The e-MP Series

HIGHLY EFFICIENT AND FLEXIBLE MULTISTAGE PUMPS UP TO 1,700 hp / 1,250 kW

Applications limited only by your imagination
1910: the story begins

The story began with the invention of the diffuser. It dramatically increased the efficiency of multistage pumps by optimizing flow from one stage to the next.

Multistage pump models for medium pressure

1910

- **Model A**
  - Steel industry
  - Flow: 1,585 US gpm / 360m³/h
  - Head: 256ft / 78m

1925

- **Model D**
  - Public utility
  - Flow: 1,717 US gpm / 390m³/h
  - Head: 590ft / 180m

1950

- **Model D/DV**
  - Public utility
  - Flow: 2,113 US gpm / 480m³/h
  - Head: 925ft / 282m
2017: the story continues

The story is continued with the e-MP. It is the next generation of highly efficient and flexible multistage pumps.

Model P
Flow: 7,925 US gpm / 1,800m³/h
Head: 984ft / 300m

Model MP
Flow: 1,497 US gpm / 340m³/h
Head: 1,640ft / 500m

Model e-MP
Flow: 3,740 US gpm / 850m³/h
Head: 2,060ft / 630m
### e-MPA

- **Sizes:** DN50 to DN150
- **Configurations:** horizontal

#### Power:
- 2-pole: 10hp - 1,700hp / 7.5kW - 1,250kW
- 4-pole: 3hp - 220hp / 2.2kW - 160kW

#### Heads up to 2,060ft / 630m

#### Flows up to 3,740 US gpm / 850m³/h

#### Temperature of pumped liquid:
- -13°F to +284°F, optional 356°F / -25°C to +140°C, optional 180°C

#### Inlet pressure up to 145 psi / 10 bar

#### 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)

### Special features:
- highest suction capability (the lowest NPSH) thanks to ideal axial inlet flow, reduced wear due to fewer parts, small horizontal footprint

### e-MPR

- **Sizes:** DN50 to DN150
- **Configurations:** horizontal

#### Power:
- 2-pole: 10hp - 1,700hp / 7.5kW - 1,250kW
- 4-pole: 3hp - 220hp / 2.2kW - 160kW

#### Heads up to 2,060ft / 630m

#### Flows up to 3,740 US gpm / 850m³/h

#### Temperature of pumped liquid:
- -13°F to +284°F, optional 356°F / -25°C to +140°C, optional 180°C

#### Inlet pressure up to 145 psi / 10 bar

#### Shaft sealing:
- Mechanical seal, cartridge seal, soft packing

#### Bearings:
- Suction side: plain bearing
- Discharge side: double angular ball bearing

#### Nozzles:
- Suction side: 90° rotatable (left, top, right)
- Discharge side: radial, 90° rotatable (left, top, right)

### Special features:
- higher suction nozzle flexibility, reduced wear due to fewer parts, small horizontal footprint

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**Introducing the four e-MP models, designed according to ISO5199**
**e-MPD**

Sizes: DN50 to DN150

 Configurations: horizontal

Power:
- 2-pole: 10hp - 1,700hp / 7.5kW - 1,250kW
- 4-pole: 3hp - 220hp / 2.2kW - 160kW

Heads up to 2,060ft / 630m

Flows up to 3,740 US gpm / 850m³/h

Temperature of pumped liquid:
- -13°F to +284°F, optional 356°F / -25°C to +140°C, optional 180°C

Inlet pressure up to 580 psi / 40 bar

Shaft sealing:
Mechanical seal, cartridge seal, soft packing

Bearings:
- Suction side: radial ball bearing
- Discharge side: double angular ball bearing

Nozzles:
- Suction side: 90° rotatable (left, top, right)
- Discharge side: radial, 90° rotatable (left, top, right)

**e-MPV**

Sizes: DN50 to DN150

 Configurations: vertical

Power:
- 2-pole: 10hp - 480hp / 7.5kW - 355kW
- 4-pole: 3hp - 220hp / 2.2kW - 160kW

Heads up to 2,060ft / 630m

Flows up to 3,740 US gpm / 850m³/h

Temperature of pumped liquid:
- -13°F to +284°F / -25°C to +120°C

Inlet pressure up to 145 psi / 10 bar

Shaft sealing:
Mechanical seal, cartridge seal, soft packing

Bearings:
- Suction side: plain bearing
- Discharge side: double angular ball bearing

Nozzles:
- Suction side: 90° rotatable
- Discharge side: radial, 90° rotatable

Special features: higher possible inlet pressure, optional drive on the suction side

Special features: smallest footprint, four positions by nozzle (90°, 180°, 270°, 360°)
Customer benefits and technical features

Customer benefits

1 Simple integration
Simply and cost-effectively integrate the e-MP into nearly any high pressure application, thanks to its flexible mechanical configuration and its first stage suction impeller. This newly redesigned 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. 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 the Xylem HYDROVAR or another intelligent system.

