MD
series

Magnetic drive pumps

A worldwide best-seller, our high-quality compact magnetic drive pumps

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.

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.

Large selection

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-6 MD-10

MD-6·10 GRRPP

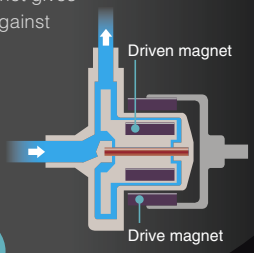
- Max Discharge capacity **5.5 - 11** l/min
- Max Discharge head **1.0 - 2.1** m

MD-15R MD-20R MD-30R

MD-15·20·30·40 GRRPP

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

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.



Operating Principle

High corrosion-resistance

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

Easy 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 GRRPP

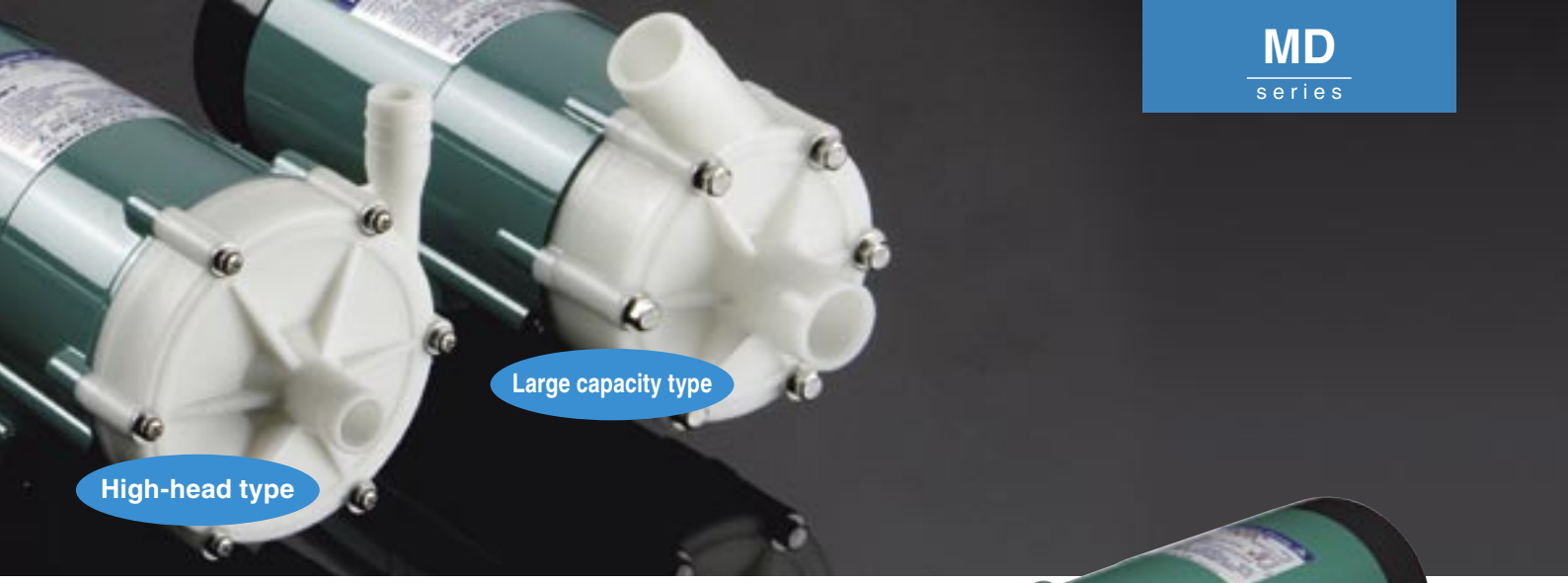
- Max Discharge capacity **40 - 135** l/min
- Max Discharge head **5.6 - 14.3** m

