IWAKI PUMPS

IWAKI Magnetic Drive Pump

MD-V type

Instruction Manual

⚠ Read this manual before use of product

Thank you for selecting an Iwaki MD-V type Magnetic Drive Pump. This instruction manual deals with "*Safety Instructions*", "*Outline*", "*Installation*", "*Operation*" and "*Maintenance*" sections.

Please read through this instruction manual to ensure the optimum performance, safety and service of your pump.

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This instruction manual should be kept on hand by the end user for quick reference.

Contact us or your nearest dealer if you have any questions.

Important Instruction

For the Safe and Correct Handling of the Pump

- "Safety Instruction" section deals with important details about handling of the product. Before use, read this section carefully for the prevention of personal injury or property damage.
- Observe the instructions accompanied with "WARNING" or "CAUTION" in this manual. These instructions are very important for protecting pump users from dangerous situations.
- The symbols on this instruction manual have the following meanings:

⚠ **WARNING**	**Nonobservance or misapplication of the contents of "Warning" section could lead to a serious accident which may result in death.**
⚠ **CAUTION**	**Nonobservance or misapplication of the contents of "Caution" section could lead to personal injury or property damage.**

Types of Symbols

⊘	Indicates a prohibited action or procedure. Inside or near this circle, a concrete and practical image of the activity to be avoided is depicted.
!	Indicates an important action or procedure which must be performed or carried out without fail. Failure to follow the instructions herein can lead to malfunction or damage to the pump.

⚠ Export Restrictions

Technical information contained in this instruction manual might be treated as controlled technology in your countries, due to agreements in international regime for export control.
Please be reminded that export license/permission could be required when this manual is provided, due to export control regulations of your country.

Safety Instructions

⚠ WARNING

- **Turn off power before service**
  Risk of electrical shock. Be sure to turn off power to stop the pump and related devices before service is performed. Ensure power cannot be turned on during maintenance. Failure to do so may result in serious injury. In noisy or low-visibility areas, place a “POWER OFF (Maintenance)” sign near the switch.


Power off

- **Stop operation**
  If you notice any abnormal or dangerous conditions, suspend operation immediately and inspect/solve problems.



- **Do not use the pump in any condition other than its intended purpose**
  The use of the pump in any conditions other than those clearly specified may result in failure or injury. Use this product in specified conditions only.


Prohibited

- **Do not modify the pump**
  Alternations to the pump carry a high degree of risk. It is not the manufacturer's responsibility for any failure or injury resulting from alterations to the pump.


Do not rework or alter

- **Wear protective clothing**
  Always wear protective clothing such as an eye protection, chemical resistant gloves, a mask and a face shield during disassembly, assembly or maintenance work.


Wear protectors

⚠ CAUTION

- **Qualified personnel only**
  The pump should be handled or operated by a qualified personnel with a full understanding of the pump.


Prohibited

- **Use specified power only**
  Do not apply power other than that specified on the nameplate. Otherwise failure or fire may result. Ensure the pump is properly grounded.


Prohibited

- **Keep electric parts and wiring dry**
  Risk of fire or electric shock. Install the pump where it can be kept dry.


Prohibited

- **Ventilation**
  Fumes or vapours can be hazardous with certain solutions. Ensure proper ventilation at the operation site.


Caution

- **Spill precautions**
  Ensure protection and containment of solution in the event of plumbing or pump damage (secondary containment).


Caution

- **Do not use a damaged pump**
  Use of a damaged pump could lead to an electric shock or death.


Prohibited

⚠ CAUTION

- **Do not use the pump in a wet location**
  The pump is not waterproof. Use of the pump in wet or extremely humid locations could lead to electric shock or short circuit.


Prohibited

- **Do not run pump dry**
  If the pump runs with no liquid, friction heat builds up and damages the internal parts of pump.


Prohibited

- **Do not damage the power cable**
  Do not pull, knot, or crush the power cable. Damage to the power cable could lead to a fire or electrical shock if cut or broken.


Caution

- **Grounding**
  Risk of electric shock! Always properly ground the pump. Conform to local electric codes.


Earthing

- **Do not pressurize the pump excessively**
  If the pump is pressurized over the maximum discharge pressure, O ring seal may be impaired and leakage may result.


Prohibited

- **Install a GFCI (earth leakage breaker)**
  An electrical failure of the pump may adversely affect other devices on the same line. Purchase and install a GFCI (earth leakage breaker) separately.


Electrical shock

- **The power cable is not replaceable**
  Do not use a damaged power cable, as it may result in fire or electric shock. If the cable is damaged, the entire pump unit must be replaced.


Prohibited

⚠ CAUTION

- **Preventative maintenance**
  Follow instructions in this manual for replacement of wear parts. Do not disassemble the pump beyond the extent of the instructions.


Prohibited

- **Do not install or store the pump:**
  - Where ambient temperature can exceed 0-40°C.
  - In a flammable/corrosive atmosphere.
  - In direct sunlight or wind & rain.


Prohibited

- **Disposal of a used pump**
  Dispose of any used or damaged pump in accordance with local rules and regulations. See the last page of the manual to comply with the European Directive 2012/19/EU on waste electrical and electronic equipment.



- **Static electricity**
  When low electric conductivity liquids such as ultra-pure water and fluor inactive liquid (e.g. Fluorinert™) are handled, static electricity may generate in the pump and may cause static discharge. Take countermeasures to remove static electricity.



- **Fasten the front casing tight**
  Liquid may leak if front casing fixing screws are loose. Tighten the screws diagonally and evenly by the rated torques before initial operation or at intervals.

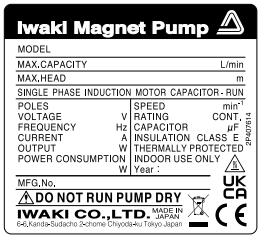

Caution

Before use, check the specification, limitation and hazardous nature of the pump.

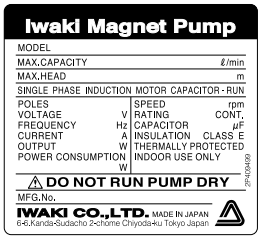
1. Unpacking & Inspection

Open the package and check that the product conforms to your order. If any problem or inconsistency is found, immediately contact your distributor.

