Admass Coriolis Mass Flowmeter

RC111 (Flange type, screw type, and clamp type)

Summary

This is a Coriolis mass flowmeter for measurement of liquid and gas. The Admass Coriolis Mass Flowmeter measures fluid mass directly by detecting the phase difference of fluid that passes through a detector tube that is vibrated indirectly by a unique torsion bar vibration system. Accordingly, this flowmeter, unlike volumetric flowmeters, does not require temperature and pressure compensation, and is able to obtain the mass flow rate directly.

Main Features

(1) Offers High-Accuracy Liquid Mass Flow
Actual flow calibration using a weighing method guarantees a high-accuracy reading within ±0.2 % of indicated value, resulting in increased productivity.

(2) Offers Traceability
Performed with water, and traceability is provided. Therefore, this flowmeter can be used with ISO-compliant measuring devices (10–50 mm diameter).

(3) Achieves High-Accuracy Measurement through a 5% Range
Liquid mass flow rate is calibrated for high accuracy within a range of up to 5%, enabling flexible response to factory load change.

(4) Torsion Bar Vibration System Immune from Pipe Vibration
Unlike conventional Coriolis flowmeters in which the tube is vibrated directly, a torsion bar inside the detector causes indirect vibration that does not affect the entire tube. This results in a measurement system with a strong resistance to pipe vibration. It also enables the tracking of any density variation due to air bubbles mixing with the fluid via cavitation, etc.

(5) Easy to Handle, Detachable Converter Structure
Detaching the converter from the detector enables positioning of the converter in a safe, easily viewable area, making flowmeter setup change easy, and improving visibility and safety.

(6) Port Sizes Ranging from Small to Large
Detectors with port sizes of up to 50 mm in diameter are used at our Azbil Kyoto Co., Ltd. inspection facility in Kyoto, Japan, and we supply detectors between 80 and 300 mm in diameter for use at an inspection facility in Germany, so detectors suitable for a wide range of flow rates are available.

Applications

Liquid

(1) Food and Beverage Applications
Beverage Manufacturing Process:
Including soft drinks, alcohol, purified drinking water, mineral water, liquid sugar syrup, milk beverages, market milk
Food Manufacturing Process:
Vegetable oil, mayonnaise, ketchup, vinegar, liquid seasonings, liquid sugar syrup, chocolate ingredients
Bread Manufacturing Process:
Vegetable oil, mayonnaise, ketchup, vinegar, liquid seasonings, liquid sugar syrup, chocolate ingredients
CIP and Pharmaceuticals:
Hydrogen peroxide, oxonia, alcohol, purified water, CIP liquid

Flowmeter Problem Solving:
Areas at risk of metallic dust contamination due to volumetric flowmeter rotation
Dealing/Shipping Accuracy Improvement:
Shipping facilities for loading tank trucks with wine, alcohol etc.

(2) Resin Manufacturing Applications
Additives, manufacturing equipment axle lubricants, oil and water mixtures

(3) Electrical, Electronic, and Semiconductor Applications
Purified water, alcohol, liquid containing magnetic particles

(4) Pharmaceutical and cosmetics Applications
Solvent, surfactant, cosmetics, saline solution, alcohol, purified water, toothpaste

(5) Automobile and Machinery Applications
Coating Equipment:
Water-based paint, liquid paint ingredients
Casting and Metallic Molds:
Control of the amount of lubricant coating for molds, release agents for the initial stages of diecast molding, coolant water management for precision metallic molds, coolant water temperature management for casting machines, etc.
Polishing and Grinding Machines:
Oil-based coolant flow management, lubricants (coolants) for the polishing/grinding process

(6) Disposal Facility, Water Treatment Plant, and Boiler Applications
Methylethylketone, waste oil disposal facilities, insulating oil containing PCB, boiler water

Gasses (0.6 MPa or higher pressure)

Carbon dioxide, mist-containing air applications

China RoHS

This device is used in the oil and gas, petrochemical, chemical, pulp and paper, food and beverage, machinery, steel/metal and mining, and automobile industries and therefore does not fall under China's RoHS legislation.
If this device is used in semiconductor manufacturing equipment, labeling

on the device and documents for the China RoHS may be required.
If so, consult a an Azbil Corp. representative.

Specifications

<Converter: RC111C Standard Specifications>

• Device Specifications

Structure: Waterresistant (JIS C0920)
NEMA ICS6-110.16 Type4X
IEC PUBL 529 IP66

Paint: Standard baked paint finish
Paint Color: Light blue

Primary Materials:
Case Material: Aluminum alloy
Glass Material: Tempered glass
Face Plate: Silver label
Cover Gasket: NBR
Screw Material: Stainless steel

Power: 24Vdc±10%

Power Consumption: 7 W or less

Input Signal:
Flow Rate Signal: Flow rate detection signal from detector

Output:
Analog Output: 4–20 mAdc (proportional output range set to 0% for 4 mA and 100% for 20 mA)
Analog Output Type:
Instantaneous flow rate (with flow rate zero at 0%, and set range at 100%), temperature (-150 °C at 0%, +360 °C at 100%)
Maximum Analog Output Value:
22 mAdc (output when error occurs)
Pulse Output: Open collector pulse
Pulse Frequency:
Select from 0.01, 0.1, 1, 10, 100, 1000 and 10000 Hz
Duty Comparison: 50%
Maximum Applied Voltage: 24 Vdc
Maximum Allowable Current: 10 mA
Load Resistance: 500 Ω at 5 V,
3000 Ω at 24 V,

Display: Backlit LCD
Displayed Content: Startup display, measurement display, user setup categories (reset integrated value, zero adjustment, damping constant, units, low flow cutoff, analog output allotment, analog output range setting), self-diagnosis (RAM CHECK ERROR, IIC-BUS ERROR, OVERFLOW ERROR, TEMP ERROR, TOTL OVERFLOW)

Data Setter: Magnetic
Hold the magnetic switch under the LCD for 5 seconds to set

Flow Rate Units: **Instantaneous flow:** g/min, kg/h, t/h
Integrated flow: kg, t

Lightning Arrestor Function: Arrestor must be set up separately

Power Outage Countermeasure:
Backup data is saved every 10 minutes to EEPROM for integrated value and runtime counter

EMC Standards Compliance: EN 61326

• Installation Specifications

Ambient Temperature:
Normal Operating Conditions: -20 to 55 °C
Transit and Storage Conditions: -15 to 50 °C

Ambient Humidity:
Normal Operating Conditions: 5 to 95% RH
Transit and Storage Conditions: 5 to 85% RH

Wiring Connection Ports: 3/4" NPT exclusive ground cable connection (2)

Mounting: Wall-fastened by special brackets
(Avoid locations receiving direct sunlight.)

