IWAKI

Magnetic drive pumps

MDE



Magnetic Drive Pumps for Chemical Processing

The Heart of Industry

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 4.0m^3/min. and a maximum head of over 70 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.



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.



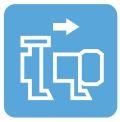
High Levels of Durability

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 synthes is 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), 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 pre-painting treatment of vehicles (degreasing and acid washing), and use in factories for the manufacture of titanium oxide, rare-earth elements, etc.

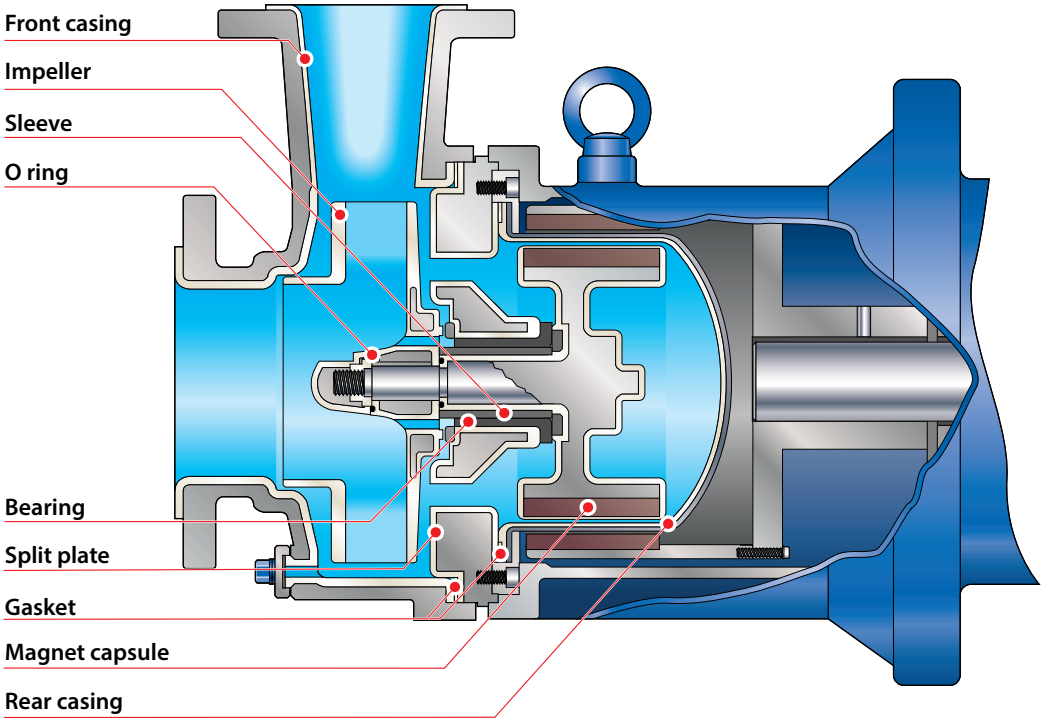
- **MINING**
  Metal smelting (transfer and circulation of electrolytic liquid) and scrubber treatment of waste gases

- **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.)

Liquid end materials



Part name	Material
Front casing	ETFE
Rear casing	PFA
Impeller	CFRETFE
Split plate	PFA
Magnet capsule	
Bearing	SiC
Sleeve	
Gasket	PTFE
O-Ring Note	Kalrez®

Note: FKM/EPDM are also available on request.



MDE125

Construction and materials

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.



Impeller

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



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.



