

# e-MP Series

Highly efficient and flexible  
casted multistage pumps



# Benefits and technical features

## Benefits

### 1 Simple integration

Simply and cost-effectively integrate the e-MP multistage pump into nearly any high pressure application, thanks to its flexible mechanical configuration and its first stage suction impeller. This impeller provides the extremely high suction capabilities needed to meet the rigorous demands of hot water or condensate pumping applications.

### 2 Safe operation

Protect your people and reduce downtime with the e-MP pump. It incorporates a healthy assortment of built-in safeguards, such as a large self-cleaning seal chamber for contaminated liquids. Plus, you can further control and monitor safety by connecting the pump to Acquavar IPC and hydrovar® X+ Smart controller or other pump controller.

### 3 Energy savings

Leave a greener footprint. The high efficiency hydraulics of the e-MP multistage pump are optimized by computational fluid dynamics calculations and new U-turn channels, which create an ideal flow of pumped liquid from stage to stage. This reduces both life cycle costs and energy demand, which gives the pump MEI values well above international standards.

### 4 Projectable service

Plan and minimize maintenance downtimes with the help of optional sensor interfaces on the e-MP pump. Pressure, temperature and vibration sensors can be installed on these mechanical interfaces. By connecting them to an intelligent plant monitoring and diagnostic system, a preventative maintenance schedule for the pump can be projected in advance.