Grounding: JIS Type D ground (ground resistance of 100 Ω or less)

Mass: Approximately 2.0 kg

<Detector: RC11F/U Standard Specifications>

• Device Specifications

Structure: Water resistant (JIS C0920)
NEMA ICS6-110.16 Type 4X
IEC PUBL 529 IP65

Paint:
Case: None (stainless)
Terminal Box: Standard baked paint
Terminal Box Paint Color: Light blue

Primary Materials:
Wetted Part Material: EN1.4539/SUS904L equivalent, EN1.4571/SUS316Ti equivalent
EN2.4602/hastelloy C-22 equivalent
Case Material: EN1.4301/SUS304 equivalent
Flange Material: EN1.4571/SUS316T equivalent
Ferrule Material: EN 1.4435/SUS316L equivalent
Terminal Box Material: Aluminum alloy

Detector Tube Thickness:

Detector Model Number	Tube Thickness (mm)
RC111U/F-□□□M02	020 – 0.25
RC111U/F-□□□M03	020 – 0.40
RC111U/F-□□□M04	030 – 0.50
RC111U/F-□□□M06	050 – 1.00
RC111U/F-□□□M08	050 – 1.00
RC111U/F-□□□M12	1.00 – 1.50
RC111U/F-□□□M15	1.00 – 2.00
RC111U/F-□□□M20	1.00 – 2.00
RC111U/F-□□□M30	2.00 – 3.00
RC111U/F-□□□M40	3.20
RC111U/F-□□□M60	2.90
RC111U/F-□□□M80	4.05
RC111U/F-□□□MH1	5.00
RC111U/F-□□□MH6	5.00

• Installation Specifications

Ambient Temperature:
Normal Operating Conditions: -20 to 55 °C
Transit Storage Conditions: -15 to 50 °C

Ambient Humidity:
Normal Operating Conditions: 5 to 95% RH
Transit Storage Conditions: 5 to 85% RH

Wiring Connection Port: 3/4" NPT

Pipe Connection:

Screw Connection: G1/4, G1/2, G3/4, G1, 1/4" NPT, 1/2" NPT, 3/4" NPT, 1" NPT

Flange Connection: JIS B2220, DIN 2635-C, DIN 2527-C, ANSI B16.5

Hygienic Screw Connection: DIN 11851

Ferrule Connection: Tri-clamp (DIN 32676, ISO clamp connection also possible)

Internal thread: JIS10K/20K, ANSI150/300, DIN PN16/40

Grounding: JIS Type D (ground resistance of 100 Ω or less)

Mounting Position: To use a high-accuracy RC111F/U type, please adjust the zero point after installation. For accurate zero point adjustment, install a check valve for upstream and downstream flow as described below.

(1) Horizontal Pipe Connection:

- **For Liquid:** For Liquid: Set the detector case perpendicular, facing downward, so that no air bubbles can gather.
- **For Gas:** For Gas: Set the detector case perpendicular, facing upward, so that draining cannot build up.

(2) Vertical Pipe Connection:

- **For Liquid:** Install so air bubbles cannot gather during zero adjustment.
- **For Gas:** Install so draining cannot build up during zero adjustment.

(3) When installation space is limited, and (1) and (2) above do not apply: Tilt and install the detector case. The bottom of the detector case can also be fixed to the floor. However, it should be tilted down from the horizontal 10–30°. In this case, do not fix the detector case to the floor.

Straight Pipe Length: Install both upstream and downstream according to the straight pipe requirements shown in the charts below.

Single Loop, Small Diameter Parallel Loop

Model: RC111U, RC111F

Model numbers ending in M02, M03, M04, M06, M08, M12

Required Straight Pipe Length Conditions	Upstream/Downstream Flow Straight Pipe Length
Standard Operating Conditions	0 (D)
Normal Operating Conditions	0 (D)

Large Diameter Parallel Loop

Model: RC111F, RC111F

Model numbers ending in M15, M20, M30, M40, M60, M80, MH1, MH6

Required Straight Pipe Length Conditions	Upstream Flow Straight Pipe Length	Downstream Flow Straight Pipe Length
Standard Operating Conditions	10 (D)	5 (D)
Normal Operating Conditions	5 (D)	3 (D)

Pipe Vibration Countermeasures: If pipe vibration is large, take vibration countermeasures. When installing flexible hose to use for vibration countermeasures, the detector case can be fixed to the floor surface. However, make sure that vibrations from the floor do not have an effect.

Make sure to take vibration countermeasures when pipe vibration is in the 50–300 Hz range, since this might influence flowmeter measurement accuracy.

Pipe Support: When pipe support is needed, install at a position within 3 times the size of the detector case. Make sure that no contact is made between the pipe support and the detector. When using a PMO type, the detector's block unit can be clamped down.

Off-Center: In general, make sure the device is not off-center when installing. If it is off-center, the amount should not be more than 3 mm when inserting the flange bolts.

Appropriate Usage of Detector: In terms of structure, Admass Coriolis mass flowmeters come in two configurations, single loop and parallel loop. Please use each appropriately as described below.

(1) Single Loop:

When cleanliness must be considered, for the sanitary needs of foods and pharmaceuticals, this type is applicable.

(2) Parallel Loop:

Loop length within the detector is smaller. Can be used where the sanitary needs of foods and pharmaceuticals are not a factor.

Pressure Loss: Since omega type tubes (Ω type) are used in this flowmeter, loss of pressure due to liquid viscosity must be guarded against. Detectors differ according to the underlined part in RC111□–□□□ M□□, as shown in the table below.

Units: kPa

Type	Flow Rate Percentage in Relation to Maximum Range									
	100%		20%		10%		5%		2.5%	
	Fluid Viscosity									
	1 mPa·s (cP)	100 mPa·s(cP)	1 mPa·s(cP)	100 mPa·s(cP)	1 mPa·s(cP)	100 mPa·s(cP)	1 mPa·s(cP)	100 mPa·s(cP)	1 mPa·s(cP)	100 mPa·s(cP)
M02	179	5461	11	1096	5.5	545	2.8	275	0.0	72
M03	138	1469	10	290	1.4	150	0.7	80	0.0	30
M04	76	585	4.1	115	1.4	57	0.0	30	0.0	12
M06	103	597	9.0	146	2.8	73	0.7	36	0.0	14
M08	116	405	6.2	77	1.4	38	0.7	19	0.0	7.6
M12	74	263	6.9	67	2.1	33	0.7	17	0.0	6.2
M15	79	192	6.9	47	2.1	23	0.7	11	0.0	4.1
M20	71	125	3.4	21	1.4	10	0.0	5.5	0.0	2.1
M33	40	60	2.8	12	1.4	6.2	0.0	2.8	0.0	0.7
M40	93	217	6.9	21	2.1	10	0.7	4.8	0.0	2.1
M60	57	126	4.1	9.7	0.7	4.8	0.0	2.1	0.0	2.1
M80	39	80	4.8	7.6	0.7	2.8	0.0	1.4	0.0	0.7
MH1	48	89	2.8	6.9	0.7	2.1	0.0	0.7	0.0	0.0
Mh6	39	63	2.1	4.1	0.7	1.4	0.0	0.0	0.0	0.0

<Exclusive Cable Standard Specifications>

Allowable Temperature: -20 to 70˚C

Cable Material: PVC

External Diameter: 12 mm

Length: 10 m

Electrical Wiring: Wiring Between the Converter and Detector
Detector Terminal Number → Cable Color → Converter Terminal Number