Wide variation
Easy maintenance

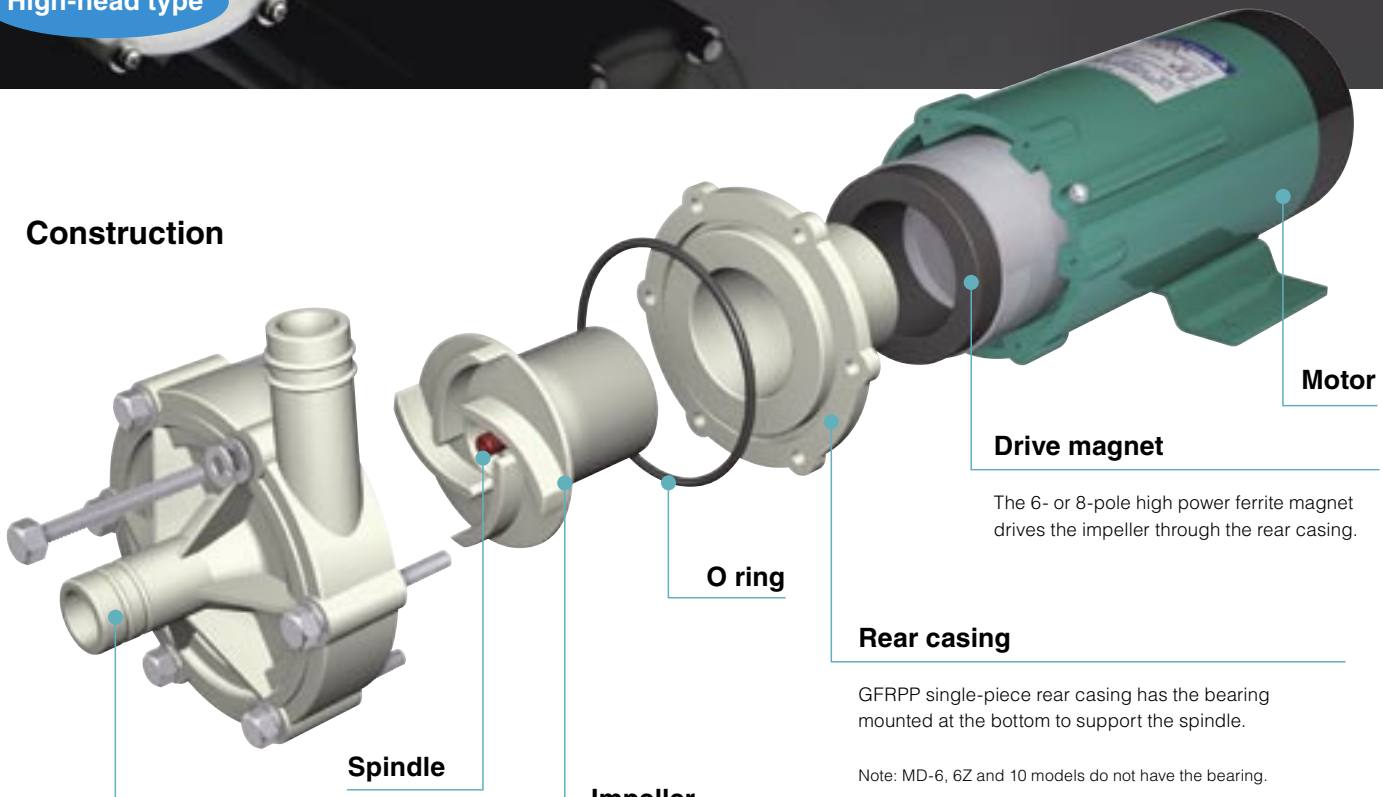
The MD series has GFRPP wet ends. Hose connections and threaded connections are available. A large selection of models offer a wide flow range of 5.5-135L/min.

Outline of the series (50Hz)

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



Construction



Motor

Drive magnet

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

O ring

Rear casing

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

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

Spindle

Impeller

The ferrite magnet is encapsulated into the impeller. For rotating spindle models, an alumina ceramic spindle is integrally molded with the impeller.
Open, closed or semi-open type impellers can be selected according to performance requirements.
Note: MD-6, 6Z and 10 models use a fixed spindle design.


