

Main material
GFRPP



**A Worldwide Best-Seller,
our High-Quality Compact
Magnetic Drive Pumps**

A Worldwide Best-Seller, our High-Quality Compact Magnetic Drive Pumps

The MD series leak-free compact magnetic pumps are a worldwide best-seller and are used in medical equipment, analyzers, constant-temperature baths and surface treatment equipment for chemical feeding.



Leak Free

Magnetic drive seal-less pumps are free from leakage problems and the need for seal replacement. This feature and their compact nature make them ideal for built-in applications.



Extensive Product Range

The MD series comprises 50 models. The high-head type (MD-Z), the high flow type (MD-X) and threaded connection type (MD-M) are available as well as a standard type. The MD series offers the largest selection in the world.



MD-6K

MD-10K

MD-6, 10

GFRPP
50/60 Hz

- Max. Capacity **5.5/6.0–11/12** L/min
- Max. Head **1.0/1.4–2.1/2.7** m



MD-15R



MD-20R



MD-30R

MD-15, 20, 30, 40

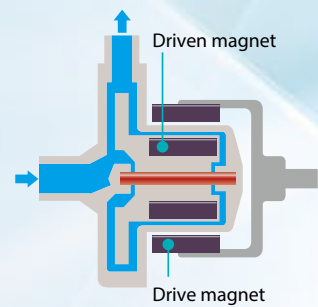
GFRPP
50/60 Hz

- Max. Capacity **10/11–75/85** L/min
- Max. Head **1.8/2.5–11.5/13.5** m



Operating Principle

The centrifugal pump is driven by a pair of magnets which are incorporated in the impeller and motor shaft. The sealless pump structure eliminates shaft seals because the pump chamber is shielded by the casings and the impeller is operated by the magnets. The combined coupling torque of the drive magnet and impeller magnet gives sufficient driving power against the motor torque.



High Corrosion-Resistance

GFRPP(Glass fiber reinforced polypropylene) wet ends of the MD series handle a wide range of chemicals.



Ease of Maintenance

The pump unit is comprised of a small number of integrated parts, so maintenance is greatly simplified.



MD-40R



MD-55R



MD-70R



MD-100R

MD-55, 70, 100

GFRPP
50/60 Hz

- Max. Capacity **40/43-135/135** L/min
- Max. Head **5.6/8.2-14.3/20.3** m

Extensive Product Range

Ease of Maintenance

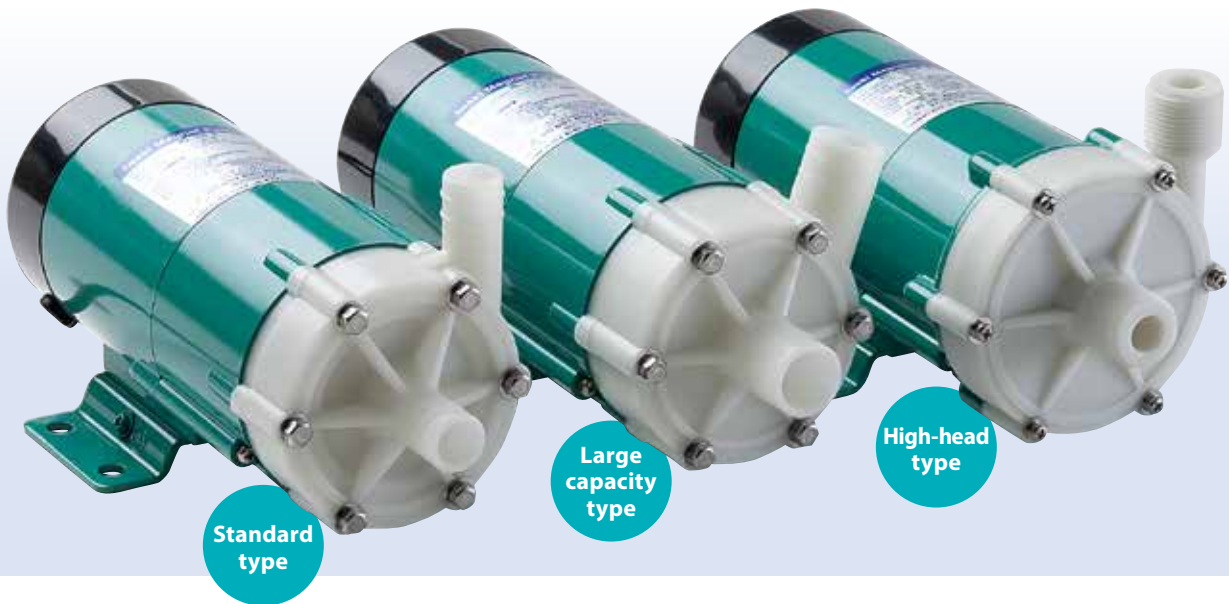
The MD series has GFRPP wet ends. Hose connections, thread connections and flange connections (only 70^{Note} and 100 size) are available.

