IWAKI

Main material
GFRPP

IWAKI MAGNETIC DRIVE PUMPS

MD

Solutions for chemical handling 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 GFRPP 50/60Hz

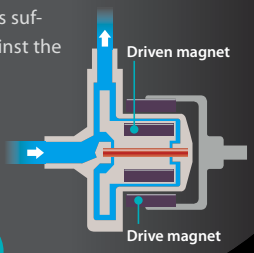
- Max Discharge capacity **5.5/6.0 - 11/12** L/min
- Max Discharge head **1.0/1.4 - 2.1/2.7** m

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

MD-15·20·30·40 GFRPP 50/60Hz

- Max Discharge capacity **10/11 - 75/85** L/min
- Max Discharge head **1.8/2.5 - 11.5/13.5** 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 GFRPP 50/60Hz

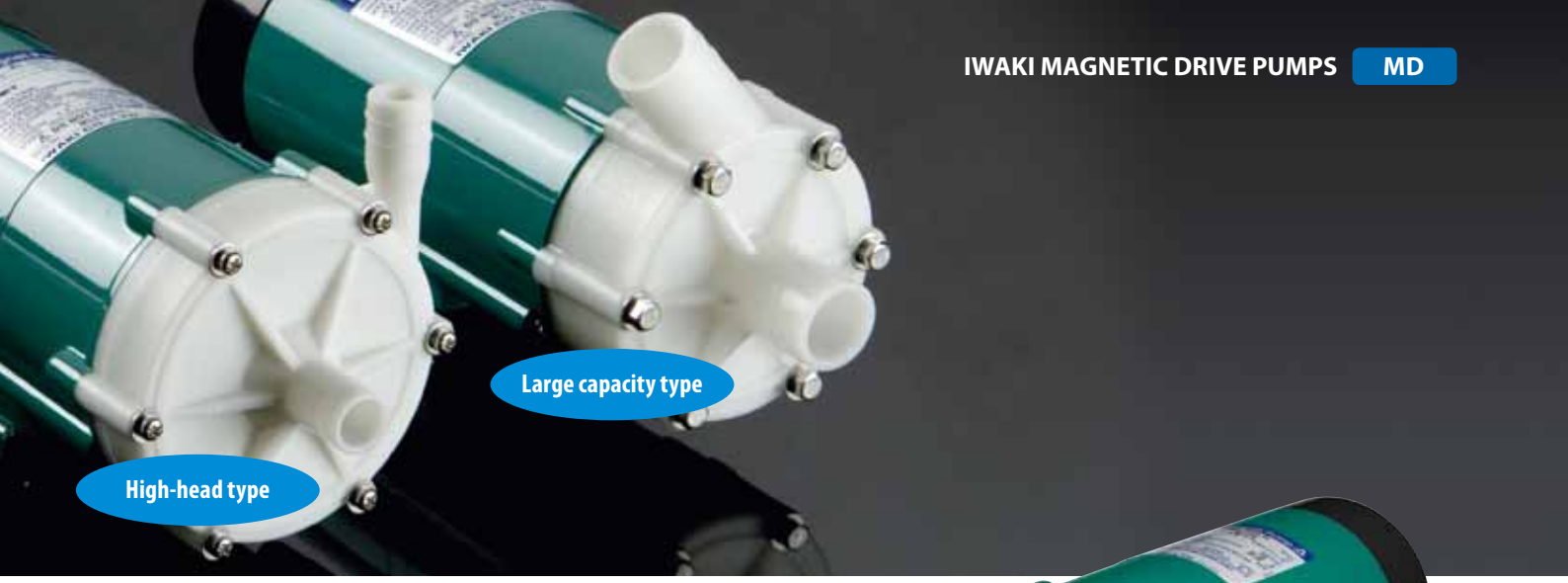
- Max Discharge capacity **40/43 - 135/135** L/min
- Max Discharge head **5.6/8.2 - 14.3/20.3** m

