



TECHNICAL GUIDANCE

Medium-to-large flow rate measurement
Excellent cost performance
Suitable for various plant and water treatment facilities

W-500 MAG-WHEEL FLOWMETER

OUTLINE

The W-500 series is a flowmeter with a wheel for liquids. A magnet is built into the wheel, and the flow rate is measured by detecting the number of rotations of the wheel, which is proportional to the flow rate. With various materials and functions, the W-500 series can be used for a wide variety of applications including plant and water treatment facilities.



FEATURES

- Either a resin or metal flow tube can be selected.
- Local or separate flow indication without power supply, 4 to 20 mA DC output (2-wire), and pulse output can be selected.
- Flow rate range is from 0.7 to 3.5 m³/h (min.) to 50 to 400 m³/h (max.).
- Easy reassembling/assembling, cleaning, and maintenance
- Excellent cost performance

MODEL CODE

Model code								Description		
W-5	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>		
Function	2	1							4 to 20 mA DC output (2-wire)	
	5	1							Local flow indication without power supply	
	5	2							Separate flow indication without power supply	
	5	3							Open collector pulse output	
Range of flow rate* Connection size				A					0.7 to 3.5 m ³ /h	15A (Rc1/2)
				B					1.2 to 6 m ³ /h	20A (Rc3/4)
				C					1.6 to 8 m ³ /h	25A (Rc1)
				1					2.5 to 18 m ³ /h	40A
				2					4 to 25 m ³ /h	50A
				3					6 to 45 m ³ /h	65A
				4					10 to 60 m ³ /h	80A
				5					15 to 100 m ³ /h	100A
				6					20 to 150 m ³ /h	125A
				7					30 to 200 m ³ /h	150A
			8					50 to 400 m ³ /h	200A	
			9					Special		
Material of flow tube				4					SUS304 (40 to 200 A type only)	
				6					SUS316	
				V					PVC	
				9					Special	
Connection						F			Flange connection (Standard: JIS 10K FF)	
						R			Rc screw connection (15 to 25 A type only)	
						9			Special	
Flow direction							R		Left to right (Standard)	
							L		Right to left	
							U		Bottom to top	
							D		Top to bottom	

Note : Contact TOKYO KEISO Co., Ltd. for special requirements.

* The maximum flow rates listed above can be changed within the range of 60 to 100%. Specify the value when ordering.

Note that the product accuracy (%F.S.) is based on the maximum stream flow shown in the table.

Example : For a product with the code of W-5□□-A□□-□ (flow rate: 0.7 to 3.5 m³/h), its range of flow rate may be changed to 0.7 to 2.1 m³/h. However, its accuracy (%F.S.) is based on the original value of 3.5 m³/h.

STANDARD SPECIFICATIONS

- Measuring liquid : Liquids without solids
(Viscosity: Less than 2 mPa·s)
- Fluid pressure : Max. 0.7 MPa (Test pressure: 1.0 MPa)
- Fluid temperature : 0 to 80 °C (PVC flow tube: 0 to 60 °C)
- Ambient temperature : 5 to 60 °C
- Installation : Horizontal or vertical (The process line must be full and the shaft of the wheel must be horizontal.)
- Construction : Waterproof (Equivalent to IP65)

W-521 (4 to 20 mA DC output, 2-wire)

- Output : 4 to 20 mA DC output (2-wire)
- Power supply : 24 V DC ±10 %
- Load resistance : Max. 500 Ω
- Accuracy : ±3 % F.S. (15 to 25 A type)
±2 % F.S. (40 to 200 A type)
- Electric connection : G1/2 (M3.5 screw connection)
- Cable : CVV(S) 2c (recommended)
(customer's scope)

W-551 (Local flow indication without power supply)

- Accuracy : ±4 % F.S.
- Note : When installing the product in the locations subject to vibration, use model W-552 preferably whose indicator is installed separately.

Pressure loss

Model code	Max. pressure loss (kPa)
W-5□□-A□□-□	4
W-5□□-B□□-□	4
W-5□□-C□□-□	4
W-5□□-1□□-□	4
W-5□□-2□□-□	3
W-5□□-3□□-□	4
W-5□□-4□□-□	3
W-5□□-5□□-□	4.5
W-5□□-6□□-□	3
W-5□□-7□□-□	3
W-5□□-8□□-□	3

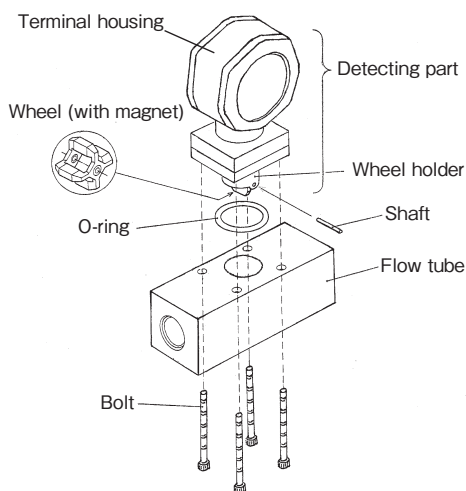
W-552 (Separate flow indication without power supply)

