



Sanitary Centrifugal Pumps

Ws+ Self-Priming Pumps



THE WILLIAMS - CARVER COMPANY, INC.

4001 MISSION RD P.O. BOX #3140

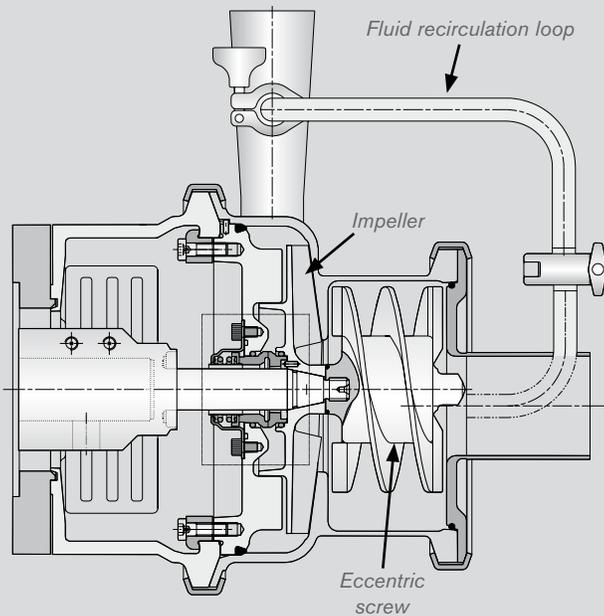
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New revolutionary technology

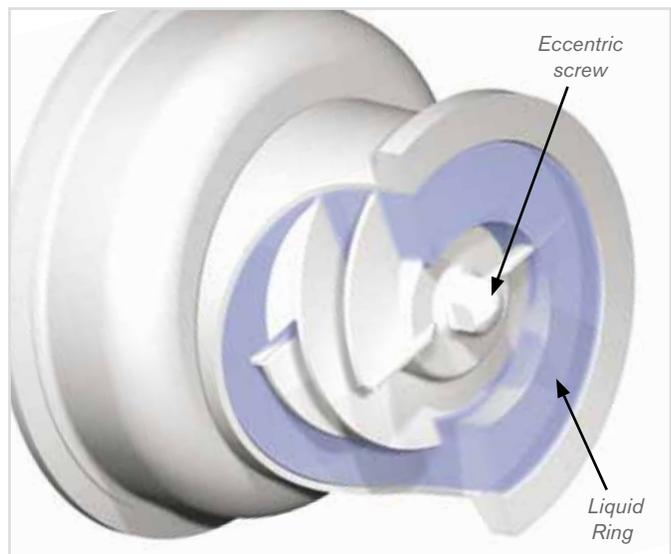


The APV Ws+ uses a unique design that combines the abilities of most liquid ring pumps with the efficiencies of the W+ centrifugal series. As a result customers can now handle entrained air and lift requirements with lower horsepower, less noise and at lower cost.

The Ws+ employs a unique eccentric screw and recirculation loop to generate the liquid ring required to handle aerated product and produce a vacuum. The design allows the use of standard centrifugal components to match the pump to a specific duty point to produce efficiencies previously unobtainable with liquid rings. Impellers can be trimmed to further reduce horsepower requirements. The result is higher efficiency, decreased power consumption, simpler components and less noise.

Features and Benefits

- **Ideal for CIP Return:** The ability to pump both fluid and entrained gas makes the Ws+ ideal for difficult CIP return applications
- **Extremely Clean Design:** Authorized to carry the 3-A symbol per Sanitary Standard 02-10. Certified by the European Hygienic Equipment Group. Can be used for product as well as CIP.
- **Higher Efficiency:** The efficiency is 25-90% higher than other self-priming pumps. Performance is similar to the W+ centrifugal series due to the ability to match impeller size to required duty.
- **Noise Reduction:** Has demonstrated noise reductions to 75% over other liquid ring pumps.
- **Parts Interchangeability:** Shares most wear parts with W+ centrifugal series. Commonality of shaft seals and o-rings reduces inventory.
- **Particle Friendly Design:** Because of the open impeller design, small objects can pass through the pump with minimal damage.