Wide variation
Easy maintenance

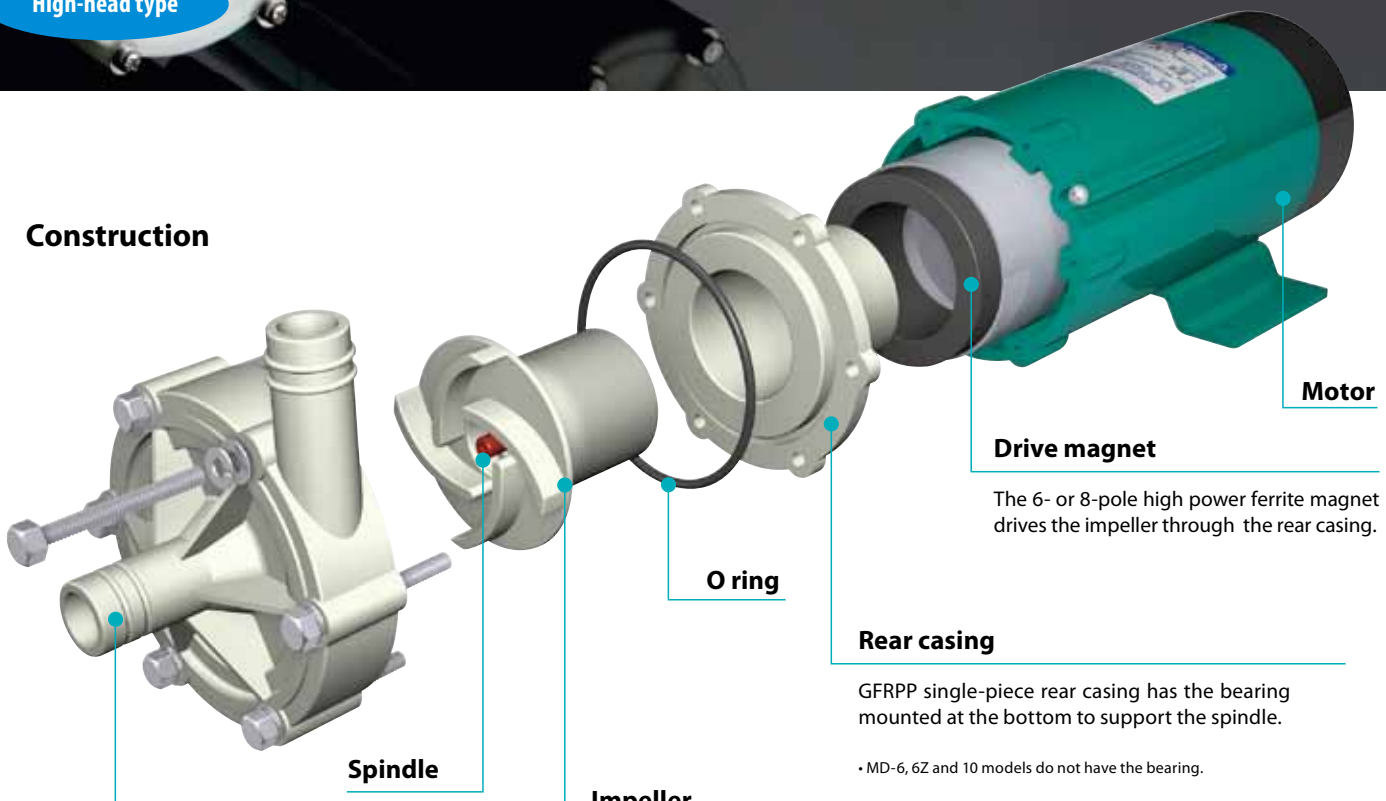
The MD series has GFRPP wet ends. Hose connections, threaded connections and flange connections (only 70·100 size) are available. A large selection of models offer a wide flow range of 8.0-135L/min.