- Accuracy : ±4 % F.S.
- Electric connection : G1/2 (M3.5 screw connection)
- Cable : Max. 10 m from detector to indicator
CVVS 2c 1.25 mm² (recommended)
(customer's scope)

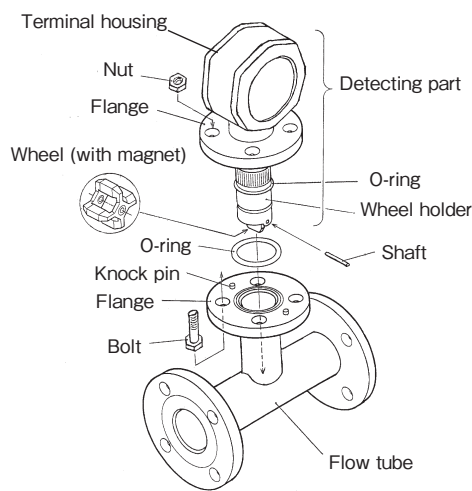
W-553 (Open collector pulse output)

- Output : Open collector pulse output
(Unscaled pulse)
- Power supply : 10 to 26 V DC, 23 mA
- Rated load : Max. 26 V DC, 12 mA
- Accuracy : ±3 % F.S. (15 to 25 A type)
±2 % F.S. (40 to 200 A type)
- Electric connection : G1/2 (M3.5 screw connection)
- Cable : CVV(S) 3c (recommended)
(customer's scope)

CONSTRUCTION AND DIMENSIONS



15A to 25A type



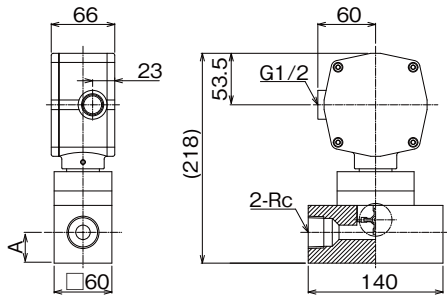
40A to 200A type

Materials

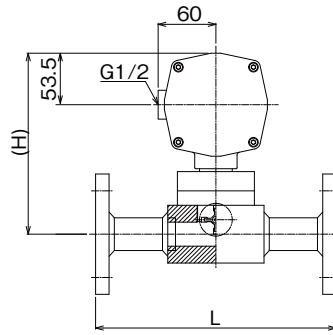
Name	Material	Name	Material
Flow tube, flange	See MODEL CODE	Wheel holder	PPS
Wheel	PPS (Magnet molded)	O-ring	NBR
Bearing (built-in)	Glass-containing PTFE	Terminal housing	AC2A
Shaft	Quartz glass	Bolt, nut	SS400

Contact TOKYO KEISO Co., Ltd. for special requirements.

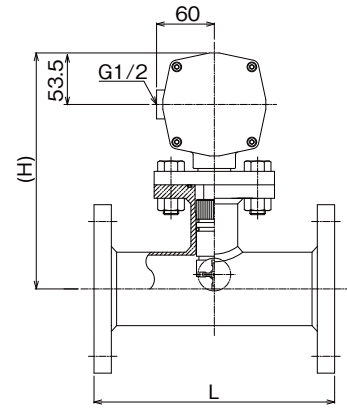
W-521 / W-552 Detector / W-553



Rc screw connection (15 to 25 A)

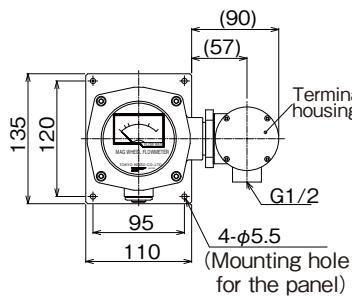


Flange connection (15 to 25 A)



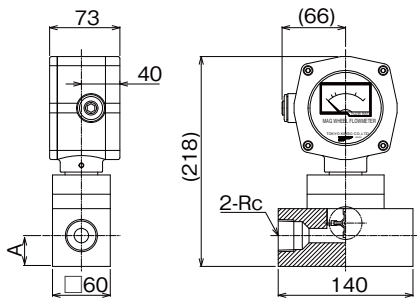
Flange connection (40 to 200 A)

W-552 Indicator

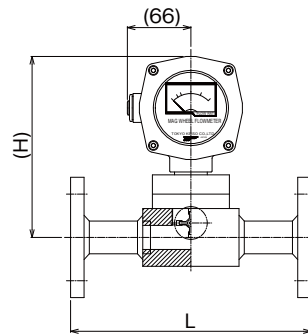


The terminal block of W-521, W-552, the detector and indicator, and W-553 are in the front side of the terminal housing. Remove the cover of the terminal housing for wiring.

