

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

Our 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 in more than thirty countries worldwide.



## 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 GRPP

- Max Discharge capacity **5.5 - 11** L/min
- Max Discharge head **1.0 - 2.1** m



MD-15R



MD-20R



MD-30R

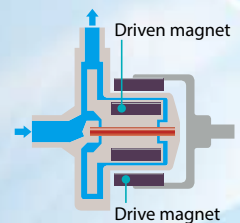
### MD-15•20•30•40 GRPP

- Max Discharge capacity **10 - 75** L/min
- Max Discharge head **1.8 - 11.5** 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 such as conventional mechanical 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

- Max Discharge capacity **40 - 135** L/min
- Max Discharge head **5.6 - 14.3** m

# Extensive product range

## Ease of maintenance

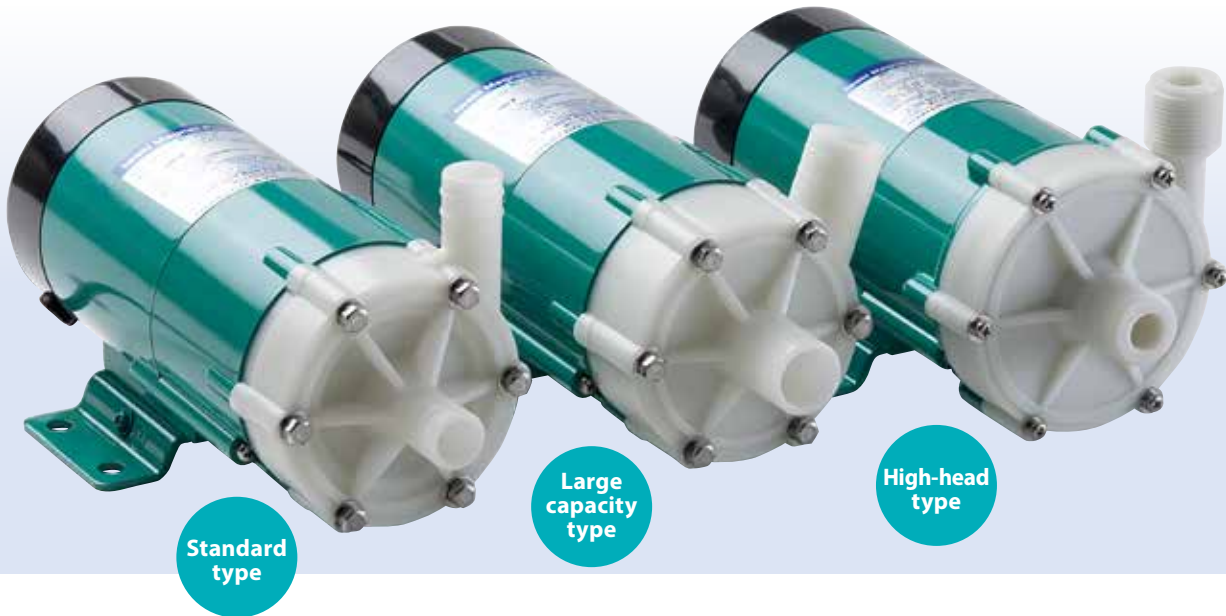
The MD series has GFRPP wet ends. Hose connections, thread connections and flange connections (only 70<sup>Note</sup>.100 size) are available. A large selection of models offer a wide flow range of 8.0-135L/min.

