Magnetic drive pumps

The world’s largest-class non-metalic magnetic drive pumps for chemical processing

The MDE Series comprises the world’s largest-class non-metalic magnetic drive pumps for chemical processing, with a maximum delivery of 4.0m³/min. and a maximum head of over 50 meters.
The world’s largest-class non-metallic magnetic drive pumps for chemical processing

The MDE Series comprises the world’s largest-class non-metallic magnetic drive pumps for chemical processing, with a maximum delivery of 4.0m³/min. and a maximum head of over 50 meters. The liquid end parts, plastics are made of advanced corrosion-resistant materials such as fluororesins and fine ceramics, and the major fluoroplastic-made parts are reinforced with special metal inserts for added mechanical strength and durability. These pumps have a maximum casing-pressure resistance of 1.6 MPa and a maximum operating temperature of 100°C.
**Strong Corrosion Resistance**
Fluoroplastic and fine ceramic are used in the liquid end parts. These materials enable strong acids, strong alkalines, and virtually all chemical solutions to be handled.

**High Levels of Durability**
The exterior of the pumps is covered with ductile cast iron (FCD400). Ample pressure resistance has been provided in the rear casing through the adoption of a unique shape that prevents the concentration of stress, and a dual structure reinforced with an FRP cover. In addition, the spindle and magnet capsule, which are subject to the repetitive stress of rotational vibration, are made of fluororesin with special metal inserts. These are thus built to withstand sustained operation over an extended period under harsh service conditions.

**Compliant with standards ISO**
The basic performance, dimensions, and other particulars of the pumps are in compliance with the international standard (ISO2858, 3661, 5199). They are interchangeable with general-purpose centrifugal pumps.

Note: Model MDE 125-250 is excluded.

**Back pullout construction**
The pumps have back pullout construction, enabling their internals to be inspected or their component parts to be replaced without disconnecting associated piping. Moreover, the simplified construction consisting of unit components makes maintenance and inspection easy.

**Examples of applications**
- **CHEMICALS**
  - Soda industry (manufacture of hydrochloric and hypochlorous acids, as well as their secondary products), manufacture of hydrofluoric acids and fluorides, manufacture of chemical fertilizers, circulation of reaction liquid in gas-absorption towers, oil refining (sulfuric acid), use in waste-acid recovery and regeneration facilities, and transfer and supply of strong acids to tank trucks at general chemical plants
- **PHARMACEUTICALS**
  - Manufacture of high purity chemicals for semiconductors, manufacture of agricultural chemicals, use in factories for the synthesis of medicine, and manufacture of chemicals for water treatment
- **PLATING**
  - Recycle filtration of plating liquid for various plating systems
- **ELECTRICAL APPLIANCES**
  - Manufacture of electrolytic capacitors (etching of aluminum film), hydrofluoric-acid treatment of braun tubes, transfer of electrolytic liquid for storage batteries and dry cells, etching of printed wiring boards, and transfer of pure chemicals for semiconductors
- **METAL INDUSTRY**
  - Use in alumite treatment facilities, degreasing and pickling at wire elongation plants and steel-rolling mills, use in facilities for the prepainting treatment of vehicles (degreasing and acid washing), and use in factories for the manufacture of titanium oxide, rare-earth elements, etc.
- **MINING**
  - Metal smelting (transfer and circulation of electrolytic liquid) and scrubber treatment of waste gases
- **FOOD INDUSTRY**
  - Manufacture of monosodium glutamate (hydrochloric acid), refining of edible oils (sulfuric acid), and use in fruit-canning plants (hydrochloric acid)
- **WATER TREATMENT**
  - Washing of ion-exchange resins, and use in pure-water production facilities and salt-to-fresh brine distillation facilities
- **POLLUTION CONTROL**
  - Charging of wastewater treatment chemicals into injection tanks, collection and transfer of waste liquid, and use in gas adsorption facilities (deodorization equipment, desulfurization of flue gas, etc.)
2 Rear casing
The base of this component has a unique downed shape that prevents stress concentration. In addition, this component is reinforced with an FRP cover to provide the required pressure resistance. It is also designed to maximise safety by preventing sparks from being discharged if it is accidentally contacted by the drive magnet.

3 Impeller
The impeller with integral shroud has a molded-in metal reinforcing insert. Mechanical strength and pumping efficiency have been improved over previous types.

4 Split plate
This is made of fluororesin with a molded-in ductile cast steel insert. Its sturdy construction supports the rotor assembly rigidly. Moreover, it has a back-flow port that is effective in cooling the bearing parts and discharging slurry (PAT. No.2116798).

5 Magnet capsule
The metal shaft and rare-earth magnet have a hermetically molded fluoroplastic cover. It has excellent durability and produces high torque.

6 Bearing / 7 Sleeve
The use of SiC for these parts maximises their abrasion resistance, impact resistance, and heat resistance. The sleeve system has been adopted to ease maintenance and replacement and reduce costs.