A large selection of models offer a wide flow range of 8.0–135 L/min.

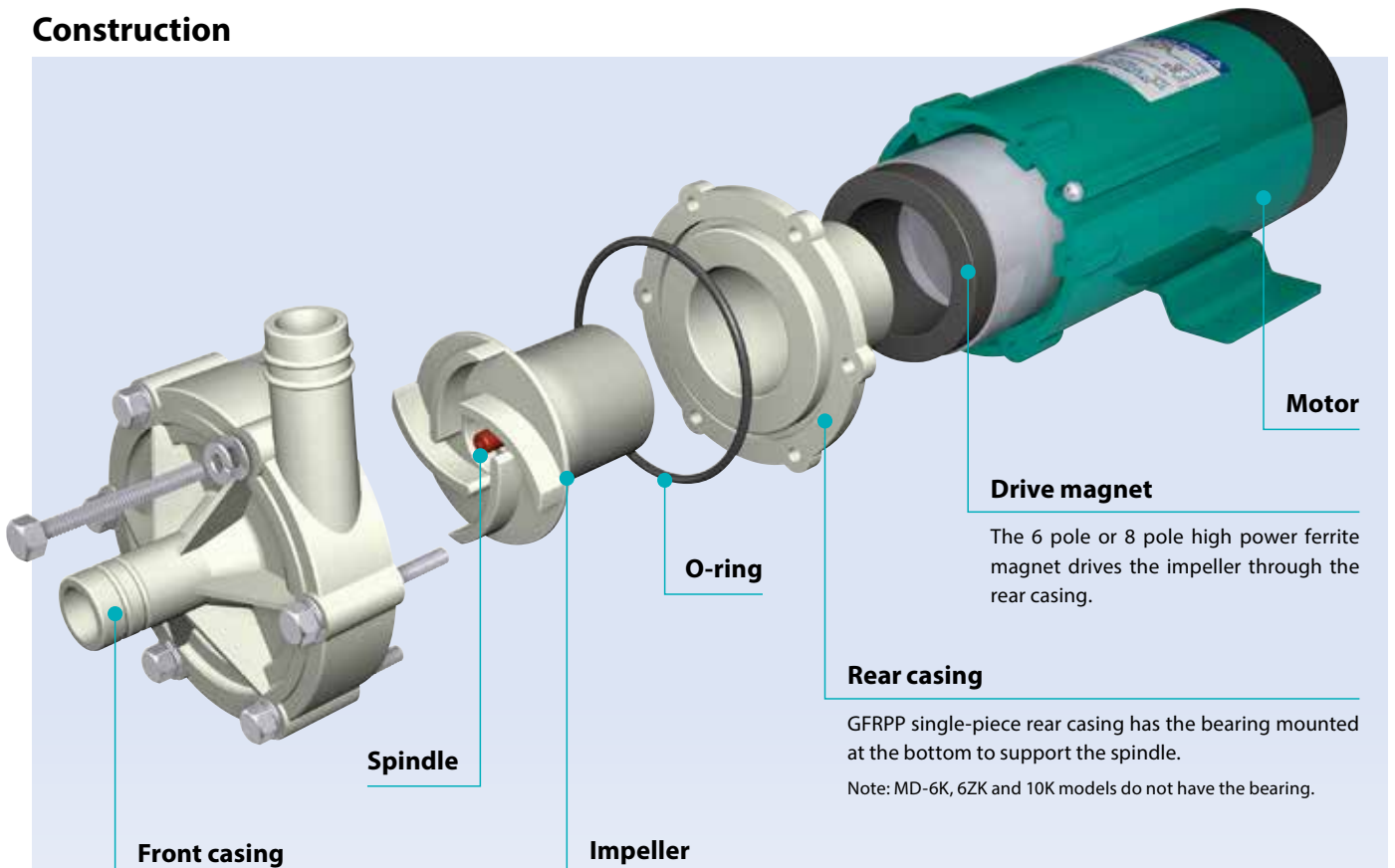
Note: For MD-70 size and MD-70RM type only.