Standard type


High-head type RZ


Large-capacity type RX

Front casing

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

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


Hose connection type


Thread connection type

MD-6·10 GRRPP

- Range of Max. discharge capacity: **5.5 - 11** L/min
- Range of Max. discharge head: **1.0 - 2.1** m

6 10

MD-6

MD-10

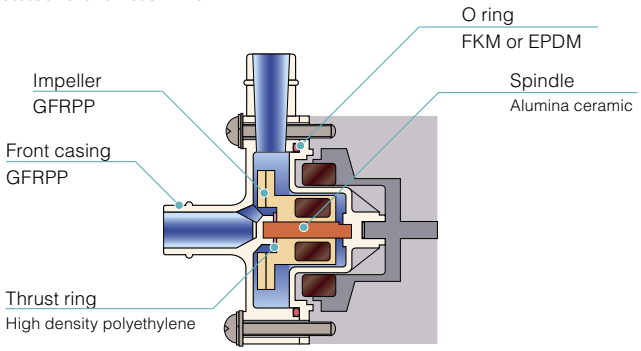
Specifications (50Hz)

Model	Hose connection		Max. Capacity	Max.Head	S.G.	Output	Input	Phase	Mass
	Inlet (mm)	Outlet (mm)	L/min	m		W	W		kg
MD-6	14	14	8.0	1.0	1.2	3	22	220 - 240V Single phase	0.9
MD-6Z			5.5	2.1	1.1	3	24		
MD-10			11	1.5	1.1	6	35		

• 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.

Construction and materials

Illustlation shows model MD-6

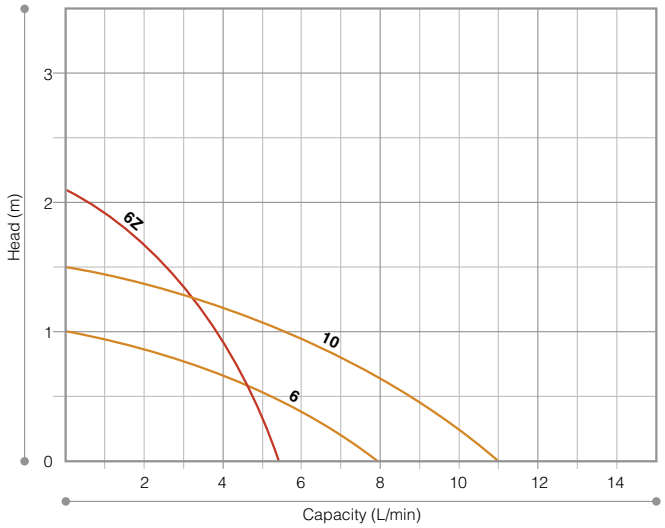


Pump identification

MD - 6 Z

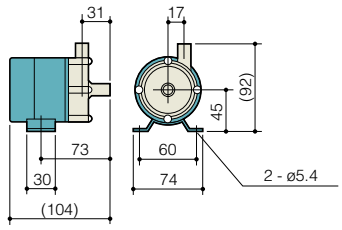
- Pump size
  6, 10
- Type
  No mark: Standard type
  Z: High head type

Performance curves (50Hz)

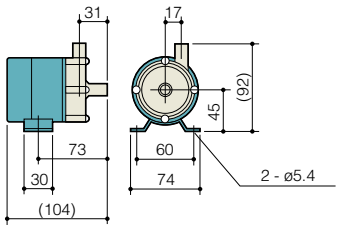


Dimensions (mm)

