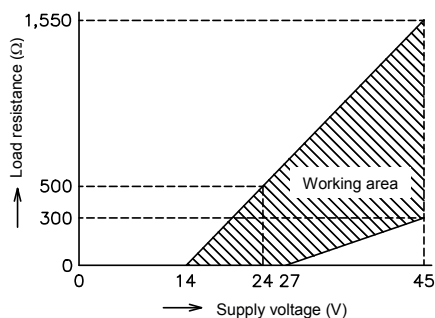


Specification of counter unit

Nominal diameter & Volume symbol		025		040		050		080		100	
		A0	B0	A0	B0	A0	B0	A0	B0	A0	
Type		Field indication type : Without signal output , Output type : Pluse, Alarm, Analog									
Indication	Display unit	Numerical indication: 7-segment LCD 5W x 10H 8-digit, mode/alarm indication: LCD 2H									
	Indicated items	Total flow rate	Unresettable total flow rate: 8-digit (Mode 1), Resettable total flow rate: 8-digit (Mode 4)								
		Unit	$\times 0.01L \sim \times 1m^3$			$\times 0.1L \sim \times 1m^3$			$\times 1L \sim \times 1m^3$		
		Instantaneous flow rate	Instantaneous flow rate (/h): 4-1/2 digit (Mode 2), Instantaneous flow rate (/min): 4-1/2 digit (Mode 3), Instantaneous flow rate (%): 4 digit (Mode 5)								
	Unit (/h)	$\times 1L/h \sim \times 0.1m^3/h$			$\times 0.01 \sim \times 1m^3/h$						
	Unit (/min)	$\times 0.01L/min \sim \times 1L/min$			$\times 0.1L/min \sim \times 0.01m^3/min$						
Alarm	Alarm for excessive flow rate (OVER), Alarm for upper limit flow rate (HIGH), Alarm for lower limit flow rate (LOW), Battery alarm (BATT) ^(※1)										
Switching of indication	Operate by bringing the operating magnet close to the respective switches on the glass face from outside the vessel. POWER: Switches lighting/extinction of the display. MODE: Switches the indicated items. RESET: Resets the resettable total flow rate.										
(※1) Field indication type only (Note 1) Total flow rate and instantaneous flow rate cannot be displayed at same time. (Note 2) The indicated item (Mode) is switched from outside the case by means of an operating magnet.											

Nominal diameter & Volume symbol		025		040		050		080		100	
		A0	B0	A0	B0	A0	B0	A0	B0	A0	
Output (output type only)	Pulse & alarm output	Number of outputs	2 (SIG1, SIG2)								
		Output assignment	To each of SIG1, SIG2, one is selected and assigned from among "Without output", "Unit pulse", "Alarm for excessive flow rate", "Alarm for upper limit flow rate", "Alarm for lower limit flow rate", "Alarm for upper & lower limit flow", "Alarm for countercurrent" and " Alarm for error".								
		Type of signal	Voltage no-contact or open collector Voltage no-contact output: Open collector output Signal level H : Approx. equal to voltage of external power source (at no load) Voltage & current: 27VDC, 30 mA L : 0.5V or less (at no load) Voltage at ON: 0.5V or less Output resistance : Approx. 2.3kΩ (short-circuit protection resistance approx. 100Ω)								
		Signal logic	Positive or Negative logic Positive logic: Logic 1 at H (transistor: OFF) Negative logic: Logic 1 at L (transistor: ON)								
		Unit pulse	Unit	$0.01L/P \sim 1m^3/P$			$0.1L/P \sim 1m^3/P$			$1L/P \sim 1m^3/P$	
	Analogue output	Signal width	0.5~200.Oms (Standard 1ms)								
		Number of outputs	1								
		Output assignment	Instantaneous flow rate								
		Type of signal	4~20mADC								
		Conversion accuracy	$\pm 0.5\%$ full scale								
Resolution	1/1,000										
Allowable load resistance	Refer to allowable load resistance.										
(Note 3) An external power source is required for "Pulse & alarm output" and "Analogue output".											
Power source	Type of output	Field integration type	Built-in lithium battery (3.6VDC Service life approx. 3 years)								
		Pulse & alarm output	External power source required, voltage 12/24VDC, current consumption approx. 17~28 mA (with 12VDC power source), approx. 28~50 mA (with 24VDC power source)								
	Analogue output	External power source required, voltage 14~45VDC, current consumption approx. 22 mA. Refer to allowable load resistance characteristic.									
Ambient temperature	-10~60°C										
Explosionproof	Field counter type: Intrinsic safety type EXia II BT4 (under application) Output type: Flameproof enclosure type Exd II BT4X										
Radiating fin	Single-stage fin in the case where the liquid temperature exceeds 80°C, and double-stage fins in the case where the liquid temperature exceeds 150°C.										
Material	Aluminium alloy casting										