Outline of the Series

Main Material	Models	Max. Capacity (L/min)						Max. Head (m)				Limit of specific gravity	
		20	40	60	80	100	120	140	5	10	15		20
GFRPP	MD-6K Standard type	50 Hz	8.0						1.0				1.2
		60 Hz	9.0						1.4				
	MD-6ZK High head type	50 Hz	5.5						2.1				1.1
		60 Hz	6.0						2.7				
	MD-10K Standard type	50 Hz	11						1.5				1.1
		60 Hz	12						2.1				
	MD-15R Standard type	50 Hz	16						2.4				1.3
		60 Hz	19						3.4				
	MD-20R Standard type	50 Hz	27						3.1				1.1
		60 Hz	31						4.3				
	MD-20RX Large capacity type	50 Hz	46						1.8				1.3
		60 Hz	52						2.5				
	MD-20RZ High head type	50 Hz	10						4.6				1.1
		60 Hz	11						6.9				
	MD-30R Standard type	50 Hz	32						3.8				1.3
		60 Hz	38						5.4				
	MD-30RX Large capacity type	50 Hz	62						2.9				1.1
		60 Hz	72						4.1				
	MD-30RZ High head type	50 Hz	15						8.0				1.0
		60 Hz	17						11				
	MD-40R Standard type	50 Hz	45						4.6				1.1
		60 Hz	52						6.5				
	MD-40RX Large capacity type	50 Hz	75						3.3				1.1
60 Hz		85						4.7					
MD-40RZ High head type	50 Hz	22						10				1.0	
	60 Hz	22						13.5					
MD-40RZ-5 50 Hz only	50 Hz	11						11.5				1.0	
MD-55R Standard type	50 Hz	60						5.6				1.2	
	60 Hz	70						8.2					
MD-55R-5 50 Hz only	50 Hz	70						8.2				1.2	
MD-70R Standard type	50 Hz	86						6.7				1.0	
	60 Hz	97						9.7					
MD-70RZ High head type	50 Hz	40						14.3				1.0	
	60 Hz	43						20.3					
MD-100R Standard type	50 Hz	120						8.6				1.2	
	60 Hz	135						11.9					
MD-100R-5 50 Hz only	50 Hz	135						11.7				1.1	



Construction



Front casing

Hose or thread connections can be selected according to application. Also union joints can be installed on threaded connection models.

Note: MD-6K, 6ZK and 10K models do not have thread connection type.



Hose connection type



Thread connection type

Impeller

The ferrite magnet is encapsulated into the impeller. For rotating spindle models, an alumina ceramic spindle is integrally molded with the impeller.

Open, semi-open or closed type impellers can be selected according to performance requirements.

Note: MD-6K, 6ZK and 10K models use a fixed spindle design.



Open type



Semi-open type



Closed type

Motor

Drive magnet

The 6 pole or 8 pole high power ferrite magnet drives the impeller through the rear casing.

Rear casing

GFRPP single-piece rear casing has the bearing mounted at the bottom to support the spindle.

Note: MD-6K, 6ZK and 10K models do not have the bearing.

MD-6K, 6ZK, 10K

GFRPP
50/60 Hz

- Max. Capacity **5.5/6.0–11/12 L/min**
- Max. Head **1.0/1.4–2.1/2.7 m**



MD-6K



MD-10K

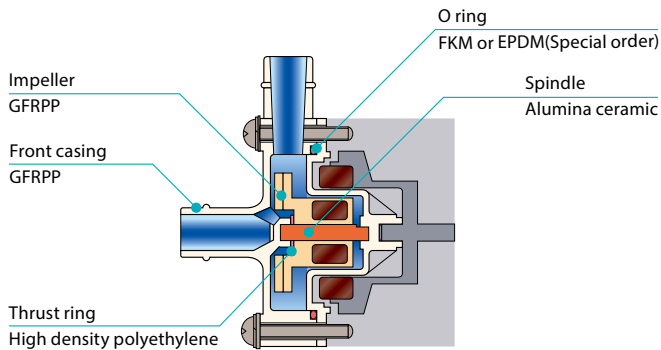
Specifications (50/60 Hz)

Model	Hose connection		Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	Inlet (mm)	Outlet (mm)							
MD-6K	Ø14	Ø14	8.0/9.0	1.0/1.4	1.2	5/5	12/12	100 V Single phase	0.9
MD-6ZK			5.5/6.0	2.1/2.7	1.1				
MD-10K			11/12	1.5/2.1	1.1				

- Temperature range: 0–80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0–40°C
- Motor type: Capacitor-run induction motor • MD-6K, 6ZK and 10K do not have thread connection type.

Construction and Materials

Illustration shows model MD-6K



- GFRPP Glass fiber reinforced polypropylene
- FKM Fluorine rubber
- EPDM Ethylene propylene rubber

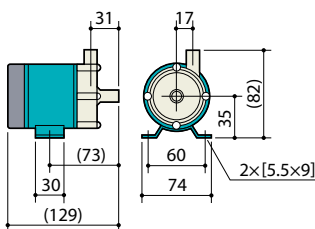
Pump Identification

MD - 6 ZK - E N
1 2 3

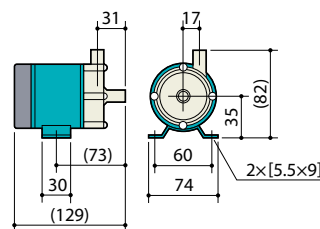
- 1** Pump size
6, 10
- 2** Type
K : Standard type
ZK : High head type
- 3** Material of O-ring
No mark : FKM
E : EPDM (Special order)

