

W+ Series

SANITARY CENTRIFUGAL PUMPS



SPX is a leading innovator of solutions with decades of experience in centrifugal pump design, covering premium brands such as APV and Waukesha Cherry-Burrell. From the supply of engineered components to complete process engineering and design, we specialise in helping our customers improve their plant's performance and profitability. Years of intensive product development on a worldwide scale, has enabled SPX to offer a complete range of hygienic pumps in the brewery, dairy, food, beverage, chemical, health care and pharmaceutical industries.

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.

W+ - Advanced Design for Performance and Reliability

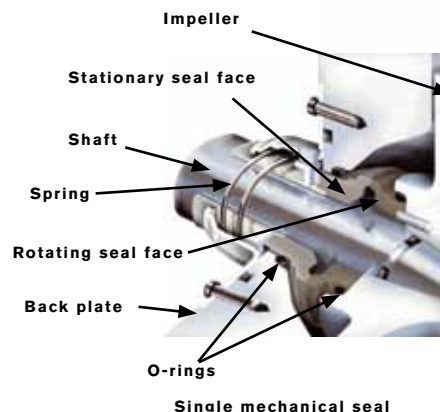
FEATURES AND BENEFITS

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

The shaft seal is the essential area in terms of hygiene. The pumps are equipped with a shaft seal that is ideal for hygienic applications.

Seal Advantages:

- 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
- Front loading seal simplifies maintenance: only the pump housing and impeller have to be disassembled, then the shaft seal can be replaced quickly from the front
- 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



Typical product applications

THEORY OF OPERATION

The W+ pump series is based on a unique hydraulic design that ensures maximum efficiency, allows for highest hygienic standards and reduces noise and vibration.

- Item 1 - Unique APV spiral volute positioned in the backplate of the pump ensures a direct transfer of liquid from inlet to outlet
- Item 2 - Advanced, high efficiency impeller design
- Item 3 - Extended outlets smooth transition to process piping while reducing turbulence and preventing product build-up
- Item 4 - Heavy walled pump casing insures that efficiency levels are maintained even at high pressure



Item 1



Item 3

Item 4



Item 2

Bakery and Confectionery

- Batters
- Fats & Oils
- Flavorings
- Sweeteners
- Yeast Slurry
- Syrups



Dairy

- Whey
- Cream, Milk
- Sweetened Condensed
- RO/UF Systems



Pharmaceutical/Cosmetics

- Emulsions
- Extracts
- Slurries
- Syrups
- Dyes, Alcohols
- Essential Oils



Chemical/Industrial

- Detergents
- Dyes
- Soap Liquors & Solutions
- Ammonium Nitrate
- Propyl Alcohol
- Potassium Chloride
- Sodium Acetate



PRODUCT SPECIFICATIONS

| MATERIALS | |
|--------------|--|
| Casing | SS 316L |
| Impeller | SS 316L |
| Impeller nut | SS 316L |
| Back plate | SS 316L |
| Shaft | SS 316L |
| Clamp ring | SS 304 |
| Adaptor | SS 304 |
| Support | SS 304 |
| Shaft seal | Carbon/Silicon Carbide Optional: Silicon Carbide/Silicon Carbide |
| Elastomers | FKM Optional: EPDM, PTFE |

| TECHNICAL DATA | |
|----------------------------|--|
| Max. discharge pressure | 260 psig (18 bar): W+10/8, W+22/20, W+30/80, W+35/55, W+35/35, W+110/130 200 psig (14 bar): W+25/210, W+30/120, W+50/8, W+55/35, W+55/60, W+60/110, W+65/350, W+70/40, W+80/80 Optional: Heavy duty clamping ring, increasing max. outlet pressure to 360 PSIG (25 bar): W+30/120, W+55/35, W+55/60, W+60/110, W+70/40 290 PSIG (20 bar): W+80/80 |
| Max. operating temperature | 203°F (95°C) as standard. >203°F, please contact SPX Flow Technology |

| PORT CONNECTIONS | |
|---|--|
| Tri-clamp® 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+. | |

