

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

IWAKI  
MAGNETIC  
DRIVE  
PUMPS

**MD-F/V**



# 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(x/Y)•30F(x/Y)** 

- Max Discharge capacity **9 - 13** L/min
- Max Discharge head **3 - 8** m

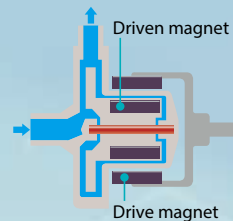
**MD-55F(x/Y)•100F(x/Y)** 

- Max Discharge capacity **60 - 125** L/min
- Max Discharge head **5.4 - 10.5** 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.

### Easy maintenance

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

#### MD-Vseries



MD-6KV

**MD-6KV** CFR  
PVDF

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



MD-15RV

**MD-15V·20V·30V** CFR  
PVDF

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



MD-20RZV



MD-30RV



MD-70RV

**MD-70V** CFR  
PVDF

- Max Discharge capacity **40 - 86** L/min
- Max Discharge head **6.7 - 14.3** m

# A wide selection range according to chemical liquids

Hyperbaric/High-compression 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	
CFRPEFE	<b>MD-15FX</b> Low S. G. type	10						4.1			1.2
	<b>MD-15FY</b> Middle S. G. type	9						3			1.9
	<b>MD-30FX</b> Low S. G. type	13						8			1.5
	<b>MD-30FY</b> Middle S. G. type	10						6			1.9
	<b>MD-55FX</b> Low S. G. type	65						7.8			1.3
	<b>MD-55FY</b> Middle S. G. type	60						5.4			2.0
	<b>MD-100FX</b> Low S. G. type	125						10.5			1.2
	<b>MD-100FY</b> Middle S. G. type	115						8.5			2.0
CFRPVDF	<b>MD-6KV</b> Standard type	8						1.0			1.2
	<b>MD-15RV</b> Standard type	16						2.4			1.3
	<b>MD-20RZV</b> High head type	10						4.9			1.1
	<b>MD-30RV</b> Standard type	32						3.8			1.3
	<b>MD-30RZV</b> High head type	15						8.0			1.1
	<b>MD-70RV</b> Standard type	86						6.7			1.0
	<b>MD-70RZV</b> High head type	40						14.3			1.0





## 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 CFRPVDF single-piece rear casing of the MD-V. The bearing is placed at the bottom, supporting the spindle.

**O ring**

**Impeller**

**Spindle**

**Front casing**

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

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

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

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

X: Low S.G. impeller    Y: Middle S.G. impeller

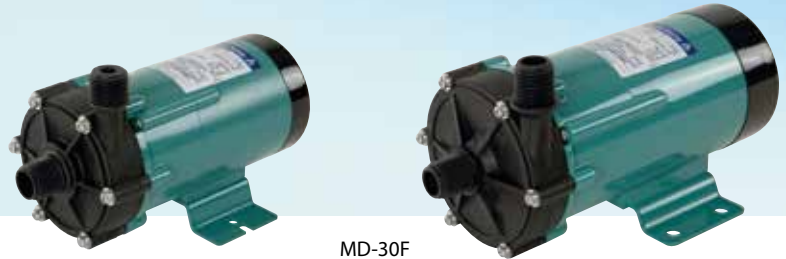
**MD-V** For the MD-V, the ferrite magnet is encapsulated into the CFRPVDF impeller. For the rotating spindle type, an alumina ceramic spindle is integrally molded with the impeller.

Hose connection type    Thread connection type

# MD-15F(X/Y)·30F(X/Y)

CFR  
ETFE

- Max Discharge capacity **9 - 13 L/min**
- Max Discharge head **3 - 8 m**



MD-15F

MD-30F

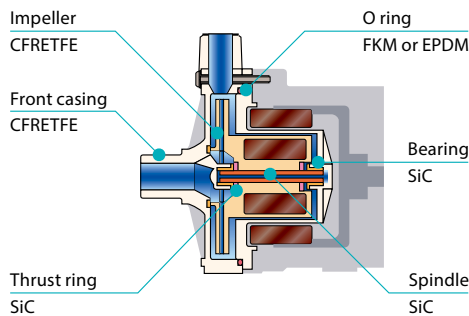
## Specifications (50Hz)