Dimensions in mm

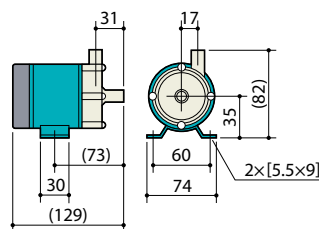
MD-6K



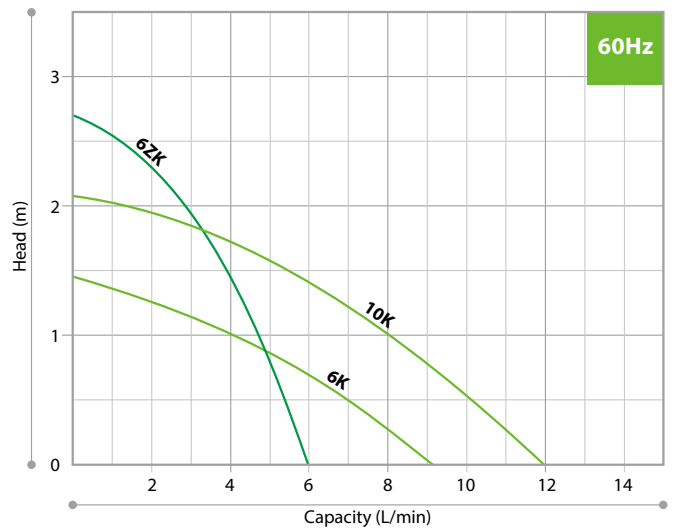
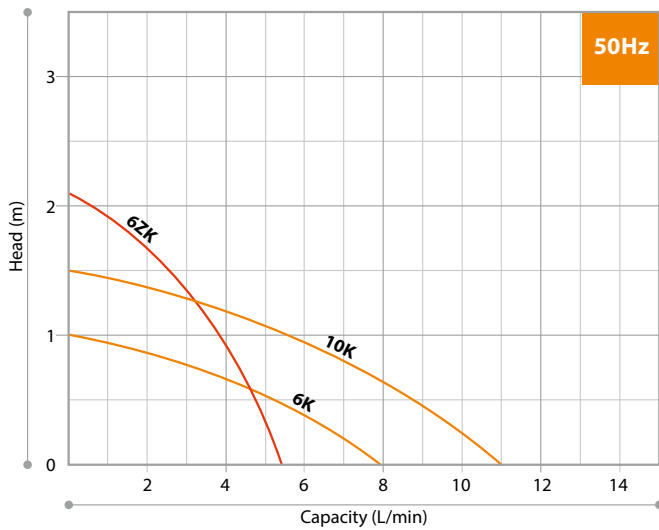
MD-6ZK



MD-10K



Performance Curves



MD-6, 6Z, 10



Specifications (50/60 Hz)

Model	Hose connection		Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	Inlet (mm)	Outlet (mm)							
MD-6	14	14	8.0 / 9.0	1.0 / 1.4	1.2	3 / 3	22 / 22	100V Single phase	0.8
MD-6Z			5.5 / 6.0	2.1 / 2.7	1.1		32 / 35		
MD-10			11 / 12	1.5 / 2.1		6 / 6			

• Temperature range: 0–80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.)
 • Ambient temperature: 0–40°C • Motor type: Shaded pole motor • MD-6, 6Z and 10 do not have thread connection type.