Drawing of allowable load resistance



4. Flow range

Accuracy ±0.2%

Nominal diameter & Volume symbol	Operating conditions	Unit(m ³ /h)					
		0.5mPa·s~ Gasoline	1mPa·s~ Water (normal temperature)	2mPa·s~ Kerosene	4mPa·s~ Light oil	10mPa·s~ Heavy oil A	50~500mPa·s Heavy oil B / C
025A0	Continuous	0.7 ~ 0.84	0.65 ~ 0.77	0.6 ~ 0.84	0.4 ~ 0.98	0.3 ~ 0.98	0.2 ~ 0.98
	Intermittent	0.7 ~ 1.2	0.65 ~ 1.1	0.6 ~ 1.2	0.4 ~ 1.4	0.3 ~ 1.4	0.2 ~ 1.4
025B0	Continuous	1.1 ~ 2.5	0.84 ~ 2.5	0.8 ~ 2.8	0.42 ~ 3.5	0.25 ~ 3.5	0.21 ~ 3.5
	Intermittent	1.1 ~ 3.5	0.84 ~ 3.5	0.8 ~ 4.0	0.42 ~ 5.0	0.25 ~ 5.0	0.21 ~ 5.0
040B0	Continuous	2.5 ~ 6.0	2.1 ~ 6.0	2.0 ~ 7.0	1.1 ~ 8.4	0.56 ~ 8.4	0.49 ~ 8.4
	Intermittent	2.5 ~ 8.5	2.1 ~ 8.5	2.0 ~ 10.0	1.1 ~ 12.0	0.56 ~ 12.0	0.49 ~ 12.0
050B0	Continuous	4.9 ~ 12.0	4.2 ~ 12.0	4.0 ~ 14.0	2.1 ~ 17.0	1.1 ~ 17.0	0.98 ~ 17.0
	Intermittent	4.9 ~ 17.0	4.2 ~ 17.0	4.0 ~ 20.0	2.1 ~ 24.0	1.1 ~ 24.0	0.98 ~ 24.0
080B0	Continuous	11.0 ~ 25.0	8.4 ~ 25.0	8.0 ~ 28.0	3.5 ~ 35.0	2.5 ~ 35.0	2.1 ~ 35.0
	Intermittent	11.0 ~ 35.0	8.4 ~ 35.0	8.0 ~ 40.0	3.5 ~ 50.0	2.5 ~ 50.0	2.1 ~ 50.0

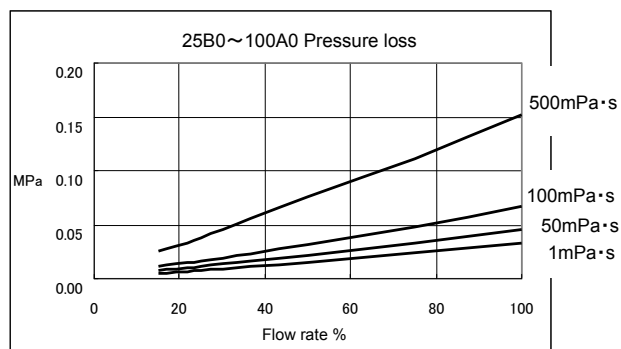
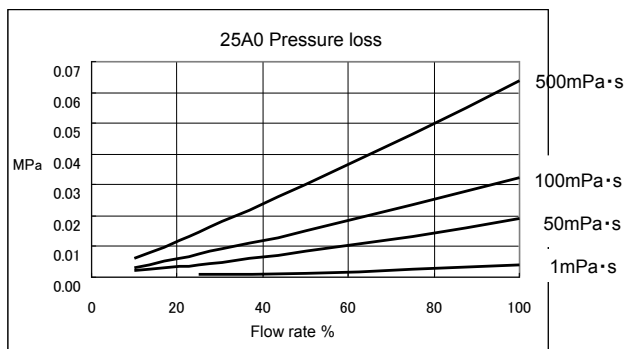
Accuracy ±0.5%