3 Energy savings
Leave a greener footprint. The high efficiency hydraulics of the e-MP 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. 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 and its components. For instance, the newly designed plain bearing in the suction housing is made of tungsten carbide and is elastically supported to resist extreme vibrations and shocks. 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, 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.
Suction Impeller
Each e-MP 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).

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.

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.

Seal housing
A large self-cleaning seal housing equips each e-MP. 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.

Sensor interfaces
Two pressure sensor interfaces are standard on the e-MP, 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 intelligent system to monitor the e-MP’s performance and operation.

Plain bearing
The e-MPA, e-MPR and e-MPV are 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.
Performance range

50Hz

2,950 rpm (2-pole motors)

1,450 rpm (4-pole motors)
60Hz
3,550 rpm (2-pole motors)

1,750 rpm (4-pole motors)
The e-MP’s performance is published according to ANSI/HI14.6 and 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 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 ANSI/HI14.6 and 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%.

Data refer to cold water with density 1kg/dm³ and viscosity 1mm²/s.
e-MP models by nominal pressure and size

<table>
<thead>
<tr>
<th>Size</th>
<th>DN50</th>
<th>DN65</th>
<th>DN100</th>
<th>DN125</th>
<th>DN150</th>
</tr>
</thead>
<tbody>
<tr>
<td>914 psi (63 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 psi (40 bar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>363 psi (25 bar)</td>
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<td></td>
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</tr>
</tbody>
</table>

Nominal Pressure
### Nomenclature

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-</td>
<td>Nomenclature</td>
</tr>
<tr>
<td>M</td>
<td>PUMP TYPE (2 DIGITS)</td>
</tr>
<tr>
<td>P</td>
<td>CONFIGURATION (1 DIGIT)</td>
</tr>
<tr>
<td>A</td>
<td>OPTIONAL CONFIGURATION (1 DIGIT)</td>
</tr>
<tr>
<td>1</td>
<td>DIAMETER OF DISCHARGE NOZZLE AND HYDRAULIC IDENTIFIER (3 TO 4 DIGITS)</td>
</tr>
<tr>
<td>0</td>
<td>PRESSURE RATE SUCTION NOZZLE, STANDARD (1 DIGIT)</td>
</tr>
<tr>
<td>0</td>
<td>PRESSURE RATE DISCHARGE NOZZLE, STANDARD (1 DIGIT)</td>
</tr>
<tr>
<td>B</td>
<td>MOTOR POWER (2 TO 5 DIGITS)</td>
</tr>
<tr>
<td>/</td>
<td>NUMBER OF POLES (1 DIGIT)</td>
</tr>
<tr>
<td>04</td>
<td>FREQUENCY AND POWER SUPPLY (2 DIGITS)</td>
</tr>
<tr>
<td>A</td>
<td>MOTOR TYPE (1 DIGIT)</td>
</tr>
<tr>
<td>20</td>
<td>PRESSURE RATE DISCHARGE NOZZLE, STANDARD (1 DIGIT)</td>
</tr>
<tr>
<td>00</td>
<td>PRESSURE RATE SUCTION NOZZLE, STANDARD (1 DIGIT)</td>
</tr>
<tr>
<td>/</td>
<td>MOTOR POWER (2 TO 5 DIGITS)</td>
</tr>
<tr>
<td>W</td>
<td>NUMBER OF POLES (1 DIGIT)</td>
</tr>
<tr>
<td>25</td>
<td>FREQUENCY AND POWER SUPPLY (2 DIGITS)</td>
</tr>
<tr>
<td>V</td>
<td>MOTOR TYPE (1 DIGIT)</td>
</tr>
</tbody>
</table>

#### PUMP TYPE (2 DIGITS)

(MP) = highly efficient and flexible Multistage ring section Pump, the new member of Xylem’s e-product range.