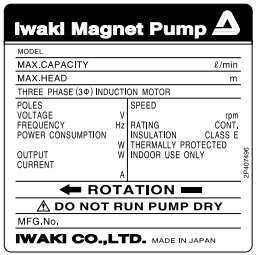
1. Check the nameplate to see if the information such as model codes, discharge capacity and discharge pressure are as ordered.



Spec label with CE/UKCA markings
(1-phase induction motor)



Spec label w/o CE/UKCA/UL markings
(1-phase induction motor)



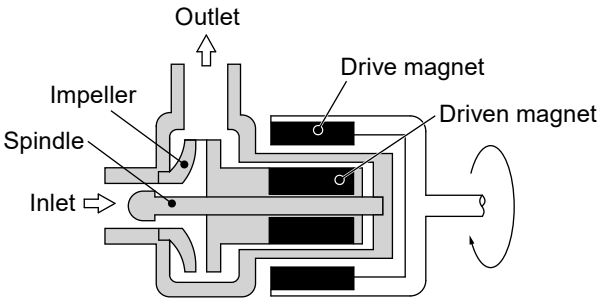
Spec label w/o CE/UKCA/UL markings
(3-phase induction motor)

*The CE/UKCA markings on our product(s) are for us to market the product(s) into the European Union market / the Great Britain (England, Wales and Scotland) market, however, the CE/UKCA markings do not ensure any safety or conformity of the product(s) outside the EU/GB markets. When the pump is incorporated into the equipment marketed in the EU/GB markets, such equipment must meet all the requirements of applicable directives/regulations.
In such a case, any person who places the equipment on the markets must carry CE/UKCA marks on the equipment as a manufacturer.

2. Check for transit damage and loose bolts.

2. Operating principle

The MD-V is a compact magnetic drive centrifugal pump with fluoroplastic and fine ceramic wet ends and is capable of handling a strong acid and alkali.
The magnetic force between drive and driven magnets rotates the impeller in the pump chamber, where a liquid is transferred from the inlet to outlet.



3. Identification code

MD-6K

MD - 6K V - E N 01
a b a c d

a. Series model
CFRPVDF casing material

b. Pump size (motor output)
6K (5 W)

c. O ring material
No code : FKM
E : EPDM

d. Special version
No code : Standard
01-99 : Special design

NOTE: The MD-6K does not have a power voltage code. See a spec label and check power voltage range.

MD-15/ -20/ -30

MD - 15 RZ V M - 220 E N 01
a b c a d e f g

a. Series model
CFRPVDF casing material

b. Pump size (motor output)
15 (10 W) / 20 (20 W) / 30 (45 W)

c. Delivery head
R : Standard
RZ : High head

d. Connection
No code : Tube
M : G thread

e. Motor power voltage
220 : 1 phases 220-240 V

f. O ring material
No code : FKM
E : EPDM

g. Special version
No code : Standard
01-99 : Special design

MD-70

MD - 70 R V M - 01
a b c a d e

a. Series model
CFRPVDF casing material

b. Pump size (motor output)
70 (150/180 W, 180/216 W)

c. Delivery head
R : Standard
RZ : High head

d. Connection
No code : Tube
M : G thread

e. Special version
No code : Standard
01-99 : Special design

NOTE: The MD-70RV does not show a power voltage code. See a spec label and check power voltage range.

4. Specification

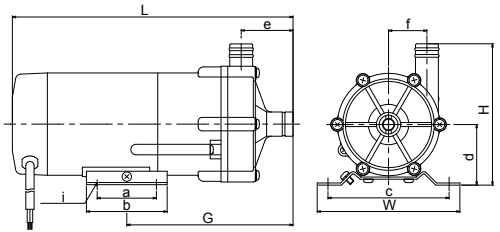
50/60 Hz

Model	Tube bore (mm)	Inlet/Outlet bore	Union	Max flow (L/min)	Max head (m)	Max SG	Motor		Mass (kg)
							Power (V)	Rated output (W)	
MD-6KV	14	-	-	8/9	1.0/1.4	1.2	220/240 (1ph)	5	0.9
MD-15RV	14	-	-	16/19	2.4/3.4	1.3		10	1.6
MD-20RZV(M)	18	G3/4	13	10/11	4.9/6.9	1.1		20	2.0
MD-30RV(M)	20	G3/4	16	32/38	3.8/5.4	1.3		45	3.5
MD-30RZV(M)	18	G3/4	13	15/17	8/11	1.0			
MD-70RV(M)	26	G1	20	86/97	6.7/9.7	1.0	220/240 (1ph)	150/180	6.0
MD-70RZV(M)	20	G3/4	16	40/43	14.3/20.3	1.0	220/380 (3ph) 400/440 (3ph)	180/216	6.0

NOTE:
a. Performance data is based on the operation with clean water at ambient temperature.
b. The maximum flow is obtained at zero discharge head, and the maximum head is obtained at the maximum pressure.
c. The maximum viscosity at SG.1.0 is up to 30 mPa•s for all the models.
d. Allowable ambient temperature range is 0-40 °C.
e. Allowable liquid temperature range is 0-80 °C.
*Note that the liquid temperature range is based on the use of clean water and it changes with liquid property and operating conditions. Frozen liquid can not be transferred.
f. The maximum specific gravity is obtained at or near the maximum flow. Note that the limitation varies with a duty point, ambient temperature or liquid viscosity.
g. All the single-phase motors used for the MD-V series are capacitor-run induction motor.
h. Performance and dimensions may change without notice.