Nominal diameter & Volume symbol	Operating conditions	Unit(m ³ /h)					
		0.5mPa·s~ Gasoline	1mPa·s~ Water (normal temperature)	2mPa·s~ Kerosene	4mPa·s~ Light oil	10mPa·s~ Heavy oil A	50~500mPa·s Heavy oil B / C
025A0	Continuous	0.3 ~ 1.2	0.3 ~ 1.2	0.16 ~ 1.2	0.13 ~ 1.2	0.1 ~ 1.2	0.04 ~ 1.2
	Intermittent	0.3 ~ 1.6	0.3 ~ 1.6	0.16 ~ 1.6	0.13 ~ 1.6	0.1 ~ 1.6	0.04 ~ 1.6
025B0	Continuous	0.46 ~ 3.0	0.35 ~ 2.5	0.35 ~ 3.0	0.25 ~ 3.5	0.14 ~ 3.5	0.12 ~ 3.5
	Intermittent	0.46 ~ 4.0	0.35 ~ 3.5	0.35 ~ 5.0	0.25 ~ 5.0	0.14 ~ 5.0	0.12 ~ 5.0
040B0	Continuous	1.1 ~ 7.2	0.84 ~ 6.0	0.84 ~ 7.2	0.46 ~ 8.4	0.35 ~ 8.4	0.25 ~ 8.4
	Intermittent	1.1 ~ 10.0	0.84 ~ 8.5	0.84 ~ 12.0	0.46 ~ 12.0	0.35 ~ 12.0	0.25 ~ 12.0
050B0	Continuous	2.1 ~ 15.0	1.7 ~ 12.0	1.7 ~ 15.0	0.84 ~ 17.0	0.7 ~ 17.0	0.53 ~ 17.0
	Intermittent	2.1 ~ 20.0	1.7 ~ 17.0	1.7 ~ 24.0	0.84 ~ 24.0	0.7 ~ 24.0	0.53 ~ 24.0
080B0	Continuous	4.2 ~ 30.0	3.5 ~ 25.0	3.5 ~ 30.0	1.8 ~ 35.0	1.4 ~ 35.0	1.1 ~ 35.0
	Intermittent	4.2 ~ 40.0	3.5 ~ 35.0	3.5 ~ 50.0	1.8 ~ 50.0	1.4 ~ 50.0	1.1 ~ 50.0

(note 1) "Continuous" means a continuous operation of exceeding 8 hour a day, while "Intermittent" means an operation within 8 hours a day.

(note 2) "Please select the nominal size of which 40~60% of Max flow is same as usual flow rate."

5. Pressure loss



Nominal size & volume symbol	Flow rate 100%
0 2 5 A 0	1.6 m ³ /h
0 2 5 B 0 0 4 0 A 0	5.0 m ³ /h
0 4 0 B 0 0 5 0 A 0	12.0 m ³ /h
0 5 0 B 0 0 8 0 A 0	24.0 m ³ /h
0 8 0 B 0 1 0 0 A 0	50.0 m ³ /h