#### CONFIGURATION (1 DIGIT)

- **(A)** = horizontal design - Axial suction, radial discharge, 1 roller bearing discharge side, 1 slide bearing suction side.
- **(R)** = horizontal design - Radial suction and discharge, 1 roller bearing discharge side, 1 slide bearing suction side.
- **(D)** = horizontal design - Radial suction and discharge, 2 roller bearings (one Double angular).
- **(V)** = Vertical design - Radial suction and discharge, 1 roller bearing discharge side, 1 slide bearing suction side.

#### OPTIONAL CONFIGURATION (1 DIGIT)

- **( )** = standard
- **(H)** = equipped with HYDROVAR
- **(X)** = other drives
- **(M)** = multoutlet pump

#### DIAMETER OF DISCHARGE NOZZLE AND HYDRAULIC IDENTIFIER (3 TO 4 DIGITS)

e.g. 100B:
- discharge diameter = 100mm,
- hydraulic B for the size of 100

Note: each size has 2 hydraulics (A and B) to cover a wider range of flow at high efficiencies.

#### NUMBER OF STAGES/IMPELLERS (2 DIGITS)

e.g.: (04) = 4 stages
(10) = 10 stages

#### COMBINATION OF FULL AND TRIMMED IMPELLERS (1 DIGIT)

- **(A)** = all impeller, full diameter
- **(B)** = trimmed / full impellers combination 1
- **(C)** = trimmed / full impellers combination 2
- **(D)** = trimmed / full impellers combination 3
- **(E)** = trimmed / full impellers combination 4
- **(X)** = duty point trimmed

#### PRESSURE RATE SUCTION NOZZLE, STANDARD (1 DIGIT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>10 bar, EN</td>
</tr>
<tr>
<td>B</td>
<td>16 bar, EN</td>
</tr>
<tr>
<td>C</td>
<td>25 bar, EN</td>
</tr>
<tr>
<td>D</td>
<td>40 bar, EN</td>
</tr>
<tr>
<td>R</td>
<td>CL150, ASME</td>
</tr>
<tr>
<td>S</td>
<td>CL300, ASME</td>
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</tbody>
</table>

#### PRESSURE RATE DISCHARGE NOZZLE, STANDARD (1 DIGIT)

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<tr>
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</tr>
<tr>
<td>D</td>
<td>40 bar, EN</td>
</tr>
<tr>
<td>E</td>
<td>63 bar, EN</td>
</tr>
<tr>
<td>R</td>
<td>CL150, ASME</td>
</tr>
<tr>
<td>S</td>
<td>CL300, ASME</td>
</tr>
<tr>
<td>T</td>
<td>CL600, ASME</td>
</tr>
</tbody>
</table>

#### MOTOR POWER (2 TO 5 DIGITS)

kW x 10, e.g. (2000) = 200kW

#### MOTOR TYPE (1 DIGIT)

- **(P)** = PLM (Xylem motor)
- **(W)** = WEG
- **(X)** = other
- **(-)** = motor not part of scope or supplied

#### NUMBER OF POLES (1 DIGIT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2 poles</td>
</tr>
<tr>
<td>4</td>
<td>4 poles</td>
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#### FREQUENCY AND POWER SUPPLY (2 DIGITS)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>50Hz</td>
<td>(SR) = 3x220-240 / 380-415V</td>
</tr>
<tr>
<td></td>
<td>(SV) = 3x380-415 / 660-690V</td>
</tr>
<tr>
<td></td>
<td>(SP) = 3x200-208 / 346-360V</td>
</tr>
<tr>
<td></td>
<td>(5S) = 3x255-265 / 440-460V</td>
</tr>
<tr>
<td></td>
<td>(5T) = 3x990-300 / 500-525V</td>
</tr>
<tr>
<td></td>
<td>(5W) = 3x440-460 / -</td>
</tr>
<tr>
<td></td>
<td>(5X) = other voltage</td>
</tr>
<tr>
<td></td>
<td>(5–) = motor not part of scope or supplied by customer</td>
</tr>
<tr>
<td>60Hz</td>
<td>(6P) = 3x220-230 / 380-400V</td>
</tr>
<tr>
<td></td>
<td>(6R) = 3x255-277 / 440-480V</td>
</tr>
<tr>
<td></td>
<td>(6V) = 3x440-480 / -</td>
</tr>
<tr>
<td></td>
<td>(6U) = 3x380-400 / 660-690V</td>
</tr>
<tr>
<td></td>
<td>(6N) = 3x220-208 / 346-360V</td>
</tr>
<tr>
<td></td>
<td>(6T) = 3x300-346 / 575-600V</td>
</tr>
<tr>
<td></td>
<td>(6X) = other voltage</td>
</tr>
<tr>
<td></td>
<td>(6–) = motor not part of scope or supplied by customer</td>
</tr>
</tbody>
</table>
Examples

