

# IWAKI

## Magnetic drive gear pumps

# MDG series



# Compact gear pumps that completely eliminate

Iwaki MDG Series pumps are small seal-less magnetic drive gear pumps engineered to provide the utmost in quiet and leak-free operation. Owing to their remarkable efficiency and compact design, MDG pumps are in wide use in hundreds of varied applications including some of the most sophisticated medical and laboratory equipment.



MDG-M4T6B

## M4

### Seal-less Construction Ideal for OEM Applications

Leak free and seal-less, the MDG Series pumps are ideal for incorporation into equipment. The magnet drive mechanism eliminates the troublesome shaft seal replacement.

### Outstanding Corrosion Resistance

The liquid end parts are manufactured from SUS316, PTFE, PPS and PEEK. This combination of materials offers extremely high levels of corrosion resistance thus making the MDG pumps capable of transferring many different aggressive chemical solutions.

# leakage problems



## R2



MDG-R2RVB  
(shown with IEC motor)

## R2<sub>DC24V type</sub>



MDG-R2BB

## M2



MDG-M2S6B

## R15



MDG-R15

### High Pressure Gear Rotary System

MDG pumps are characterized by high pressure and low flow rate. Despite its small size, it can attain high pressure to 0.6MPa and vacuum of 5.3kPa.

### Excellent Thermal Resistance

Precision machining coupled with Iwaki's innovative technology is used in the gear and body manufacturing process. Because only the most heat-resistant materials are used, pumping problems due to thermal expansion are eliminated. Standard MDG Series pumps are rated for 95°C operation.

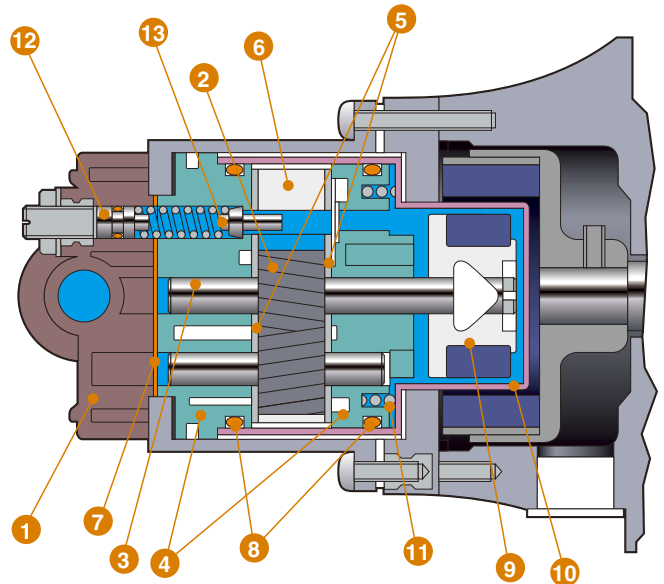
# R2



R2RVB230 / R2BVB230

## Construction and materials

No.	Name of Part	Materials
1	Pump head	GFRPPS
2	Gear	PPS
3	Shaft	SUS316
4	Bearing	(CF+PTFE) PPS
5	Plate	SUS316
6	Gear case	SUS316
7	Gasket seal	FKM
8	O ring	FKM
9	Magnet capsule	SUS316, GFRPPS
10	Rear casing	SUS316
11	Retaining spring	equivalent to SUS316
12	Adjusting screw	SUS316
13	Valve	(CF+PTFE) PPS



## Identification

MDG - **R2** **R** **V** **B** **230**

1. Model	R2
2. Temp. range	R : 0 - 50°C, B : 0 - 95°C
3. Relief valve	V : with relief valve, no symbol : without relief valve
4. Connection	B : 1/8NPT
5. Motor	230 : AC220 - 240V, 115 : AC115V

## Specifications

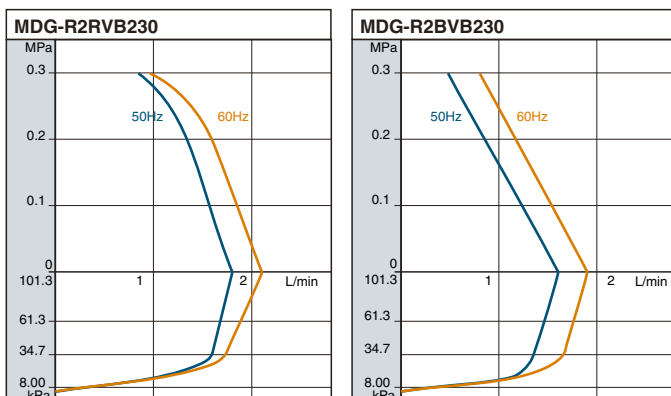
Standard motors fitted are to IWAKI specifications. All models are also available with IEC frame motors.