6. Process connection and face-to-face dimensions

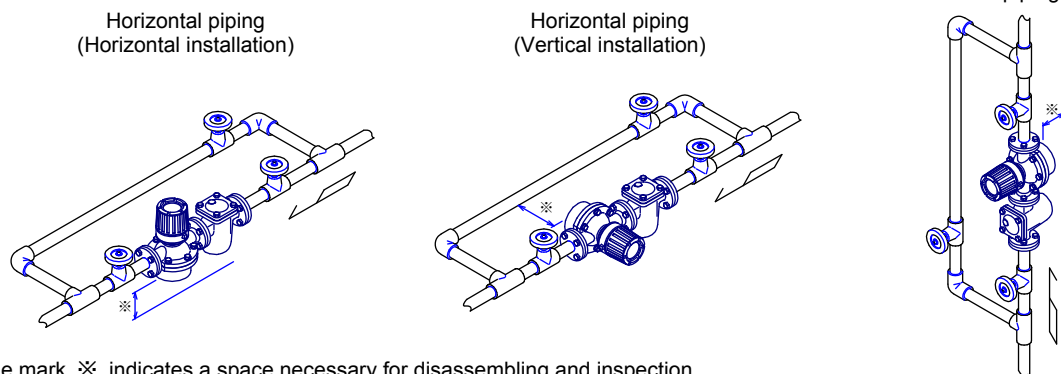
Unit : mm

Nominal size&volume symbol	Material symbol	JIS				ANSI, JPI	
		5K	10K	16K	20K	class150	class 300
025A0	FB/FF/F2	200	200	---	---	200	---
	DD/D2	200	200	---	204	200	208
	S2	---	200	---	204	200	208
025B0	FB/FF/F2	220	220	---	---	221	---
	DB/DD/D2	220	220	220	224	221	228
	S2	220	220	---	224	221	228
040A0 040B0	FB/FF/F2	300	300	---	---	304	---
	DB/DD/D2	300	300	300	304	304	310
	S2	300	300	---	304	304	310
050A0 050B0	FB/FF/F2	370	370	---	---	378	---
	DB/DD/D2	370	370	370	374	378	384
	S2	370	370	---	374	378	384
080A0 080B0	FB/FF/F2	400	400	---	---	412	---
	DB/DD/D2	400	400	400	408	412	422
	S2	400	400	---	408	412	422
100A0	FB/FF/F2	460	460	---	---	472	---
	DB/DD/D2	460	460	460	472	472	488
	S2	460	460	---	472	472	488

7. Piping method

- Install a strainer on the inlet side of the flow meter without fail. To avoid outflow to the downstream side due to damage of internal component parts, install a strainer also on the outlet side of the flow meter.
(Note) The standard mesh of the strainer element is 60 meshes.
- Install a bypass piping. In designing this bypass piping, take account of protection of the inner elements of the flow meter against the influences of flushing in the early period of operation or discharge of air in the piping as well as ease of maintenance and inspection work.
- Secure a space necessary for inspection, disassembling, etc. of the flow meter in the piping arrangement. Especially, secure a space for enabling disassembling of the measuring chamber of the flow meter.