Pump mounted on frame, coupled with motor, MPA100B/04A/BD2000/W25VCCC4:

Series e-MP, horizontal configuration, axial suction inlet, radial discharge nozzle, size DN100, hydraulic B, 4 stages/impellers, all impellers with full diameter, 232 psi (16 bar) suction nozzle, 580 psi (40 bar) discharge nozzle, coupled with a 268hp (200kW) motor from WEG with 2 poles for 50Hz 3x380-415/660-690V supply, frame mounted, suction and discharge casing material made of cast iron, impellers and diffusers made of cast iron, mechanical seal carbon/SiC, O-rings made of EPDM

Pump mounted on frame, with coupling, motor not part of scope or supplied by customer, MPA100B/04A/BD2000/-25-CCC4:

Series e-MP, horizontal configuration, axial suction inlet, radial discharge nozzle, size DN100, hydraulic B, 4 stages/impellers, all impellers with full diameter, 232 psi (16 bar) suction nozzle, 580 psi (40 bar) discharge nozzle, frame mounted, coupling and coupling guard included, prepared to assemble a 268hp (200kW), 2-pole motor, 50Hz, suction and discharge casing material made of cast iron, impellers and diffusers made of cast iron, mechanical seal carbon/SiC, O-rings made of EPDM

Bareshaft pump, MPA100B/04A/BD/-25-CCC4:

Series e-MP, horizontal configuration, axial suction inlet, radial discharge nozzle, size DN100, hydraulic B, 4 stages/impellers, all impellers with full diameter, 232 psi (16 bar) suction nozzle, 580 psi (40 bar) discharge nozzle, 2-pole motor, 50Hz, suction and discharge casing material made of cast iron, impellers and diffusers made of cast iron, mechanical seal carbon/SiC, O-rings made of EPDM

Note:
1) "e-" in front of MP is used for all marketing materials and in the selection tools
2) "e-" in front of MP is NOT used on the name plate and NOT in denomination of pumps
3) Unused nomenclature digits - e.g. if the digit description is ( ) - are skipped and the next used digit is shifted to the left
4) If the digit description is (-), the "-" is used in the nomenclature (refer to examples)
# Standard pump material configurations

<table>
<thead>
<tr>
<th></th>
<th>CCC</th>
<th>CBC</th>
<th>CNC</th>
<th>NNN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal operating pressure</strong></td>
<td>up to 580 psi / 40 bar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Suction impeller (1st stage)</strong></td>
<td>Cast iron (EN-GJL-200)</td>
<td>Bronze (CuSn10-C)</td>
<td>Stainless steel (1.4408)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Impeller</strong></td>
<td>Cast iron (EN-GJL-200)</td>
<td>Bronze (CuSn10-C)</td>
<td>Stainless steel (1.4408)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Diffuser</strong></td>
<td>Cast iron (EN-GJL-150)</td>
<td>Cast iron (EN-GJL-150)</td>
<td>Cast iron (EN-GJL-150)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Stage casing</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Suction casing</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Discharge casing</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Seal cover</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Stainless steel (1.4408)</td>
</tr>
<tr>
<td><strong>Bearing bracket / motor adapter</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pump foot (horizontal / vertical)</strong></td>
<td>Cast iron (EN-GJL-250)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wear ring</strong></td>
<td>Optional, duplex (1.4462)</td>
<td>Optional, duplex (1.4462)</td>
<td>Optional, duplex (1.4462)</td>
<td>Duplex (1.4462)</td>
</tr>
<tr>
<td><strong>Drum</strong></td>
<td>Stainless steel (1.4057)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Drum bush</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Cast iron (EN-GJL-250)</td>
<td>Duplex (1.4462)</td>
</tr>
<tr>
<td><strong>Shaft</strong></td>
<td>Stainless steel (1.4057)</td>
<td>Stainless steel (1.4057)</td>
<td>Stainless steel (1.4057)</td>
<td>Duplex (1.4462)</td>
</tr>
<tr>
<td><strong>Shaft sleeve</strong></td>
<td>Stainless steel (1.4057)</td>
<td>Stainless steel (1.4057)</td>
<td>Stainless steel (1.4057)</td>
<td>Duplex (1.4462)</td>
</tr>
<tr>
<td><strong>Relief pipe</strong></td>
<td></td>
<td></td>
<td></td>
<td>Stainless steel (1.4571)</td>
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<table>
<thead>
<tr>
<th></th>
<th>DCC</th>
<th>DBC</th>
<th>DNC</th>
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<td><strong>Nominal operating pressure</strong></td>
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<td>Bronze (CuSn10-C)</td>
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</tr>
<tr>
<td><strong>Diffuser</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stage casing</strong></td>
<td>Ductile iron (EN-GJS-400-15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Suction casing</strong></td>
<td>Ductile iron (EN-GJS-400-15)</td>
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<td></td>
</tr>
<tr>
<td><strong>Discharge casing</strong></td>
<td>Ductile iron (EN-GJS-400-15)</td>
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</tr>
<tr>
<td><strong>Seal cover</strong></td>
<td>Ductile iron (EN-GJS-400-15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bearing bracket / motor adapter</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pump foot (horizontal / vertical)</strong></td>
<td>Cast iron (EN-GJL-250)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wear ring</strong></td>
<td>Optional, duplex (1.4462)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drum</strong></td>
<td>Stainless steel (1.4057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drum bush</strong></td>
<td>Cast iron (EN-GJL-250)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shaft</strong></td>
<td>Stainless steel (1.4057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shaft sleeve</strong></td>
<td>Stainless steel (1.4057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relief pipe</strong></td>
<td>Stainless steel (1.4571)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Nominal operating pressure**