Model	Type of Impeller	Threaded connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
MD-15F	X	NPT1/2	10	4.1	1.2	10	30	220V - 240V Single phase	1.8
	Y		9	3	1.9	10	30		
MD-30F	X	NPT1/2	13	8	1.5	45	70		3.5
	Y		10	6	1.9	45	70		

• 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

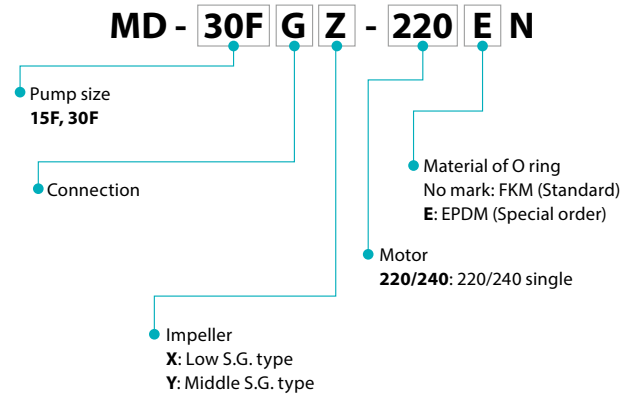
## Construction and materials

Illustration shows model MD-30F

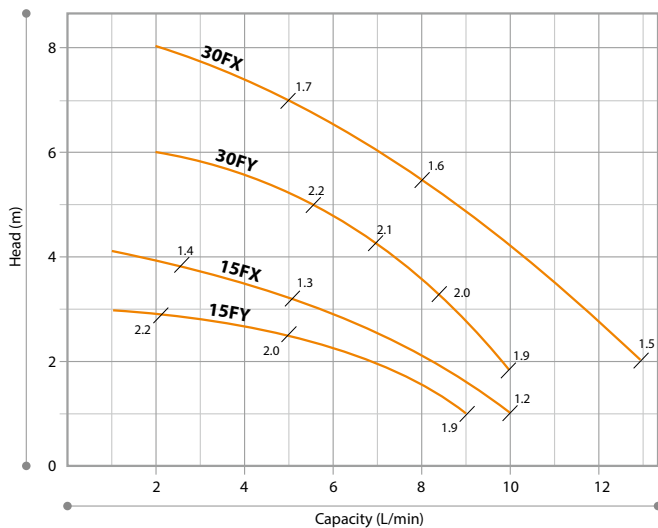


- **CFRETFE** Carbon fiber-reinforced ETFE
- **SiC** Silicon carbide ceramic
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

## Pump identification



## Performance curves (50Hz)



Note: Figures on the performance curves shows the specific gravity limit at viscosity of 1mPa·s.

# MD-55F(X/Y)·100F(X/Y)

CFR  
ETFE

- Max Discharge capacity 60 - 125 L/min
- Max Discharge head 5.4 - 10.5 m



MD-55F



MD-100F

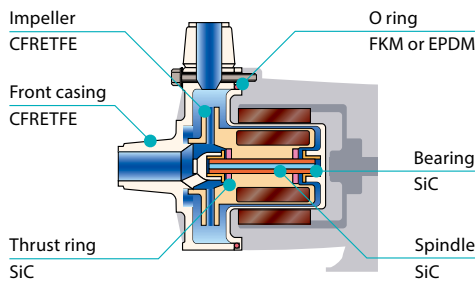
## Specifications (50Hz)

Model	Type of Impeller	Threaded connection Inlet/Outlet	Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source		Mass (kg)	
								Single phase	Three phase		
MD-55F	X	R1	65	7.8	1.3	90	170	220V - 240V	-	5.4	
	Y		60	5.4	2.0	90	130				
MD-100F	X	R1	125	10.5	1.2	260	375		400V/440V		8.5
	Y		115	8.5	2.0	260	260				