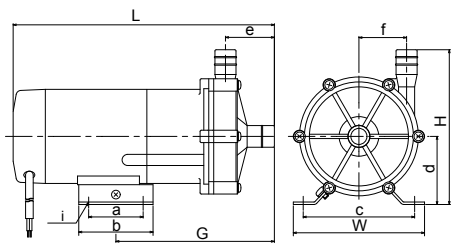
5. Outer dimensions

MD-6KV/-15/-30/-70RV



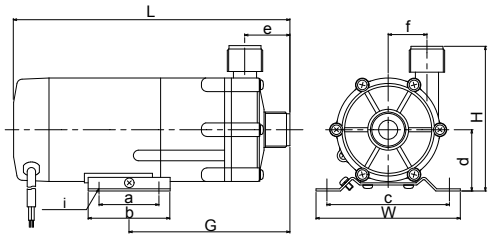
Model	W	H	L	a	b	c	d	e	f	i	G
MD-6KV	74	82	129	-	30	60	35	31	17	2-5.5×9	73
MD-15RV	95	109	179.5	-	50	68	55	39	21.5	2-ø5.6	117
MD-30RV	120	130	248	40	64	100	60	48	31	4-ø9	169
MD-70RV	130	155	258	40	60	110	65	53	43	4-7×11	179

MD-20/-30/-70RZV



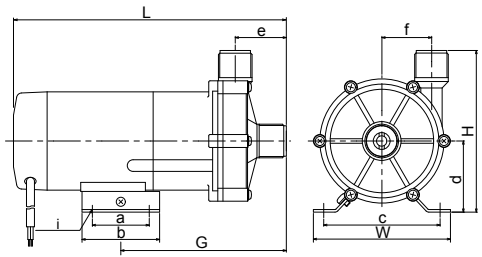
Model	W	H	L	a	b	c	d	e	f	i	G
MD-20RZV	106	125	211	44	60	90	55	39.5	38.5	4-6×10	128
MD-30RZV	120	130	230	40	64	100	60	39.5	38.5	4-ø9	152
MD-70RZV	130	165	247	40	60	110	65	42	47.5	4-7×11	168

MD-15/-30/-70RVM



Model	W	H	L	a	b	c	d	e	f	i	G
MD-30RVM	120	130	248	40	64	100	60	48	31	4-ø9	169
MD-70RVM	130	155	258	40	60	110	65	53	43	4-7×11	179

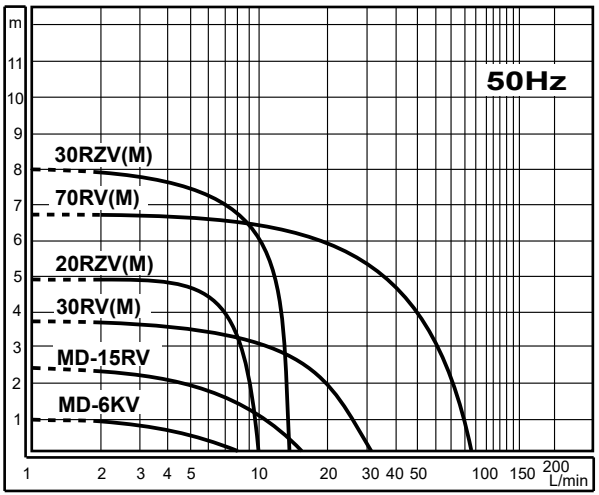
MD-20/-30/-70RZVM

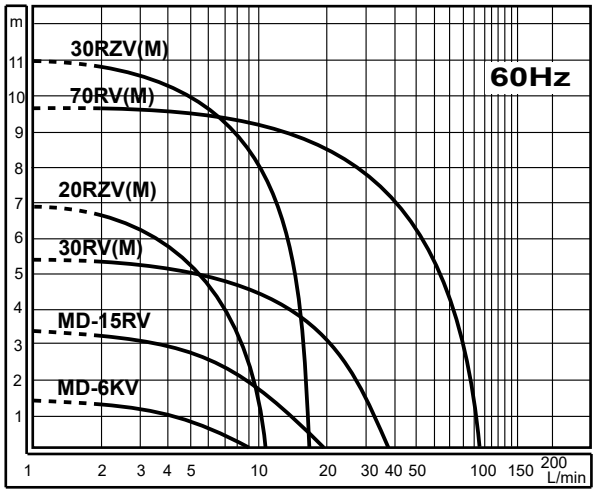


Model	W	H	L	a	b	c	d	e	f	i	G
MD-20RZVM	106	125	211	44	60	90	55	39.5	38.5	4-6×10	128
MD-30RZVM	120	130	230	40	64	100	60	39.5	38.5	4-ø9	152
MD-70RZVM	130	165	247	40	60	110	65	42	47.5	4-7×11	168

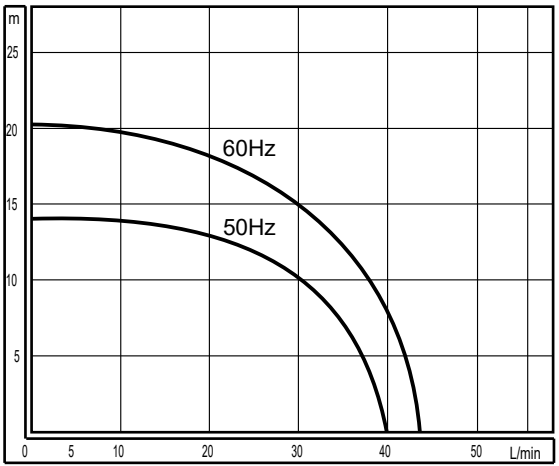
6. Performance curves

MD-6KV, MD-15RV(M)/-20RV(M)/-30RV(M)/-70RV(M)
MD-20RZV(M)/-30RZV(M)

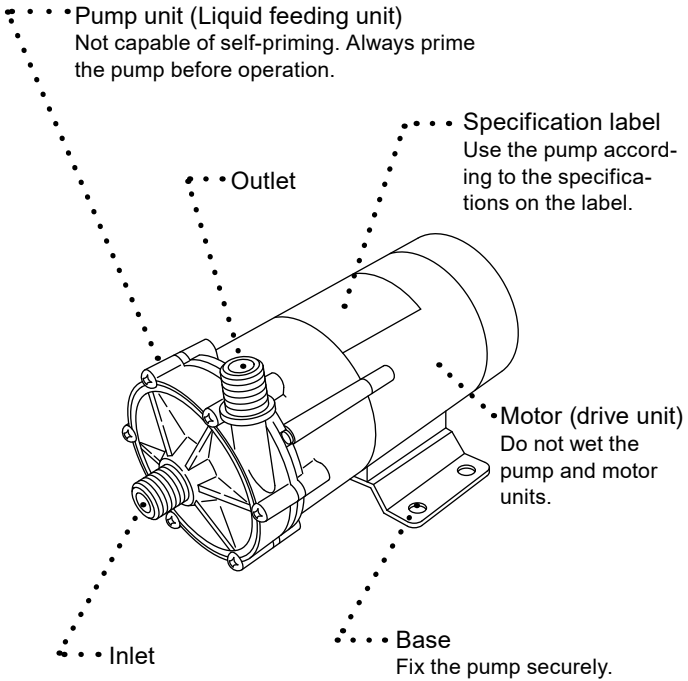




MD-70RZV(M)

