



Magnetic drive pumps MD-F/V

Main material
MD-F: CFRETFE
MD-V: CFRPVDF



Compliant with highly corrosive/viscous liquids
High-end compact magnetic drive pumps

The Heart of Industry

Compliant with highly corrosive/viscous liquids

High-end compact magnetic drive pumps

Most chemicals can be handled including strong acid/alkaline.



High corrosion-resistance

The combination of the MD-F series with CFRETFE wet ends and the MD-V series with CFRPVDF wet ends covers most chemicals including strong acid/alkaline.



Viscosity responsiveness

The MD-F series is designed to pump highly viscous liquids such as strong acid. Three types of impellers are selectable according to liquid viscosity.

MD-F series



MD-15F



MD-30F



MD-55F



MD-100F

MD-15F-30F



- Max Discharge capacity **9/10 - 13/15** L/min
- Max Discharge head **3/3.1 - 8/11** m

MD-55F-100F

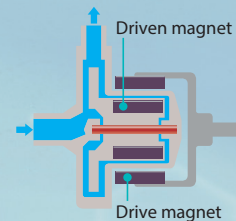


- Max Discharge capacity **60/55 - 125/135** L/min
- Max Discharge head **5.4/6.0 - 10.5/11.5** m



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.



Leak free

Magnetically-driven seal-less pumps are free from leak problems and the need of seal replacement. This feature and its compact nature offer the best fit in built-in applications.



Ease of maintenance

The pump unit is comprised of a small number of subunits, so that maintenance is significantly eased.

MD-V series



MD-6KV

MD-6KV CFR
PVDF
50/60Hz

- Max Discharge capacity **8.0/9.0** L/min
- Max Discharge head **1.0/1.4** m



MD-15V



MD-20V



MD-30V

MD-15V·20V·30V CFR
PVDF
50/60Hz

- Max Discharge capacity **10/11 - 32/38** L/min
- Max Discharge head **2.4/3.4 - 8.0/11** m



MD-70V

MD-70V CFR
PVDF
50/60Hz

- Max Discharge capacity **40/43 - 86/97** L/min
- Max Discharge head **6.7/9.7 - 14.3/20.3** m

Extensive product range according to chemical liquids

High S.G. /High-head types are available.

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	
CFR _{ETFE}	MD-15FX Low S. G. type	50Hz	10							4.1				1.4 <i>Note</i>
	MD-15FY Middle S. G. type	50Hz	9							3				2.2 <i>Note</i>
		60Hz	10							4				1.4 <i>Note</i>
	MD-15FZ High S. G. type	60Hz	10							3.1				2.1 <i>Note</i>
	MD-30FX Low S. G. type	50Hz	13							8				1.7 <i>Note</i>
		60Hz	15							11				1.5 <i>Note</i>
	MD-30FY Middle S. G. type	50Hz	10							6				2.2 <i>Note</i>
		60Hz	12							8				1.7 <i>Note</i>
	MD-30FZ High S. G. type	60Hz	11							7				2.1 <i>Note</i>
	MD-55FX Low S. G. type	50Hz	65							7.8				1.5 <i>Note</i>
	MD-55FY Middle S. G. type	50Hz	60							5.4				2.2 <i>Note</i>
		60Hz	65							7.8				1.5 <i>Note</i>
MD-55FZ High S. G. type	60Hz	55							6.0				2.2 <i>Note</i>	
MD-100FX Low S. G. type	50Hz	125							10.5				1.6 <i>Note</i>	
MD-100FY Middle S. G. type	50Hz	115							8.5				2.3 <i>Note</i>	
	60Hz	135							11.5				2.2 <i>Note</i>	
MD-100FZ High S. G. type	60Hz	115							8.5				2.2 <i>Note</i>	
CFR _{PVDF}	MD-6KV Standard type	50Hz	8.0							1.0				1.2
		60Hz	9.0							1.4				1.2
	MD-15RV Standard type	50Hz	16							2.4				1.3
		60Hz	19							3.4				1.3
	MD-20RZV High head type	50Hz	10							4.9				1.1
		60Hz	11							6.9				1.1
	MD-30RV Standard type	50Hz	32							3.8				1.3
		60Hz	38							5.4				1.3
	MD-30RZV High head type	50Hz	15							8.0				1.1
		60Hz	17							11				1.1
	MD-70RV Standard type	50Hz	86							6.7				1.0
		60Hz	97							9.7				1.0
MD-70RZV High head type	50Hz	40							14.3				1.0	
	60Hz	43							20.3				1.0	

Note: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)



Construction



Motor

Drive magnet

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

Rear casing

CFRETFE single-piece rear casing of the MD-F and CFRP-VDF single-piece rear casing of the MD-V. The bearing is placed at the bottom, supporting the spindle.