• 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

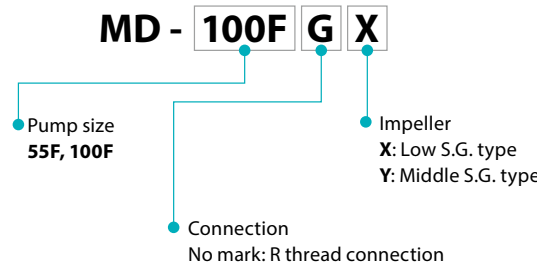
## Construction and materials

Illustration shows model MD-100F



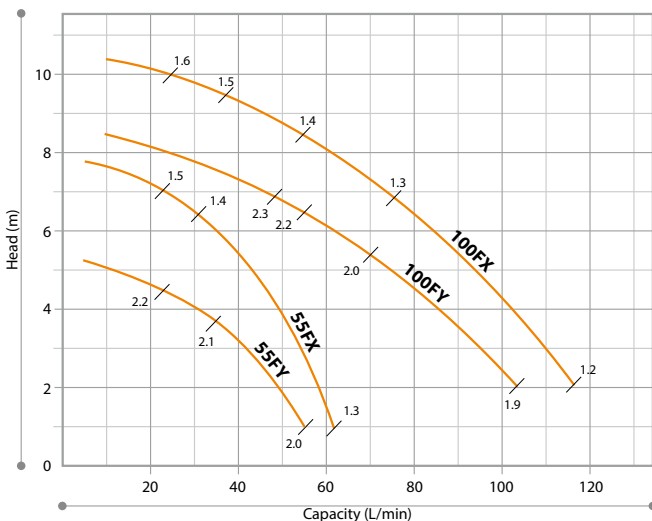
- CFRETFE Carbon fiber-reinforced ETFE
- SiC Silicon carbide ceramic
- FKM Fluorine rubber
- EPDM Ethylene propylene rubber

## Pump identification



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

## Performance curves (50Hz)



Note: Figures on the performance curves shows the specific gravity limit at viscosity of 1mPa·s.

## Available with IEC frame motors

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



# MD-6KV CFR PVDF

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



MD-6KV

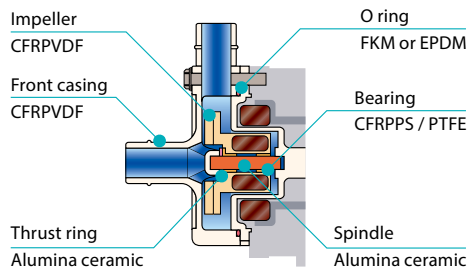
## Specifications (50Hz)

Model	Hose connection		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source <small>(Note)</small>	Mass (kg)
	Inlet (mm)	Outlet (mm)							
<b>MD-6KV</b>	14	14	8.0	1.0	1.2	5	12	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 S.G.) • Ambient temperature: 0 - 40°C  
• Motor type: Capacitor-run induction motor

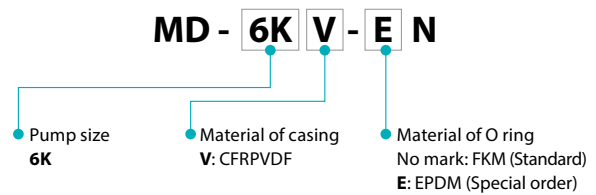
## Construction and materials

Illustration shows model MD-6KV

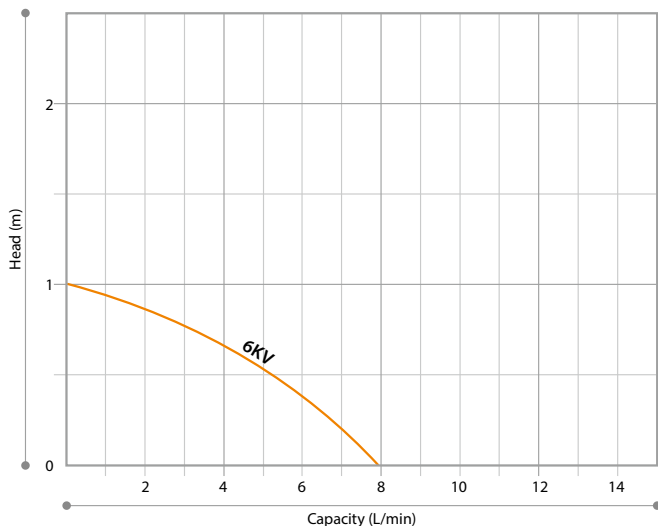


- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon", etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