Example of piping installation

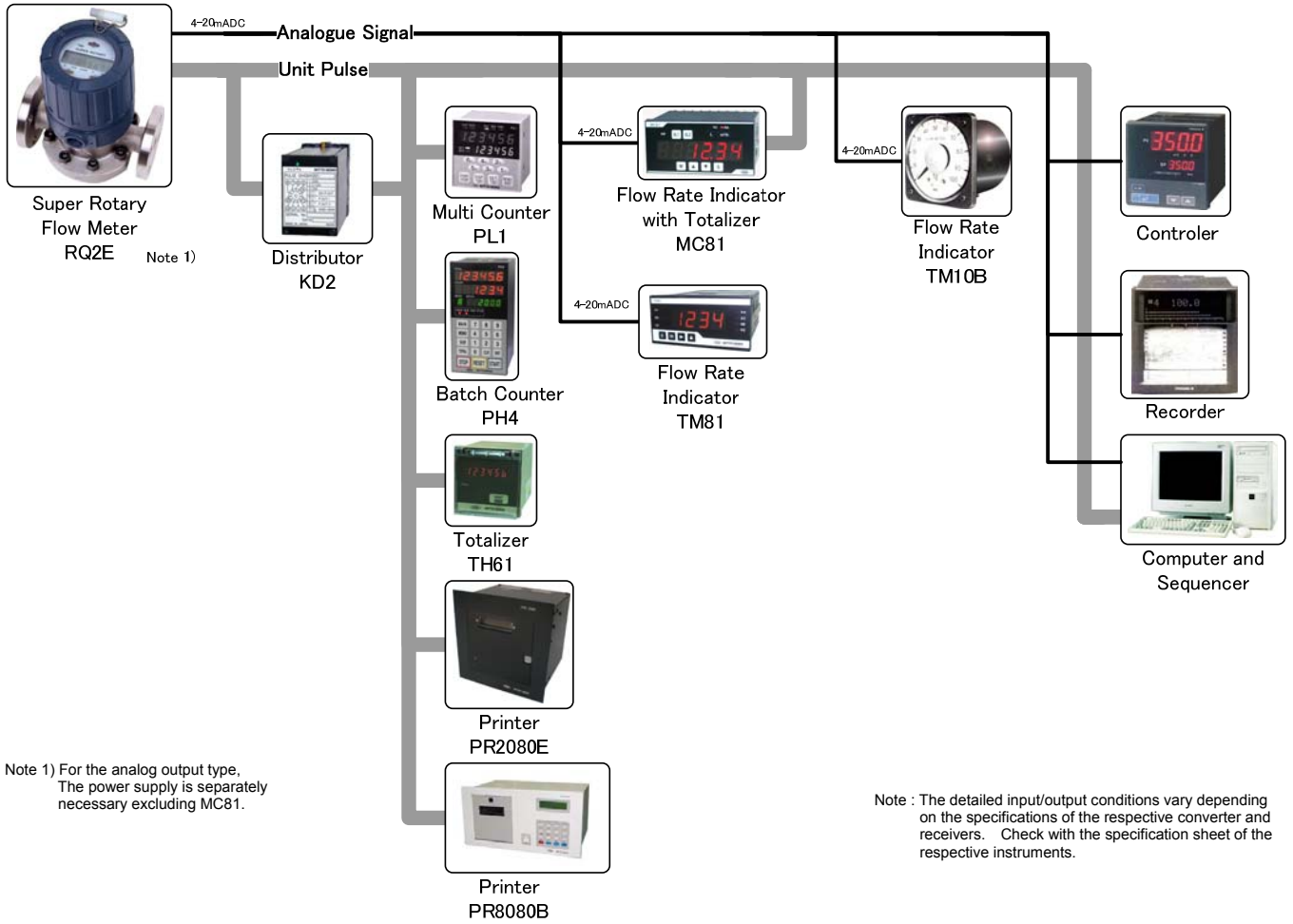


The mark ※ indicates a space necessary for disassembling and inspection. Install the piping in a way to secure a dimension no small than the figures indicated on the table below.

Unit (mm)

Nominal size & volume symbol	025A0	025B0 040A0	040B0 050A0	050B0 080A0	080B0 100A0
※Dimension	154	192	246	312	444

8. Remote measurement system



Note 1) For the analog output type, The power supply is separately necessary excluding MC81.

Note : The detailed input/output conditions vary depending on the specifications of the respective converter and receivers. Check with the specification sheet of the respective instruments.

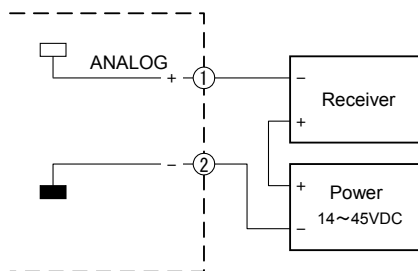
9. Terminal arrangement and wiring

9.1 Terminal arrangement

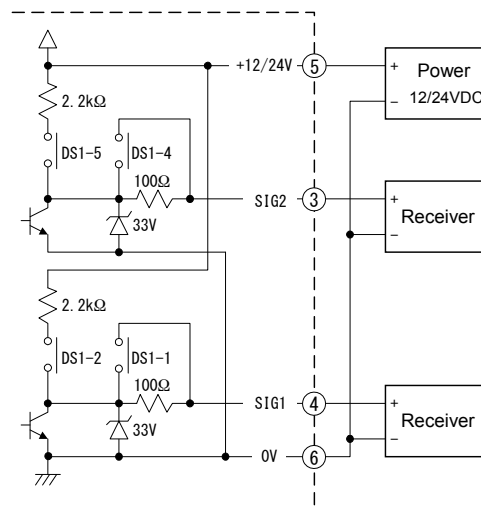
No.	Signal name	
1	+ ANALOG	Analogue output 4~20 mA DC
2	- OUTPUT	
3	SIG2	Pulse output or alarm output
4	SIG1	Pulse output or alarm output
5	+ 12/24 V	Power source for pulse & alarm output +12/24 V
6	0 V	