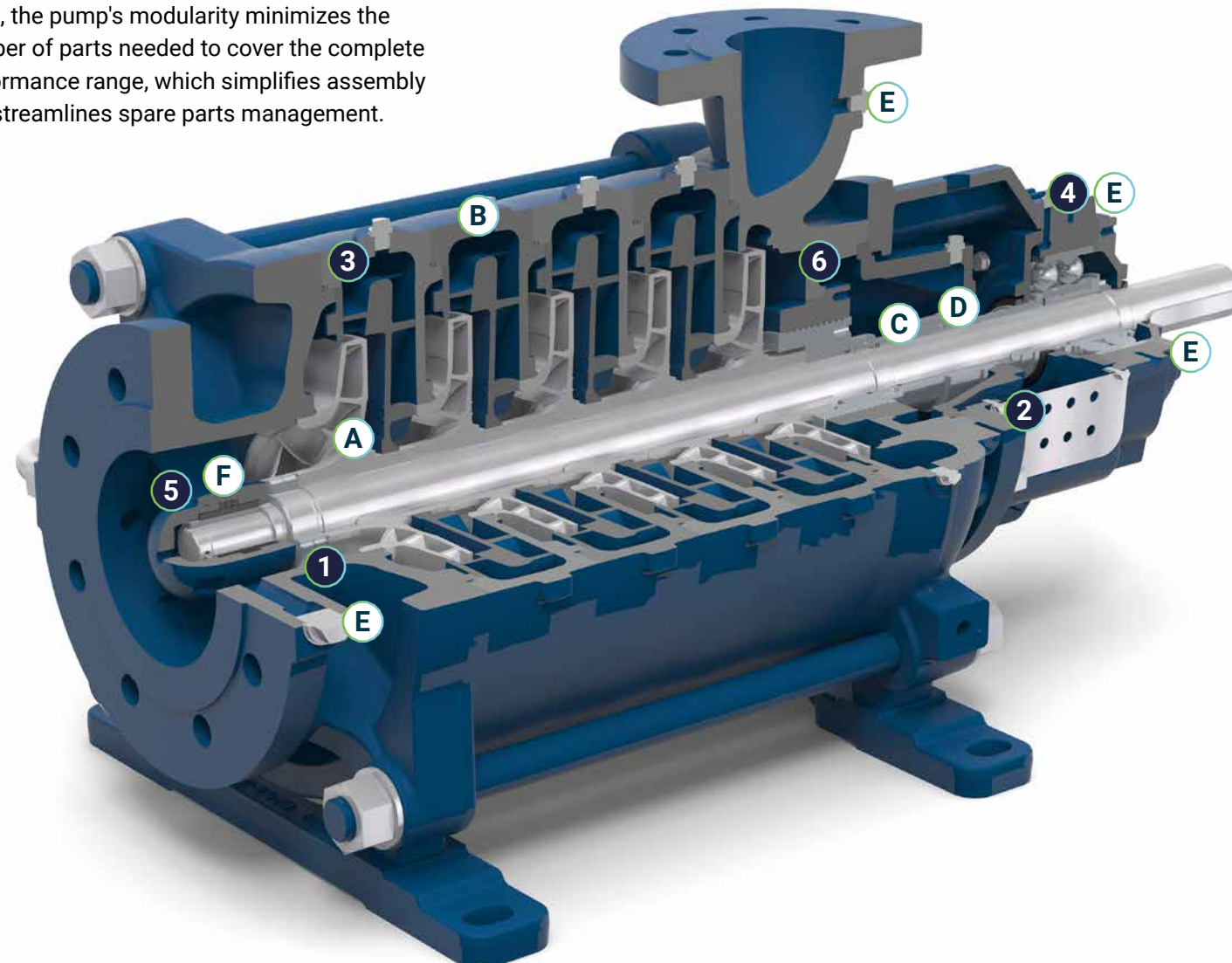
### 5 Reduced wear

Decrease your downtime, maintenance needs and operation costs thanks to an assortment of smart design features and materials that extend

the life of the e-MP pump and its components. For instance, the designed plain bearing in the suction housing is made of tungsten carbide and is elastically supported to resist extreme vibrations and shocks. Cooling fins on the bearing bracket reduce the temperature and increase the life-time of the bearings. A balancing drum reduces the axial thrust of the bearings and the load on the mechanical seal. The ultimate result is a more efficient, more effective operation.

### 6 Easy maintenance

Easily service the e-MP pump, thanks to its smart, simple, modular design. The bearing at the drive side, the mechanical seal and the balancing drum bush are all easily accessible without having to remove the pump from the piping system. What's more, the pump's modularity minimizes the number of parts needed to cover the complete performance range, which simplifies assembly and streamlines spare parts management.



## Technical features

### A Suction impeller

Each e-MP pump is equipped in the first stage with a suction impeller. Due to the wider inlet diameter of this specially designed impeller, the velocity of the liquid is lower. This results in reduced losses and increased suction capability (or low NPSH).

### B U-turn channels

Each stage casing's salient rounded edges are called U-turn channels as the cut profile resembles a "U." This function turns pumped liquid 180° to the next stage, during which the rounded edges ensure a balanced velocity allocation of this liquid, reducing losses and increasing hydraulic efficiency.

### C Balancing system

The balancing system consists of the balancing bush, installed in the discharge casing, and its counterpart, the balancing drum, assembled on the shaft. The pumped liquid's pressure in the discharge casing pushes liquid between the bush and drum gap into the seal housing. Here, pressure acts on the drum to build force against the axial thrust of the impellers to reduce both load on the mechanical seal as well as axial thrust for the bearing, for reduced wear. The complete system can be replaced for maintenance without disassembling the pump from its piping.

### D Seal housing

A large self-cleaning seal housing equips each e-MP pump. Its cleaning process begins with its conical chamber design, transporting particles outwards along the chamber to the relief piping, then back from sealing chamber to suction side.

### E Sensor interfaces

Two pressure sensor interfaces are standard on the e-MP multistage pump, one at suction and one at discharge nozzle to measure inlet and outlet pressure. Optional sensor interfaces are available at the bearing bracket: two sensors (one for horizontal, one for vertical) to measure vibrations and one sensor that measures the bearing's temperature. The sensors can be connected to any controller to monitor the e-MP pump's performance and operation.

### F Plain bearing

The e-MP pump is equipped at the suction side with plain bearings, which are lubricated by the pumped liquid. The bearings are made of tungsten carbide and are elastically supported to resist extreme vibrations and shocks.

# Markets and applications



## General industry



All manufacturing industries, including steel, sugar, timber, tire and rubber, pulp and paper, car, food and beverage.

**Applications:** cooling and heating circuits for industrial processes, sprinkler systems, washing and cleaning systems, firefighting systems, filter systems, water transport systems, booster systems, water treatment systems.



## Oil and gas



On-shore platforms, off-shore platforms, refineries, fracking.

