



Magnetic drive gear pumps **MDG**

**Compact gear pumps that completely
eliminate leakage problems**



The Heart of Industry

Compact gear pumps that completely eliminate leakage problems

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.

R2



MDG-R2RVA115



High-pressure, high-vacuum small pump

Despite its small size, it is capable of high-pressure discharge of Max. 0.6MPa and vacuum degree of 5.3kPa.



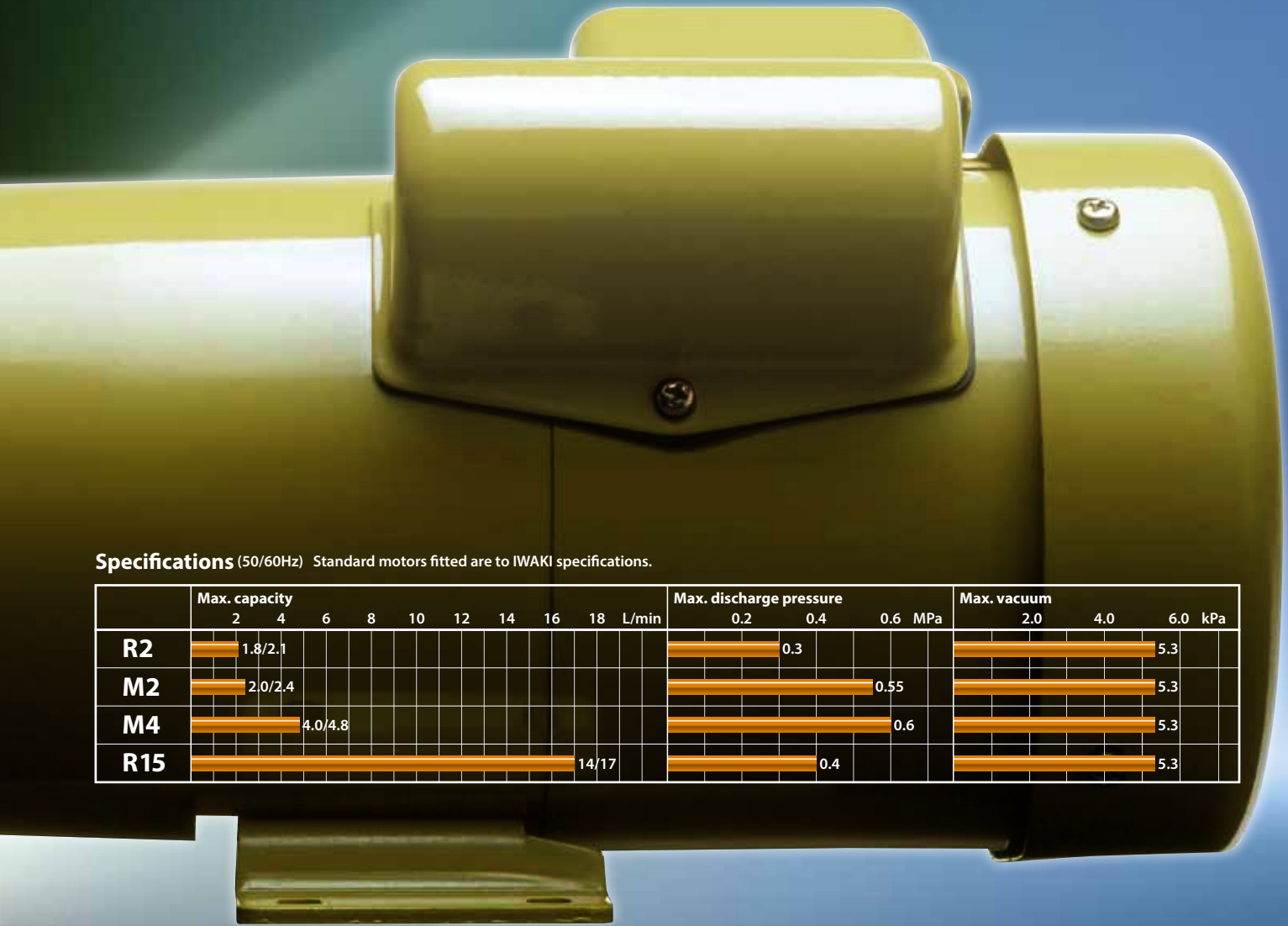
Excellent corrosion resistance

Excellent corrosion resistant materials such as SUS316, PPS, PEEK, and PTFE are used for the wet ends. Various chemicals can be transferred.



