

Sanitary Centrifugal Pumps

WS+ SELF-PRIMING PUMPS



Engineering excellence, allied to stringent quality control, ensures that SPX's unrivalled range of APV products complies with the highest international standards for hygiene. In the light of growing pressure worldwide to deliver safe, high quality food, all SPX products are designed for easy cleanability, while minimizing the use of valuable resources, such as energy. The APV product portfolio includes a wide range of pumps, valves, heat exchangers, mixers and homogenizers designed for use in the food, dairy and brewing industries, as well as in chemical, healthcare, pharmaceutical processing and heavy industries.

Food and beverage processing has never been more challenging. Margins are being squeezed, food safety is paramount and consumer demands for new products make formulation changes a regular occurrence. To meet these challenges head on, you need a partner with a deep understanding of process engineering and a broad portfolio of equipment. Look to SPX and its industry leading brands to provide unparalleled technical support, equipment versatility and food processing expertise. Explore the endless solutions that SPX has to offer. You're sure to find answers that will improve plant performance, increase profitability and enhance the value of your brand.

Ws+ Series - Revolutionary Technology

Product Features and Benefits:

- Ideal for CIP return
- Extremely clean design
- Superior shaft seal design
- Higher efficiency
- Noise reduction
- Parts interchangeability with W+ centrifugal series
- Particle friendly design
- 3-A (optional) and EHEDG certified
- Designed for CIP (Cleaning In Place) as well as SIP (Sterilizing In Place)



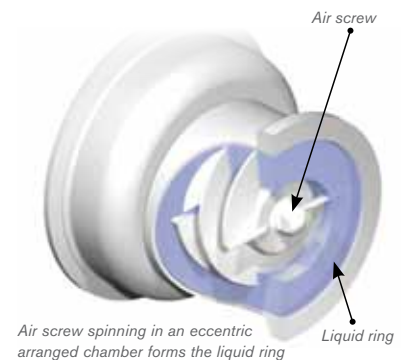
A UNIQUE DESIGN:

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 power consumption, less noise and at lower cost.

The Ws+ employs a unique air screw, spinning in an eccentric arranged priming liquid chamber, and a recirculation loop to generate the liquid ring required to handle aerated product and produce a vacuum in the suction pipe. The design allows the use of standard centrifugal pump components to configure the pump to a specific duty point to produce efficiencies previously unobtainable with liquid rings. Impellers can be trimmed to further reduce power consumption.

The result is:

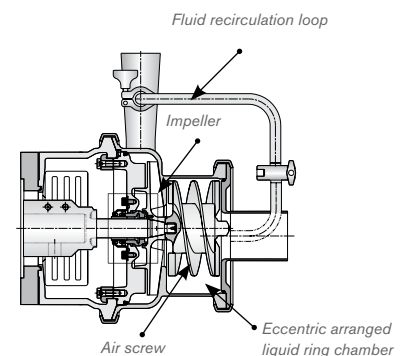
1. Higher efficiency
2. Decreased power consumption
3. Simpler components
4. Less noise



THE PERFECT CIP PUMP:

The ability to pump both fluid and entrained air makes the Ws+ ideal for difficult CIP return applications.

The pump is approved by the European Hygienic Engineering & Design Group (EHEDG) as a hygienic pump and is also authorized to carry the American 3-A symbol (optional) per sanitary standard 02-10. Consequently the pump can be used as a CIP as well as a first class hygienic product pump.



Typical Applications

The piping loops, that are typically required for traditional liquid ring pumps in CIP applications, can often be avoided with the Ws+ pump due to the horizontal inlet.