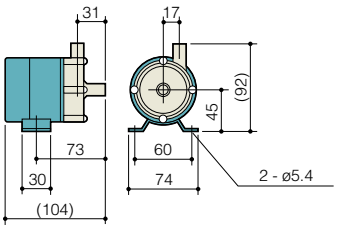
MD-6



MD-6Z

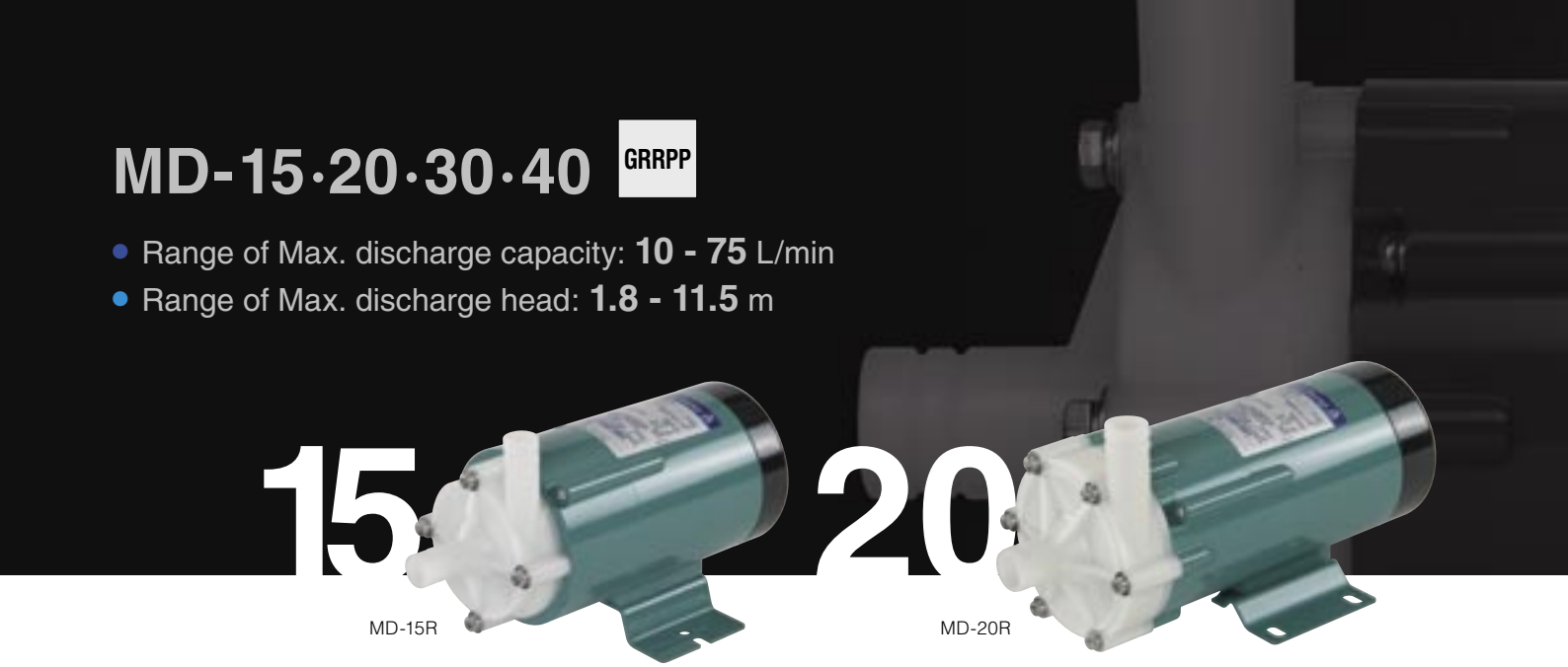


MD-10



MD-15·20·30·40 GRRPP

- Range of Max. discharge capacity: **10 - 75** L/min
- Range of Max. discharge head: **1.8 - 11.5** m



MD-15R

MD-20R

Specifications (50Hz)