O ring

Impeller

MD-F CFRETFE single-piece closed impeller. Three impeller types (X • Y • Z) are available according to specific gravity.



X: Low S.G. impeller

Y: Middle S.G. impeller

Z: High S.G. impeller (60Hz only)

MD-V For the MD-V, the ferrite magnet is encapsulated into the CFRP-VDF impeller. For the rotating spindle type, an alumina ceramic spindle is integrally molded with the impeller.

Note: The MD-6KV-N is a fixed spindle type.

Front casing

MD-F CFRETFE injection mold of the safety thread connection type

MD-V CFRP-VDF hose connection is available as well as thread connection. Also union joints can be installed for the thread connection types.

Note: For the 6KV-N and 15RV-N, the thread connection type is not available.



Hose connection type

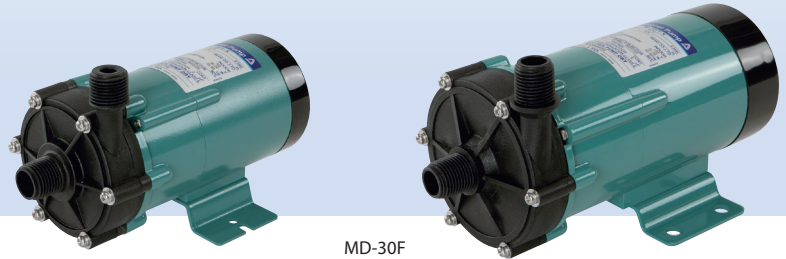
Thread connection type

Spindle

MD-15F-30F

C F R
E T F E
50/60 Hz

- Max Discharge capacity **9/10 - 13/15 L/min**
- Max Discharge head **3/3.1 - 8/11 m**



MD-15F

MD-30F

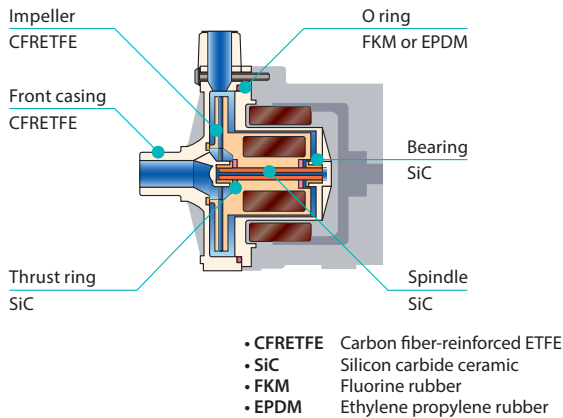
Specifications (50/60Hz)

Model	Type of Impeller	Thread connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G. ^{Note1}	Output (W)	Input ^{Note2} (W)	Power source	Mass (kg)
MD-15F	X	NPT1/2	10/-	4.1/-	1.4/-	10/-	38/-	100V/200V/ 220V - 240V Single phase	1.8
	Y		9/10	3/4	2.2/1.4	10/10	30/34		
	Z		-/10	-/3.1	-/2.1	-/10	-/31		
MD-30F	X	NPT1/2 or G3/4	13/15	8/11	1.7/1.5	45/45	70/90		3.5
	Y		10/12	6/8	2.2/1.7	45/45	70/90		
	Z		-/11	-/7	-/2.1	-/45	-/55		

• 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: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)
 Note2: The above values are for single-phase 100V.