**Applications:** transport of crude oil, sea water/water injection, firefighting systems, water transport, water treatment.



## Power plants



Renewable energy, hydropower, biomass, geothermal, fossil power.

**Applications:** boiler feed, condensate pumping, de-aerating, water injection, water transport, auxiliary systems, firefighting systems, cooling and heating circuits, district cooling and heating systems.



## Mining



**Applications:** dewatering filtered water, water transport, firefighting systems.



## Commercial building services



**Applications:** water transport, booster systems, firefighting systems, HVAC systems.



## Agriculture



**Applications:** water transport, irrigation.



## Public utilities



Water works, desalination plants, drainage and flood protection, tunnels.

**Applications:** district cooling and heating systems, water transport, water treatment systems, desalinization, reverse osmosis, nanofiltration, firefighting systems, booster systems.



## Leisure industry



Ski resorts, leisure parks, spas.

**Applications:** snow making, water transport, water boosting.



## Others



**Applications:** e.g. auxiliary applications in chemical industry, all water boosting applications.

Xylem's multistage pump ranges have been satisfying the needs of customers for over a century. Today, they operate successfully across the world in a variety of markets and applications.

### Pumpable fluids

- |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Water</li> <li>• Gray/used water</li> <li>• Groundwater</li> <li>• Potable water</li> <li>• Thermal water</li> <li>• Seawater in all regions</li> <li>• Brackish water</li> <li>• Feed water</li> </ul> | <ul style="list-style-type: none"> <li>• Hot water</li> <li>• Condensate</li> <li>• Cooling/heating water</li> <li>• Solvents</li> <li>• Lubricants</li> <li>• Crude oil</li> <li>• Oil emulsions</li> <li>• Fuels</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Four e-MP models



## e-MPA

### Special features

highest suction capability (the lowest NPSH) thanks to ideal axial inlet flow, reduced wear due to fewer parts, small horizontal footprint.

- Sizes: DN50 to DN150
- Configurations: horizontal
- **Power**  
2-pole: 7,5kW – 1.250kW / 10hp – 1.700hp  
4-pole: 2,2kW – 160kW / 3hp – 220hp
- Heads up to 950 m / 3.100 ft
- Flows up to 850 m³/h / 3.740 US gpm
- **Temperature of pumped liquid**  
-25°C to +80°C, optional 110°C  
-13°F to +176°F, optional 230°F
- Inlet pressure up to 10 bar / 145 psi
- **Shaft sealing**  
Mechanical seal, cartridge seal, soft packing
- **Bearings**  
Suction side: plain bearing  
Discharge side: double angular ball bearing
- **Nozzles**  
Suction side: axial  
Discharge side: radial, 90° rotatable (left, top, right)



## e-MPR

### Special features

higher suction nozzle flexibility, reduced wear due to fewer parts, small horizontal footprint.

- Sizes: DN50 to DN150
- Configurations: horizontal
- **Power**  
2-pole: 7,5kW – 1.250kW / 10hp – 1.700hp  
4-pole: 2,2kW – 160kW / 3hp – 220hp
- Heads up to 950 m / 3.100 ft
- Flows up to 850 m³/h / 3.740 US gpm
- **Temperature of pumped liquid**  
-25°C to +100°C, optional 140°C  
-13°F to +212°F, optional 284°F
- Inlet pressure up to 10 bar / 145 psi
- **Shaft sealing**  
Mechanical seal, cartridge seal, soft packing
- **Bearings**  
Suction side: plain bearing  
Discharge side: double angular ball bearing
- **Nozzles**  
Suction side: radial, 90° rotatable (left, top, right)  
Discharge side: radial, 90° rotatable (left, top, right)



## e-MPD

### Special features

Special features: higher possible inlet pressure.