Magnet capsule

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

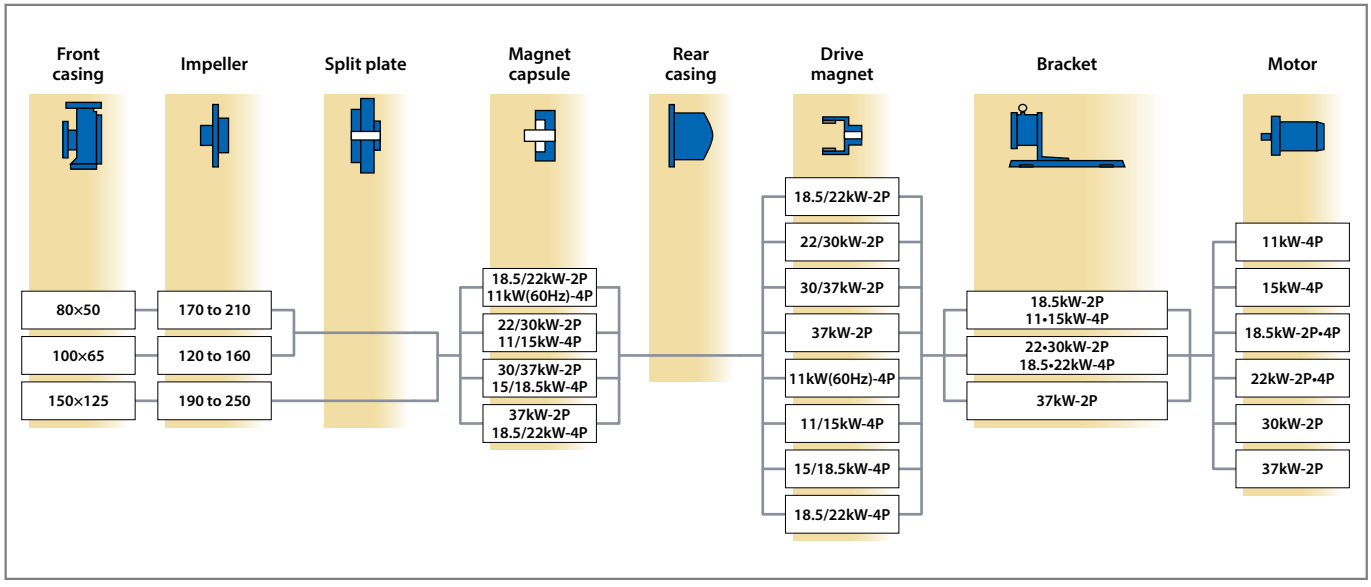


Bearing / Sleeve

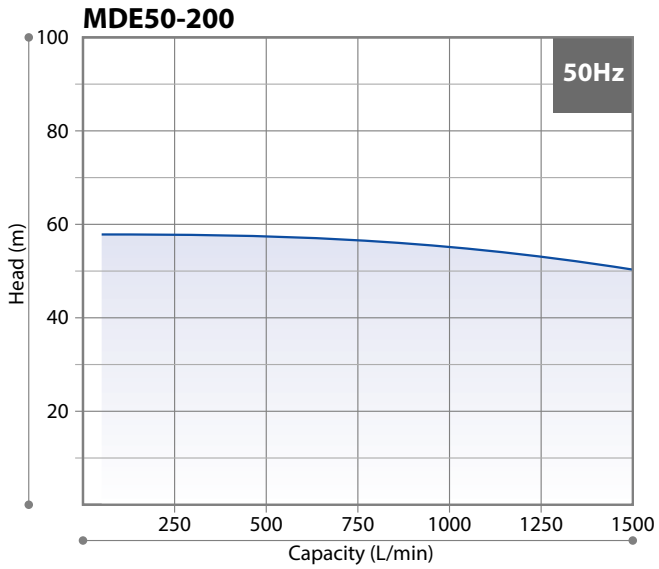
The use of SiC for these parts maximises their abrasion resistance, impact resistance, and heat resistance. The sleeve system has been adopted to ease maintenance and replacement and reduce costs.

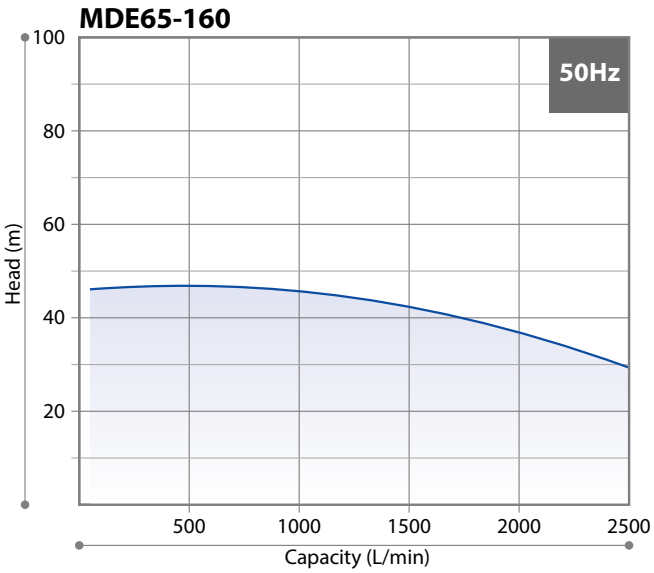


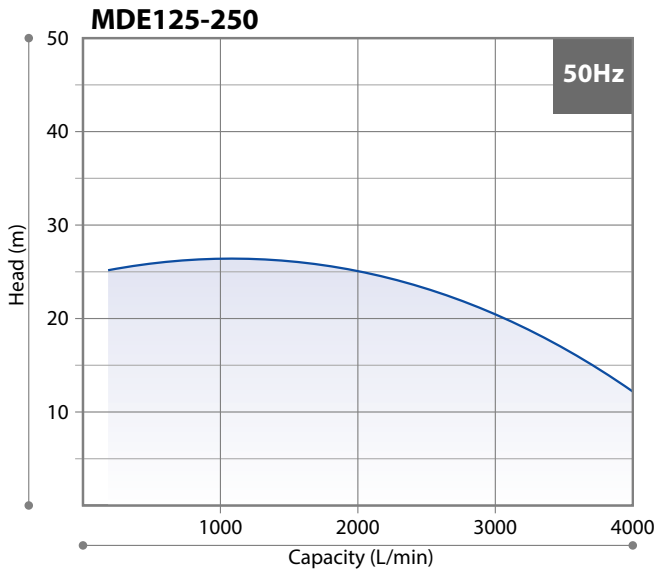
Modular construction



Performance curves







Specifications

Models	Nominal bore size Inlet×Outlet	50Hz	
		Capacity L/min	Head m
MDE50-200(2P)	80A×50A	833	53.0
MDE65-160(2P)	100A×65A	1670	38.0
MDE125-250(4P)	150A×125A	2400	22.5

Expected performance in normal temperature, the clear water.