1 →Brown →1
2 →Blue →2
3 →Red →3
4 →Pink →4
5 →Orange →5
6 →Yellow →6
7 →Green →7
8 →Grey →8
9 →White →9

(Do not connect shielded cable to converter terminal 10)

Converter Terminal Connection:
Converter Terminal Number → Power Cable or Output Cable Connection Method

11 →Power Cable (-)
12 →Power Cable (+)
13 →Analog Output (+)
14 →Analog Output (-)
15 →Open Collector Pulse Output (+)
16 →Open Collector Pulse Output (-)

• Standard Functions

Measurement Accracy: Measurement accuracy is determined by detector type. Refer to the chart below for the M□□ part of the model number

1. RC111U/F-□□□M02

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	0.06–0.6 kg/min
	RC111U	0.03–0.3 kg/min
±0.2% FS	RC111F	0.0015–0.06 kg/min
	RC111U	0.00075–0.03 kg/min

Minimum Setting Range

RC111F	0.06 kg/min
RC111U	0.03 kg/min

Temperature: ±1 ˚C
Repeatability: Indicated value ±0.05%

2. RC111U/F-□□□M03

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	0.5–5 kg/min
	RC111U	0.25–2.5 kg/min
±0.2% FS	RC111F	0.0375–0.5 kg/min
	RC111U	0.0188 0.25 kg/min

Minimum Setting Range

RC111F	0.5 kg/min
RC111U	0.25 kg/min

Temperature: ±1˚C
Repeatability: Indicated value ±0.05%

3. RC111U/F-□□□M04

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	1–10 kg/min
	RC111U	0.5–5 kg/min
±0.2% FS	RC111F	0.05–1 kg/min
	RC111U	0.025–0.5 kg/min

Minimum Setting Range

RC111F	1 kg/min
RC111U	0.5 kg/min

Temperature: ±1 ˚C
Repeatability: Indicated value ±0.05%

4. RC111U/F-□□□M06

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	2.5–20 kg/min
	RC111U	1.25–10 kg/min
±0.2% FS	RC111F	0.15–2.5 kg/min
	RC111U	0.075–1.25 kg/min

Minimum Setting Range

RC111F	2.5 kg/min
RC111U	1.25 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

5. RC111U/F-□□□M08

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	5–50 kg/min
	RC111U	2.5–25 kg/min
±0.2% FS	RC111F	0.3–5 kg/min
	RC111U	0.15–2.5 kg/min

Minimum Setting Range

RC111F	5 kg/min
RC111U	2.5 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

6. RC111U/F-□□□M12

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	10–75 kg/min
	RC111U	5–37.5 kg/min
±0.2% FS	RC111F	0.75–10 kg/min
	RC111U	0.375–5 kg/min

Minimum Setting Range

RC111F	7.5 kg/min
RC111U	3.75 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

7. RC111U/F-□□□M15

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	20–150 kg/min
	RC111U	10–75 kg/min
±0.2% FS	RC111F	1–20 kg/min
	RC111U	0.5–10 kg/min

Minimum Setting Range

RC111F	15 kg/min
RC111U	7.5 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

8. RC111U/F-□□□M20

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	30–300 kg/min
	RC111U	15–150 kg/min
±0.2% FS	RC111F	2.25–30 kg/min
	RC111U	1.125–15 kg/min

Minimum Setting Range

RC111F	30 kg/min
RC111U	15 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

9. RC111U/F-□□□M33

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	75–600 kg/min
	RC111U	37.5–300 kg/min
±0.2% FS	RC111F	5–75 kg/min
	RC111U	2.5–37.5 kg/min

Minimum Setting Range

RC111F	60 kg/min
RC111U	30 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

10. RC111U/F-□□□M40

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	150–1250 kg/min
	RC111U	75–625 kg/min
±0.2% FS	RC111F	15–150 kg/min
	RC111U	7.5–75 kg/min

Minimum Setting Range

RC111F	150 kg/min
RC111U	75 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

11. RC111U/F-□□□M60

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	150–2500 kg/min
±0.2% FS	RC111F	30–150 kg/min

Minimum Setting Range

RC111F	250 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

12. RC111U/F-□□□M80

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	400–5000 kg/min
±0.2% FS	RC111F	160–400 kg/min

Minimum Setting Range

RC111F	500 kg/min

13. RC111U/F-□□□M1

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	600–10000 kg/min
±0.2% FS	RC111F	240–600 kg/min

Minimum Setting Range

RC111F	1,000 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

14. RC111U/F-□□□MH6

Accuracy	Basic Model Number	Flow Rate Range
Indicated value ± 0.2%	RC111F	1250–23000 kg/min
±0.2% FS	RC111F	500–1250 kg/min

Minimum Setting Range

RC111F	2,300 kg/min

Temperature: ±1 °C
Repeatability: Indicated value ±0.05%

Model Number Configuration Table

Admass Coriolis Mass Flowmeter Converter

Base Number		Selection Specification					Added Selection Specifications		Added Specifications
RC111C	–					–		–	

Type	E12 Type Converter	E12			
Cable Length	10 m		T2		
Power	24 Vdc±10%			D1	
Commuincations	No Communications				HH

X	No Added Specifications

N	Sturucture	Water Resistant (IP66)
X	Paint	Standard Baked paint finish

Admass Coriolis Mass Flowmeter Detector (Flange Connection, Parallel Tube/Manifold Block Structure)

Base Number	Selection Specification	Added Selection Specifications							Added Specifications
RC111F	–			–					–

Diameter	15 mm	015	
Type	M02		M02
	M03		M03
	M04		M04

Temperature Range	−20 to +120 ℃	T1				
Pressure Range	Specification by Flange Rating		P1			
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0		
Wetted Material	Tube: SUS904L, Manifold/Flange: SUS316Ti				M0	
Piping Connection	JIS10K RF Flange					J1
	JIS20K RF Flange					J2
	ANSI 150 RF/SF Flange					A1
	ANSI 300 RF/SF Flange					A2
	DIN PN40 Form C Flange					D1
Structure	Water Resistant (IP66)					NN
Paint	Case: None, Terminal Box: Standard Baked paint finish					X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications							Added Specifications
RC111F	–			–					–

Diameter	25 mm	025	
Type	M06		M06
	M08		M08
	M12		M12
	M15		M15

Temperature Range	−20 to +120 ℃	T1				
Pressure Range	Specification by Flange Rating		P1			
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0		
Wetted Material	Tube: SUS904L, Manifold/Flange: SUS316Ti				M1	
Piping Connection	JIS10K RF Flange					J1
	JIS20K RF Flange					J2
	ANSI 150 RF/SF Flange					A1
	ANSI 300 RF/SF Flange					A2
	DIN PN40 Form C Flange					D1
Structure	Water Resistant (IP66)					NN
Paint	Case: None, Terminal Box: Standard Baked paint finish					X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications							Added Specifications
RC111F	–			–					–