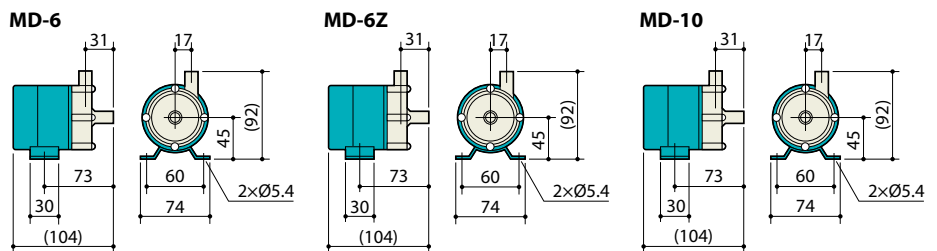
Pump Identification

MD - 6 Z
 1 2

1 Pump size
6, 10

2 Type
 No mark : Standard type
Z : High head type

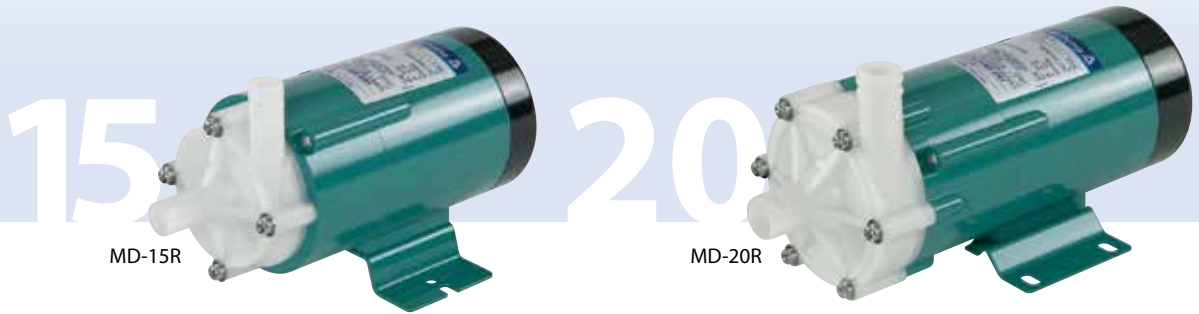
Dimensions in mm



MD-15, 20, 30, 40

GFRPP
50/60 Hz

- Max. Capacity **10/11–75/85** L/min
- Max. Head **1.8/2.5–11.5/13.5** m



MD-15R

MD-20R

Specifications (50/60 Hz)

Model	Hose connection R · RZ · RX		Thread connection RM · RZM · RXM		Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source Note2	Mass (kg)
	Inlet(mm)	Outlet(mm)	Inlet/Outlet	Union ^{Note1}							
MD-15R	Ø14	Ø14	G3/4	13A	16/19	2.4/3.4	1.3	10/10	26/31 ^{Note3}	220 V–240 V Single phase	1.6
MD-20R	Ø18	Ø17	G3/4	16A	27/31	3.1/4.3	1.1	20/20	40/50		2.0
MD-20RX	Ø26	Ø26	G1	20A	46/52	1.8/2.5	1.3				2.0
MD-20RZ	Ø17.5	Ø17	G3/4	13A	10/11	4.9/6.9	1.1	45/45	60/80		3.5
MD-30R	Ø20	Ø20	G3/4	16A	32/38	3.8/5.4	1.3		70/90		4.0
MD-30RX	Ø26	Ø26	G1	20A	62/72	2.9/4.1	1.1	90/130 ^{Note3}	3.5		
MD-30RZ	Ø17.5	Ø17	G3/4	13A	15/17	8.0/11	1.0		3.9		
MD-40R	Ø20	Ø20	G3/4	16A	45/52	4.6/6.5	1.1	65/65	85/120		3.9
MD-40RX	Ø26	Ø26	G1	20A	75/85	3.3/4.7			115/160		
MD-40RZ	Ø20	Ø20	G3/4	16A	22/22	10/13.5	1.0	65/–	103/–		
MD-40RZ-5					11/–	11.5/–					

- Temperature range: 0–80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1.0 S.G.)
- Ambient temperature: 0–40°C
- Motor type: Capacitor-run induction motor

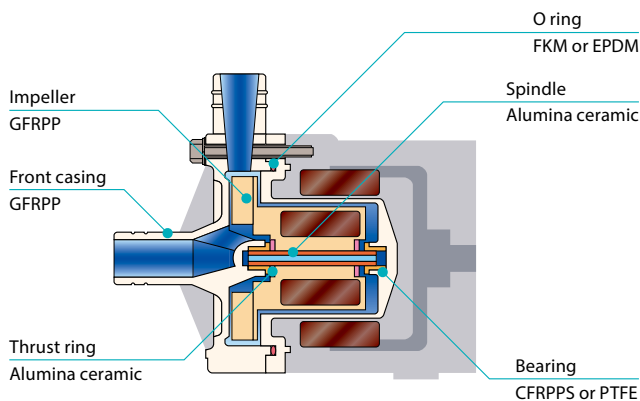
Note1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0–55°C and that of the heat resistant union is 0–80°C.

Note2: Single phase of 200 V model is special order. Please contact us for details.

Note3: The above values are for single phase of 100 V model.

Construction and Materials

Illustration shows model MD-30R



- **GFRPP** Glass fiber reinforced polypropylene
- **CFRPSS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon[®]", etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump Identification

MD - 30 RZ -5 M - 220 E N

1 2 3 4 5 6

- 1 Pump size**
15, 20, 30, 40
- 2 Type**
R : Standard type
RZ : High head type
RX : Large capacity type
- 3 Frequency**
No mark : common 50/60 Hz
-5 : 50 Hz only (for 40RZ)
- 4 Connection**
No mark : Hose type
M : G thread connection
- 5 Motor**
220 : 220V–240V single phase
- 6 Material of O-ring**
No mark : FKM (Standard)
E : EPDM (Special order)