50/60Hz

Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa*s	Motor	Mass kg
MDG-R2RVB230	1/8NPT	1.8/2.1	0.3	5.3	0 - 50	50	AC220 - 240V, 20W	2.1
MDG-R2BVB230	1/8NPT	1.6/1.9	0.3	5.3	0 - 95	50	AC220 - 240V, 20W	2.1

- Pump performance will change depending on kind of liquid. Further information will be provided on request.
- When handling pure water and solvent, please contact us.
- When viscosity of handling liquid exceeds limitation of pump, please contact us.
- For applications requiring higher operating temperatures, please contact us.
- 115V motor is also available.

## Performance curves (Clear water at 25°C)



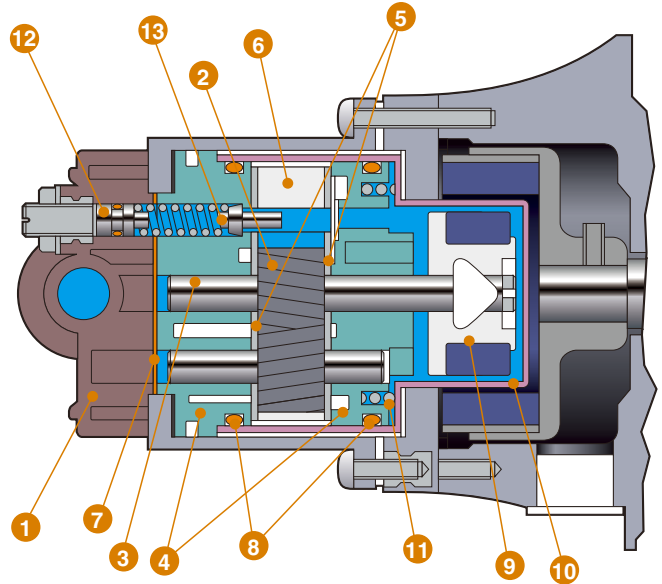
# R2 DC24V type



R2BB24 / R2RVA24H / R2RVB24H / R2RVC24H / R2BA24H / R2BB24H / R2BC24H

## Construction and materials

No.	Name of Part	Materials
1	Pump head	GFRPPS
2	Gear	PPS
3	Shaft	SUS316
4	Bearing	(CF+PTFE) PPS
5	Plate	SUS316
6	Gear case	SUS316
7	Gasket seal	FKM
8	O ring	FKM
9	Magnet capsule	SUS316, GFRPPS
10	Rear casing	SUS316
11	Retaining spring	equivalent to SUS316
12	Adjusting screw	SUS316
13	Valve	(CF+PTFE) PPS



## Identification

MDG - **R2** **R** **V** **B** **24H**

1. Model	R2
2. Temp. range	R : 0 - 50°C, B : 0 - 95°C
3. Relief valve	V : with relief valve, no symbol : without relief valve
4. Connection	B : 1/8NPT <small>Note</small>
5. Motor	24 : DC24V, 10W, 24H : DC24V, 14W