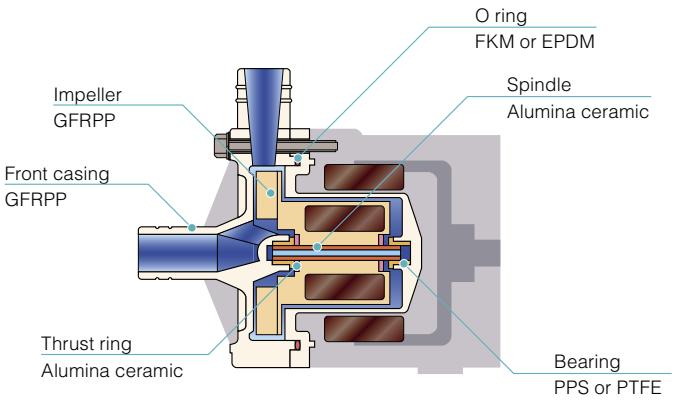
Model	Hose connection R · RZ · RX		Threaded connection R-M · RZ-M · RX-M		Max. Capacity	Max.Head	S.G.	Output	Input	Power source	Mass
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) (Note1)	(L/min)	(m)		(W)	(W)		(kg)
MD-15R(M)	14	14	G3/4	13	16	2.4	1.3	10	26	220V - 240V Single phase	1.6
MD-20R(M)	18	17	G3/4	16	27	3.1	1.1	20	40		2.0
MD-20RX(M)	26	26	G1	20	46	1.8	1.3				
MD-20RZ(M)	17.5	17	G3/4	13	10	4.9	1.1				
MD-30R(M)	20	20	G3/4	16	32	3.8	1.3	45	60		3.5
MD-30RX(M)	26	26	G1	20	62	2.9	1.1		70		
MD-30RZ(M)	17.5	17	G3/4	13	15	8.0	1.0				
MD-40R(M)	20	20	G3/4	16	45	4.6	1.1	65	90		3.9
MD-40RX(M)	26	26	G1	20	75	3.3			85		
MD-40RZ(M)	20	20	G3/4	16	22	10	1.0		140		
MD-40RZ-5(M)					11	11.5		65	140		

• 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 size on above table shows the nominal diameter of the applicable PVC pipe. Heat resistance of the standard union is 0 - 55˚C.

Construction and materials

Illustlation shows model MD-30R



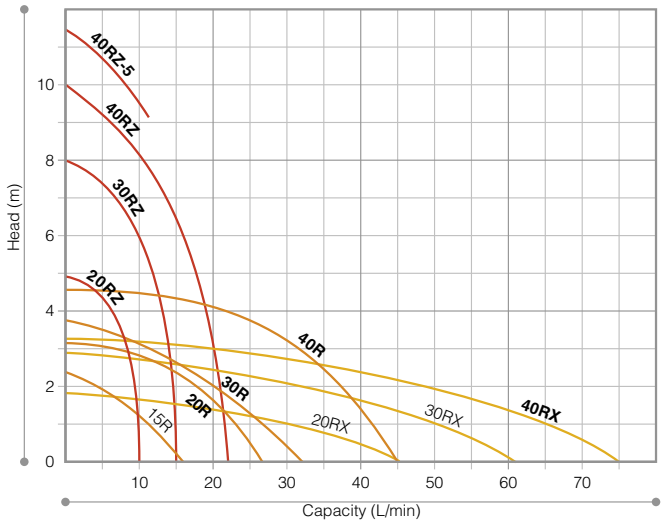
MD - 30 RZ M - 220N E

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

MD-30R

MD-40R

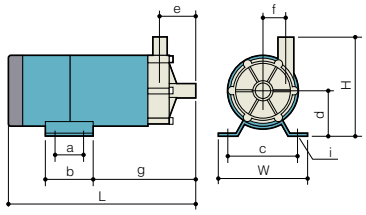
Performance curves (50Hz)



Dimensions (mm)

MD-15R(M)·20R(M)·30R(M)·40R(M)

Illustration shows MD-30R

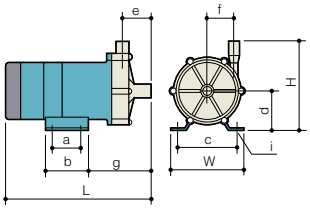


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15R(M)	95	109 (114)	180 (179)	–	50	68	55	39	22	92	2 - ø5.6
MD-20R(M)	106	105 (107)	209 (203)	44	60	90	45	39 (33)	29	94 (88)	4 - 6×10
MD-30R(M)	120	130	248	40	64	100	60	48	31	137	4 - ø9
MD-40R(M)			250								

Note1: Dimension of the ( ) inside are thread connection type.