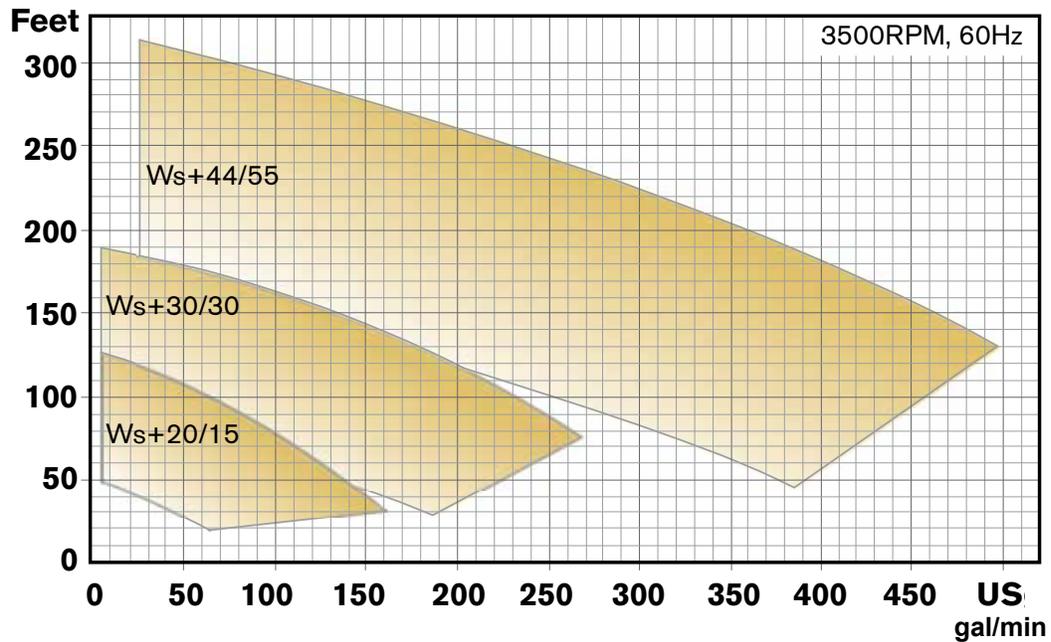


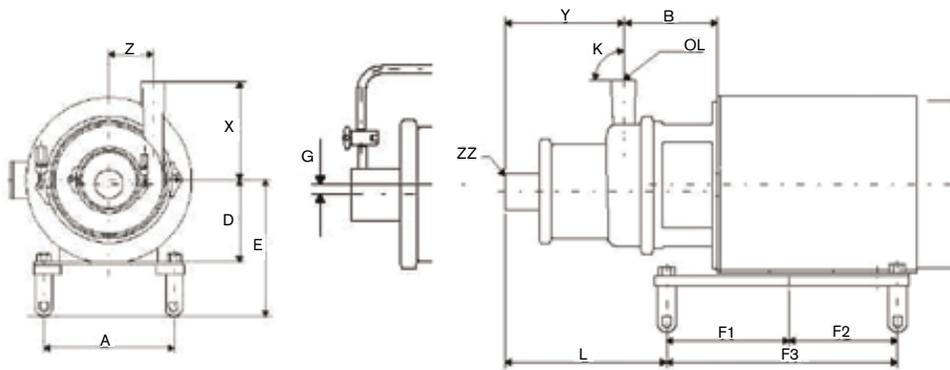
Eccentric screw forms liquid ring

Pump Specifications

Materials	
Casing	SS 316L
Front Cover	SS 316L
Impeller	SS 316L
Air Screw and Recirculation Pipe	SS 316L
Back plate	SS 316L
Shaft	SS 316L
Clamp rings	SS 304
Adaptor	SS 304
Support	SS 304
Shaft seal	Carbon/Silicon Carbide Optional: Silicon Carbide/Silicon Carbide
Elastomers	FKM Optional: EPDM
Port connections	
S-Line connections are standard. Bevel seat, I-line, ISO and other standard fittings are available as well as special aseptic connections for sterile flushing of Wa+.	
Motor	
TEFC or Washdown enclosures available. Energy-efficient, Chem-duty, Explosion Proof and stainless steel also available, as well as single phase or three phase, 60 or 50 Hertz.	

Composite performance curves (60 Hz)





All dimensions in inches

Pump	Motor frame	B	ZZ	OL	Y	F1	F2	F3	L	Z	X	D	A	E	G	K
Ws+20/15	182 TC	7.00	2.5	2	7.48	4.01	4.49	8.50	14.13	2.60	8.46	4.49	9.01	7.17	0.32	90°
	184 TC	7.00	2.5	2	7.48	4.01	5.51	9.53	14.13	2.60	8.46	4.49	9.01	7.17	0.32	
	213 TC	7.00	2.5	2	7.48	4.01	5.51	9.53	15.04	2.60	8.46	5.24	10.51	7.91	0.32	
	215 TC	7.00	2.5	2	7.48	2.52	7.00	9.53	16.54	2.60	8.46	5.24	10.51	7.91	0.32	
Ws+30/30	213 TC	6.14	2.5	2	7.60	4.01	5.51	9.53	14.29	3.27	9.05	5.24	10.51	7.91	0.39	90°
	215 TC	6.14	2.5	2	7.60	2.52	7.00	9.53	15.79	3.27	9.05	5.24	10.51	7.91	0.39	
	254 TC	6.77	2.5	2	7.60	0	8.27	8.27	19.13	3.27	9.05	6.26	12.52	8.62	0.39	
	256 TC	6.77	2.5	2	7.60	0	10.00	10.00	19.13	3.27	9.05	6.26	12.52	8.62	0.39	
Ws+44/50	254 TC	7.28	3	2	9.88	0	8.27	8.27	24.80	3.94	8.66	6.26	12.52	8.62	0.51	90°
	256 TC	7.28	3	2	9.88	0	10.00	10.00	24.80	3.94	8.66	6.26	12.52	8.62	0.51	
	284 TC	6.61	3	2	9.88	0	9.49	9.49	24.13	3.94	8.66	7.00	14.02	9.37	0.51	
	286 TC	6.61	3	2	9.88	0	10.98	10.98	24.13	3.94	8.66	7.00	14.02	9.37	0.51	
	324 TC	7.68	3	2	9.88	0	10.51	10.51	25.67	3.94	8.66	8.00	15.98	10.35	0.51	
	326 TC	7.68	3	2	9.88	0	11.89	11.89	25.67	3.94	8.66	8.00	15.98	10.35	0.51	
Tolerance inches		0.197 -0	Nominal	Nominal	0 -0.197	± 0.079	± 0.079	± 0.079	0 -0.197	± 0.079	± 0.079	± 0.079	± 0.079	± 0.079	± 0.020	0.098 0



Your local contact:



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

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