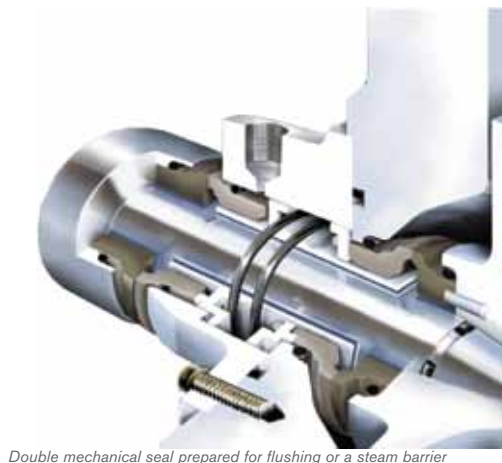
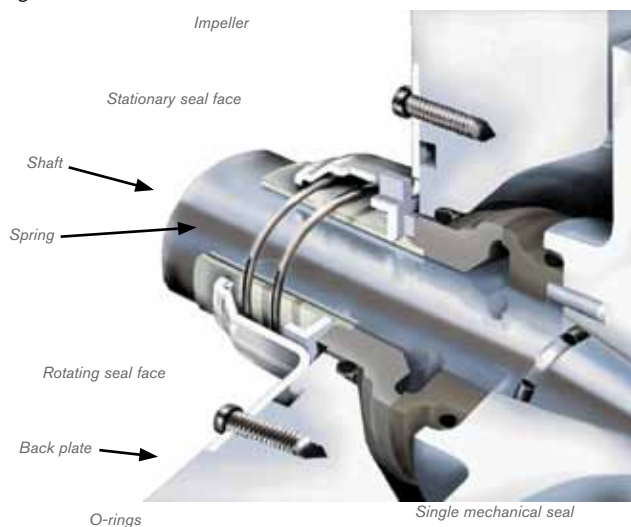
Furthermore, because of the open impeller design, the Ws+ pump is particle friendly. Small objects can pass through the pump with minimal damage.

Sealing Area Designed for Hygienic Applications:

The shaft seal area is essential in terms of hygiene. Ws+ pumps are designed without dead pockets and for frequent exchange of liquid. The pumps are equipped with a shaft seal that is ideal for hygienic applications.

Seal Advantages:

- Ws+ pumps are fitted with the same shaft seals as the W+ centrifugal pumps series
- Internal seal design optimizes cooling and lubrication of seal surfaces while the seal chamber is built to efficiently dissipate heat. Both work to reduce risk of "dry-running"
- Directed flow assures thorough cleaning of seal area
- The stationary spring is located outside the product contact area to maintain cleanliness
- Two sizes cover all models
- Can easily be rebuilt into a double mechanical shaft seal for use with water flushing or with a barrier medium for aseptic applications
- Double mechanical is mirror image of single: same seal faces and O-rings



The Ws+ Pump is commonly used as a CIP return pump as well as for product because of its first class hygienic design.

- CIP Return
- Handling aerated product, liquid/air mixture
- Lift applications
- Complete emptying of tanks
- Tanker unloading
- Evacuation of lines

Product Specifications:

MATERIALS	
CASING	SS 316L
FRONT COVER	SS 316L
IMPELLER	SS 316L
AIR SCREW	SS 316L
RECIRCULATION PIPE	SS 316L
BACK PLATE	SS 316L
SHAFT	SS 316L
CLAMP RINGS	SS 304
EXTENSION FRAME	SS 304
LEGS	SS 304
MOTOR SHROUD	SS 304
SHAFT SEAL	CARBON/SILICON CARBIDE OPTIONAL: SILICON CARBIDE/SILICON CARBIDE
ELASTOMERS	EPDM (FDA COMPLIANT) OPTIONAL: FPM (FDA COMPLIANT)

TECHNICAL DATA	
MAX. DISCHARGE PRESSURE	WS+20/15: 6 BAR WS+30/30: 8 BAR WS+44/50: 13 BAR
MAX. OPERATING TEMPERATURE	95°C AS STANDARD. >95°C, PLEASE CONTACT SPX FLOW TECHNOLOGY
CONNECTIONS:	
WS+ PUMPS CAN BE SUPPLIED WITH ALL STANDARD THREADS AND CLAMPS IN ACCORDANCE TO DS, BS, DIN, SMS AND ISO AS WELL AS DIN FLANGES.	
MOTOR	
IEC METRIC STANDARD, AT 50/60 HZ, IP55, INSULATION CLASS F. WS+ PUMPS ARE AS STANDARD IN EUROPE DELIVERED WITH MOTORS MEETING THE IE2 EFFICIENCY LEVEL IN ACCORDANCE TO THE DIRECTIVE 2005/32/EC ECO-DESIGN OF ENERGY USING PRODUCTS.	