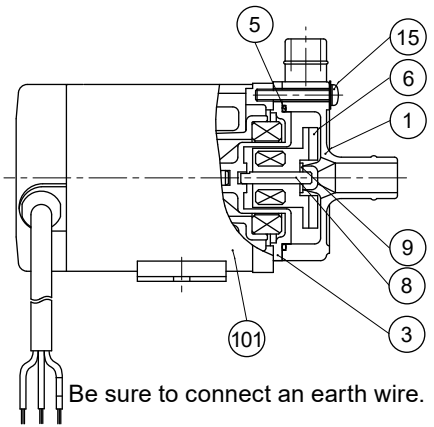


7. Overview & Label



8. Part names & Structure

MD-6KV

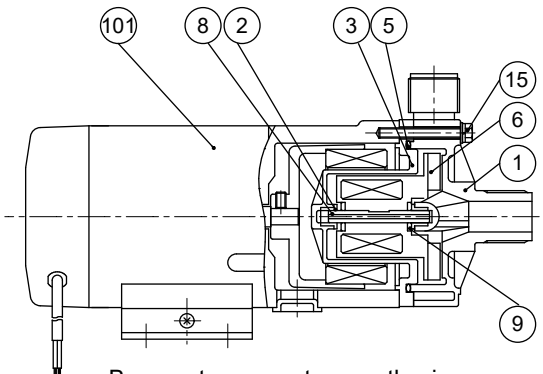


Be sure to connect an earth wire.

No.	Part names	Q'ty	Materials	Remarks
1	Front casing	1	CFRPVDF	
3	Rear casing	1	CFRPVDF	
5	O ring	1	FKM	
6	Impeller	1	CFRPVDF	
8	Spindle	1	Alumina ceramic	
9	Thrust ring	1	Alumina ceramic	
15	Machine screw	4	Stainless steel	
101	Motor	1	-	

CFRPVDF : Carbon fiber reinforced polyvinylidene fluoride
FKM : Fluorine-contained rubber

MD-15RVM/-30RVM/-70RVM
MD-20RZVM/-30RZVM/-70RZVM



Be sure to connect an earth wire.

No.	Part names	Q'ty	Materials	Remarks
1	Front casing	1	CFRPVDF	
2	Bearing	2	PTFE	
3	Rear casing	1	CFRPVDF	
5	O ring	1	FKM	
6	Impeller	1	CFRPVDF	
8	Spindle	1	Alumina ceramic	
9	Thrust ring	2	Alumina ceramic	
15	Machine screw	4/6	Stainless steel	
101	Motor	1	-	

CFRPVDF : Carbon fiber reinforced polyvinylidene fluoride
FKM : Fluorine-contained rubber

1. Before Installation

The pump should be installed by qualified personnel with a full understanding of the pump.

⚠ WARNING

- Risk of electrical shock. Dismantling/assembling the pump unit without turning off power may cause an electrical shock. Before engaging in any maintenance or inspection work, be sure to turn off the pump and related devices.
- Electrical work or wiring must be carried out by a qualified person according to local laws or regulations.

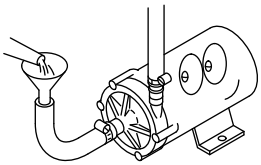
⚠ CAUTION

- Do not drop the pump or subject it to strong impact during installation or transport.
- A strong magnet is inside the pump. Do not bring a watch or magnetic card which may be adversely affected by a magnetic force.

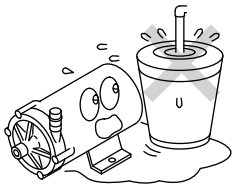
- Dropping or subjecting the pump to strong impact, failure may result. Handle the pump with care.



- The pump is not capable of self-priming. Always prime the pump before operation.



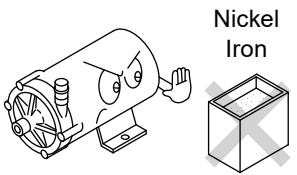
- The motor is not water-/dust-proof. Do not wet the motor, or it may fail.



- The pump doesn't have an ON-OFF switch. The pump starts as a power cable is plugged in.

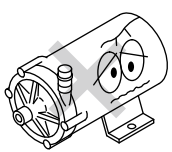
- Banned solutions
  - Halogenated hydrocarbons such as trichloroethylene and carbon tetrachloride
  - Ether and low-grade ester
  - Slurry (Never use slurry, which wears out the pump bearings.)

- A strong magnet is inside the pump. Do not use the pump with any liquid which contains metals such as iron and nickel.



- Do not pull or knot a power cable or place a heavy stuff on it. Damage to a power cable could lead to a fire or electrical shock.

- Do not use any damaged pump. Using a damaged pump may lead to an electric leak or shock.



⚠CAUTION

Do not install or store the pump:

1. Where ambient temperature exceeds 40 °C or falls below 0 °C.

2. In a dusty/humid place.

3. In direct sunlight or wind & rain.



- Install the pump as close to a supply tank. Keep a liquid level in the tank higher than the pump at any time.

- An electrical failure of the pump may result in electric shock. Purchase and install an earth leakage breaker separately.

● Noise level during operation is as below.

Model	Noise level
MD-15RV	40 dB
MD-20RZV	50 dB
MD-30RV	55 dB
MD-30RZV	60 dB
MD-70RV	70 dB
MD-70RZV	

*Noise level is measured in A scale at a distance of 1 m.

2. Installation/ Piping/ Electrical wiring

Stop working upon sensing danger or abnormality.

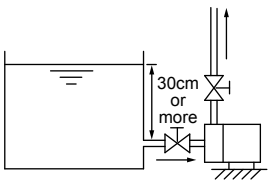
2.1 Installation

1. Installation location

Select a convenient place for maintenance and inspection. Observe the allowable room temperature range of 0-40 °C and the allowable maximum ambient humidity of 90 %RH.