Construction and materials

Illustration shows model MD-30F



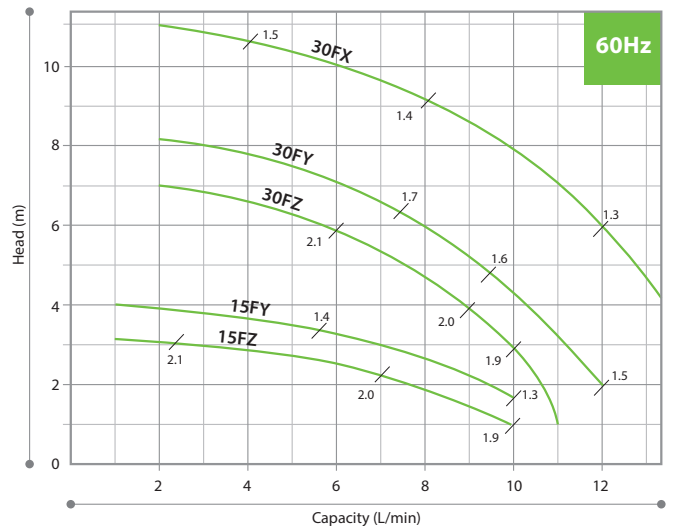
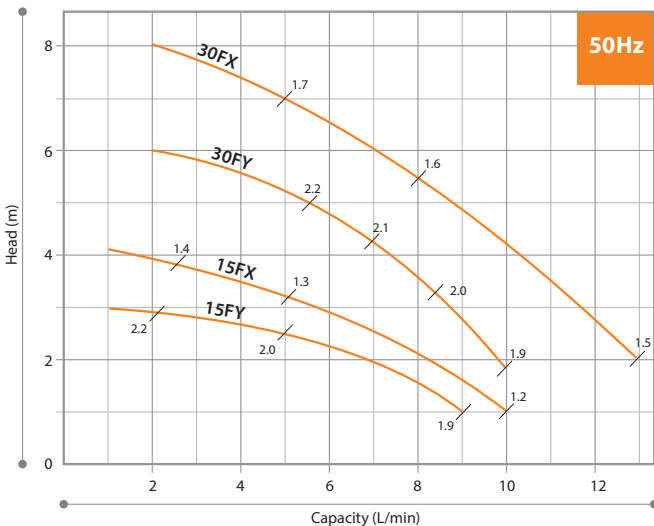
Pump identification

MD - 30F G Z - 200 E N

1 2 3 4 5

- Pump size**
15F, 30F
- Connection**
No mark : NPT thread connection
G : G thread connection
- Impeller**
X : Low S.G. type
Y : Middle S.G. type
Z : High S.G. type (60Hz)
- Motor**
No mark : 100V single (Standard)
200 : 200V single (Special order)
220 : 220/240V single
- Material of O ring**
No mark : FKM (Standard)
01 : EPDM (Special order)

Performance curves



MD-55F-100F

C F R
E T F E
50/60 Hz

- Max Discharge capacity **60/55 - 125/135 L/min**
- Max Discharge head **5.4/6.0 - 10.5/11.5 m**



MD-55F



MD-100F

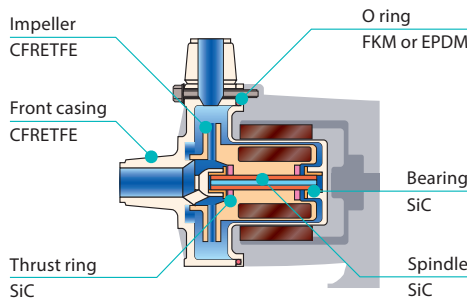
Specifications (50/60Hz)

Model	Type of Impeller	Thread connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G. ^{Note1}	Output (W)	Input ^{Note2} (W)	Power source		Mass (kg)		
								Single phase	Three phase			
MD-55F	X	R1 or G1	65/-	7.8/-	1.5/-	90/-	170/-	100V/200V/ 220V-240V	-	5.4		
	Y		60/65	5.4/7.8	2.2/1.5	90/90	130/170					
	Z		-/55	-/6.0	-/2.2	-/90	-/130					
MD-100F	X	R1 or G1	125/-	10.5/-	1.6/-	260/-	375/-				220V/380V/ 400V/440V	8.5
	Y		115/135	8.5/11.5	2.3/1.6	260/260	260/375					
	Z		-/115	-/8.5	-/2.2	-/260	-/285					

• 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: Please select from performance curve. (Limit of specific gravity varies depending on specification point.)
 Note2: The above values are for single-phase 100V.