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	MD-6 Standard type	50Hz	8.0	1.0	1.2
		60Hz	9.0	1.4	
	MD-6Z High head type	50Hz	5.5	2.1	1.1
		60Hz	6.0	2.7	
	MD-10 Standard type	50Hz	11	1.5	1.1
		60Hz	12	2.1	
	MD-15R Standard type	50Hz	16	2.4	1.3
		60Hz	19	3.4	
	MD-20R Standard type	50Hz	27	3.1	1.1
		60Hz	31	4.3	
	MD-20RX Large capacity type	50Hz	46	1.8	1.3
		60Hz	52	2.5	
	MD-20RZ High head type	50Hz	10	4.6	1.1
		60Hz	11	6.9	
	MD-30R Standard type	50Hz	32	3.8	1.3
		60Hz	38	5.4	
	MD-30RX Large capacity type	50Hz	62	2.9	1.1
		60Hz	72	4.1	
	MD-30RZ High head type	50Hz	15	8.0	1.0
		60Hz	17	11	
	MD-40R Standard type	50Hz	45	4.6	1.1
		60Hz	52	6.5	
	MD-40RX Large capacity type	50Hz	75	3.3	1.1
		60Hz	85	4.7	
	MD-40RZ High head type	50Hz	22	10	1.0
		60Hz	22	13.5	
	MD-40RZ-5 50Hz only	50Hz	11	11.5	1.0
	MD-55R Standard type	50Hz	60	5.6	1.2
		60Hz	70	8.2	
	MD-55R-5 50Hz only	50Hz	70	8.2	1.2
	MD-70R Standard type	50Hz	86	6.7	1.0
		60Hz	97	9.7	
	MD-70RZ High head type	50Hz	40	14.3	1.0
		60Hz	43	20.3	
	MD-100R Standard type	50Hz	120	8.6	1.2
		60Hz	135	11.9	
	MD-100R-5 50Hz only	50Hz	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.

• 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.

• MD-6, 6Z and 10 models use a fixedspindle design.

Front casing

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

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


Hose connection type


Thread connection type


Standard type R


High-head type RZ


Large-capacity type RX

MD-6·10

GFRPP
50/60 Hz

- Range of Max. discharge capacity: **5.5/6.0 - 11/12** L/min
- Range of Max. discharge head: **1.0/1.4 - 2.1/2.7** m

MD-6

MD-10

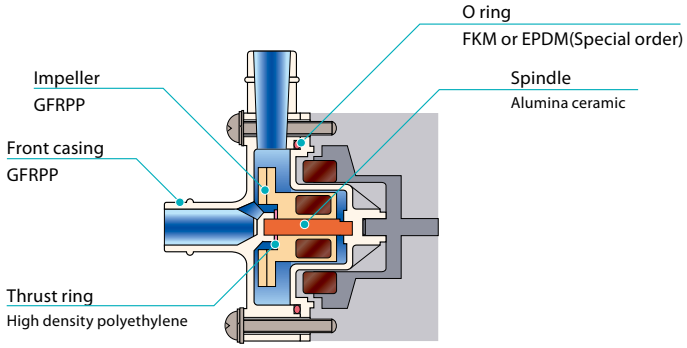
Specifications (50/60Hz)

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 / 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		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 S.G.) • Ambient temperature: 0 - 40˚C
• Motor type: Capacitor-run induction motor • MD-6, 6Z and 10 do not have thread connection type.