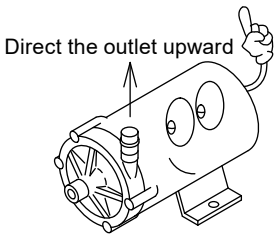
2. Mounting position

This pump is not capable of self-priming. Flooded suction application is ideal. The pump should be installed 30 cm lower than a suction liquid level, or a bearing may be worn soon by entrained air.

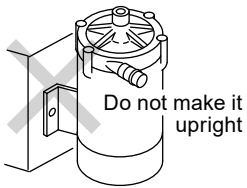


3. Outlet direction

Always direct the outlet upward or entrained air can not be expelled.



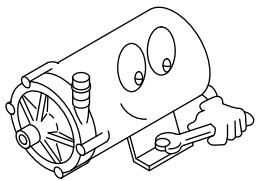
4. Do not mount the pump vertically.



5. Pump fixation

Secure the pump by fixing its base on a flat and a stable foundation.

NOTE: Use corrosive resistant fixing screws.

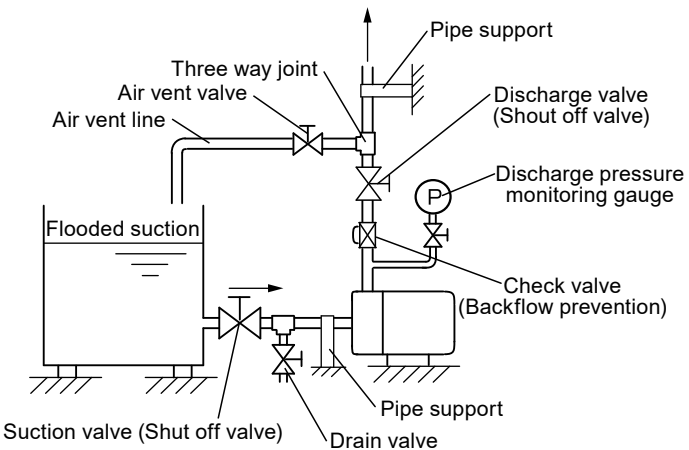


2.2 Piping

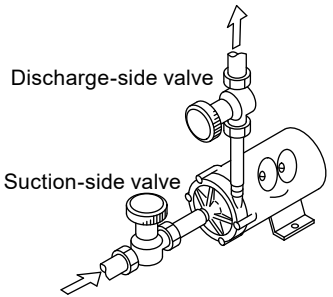
■ Before tubing

- Using a high flow pump and a small supply tank, a liquid level in the tank changes greatly.
- Do not allow a drop of adhesive agent or sealant into pipework. They may cause fatal damage to the pump.
- If pipework directory weighs on the pump, deformation or damage may result. Be sure to install pipe supports.

Plumbing layout



1. Flow/head adjustment & maintenance valves
   Install a ball valve on a discharge line for flow rate adjustment and on a suction line for the convenience of maintenance, as close to the pump as possible.

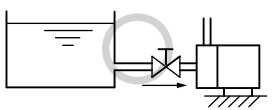
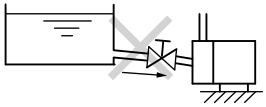
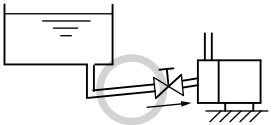
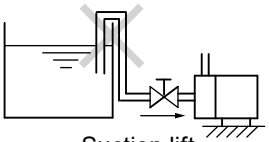
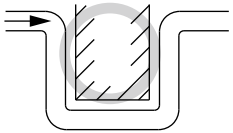
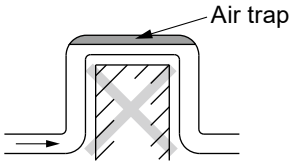


2. Pressure gauge
   Install a pressure gauge for monitoring discharge line pressure.
3. Drain valve
   Install a drain valve in between the pump inlet and a suction valve for blowing down liquid.
4. Air vent line and air vent valve
   Install an air vent line and an air vent valve when a discharge line is laid long in a horizontal direction.
5. Check valve
   Install an check valve when a discharge line is laid long in a vertical direction.

■ Suction line

• Avoid any loops in a plumbing run that could form a vapour trap. A suction line should be laid on a rising gradient of 1/100 toward the pump so as to expel air easily.

Suction line examples

Acceptable	Unacceptable
 Flooded suction	 Descending gradient
 Ascending gradient	 Suction lift
 U-shaped piping	 Arched piping

• In order to minimize plumbing resistance, have plumbing shortest with the minimum bends. Note cavitation*1 tends to occur when plumbing length is too long.

• A liquid level should be at least 30 cm higher than the tank outlet for the prevention of air ingress.

• Keep liquid in the supply tank free from foreign matters. Clean the supply tank at intervals.

• Be sure to secure connections on a suction line for the prevention of entrained air. The presence of air in a suction line may prevent liquid delivery.

■ Discharge line

• Piping resistance changes with properties of liquid, specific gravity, liquid temperature and pipe length, and may adversely affect pump operation when the resistance is too great. In order to minimize the piping resistance, have piping length shortest with the minimum bends. Contact us for detail.

• When a discharge line is too long, water hammer*2 phenomenon may occur and damage the pump with impact pressure when the pump stops running. Provide a check valve to prevent water hammer.

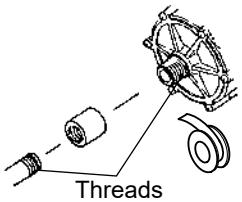
Word & Terms:

*1 Air bubbles caused by a negative pressure in the pump, accompanied with vibration and noise: Performance deterioration or parts corrosion results.

*2 Shutting off a discharge line at once, liquid pressure change causes an impact pressure, accompanying impact noise and vibration. This phenomenon is called water hammer. Water hammer damages the pump & pipework and may cause leakage.

<Thread connection>

Wrap a thread seal tape around the exposed threads of pipes, a pump inlet and outlet to create an air- and water-tightness before connection.
Use of a Teflon pipe or a Teflon-lined pipe is recommended.

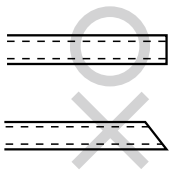


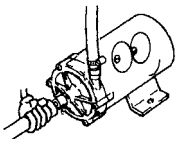
⚠CAUTION

Do not tighten a pipe too much, or a plastic inlet or outlet may break.