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

### Outline of the series

Main Material	Models	Max. discharge capacity (l/min)							Max. discharge head (m)				Limit of specific gravity
		20	40	60	80	100	120	140	5	10	15	20	
GFRPP	<b>MD-6K</b> Standard type	8.0							1.0				1.2
	<b>MD-6ZK</b> High head type	5.5							2.1				1.1
	<b>MD-10K</b> Standard type	11							1.5				1.1
	<b>MD-15R</b> Standard type	16							2.4				1.3
	<b>MD-20R</b> Standard type	27							3.1				1.1
	<b>MD-20RX</b> Large capacity type	46							1.8				1.3
	<b>MD-20RZ</b> High head type	10							4.6				1.1
	<b>MD-30R</b> Standard type	32							3.8				1.3
	<b>MD-30RX</b> Large capacity type	62							2.9				1.1
	<b>MD-30RZ</b> High head type	15							8.0				1.0
	<b>MD-40R</b> Standard type	45							4.6				1.1
	<b>MD-40RX</b> Large capacity type	75							3.3				1.1
	<b>MD-40RZ</b> High head type	22							10				1.0
	<b>MD-40RZ-5</b>	11							11.5				1.0
	<b>MD-55R</b> Standard type	60							5.6				1.2
	<b>MD-55R-5</b>	70							8.2				1.2
	<b>MD-70R</b> Standard type	86							6.7				1.0
	<b>MD-70RZ</b> High head type	40							14.3				1.0
	<b>MD-100R</b> Standard type	120							8.6				1.2
	<b>MD-100R-5</b>	135							11.7				1.1