Diameter	40 mm	040	
Type	M20		M20

Temperature Range	−20 to +120 ℃	T1				
Pressure Range	Specification by Flange Rating		P1			
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0		
Wetted Material	Tube: SUS904L, Manifold/Flange: SUS316Ti				M1	
Piping Connection	JIS10K RF Flange					J1
	JIS20K RF Flange					J2
	ANSI 150 RF/SF Flange					F1
	ANSI 300 RF/SF Flange					F2
	DIN PN40 Form C Flange					C1
Structure	Water Resistant (IP66)					NN
Paint	Case: None, Terminal Box: Standard Baked paint finish					X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F –	–		–

Diameter	50 mm	050	
Type	M33		M33

Temperature Range	−20 to +120 °C	T1						
Pressure Range	Specification by Flange Rating		P1					
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0				
Wetted Material	Tube: SUS904L, Manifold/Flange: SUS316Ti				M1			
Piping Connection	JIS10K RF Flange					J1		
	JIS20K RF Flange					J2		
	ANSI 150 RF/SF Flange					A1		
	ANSI 300 RF/SF Flange					A2		
	DIN PN40 Form C Flange					D1		
Structure	Water Resistant (IP66)						NN	
Paint	Case: None, Terminal Box: Standard Baked paint finish							X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F –	–		–

Diameter	15 mm	015	
Type	M02		M02
	M03		M03
	M04		M04

Temperature Range	−20 to +120 °C	T1						
Pressure Range	30 MPa for Type M02 13 MPa for Type M03 13 MPa for Type M04		P1					
	40 MPa for Type M02 30 MPa for Type M03 25 MPa for Type M04		P2					
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0				
Wetted Material	Tube: SUS904L, Manifold/Flange: SUS316Ti				M0			
Piping Connection	G 1/4″ Internal thread					G1		
	1/4″ NPT Internal thread					N1		
Structure	Water Resistant (IP66)						NN	
Paint	Case: None, Terminal Box: Standard Baked paint finish							X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F –	–		–

Diameter	15 mm	015	
Type	M06		M06
	M08		M08

Temperature Range	−20 to +120 °C	T1						
Pressure Range	14 MPa for Type M08 (only selectable for Type M08)		P0					
	29 MPa for Type M08 19 MPa for Type M06		P1					
	38 MPa for Type M06 (only selectable for Type M06)		P2					
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket			PM0				
Wetted Material	Tube: SUS316Ti, Manifold/Flange: SUS316Ti				M1			
Piping Connection	G 1/4″ Internal thread					G1		
	1/4″ NPT Internal thread					N1		
Structure	Water Resistant (IP66)						NN	
Paint	Case: None, Terminal Box: Standard Baked paint finish							X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111F	–											
Diameter	20 mm	020									A	Test Report (Calibration in Japan)
Type	M12		M12								B	Traceability Certificate
	M15		M15									
Temperature Range	−20 to +120 °C			T1								
Pressure Range	19 MPa for Type M12 15 MPa for Type M15				P1							
	29 MPa for Type M12 30 MPa for Type M15				P2							
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket					PM0						
Wetted Material	Tube: SUS316Ti, Manifold/Flange: SUS316Ti						M1					
Piping Connection	G3/4″ Internal thread							G1				
	3/4″ NPT Internal thread							N1				
Structure	Water Resistant (IP66)								NN			
Paint	Case: None, Terminal Box: Standard Baked paint finish									X		

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111F	–											
Diameter	25 mm	025									A	Test Report (Calibration in Japan)
Type	M20		M20								B	Traceability Certificate
Temperature Range	−20 to +120 °C			T1								
Pressure Range	11 MPa				P1							
Measurement Loop Structure	Parallel Tube/Manifold Block Structure/PTFE Gasket					PM0						
Wetted Material	Tube: SUS316Ti, Manifold/Flange: SUS316Ti						M1					
Piping Connection	G1″ Internal thread							G1				
	1″ NPT Internal thread							N1				
Structure	Water Resistant (IP66)								NN			
Paint	Case: None, Terminal Box: Standard Baked paint finish									X		

Admass Coriolis Mass Flowmeter Detector (Flange Connection, Parallel Tube/Sealless Structure)

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111F	–			–							–	
Diameter	80 mm	080									A	Test Report (Calibration in Germany)
Type	M40		M40									
Temperature Range	−20 to +120 ℃			T1								
Pressure Range	Specification by Flange Rating				P1							
Measurement Loop Structure	Parallel Tube/Sealless					PF0						
Wetted Material	Tube/Flange: SUS316Ti						M1					
	Tube/Flange (Wetted Only): Hastelloy C-22						M3					
Piping Connection	JIS10K RF Flange							J1				
	JIS20K RF Flange							J2				
	ANSI 150 RF/SF Flange							A1				
	ANSI 300 RF/SF Flange							A2				
	DIN PN40 Form C Flange							D1				
Structure	Water Resistant (IP66)								NN			
Paint	Case: None, Terminal Box: Standard Baked paint finish									X		

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111F	–			–							–	
Diameter	100 mm	100									A	Test Report (Calibration in Germany)
Type	M60		M60									
Temperature Range	−20 to +120 ℃			T1								
Pressure Range	Specification by Flange Rating				P1							
Measurement Loop Structure	Parallel Tube/Sealless					PF0						
Wetted Material	Tube/Flange: SUS316Ti						M1					
	Tube/Flange (Wetted Only): Hastelloy C-22						M3					
Piping Connection	JIS10K RF Flange							J1				
	JIS20K RF Flange							J2				
	ANSI 150 RF/SF Flange							F1				
	ANSI 300 RF/SF Flange							F2				
	DIN PN40 Form C Flange							C1				
Structure	Water Resistant (IP66)								NN			
Paint	Case: None, Terminal Box: Standard Baked paint finish									X		

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111F	–			–							–	
Diameter	150 mm	150									A	Test Report (Calibration in Germany)
Type	M80		M80									
Temperature Range	−20 to +120 ℃			T1								
Pressure Range	Specification by Flange Rating				P1							
Measurement Loop Structure	Parallel Tube/Sealless					PF0						
Wetted Material	Tube/Flange: SUS316Ti						M1					
	Tube/Flange (Wetted Only): Hastelloy C-22						M3					
Piping Connection	JIS10K RF Flange							J1				
	JIS20K RF Flange							J2				
	ANSI 150 RF/SF Flange							A1				
	ANSI 300 RF/SF Flange							A2				
	DIN PN16 Form C Flange							D1				
Structure	Water Resistant (IP66)								NN			
Paint	Case: None, Terminal Box: Standard Baked paint finish									X		

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F	–	–	–

Diameter	200 mm	200	
Type	M100		MH1

Temperature Range	–20 to +120 ℃	T1							
Pressure Range	Specification by Flange Rating		P0						
Measurement Loop Structure	Parallel Tube/Sealless			PF0					
Wetted Material	Tube/Flange: SUS316Ti				M1				
	Tube/Flange (Wetted Only): Hastelloy C-22				M3				
Piping Connection	JIS10K RF Flange					J1			
	JIS20K RF Flange					J2			
	ANSI 150 RF/SF Flange					A1			
	ANSI 300 RF/SF Flange					A2			
	DIN PN16 Form C Flange					D1			
Structure	Water Resistant (IP66)						NN		
Paint	Case: None, Terminal Box: Standard Baked paint finish							X	