- Sizes: DN50 to DN150
- Configurations: horizontal
- **Power**  
2-pole: 7,5kW – 1.250kW / 10hp – 1.700hp  
4-pole: 2,2kW – 160kW / 3hp – 220hp
- Heads up to 950 m / 3.100 ft
- Flows up to 850 m³/h / 3.740 US gpm
- **Temperature of pumped liquid**  
-25°C to +140°C, optional 160°C  
-13°F to +284°F, optional 320°F
- Inlet pressure up to 40 bar / 580 psi
- **Shaft sealing**  
Mechanical seal, cartridge seal, soft packing
- **Bearings**  
Suction side: radial ball bearing  
Discharge side: double angular ball bearing
- **Nozzles**  
Suction side: radial, 90° rotatable (left, top, right)  
Discharge side: radial, 90° rotatable (left, top, right)



## e-MPV

### Special features

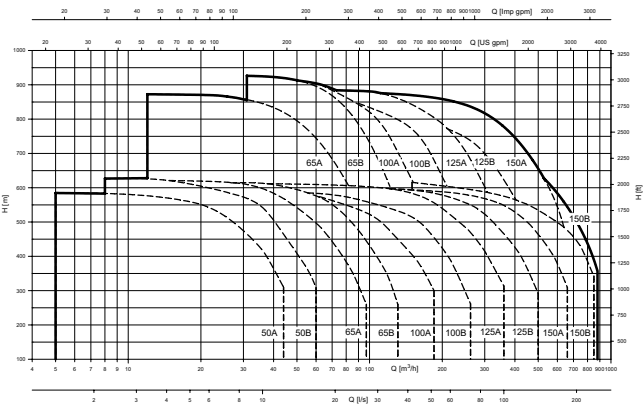
smallest footprint, four positions by nozzle (90°, 180°, 270°, 360°).

- Sizes: DN50 to DN150
- Configurations: vertical
- **Power**  
2-pole: 7,5kW – 355kW / 10hp – 480hp  
4-pole: 2,2kW – 160kW / 3hp – 220hp
- Heads up to 630 m / 2.060 ft
- Flows up to 850 m³/h / 3.740 US gpm
- **Temperature of pumped liquid**  
-25°C to +100°C, optional 140°C  
-13°F to +212°F, optional 284°F
- Inlet pressure up to 10 bar / 145 psi
- **Shaft sealing**  
Mechanical seal, cartridge seal, soft packing
- **Bearings**  
Suction side: plain bearing  
Discharge side: double angular ball bearing
- **Nozzles**  
Suction side: radial, 90° rotatable  
Discharge side: radial, 90° rotatable