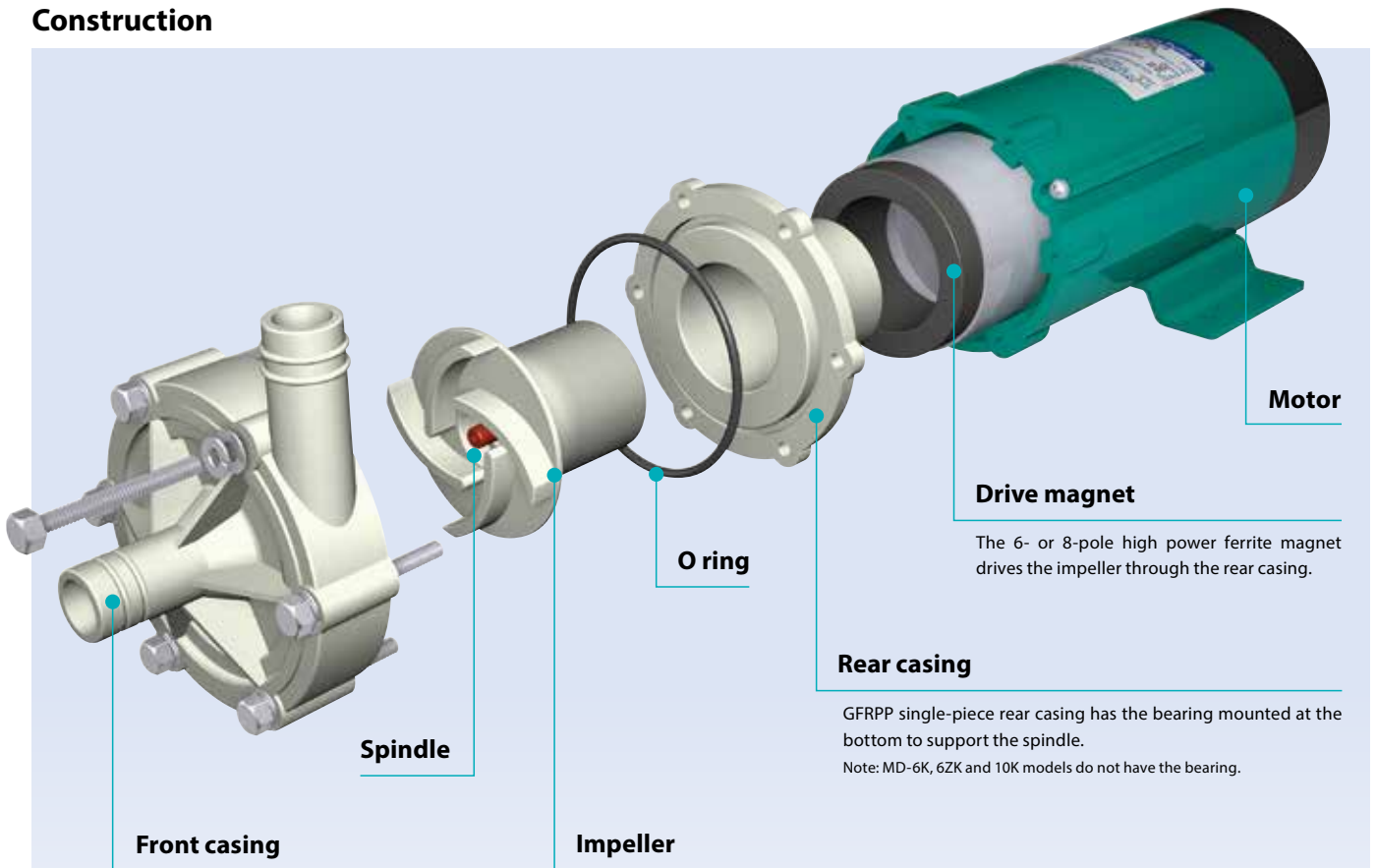


Standard type

Large capacity type

High-head type

### Construction



Motor

Drive magnet

The 6- 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.

O ring

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.

Spindle

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



Open type

Semi-open type

Closed type

# MD-6K·6ZK·10K GFRPP

- Max Discharge capacity **5.5 - 11 L/min**
- Max Discharge head **1.0 - 2.1 m**



MD-6K



MD-10K

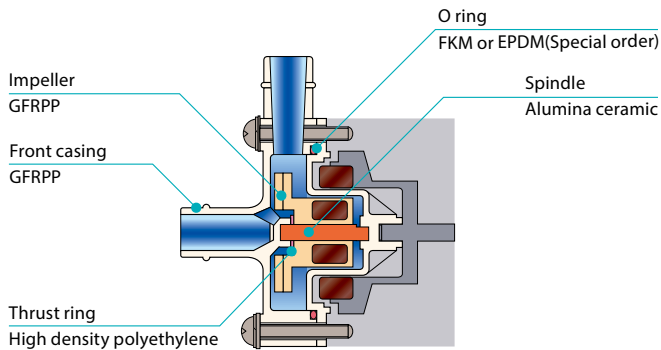
## Specifications (50Hz)

Model	Hose connection		Max. Capacity L/min	Max. Head m	S.G.	Output W	Inlet W	Power source	Mass kg
	Inlet (mm)	Outlet (mm)							
MD-6K	Ø14	Ø14	8.0	1.0	1.2	5	12	220 - 240V Single phase	0.9
MD-6ZK			5.5	2.1	1.1				
MD-10K			11	1.5	1.1				

• Temperature range: 0 - 80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1 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

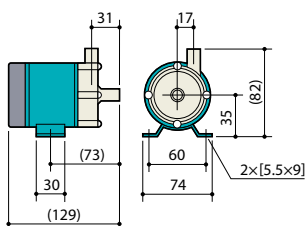
## Pump identification

**MD - 6 ZK - E N**  
 1 2 3

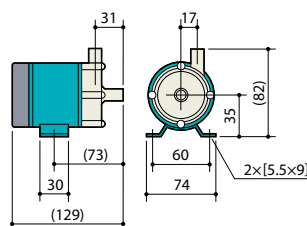
- 1 Pump size  
**6, 10**
- 2 Type  
**K** : Standard type  
**ZK** : High head type
- 3 Material of O ring  
No mark : FKM  
**E** : EPDM (Special order)