A	Test Report (Calibration in Germany)

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F	–	–	–

Diameter	250 mm	250	
Type	M160		MH6

Temperature Range	–20 to +120 ℃	T1							
Pressure Range	Specification by Flange Rating		P1						
Measurement Loop Structure	Parallel Tube/Sealless			PF0					
Wetted Material	Tube/Flange: SUS316Ti				M1				
Piping Connection	JIS10K RF Flange					J1			
	JIS20K RF Flange					J2			
	ANSI 150 RF/SF Flange					A3			
Structure	Water Resistant (IP66)						NN		
Paint	Case: None, Terminal Box: Standard Baked paint finish							X	

A	Test Report (Calibration in Germany)

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111F	–	–	–

Diameter	300 mm	300	
Type	M160		MH6

Temperature Range	–20 to +120 ℃	T1							
Pressure Range	Specification by Flange Rating		P1						
Measurement Loop Structure	Parallel Tube/Sealless			PF0					
Wetted Material	Tube/Flange: SUS316Ti				M1				
Piping Connection	ANSI 150 RF/SF Flange					A1			
	ANSI 300 RF/SF Flange					A2			
	DIN PN16 FormC					D1			
Structure	Water Resistant (IP66)						NN		
Paint	Case: None, Terminal Box: Standard Baked paint finish							X	

A	Test Report (Calibration in Germany)

Admass Coriolis Flowmeter Detector (Screw and Clamp Connection, Single Tube/Sealless Structure)

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111U	–			–							–	

Diameter	10 mm (thread connection)	010
	15 mm (clamp connection)	015
Type	M02	M02
	M03	M03
	M04	M04
	M06	M06
	M08	M08
Temperature Range	–20 to +120 ℃	T1
Pressure Range	For Type M02, M03, M04, M06	P1
	For Type M08	P0
Measurement Loop Structure	Single Tube/Sealless Structure/Sanitary Specifications	SF0
Wetted Material	For Type M02, M03, M04 Tube: SUS904L, Ferrule: SUS316L, Screw: SUS316Ti	M0
	For Type M06, M08 Tube: SUS316Ti, Ferrule: SUS316L, Screw: SUS316Ti	M1
Piping Connection	Clamp Connection for 15 mm Diameter (DIN32676 connection, up to 1 MPa)	S1
	Clamp Connection for 10 mm Diameter (DIN1851 connection, up to 2 MPa)	S2
Structure	Water Resistant (IP66)	NN
Paint	Case: None, Terminal Box: Standard Baked paint finish	X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number		Selection Specification		Added Selection Specifications							Added Specifications	
RC111U	–			–							–	

Diameter	20 mm (thread connection)	020
	25 mm (clamp connection)	025
Type	M12	M12
	M15	M15
	M20	M20
Temperature Range	–20 to +120 ℃	T1
Pressure Range	Specification by Flange Rating	P1
Measurement Loop Structure	Single Tube/Sealless Structure/Sanitary Specifications	SF0
Wetted Material	Tube: SUS904L, Ferrule: SUS316L, Screw: SUS316Ti	M1
Piping Connection	Clamp Connection for 25 mm Diameter (DIN32676 connection, up to 1 MPa) Type: M12, M15	S0
	Clamp Connection for 25 mm Diameter (DIN32676 connection, up to 1 MPa) Type: M20	S1
	Thread Connection for 20 mm Diameter (DIN11851connection, up to 2 MPa) Type: M15, M20	S2
	Thread Connection for 20 mm Diameter (DIN11851connection, up to 2 MPa) Type: M12	S4
Structure	Water Resistant (IP66)	NN
Paint	Case: None, Terminal Box: Standard Baked paint finish	X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111U	–	–	–

Diameter	32 mm (thread connection)	032	
	40 mm (clamp connection)	040	
Type	M33		M33

Temperature Range	−20 to +120 °C	T1						
Pressure Range	Specification by Flange Rating		P1					
Measurement Loop Structure	Single Tube/Sealless Structure/Sanitary Specifications			SF0				
Wetted Material	Tube: SUS904L, Ferrule: SUS316L, Screw: SUS316Ti				M1			
Piping Connection	Clamp Connection for 40 mm Diameter (DIN32676 connection, up to 1 MPa)					S1		
	Thread Connection for 32 mm Diameter (DIN11851connection, up to 2 MPa)					S2		
Structure	Water Resistant (IP66)						NN	
Paint	Case: None, Terminal Box: Standard Baked paint finish							X

A	Test Report (Calibration in Japan)
B	Traceability Certificate

Base Number	Selection Specification	Added Selection Specifications	Added Specifications
RC111U	–	–	–