Sealless structure without liquid leakage

Magnetic drive seal-less pumps are free from leakage problem and the need for seal replacement.



Specifications (50/60Hz) 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 kPa
R2	1.8/2.1										0.3			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		

M2



MDG-M2S6B220

M4



MDG-M4S6A115

R15



MDG-R15P115



Excellent heat resistance

In addition to using heat-resistant materials, the gear pump body is precision-machined using our unique technology, enabling high-temperature chemical transfer. The standard type can be used with Max. 95 °C^{Note}.

Note: It depends on the model.



Low noise, low vibration, compact design

In addition to being compact and lightweight, it has low noise and vibration, making it suitable for incorporation into devices and equipment.



Long life design

Demonstrates excellent durability even for long-term continuous operation. There is also a type with a built-in relief valve to protect the pump.

R2

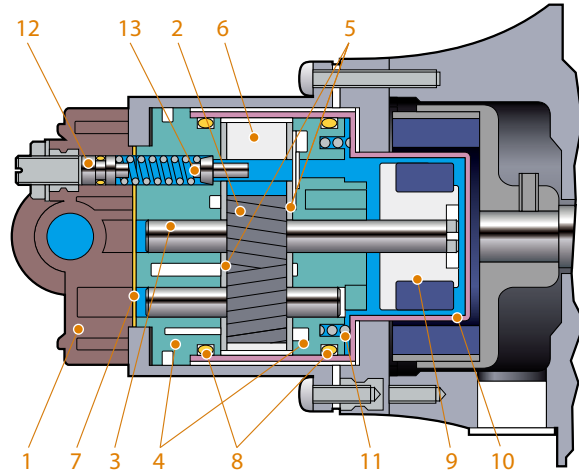


MDG-R2RVB115

Construction and materials

No.	Name of part	Materials
1	Pump head	GFRPPS
2	Gear	PPS
3	Shaft	SUS316
4	Bearing	(CF+PTFE) PPS ^{Note}
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 ^{Note}

Note : PPS with carbon fiber + PTFE



Identification

MDG - R2 R V B 230

① ② ③ ④ ⑤

<p>① Model R2</p>	<p>② Temp. range R : 0 - 50°C B : 0 - 95°C</p>	<p>③ Relief valve V : with relief valve no symbol : without relief valve</p>	<p>④ Connection A : Rc1/8 B : NPT1/8 C : G1/4</p>	<p>⑤ Motor 230 : AC220 - 240V 115 : AC115V</p>
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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 ^{Note1} mPa·s	Motor ^{Note2}	Mass kg
MDG-R2R□□□	Rc1/8, NPT1/8, G1/4	1.8/2.1	0.3	5.3	0 - 50	50	AC100V, 20W	2.1
MDG-R2B□□□	Rc1/8, NPT1/8, G1/4	1.6/1.9	0.3	5.3	0 - 95	50	AC100V, 20W	2.1

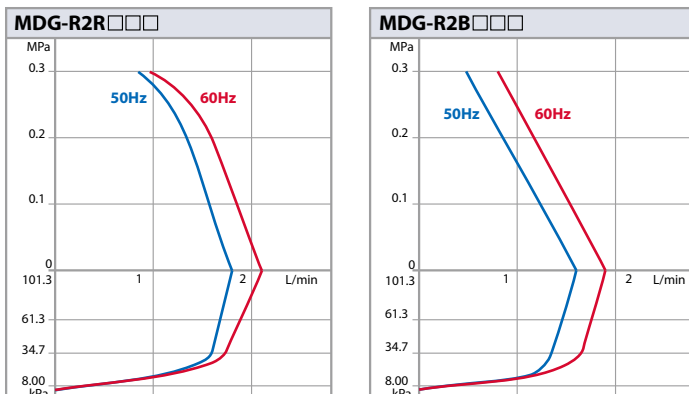
• Pump performance will change depending on type of liquid. Further information will be provided on request.