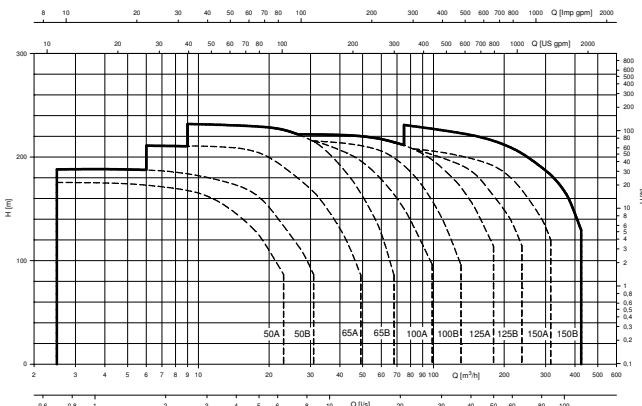
# Performance range

50Hz

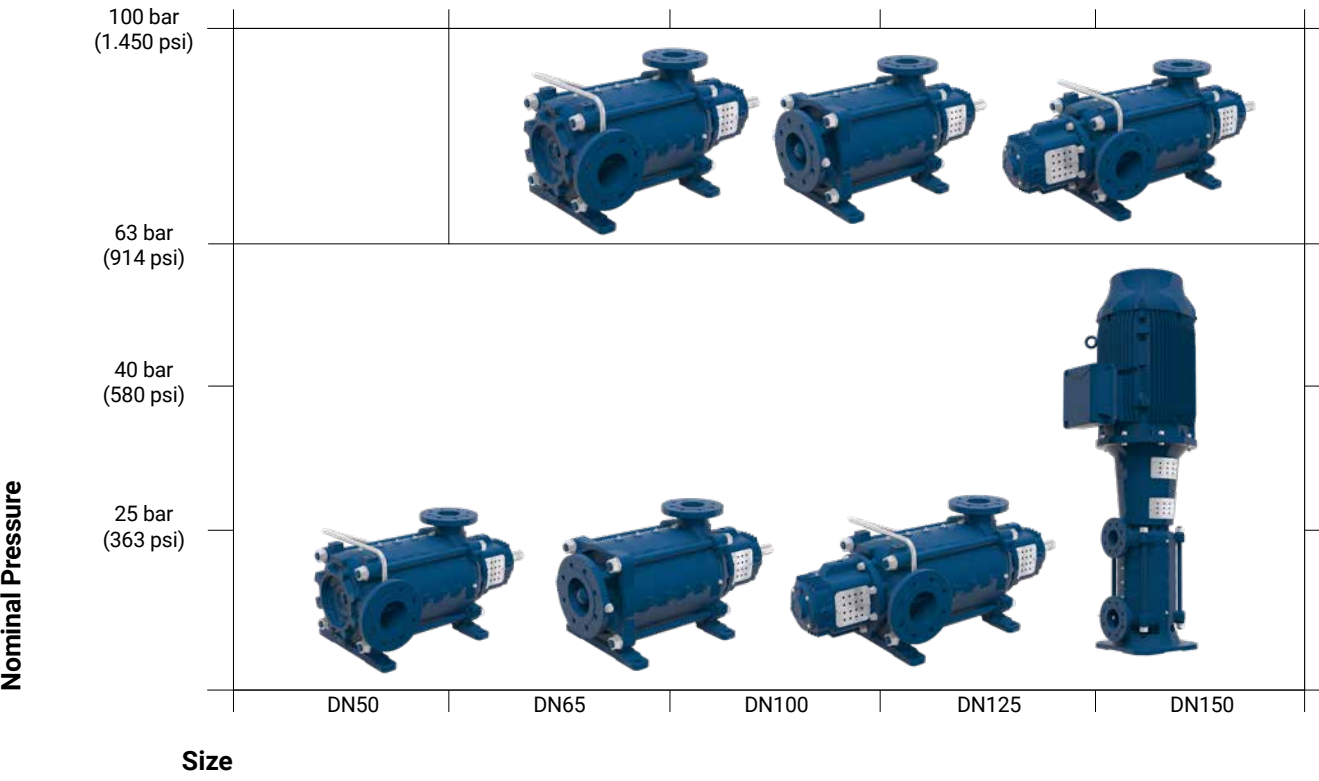
2 poles



4 poles



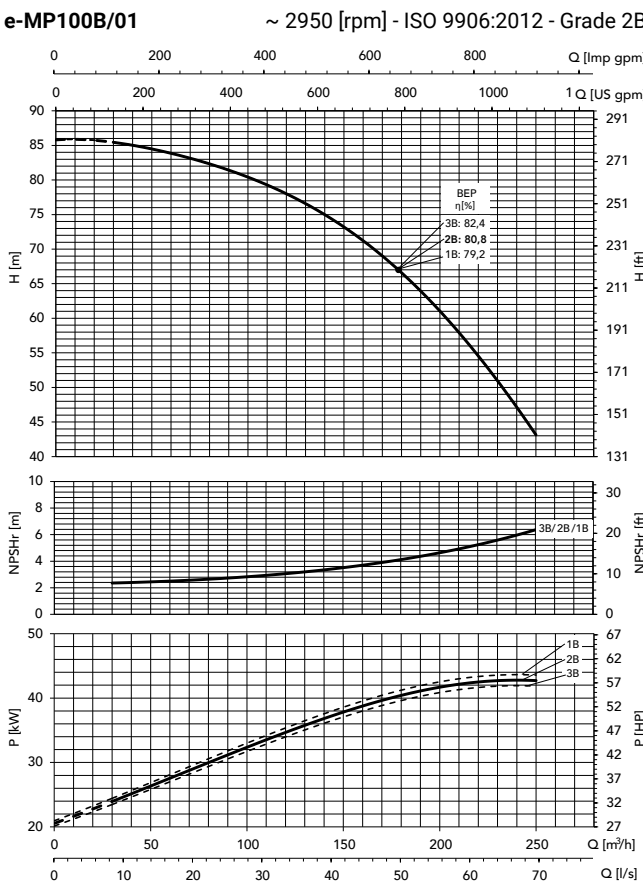
## e-MP models by nominal pressure and size



