



# TECHNICAL GUIDANCE

WITH NON-METALLIC, FLUOROPLASTIC  
WETTED PARTS  
For Semiconductor Manufacturing Processes

## W-800 MINI-WHEEL FLOWMETER

### OUTLINE

The W-800 series mini-wheel flowmeter is a wheel-type flowmeter with an optical sensing system for measuring the flow rates of liquids. Wetted parts are made of fluoroplastic and other non-metallic materials, and thus are suitable for measuring pure/ultra pure water and various chemicals in semiconductor manufacturing processes.

### FEATURES

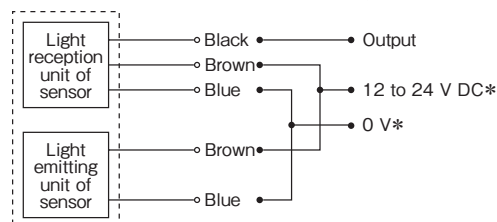
- ❑ Wheel rotation is detected by a photoelectric sensor
- ❑ A fluoroplastic body with other non-metallic materials for wetted parts
- ❑ For measuring pure/ultra pure water, chemicals, and other liquids
- ❑ Min. range of 0.04 to 0.2 L/min and max. range of 5 to 50 L/min
- ❑ Tube end connection or Rc thread connection
- ❑ Complying with RoHS

### STANDARD SPECIFICATIONS

- Measuring fluid : Various liquids  
(Transparent liquids less than 2mPa · s in viscosity)
  - Fluid pressure : Max. 0.29MPa
  - Fluid temperature : Max. 50°C (Without condensation and freezing)
  - Flow direction and posture : Only vertical for models W-811 through W-813  
Vertical or horizontal for models W-814 through W-810
- Note: All models must be installed where the process line is filled with a liquid. The shaft of the wheel must be horizontal.
- Mass : Approx. 160g for models W-811 through W-815  
Approx. 510g for models W-816 through W-810
  - Measurement principle : Detection of wheel rotation by optical sensing method
  - Output : Open collector pulse (Unscaled)
  - Load rating : Max. 30 V DC, 50 mA
  - Pulse frequency : Number of frequency in Hz at the maximum flow rate is described on name plate.



- Power supply : 12 to 24 V DC ±10%
- Consumption current : Less than 10mA for each light emitting and reception unit
- Accuracy : ±5% F.S. for models W-811 through W-815  
±3% F.S. for models W-816 through W-810
- Electrical connection : 0.1mm<sup>2</sup> at light reception unit by 3 core cable (2m)  
0.1mm<sup>2</sup> at light emitting unit by 2 core cable (2m)



### MODEL CODE

Model code						Description
W-8	□	□	-	□	□	
Output	1					Pulse output : Open collector
Range of flow rate Connection size	1					0.04 to 0.2 L/min (Flow path nozzle φ1) 1/4 in. tube end (φ6.35×φ4.35) Rc1/4
	2					0.05 to 0.5 L/min (Flow path nozzle φ2)
	3					0.12 to 1.2 L/min (Flow path nozzle φ3.5)
	4					0.3 to 3 L/min (Flow path nozzle φ5)
	5					0.5 to 5 L/min (Flow path nozzle φ6)
	6					1 to 10 L/min (Flow path nozzle φ8)
	7					2 to 20 L/min (Flow path nozzle φ9.5)
	8					3 to 30 L/min (Flow path nozzle φ12)
	9					4 to 40 L/min (Flow path nozzle φ14)
	0					5 to 50 L/min (Flow path nozzle φ16) 3/4 in. tube end (φ19.05×φ15.88) Rc3/4
Wet part material (Other than O-ring)	1					Flow path body & holder: PFA (PTFE), Wheel: PTFE, Shaft: Quartz glass <b>【Standard】</b>
	2					Flow path body & holder: PFA (PTFE), Wheel: PTFE, Shaft: Sapphire
Material of O-ring	E					EPDM [Ethylene propylene rubber] <b>【Standard】</b>
	F					FKM [Fluorocarbon rubber]
	P					FFKM [Perfluoroelastmer]
Connection	T					Tube end connection
	R					Rc thread connection