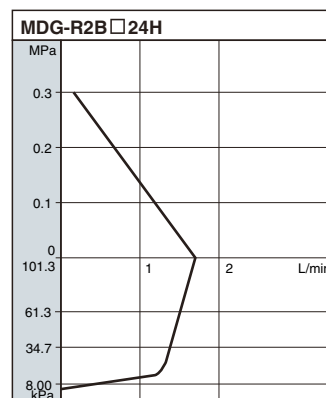
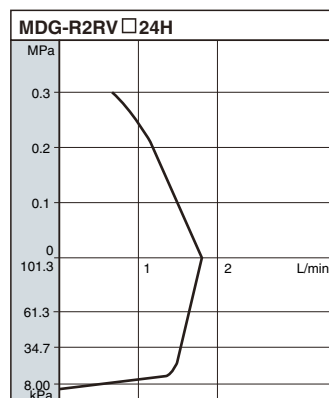
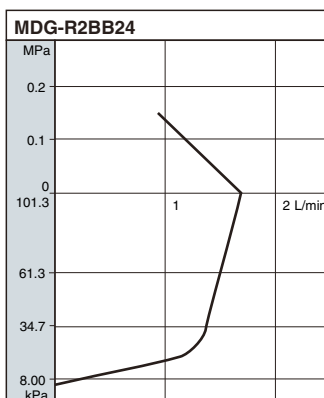
Note: Other connections (Rc1/8, G1/4) are also available on special request but for "-24H" models only.

## Specifications

Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa·s	Motor	Mass kg
MDG-R2BB24	Rc1/8, 1/8NPT, G1/4	1.7	0.15	5.3	0 - 95	10	DC24V, 10W	1.2
MDG-R2RV□24H*		1.8	0.3		0 - 50		DC24V, 14W	
MDG-R2B□24H*		1.7			0 - 95			

- shows connection size. Please refer above table.
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- When viscosity of handling liquid exceeds limitation of pump, please contact us.
- Models marked with \* are manufactured to order only.

## Performance curves (Clear water at 25°C)



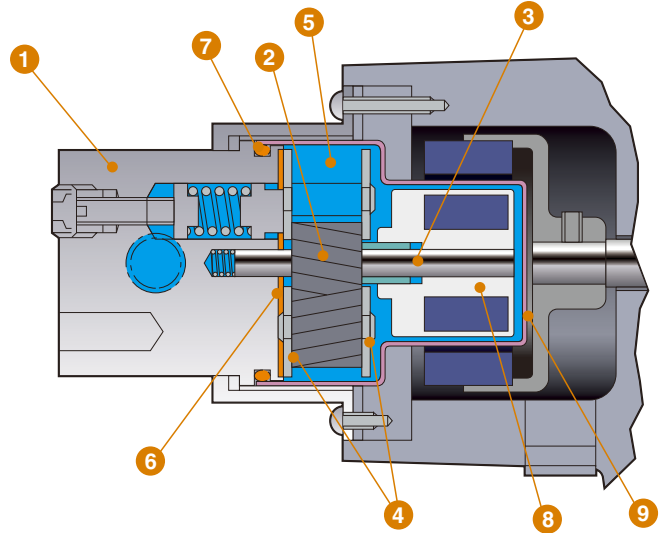
# M2 M4



M2S6B220 / M4T6B220 / M4S6B220 / M4T6B220H

## Construction and materials

No.	Name of Part	Materials
1	Pump body	SUS316
2	Gear	CFRPEEK
3	Shaft	SUS316
4	Plate	SUS316
5	Gear case	CFRPEEK/PPS
6	Gasket	PTFE
7	O ring	FKM
8	Magnet capsule	SUS316, PPS
9	Rear casing	SUS316



## Identification

MDG - **M2** **S6** **B** **220**

1. Model	M2, M4
2. Flow rate • Pressure	S6, T6
3. Connection	M4 B : 1/4NPT M2S6 B : 1/8NPT
4. Motor	220 : AC220 - 240V, 220H : AC220 - 240V, 115 : AC115V