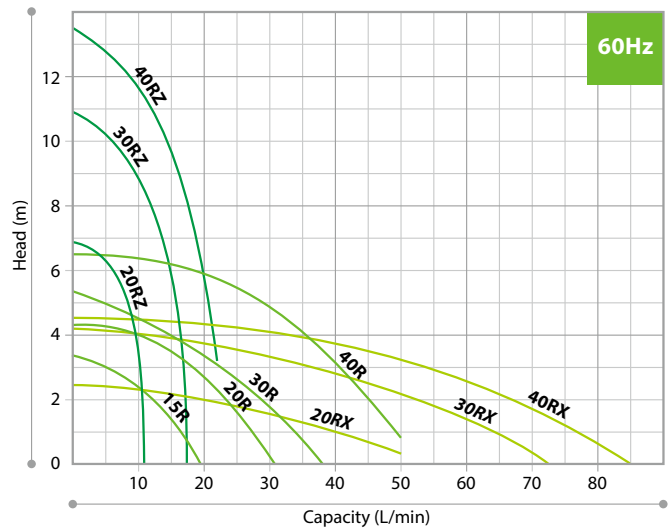
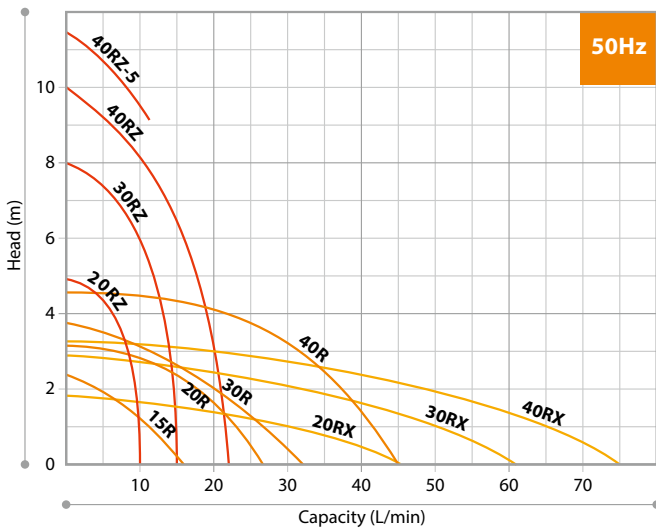


MD-30R



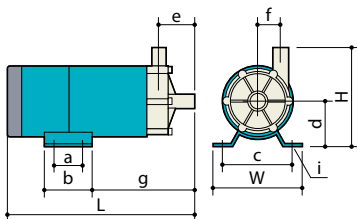
MD-40R

Performance Curves



Dimensions in mm

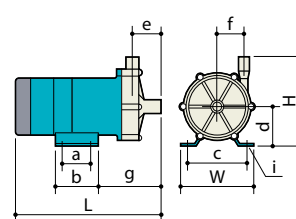
MD-15R, 20R, 30R, 40R
Illustration shows MD-30R



Model	W	H	L	a	b	c	d	e	f	g	i
MD-15R	95	109 (114)	179.5 (179)	-	50	68	55	(38.5)	21.5	92 (91.5)	2 × Ø5.6
MD-20R	85	115 (106.3)	208.5 (203)	44	60	90	45	38.5 (33)	28.5	101.5 (96)	4 × [6×10]
MD-30R	120	130	248 244	40	64	100	60	48	31	137 129	4 × Ø9

- Dimension of the () inside are thread connection type.
- The number is rounded up to the nearest whole number.

MD-20RZ, 30RZ, 40RZ
Illustration shows MD-20RZ



Model	W	H	L	a	b	c	d	e	f	g	i
MD-20RZ	106	125	211	44	60	90	55	39.5	38.5	98	4 × [5.7×8]
MD-30RZ		130	230							120	
MD-40RZ	120			40	64	100	60	38.5	44.5	128	4 × Ø9
MD-40RZ-5	150	235									
MD-20RX	106	119 (122)	220	44	60	90	45	46.5		105	4 × [5.7×8]
MD-30RX		137	254								
MD-40RX	120	(140)	250	40	64	100	60	50		143	4 × Ø9

- Dimension of the () inside are thread connection type.
- RZ type (Hose connection) and RZM type (Thread connection type) are the same dimensions.
- The number is rounded up to the nearest whole number.

MD-55, 70, 100

GFRPP
50/60 Hz

- Max. Capacity **40/43–135/135** L/min
- Max. Head **5.6/8.2–14.3/20.3** m



MD-55R

Specifications (50/60 Hz)

Model	Hose connection R - RZ		Thread connection RM - RZM		Diameter of flange	Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source ^{Note2}		Mass (kg)
	Inlet(mm)	Outlet(mm)	Inlet/Outlet	Union ^{Note1}							Single phase	Three phase	
MD-55R	Ø26	Ø26	G1	20A	–	60/70	5.6/8.2	1.2	90/90	130/170	220 V–240 V	–	5.4
MD-55R-5						70/–	8.2/–		90/–	170/–			
MD-70R	Ø20	Ø20	G3/4	16A	20A	86/97	6.7/9.7	1.0	150/180	235 ^{Note3} /365 ^{Note3}			
MD-70RZ					–	40/43	14.3/20.3		180/216	275 ^{Note3} /395 ^{Note3}			
MD-100R	Ø26	Ø26	G1	20A	25A	120/135	8.6/11.9	1.2	260 ^{Note3} /260	245/365	220 V/380 V 400 V/440 V	8.5	
MD-100R-5					–	11.7/–	1.1		260 ^{Note3} /–	365/–			

- Temperature range: 0–80°C (Contact us for applications below zero.)
- Limit of viscosity: 30 mPa·s (at 1.0 S.G.) • Ambient temperature: 0–40°C
- Motor type: Capacitor-run induction motor

Note1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0–55°C and that of the heat resistant union is 0–80°C.