9.2 Wiring

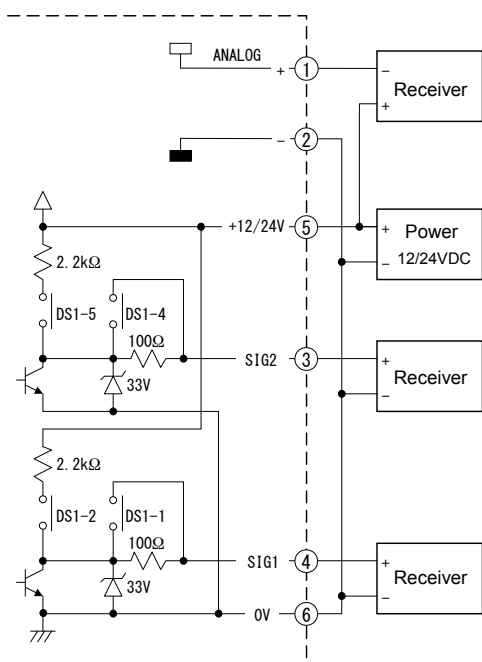
● Connection of analogue output



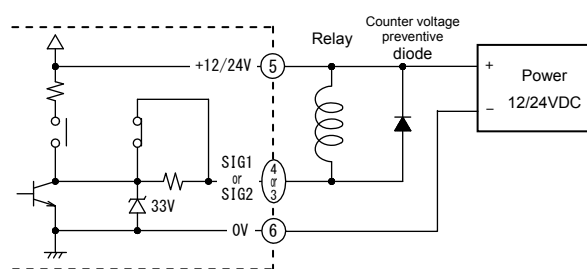
● Connection of pulse and alarm output



● Connection of analog, pulse and alarm output (Case of power source common to analogue, pulse and alarm)



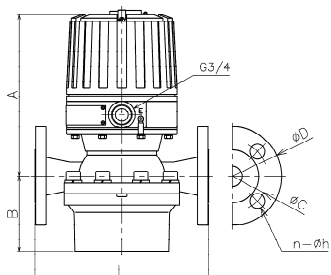
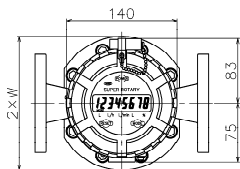
● Case of connection of relay to pulse and alarm output



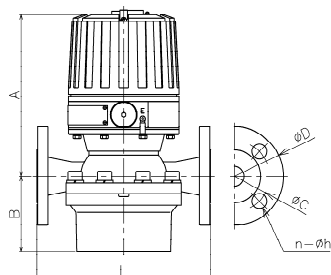
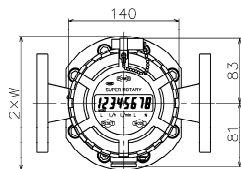
※ Set open collector signal (negative logic or positive logic) as kind of output signal of the Super Rotary flow meter.

10. External dimension drawing

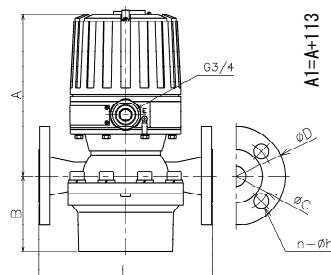
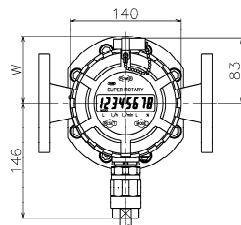
●Non explosionproof output type



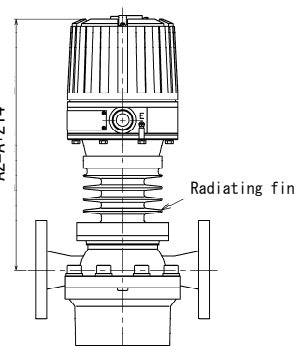
●Non explosionproof field counter type
●Explosionproof field counter type



●Explosionproof output type



●With Radiating fin



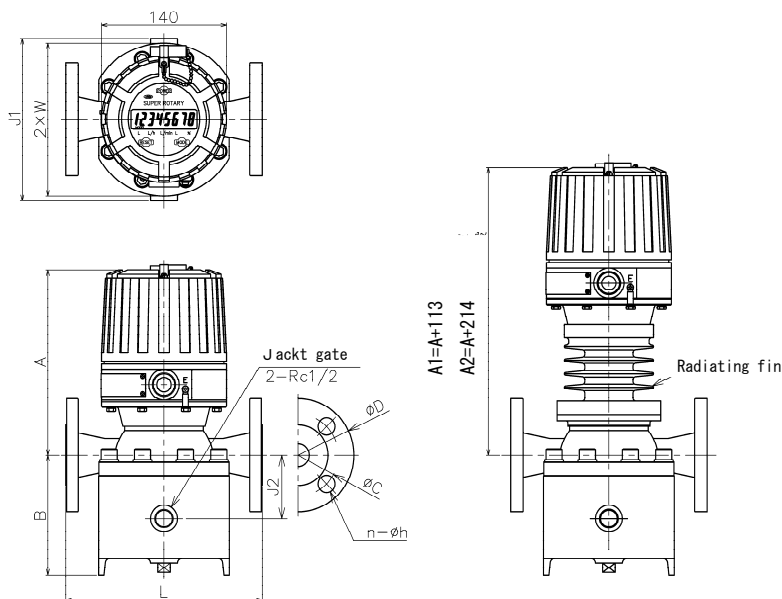
Unit (mm)