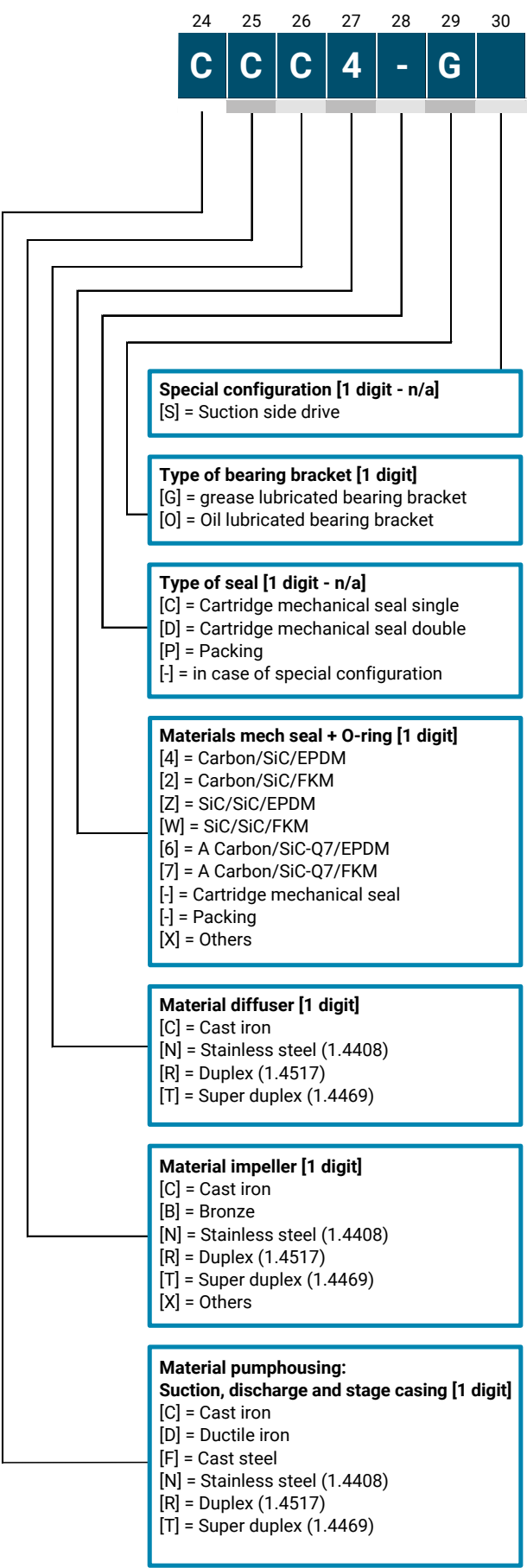
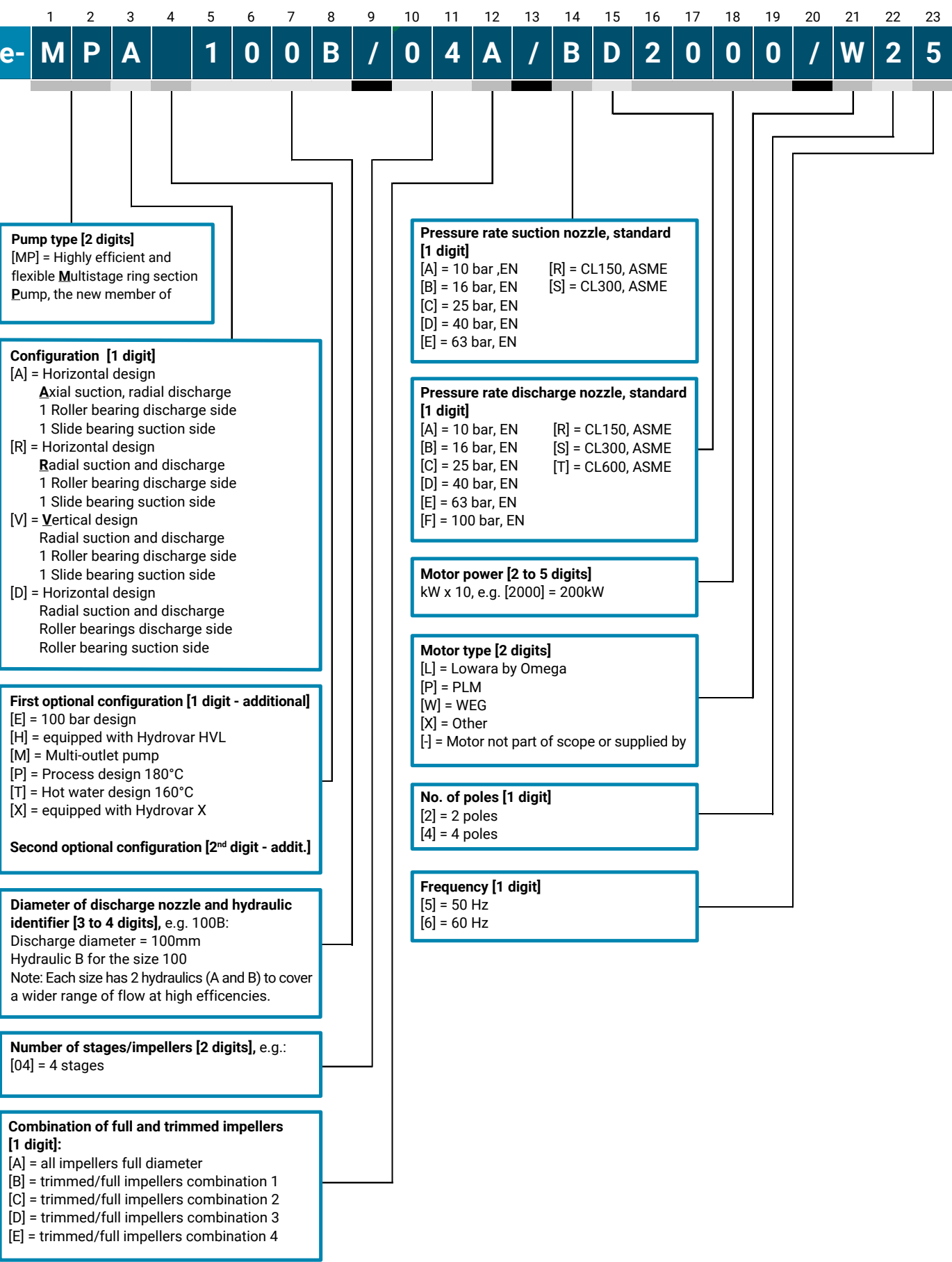
# Efficiency