Construction and materials

Illustlation shows model MD-6

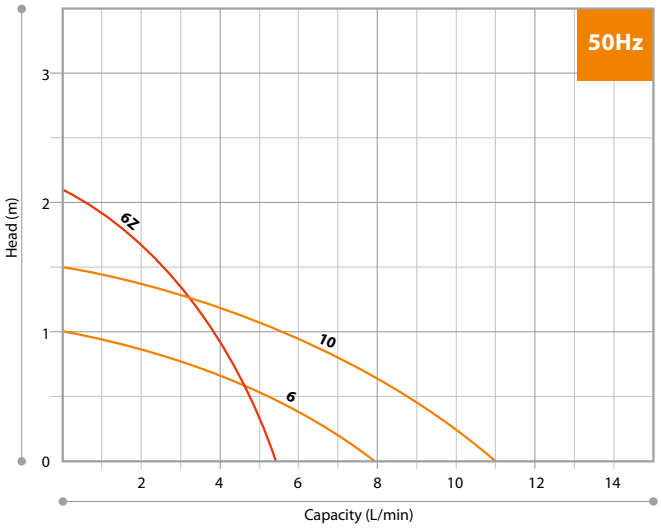


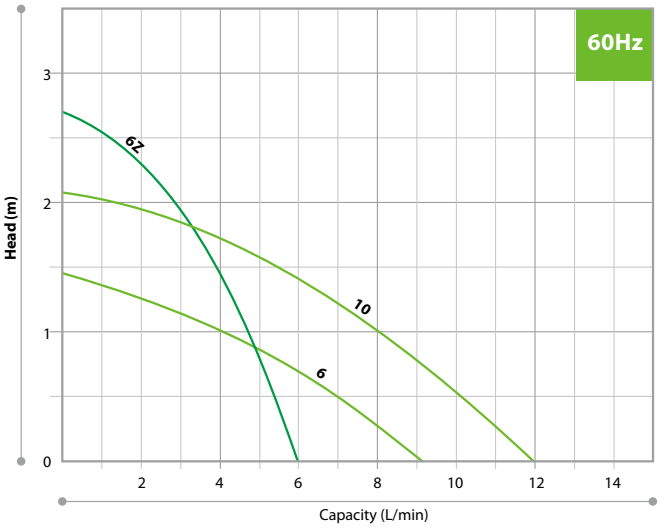
Pump identification

MD - 6 Z

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

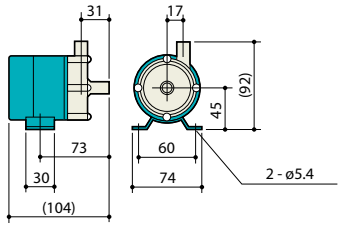
Performance curves



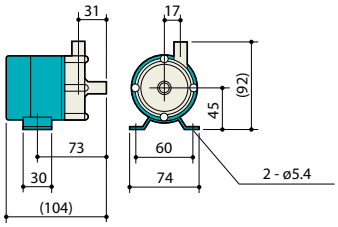


Dimensions (mm)

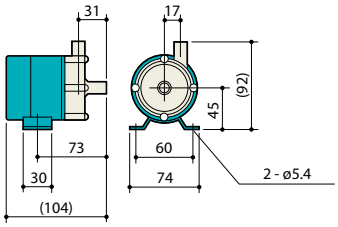
MD-6



MD-6Z



MD-10



MD-15·20·30·40

GFRPP
50/60 Hz

- Range of Max. discharge capacity: **10/11 - 75/85** L/min
- Range of Max. discharge head: **1.8/2.5 - 11.5/13.5** m

MD-15R

MD-20R

Specifications (50/60Hz)

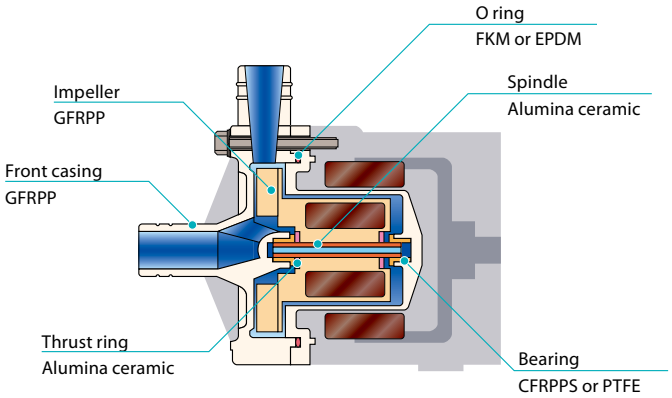
Model	Hose connection R · RZ · RX		Thread connection R-M · RZ-M · RX-M		Max. Capacity	Max.Head	S.G.	Output	Input	Power source (Note2)	Mass
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) (Note1)	(L/min)	(m)		(W)	(W)		(kg)
MD-15R	14	14	G3/4	13	16 / 19	2.4 / 3.4	1.3	10 / 10	26 / 31	100V/200V Single phase 220V - 240V Single phase	1.6
MD-20R	18	17	G3/4	16	27 / 31	3.1 / 4.3	1.1	20 / 20	40 / 50		2.0
MD-20RX	26	26	G1	20	46 / 52	1.8 / 2.5	1.3				
MD-20RZ	17.5	17	G3/4	13	10 / 11	4.9 / 6.9	1.1				
MD-30R	20	20	G3/4	16	32 / 38	3.8 / 5.4	1.3	45 / 45	60 / 80		3.5
MD-30RX	26	26	G1	20	62 / 72	2.9 / 4.1	1.1		70 / 90		
MD-30RZ	17.5	17	G3/4	13	15 / 17	8.0 / 11	1.0				
MD-40R	20	20	G3/4	16	45 / 52	4.6 / 6.5	1.1	65 / 65	90 / 130		3.9
MD-40RX	26	26	G1	20	75 / 85	3.3 / 4.7			85 / 120		
MD-40RZ	20	20	G3/4	16	22 / 22	10 / 13.5	1.0		115 / 160		
MD-40RZ-5					11 / –	11.5 / –		65 / –	103 / –		

• 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.
Note 2: Single phase of 200V model is special order. Please contact us for details.