## Pump identification



## Performance curves (50Hz)





# MD-15V·20V·30V CFR PVDF

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



MD-15RV

MD-20RZV

MD-30RV

## Specifications (50Hz)

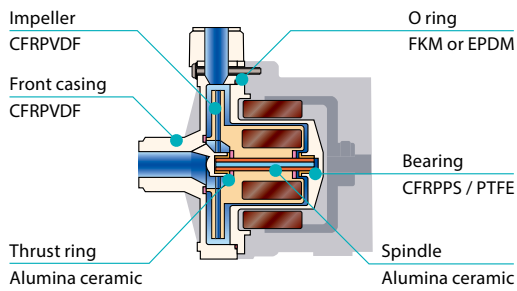
Model	Hose connection		Screwed connection		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	RV · RZV		RVM · RZVM								
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) <sup>(Note)</sup>							
MD-15RV	14	14	—	—	16	2.4	1.3	10	26	220V - 240V Single phase	1.6
MD-20RZV	17.5	17	G3/4	13	10	4.9	1.1	20	40		2.0
MD-30RV	20	20	G3/4	16	32	3.8	1.3	45	60		3.5
MD-30RZV	17.5	17	G3/4	13	15	8.0	1.0	45	80		3.5

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

Note: 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

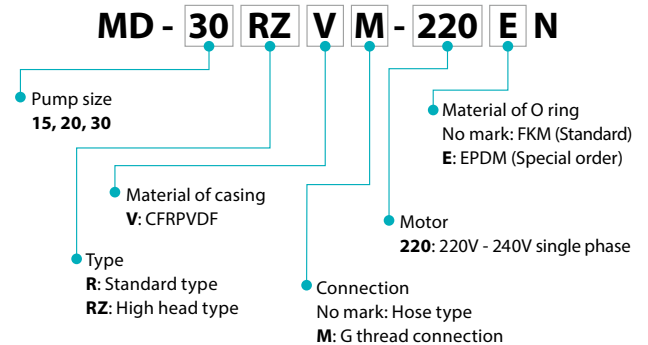
Illustration shows model MD-30RZV



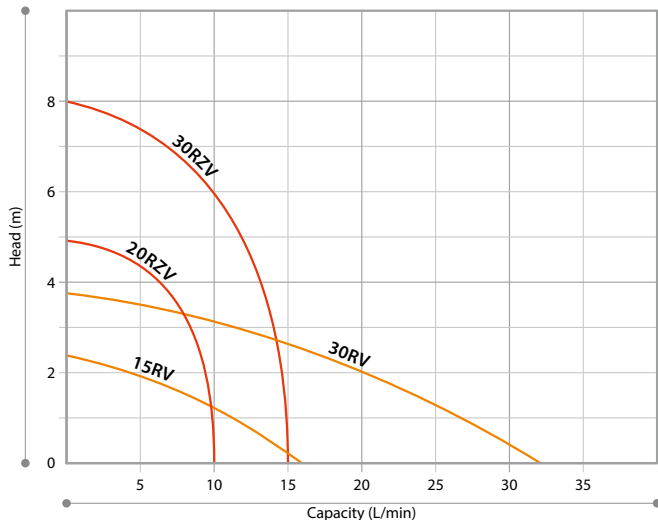
Note: Material of bearing for MD-20RZV and 30RZV are CFRPPS

- **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



## Performance curves (50Hz)



# MD-70V

CFR  
PVDF

- Max Discharge capacity **40 - 86 L/min**
- Max Discharge head **6.7 - 14.3 m**



MD-70RV

## Specifications (50Hz)

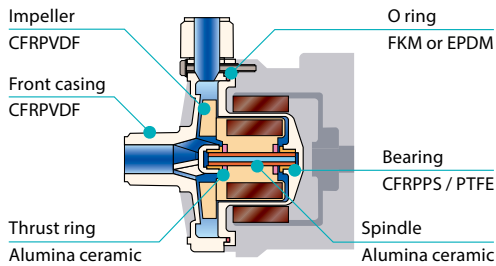
Model	Hose connection		Threaded connection		Max. capacity (L/min)	Max. head (m)	S.G.	Output (W)	Input (W)	Power source	Mass (kg)
	RV - RZV		RVM - RZVM								
	Inlet (mm)	Outlet (mm)	Inlet/Outlet	Union (mm) <sup>(Note)</sup>							
<b>MD-70RV</b>	26	26	G1	20	86	6.7	1.0	150	235	220/240V : Single Phase	6.0
<b>MD-70RZV</b>	20	20	G3/4	16	40	14.3	1.0	180	275	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 S.G.) • Ambient temperature: 0 - 40°C  
• Motor type: Capacitor-run induction motor