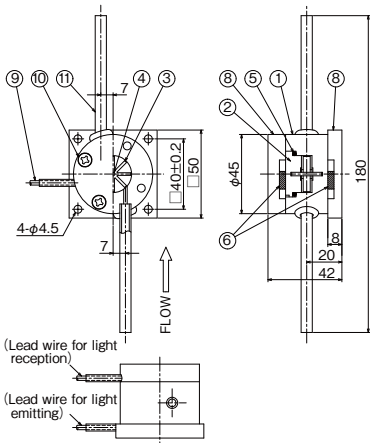
Note ; Do not hesitate to contact TOKYO KEISO Co.,Ltd. For your specific requirements

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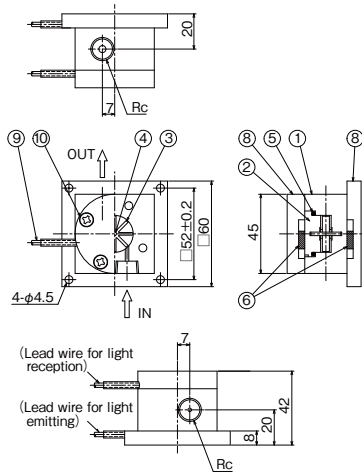
TG-ES693-8E  
Revised Jun 2016 K  
4th edition May 2004

DIMENSION, CONSTRUCTION AND MATERIAL

《W-811 through W-815(Tube end)》



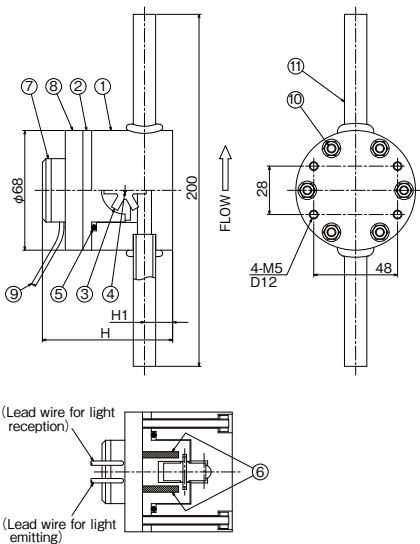
《W-811 through W-815(Rc thread)》



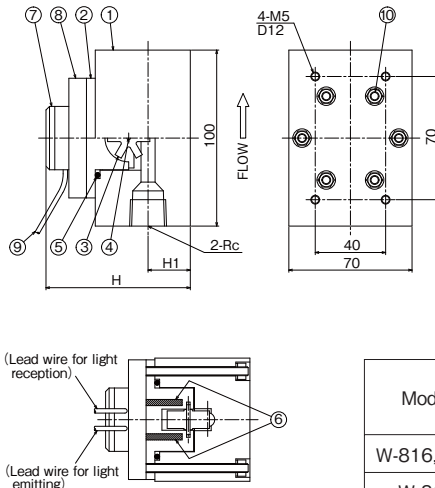
No.	Parts name	Material
1	Flow path body	PFA *
2	Wheel holder	PFA
3	Wheel	PTFE
4	Shaft	See MODEL CODE
5	O-ring	See MODEL CODE
6	Sensor	PAR
7	Sensor cover	ABS
8	Fixing plate	P.P.
9	Cable	PVC sheathed
10	Screw	SUS304
11	Tube	PFA

\* The material of flow path body of models W-816 through W-810 (Rc thread) is PTFE.

《W-816 through W-810(Tube end)》



《W-816 through W-810(Rc thread)》



Model	Tube end		Rc thread	
	H	H1	H	H1
W-816, 817	74	16	82	24
W-818	78.5	20		23.5
W-819		19		22.5
W-810		18		21.5

NOTES

- ❑ Do not put a signal cable along with other power lines.
- ❑ For Rc thread connection, use a fitting with a larger inner diameter than that of the flow path nozzle selected.
- ❑ Use this flowmeter where there is no stagnation of air around the wheel and also in the state of water filled up.
- ❑ Avoid the air blow. Otherwise, the wheel and shaft might be damaged.

\* Specification is subject to change without notice.

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