TECHNICAL GUIDANCE

Low-priced flowmeters for chillers used in the semiconductor industry that use Fluorinert and Galden

W-2000N

MINI-WHEEL FLOWMETE (Impeller Flowmeter)

OUTLINE

The W-2000N is a impeller-type flowmeter that can be used on chillers that use Fluorinert, Galden, and other fluids. There is a magnetic impeller in the flow path, and the number of its rotations that is proportional to the flow rate is counted in a non-contact manner using a magnetic sensor. As it is inexpensive and able to be used in both low and high temperature conditions, the W-2000 series is optimal for use on semiconductor chillers.

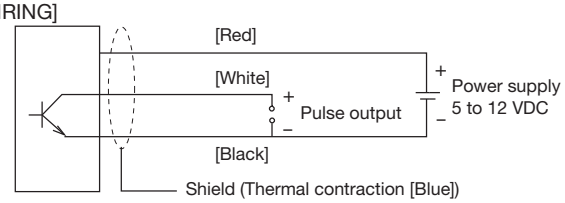
FEATURES

- ❏ Pulse output
- ❏ Covering a wide fluid temperature range from -20 to +100°C
- ❏ A minimum range of 0.5 to 3 L/min and a maximum range of 6 to 60 L/min
- ❏ Easy overhauling, cleaning, and maintenance
- ❏ Low price owing to intensive cost down
- ❏ Complying with RoHS

STANDARD SPECIFICATIONS

- ●Measuring fluid : Liquids including Fluorinert, Galden, and ethylene glycol. The liquid viscosity must be 2 mPa･s or less.
- ●Fluid pressure : Maximum 1.0 MPa
- ●Fluid temperature : -20 to +100°C
- ●Ambient temperature : 5 to 60°C
- ●Flow direction and posture : The fluid flows in a horizontal or vertical direction. (When the fluid flows in a horizontal direction, a posture in which the shaft of the impeller is in a horizontal orientation and the fluid flows at the top of the impeller will be obtained.)
- ●Output : Open collector pulse (Unscaled)
- ●Pulse frequency : Approximately 85 to 105 Hz at the maximum flow rate (Actual measured value is indicated on the product name plate.)
- ●Accuracy : ±5% of F.S. for model W-2012N ±3% of F.S. for models W-2013N to 2019N
- ●Construction : Waterproof (Equivalent to IP65)
- ●Power supply : 5 to 12 VDC, 12 mA
- ●Load rating : Maximum 12 VDC, 15 mA
- ●Electric connection : 3-core cable (UL2517) AWG24

[WIRING]



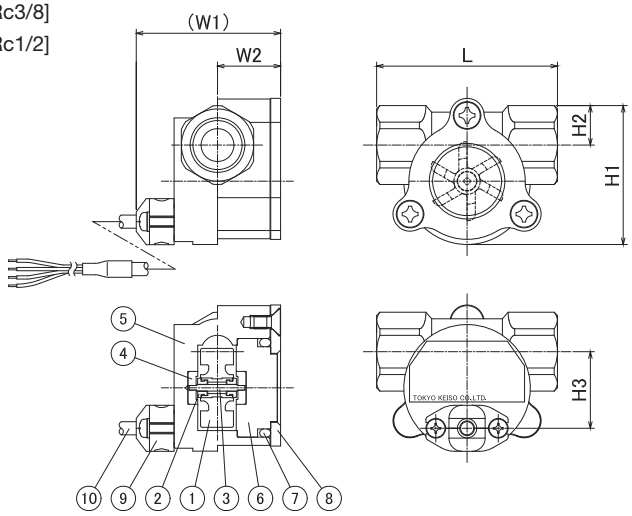
MODEL CODE

Model code												Description		
W-20	1	□	N	-	□	□	-	□	□	□	□			
Output	1											Pulse output: Open collector		
Range of flow rate Connection size		2	N									0.5 to 3 L/min	(Flow path nozzle Φ4.0)	Rc 3/8
		3	N									0.7 to 5 L/min	(Flow path nozzle Φ5.7)	
		4	N									1.5 to 15 L/min	(Flow path nozzle Φ10)	
		5	N									2 to 20 L/min	(Flow path nozzle Φ11.5)	Rc 1/2
		6	N									3 to 30 L/min	(Flow path nozzle Φ14)	
		7	N									4 to 40 L/min	(Flow path nozzle Φ16)	
		8	N									5 to 50 L/min	(Flow path nozzle Φ18)	Rc 3/4
		9	N									6 to 60 L/min	(Flow path nozzle Φ18)	
Inflow direction					R							Right to Left or Bottom to Top (Impeller on left side against flow path) (Standard)		
					L							Left to Right or Bottom to Top (Impeller on right side against flow path)		
Cable length						2						2 m		
Material of O-ring								E				EPDM (Ethylene propylene rubber) *1 Recommended temperature range: -20 to +80°C		
								S				FVMQ (Fluorosilicone rubber) *1 Recommended temperature range: -20 to +100°C		
Material of monitoring window									S			SCS14 (No monitoring)		
Materials of Impeller, bearing, shaft, and bushing (Indicated as groups)										5		Group 5		
Special connection specifications											0	None		

*1 When an O-ring made of a material that withstands low and high temperatures is used, it is recommended that the product be used within the recommended temperature range.

