

IWAKI
MAGNETIC
DRIVE GEAR PUMPS

MDG



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.

Applications in Various Fields

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



M4

MDG-M4T6B220

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



Specifications Standard motors fitted are to IWAKI specifications.

	Max. capacity										Max. discharge pressure			Max. vacuum			
	2	4	6	8	10	12	14	16	18	L/min	0.2	0.4	0.6	MPa	2.0	4.0	6.0
R2	1.8/2.1										0.3			5.3			
H2	1.8/2.1										0.4			5.3			
M2	2.0/2.4										0.55			5.3			
M4	4.0/4.8										0.6			5.3			
R15	14/17										0.4			5.3			

R2



MDG-R2RVB230

H2



MDG-H2TA220N

M2



MDG-M2S6B220

R15



MDG-R15P220

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. For applications requiring higher operating temperatures, please contact any of our technical service representatives.

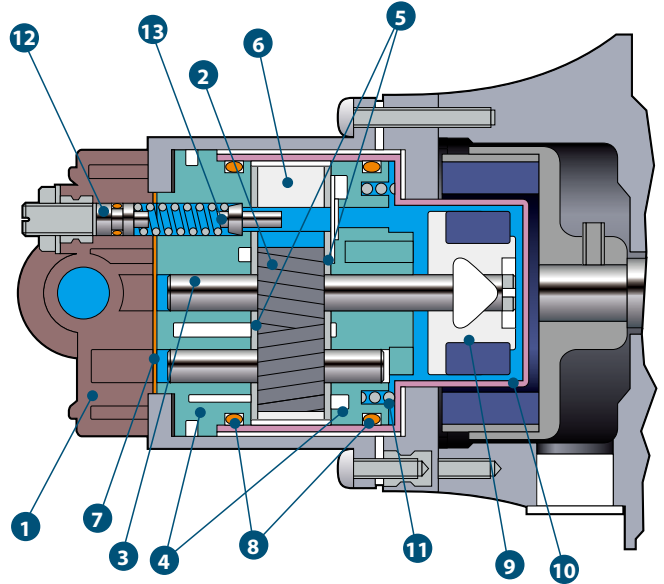
R2



MDG-R2RVB230

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	A: Rc1/8, B: NPT1/8, C: G1/4
5. Motor	230: AC220 - 240V, 115: AC115V

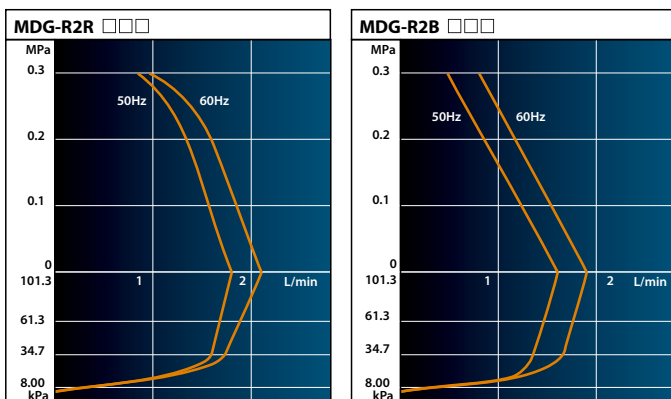
Specifications

Standard motors fitted are to IWAKI 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-R2R □□□	Rc1/8, NPT1/8, G1/4	1.8 / 2.1	0.3	5.3	0 - 50	50	AC220 - 240V, 20W	2.1
MDG-R2B □□□	Rc1/8, NPT1/8, G1/4	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.
- 115V motor is also available.

Performance curves (Clear water at 25°C)