MODEL	INLET SIZE MM	OUTLET SIZE MM	MAX. IMPELLER MM	MAX. CAP. (M ³ /H) 2900 RPM	MAX. HEAD (MWC*) 2900 RPM
20/15	65	51	142	30	27
30/30	65	51	175	50	40
44/50	76	51	220	90	65

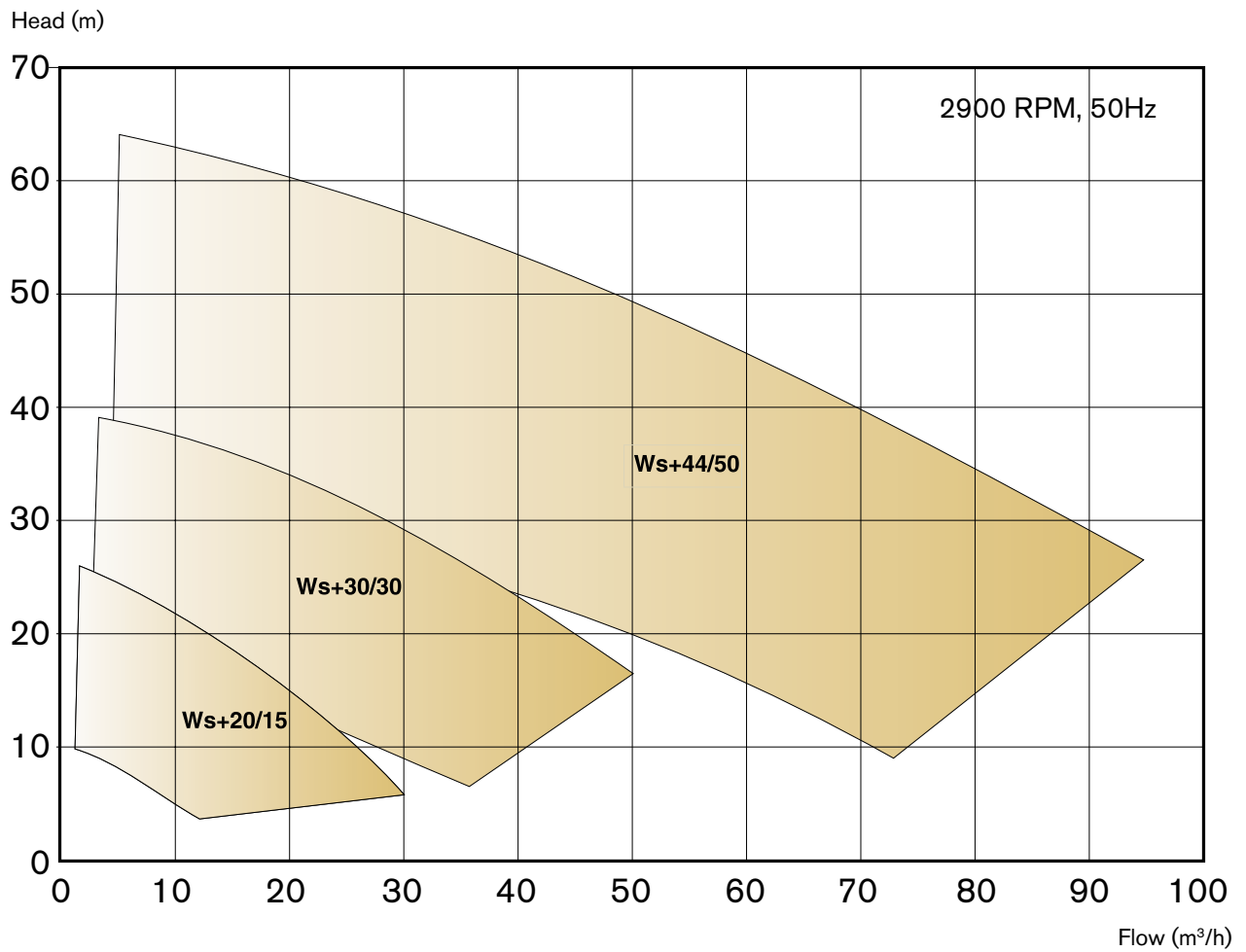
*10 mwc equals 1 bar

Ws+ pumps meet the requirements of the Regulation (EC) No 1935/2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC.