<Tube connection>

- Use temperature-/pressure-resistant braided tubes.
- Flat tube ends and then slide them down to an inlet and an outlet as far as they will go.

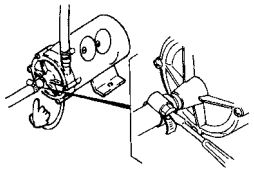


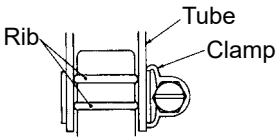


- Use a clamp to secure a tube connection and eliminate the possibility of leakage.

⚠CAUTION

The inlet and outlet are made of plastics. Do not tighten the clamp too much.

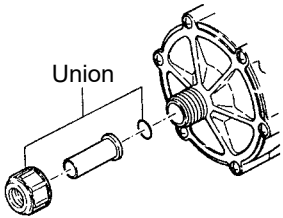




<Union connection>

Optional unions are available to pumps with thread connections as a tube coupling device. Purchase separately.

- Use applicable tubes to liquid characteristics.
- Use temperature-/pressure-resistant braided tubes.
- Secure a tube on a union with an applicable screw/band hose clamp.



2.3 Electrical wiring

Electrical wiring must be performed by a qualified electrician. Otherwise, personal injury or property damage could result. Contact us or your nearest distributor for wiring as necessary.

■ Before wiring

⚠CAUTION

Risk of electric shock. Do not handle this product with wet hands.

⚠CAUTION

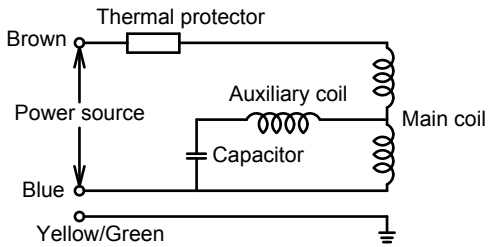
Be sure to turn off power before wiring work.

1. Observe the power voltage, number of phases, and power frequency specified on a spec label.
2. Three phase motors rotate clockwise when U, V and W motor terminals are connected in line with R, S and T power supply terminals. The motors rotate anticlockwise if two out of these three terminal combination are interchanged.
3. In order to secure earthing, purchase an earthing wire and connect it to a screw with an engraved "E". For the MD-6KV, an earthing wire is already provided to the pump and is just to be connected to earth.
4. Install a leakage breaker to reduce the possibility of a fire or motor burnout.

■ Connection diagram

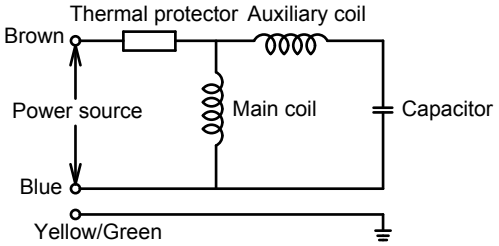
MD-15R/-20RZ/-30R/-30RZ types

Single-phase capacitor-run induction motor



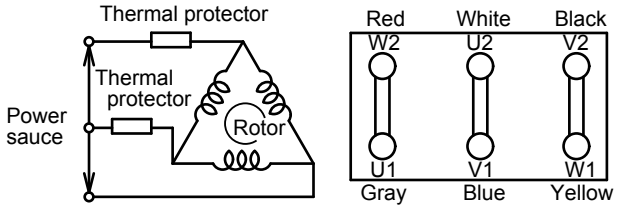
MD-70R/-70RZ

Single-phase capacitor-run induction motor

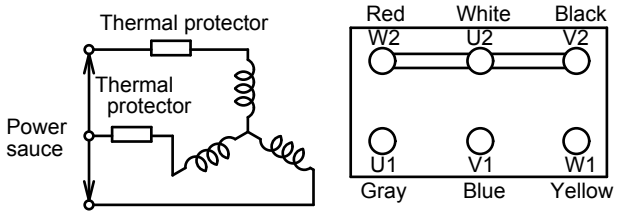


MD-70R/-70RZ type

3-phase motor, 220/380 V



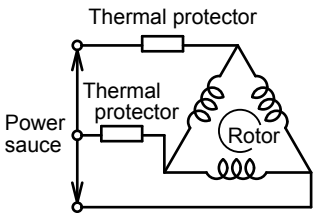
(220V)



(380V)

MD-70R/-70RZ type

3-phase motor, 400/440 V



■ Rated current & Starting current (50/60Hz)

Model	Rated current			Starting current		
	220/240 V Single phase	220/380 V 3 phases	400/440 V 3 phases	220/240 V Single phase	220/380 V 3 phases	400/440 V 3 phases
MD-6KV	0.07/0.07	-	-	0.1/0.1	-	-
MD-15RV	0.19 / 0.18	-	-	0.3 / 0.29	-	-
MD-20RZV	0.24 / 0.29	-	-	0.4 / 0.4	-	-
MD-30RV	0.4 / 0.5	-	-	1.2 / 1.25	-	-
MD-30RZV	0.42 / 0.5	-	-	1.2 / 1.25	-	-
MD-70RV	1.21 - 1.21 / 1.64 - 1.50	1.15 - 0.64 / 1.3 - 0.69	0.39 - 0.4 / 0.46 - 0.45	3.15 - 3.55 / 2.9 - 3.2	3.9 - 2.25 / 3.8 - 2.2	1.24 - 2.27 / 1.22 - 1.25
MD-70RZV	1.4 / 1.9	1.2 - 0.7 / 1.3 - 0.8	0.6 -0.7	3.15 - 3.42 / 2.95 - 3.15	4.15 - 2.45 / 4.0 - 2.4	2.15 - 2.3 / 2.05 - 2.27

1. Before operation

⚠ CAUTION

- Do not keep a discharge or a suction line little open or closed in operation.
- Do not open/narrow a discharge or a suction line sharply, otherwise the magnetic coupling*1 may be disconnected*2 (In this case turn off power once. The the drive and driven magnets will be coupled again as the pump is turned on.).
- If foreign matters enter the pump, turn off power and remove them, otherwise failure or malfunction may result.
- Do not run pump dry (operation with not liquid). Friction heat damages the pump.

