



TECHNICAL GUIDANCE

AXIAL-FLOW TYPE
MICRO TURBINE FLOWMETER

TW-070 + RR930N

Measurement with all metal-free wet components

The wet parts are composed of ceramics and super-engineering plastics PSU (polysulfone). This metal-free flowmeter allows low flow measurement of strong acid and alkaline liquids as low as 30mL/min.

OUTLINE

TW-070 axial-flow type micro flowmeter, as a full-flow flowmeter, is capable of measuring a flow rate of as low as 30mL/min through optical signal type detection with little rotational resistance.

The flowmeter is composed of metal-free liquid contact materials so that it is capable of measuring the flow rate of strong acid and alkaline liquids.

In order to secure wear resistance, ceramics are used for moving parts.

The flowmeters are widely used in semiconductor manufacturing, chemical and food processing industries.

Low-flow rate measuring system is easily configured by combining it with the RR930N.



TW-070



RR930N

FEATURES

- Measurable as low as 30mL/min.
- Infrared detection system less susceptible to outside light.
- Metal-free wet components made of super-engineering plastics PSU (polysulfone) and ceramics.
- Rigid ceramics used for the moving parts.
- Compact design.
- A full-flow system clears away bubbles quickly.

SPECIFICATIONS

Model	Measuring range (mL/min)	Orifices in flow-path (mm)	Maximum pressure loss (kPa)
TW-072	30 to 200	Ø0.5 × 3	20 kPa
TW-073	50 to 500	Ø1.0 × 3	8 kPa
TW-074	100 to 1000	Ø2.0 × 3	3 kPa

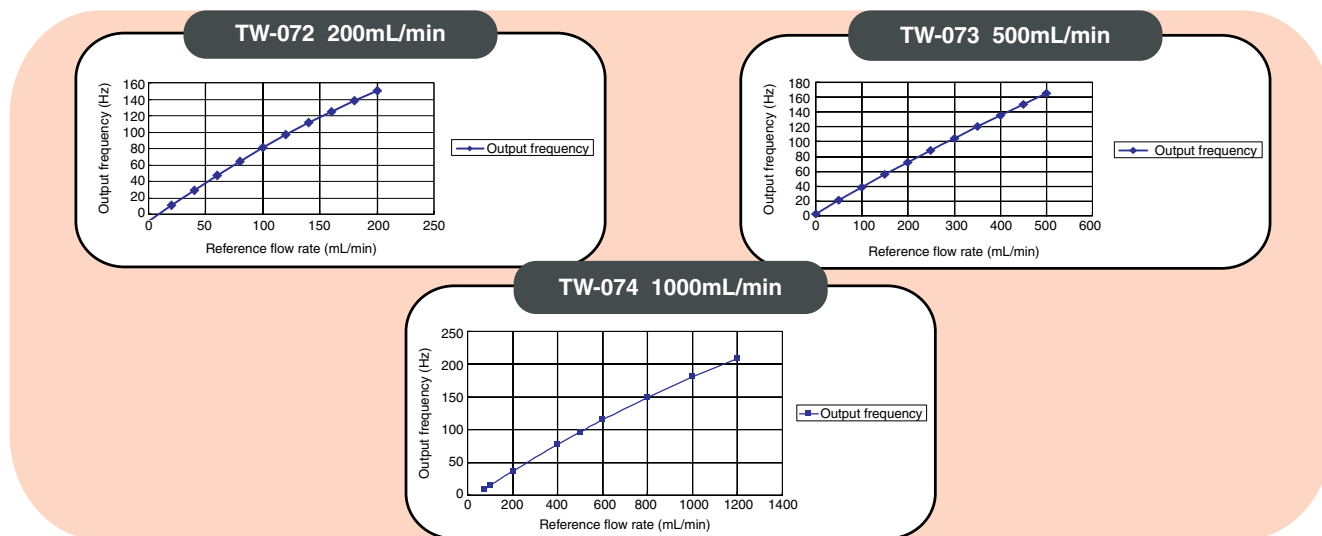
Measuring fluid	Water, Chemical liquids (Refer to the following page.) (The diameter of solid particles must be less than 0.03 mm.)
Operating fluid pressure	Max. 0.3MPa at 23°C Test pressure (Hydraulic press.): 0.45MPa at 23°C
Operating fluid temperature	23±15°C
Operating ambient temperature	23±15°C (Without freezing or dew condensation)
Flow characteristic	The pulse frequency of the scale range (Maximum flow rate) is indicated on the tag plate.
FS	FS frequency range Within ±10%FS
Repeatability	Within ±2%FS
Connection	Inlet: Rc1/4, Outlet: Rc1/4
Installation posture	Flow direction: Bottom to Top
Flow direction	The flow direction is indicated by arrow mark on the body.
Protection	Equivalent to IP65
Supply voltage	12V DC ±10% 30mA
Pulse output	Open collector (Unscaled pulse) Output rating (Max.) 15V DC 10mA
Electric connection	3-core shield 50cm length of lead wire
Mass	(Approx.) 70g

MEASURABLE LIQUIDS (Referring to the following liquids, consult our factory for details.)

The wet part materials of the flowmeter, O-rings, PSU (polysulfone), and alumina determine the durability when put in services.

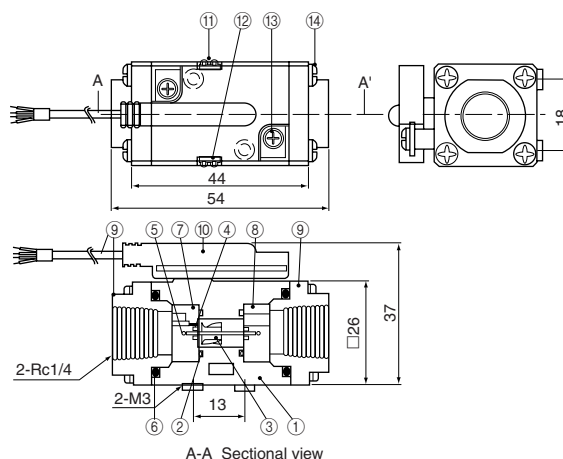
Liquid	Condition	Liquid	Condition
Hydrochloric acid	37% or less	Potassium hydroxide	35% or less (60°C)
Hydrofluoric acid	Not applicable.	Caustic soda	50% or less (23°C)
Nitric acid	40% or less (23°C)	Sodium hypochlorite	○
Phosphoric acid	100% (23°C)	Methanol	○
Sulfuric acid	65% or less	Ethanol	○
Acetic acid	20% or less (23°C)	Glycerol	○
Lactic acid	○	Acetone	5% or less (23°C)
Ammonia	29% or less (23°C)		

EXAMPLES OF FLOW CHARACTERISTIC



DIMENSION AND MATERIAL

No.	Parts name	Material
1	Body	PSU
2	O-ring	VITON
3	Wheel	PSU + Zirconia *1
4	Bearing	Alumina *2
5	Ball	Zirconia *1
6	O-ring	VITON
7	Input bearing guide	PSU
8	Bearing guide	PSU
9	Joint	PSU
10	Circuit mold	PVC
11	Euphotic sensor	FR-4
12	Photo detector	FR-4
13	Screw	SUS304
14	Screw	SUS304



*1 Zirconia is equivalent to Z-201.
 *2 The content of alumina is 99.5% or more.

* Specification is subject to change without notice.

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