Construction and materials

Illustration shows model MD-100F



- **CFRETFE** Carbon fiber-reinforced ETFE
- **SiC** Silicon carbide ceramic
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

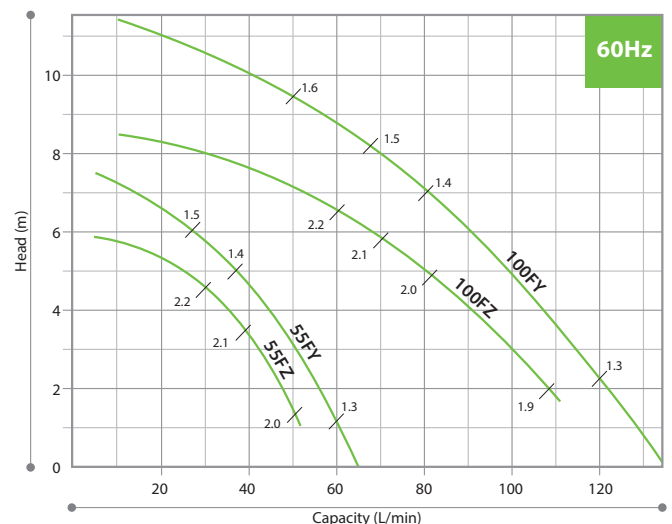
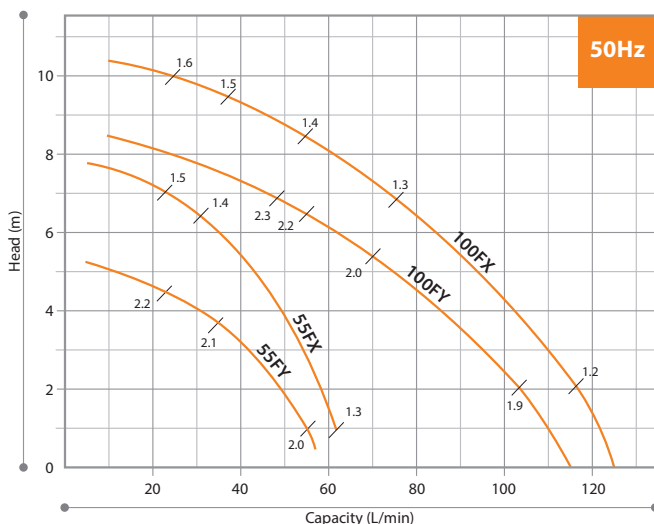
MD - **100F** **G** **X**

1 2 3

- 1 Pump size
55F, 100F
- 2 Connection
No mark : R thread connection
G : G thread connection
- 3 Impeller
X : Low S.G. type
Y : Middle S.G. type
Z : High S.G. type (60Hz)

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

Performance curves



MD-6KV

**CFR
PVDF**
50/60 Hz

- Max Discharge capacity **8.0/9.0 L/min**
- Max Discharge head **1.0/1.4 m**



MD-6KV

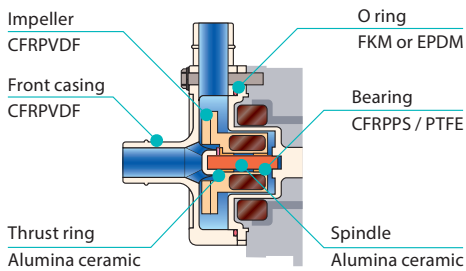
Specifications (50/60Hz)

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-6KV	Ø14	Ø14	8.0/9.0	1.0/1.4	1.2	5/5	12/12	100V/200V, 220V - 240V, Single phase	0.9