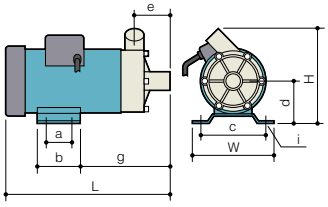
MD-20RZ(M)·30RZ(M)·40RZ(M)

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)	106	125	211	44	60	90	55	40	39	98	4 - 6×10
MD-30RZ(M)	120	130	230	40	64	100	60	39	45	120	4 - ø9
MD-40RZ(M)		150	241							128	
MD-40RZ-5(M)											
MD-20RX(M)	106	119 (122)	220	44	60	90	45	47	–	105	4 - 6×10
MD-30RX(M)	120	137 (140)	254	40	64	100	60	50		143	4 - ø9
MD-40RX(M)		137 (141)	256								

Note1: Dimension of the ( ) inside are thread connection type.
Note2: RZ type (Hose connection) and RZM type (Thread connection type) are the same dimensions.

MD-55·70·100 GRRPP

- Range of Max. discharge capacity: **40 - 135** L/min
- Range of Max. discharge head: **5.6 - 14.3** m

MD-55R

Specifications (50Hz)

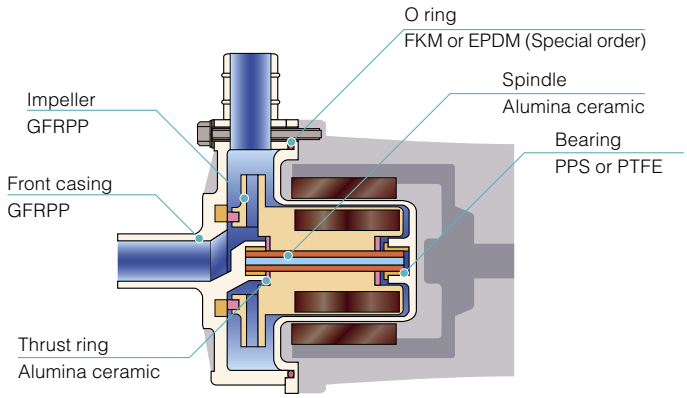
Model	Hose connection R · RZ		Threaded connection R-M · RZ-M		Max. Capacity	Max.Head	S.G.	Output	Input	Power source		Mass
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) (Note1)	(L/min)	(m)		(W)	(W)	Single phase	Three phase	(kg)
MD-55R(M)	26	26	G1	20	60	5.6	1.2	90	130	220V - 240V	–	5.4
MD-55R-5(M)					70	8.2		90	170			
MD-70R(M)	26	26	G1	20	86	6.7	1.0	150	235		400V/440V	6.0
MD-70RZ(M)	20	20	G3/4	16	40	14.3		180	275			
MD-100R(M)	26	26	G1	20	120	8.6	1.2	260	245			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 size on above table shows the nominal diameter of the applicable PVC pipe.
Heat resistance of the standard union is 0 - 55˚C and that of the heat resistant union is 0 - 80˚C.