Liquid end materials

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<tr>
<th>Part number</th>
<th>Part name</th>
<th>Material</th>
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<tbody>
<tr>
<td>1</td>
<td>Front casing</td>
<td>ETFE</td>
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<tr>
<td>2</td>
<td>Rear casing</td>
<td>PFA</td>
</tr>
<tr>
<td>3</td>
<td>Impeller</td>
<td>CFRETFE</td>
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<tr>
<td>4</td>
<td>Split plate</td>
<td>PFA</td>
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<tr>
<td>5</td>
<td>Magnet capsule</td>
<td>PFA</td>
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<tr>
<td>6</td>
<td>Bearing</td>
<td>SiC</td>
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<tr>
<td>7</td>
<td>Sleeve</td>
<td>PTFE</td>
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<td>8</td>
<td>Gasket</td>
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<td>O-Ring Note</td>
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Note: FKM/EPDM are also available on request.
Modular construction

MDE50-200 & 65-160
Note: Flange mounted motor type is also available.

MDE125-250

Specification

<table>
<thead>
<tr>
<th>Models</th>
<th>Nominal bore size Inlet X Outlet</th>
<th>Duty point (50Hz)</th>
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</thead>
<tbody>
<tr>
<td>MDE50-200</td>
<td>80mm X 50mm</td>
<td>Capacity L/min: 833</td>
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<tr>
<td>MDE65-160</td>
<td>100mm X 65mm</td>
<td>Capacity L/min: 1670</td>
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<tr>
<td>MDE125-250</td>
<td>150mm X 125mm</td>
<td>Capacity L/min: 2400</td>
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</table>

Common specifications
Temperature range of liquid handled: 0 to 100°C
Allowable slurry: For this information, please contact us.

Pump identification

Note: Other options are also available. For detail, please contact us.
Performance curves

![Performance curves graph](image)

**Dimenstions in mm**

**Foot mounted motor type**

| Models   | Motor kW | W | (H) | (L) | a | b | c | (d) | (e) | f | g | h | A | B | Mass kg
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<td>MDE50-200</td>
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<td>490</td>
<td>460</td>
<td>1232</td>
<td>440</td>
<td>230</td>
<td>740</td>
<td>1120</td>
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<td>260</td>
<td>100</td>
<td>4 - ø23</td>
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<td>235</td>
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<td>4 - ø23</td>
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<td>4 - ø23</td>
<td>465</td>
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</table>

**Flange mounted motor type**

| Models   | Motor kW | W | H  | (L) | a  | b  | c  | (d) | (e) | f   | g   | h   | A   | B   | Mass kg
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<td>610</td>
<td>645</td>
<td>994</td>
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Note: The dimensions and mass may differ with the type of motor installed. Please contact us for details of MDE50-200 and MDE65-160.
MDM SERIES

Magnetic drive process pumps with dry running capability

Specifications
• Max. discharge capacity: 1.4m³/min
• Max. head: 74m
• Main materials: CFRETFE/PFA
• Liquid temp. range: -20 to 105°C(CFRETFE), -20 to 100°C(PFA)

MXM SERIES

Magnetic drive pumps with an excellent balance of features and performance

Specifications
• Max. discharge capacity: 600L/min
• Max. head: 29m
• Main materials: CFRETFE
• Liquid temp. range: 0 to 80°C

MX SERIES

Withstands difficult operating conditions and offers high efficiency

Specifications
• Max. discharge capacity: 500L/min
• Max. head: 18m
• Main materials: GRFRPP(MX), GRFRPP(MX-F)
• Liquid temp. range: 0 to 80°C

SMX SERIES

Versatile self-priming magnetic drive pump with enhanced durability under abnormal operation

Specifications
• Max. discharge capacity: 345L/min
• Max. head: 18m
• Main materials: GFRPP(SMX), GFRPP(SMX-F)
• Liquid temp. range: 0 to 80°C

Caution for safety use: Before use of pump, read instruction manual carefully to use the product correctly.

Our products and/or parts of products fall in the category of goods contained in control list of international regime for export control. Please be reminded that export license could be required when products are exported due to export control regulations of countries.

MDM SERIES

Specifications
• Max. discharge capacity: 1.4m³/min
• Max. head: 74m
• Main materials: CFRETFE/PFA
• Liquid temp. range: -20 to 105°C(CFRETFE), -20 to 100°C(PFA)

MXM SERIES

Specifications
• Max. discharge capacity: 600L/min
• Max. head: 29m
• Main materials: CFRETFE
• Liquid temp. range: 0 to 80°C

MX SERIES

Specifications
• Max. discharge capacity: 500L/min
• Max. head: 18m
• Main materials: GRFRPP(MX), GRFRPP(MX-F)
• Liquid temp. range: 0 to 80°C

SMX SERIES

Specifications
• Max. discharge capacity: 345L/min
• Max. head: 18m
• Main materials: GFRPP(SMX), GFRPP(SMX-F)
• Liquid temp. range: 0 to 80°C

IWAKI AMERICA INC.

IWAKI America Inc.

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IWAKI (Korea) Co., Ltd.

IWAKI (Singapore) Pte Ltd.

IWAKI Singapore (Indonesia Branch)

IWAKI Singapore Pte Ltd.

IWAKI Singapore

IWAKI Suomi Oy

IWAKI Franco S. A.

IWAKI Norge AS

IWAKI Sweden AB

IWAKI Switzerland AG

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