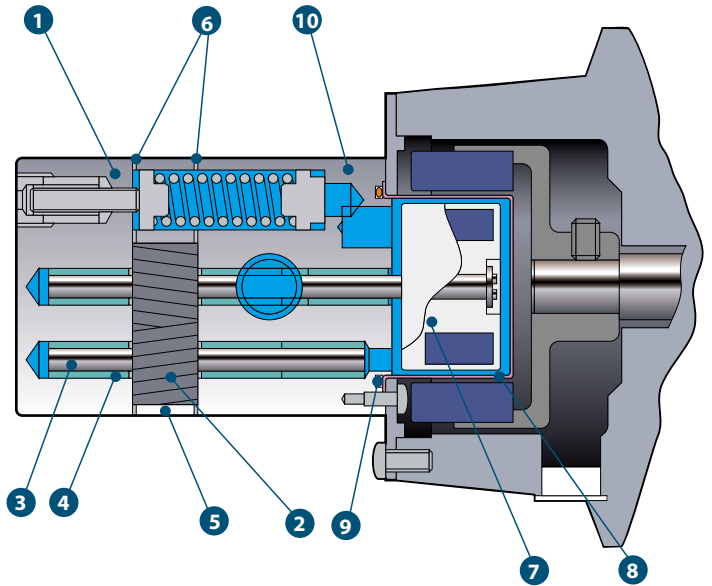
H2



MDG-H2TA220N

Construction and materials

No.	Name of Part	Materials
1	End disc	SUS316
2	Gear	PTFE
3	Shaft	SUS316
4	Bearing	GFRPTFE
5	Gear case	SUS316
6	Gasket seal	PTFE
7	Magnet capsule	SUS316, PTFE
8	Rear casing	SUS316
9	Gasket	PTFE
10	Mounting disc	SUS316



Identification

MDG - **H2** **T** **A220N**

1. Model	H2
5. Material of gear/ Temp. range	T: PTFE gear / 0 - 45°C K: PTFE gear / 0 - 95°C
3. Motor	A220N: AC220 - 240V

Specifications

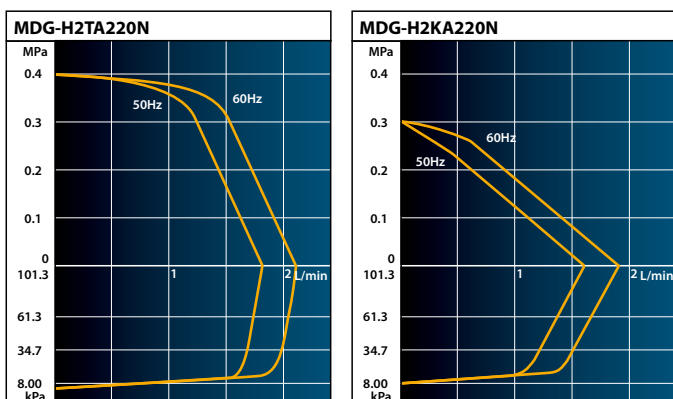
Standard motors fitted are to IWAKI specifications.

50/60Hz

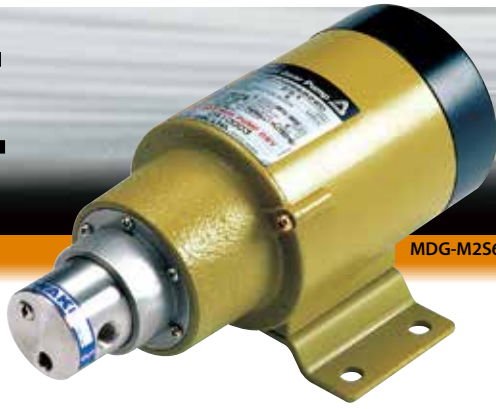
Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa·s	Motor	Mass kg
MDG-H2TA220N	NPT1/8	1.8 / 2.1	0.4	5.3	0 - 45	30	AC220 - 240V, 15W	2.1
MDG-H2KA220N	NPT1/8	1.6 / 1.9	0.3	8.0	0 - 95	30	AC220 - 240V, 15W	2.1

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- When viscosity of handling liquid exceeds limitation of pump, please contact us.
- 115V motor is also available.

Performance curves (Clear water at 25°C)



M2 M4



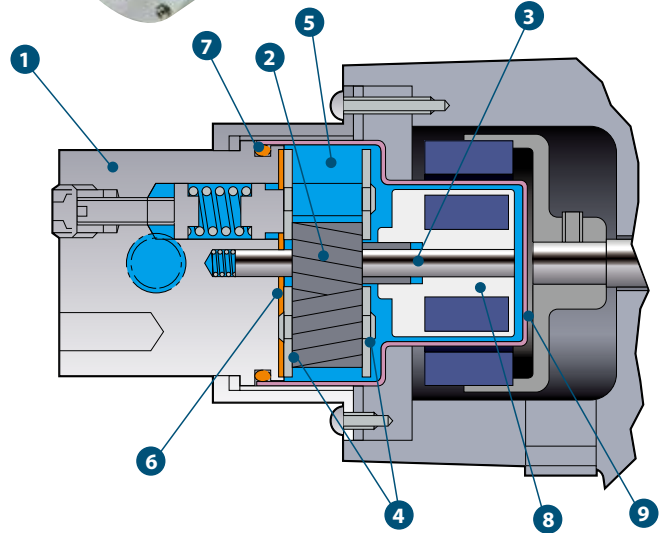
MDG-M2S6B220



MDG-M4T6B220

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(M2)/PPS(M4)
6	Gasket	PTFE
7	O ring	FKM
8	Magnet capsule	SUS316, PPS
9	Rear casing	SUS316