Construction and materials

Illustlation shows model MD-30R-N



Pump identification

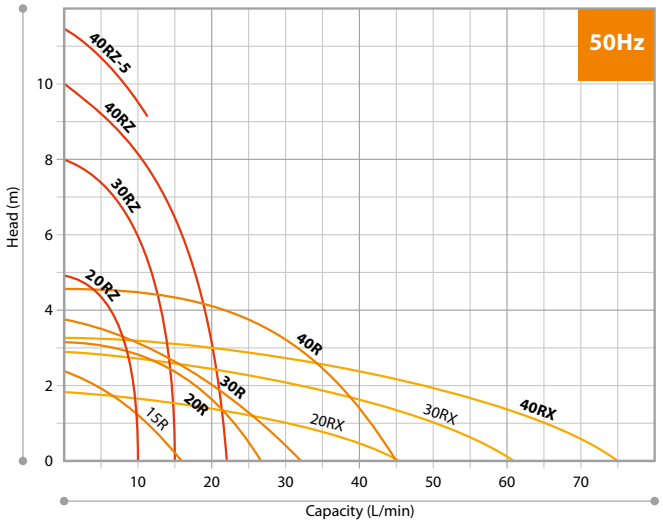
MD - 30 RZ -5 M - 200 E N

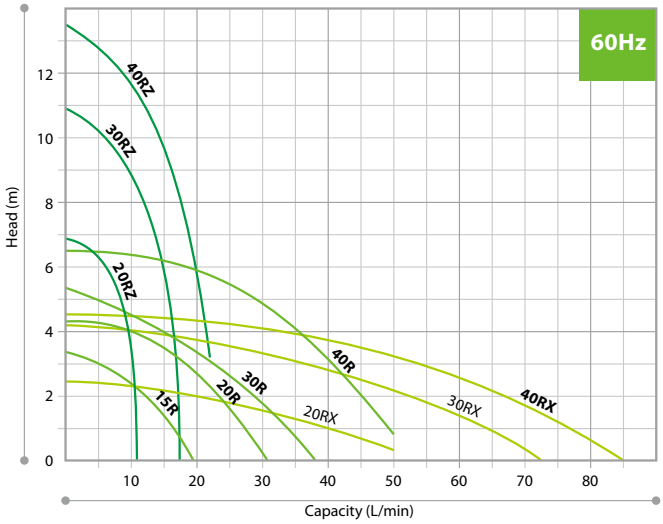
- Pump size
  15, 20, 30, 40
- Type
  R: Standard type
  RZ: High head type
  RX: High capacity type
- Frequency
  No mark: common 50/60Hz
  -5: 50Hz only (for 40RZ)
- Connection
  No mark: Hose type
  M: G thread connection
- Motor
  No mark: 100V single phase
  200: 200V single phase
  220: 220V - 240V single phase
- Material of O ring
  No mark: FKM (Standard)
  E: EPDM (Special order)

MD-30R

MD-40R

Performance curves

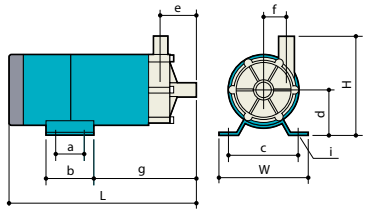




Dimensions (mm)

MD-15R·20R·30R·40R

Illustration shows MD-30R-N

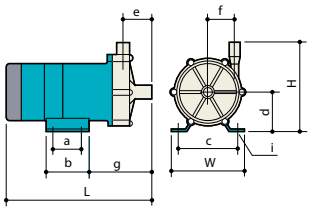


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15R	95	109 (114)	180 (179)	–	50	68	55	39	22	92	2 - ø5.6
MD-20R	106	105 (106.3)	209 (203)	44	60	90	45	39 (33)	29	94 (88)	4 - 6×10
MD-30R	120	130	248	40	64	100	60	48	31	137	4 - ø9
MD-40R			244								

• Dimension of the ( ) inside are thread connection type.

