

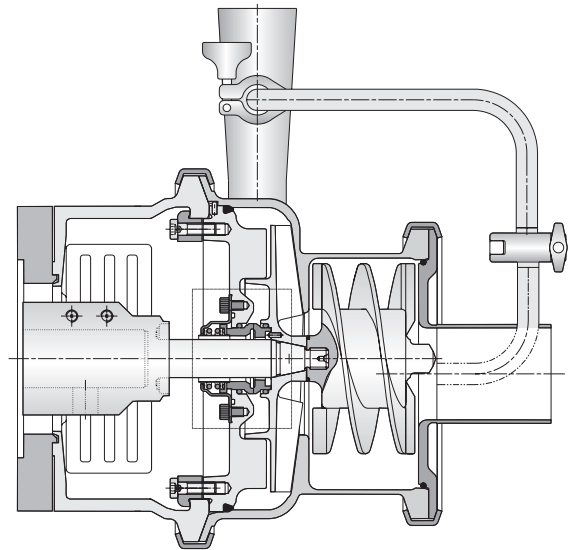


# Ws+ Pumps

One of a kind



## New revolutionary technology



The Ws+ is based on a unique technology applied exclusively by APV, showing substantial improvements over traditionally designed self-priming pumps. The pump is built upon the acknowledged W+ pump, which has a proven record of over a decade.

### Working principles

The Ws+ pump works according to the water ring principle. However, unlike traditional self-priming pumps, the Ws+ is equipped with an open impeller ensuring a flexible flow range and enabling you to choose a small pump for your task. The self-priming effect is obtained by

means of an air screw mounted on the pump inlet.

### Efficient handling of mixed fluids

The Ws+ is designed to handle air or foam mixed fluids significantly better and with greater efficiency than standard self-priming pumps.

### Multiple functions

Due to the hygienic design, the Ws+ pump is equally suitable as CIP and product pump. This means that in many cases the Ws+ pump can replace two existing pumps. A true two-in-one solution!



# Top flexibility

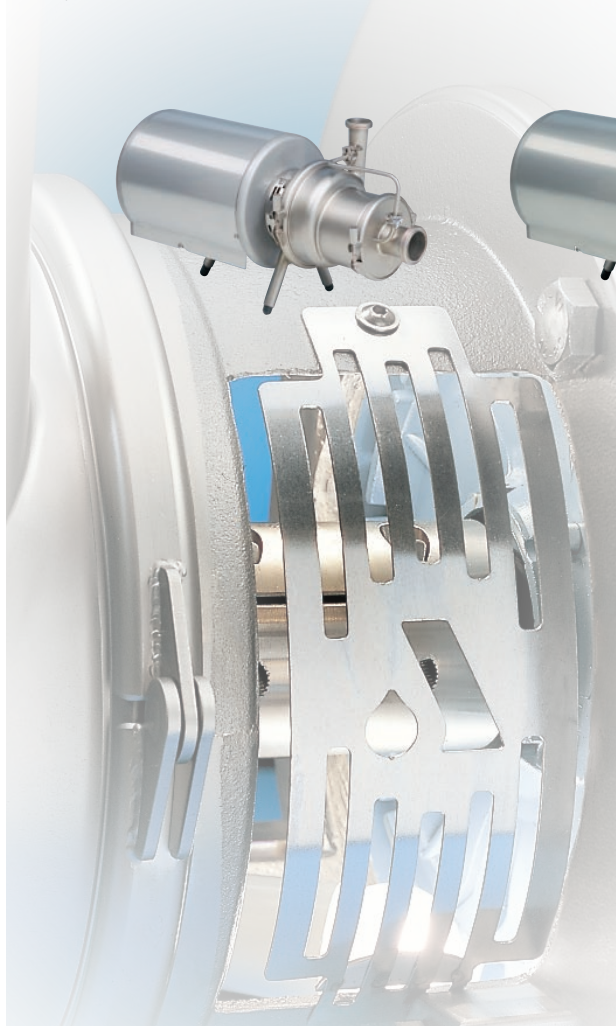
## 75% noise reduction

The noise level of the Ws+ is substantially lower than for traditionally designed self-priming pumps. A before and after test at a Danish cheese factory showed a 75% noise reduction when replacing a traditional self-priming pump with the Ws+ pump. A major advantage to the working environment.

## Easy maintenance

The Ws+ pump design focuses on efficiency - including efficiency in maintenance and repairs. The shaft seal can be visually inspected for leaks, and only the pump housing and impeller have to be removed to replace the shaft seal.

The pump housing has a clamp ring that can be mounted at any angle to facilitate dismantling and reassembly. The motor shroud is also easy to remove and refit, and larger shrouds are supplied with handles so that they can be removed and replaced by a single person.



## Product range

The Ws+ range consists of three models - Ws+ 20/15, Ws+ 30/30, and Ws+ 44/50. The name of each pump refers to its best efficiency point. The three pumps cover a very large operational area and compared with traditional self-priming pumps a small Ws+ pump will do the job, thereby reducing capital investments and energy costs.

## Energy saving motors

All Ws+ pumps are supplied with high-efficient IEC motors from ABB in either 50 Hz or 60 Hz.