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

## Construction and materials

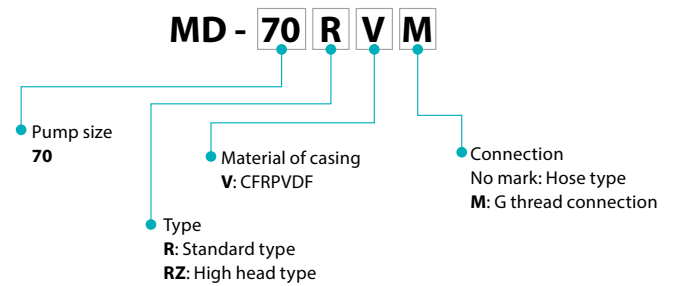
Illustration shows model MD-70RV



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

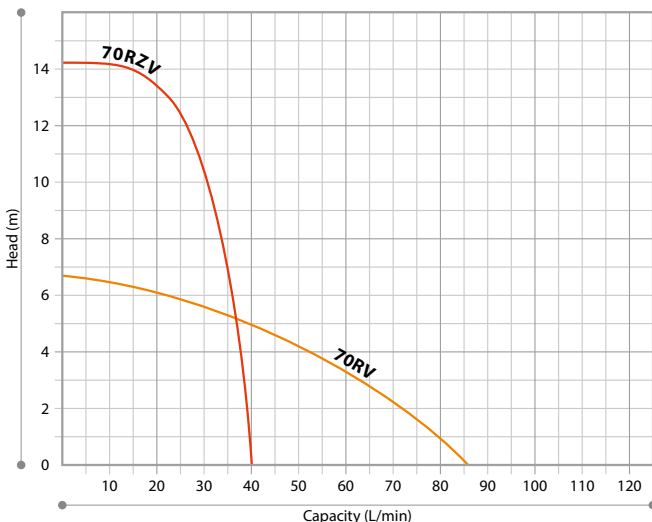
- **CFRPVDF** Carbon fiber reinforced polyvinylidene fluoride
- **CFRPPS** Carbon fiber reinforced polyphenylene sulfide
- **PTFE** Polytetrafluoroethylene ("Teflon", etc.)
- **FKM** Fluorine rubber
- **EPDM** Ethylene propylene rubber

## Pump identification



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

## Performance curves (50Hz)



**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					

**Dimensions (mm)**

**MD-F**

**MD-15F, 30F**

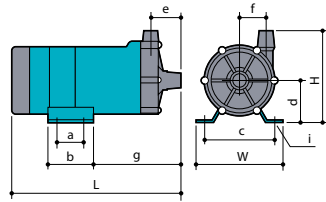


Illustration shows MD-30F

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

**MD-55F, 100F**

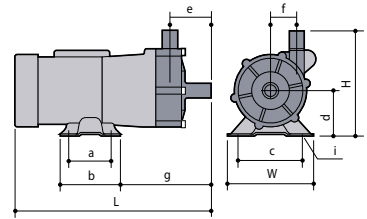
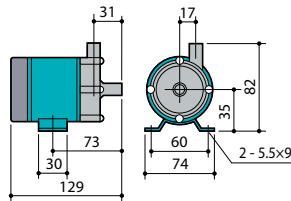


Illustration shows MD-100F

Model	W	H	L	a	b	c	d	e	f	g	i
MD-55F	120	155	270	40	64	100	65	59	40	167	4×ø9
MD-100F	156	175	320	70	100	110	75	63	43	145	4×[9×27]

**MD-V**

**MD-6KV**



**MD-15RV, 30RV, 70RV**

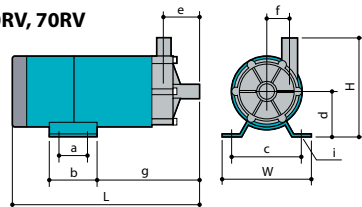


Illustration shows MD-30RV

Model	W	H	L	a	b	c	d	e	f	g	i
MD-15RV	95	109	180	-	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×[7×11]

**MD-20RZV, 30RZV, 70RZV**

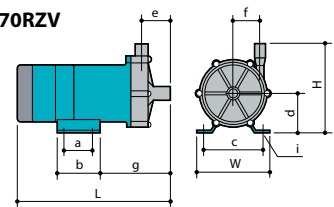



Illustration shows MD-20RZV


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×[6×10]
MD-30RZV	120	130	230	40	64	100	60			120	4×ø9
MD-70RZV	130	165	247	40	60	110	65			42	48

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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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