Word & Terms:
*1 A pair of drive and driven magnets
*2 A state that a driven magnet (combination of impeller and magnet capsule units) does not rotate in sync with the drive magnet.

■ Preparations for operation

1. Check that the pump is under a flooded suction system and a liquid in a supply tank is at an appropriate level.
2. Check the connection between the pump and piping.
3. Check the pump is securely anchored.

2. Operation

- Do not run the pump in closed-discharge operation. Always keep the rated minimum flow rate (a tenth of the max flow rate).
- The pump should never be operated for a lengthy period (1 minute or more) with a discharge valve closed. Operation below the minimum flow can reduce lubricant and cooling effects on sliding parts. This could lead to failure.
- Do not send any medium other than fluid.
- Be sure to secure connections on a suction line for the prevention of entrained air. The presence of air in a suction line may prevent liquid delivery.
- Do not turn ON and OFF power in a short time. Before resuming operation, wait 30 minutes to turn on power after a motor has completely stopped rotating. Otherwise, motor may fail.

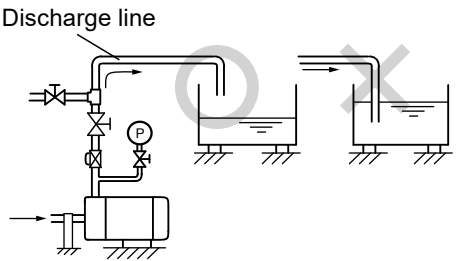
■ Operating procedure

Operate the pump in accordance with the following procedures.

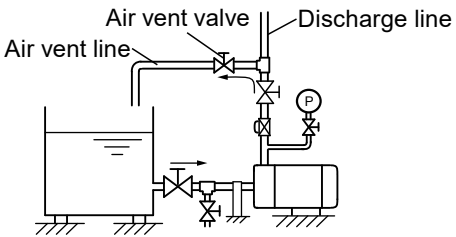
No.	Procedure	Points to be checked
1	Check piping, wiring and voltage.	• See "2.2 Piping" and "2.3 Electrical wiring" sections. • Check the spec label to see if power supply voltage is correct.
2	Open or close a valve.	• Fully open a suction-side valve. • Fully close a discharge-side valve.
3	Prime the pump chamber.	• Prime the pump with liquid whether flooded suction application or suction lift application. Note: If the pump chamber is not filled with liquid due to residual air in it, run the pump for degassing and eliminate air completely. See "■ Degassing" on the next page.
4	Supply power to the pump.	• Check the item 1, 2 and 3. Then turn on power and start the pump. Note: Do not keep a discharge-side valve closed more than 1 minute once the pump has started.
5	Adjust discharge capacity & discharge head to specified level.	• Open a discharge-side valve gradually till a flow and a head reach a specified level. Do not open or close the valve sharply. Note: Check that the pump transfers a liquid without trouble. If there is a problem, turn off power immediately and solve causes. See "***1. Troubleshooting***" section.
6	Check the operation.	• Do not allow foreign matters to enter the pump. Foreign matters may cause the impeller to be locked, hindering liquid circulation. In this case turn off power immediately (Contact us). • Turn off power when a leakage breaker operates. Investigate a root cause on the basis of the Trouble shooting section.

■ Degassing

Open the discharge line. The end of the line immersed in liquid is not ideal for degassing. Take it out from liquid as necessary. Run the pump for 1 second and repeat the 1-second operation until the trapped air is removed (from 3 to 5 times).



If an air vent line is laid on, open it instead of a discharge line before degassing.



■ Shutdown

No.	Procedure	Description
1	Close a discharge-side valve.	Close a discharge-side valve gradually. Do not cause sharp closure by using a solenoid valve.
2	Turn off power.	Check if a motor stops rotating smoothly as turning off power. If it is not smooth, check the motor. Contact us for detail.

■ Before a long period of storage

Empty the pump before it is left stopped for a long time. Run the pump with clean water for 5 minutes every 3 months to prevent the motor bearing from being rusty and stuck.

Follow "■ Operating procedure" on page 21 for resuming operation.

1. Troubleshooting

Upon sensing abnormality, stop operation immediately and remove problems according to this section.
If the following measures do not help removing problems, contact us or your nearest distributor.

Phenomenon / Causes	The pump does not run.	Poor discharge head	Overcurrent	Noise and vibration problem	Leakage	Measure
Wrong wiring	○		○			Inspect wiring. Rewire as necessary.
Motor failure	○		○			Contact us.
Air is trapped.		○		○		Eliminate air.
Air suction from the inlet		○				Check suction piping.
Dry running		○	○	○		Prime the pump before operation.
Too high SG or viscosity	○	○	○			Replace with suitable pump.
Impeller magnet hits the rear casing		○	○	○		Contact us.
Impeller is damaged.	○	○	○	○		Contact us.
Foreign matters on the impeller.		○	○	○		Contact us.
O ring is damaged					○	Contact us
Pump head mounting screws are loose.		○			○	Tighten the mounting screws.

2. Maintenance & Inspection

Handling of the pump, maintenance and inspection should be carried out within this instruction manual.
It is not the manufacturer's responsibility for personal injury or property damage resulting from unauthorized service. Contact us or your nearest distributor as necessary.

2.1 Maintenance

■ Retightening

After a long period of operation or storage, the pump head mounting screws may be loose. Tighten the mounting screws periodically. Do not use excess force. The plastic pump head may deform.

Tightening torque

MD-6KV	1.5 N•m
MD-15RV/-20RZV/-30RZV	1.8 N•m
MD-30RV/-70RV/-70RZV	3.0 N•m

■ Use with an earth leakage breaker

When an earth leakage breaker is used and it has worked, always solve the root cause of problems. Be sure to unplug the pump before investigation.

2.2 Inspection

■ Daily inspection

Always check for abnormality in vibration, noise, a current value, and a discharge capacity. If you notice any abnormal or dangerous conditions, suspend operation immediately and inspect/solve problems according to the troubleshooting section.

■ Cleaning

Periodically flush the inside of a supply tank and piping with water to keep clean conditions.
Turn off power before cleaning the pump exterior. Wait until the pump cools down if it is right after operation. Wet a cloth with tap water and wring it out for cleaning the pump. Use a neutral detergent for greasy dirt and then rub with a dry cloth.
Check the pump exterior is dried before a restart.