The IEC motors use as little energy as possible helping our customers to reduce energy costs and contributing to less global heating.

At 50 Hz the pump operates at a maximum pressure of 6.5 bar and a flow capacity of 90 m<sup>3</sup>/hour, whereas the values for a pump with a 60 Hz motor is 9.5 bar and 110 m<sup>3</sup>/hour.



## Improved hydraulic performance

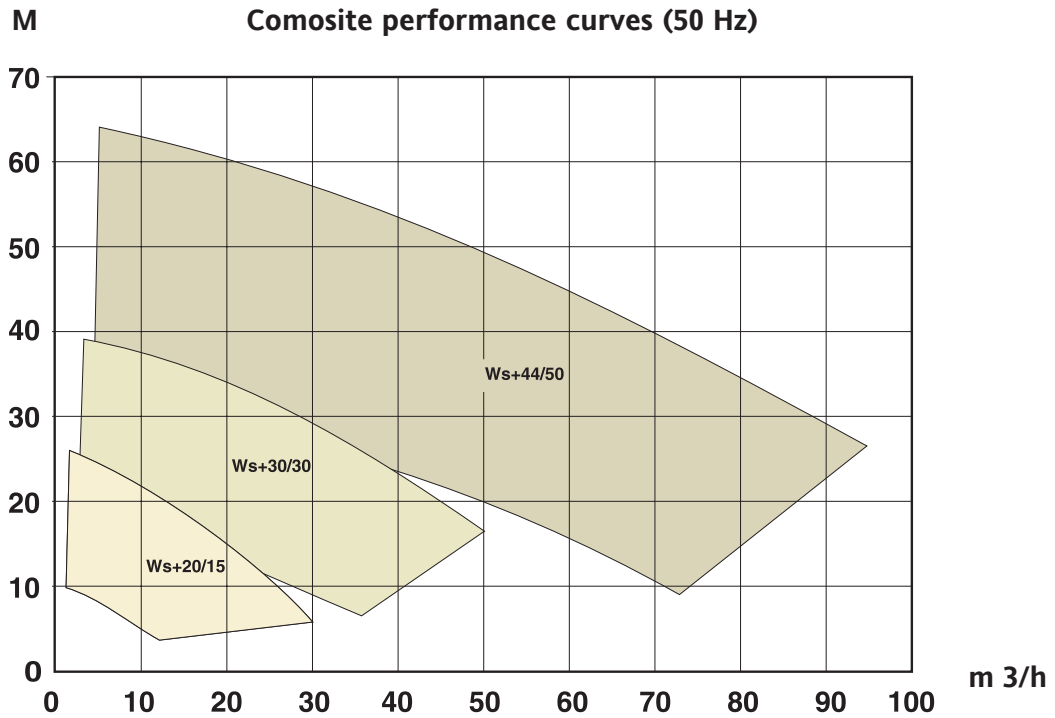
Whilst the hydraulic performance is similar to that of the well-known W+ centrifugal pump series, the changeable impeller size increases the volumetric performance significantly.

## Optimisation possibilities

The Ws+ series can be optimised in the same way as a conventional centrifugal pump (W+) for "tailor-made" pump performance.

## Higher efficiency

Depending on the exact duty point, the efficiency of the pump is increased by 25-90% compared to other self-priming pumps, providing a significant impact on life cycle costs.



## Design and performance

### High standards of hygiene

The pump is approved by the European Hygienic Equipment & Design Group as a hygienic pump and is also available according to the American 3A standard. Consequently the pump can be used as a CIP as well as a top hygienic product pump.

### Reduced inventory costs

The Ws+ series is based on the W+ design, which means that all commonly used spare parts are the same e.g. shaft seals, impellers, back plates, O-rings, etc. i.e. no extra costs for stock keeping.

### Low installation costs

Due to the horizontal inlet, money is saved on installation. The piping loops that are required for conventional pumps (vertical inlets) are avoided. This is particularly useful in CIP applications. (Conventional self-priming pumps all have vertical inlets).

### Particle-friendly design

Because of the open impeller design, the Ws+ pump can operate with larger particles than conventionally designed pumps.

### Options

To cover all applications, the below options are available:

- Electropolished versions
- Shroud
- Frame/adjustable feet
- Fixed bracket
- Shaft seals in carbon/SiC or SiC/SiC
- O-rings in EPDM/FPM
- Single-acting and double-acting shaft seal prepared for water flush
- NEMA motor
- Drain valve

Furthermore the pump is available with all standard welding unions and pipe couplings as well as ISO and DIN flanges.





## Industries and product applications

The Ws+ pumps have been installed in numerous applications all over the world.

Many pumps started out as field test pumps and were never returned as our customers were so pleased with the pumps they decided to keep them.

### Applications

The Ws+ pumps have been successfully installed in the following industries:

- Dairies
- Breweries
- Butter plants
- Cheese factories
- Wineries
- Food factories
- Egg plants
- Enzymes production
- Colourings
- Bio-pharma industry
- Fishing industry
- Waste water applications



*The W+ pump series is ideal for all hygienic applications in the dairy, brewery and food industries as well as in the pharmaceutical and chemical industries - now and well into the future!*



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