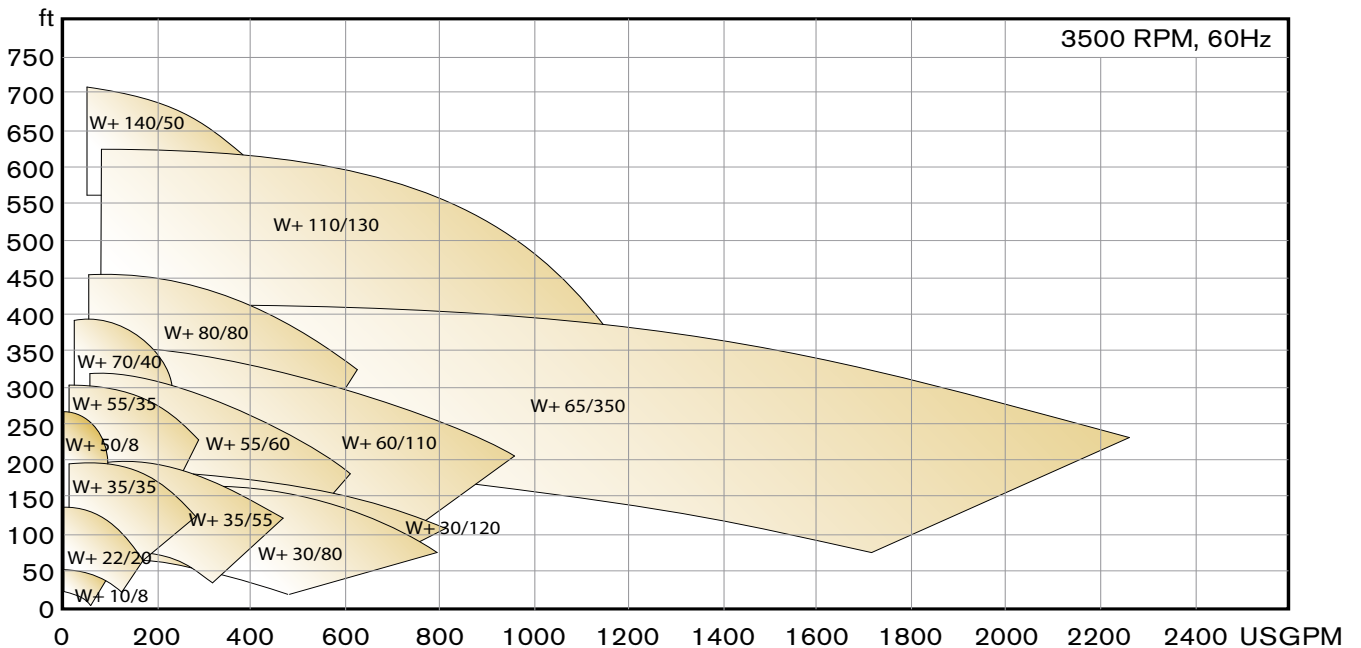
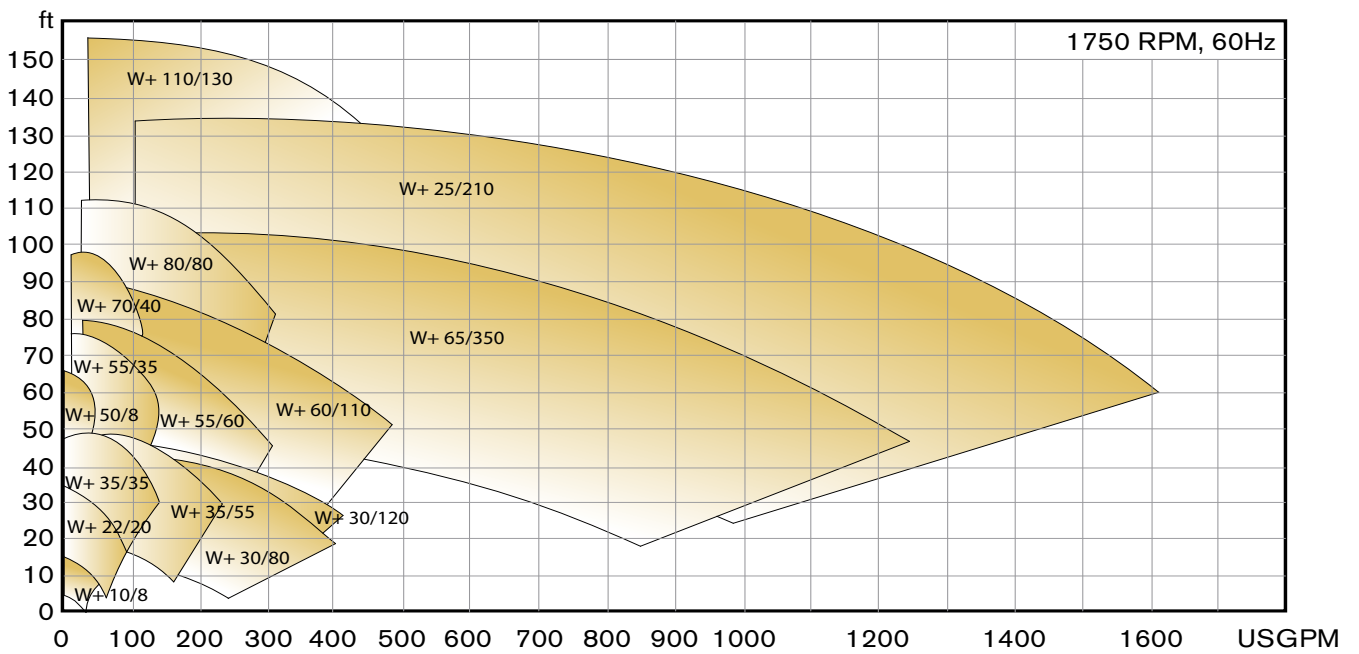
| MOTOR | |
|---|--|
| TEFC or Washdown enclosures available. Energy-efficient, Chem-duty, Explosion Proof and stainless steel also available, as well as single phase or three phase, 60 or 50 Hertz. | |

