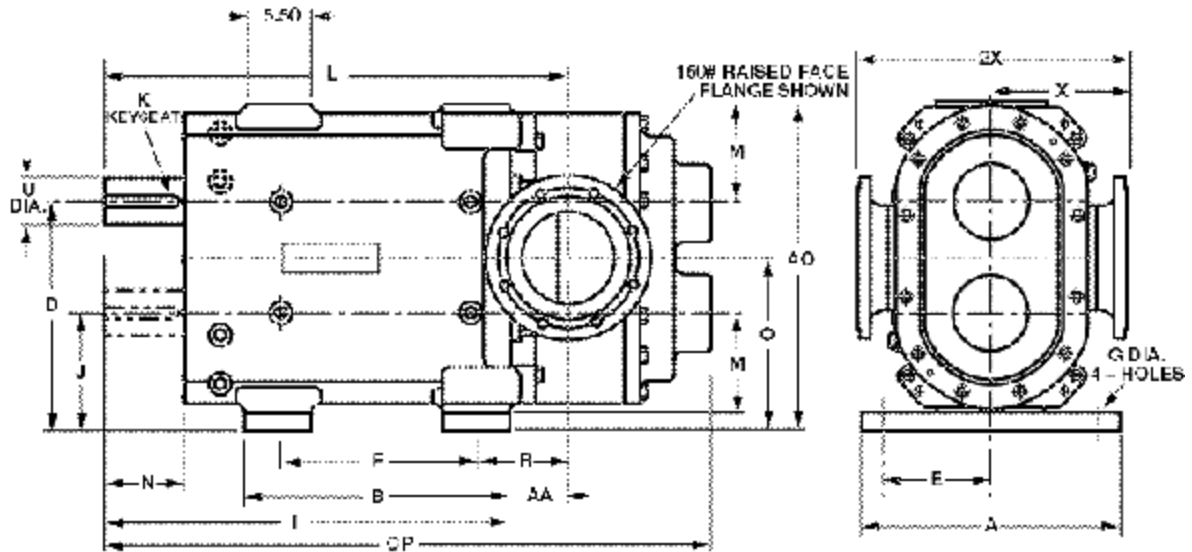
PUMP MODEL		CP	I	L	O	PORT SIZE	U +.000 -.001	2X	CP4
006-U2	IN	11.71	7.66	9.61	4.21	1"	.875	6.97	14.92
	MM	297	194	244	107	-	22.23	177	379
015-U2	IN	11.71	7.66	9.61	4.21	1-1/2"	.875	6.97	14.92
	MM	297	194	244	107	-	22.23	177	379
018-U2	IN	12.37	7.66	10.48	4.21	1-1/2"	.875	6.97	15.58
	MM	314	194	266	107	-	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, 15l and 14l 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.



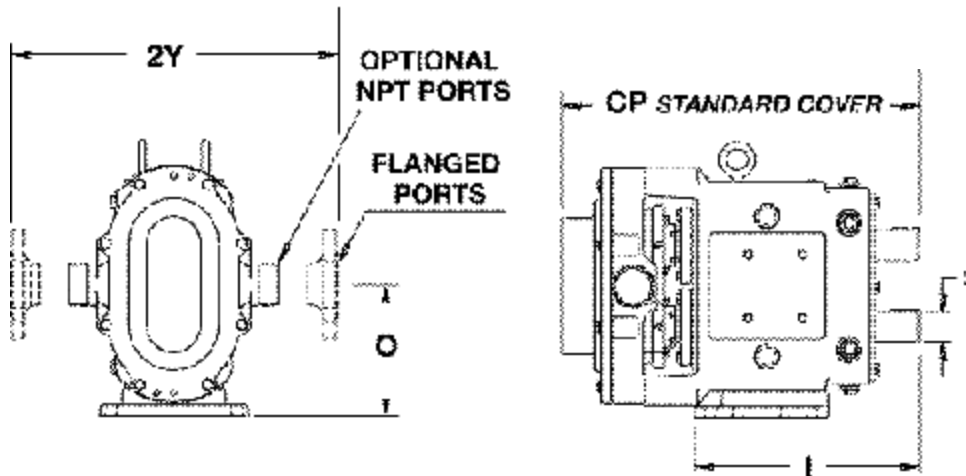
# S I O N S

## 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	FLANGE SIZE
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
423-UHC	MM	533.4	142.7	692.2	558.8	1259.8	476.2	228.6	419.1	26.92	853.4	247.6	25.4	995.4	215.9	153.4	362	212.1	98.42	285.7	571.5	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
523-UHC	MM	533.4	151.1	692.2	558.8	1307.3	476.2	228.6	419.1	26.92	853.4	247.6	25.4	1004.6	215.9	153.4	362	221.0	98.42	285.7	571.5	8"

## SP-5000



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

## 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.

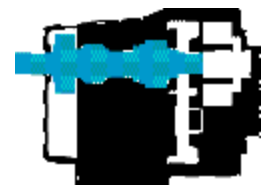
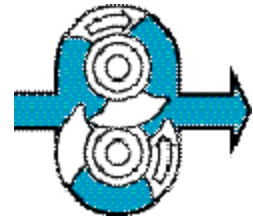
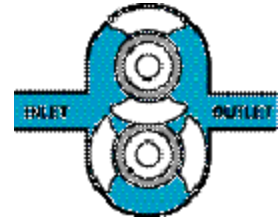
### Exclusive Waukesha Cherry-Burrell design features

**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.



Other excellent **SPX** brands available to assist the Pulp and Paper Processor:



Visit our website at [www.spxprocessequipment.com](http://www.spxprocessequipment.com) or ask your SPX Process Equipment Sales Representative for additional information.



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