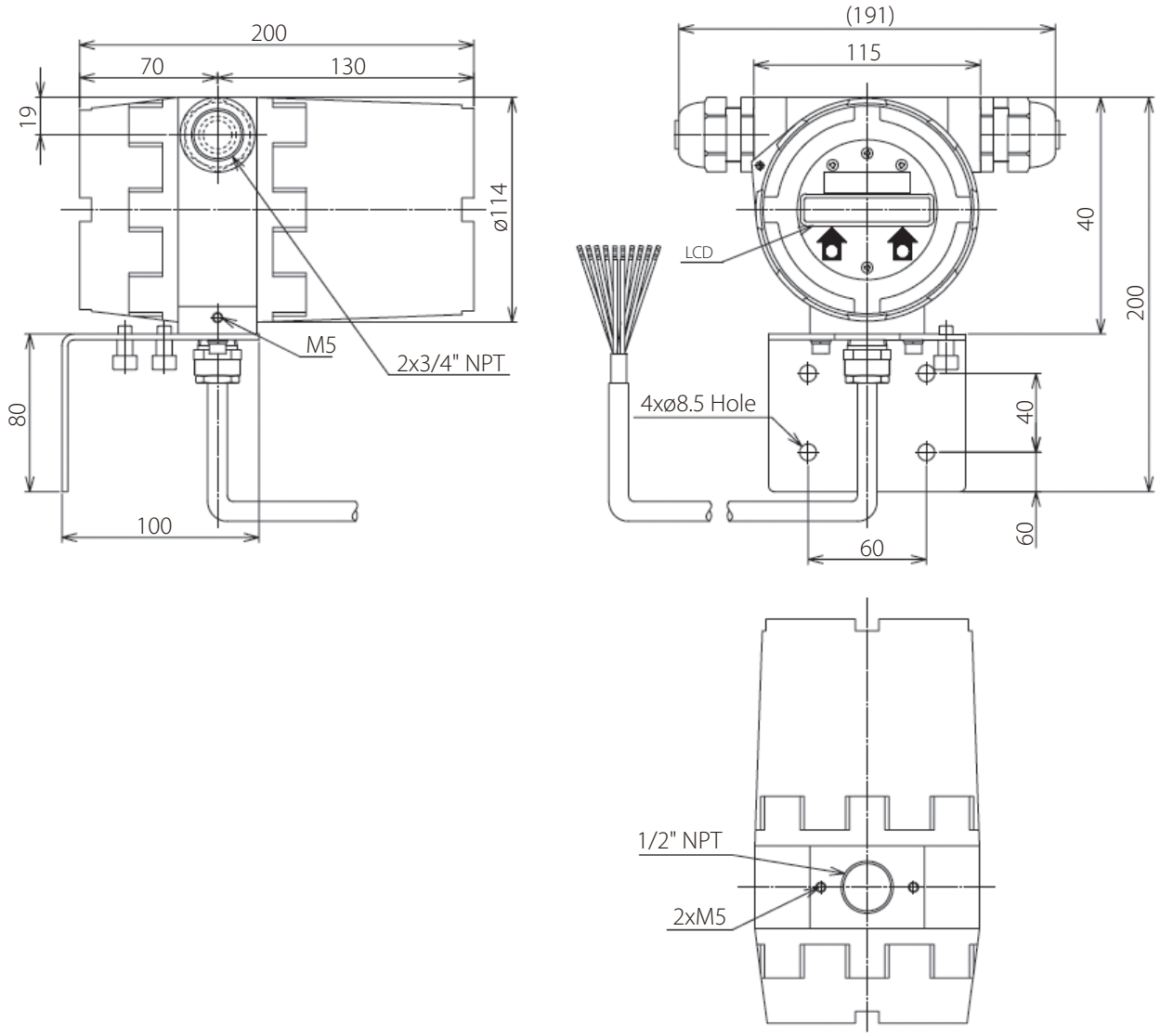
Diameter	50 mm	050	
Type	M40		M40

Temperature Range	−20 to +120 °C	T1						
Pressure Range	Specification by Flange Rating		P1					
Measurement Loop Structure	Single Tube/Sealless Structure/Sanitary Specifications			SF0				
Wetted Material	Tube: SUS904L, Ferrule: SUS316L, Screw: SUS316Ti				M1			
Piping Connection	Clamp Connection for 50 mm Diameter (DIN32676 connection, up to 1 MPa)					S1		
	Thread Connection for 50 mm Diameter (DIN11851connection, up to 2 MPa)					S2		
Structure	Water Resistant (IP66)						NN	
Paint	Case: None, Terminal Box: Standard Baked paint finish							X

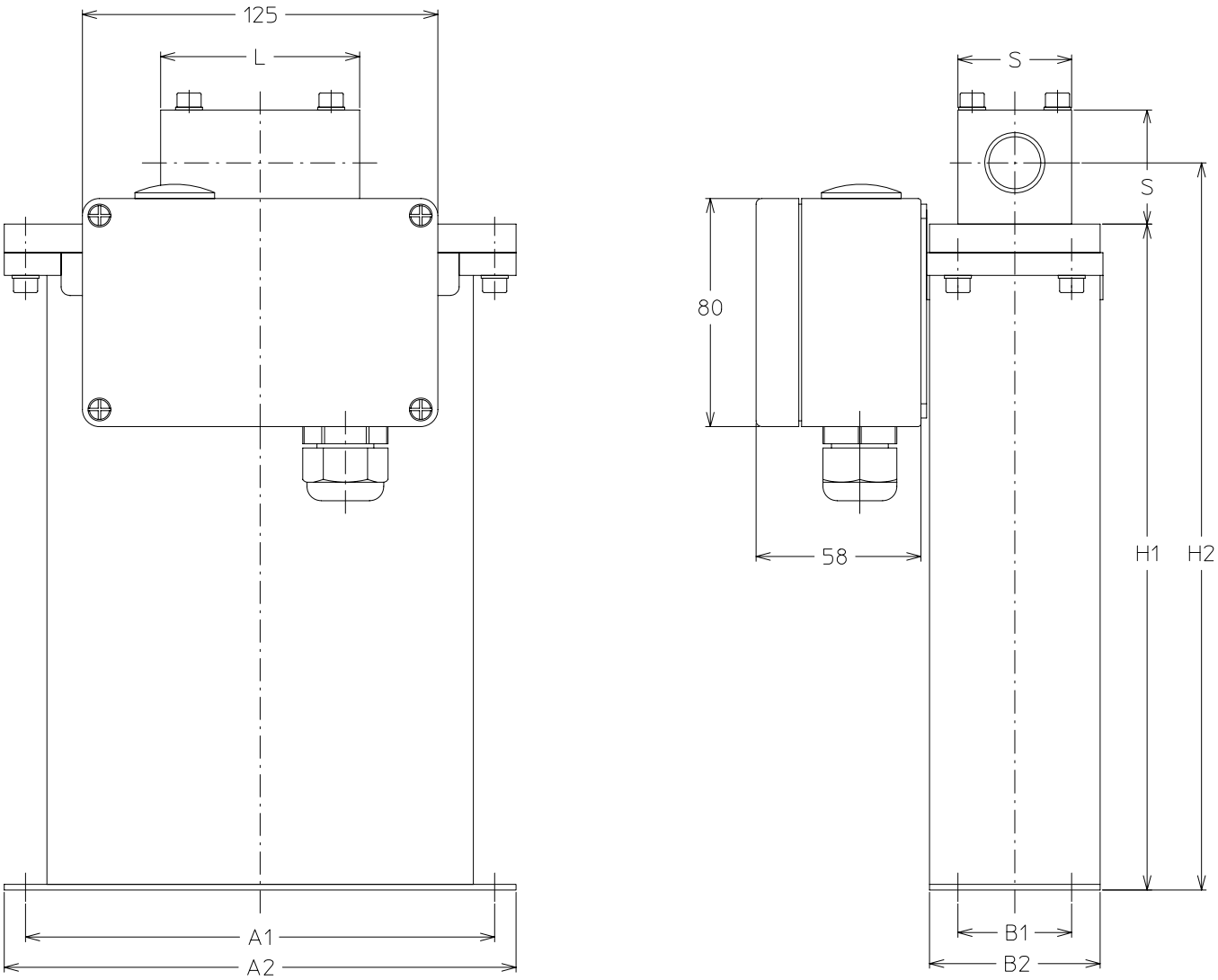
A	Test Report (Calibration in Germany)