| MODEL | INLET SIZE | | OUTLET SIZE | | MAXIMUM IMPELLER SIZE | | MAXIMUM CAPACITY (GPM) | | MAXIMUM HEAD (FT) | |
|---------|------------|------|-------------|------|-----------------------|------|------------------------|----------|-------------------|----------|
| | MM | INCH | MM | INCH | MM | INCH | 1750 RPM | 3500 RPM | 1750 RPM | 3500 RPM |
| 10/8 | 38 | 1½ | 25 | 1 | 110 | 4.3 | 32 | 65 | 17 | 68 |
| 22/20 | 51 | 2 | 51 | 2 | 142 | 5.6 | 85 | 175 | 34 | 138 |
| 25/210 | 152 | 6 | 102 | 4 | 290 | 11.4 | 1610 | - | 134 | - |
| 30/80 | 102 | 4 | 76 | 3 | 170 | 6.7 | 315 | 650 | 43 | 171 |
| 30/120 | 102 | 4 | 76 | 3 | 175 | 6.9 | 410 | 810 | 47 | 190 |
| 35/35 | 65 | 2½ | 51 | 2 | 175 | 6.9 | 142 | 280 | 49 | 198 |
| 35/55 | 76 | 3 | 65 | 2½ | 180 | 7.1 | 230 | 465 | 50 | 200 |
| 50/8 | 38 | 1½ | 25 | 1 | 200 | 7.9 | 42 | 85 | 68 | 275 |
| 55/35 | 65 | 2½ | 38 | 1½ | 210 | 8.3 | 140 | 245 | 76 | 302 |
| 55/60 | 76 | 3 | 51 | 2 | 220 | 8.7 | 305 | 615 | 78 | 315 |
| 60/110 | 102 | 4 | 76 | 3 | 230 | 9.1 | 475 | 975 | 90 | 359 |
| 65/350 | 152 | 6 | 102 | 4 | 260 | 10.2 | 1250 | 2300 | 100 | 400 |
| 70/40 | 65 | 2½ | 38 | 1½ | 240 | 9.4 | 110 | 235 | 98 | 390 |
| 80/80 | 76 | 3 | 51 | 2 | 255 | 10 | 310 | 625 | 112 | 450 |
| 110/130 | 102 | 4 | 76 | 3 | 290 | 11.4 | 575 | 1050 | 150 | 600 |

ADDITIONAL TECHNICAL DATA

A comprehensive range

The W+ range consists of 16 standard models with pressure and flow capacities to 217 psi (15 bar) and to 1,760 gpm (400 m³/hr), 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.