• When handling pure water and solvent, please contact us.

Note1 : When viscosity of handling liquid exceeds limitation of pump, please contact us.

Note2 : 115V motor is also available.

Performance curves (Clear water at 25°C)



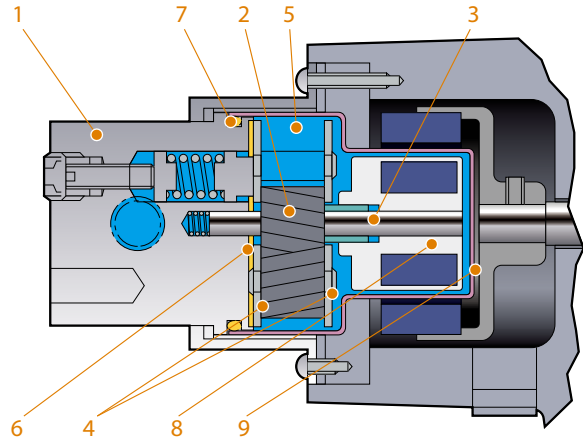
M2



MDG-M2S6B220

Construction and materials

No.	Name of part	Materials
1	Pump head	SUS316
2	Gear	CFRPEEK
3	Shaft	SUS316
4	Plate	SUS316
5	Gear case	CFRPEEK
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**
- ② Pressure • Flow rate **S6**
- ③ Connection (M2S6) **B : NPT1/8**
- ④ 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 ^{Note1} mPa•s	Motor ^{Note2}	Mass kg
MDG-M2S6B □	NPT1/8	2.0/2.4	0.55	5.3	0 - 65	50	AC220 - 240V, 45W	3.5

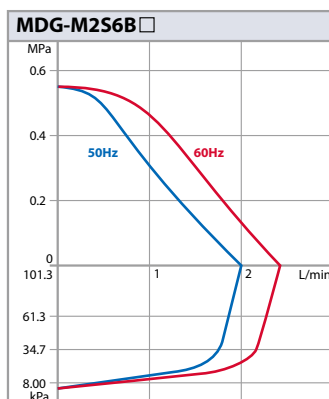
• Pump performance will change depending on type of liquid. Further information will be provided on request.

• When handling pure water and solvent, please contact us.

Note1 : When viscosity of handling liquid exceeds limitation of pump, please contact us.

Note2 : 115V motor is also available.

Performance curves (Clear water at 25°C)



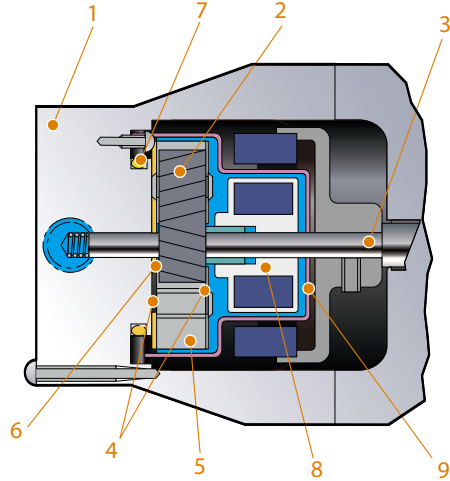
M4



MDG-M4S6B115

Construction and materials

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



Identification

MDG - M4 S6 A 220 H

① ② ③ ④ ⑤

<p>① Model M4</p>	<p>② Pressure • Flow rate S6 T6</p>	<p>③ Connection A : Rc1/4 B : NPT1/4</p>	<p>④ Motor 220 : AC220 - 240V 115 : AC115V</p>	<p>⑤ Non-standard specification code no symbol : 100W H : 150W</p>
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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 ^{Note1} mPa·s	Motor ^{Note2}	Mass kg
MDG-M4T6□□□	Rc1/4, NPT1/4	3.8/4.6	0.6	8.0	0 - 95	80	AC220 - 240V, 100W	7.4
MDG-M4S6□□□	Rc1/4, NPT1/4	4.0/4.8	0.6	5.3	0 - 50	30	AC220 - 240V, 100W	7.4
MDG-M4T6□□220H	Rc1/4, NPT1/4	3.8/4.6	0.6	8.0	0 - 95	200	AC220 - 240V, 150W	8.0

• Pump performance will change depending on type of liquid. Further information will be provided on request.