External View

Converter External Measurements and Mass
Mass: Approximately 2.0 kg



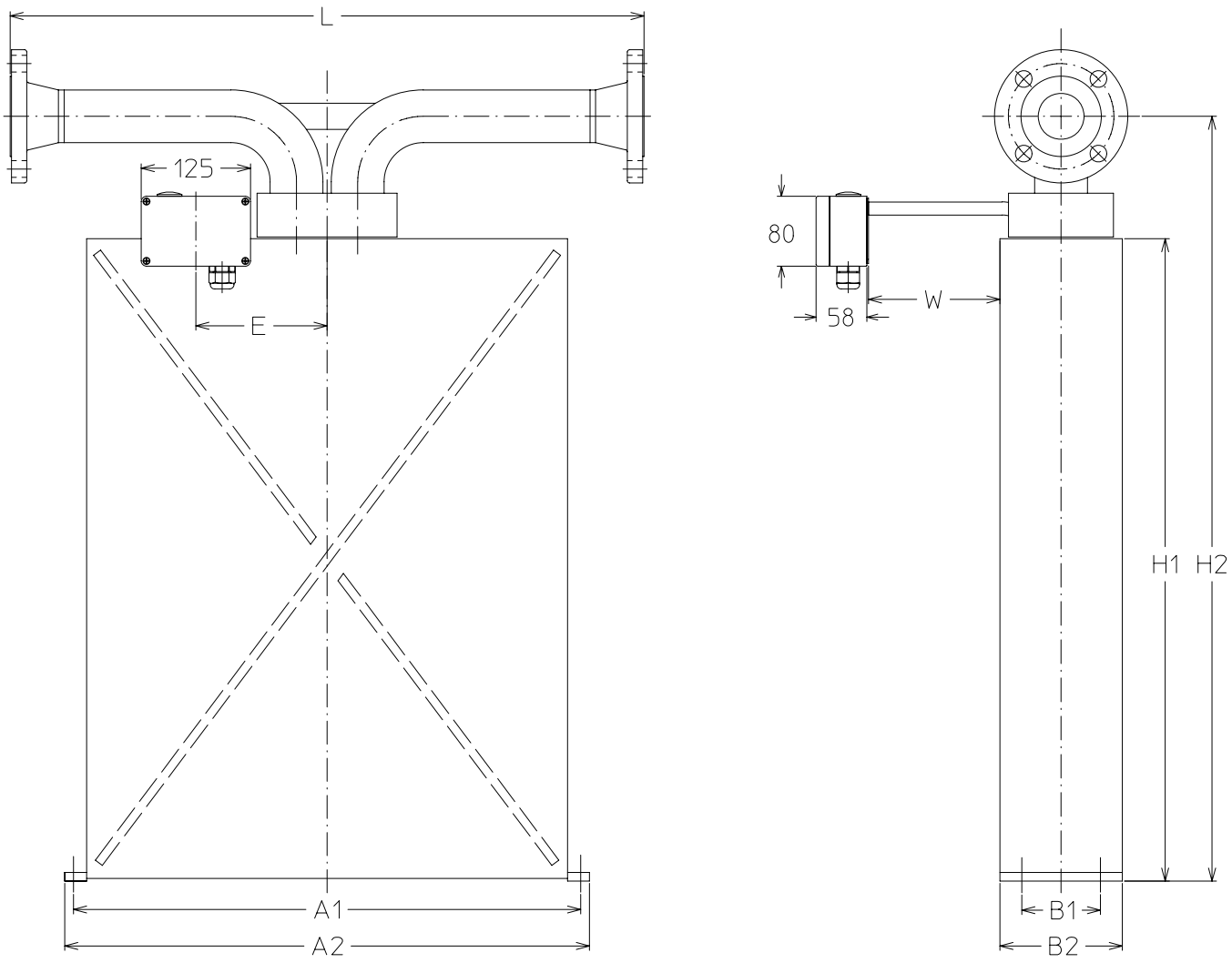
RC111 Screw Type (RC111F)



Screw Type (RC111F)

Type	Part Measurements								Mass:
	A1	A2	H1	H2	B1	B2	L	S	kg
M02	130	145	172	188	25	40	50	30	2.5
M03	130	145	172	188	25	40	50	30	2.5
M04	130	145	172	188	25	40	50	30	2.5
M06	165	180	234	255	40	60	70	40	5
M08	165	180	234	255	40	60	70	40	5
M12	285	300	454	480	50	70	120	50	14
M15	285	300	454	480	50	70	120	50	14
M20	285	300	454	485	50	70	136	60	16

Flange Type (RC111F)

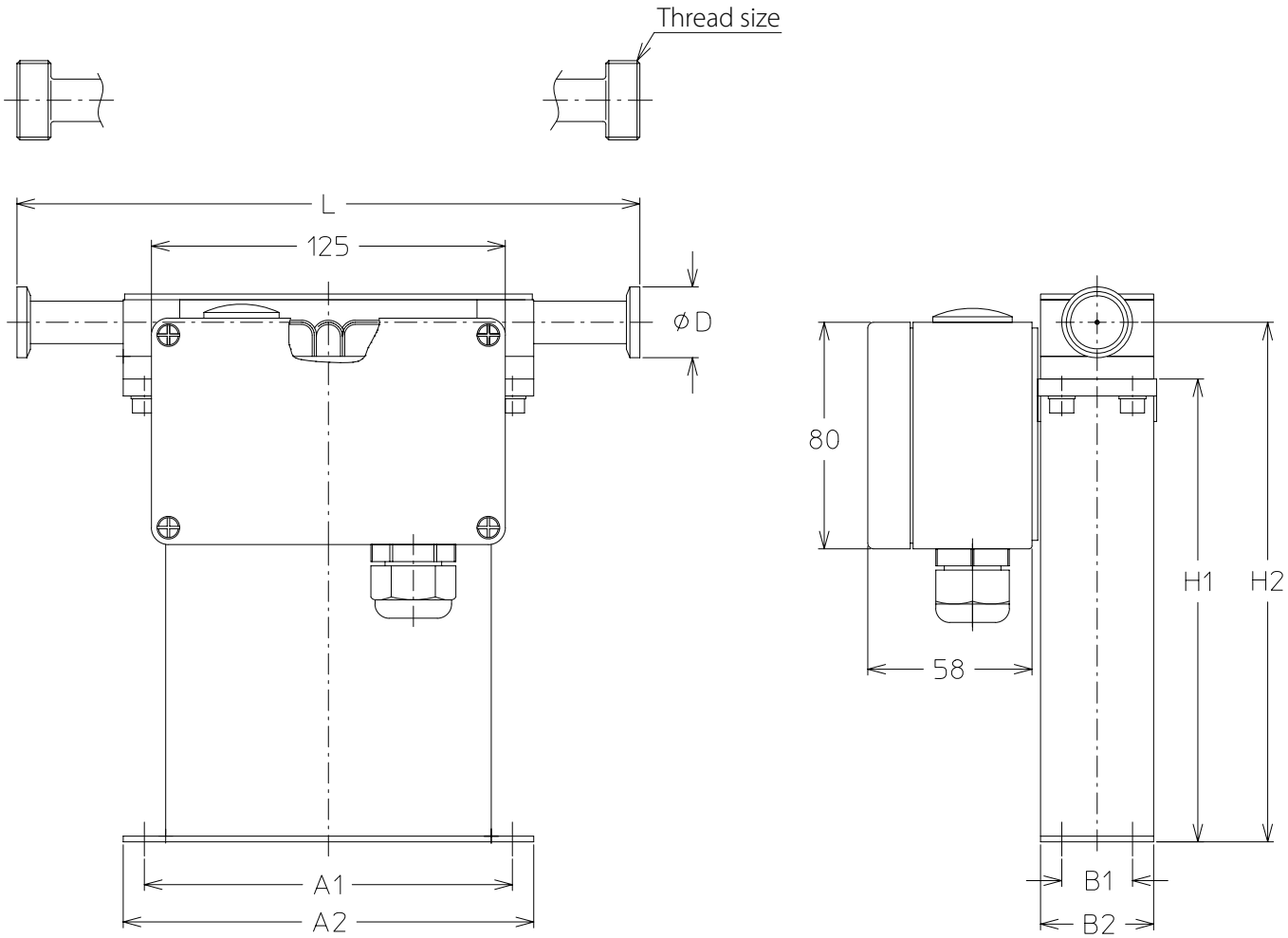


Flange Type (RC111F)