OPTIONS AND ACCESSORIES

Variants of the W+

WI+ INDUCER PUMP



The inducer pump is the alternative to changing the process design when NPSH availability is low. The inducer boosts the inlet pressure, and the risk of cavitation is correspondingly reduced (the NPSH required typically drops by 50-70%). When the risk of cavitation disappears, so does the risk of a large number of operational disturbances that would otherwise result - such as excessive noise, energy loss, product damage and unnecessary wear on the pump. Low suction head is a common "problem" in miscellaneous applications, e.g. when pumping products with low boiling points or in processes that involve vacuums.

The Wi+ is unique among inducer pumps, since the NPSH requirement is kept to a minimum throughout its entire operating range. The inducer further enables the Wi+ pump to handle viscous or gaseous products beyond the range of other centrifugal pumps.

WS+ SELF-PRIMING PUMP



The self-priming Ws+ is designed to handle CIP return and other fluids with entrained air and foam. The unique design reduces the energy consumption and noise of traditional liquid ring pumps by using a high efficiency impeller that can be trimmed to match a specific duty. The Ws+ employs a built in eccentric air screw to form the liquid ring required for its self-priming capability.

Features and Benefits

- 20-90% more efficient than other liquid rings due to improved fluid flow through pump.
- Performance optimized by matching impeller size to duty.
- Low noise level: Due to its hydraulic design the noise level of the Ws+ is significantly lower than traditional liquid ring pumps.
- 3A and EHEDG approved.
- Interchangeable with W+ parts. Inventory is reduced by sharing common parts.
- Less prone to damage. Small objects can pass through pump with minimal damage.

W+ MULTISTAGE PUMP



The W+ 140/50 offers three special features:

- Provides differential pressures up to 700 ft (15 bar)
- Can be used in processes with system pressures up to 870 psi (60 bar)
- Ensures optimum hygienic standards

And unlike other multistage pumps, it is CIP friendly. It has an open and semi-open impeller, eliminating any hiding place for bacteria. The W+ multistage pump is equipped with a heavy-duty bearing bracket that absorbs all radial and axial forces present in pumps of this kind. Therefore, the W+ 140/50 can use standard motors.

WHP+ HIGH PRESSURE PUMP



The Whp+ is a high-pressure model of the W+ range. The pumps are designed to withstand system pressures up to 870 psi (60 bar) — such as those in certain reverse osmosis systems. The Whp+ pump's sturdy construction increases stability and dampens vibrations.

WA+ ASEPTIC PUMP

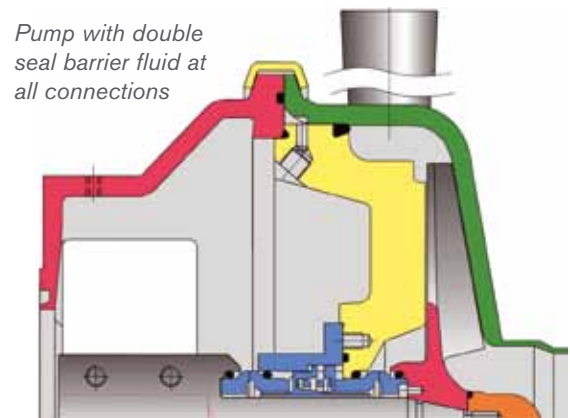
Environmental requirements are getting stricter and stricter! But today, aseptic production is already essential to certain processes — including the manufacture of long life food and pharmaceutical products. The Wa+ pump is the perfect solution. All seals, including the shaft seal, are designed as double seals.

- Double mechanical shaft seals fitted for sterile flushing
- Double O-ring sealing of pump housing fitted for sterile flushing
- Special aseptic fittings fitted for sterile flushing



Aseptic fitting

So, Wa+ pumps products ensure absolutely aseptic production processes with barrier media up to 320°F (150°C). With a Wa+ pump, the risk of contaminating the product and environment is thus reduced to an absolute minimum.





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