## Dimensions (mm)

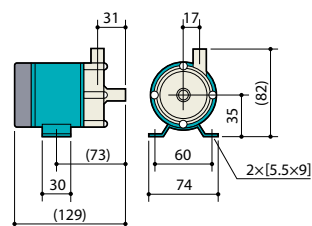
MD-6K



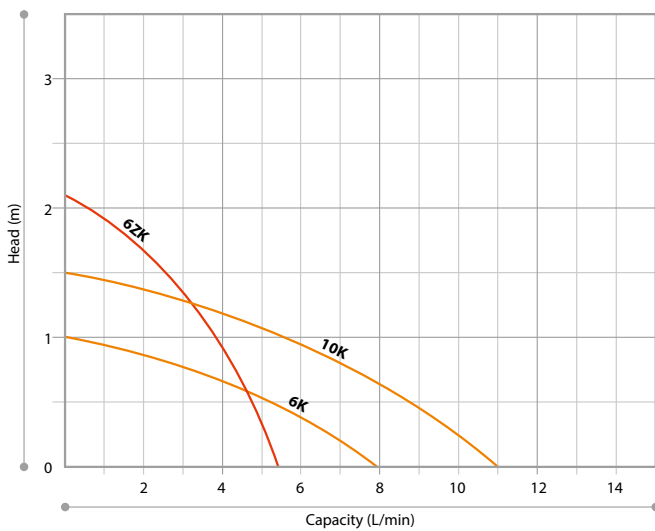
MD-6ZK



MD-10K



### Performance curves



### MD-6•MD-6Z•MD-10



#### Specifications (50/60Hz)

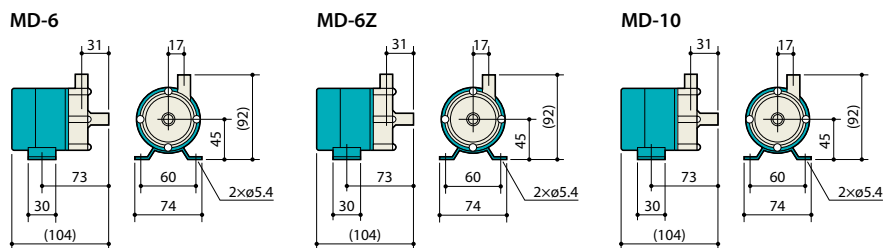
Model	Hose connection		Max. Capacity L/min	Max. Head m	S.G.	Output W	Input W	Power source	Mass Kg
	Inlet (mm)	Outlet (mm)							
MD-6	14	14	8.0 / 9.0	1.0 / 1.4	1.2	3 / 3	22 / 22	100V Single phase	0.9
MD-6Z			5.5 / 6.0	2.1 / 2.7	1.1				
MD-10			11 / 12	1.5 / 2.1					

- Temperature range: 0 - 80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1 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

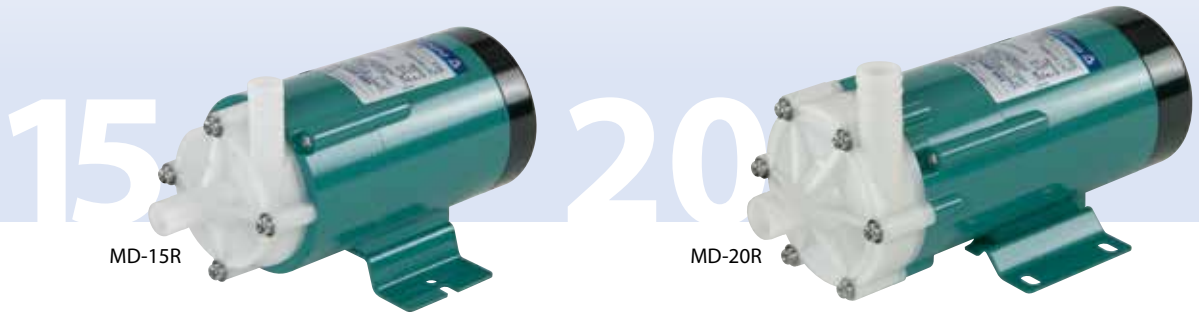
- MD - 6 Z**
- 1 2
- 1 Pump size  
**6, 10**
- 2 Type  
No mark : Standard type  
**Z** : High head type