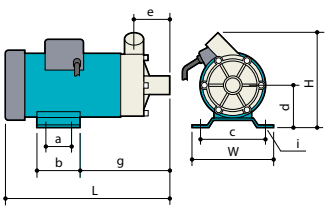
MD-20RZ·30RZ·40RZ

Illustration shows MD-20RZ-N



MD-20RX·30RX·40RX

Illustration shows MD-40RX-N



Model	W	H	L	a	b	c	d	e	f	g	i
MD-20RZ	106	125	211	44	60	90	55	40	39	98	4 - 6×10
MD-30RZ	120	130	230	40	64	100	60			120	4 - ø9
MD-40RZ		150	235					39	45	128	
MD-40RZ-5											
MD-20RX	106	119 (122)	220	44	60	90	45	47	–	105	4 - 6×10
MD-30RX	120	137 (140)	254	40	64	100	60	50		143	4 - ø9
MD-40RX		137 (141)	250								

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

MD-55·70·100

GFRPP
50/60 Hz

- Range of Max. discharge capacity: **40/43 - 135/135** L/min
- Range of Max. discharge head: **5.6/8.2 - 14.3/20.3** m

55 7

MD-55R

Specifications (50/60Hz)

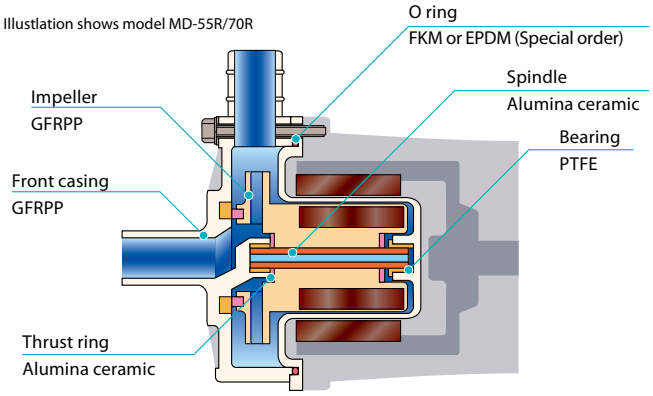
Model	Hose connection R · RZ		Thread connection R-M · RZ-M		Diameter of flange	Max. Capacity	Max.Head	S.G.	Output	Input	Power source (Note2)		Mass
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) (Note1)		(L/min)	(m)		(W)	(W)	Single phase	Three phase	(kg)
MD-55R	26	26	G1	20	–	60 / 70	5.6 / 8.2	1.2	90 / 90	130 / 170	100V/200V/ 220V - 240V	–	5.4
MD-55R-5					–	70 / –	8.2 / –		90 / –	170 / –			
MD-70R	26	26	G1	20	20A	86 / 97	6.7 / 9.7	1.0	150 / 180	235 / 365		220V/380V/ 400V/440V	6.0
MD-70RZ	20	20	G3/4	16	–	40 / 43	14.3 / 20.3		180 / 216	275 / 395			
MD-100R	26	26	G1	20	25A	120 / 135	8.6 / 11.9	1.2	260 / 265	245 / 365			8.5
MD-100R-5						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

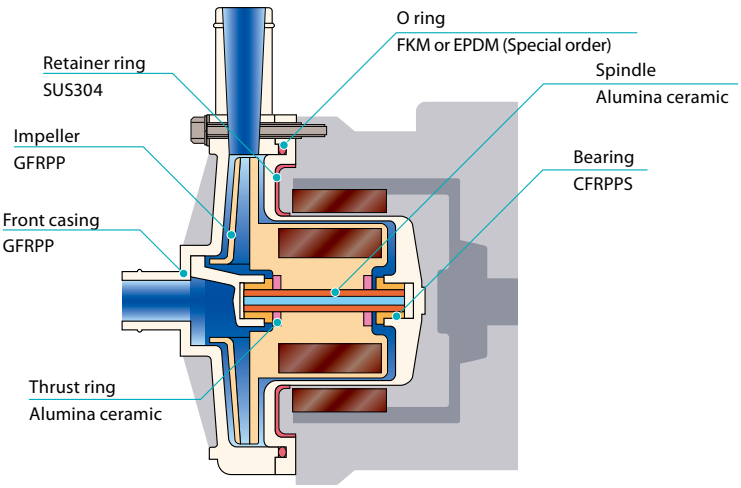
Note 1: The union field shows the nominal diameter of the applicable VP vinyl chloride hose. Heat resistance of the standard union is 0 - 55˚C and that of the heat resistant union is 0 - 80˚C.
Note 2: Single phase of 200V model is special order. Please contact us for details.