Type	Part Measurements									Mass:
	A1	A2	H1	H2	B1	B2	W	L	E	kg
M02	130	145	172	188	25	40	0	220	-	3.5
M03	130	145	172	188	25	40	0	220	-	3.5
M04	130	145	172	188	25	40	0	220	-	3.5
M06	165	180	234	255	40	60	0	260	-	8
M08	165	180	234	255	40	60	0	260	-	8
M12	285	300	454	480	50	70	0	400	-	16
M15	285	300	454	480	50	70	0	400	-	16
M20	285	300	454	485	50	70	0	460	-	23
M33	580	600	735	875	90	140	150	725	150	58
M40	696	720	963	1153	143	180	150	725	250	120
M60	910	950	1250	1440	150	230	150	725	300	200
M80	-	1320	1505	1775	-	403	150	900	-	380
MH1	-	1320	1505	1735	-	403	150	900	-	475
MH6*1	1570	1610	1503	1823	400	520	150	900/1200	300	670

*1. When diameter is 250 mm, length is 900 mm. For 300 mm diameter, length is 1200 mm.

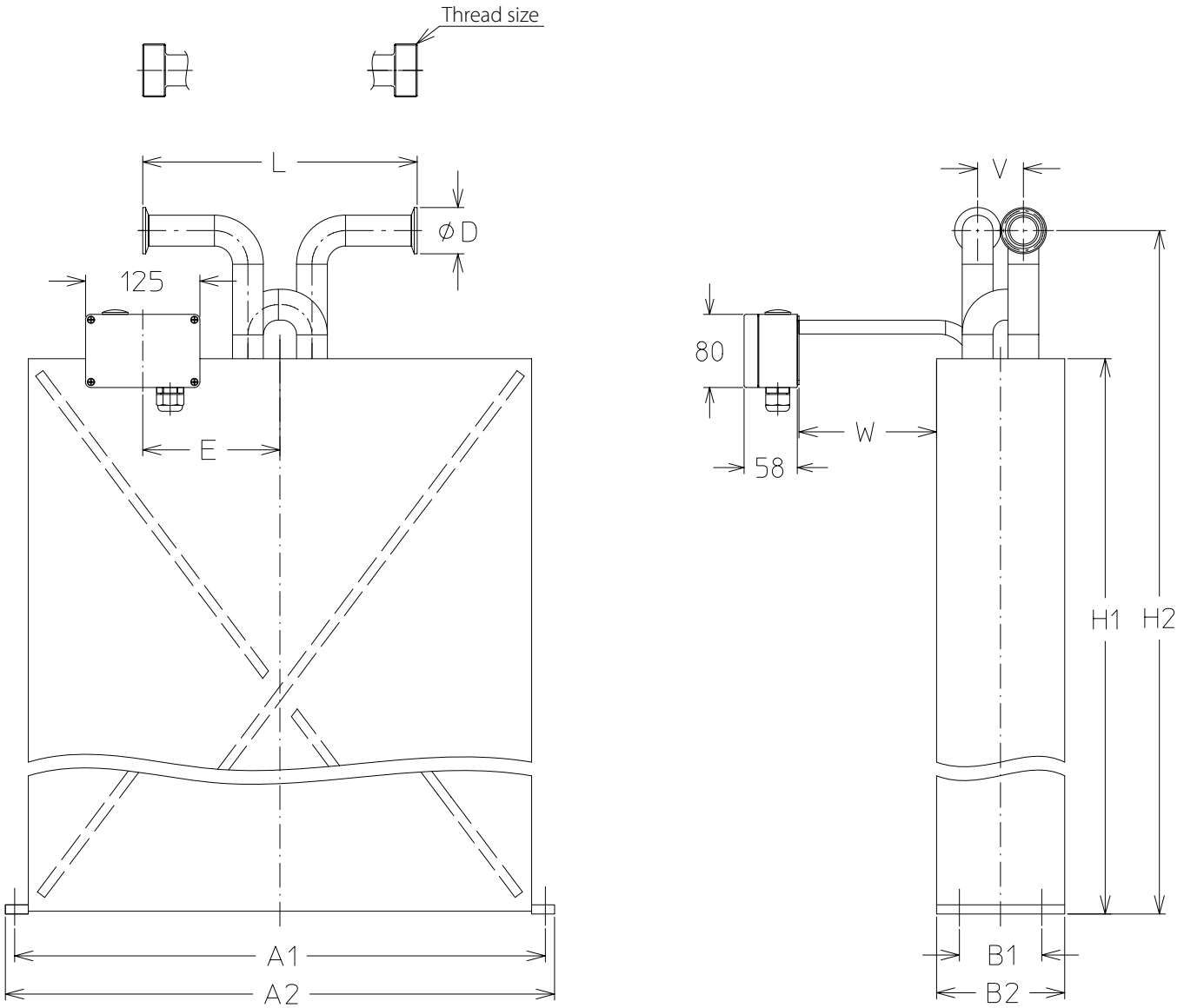
Sanitary Type Small Diameter



Sanitary Type (RC111U)

Type	Part Measurements (mm)												Mass:
	A1	A2	H1	H2	B1	B2	W	E	L	V	ΦD	Screw Size	kg
M02	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M03	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M04	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M06	165	180	234	255	40	60	0	0	230	-	25	Rd28x1/8"	7
M08	165	180	234	255	40	60	0	0	230	-	25	Rd28x1/8"	7
M12	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	15
M15	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	15
M20	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	20
M33	580	600	735	875	90	140	150	150	300	50	50.5	Rd58x1/6"	55
M40	696	720	963	1153	143	180	150	250	400	60	64	Rd78x1/6"	120

Sanitary Type Large Diameter



Sanitary Type (RC111U)

Type	Part Measurements (mm)												Mass:
	A1	A2	H1	H2	B1	B2	W	E	L	V	ΦD	Screw Size	kg
M02	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M03	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M04	130	145	172	184	25	40	0	0	220	-	25	Rd28x1/8"	3
M06	165	180	234	255	40	60	0	0	230	-	25	Rd28x1/8"	7
M08	165	180	234	255	40	60	0	0	230	-	25	Rd28x1/8"	7
M12	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	15
M15	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	15
M20	285	300	454	540	50	70	0	0	350	26	50.5	Rd44x1/6"	20
M33	580	600	735	875	90	140	150	150	300	50	50.5	Rd58x1/6"	55
M40	696	720	963	1153	143	180	150	250	400	60	64	Rd78x1/6"	120

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