Note2: Single phase of 200 V model is special order. Please contact us for details.

Note3: The above values are for single phase of 100 V model.

Construction and Materials

Illustration shows model MD-100R

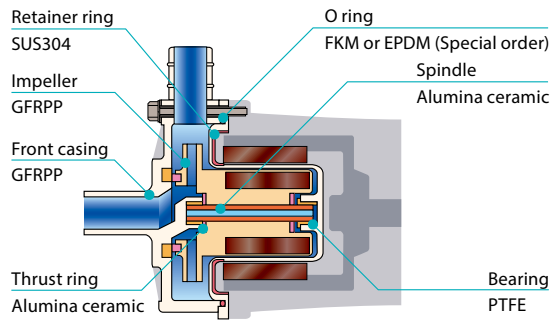
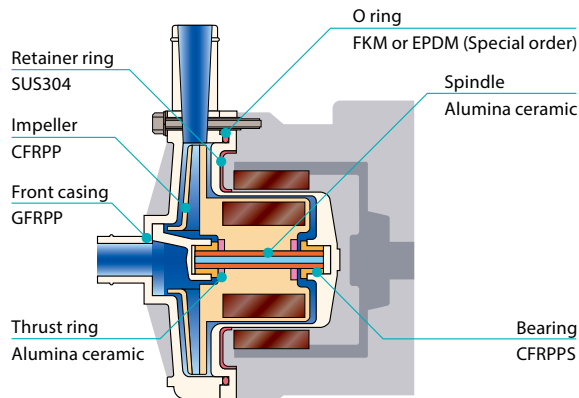


Illustration shows model MD-70RZ



Pump Identification

MD - 100 R -5 M

1 2 3 4

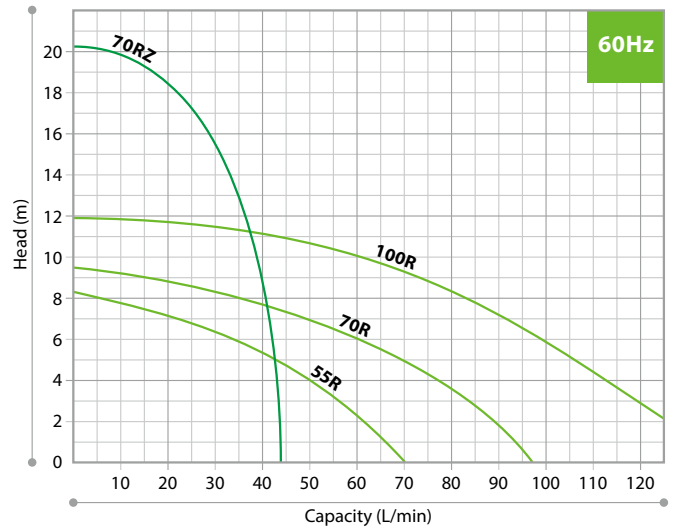
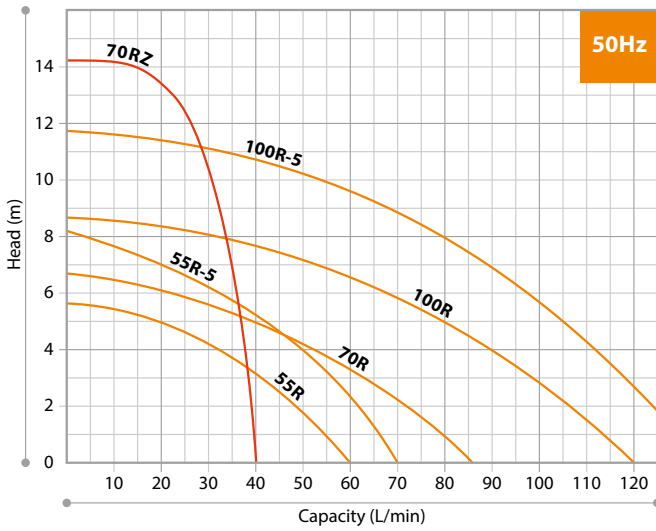
- Pump size**
55, 70, 100
- Type**
R : Standard type
RZ : High head type (Only 70RZ)
- Frequency**
No mark : common 50/60 Hz
-5 : 50 Hz only (Without model 70)
- Connection**
No mark : Hose type
M : G thread connection
MD-55R-5M, MD-100R-5M
M-FL : Flange connection
(Without model 55, 70RZ)^{Note}