#### Dimensions (mm)



# MD-15·20·30·40 GFRPP

- Max Discharge capacity **10 - 75 L/min**
- Max Discharge head **1.8 - 11.5 m**



## Specifications (50Hz)

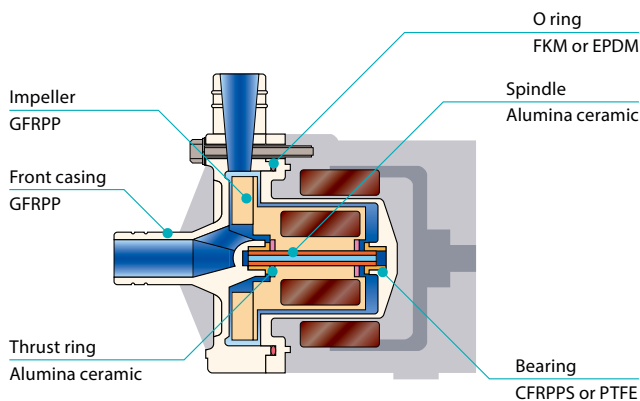
Model	Hose connection		Thread connection		Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	R · RZ · RX		R · M · RZ · M · RX · M								
	Inlet(mm)	Outlet(mm)	Inlet/Outlet	Union <sup>Note1</sup>							
MD-15R(M)	Ø14	Ø14	G3/4	13A	16	2.4	1.3	10	26	220V - 240V Single phase	1.6
MD-20R(M)	Ø18	Ø17	G3/4	16A	27	3.1	1.1	20	40		2.0
MD-20RX(M)	Ø26	Ø26	G1	20A	46	1.8	1.3				
MD-20RZ(M)	Ø17.5	Ø17	G3/4	13A	10	4.9	1.1	45	60		3.5
MD-30R(M)	Ø20	Ø20	G3/4	16A	32	3.8	1.3		70		4.0
MD-30RX(M)	Ø26	Ø26	G1	20A	62	2.9	1.1				
MD-30RZ(M)	Ø17.5	Ø17	G3/4	13A	15	8.0	1.0	65	90		3.5
MD-40R(M)	Ø20	Ø20	G3/4	16A	45	4.6	1.1		85		3.9
MD-40RX(M)	Ø26	Ø26	G1	20A	75	3.3			115		
MD-40RZ(M)	Ø20	Ø20	G3/4	16A	22	10	1.0	103			
MD-40RZ-5(M)					11	11.5		65			

• Temperature range: 0 - 80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1 S.G.) • Ambient temperature: 0 - 40°C  
 • Motor type: Capacitor-run induction motor

Note 1: 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.

## Construction and materials

Illustration shows model MD-30R



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

## Pump identification

**MD - 30 RZ M - 220 E N**

1      2      3      4      5

- Pump size**  
15, 20, 30, 40
- Type**  
R : Standard type  
RZ-(5) : High head type  
RX : Large capacity type
- Connection**  
No mark : Hose type  
M : G thread connection
- Motor**  
220 : 220V - 240V single phase
- Material of O ring**  
No mark : FKM (Standard)  
E : EPDM (Special order)



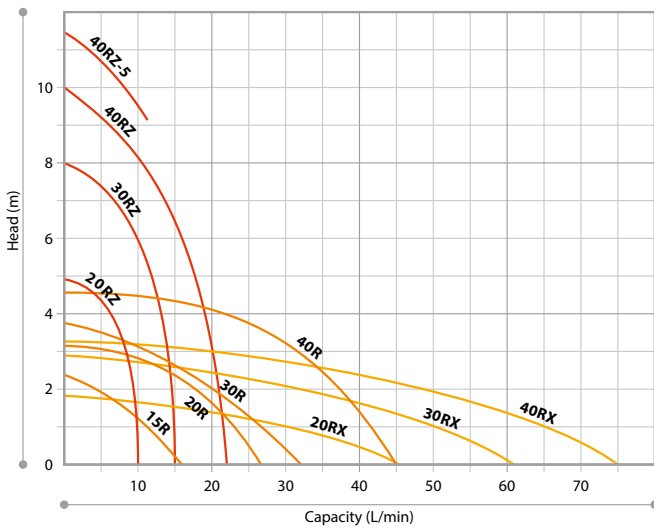


MD-30R



MD-40R

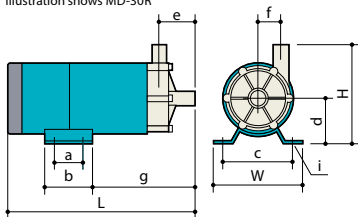
**Performance curves** (50Hz)