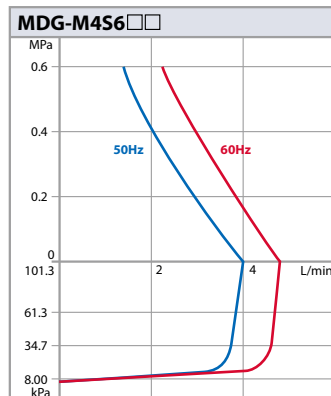
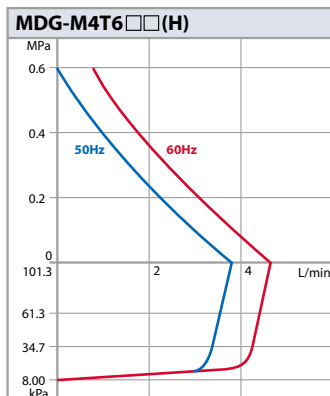
• When handling pure water and solvent, please contact us.

Note1 : When viscosity of handling liquid exceeds limitation of pump, please contact us.

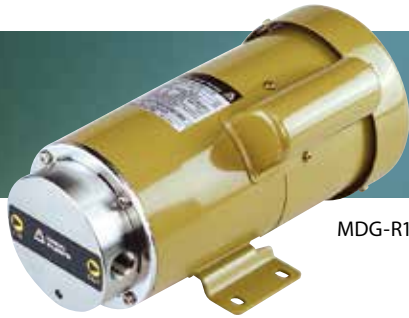
When the viscosity of the liquid used is 45mPa.s or more, the maximum discharge pressure is 0.5MPa.

Note2 : 115V motor is also available.

Performance curves (Clear water at 25°C)



R15

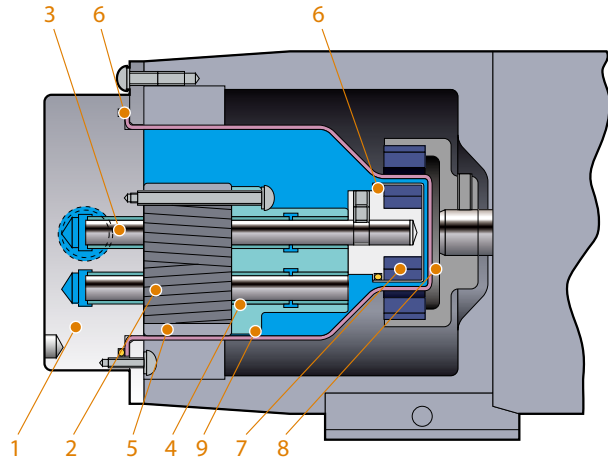


MDG-R15P115

Construction and materials

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

Note : PPS with carbon fiber + PTFE



Identification

MDG - R15 T 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

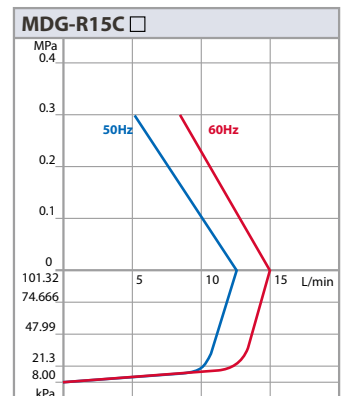
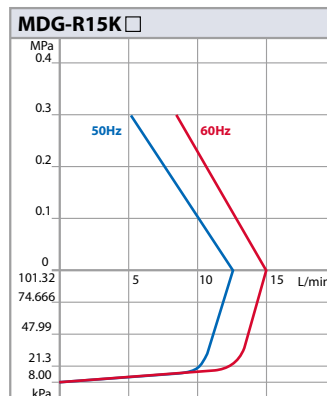
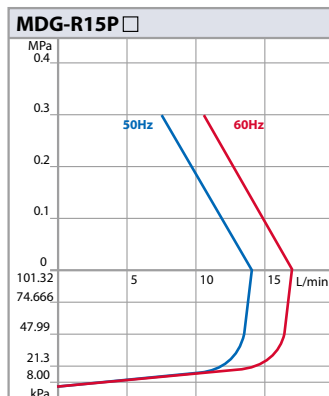
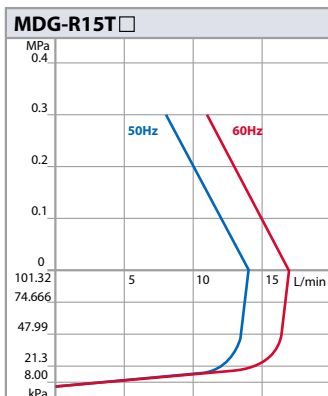
Standard motors fitted are to IWAKI specifications.