Extended Hydraulic Range:

The Ws+ range consists of 3 basic models – Ws+20/15, Ws+30/30 and Ws+44/50 - with pressure and flow capacities to 6,5 bar (50 Hz) and to 90 m³/h (50 Hz).

The use of a conventional open impeller design ensures a flexible flow range enabling adjustment of performance to application. A Ws+ pump can be optimized the same way as a conventional end-suction centrifugal pump.



Ws+44/50



Ws+30/30



Ws+20/15

A Solution for Any Requirement:

Wide Range of Standard Options Available

Ws+ pumps are as standard delivered with a single mechanical shaft seal in Carbon/Silicon Carbide, EPDM elastomers, on adjustable legs and with a motor shroud in stainless steel.

Standard Options:

- Shaft seal in Silicon Carbide/Silicon Carbide
- Double mechanical shaft seal – Flushed
- Brackets for bolting direct to a skid or baseplate
- Stainless steel pump trolley with motor starter
- Special sound-dampened motor shroud
- Casing drain (with or without drain valve)
- ATEX approved design (hazardous zone)
- Ra < 0.8 µm product contact parts (3-A)
- Ra < 0.5 µm and electro polished product contact parts (without use of castings)
- Documentation package
- All standard threads and clamps in accordance to DS, BS, DIN, SMS and ISO as well as DIN flanges.

Proven Performance

Ws+ pumps are widely recognised for their superior performance and are installed in numerous applications all over the world.

Successful installations include:

- Dairies
- Breweries
- Wineries
- Bio-pharma
- Fishing
- Wastewater



W+ is the Leading SPX Sanitary Centrifugal Pump

W+ is a comprehensive range of premium sanitary end-suction pumps designed to maximize the life time of the pump and minimize life cycle cost elements such as energy, maintenance and downtime/production loss. The W+ range consists of 17 standard models with pressure and flow capacities to 15 bar (50 Hz) and to 725 m³/h (50 Hz) and a number of special versions which may be specifically adapted to customer requirements. The W+ pumps are modular so that any pumping job can be done with a perfectly customized W+ pump.

Features and Benefits of the W+ Series:

- Reliable and heavy duty design
- Energy efficient
- Quiet performance with minimal vibration
- Superior shaft seal design
- High pressure capability
- 3-A (optional) and EHEDG certified
- Designed for CIP (Cleaning In Place) as well as SIP (Sterilizing In Place)
- Suitable for wide variety of products
- Wide range of optional features available
- Easy and cost effective maintenance



VARIATIONS OF THE W+

Whp+ high pressure pumps

Designed to withstand system pressures up to 60 bar. The Whp+ pump's sturdy construction increases stability and dampens vibrations.

Wi+ Inducer pumps

Provide a built in "booster pump" feeding the main impeller. Reduces the NPSH requirement by 50-70%. Handles higher viscosity products and entrained air more efficiently.

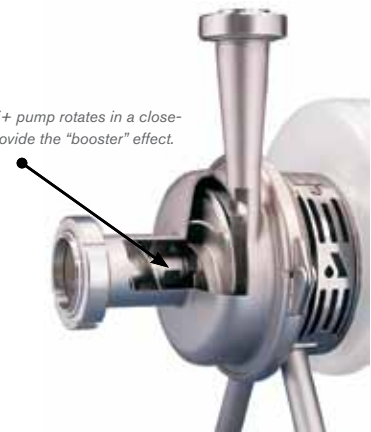
Wa+ aseptic pumps

Are ultra hygienic and designed for applications that require steam sterilization at all connections.



The Whp+ pump casing is a heavy duty construction in SS 316L with a bolted flange.

The inducer in a Wi+ pump rotates in a close-fitting housing to provide the "booster" effect.



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WS+ SELF-PRIMING PUMPS



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