Construction and materials

Illustlation shows model MD-55R/70R



Illustlation shows model MD-70RZ/100R



Pump identification

MD - 100 R - 5 M

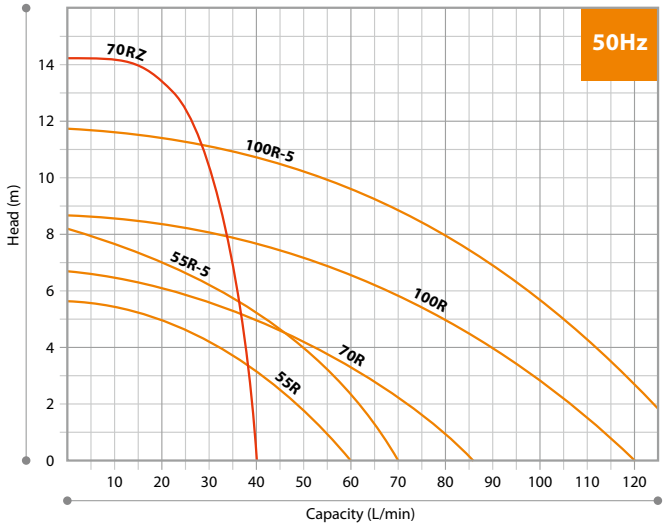
- Pump size
  55, 70, 100
- Type
  R: Standard type
  RZ: High head type (Only 70RZ)
- Frequency
  No mark: common 50/60Hz
  - 5: 50Hz only
  (Without model 70R)
- Connection
  No mark: Hose type
  M: G thread connection
  MD-55R-5M, MD-100R-5M
  M-FL: Flange connection
  (Without model 55R)(Note1)

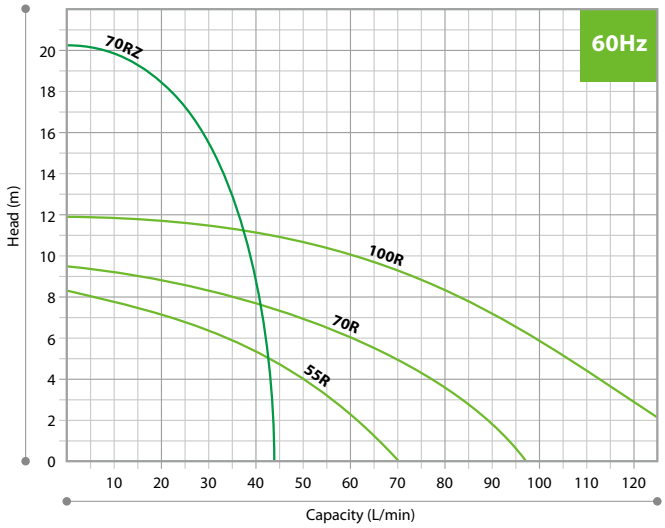
• Specify the pump model and power specification at an inquiry phase.
Note1: For the MD-100 of 50Hz flange connection type, the model code is different from others. **MD-100RM-5-FL**

MD-70R

MD-100R

Performance curves



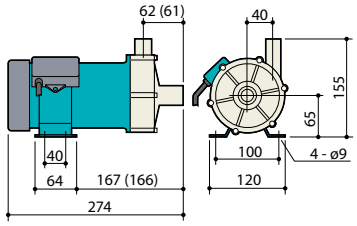


Dimensions (mm)