**Dimensions** (mm)

**MD-15R(M)-20R(M)-30R(M)-40R(M)**

Illustration shows MD-30R

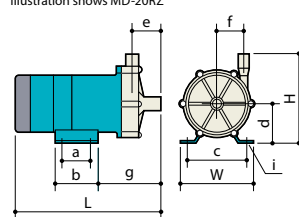


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15R(M)	95	109 (114)	179.5 (179)	—	50	68	55	39 (38.5)	21.5	92 (91.5)	2 × Ø5.6
MD-20R(M)	85	115 (116.3)	208.5 (203)	30	50	68	55	38.5 (33)	28.5	101.5 (96)	4 × [6×10]
MD-30R(M)	120	130	248	40	64	100	60	48	31	137	4 × Ø9
MD-40R(M)			244							129	

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

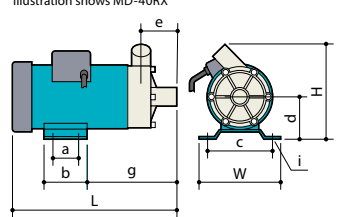
**MD-20RZ(M)-30RZ(M)-40RZ(M)**

Illustration shows MD-20RZ



**MD-20RX(M)-30RX(M)-40RX(M)**

Illustration shows MD-40RX



Model	W	H	L	a	b	c	d	e	f	g	i
MD-20RZ(M)	85	125	211	30	50	68	55	39.5	38.5	104	4 × [5.7×8]
MD-30RZ(M)			130	230						120	
MD-40RZ(M)	120	150	235	40	64	100	60	38.5	44.5	128	4 × Ø9
MD-40RZ-5(M)											
MD-20RX(M)	85	119 (122)	220	30	50	68	55	46.5	—	118	4 × [5.7×8]
MD-30RX(M)	120	137 (140)	254	40	64	100	60	50	—	143	4 × Ø9
MD-40RX(M)			250								

- 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

- Max Discharge capacity **40 - 135 L/min**
- Max Discharge head **5.6 - 14.3 m**



MD-55R

## Specifications (50Hz)

Model	Hose connection		Thread connection		Max. Capacity (L/min)	Max. Head (m)	S.G.	Output (W)	Input (W)	Power source		Mass (kg)
	R · RZ		R · M · RZ · M							Single phase	Three phase	
	Inlet(mm)	Outlet(mm)	Inlet/Outlet	Union <sup>Note1</sup>								
MD-55R(M)	Ø26	Ø26	G1	20A	60	5.6	1.2	90	130	220V - 240V	-	5.4
MD-55R-5(M)					70	8.2		90	170			
MD-70R(M)	Ø20	Ø20	G3/4	16A	86	6.7	1.0	150	235	220V/380V 400V/440V	6.0	8.5
MD-70RZ(M)					40	14.3		180	275			
MD-100R(M)	Ø26	Ø26	G1	20A	120	8.6	1.2	260	245	220V/380V 400V/440V	6.0	8.5
MD-100R-5(M)					135	11.7	1.1	260	365			

• Temperature range: 0 - 80°C (Contact us for applications below zero.) • Limit of viscosity: 30 mPa·s (at 1 S.G.) • Ambient temperature: 0 - 40°C

• Motor type: Capacitor-run induction motor

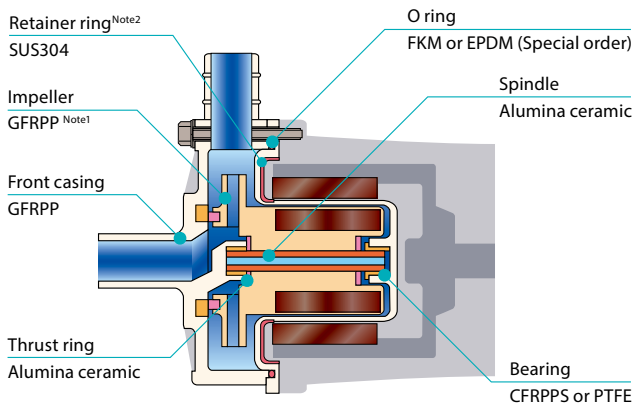
Note 1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0 - 55°C and that of the heat resistant union is 0 - 80°C.