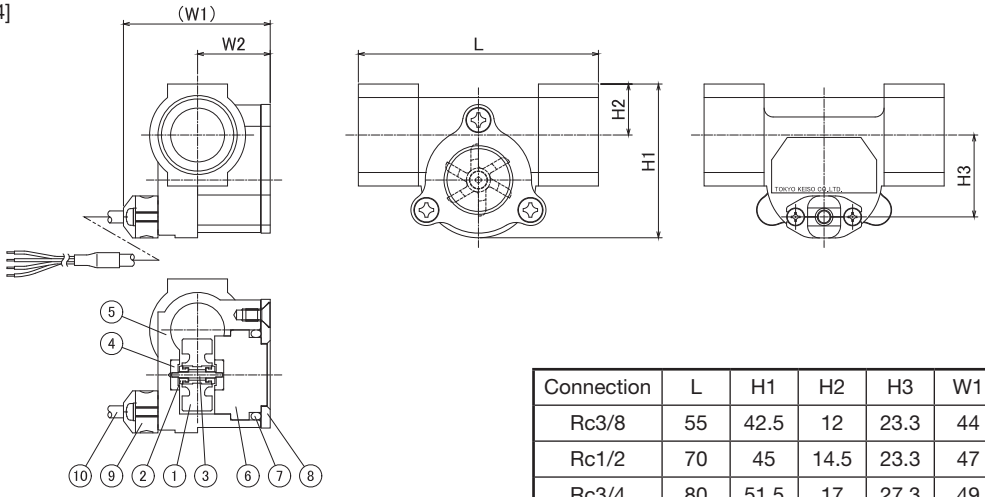
DIMENSIONS AND CONSTRUCTION

[Connection Rc3/8]
[Connection Rc1/2]



No.	Name	Material group 5
1	Wheel (Impeller)	PPS + Fe (Plastic magnet)
2	Bearing	Carbon-containing PTFE
3	Shaft	HC-276
4	Bush	PPS
5	Flow path body	SCS14
6	Monitoring window	SCS14
7	O-ring	See MODEL CODE
8	Cover plate	SUS316
9	Holder	PBT
10	Cable	PVC sheath

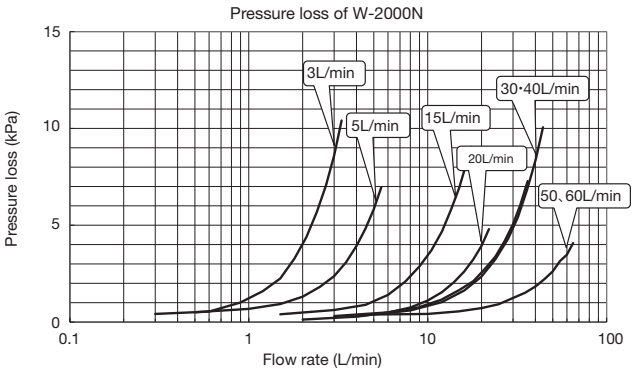
[Connection Rc3/4]



Connection	L	H1	H2	H3	W1	W2	Mass
Rc3/8	55	42.5	12	23.3	44	19.3	330 g
Rc1/2	70	45	14.5	23.3	47	22.3	400 g
Rc3/4	80	51.5	17	27.3	49	24.3	490 g

PRESSURE LOSS

Note: This graph shows reference values for pressure losses that may occur when there are no drifts or swirling flows and the viscosity is equivalent to that of water.



NOTES

- ❏ Do not run signal cables along with other power or motor cables.
- ❏ The inside diameter of process piping and fittings must be greater than the diameter of the flow path nozzle.
- ❏ Install this product in a location where it will not be affected by magnetic fields.
- ❏ When using the product, ensure that the main body is filled with water and that there is no air near the Impeller.
- ❏ Do not use air blowers to blow the product. Otherwise, the Impeller and/or shaft may be damaged.
- ❏ It is recommended that a straight section with a diameter of 10 D or larger (D: Inside diameter of the connected pipe) be provided in the upstream piping if an uneven or swirling flow is expected to occur.

* Specification is subject to change without notice.

TOKYO KEISO CO., LTD.

Head Office : Shiba Toho Building, 1-7-24 Shibakoen, Minato-ku, Tokyo 105-8558
Tel : +81-3-3431-1625 (KEY) ; Fax : +81-3-3433-4922
e-mail : overseas.sales@tokyokeiso.co.jp ; URL : https://www.tokyokeiso.co.jp