<table>
<thead>
<tr>
<th>RNN</th>
<th>RRR</th>
<th>TTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 914 psi / 63 bar</td>
<td></td>
<td></td>
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</tbody>
</table>

**Suction impeller (1st stage)**
- Stainless steel (1.4408)
- Duplex (1.4517)
- Super duplex (1.4469)

**Impeller**
- Stainless steel (1.4408)
- Duplex (1.4517)
- Super duplex (1.4469)

**Diffuser**
- Stainless steel (1.4408)
- Duplex (1.4517)
- Super duplex (1.4469)

**Stage casing**
- Duplex (1.4517)
- Duplex (1.4517)
- Super duplex (1.4469)

**Suction casing**
- Duplex (1.4517)
- Duplex (1.4517)
- Super duplex (1.4469)

**Discharge casing**
- Duplex (1.4517)
- Duplex (1.4517)
- Super duplex (1.4469)

**Seal cover**
- Duplex (1.4517)
- Duplex (1.4517)
- Super duplex (1.4469)

**Bearing bracket / motor adapter**
- Cast iron (EN-GJL-250)

**Pump foot (horizontal / vertical)**
- Cast iron (EN-GJL-250)*

**Wear ring**
- Duplex (1.4462)
- Duplex (1.4462)
- Super duplex (1.4410)

**Drum**
- Stainless steel (1.4057)
- Duplex (1.4462)
- Super duplex (1.4410)

**Drum bush**
- Duplex (1.4462)
- Duplex (1.4462)
- Super duplex (1.4469)

**Shaft**
- Duplex (1.4462)
- Duplex (1.4462)
- Super duplex (1.4410)

**Shaft sleeve**
- Duplex (1.4462)
- Duplex (1.4462)
- Super duplex (1.4410)

**Relief pipe**
- Stainless steel (1.4571)
- Austenitic steel (1.4539)
- Austenitic steel (1.4539)

---

**REFERENCE STANDARDS**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>USA**</th>
<th>EUROPE</th>
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</thead>
<tbody>
<tr>
<td>Cast iron (EN-GJL-150)</td>
<td>ASTM - CLASS 25</td>
<td>EN 1561 - JL1020</td>
</tr>
<tr>
<td>Cast iron (EN-GJL-200)</td>
<td>ASTM - CLASS 30</td>
<td>EN 1561 - JL1030</td>
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<tr>
<td>Cast iron (EN-GJL-250)</td>
<td>ASTM - CLASS 35</td>
<td>EN 1561 - JL1040</td>
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<tr>
<td>Ductile iron (EN-GJS-400-15)</td>
<td>ASTM - 65-45-12</td>
<td>EN 1563 - JS1030</td>
</tr>
<tr>
<td>Bronze (CuSn10-C)</td>
<td>ASTM - C90700</td>
<td>EN 1982 - CC480K</td>
</tr>
<tr>
<td>Cast steel (1.0619)</td>
<td>ASTM - WCB</td>
<td>EN 10213 - GP240GH</td>
</tr>
<tr>
<td>Stainless steel (1.4408)</td>
<td>ASTM - CF8M</td>
<td>EN 10283 - GX 5 CrNiMo 19 11 2</td>
</tr>
<tr>
<td>Duplex (1.4517)</td>
<td>ASTM - CD4MCuN</td>
<td>EN 10283 - GX 2 CrNiMoCuN 25 6 3 3</td>
</tr>
<tr>
<td>Super duplex (1.4469)</td>
<td>ASTM - CE3MN</td>
<td>EN 10283 - GX 2 CrNiMoN 26 7 4</td>
</tr>
<tr>
<td>Carbon steel (1.0038)</td>
<td>ASTM - Grade C, D</td>
<td>EN 10025 - 5235JR</td>
</tr>
<tr>
<td>Stainless steel (1.4057)</td>
<td>ASTM - 431</td>
<td>EN 10088 - X 17CrNi 16 2</td>
</tr>
<tr>
<td>Stainless steel (1.4571)</td>
<td>ASTM - 316Ti</td>
<td>EN 10088 - X 6 CrNiMoTi 17 12 2</td>
</tr>
<tr>
<td>Austenitic steel (1.4539)</td>
<td>ASTM - 904L</td>
<td>EN 10088 - X 1 NiCrMoCu 25 20 5</td>
</tr>
<tr>
<td>Duplex (1.4462)</td>
<td>ASTM - F51</td>
<td>EN 10088 - X 2 CrNiMoN 22 5 3</td>
</tr>
<tr>
<td>Super duplex (1.4410)</td>
<td>ASTM - F53</td>
<td>EN 10088 - X 2 CrNiMoN 25 7 4</td>
</tr>
</tbody>
</table>

*Carbon steel (1.0038) for size 125 and 150 in horizontal configuration. **Similar grades according to U.S. standards.*
Standard scope of supply
(See nomenclature on page 12 for name sequence)

Accessories
- Frames
- Couplings and coupling guards