⚠CAUTION
Do not clean the pump with solvents such as benzine, alcohol and thinner. This may discolour the pump.

⚠CAUTION
Risk of electrical shock or short circuit. Do not wet a motor or electrical wiring.

■ Wear parts

To run the pump for a long period, wear parts such as the impeller and O ring need to be replaced periodically.
Contact us for detail.

■ Before a long period of storage

Turn off power and empty the pump completely. Protect the pump from dust with a cover as necessary.
Do not store the pump:
- Under a flammable atmosphere
- Under a corrosive atmosphere
- Where ambient temperature exceeds 40 °C.
- Where ambient temperature falls below 0 °C.
- Under a dusty or humid space.
- Under direct sunlight
- Under wind and rain
- Under vibration

3. Drainage

No drain port is provided to this pump. See drainage procedure below.

⚠ WARNING

- Turn off power before work.
- Always wear protective clothing such as safety goggles and protective gloves during pipework or dismantlement.

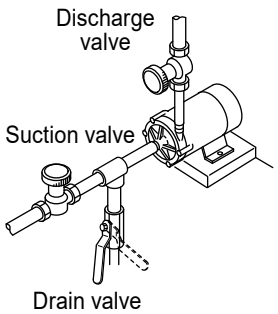
⚠ CAUTION

- A liquid flows out when detaching a tube or pipe from the pump. Be careful not to wet electrical parts including a motor.
- Do not drain a harmful chemical liquid directly on the ground or the floor. Always use a container.
- Do not wet the motor that is not dust- or water-proof with chemical liquid. Do not power on the motor once the pump has got wet.

*Dilute and flush out harmful liquid before removing a tube or a pipe.

■ Procedure

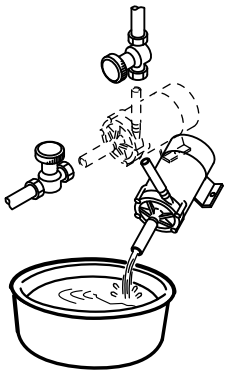
1. Turn off power. Make sure no one turns on power while working on the pump.
2. Close a discharge and a suction valve fully. Open a drain valve to empty the pump. Note liquid can not be removed completely through the drain valve.
3. Place a container under the pump and loosen tube clamps. Pull out tubes from the inlet and outlet. Be careful not to get wet with chemicals.



⚠ CAUTION

Do not get wet with chemical when removing tubes.

4. Unfix and take out the pump.
5. Direct the inlet downwards to run off liquid in a container.



EC DECLARATION OF CONFORMITY

A copy of the original Declaration of Conformity

(SUPPLIER'S NAME)
WE
IWAKI CO.,LTD.

(ADDRESS)
6-6 2-CHOME KANDA-SUDACHO CHIYODA-KU TOKYO JAPAN

(PRODUCT)
DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCTS
MAGNETIC DRIVE PUMP

(MODEL NAME)
MD SERIES

TO WHICH THIS DECLARATION RELATES ARE IN CONFORMITY
WITH THE FOLLOWING STANDARDS OR DIRECTIVES AS FAR AS APPLICABLE

(DIRECTIVES)
MACHINERY DIRECTIVE 2006/42/EC (ANNEX IIA)
RoHS DIRECTIVE 2011/65/EU

(STANDARDS)
EN ISO12100:2010 EN809:1998+A1:2009 EN IEC63000:2018

(A PERSON WHO IS AUTHORISED TO COMPILE THE TECHNICAL FILE
IN THE COMMUNITY)
IWAKI EUROPE GMBH
SIEMENSRING 115 D-47877 WILLICH GERMANY

NOTE: THIS DECLARATION BECOMES INVALID IF TECHNICAL OR OPERATIONAL MODIFICATIONS ARE INTRODUCED WITHOUT THE MANUFACTURER'S CONSENT.

T. Sawada.

TSUTOMU SAWADA
DEPUTY SENIOR GENERAL MANAGER,
QUALITY ASSURANCE HEAD OFFICE

Tokyo, Sep. 2, 2021

(PLACE AND DATE OF ISSUE) **(NAME AND SIGNATURE OR EQUIVALENT MARKING OF AUTHORIZED PERSON)**

DOCUMENT NO. IS-51K-449-4

UK DECLARATION OF CONFORMITY

A copy of the original Declaration of Conformity

(SUPPLIER'S NAME)
WE
IWAKI CO.,LTD.

(ADDRESS)
6-6 2-CHOME KANDA-SUDACHO CHIYODA-KU TOKYO JAPAN

(PRODUCT)
DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCTS
MAGNETIC DRIVE PUMP

(MODEL NAME)
MD SERIES

TO WHICH THIS DECLARATION RELATES ARE IN CONFORMITY WITH THE
FOLLOWING REGULATIONS OR STANDARDS AS FAR AS APPLICABLE

(REGULATIONS)
S.I. 2008/1597 SUPPLY OF MACHINERY (SAFETY)
S.I. 2012/3032 RESTRICTION OF HAZARDOUS SUBSTANCES

(STANDARDS)
EN ISO12100:2010 EN809:1998+A1:2009 EN IEC63000:2018

(A PERSON WHO IS AUTHORISED TO COMPILE THE TECHNICAL FILE
IN THE GB MARKET)
SENSYS LIMITED
UNIT 9 POND CLOSE WALKERN ROAD
STEVENAGE HERTS SG1 3QP UK

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T. Sawada.

TSUTOMU SAWADA
SENIOR GENERAL MANAGER,
QUALITY ASSURANCE HEAD OFFICE

Tokyo, Jun. 6, 2023

(PLACE AND DATE OF ISSUE) **(NAME AND SIGNATURE OR EQUIVALENT MARKING OF AUTHORIZED PERSON)**

DOCUMENT NO. IS-51K-603-1

Waste Electrical and Electronic Equipment (WEEE)



In accordance with the European Directive 2012/19/EU on waste electrical and electronic equipment, this product features the crossed-out wheelie bin symbol. When this product is disposed of in household wastes, toxic components included in it can cause major environmental and human health problems. Use appropriate waste collection systems for recovery and recycling. Contact your local distributor or nearest Iwaki company for the detailed collection systems.

IWAKI

https://www.iwakipumps.jp

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T743-6 '26/09