Nominal diameter & symbol	volume symbol	Flange standard	L	A	B	W	D	C	n	h	Approx. weight (kg)
025	A0	JIS10K	200	243	81	75	125	90	4	19	14
		JIS20K	204								15
	B0	JIS10K	220	206	96	85	125	90	4	19	16
		JIS20K	224								17
040	A0	JIS10K	300	206	96	85	140	105	4	19	18
		JIS20K	304								19
	B0	JIS10K	300	217	123	110	140	105	4	19	26
		JIS20K	304								27
050	A0	JIS10K	370	217	123	110	155	120	4	19	28
		JIS20K	374								29
	B0	JIS10K	370	203	156	143	155	120	4	19	42
		JIS20K	374								45
080	A0	JIS10K	400	203	156	143	185	150	8	19	44
		JIS20K	408				200	160			47
	B0	JIS10K	400	209	222	170	185	150	8	19	72
		JIS20K	408				200	160			23
100	A0	JIS10K	460	209	222	170	210	175	8	19	75
		JIS20K	472				225	185			23

Note) 1. In case of single radiating fin, size is A + 113mm. In case of double radiating fin, size is A + 214mm
2. Shown weight is for material code FF, DD

●Jacket type
Non explosionproof output type

●Jacket type With Radiating fin
Non explosionproof output type

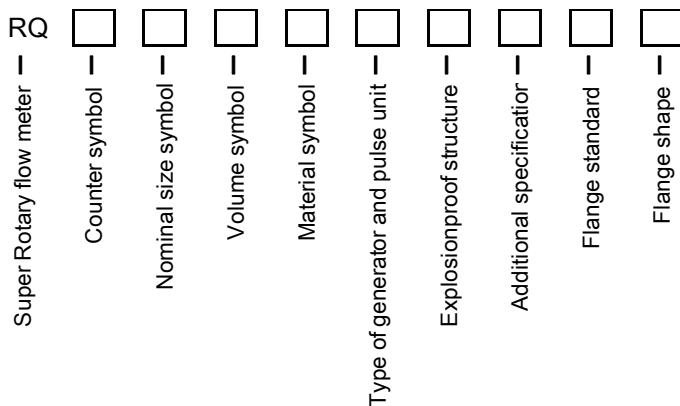


Unit (mm)

Nominal diameter & symbol	volume symbol	Flange standard	L	A	B	W	D	J1	J2	C	n	h	Approx. weight (kg)
025	A0	JIS10K	200	243	116	75	125	158	55	90	4	19	19
	B0	JIS10K	220	206	133	85	125	180	75	90	4	19	20
040	A0	JIS10K	300	206	133	85	140	180	75	105	4	19	22
	B0	JIS10K	300	217	175	110	140	236	96	105	4	19	40
050	A0	JIS10K	370	217	175	110	155	236	96	120	4	19	43
	B0	JIS10K	370	203	209	143	155	300	108	120	4	19	57
080	A0	JIS10K	400	203	209	143	185	300	108	150	8	19	61
	B0	JIS10K	400	209	284	170	185	360	135	150	8	19	105
100	A0	JIS10K	460	209	284	170	210	360	135	175	8	19	108

Note) 1. In case of single radiating fin, size is A + 113mm. In case of double radiating fin, size is A + 214mm
2. Shown weight is for material code S2