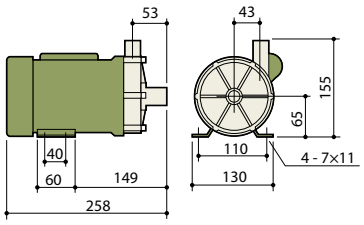
( ): Thread connection type

MD-55R·55R-5

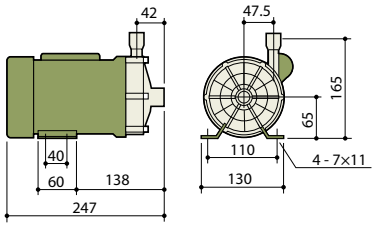
Illustration shows MD-55R



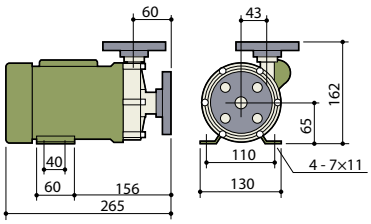
MD-70R



MD-70RZ

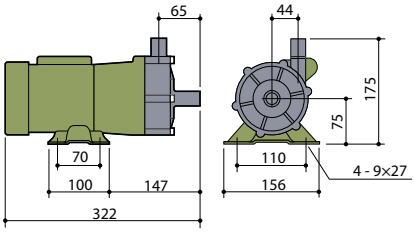


MD-70RM-FL

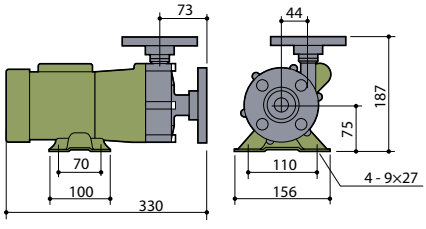


MD-100R·100R-5

Illustration shows MD-100R



MD-100RM-FL·100RM-5-FL



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					

• 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-N, MD-40RM-N		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

RD-40
(High head type)

RD-40X
(High flow type)

Specifications

RD-05, RD-05H, RD-20, RD-30

Model	Tube Connection (IN x OUT) mm	Max. capacity L/min	Max. head m	Motor Output W	Motor Power consumption W	Motor Revolution speed min^{-1}	Motor Power voltage VDC	Motor Operating condition	Ambient temperature ˚C	Liquid temperature range ˚C	Mass kg
RD-05	14 × 8	4.7	3.6	4.4	9.6	3500	24	continuous	0 - 40	0 - 40	0.4
RD-05H		7.9	11	18	39	6000					0.5
RD-20	18 ×18	19.5	9.3	28	60	3200				0 - 40	1.3
RD-30		23.5	11.5	45	77	3500					
RD-30TV24-HV		23.5	11.5	45	77	3500			0 - 50	0 - 80	1.3

• Operating voltage: 14 V to 24 V (Excluding RD-30TV24-HV) • An optional 500 mm cable is available. (Excluding RD-05H)
• The RD-30TV24-HV can be controlled by 1-5V external control signals. Its performance data above is based on operation with a 5V external control signal.

RD-12, RD-12Z (Power source 24 VDC Input signal 5.0 VDC)

Model	Connection sizes (IN x OUT) Quick fastener	Thread	Hose mm	Max. capacity L/min	Max. head m	Motor Power consumption W	Motor Rated voltage VDC	Motor Operating condition	Ambient temperature ˚C	Liquid temperature range ˚C	Mass kg
RD-12	P16 × P14	NPT3/8 × NPT3/8	18 × 18	12.7	6.8	24	24	continuous	0 - 50	0 - 75	0.4
RD-12Z	P16 × P10	NPT3/8 × NPT1/4	18 × 10	3.8	10.5	28.8				0 - 60	

• The RD-12/-12Z can be controlled by 1-5V external control signals. Its performance data above is based on operation with a 5V external control signal.
• An optional 500 mm cable is available.

RD-40, RD-40X

Model	Connection (IN x OUT)	Max. capacity L/min	Max. head m	Max. SG	Motor Output W	Motor Power source VDC	Mass kg
RD-40	Ø26 mm × Ø19 mm, R1 × R1/2, NPT1 × NPT1/2	25	15	1.0	85	24	1.5
RD-40X	Ø26 mm × Ø26 mm, R1 × R3/4, NPT1 × NPT3/4	70	8		72		

• The data is collected from operation with clean water at room temperature.
• The maximum capacity is obtained based on the presumption that delivery head is at 0 m. The maximum head is obtained based on the presumption that discharge capacity is at 0 L/min.
• The maximum viscosity is 1 mPa·s when the maximum specific gravity is 1.0.
• **Operating condition** **Ambient temperature**: 0 - 40ºC, **Liquid temperature**: 0 - 80ºC, **Ambient humidity**: 35 - 90%RH

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Before use of pump, read instruction manual carefully to use the product correctly.

⚠ Legal attention related to export.

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