Common specifications

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

Pump identification

MDE	50	-	200	E	K	Z	F	370	I	-	D	2
	1		2	3	4	5	6	7	8		9	10

1 Pump size
50, 65, 125

2 impeller size
120 to **250**

3 Wet-end main material
E : ETFE

4 Material of Sleeve/Bearing
K : SiC/SiC

5 Material of O-ring
Z : Kalrez®
V : FKM
E : EPDM

6 Type of motor
F : Flange mounted type motor

7 Motor output
110 to **370** : 11 to 37kW

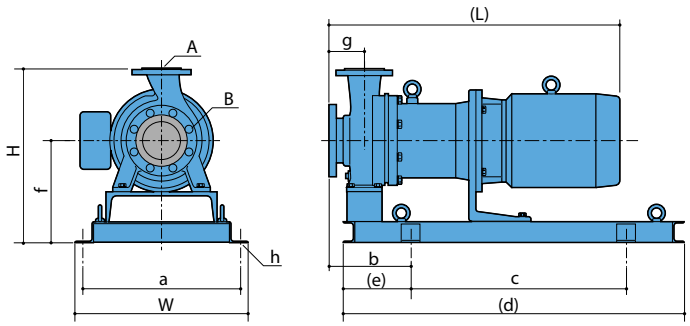
8 Pump standard
I : ISO flange+IEC motor

9 Special version

Mark	Drain	Base	Special version
A	Without drain	With base	Standard
S	Without drain	With base	Special
D	With drain	With base	Standard
X	With drain	With base	Special

10 Motor poles
2 : 2P
4 : 4P Note
Note: MDE125-250 type is 4P only.

Dimensions in mm



mm

Type	Motor kW	W	H	(L)	a	b	c	(d)	(e)	f	g	h	A	B	Mass kg
MDE50-200	18.5	610	555	972	550	275	740	1200	230	355	100	4-Ø27	50A	80A	275
	22			1023											355
	30			1061											445
	37			1119											515
MDE65-160	18.5	610	555	972	550	255	740	1200	230	355	100	4-Ø27	65A	100A	280
	22			1023											355
	30			1061											445
	37			1119											515
MDE125-250 (4P)	11	610	645	994	550	280	740	1200	230	355	140	4-Ø27	125A	150A	305
	15			1038											310
	18.5			1063											410
	22														
	30			1101											470

Note: The dimensions and mass may differ with the type of motor installed.

Optional accessories

Iwaki pump protector DRN series

Detects unusual pump operating conditions including dry-running and overload

The DRN model protects equipment (including pumps) from damage!
Minimizes production downtime.
Identifies possible causes of alarms so they can be investigated and addressed.

Multiple Input	Two analog, one digital, one temperature input and one current input
Easy operation	Equipped with EASY setup mode to remember the operation status and set the lower/upper limit values, as well as AUTO setup mode
Bar graph	Visible indication of current operating status
Logging capability	Data log feature for preventative maintenance scheduling
Communication	RS485 external communication capability



Specifications

Model	DRN-01	DRN-02
Amperometric range	0.5-30.00A	5.0-200.0A
Unit's source voltage	AC100–240V 50/60Hz 10VA	
Operating temperature	0–40°C	
Operating humidity	35–85%RH	

IWAKI Process Magnetic Drive Pump series

MDM SERIES

Magnetic drive process pumps with dry running capability



Specifications

- Max. discharge capacity : 1800 L/min
- Max. head : 74/107 m
- Main materials : CFRETFE/PFA
- Liquid temp. range : -20 to 105˚C (CFRETFE), -20 to 150˚C (PFA)

MXM SERIES

Magnetic drive pumps with an excellent balance of features and performance



Specifications

- Max. discharge capacity : 400 L/min
- Max. head : 25/41 m
- Main materials : CFRETFE
- Liquid temp. range : -10 to 105˚C

MX SERIES

Withstands difficult operating conditions and offers high efficiency



Specifications

- Max. discharge capacity : 800 L/min
- Max. head : 35/36 m (MX), 22.8/23.1 m (MX-F)
- Main materials : GFRPP (MX), CFRETFE (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 : 440/520 L/min
- Max. head : 18/26 m (SMX), 16/24 m (SMX-F)
- Main materials : GFRPP (SMX), GFRPP (SMX-F)
- Liquid temp. range : 0 to 80˚C

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

Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.

⚠ Legal attention related to export.

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