• Specify the pump model and power specification at an inquiry phase.
Note: For the MD-100 of 50 Hz flange connection type, the model code is different from others. **MD-100RM-5-FL**

- **GFRPP** : Glass fiber reinforced polypropylene
- **CFRPP** : Carbon fiber reinforced polypropylene
- **CFRPPS** : Carbon fiber reinforced polyphenylene sulfide
- **PTFE** : Polytetrafluoroethylene ("Teflon[®]" etc.)
- **FKM** : Fluorine rubber
- **EPDM** : Ethylene propylene rubber



Performance Curves

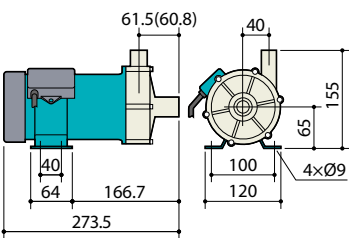


Dimensions in mm

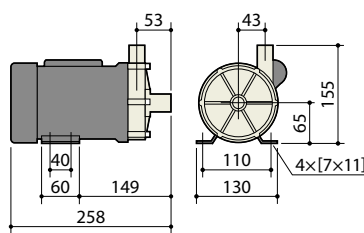
() : Thread connection type

MD-55R, 55R-5

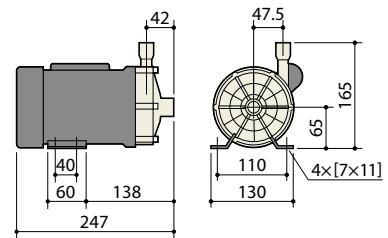
Illustration shows MD-55R



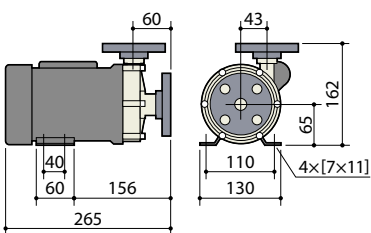
MD-70R



MD-70RZ

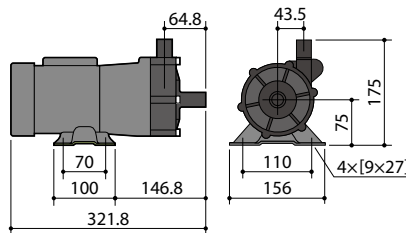


MD-70RM-FL

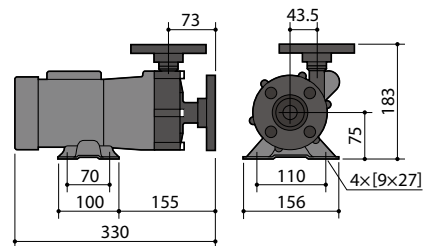


MD-100R, 100R-5

Illustration shows MD-100R



MD-100RM-FL, 100RM-5FL



Optional Accessories

Union Joint

Special-purpose union joints are available to cope with three types (13mm, 16mm and 20mm dia.) of piping. Tight sealing O-rings are used to prevent thread damage caused by over-tightening.



Specifications

Model	13A	H13A	16A	H16A	20A	H20A
Material	PVC	HT-PVC	PVC	HT-PVC	PVC	HT-PVC
Range of temp.	0-55°C	0-80°C	0-55°C	0-80°C	0-55°C	0-80°C
Material of O-ring	FKM or EPDM					

Please specify the type and the O-ring material at the time of arrangements.

Self-Priming Chamber

Once fill up liquid, repriming is not required. It is very easy to use MD pump with self-priming chamber.



Specifications

Model	SC-4V	SC-4E	SC-7V	SC-7E
Material of O-ring	FKM	EPDM	FKM	EPDM
Connection	G3/4		G1	
Suction limit	0.8m		1.2m	
Range of tank	0.8L		1.3L	
Applicable pump	MD-30RM-N, MD-40RM-N		MD-70RM	

Self-priming height depends on liquid temperature and characteristics. Please consult us for more details. A union fitting is required for use.

Precautions for pump selection

- The performance curves shown in this catalog are data for fresh water at 20 ° C. The maximum capacity is the capacity when the head is 0 m. The maximum head indicates the total head.
- The magnetic drive pump cannot be operated under a valve closed continuously. Be sure to secure the minimum capacity.
The Minimum pump capacity = Maximum pump capacity x 0.1 (Please consult us for more details)
- Maximum allowable working pressure = Maximum pump head x 1.5 (Please consult us for more details.)
- The temperature range of the handling liquid is 0 to 80 ° C. However, it depends on the conditions such as a heat cycle of the liquid to be handled. (Frozen liquid cannot be used.)

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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.

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