Identification

MDG - **1** **2** **3** **4**
M2 S6 B 220

1. Model	M2, M4
2. Pressure • Flow rate	S6, T6
3. Connection (M2S6)	B: 1/8NPT
3. Connection (M4)	A: Rc1/4, B: 1/4NPT
4. Motor	220: AC220 - 240V, 220H: AC220 - 240V, 115: AC115V

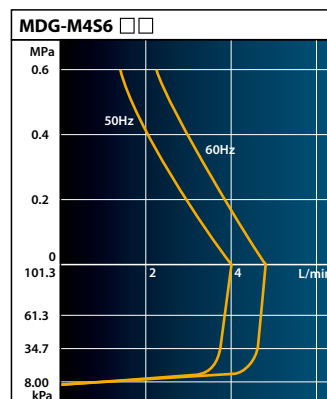
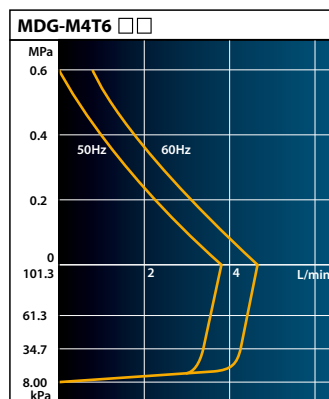
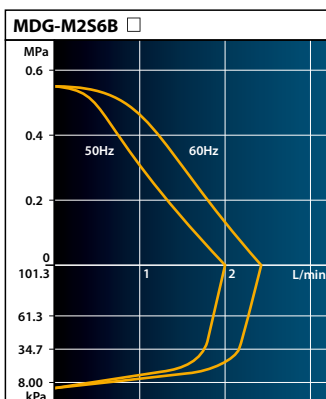
Specifications

Standard motors fitted are to IWAKI 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-M2S6B □	1/8NPT	2.0 / 2.4	0.55	5.3	0 - 65	50	AC220 - 240V, 45W	3.5
MDG-M4T6 □□	Rc1/4, 1/4NPT	3.8 / 4.6	0.6	8.0	0 - 95	80	AC220 - 240V, 100W	7.4
MDG-M4S6 □□	Rc1/4, 1/4NPT	4.0 / 4.8	0.6	5.3	0 - 50	30	AC220 - 240V, 100W	7.4
MDG-M4T6 □220H	Rc1/4, 1/4NPT	3.8 / 4.6	0.6	8.0	0 - 95	200	AC220 - 240V, 150W	8.0

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- When viscosity of handling liquid exceeds limitation of pump, please contact us.
- 115V motor is also available.

Performance curves (Clear water at 25°C)



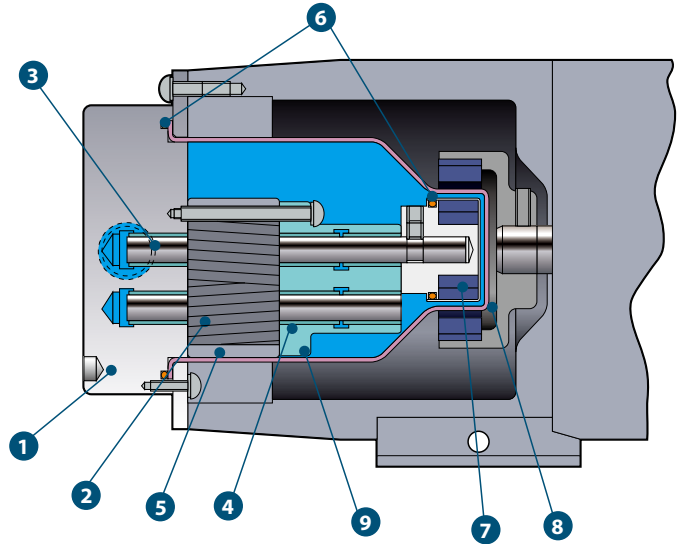
R15



MDG-R15P220

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 - ¹ **R15** ² **T** ³ **220**