The e-MP multistage pump's performance is published according to ISO 9906:2012, acceptance test grade 2B. The ISO standard is acceptable at either the 1B, 2B or 3B test grade, but test grades cannot be compared similarly in assessing efficiency of competing products. It is critical to look beyond the percentages to determine the actual efficiency of a multistage pump.

Please see an example of our e-MP pump curves with the standard efficiency value of 80,8% ensured at 2B, as well as the optional ensured efficiency value of 79,2% at 1B. Because the efficiency value for industrial products should be declared with the appropriate degree of accuracy as recommended by ISO 9906:2012, our e-MP documentation does not represent the efficiency at test grade 3B. However, this graphic shows the hypothetical curve of efficiency if declared at 3B, which would result in a higher efficiency value of 82,4%.



# Nomenclature



# Standard pump material configurations

| PN  | Code | Casing       | Impeller     | Diffuser     |
|-----|------|--------------|--------------|--------------|
| 40  | CCC  | Cast iron    | Cast iron    | Cast iron    |
|     | CBC  | Cast iron    | Bronze       | Cast iron    |
|     | CNC  | Cast iron    | AISI 316 SS  | Cast iron    |
|     | NNN  | AISI 316 SS  | AISI 316 SS  | AISI 316 SS  |
| 63  | DCC  | Ductile iron | Cast iron    | Cast iron    |
|     | DBC  | Ductile iron | Bronze       | Cast iron    |
|     | DNC  | Ductile iron | AISI 316 SS  | Cast iron    |
|     | RNN  | Duplex       | AISI 316 SS  | AISI 316 SS  |
|     | RRR  | Duplex       | Duplex       | Duplex       |
|     | TTT  | Super duplex | Super duplex | Super duplex |
| 100 | DCC  | Ductile iron | Cast iron    | Cast iron    |
|     | DBC  | Ductile iron | Bronze       | Cast iron    |
|     | DNC  | Ductile iron | AISI 316 SS  | Cast iron    |
|     | RNN  | Duplex       | AISI 316 SS  | AISI 316 SS  |