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

Construction and materials

Illustration shows model MD-6KV



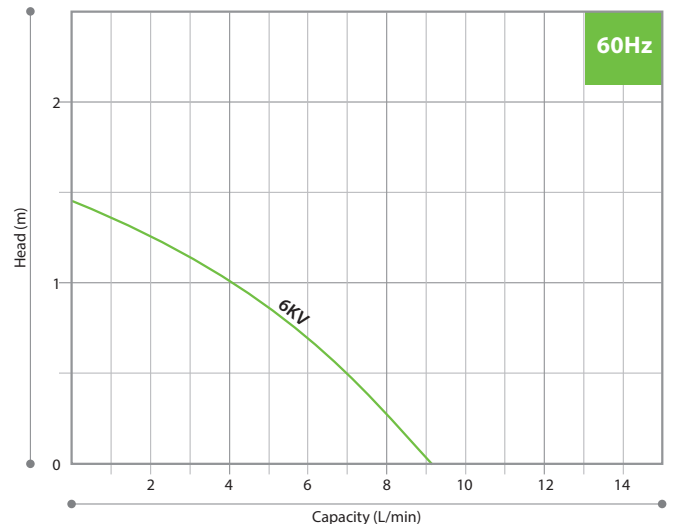
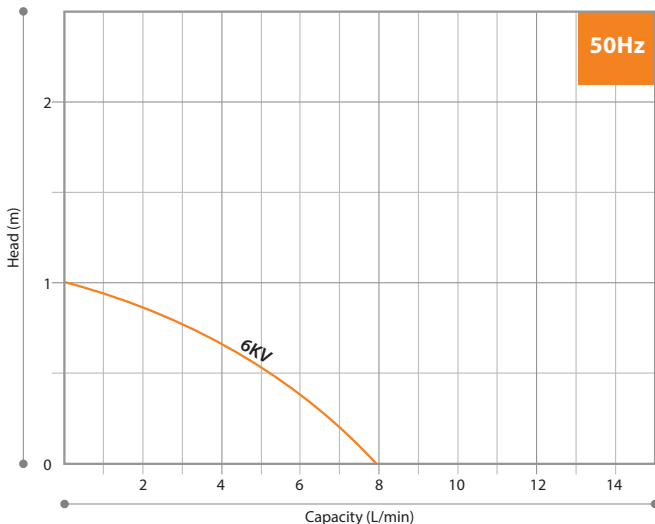
- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon", etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - **6K** **V** - **E** N
 1 2 3

- 1 Pump size
6K
- 2 Material of casing
V : CFRPVDF
- 3 Material of O ring
No mark : FKM (Standard)
E : EPDM (Special order)

Performance curves



MD-15V·20V·30V

C F R
P V D F
50/60 Hz

- Max Discharge capacity **10/11 - 32/38 L/min**
- Max Discharge head **2.4/3.4 - 8.0/11 m**



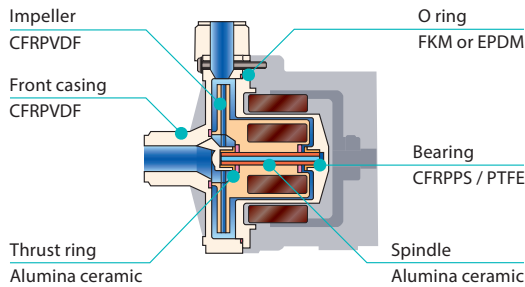
Specifications (50/60Hz)

Model	Hose connection RV · RZV		Thread connection RVM · RZVM		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-15RV	Ø14	Ø14	—	—	16/19	2.4/3.4	1.3	10/10	26/31	100V/200V 220V - 240V Single phase	1.6
MD-20RZV	Ø17.5	Ø17	G3/4	13A	10/11	4.9/6.9	1.1	20/20	40/50		2.0
MD-30RV	Ø20	Ø20	G3/4	16A	32/38	3.8/5.4	1.3	45/45	60/80		3.5
MD-30RZV	Ø17.5	Ø17	G3/4	13A	15/17	8.0/11	1.0	45/45	70/90		3.5

• 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
 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

Illustration shows model MD-30RZV



Note: Material of bearing for MD-20RZV and 30RZV are CFRPPS

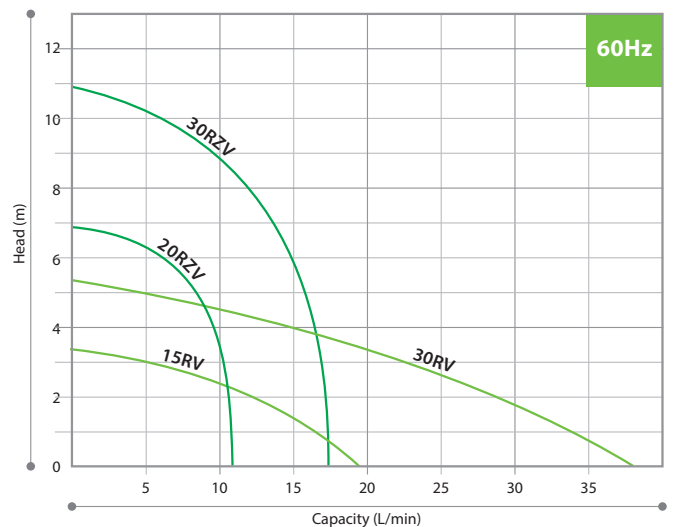
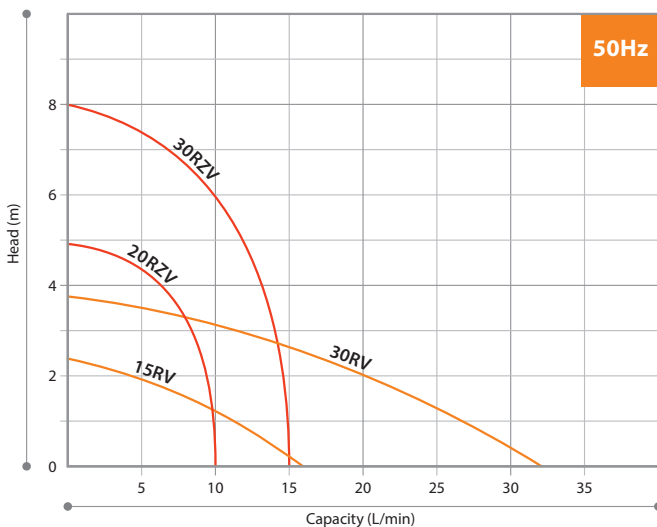
- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon", etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