- Motors:
  2-pole: 10hp to 1,700hp / 7.5kW to 1,250kW
  4-pole: 3hp to 220hp / 2.2kW to 160kW
- Monitoring and control interfaces
- Temperature and vibration sensor interfaces
  (pressure sensor interface is standard)
- HYDROVAR HVL and HYDROVAR SMART
  (see next page for further information)

Do you have requirements outside of the standard and optional range? Consult our Xylem sales force to discuss special engineered-to-order solutions, e.g. fly wheels to avoid water shocks in piping.
HYDROVAR HVL and
HYDROVAR SMART

Energy is the greatest cost of running any pump. Fifth generation HYDROVAR Variable Speed Drives work with your ultra-efficient e-MP system to make it even more efficient. They can further reduce your energy use by up to 70%, depending on your costs and operating times. At that rate, the HYDROVAR typically pays for itself within two years.

**HYDROVAR HVL:** 2hp (1.5kW) to 30hp (22kW), can be mounted to motor or wall

**HYDROVAR SMART:** Over 30hp (22kW), combines all HYDROVAR intelligence with any frequency drive, and can be installed anywhere due to its slim design (e.g. inside of the control panel)

<table>
<thead>
<tr>
<th>Features</th>
<th>HYDROVAR HVL</th>
<th>HYDROVAR SMART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fits onto any standard asynchronous motor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced motor control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THDi filter embedded</td>
<td></td>
<td>on request</td>
</tr>
<tr>
<td>Extended communication capabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to commission and operate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-pump capability</td>
<td>up to 8</td>
<td>up to 4</td>
</tr>
</tbody>
</table>

Select the right pump for your variable speed system

When selecting a pump for a variable speed controlled system, the whole working range of the pump must be taken into consideration. Since a pump mostly works in partial load, the best efficiency point should not be at the maximum duty point.

The selected pump should have a maximum duty point to the right of the best efficiency point, within an acceptable range (e.g. opt -10%).

This selection guarantees that, in partial load, the pump works at high efficiency within a wide range. When it is possible that load conditions will be low for long periods, the system should be split into two pumps, or a jockey pump should be installed.
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

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

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

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
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:
• Water
• Gray/used water
• Groundwater
• Potable water
• Thermal water
• Seawater in all regions
• Brackish water
• Feed water
• Hot water
• Condensate
• Cooling/heating water
• Solvents
• Lubricants
• Crude oil
• Oil emulsions
• Fuels

Public utilities
Water works, desalination plants, drainage and flood protection, tunnels
Applications: district cooling and heating systems, water transport, water treatment systems, desalination, 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
1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We’re a global team unified in a common purpose: creating advanced technology solutions to the world’s water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com