## Reference standard

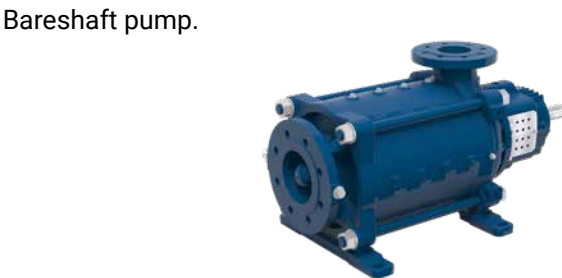
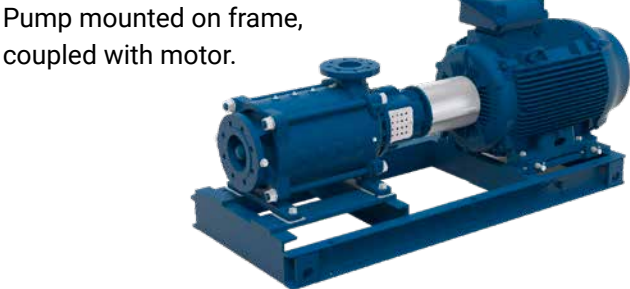
|   | Material     | Europe                             | USA             |
|---|--------------|------------------------------------|-----------------|
| C | Cast iron    | EN 1561 – JL1030                   | ASTM – CLASS 30 |
| D | Ductile iron | EN 1563 – JS1030                   | ASTM – 65-45-12 |
| B | Bronze       | EN 1982 – CC480K                   | ASTM – C90700   |
| N | AISI 316 SS  | EN 10283 – GX 5 CrNiMo 19 11 2     | ASTM – CF8M     |
| R | Duplex       | EN 10283 – GX 2 CrNiMoCuN 25 6 3 3 | ASTM – CD4MCuN  |
| T | Super duplex | EN 10283 – GX 2 CrNiMoN 26 7 4     | ASTM – CE3MIN   |

Do you have requirements outside of the standard and optional range? Consult our Xylem sales force to discuss special engineered-to-order solutions.

# Constructions and accessories

## Standard scope of supply

(See nomenclature on page 10 for name sequence)



- Accessories**
- Frames
  - Couplings and coupling guards
  - Motors:
    - 2-pole: 7,5kW to 1.250kW / 10hp to 1.700hp
    - 4-pole: 2,2kW to 160kW / 3hp to 220hp
  - Monitoring and control interfaces
  - Temperature and vibration sensor interfaces (pressure sensor interface is standard)



# hydrovar® X+ Smart Controller

Designed to extend the capabilities of hydrovar® X+ to larger systems, the hydrovar® X+ Smart Controller is an intelligent solution designed especially for applications above 22kW. It offers the same trusted design and functionalities of hydrovar® X+, now with greater versatility, providing users with a scalable option without adding any complexity.

## Benefits

- Graphical color display
- Multi-pump capability as standard with no single failure point
- Communication protocols available
- Remote control and management via app
- Preset from factory
- Guided commissioning via Genie
- Complete set of languages



# Acquavar IPC

Aquavar IPC is an Intelligent Pump Controller, designed for precise control of speed, pressure, flow and level over a wide range of submersible and surface applications. Wall mounted, with power up to 90 kW. It is generally coupled to hydrovar® X+ Smart controller.



# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

Xylem is a leading global water solutions company dedicated to advancing sustainable impact and empowering the people who make water work every day. Xylem connects diverse capabilities and innovative technologies to provide tailored solutions across the entire water cycle. From moving, treating and measuring water to optimizing and maintaining water systems, Xylem collaborates with customers to solve their most critical challenges. Together, through partnerships with utilities, industrial manufacturers, building operators, and communities, we are building a more water-secure world.

For more information on how Xylem can help you, go to [www.xylem.com](http://www.xylem.com)