MD - 30 RZ V M - 200 E N

- 1 Pump size**
15, 20, 30
- 2 Type**
R : Standard type
RZ : High head type
- 3 Material of casing**
V : CFRPVDF
- 4 Connection**
No mark : Hose type
M : G thread connection
- 5 Motor**
No mark : 100V single phase
200 : 200V single phase
220 : 220V - 240V single phase
- 6 Material of O ring**
No mark : FKM (Standard)
E : EPDM (Special order)

Performance curves



MD-70V

CFR
PVDF
50/60 Hz

- Max Discharge capacity **40/43 - 86/97 L/min**
- Max Discharge head **6.7/9.7 - 14.3/20.3 m**



MD-70RV

Specification (50/60Hz)

Model	Hose connection		Thread connection		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source ^{Note2}	Mass (kg)
	RV - RZV	RVM - RZVM	Inlet/Outlet	Union ^{Note1}							
MD-70RV	Ø26	Ø26	G1	20A	86/97	6.7/9.7	1.0	150/180	235/365	100V/200V Single phase	6.0
MD-70RZV	Ø20	Ø20	G3/4	16A	40/43	14.3/20.3	1.0	180/216	275/395	220/240V Single phase, 220/380, 400/440V Three phase	6.0

• 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

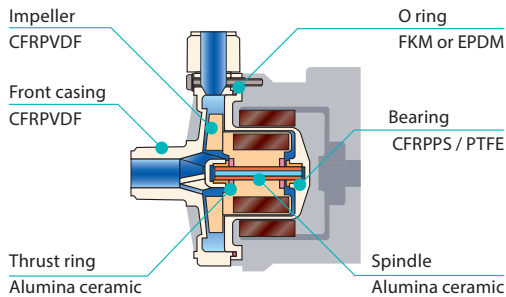
• Motor type: Capacitor-run induction motor

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

Illustration shows model MD-70RV



Note: Material of bearing for MD-70RZV is CFRPPS

- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon," etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

Pump identification

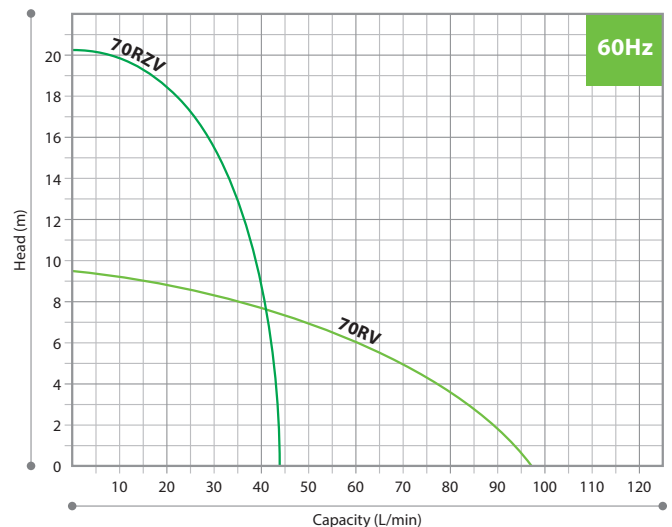
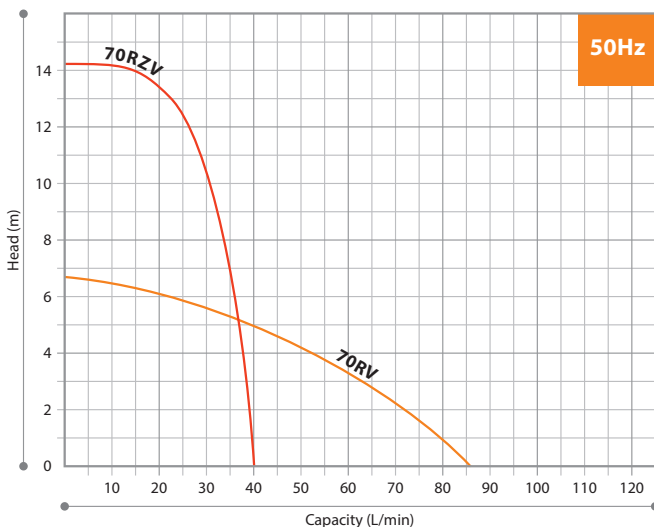
MD - 70 R V M