## Construction and materials

Illustration shows model MD-100R

Note 1: MD-70RZ / 100R is "CFRPP (carbon fiber reinforced polypropylene)".

Note 2: MD-70RZ/MD-100R only.



- **GFRPP** Glass fiber reinforced polypropylene
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

## Pump identification

MD - **100** **R** **M**

1 2 3

- Pump size**  
**55, 70, 100**
- Type**  
**R** : Standard type  
**R-5** : Standard type (Only 50Hz)  
**RZ** : High head type (Only 70RZ)
- Connection**  
No mark : Hose type  
**M** : G thread connection  
MD-55R-5M, MD-100R-5M

• Specify the pump model and power specification at an inquiry phase.

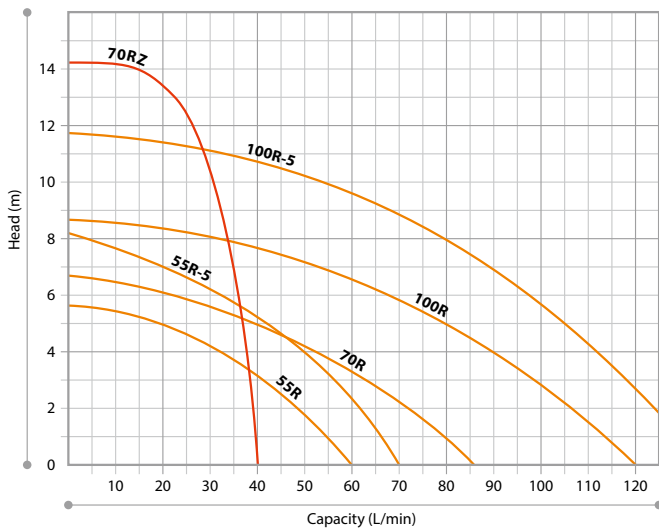
MD-70R



MD-100R



**Performance curves** (50Hz)

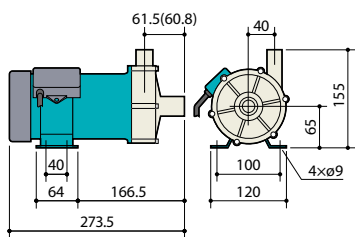


**Dimensions** (mm)

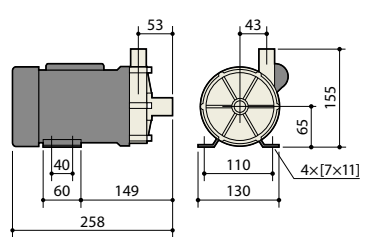
( ) : Thread connection type

**MD-55R(M)-55R-5(M)**

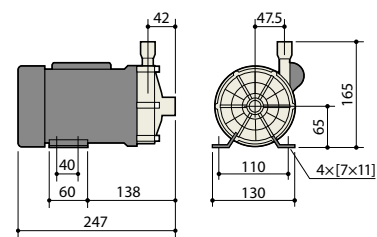
Illustration shows MD-55R



**MD-70R(M)**

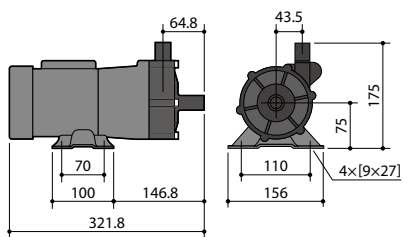


**MD-70RZ(M)**



**MD-100R(M)-100R-5(M)**

Illustration shows MD-100R



## Special 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 contact us for 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 discharge amount is the discharge amount when the lift is 0 m. The maximum head indicates the total head.
- The magnet pump cannot be operated continuously due. Be sure to plan to secure the minimum flow rate. Minimum pump flow rate = Maximum pump flow rate x 0.1 (Please contact us for details)
- Pump pressure limit = Pump maximum head x 1.5 (Please contact us for details.)
- The temperature range of the handling liquid is 0 to 80 °C. However, it depends on the conditions such as the 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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