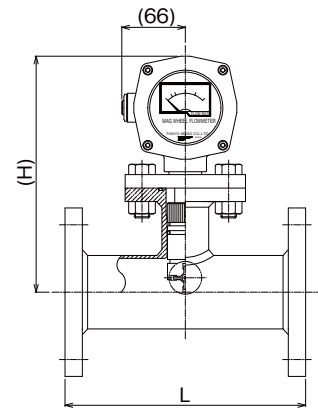
W-551



Rc screw connection (15 to 25 A)



Flange connection (15 to 25 A)



Flange connection (40 to 200 A)

Rc screw connection

Connection size	A (mm)	Mass (kg) (approx.)
1/2"	32	1.5
3/4"	30	1.5
1"	30	1.5

Flange connection (Flow tube: SUS)

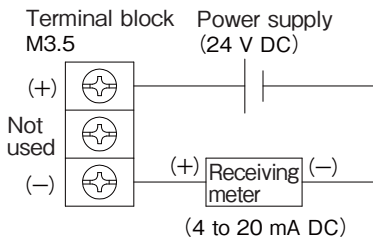
Connection size	L (mm)	H (mm)	Mass (kg) (approx.)
15A	250	186	5.5
20A		188	6
25A		188	7
40A		235	8
50A		237	11
65A		245	15
80A		247	17
100A		265	20
125A		284	23
150A		295	27
200A		320	39

Flange connection (Flow path body: PVC)

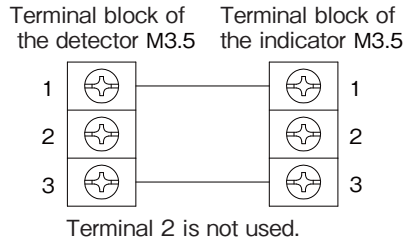
Connection size	L (mm)	H (mm)	Mass (kg) (approx.)
15A	180	186	1.5
20A	190	188	1.5
25A	200	188	2
40A	295	301	3
50A	330	305	3.5
65A	340	313	4
80A	355	319	5
100A	445	353	6
125A	590	341	8
150A	710	355	9
200A	500	350	11

WIRING

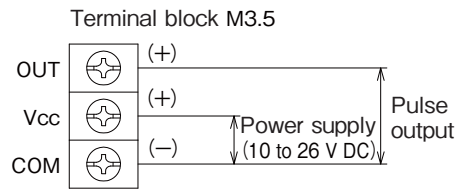
《W-521》



《W-552》

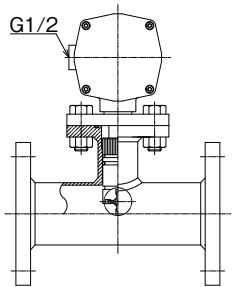


《W-553》

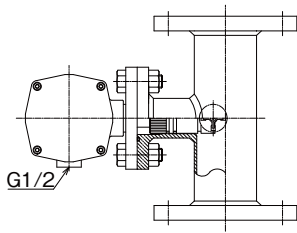


FLOW DIRECTION AND ARRANGEMENT

W-521 / W-552 Detector / W-553

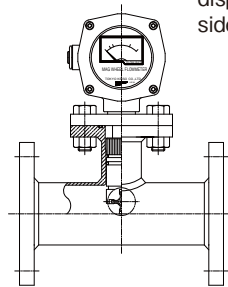


Horizontal
(left to right, right to left)

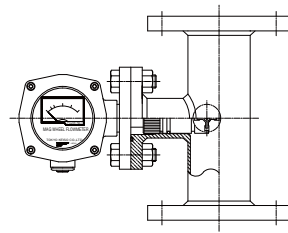


Vertical
(bottom to top, top to bottom)

W-551



Horizontal
(left to right, right to left)



Vertical
(bottom to top, top to bottom)

For the vertical installation of the W-551, the display panel can be arranged on the right side. Specify when ordering.

NOTES

- ❑ Do not place a signal cable along with other power lines.
- ❑ The detector must be full with the measuring liquid. Keep out air from around the wheel during measurement.
- ❑ Straight runs of 20 D on the upstream side and 5 D on the downstream side are recommended for accurate measurements. If they are not available, install a flow strainer upstream of the detector.
(D: inner diameter of pipe)
- ❑ Mag-wheel flowmeters are not suitable for high-viscosity liquids and/or liquids containing solids or fibers.
- ❑ The W-551 and W-552 (local flow indication without power supply) should be installed in a place without vibration. If necessary, add rubber cushions against vibration.

* Specification is subject to change without notice.

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