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

Specifications

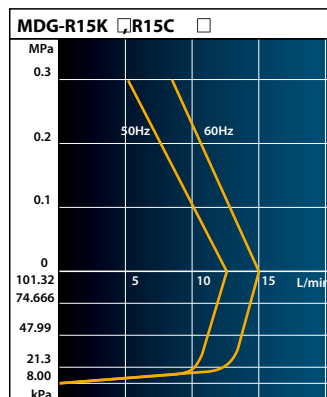
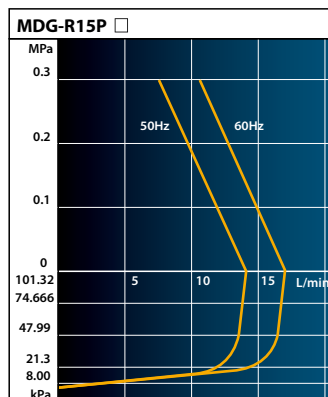
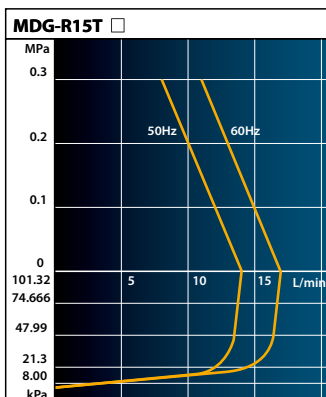
Standard motors fitted are to IWAKI specifications.

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-R15T <input type="checkbox"/>	Rc3/8	14 / 17	0.3	5.3	0 - 45	30	AC220 - 240V,150/180W	7.8
MDG-R15P <input type="checkbox"/>								
MDG-R15K <input type="checkbox"/>	Rc3/8	12.5 / 15	0.3	8.0	0 - 95	30	AC220 - 240V,150/180W	7.8
MDG-R15C <input type="checkbox"/>								

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- When viscosity of handling liquid exceeds limitation of pump, please contact us.
- 115V motor is also available.

Performance curves (Clear water at 25°C)



R2 DC24V TYPE



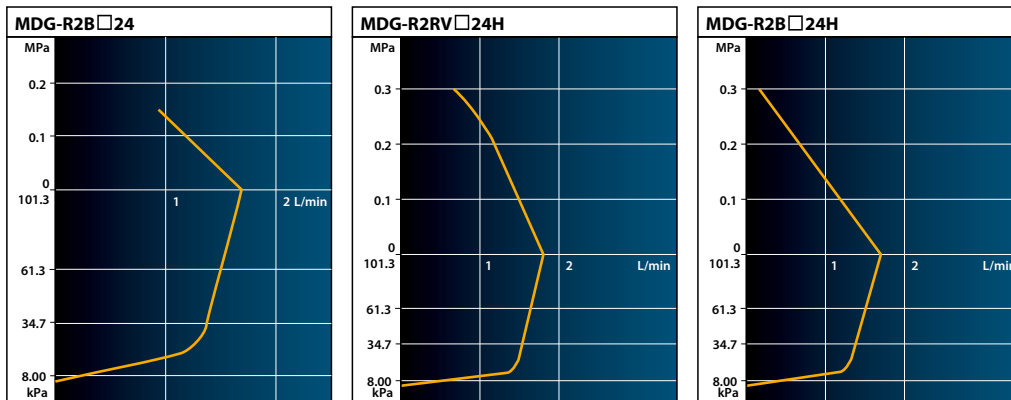
Employing DC motor creates less heat, low noise and less vibration, and it is suitable to install in equipment because of light and compact. It is easy to control flow rate by changing voltage.

Specifications

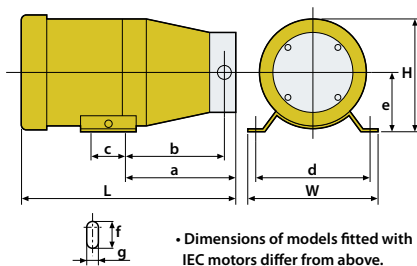
Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa·s	Motor	Mass kg
MDG-R2B□24	Rc1/8, 1/8NPT, G1/4	1.7	0.15	5.3	0 - 95	10	DC24V, 10W	1.2
MDG-R2RV□24H		1.8	0.3		0 - 50		DC24V, 14W	
MDG-R2B□24H		1.7			0 - 95			

- Shows connection size. Please refer above table.
- 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.

Performance curves (Clear water at 25°C)



Dimensions in mm



Model	W	H	L	a	b	c	d	e	f	g
MDG-R2□□□230	106	83	202	101.5	91.3	44	90	45	10	6
MDG-R2B□24	90	80.5	154	81	71	44	75	45	10	6
MDG-R2□□24H	90	80.5	161	81	71	44	75	45	10	6
MDG-M2S6B220	120	104.5	212.5	113.2	96.2	40	100	60	∅9	-
MDG-M4□6B220	130	122.5	242	120	107	40	110	65	11	7
MDG-M4□6B220H	130	155	239	120	107	40	110	65	11	7
MDG-R15□220	130	155	257	97	84	40	110	65	11	7

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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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