1 2 3 4

- 1 Pump size
70
- 2 Type
R : Standard type
RZ : High head type
- 3 Material of casing
V : CFRPVDF
- 4 Connection
No mark : Hose type
M : G thread connection

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

Performance curves



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.



Specification

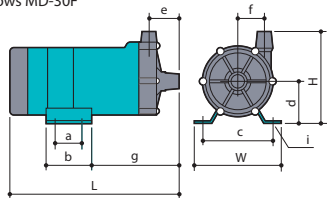
Model	13A	H13A	16A	H16A	20A	H20A
Material	PVC	HT-PVC	PVC	HT-PVC	PVC	HT-PVC
Range of temp.	0 - 55°C	0 - 80°C	0 - 55°C	0 - 80°C	0 - 55°C	0 - 80°C
Material of O ring	FKM or EPDM					

Dimension (mm)

MD-F

MD-15F, 30F

Illustration shows MD-30F

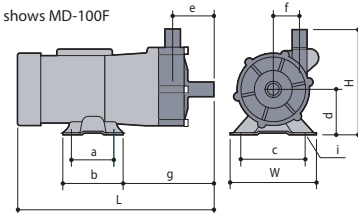


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15F	95	120	186	—	50	68	55	34	29	99	2-Ø5.6
MD-30F	120	130	231	40	64	100	60	39	39	120	4-Ø9

Please contact us for G connection type.

MD-55F, 100F

Illustration shows MD-100F

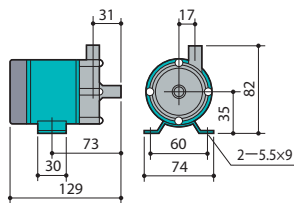


Model	W	H	L	a	b	c	d	e	f	g	i
MD-55F	120	155	270	40	64	100	65	58	40	163	4-Ø9
MD-100F	156	174	320	70	100	110	75	63	43	145	4-Ø9x27

Please contact us for G connection type.

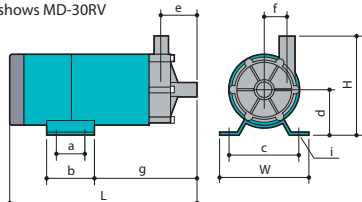
MD-V

MD-6KV



MD-15RV, 30RV, 70RV

Illustration shows MD-30RV

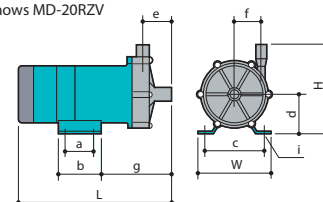


Model	W	H	L	a	b	c	d	e	f	g	i
MD-15RV	95	109 (114)	180 (179)	—	50	68	55	39	22	92	2-Ø5.6
MD-30RV	120	130	248	40	64	100	60	48	31	137	4-Ø9
MD-70RV	130	155	258	40	60	110	65	53	43	149	4-7x11

() : Thread connection type

MD-20RZV, 30RZV, 70RZV

Illustration shows MD-20RZV



Model	W	H	L	a	b	c	d	e	f	g	i
MD-20RZV	106	125	211	44	60	90	55	40	39	98	4-6x10
MD-30RZV	120	130	230	40	64	100	60			120	4-Ø9
MD-70RZV	130	165	247	40	60	110	65	42	48	138	4-7x11

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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