50/60Hz

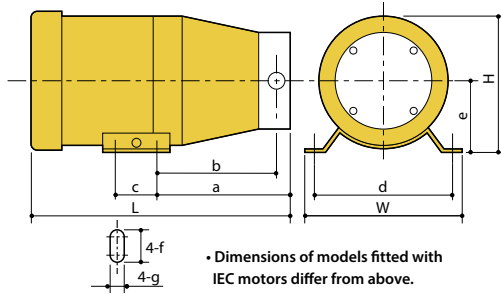
Model	Connection size	Max. capacity L/min	Max. discharge pressure MPa	Max. vacuum kPa	Liquid temp. range °C	Viscosity limit mPa·s ^{Note1}	Motor ^{Note2}	Mass kg
MDG-R15T□ MDG-R15P□	Rc3/8	14/17	0.3	5.3	0 - 45	30	AC220 - 240V, 150/180W	7.8
MDG-R15K□ MDG-R15C□	Rc3/8	12.5/15	0.3	8.0	0 - 95	30	AC220 - 240V, 150/180W	7.8

• Pump performance will change depending on type of liquid. Further information will be provided on request.
 • When handling pure water and solvent, please contact us.
 Note1 : When viscosity of handling liquid exceeds limitation of pump, please contact us.
 Note2 : 115V motor is also available.

Performance curves (Clear water at 25°C)



Dimension 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	132.5	239	120	107	40	110	65	11	7
MDG-R15 □ 220	130	155	257	97	84	40	110	65	11	7

Applications in Various Fields

Medical appliances : Dialyzer • 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

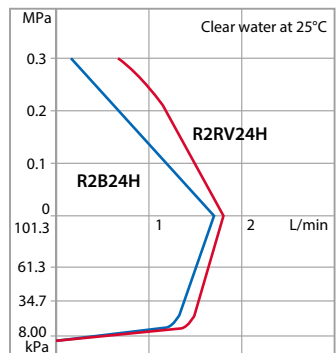
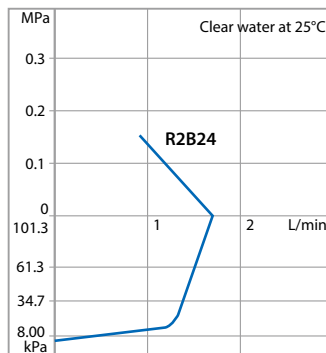
Others : Pure-water producing machines • Oil circulation and filtering units • Liquid adding machines for pasturage • Hydroponic systems

Spraying machines for agricultural chemicals • Dye laser units • Fuel cells • Machines applied in physics and chemistry

Laboratories or experimental facilities

MDG-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.



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,	1.7	0.15	5.3	0 - 95	10	DC24V, 10W	1.2
MDG-R2RV □ 24H	NPT1/8,	1.8	0.3		0 - 50		DC24V, 14W	
MDG-R2B □ 24H	G1/4	1.7	0.3		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.

IWAKI CO., LTD. 6-6 Kanda-Sudacho 2-chome Chiyoda-ku Tokyo 101-8558 Japan TEL : (81)3 3254 2935 FAX : 3 3252 8892

IWAKI has global network. Please find your distributor location at

www.iwakupumps.jp

European office : IWAKI Europe GmbH
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 TEL: (47)23 38 49 00
 TEL: (46)8 511 72900

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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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