11. Product code



●: Standard; ○: Manufacturable; ×: Non-manufacturable

Type	Specification code	Specification	25		40		50		80		100
			A0	B0	A0	B0	A0	B0	A0	B0	A0
RQ		Super Rotary flow meter	●	●	●	●	●	●	●	●	●
Counter symbol	2E	Electronic indication	●	●	●	●	●	●	●	●	●
Nominal size symbol ※1	025	Nominal diameter : 2 5 A	●	●							
	040	Nominal diameter : 4 0 A			●	●					
	050	Nominal diameter : 5 0 A					●	●			
	080	Nominal diameter : 8 0 A							●	●	
	100	Nominal diameter : 1 0 0 A									●
Volume symbol	A0	Capacity: Small	●		●		●		●		●
	B0	Capacity: Large		●		●		●		●	
Material symbol ※1	FB	Body: FC200, Measuring chamber: CAC406, Rotor: PPS, GC, AC	●	●	●	●	●	●	●	●	●
	FF	Body: FC200, Measuring chamber: FC200, Rotor: PPS, GC, AC	●	●	●	●	●	●	●	●	●
	F2	Body: FC200, Measuring chamber: SCS14A, Rotor: PPS, GC, AC	●	●	●	●	●	●	●	●	●
	DB	Body: FCD450, Measuring chamber: CAC406, Rotor: PPS, GC, AC	×	●	●	●	●	●	●	●	●
	DD	Body: FCD450, Measuring chamber: FCD450, Rotor: PPS, GC, AC	●	●	●	●	●	●	●	●	●
	D2	Body: FCD450, Measuring chamber: SCS14A, Rotor: PPS, GC, AC	●	●	●	●	●	●	●	●	●
	S2	Body: SCS14A, Measuring chamber: SCS14A, Rotor: PPS, GC	●	●	●	●	●	●	●	●	●
But only nominal diameter & capacity symbol 025A0 is not SCS14A but SCS14											
Type of generator and pulse unit	12	Field counter type: Without signal output	●	●	●	●	●	●	●	●	●
	PA	Type of output: With pulse, alarm and analogue output	○	○	○	○	○	○	○	○	○
Explosionproof structure	345	Non-explosion proof	●	●	●	●	●	●	●	●	●
	Y00	Intrinsic safety type ExialIBT4 (Transmission symbol : 12)	○	○	○	○	○	○	○	○	○
	X00	Flameproof enclosure type ExdIIBT4X (Transmission symbol : PA)	○	○	○	○	○	○	○	○	○
Additional specification Radiating fin Jacket ※1	0	Radiating fin: Not provided (liquid temperature: -10 ~ 80°C), Jacket: Not provided	●	●	●	●	●	●	●	●	●
	1	Radiating fin: 1 stage (liquid temperature: 81 ~ 150°C), Jacket: Not provided	○	○	○	○	○	○	○	○	○
	2	Radiating fin: 2 stage (liquid temperature: 151 ~ 200°C), Jacket: Not provided	○	○	○	○	○	○	○	○	○
	J	Radiating fin: Not provided (liquid temperature: -10 ~ 80°C), Jacket: Provided	○	○	○	○	○	○	○	○	○
	W	Radiating fin: 1 stage (liquid temperature: 81 ~ 150°C), Jacket: Provided	○	○	○	○	○	○	○	○	○
1 stage fin when the liquid temperature exceeds 80 °C. 2-stage fins if it exceeds 150 °C											
Flange standard ※1	005	JIS 5K	○	○	○	○	○	○	○	○	○
	010	JIS 10K	●	●	●	●	●	●	●	●	●
	016	JIS 16K (Material symbol : DB,DD,D2,S2 only be selected)	○	○	○	○	○	○	○	○	○
	020	JIS 20K (Material symbol : DB,DD,D2,S2 only be selected)	○	○	○	○	○	○	○	○	○
	AS1	ANSI class 150	○	○	○	○	○	○	○	○	○
Flange shape	F	FF flange	×	●	○	○	○	○	○	○	○
	R	RF flange	●	○	●	●	●	●	●	●	●

※ 1: Some combination of specification code is not manufacturable.

Additional specification	specification code	Specification	025A0 ~ 080A0								080B0 , 100A0					
			FB	FF	F2	DB	DD	D2	S2	FB	FF	F2	DB	DD	D2	S2
Additional specification	J	With jacket	×	○	○	×	×	○	○	×	×	○	×	×	○	○
	W	With jacket + Radiating fin	×	○	○	×	×	○	○	×	×	○	×	×	○	○

12. Strainer

To prevent foreign matters mixed in the liquid from penetrating into the flow meter to cause troubles, it is necessary to install a strainer immediately before the flow meter or at a point as close as possible to the inflow side.(Element mesh:60 to 200 mesh)

◆◆◆ Matters to be specified at the time of ordering ◆◆◆

1. Type and specification code
2. Name of measured liquid, viscosity, temperature
3. Flow direction of fluid, mounting position

▶ The contents of description are subject to change without notice.



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