Construction and materials

Illustlation shows model MD-100R



Pump identification

MD - 100 R M

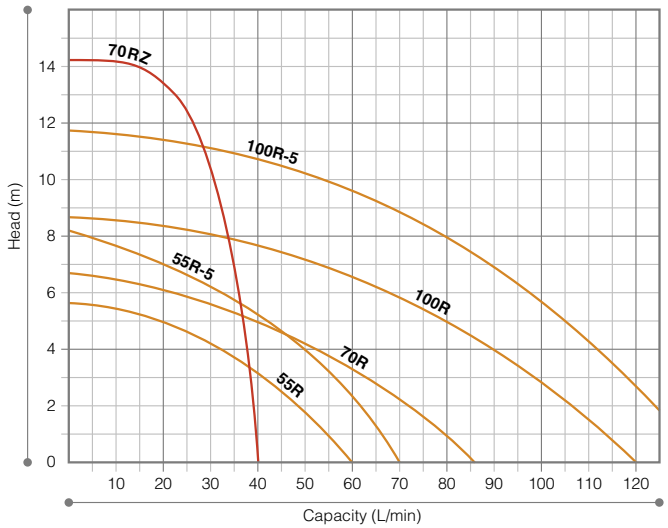
- Pump size
  55, 70, 100
- Type
  R: Standard type
  R-5: Standard type (50Hz only)
  RZ: High head type (70RZ only)
- Connection
  No mark: Hose type
  M: G thread connection
  MD-55R-5M, MD-100R-5M

Note3: Specify the pump model and power specification at an inquiry phase.

MD-70R

MD-100R

Performance curves (50Hz)

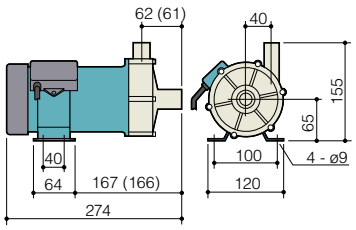


Dimensions (mm)

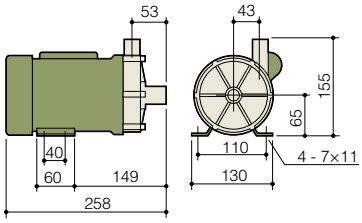
( ): Thread connection type

MD-55R·55R-5(M)

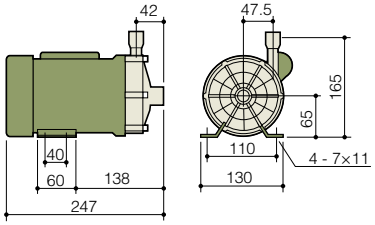
Illustration shows MD-55R



MD-70R(M)

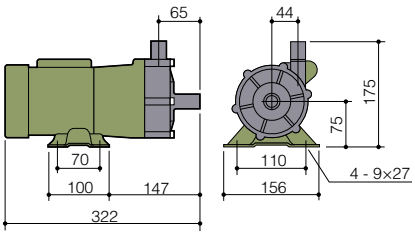


MD-70RZ(M)



MD-100R·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	16A	20A
Material	PVC	PVC	PVC
Range of temp.	0 - 55˚C	0 - 55˚C	0 - 55˚C
Material of O ring	FKM or EPDM		

• 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	0.8 m		1.2 m	
Range of tank	0.8 L		1.3 L	
Applicable pump	MD-30RM, MD-40RM		MD-70RM	

Note: Self-priming height depends on liquid temperature and characteristics.

Compact & Lightweight

The canned motor pump offers a solution for built-in application

Direct drive pumps **RD** series

- Lightweight & sealless structure
- Plastic canned motor pump
- DC 24 V brushless motor
- Employ built-in type driver for the motor
- The variable flow and pressure control by DC 1 to 5 V signal
- Corresponds to high temperature range Max. 80˚C
- The connection of three types can be chosen, thread, hose and quick fastener.

RD-12

RD-30

MD-55R-(5)(M), 70R(Z)(M), 100R-(5)(M)

Available with IEC frame motors

This type of unit allows the pumps to be supplied with numerous motor options.

MD-6Z-D2 (DC24V type)

Capable of flow adjustment by changing power supply voltage (and allows the user to easily comply with international standards such as CE, UL and CSA.)
Max. discharge capacity: 6 l/min.
Max. discharge head: 2.7 m
Temperature range: 0 to 50˚C
Supplied power: DC8V to 24V