## Specifications

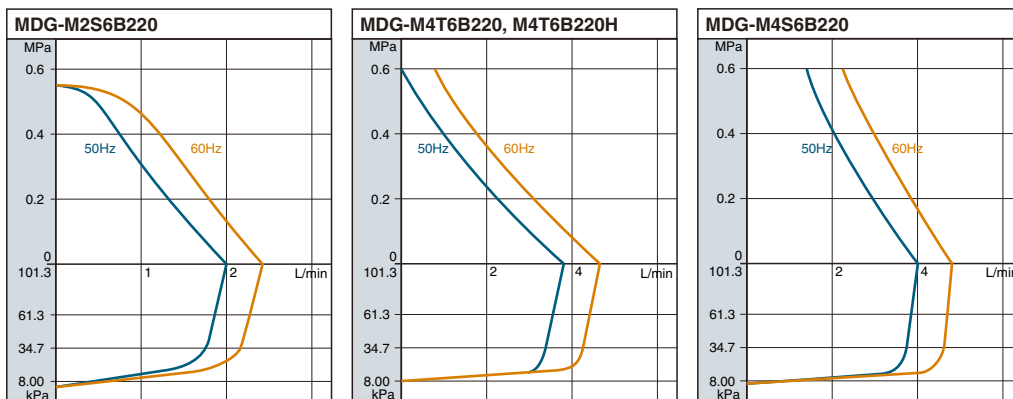
Standard motors fitted are to IWAKI specifications. All models are also available with IEC frame motors.

50/60Hz

Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa*s	Motor	Mass kg
MDG-M2S6B220	1/8NPT	2.0/2.4	0.55	5.3	0 - 65	50	AC220 - 240V, 45/50W	3.6
MDG-M4T6B220	1/4NPT	3.8/4.6	0.6	8.0	0 - 95	30	AC220 - 240V, 100/120W	7.9
MDG-M4S6B220	1/4NPT	4.0/4.8	0.6	5.3	0 - 50	30	AC220 - 240V, 100/120W	7.9
MDG-M4T6B220H	1/4NPT	3.8/4.6	0.6	8.0	0 - 95	200	AC220 - 240V, 150/180W	8.0

- Pump performance will change depending on kind of liquid. Further information will be provided on request.
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- 115V motor is also available.

## Performance curves (Clear water at 25°C)



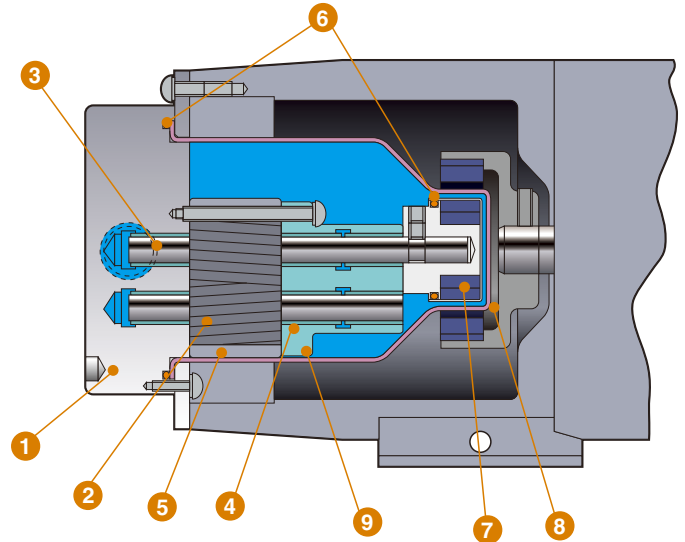
# R15



R15T220 / R15P220 / R15K220 / R15C220

## Construction and materials

No.	Name of Part	Materials
1	Pump body	SUS316
2	Gear	PTFE/PEEK
3	Shaft	SUS316
4	Bearing	GFRPTFE, (CF+PTFE) PPS
5	Gear case	SUS316
6	O ring	FKM
7	Magnet capsule	SUS316, FKM
8	Rear casing	SUS316
9	Bearing holder	SUS316



## Identification

MDG - **R15** **T** **220**

<b>1. Model</b>	<b>R15</b>
<b>2. Material of gear /Temp. range</b>	<b>T</b> : PTFE gear, GFRPTFE bearing/ 0-45°C <b>P</b> : PEEK gear, (CF+PTFE) PPS bearing/ 0-45°C <b>K</b> : PTFE gear, GFRPTFE bearing/ 0-95°C <b>C</b> : PEEK gear, (CF+PTFE) PPS bearing/ 0-95°C
<b>3. Motor</b>	<b>220</b> : AC220 - 240V, <b>115</b> : AC115V

