



Ws+ Self-Priming Pump

The Ws+ pump series is an exciting new addition to APV's range of self-priming pumps. It replaces the well-known ZMS series, which has proven successful for many years.

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

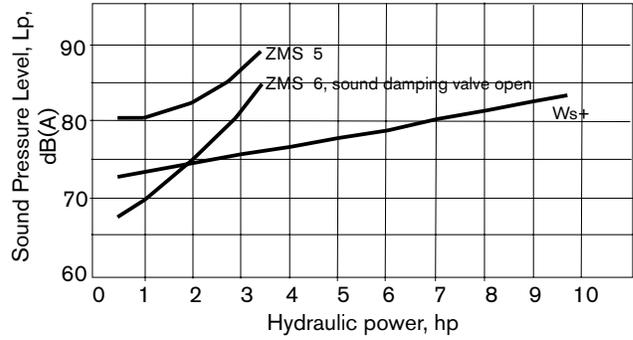
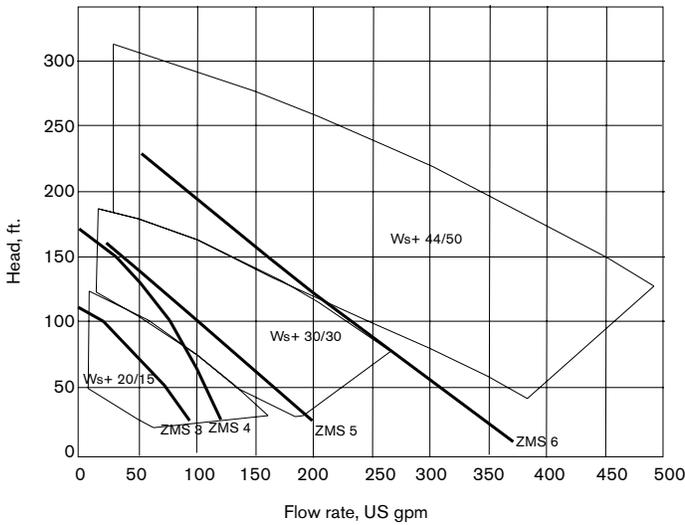
Furthermore, the new design is vastly superior to other pumps on the market.

The Ws+ pump works according to the water ring principle. However, unlike traditional self-priming pumps, the Ws+ is equipped with an open impeller which ensures a flexible flow range. The self-priming effect is obtained by means of an air screw mounted on the pump inlet.

Features and Benefits

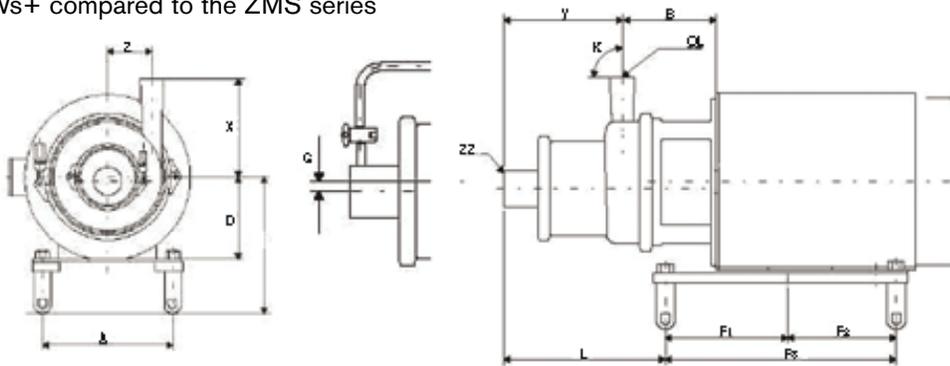
- **Improved hydraulic performance:** While the hydraulic performance is similar to that of the well-known W+ centrifugal pump series, the changeable impeller size increases the volumetric performance significantly.
- **Optimization possibilities:** The Ws+ series can be optimized in the same way as a conventional centrifugal pump (W+) for "customer designed" pump performance.
- **Higher efficiency:** The efficiency of the pump is increased compared to other self priming pumps by 25-90%.
- **Lower 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:** Approved by the European Hygienic Equipment Design Group as a hygienic pump.
- **Interchangeable with W+ parts:** To reduce inventory cost the Ws+ series is based on the W+ design so that all commonly used spare parts are the same e.g. shaft seals, O-rings etc.
- **Horizontal inlet:** This is particularly useful in CIP applications. (Conventional self-priming pumps all have vertical inlet).
- **Less prone to damage by small objects:** Minimized risk of particles damaging the impellers.

Ws+



The noise emission curve shows the noise levels at different HP, compared to the ZMS series

The Ws+ range chart highlights the flexibility of the Ws+ compared to the ZMS series



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 | 0.315 | 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 | 0.315 | |
| | 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 | 0.315 | |
| | 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 | 0.315 | |
| 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 | 0.394 | 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 | 0.394 | |
| | 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 | 0.394 | |
| | 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 | 0.394 | |
| Ws+44/50 | 254 TC | 7.28 | 3 | 2 | 9.88 | 0 | 8.27 | 8.27 | 24.8 | 3.94 | 8.66 | 6.26 | 12.52 | 8.62 | 0.512 | 90° |
| | 256 TC | 7.28 | 3 | 2 | 9.88 | 0 | 10.00 | 10.00 | 24.8 | 3.94 | 8.66 | 6.26 | 12.52 | 8.62 | 0.512 | |
| | 284 TC | 6.61 | 3 | 2 | 9.88 | 0 | 9.49 | 9.49 | 24.13 | 3.94 | 8.66 | 7.00 | 14.02 | 9.3701 | 0.512 | |
| | 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 | 0.512 | |
| | 324 TC | 7.68 | 3 | 2 | 9.88 | 0 | 10.51 | 10.51 | 25.67 | 3.94 | 8.66 | 8.00 | 15.98 | 10.354 | 0.512 | |
| 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 | 0.512 | | |
| 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 |

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