## Specifications

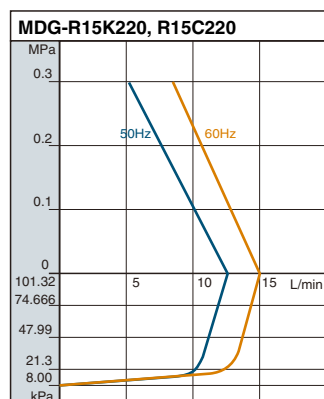
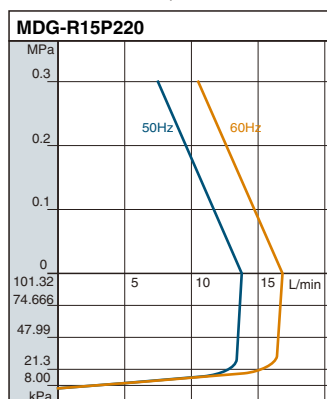
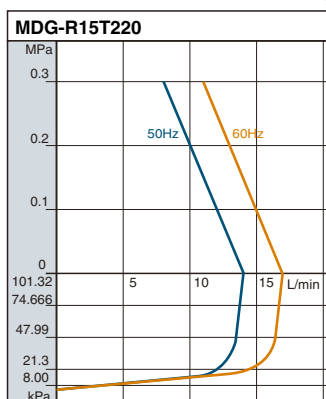
Standard motors fitted are to IWAKI specifications. All models are also available with IEC frame motors.

50/60Hz

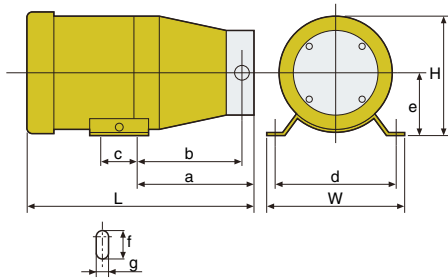
Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa*s	Motor	Mass kg
MDG-R15T220	Rc3/8	14/17	0.3	5.3	0 - 45	30	AC220 - 240V,150/180W	7.8
MDG-R15P220								
MDG-R15K220	Rc3/8	12.5/15	0.3	8.0	0 - 95	30	AC220 - 240V,150/180W	7.8
MDG-R15C220								

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- 115V motor is also available.

## Performance curves (Clear water at 25°C)



## Dimensions in mm



- Dimensions of models fitted with IEC motors differ from above.

Model	W	H	L	a	b	c	d	e	f	g
MDG-R2□□□□	106	83	202	101.5	91.3	44	90	45	10	6
MDG-R2BB24	90	80.5	154	81	71	44	75	45	10	6
MDG-R2□V24H*	90	80.5	161	81	71	44	75	45	10	6
MDG-M2S6B□	120	104.5	212.5	113.2	96.2	40	100	60	ø9	-
MDG-M4□6B□	130	122.5	242	120	107	40	110	65	11	7
MDG-M4□6B□H	130	155	239	120	107	40	110	65	11	7
MDG-R15□220	130	155	257	97	84	40	110	65	11	7

Note: Models marked with \* are manufactured to order only.

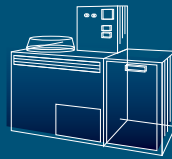
## Applications in Various Fields



Dialyser



Plasma etching units



Freon recovery and regeneration systems



Demineralizer

### • Medical appliances

Dialyser • Laser-applied surgical knife and other laser-applied medical treatment units • X-ray film processors

### • Semiconductor or liquid crystal manufacturing equipment

Laser-applied machining units • Plasma etching units • Pure-water or solvent use washing machines • Soldering machines • IC testing units

### • Printing equipment

Blanket auto washers • Ink supply and replenishing units • Automatic markers

### • Food processing equipment

Noodle producing machines • Water coolers • Freshness preservation units for food

### • Waste liquid recovery and processing equipment

Freon recovery and regeneration systems • Photographic chemical waste processing units • Organic solvent recovery units

### • Others

Pure-water producing machines • Oil circulation and filtering units • Liquid adding machines for pasturage • Hydroponic systems • Spraying machines for agricultural chemicals • Dye laser units • Fuel cells • Machines applied in physics and chemistry • Laboratories or experimental facilities

[www.iwakipumps.jp](http://www.iwakipumps.jp)

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( )Country codes



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.