

# SUPER ROTARY FLOW METER

## SPECIFICATIONS

SSV11051 25.07

### 1. Outline

Super Rotary Flow Meter, adopting the microcomputer counter unit on to the rotary piston flow meter which is the simplest construction in the positive displacement flow meter, realize multiple indication and gives wide flow range, high accuracy measuring and improving durability.

### 2. Features

- Realizing high measuring accuracy of  $\pm 0.2\%$ .
- Low pressure loss and easily measuring of high viscosity liquid.
- Realization of long durability with ceramic bearing.
- Alteration of the setting is possible at field by the front switch operation.
- Due to simulated pulse function, easy maintenance at field.
- Total flow rate (total, reset) and instantaneous flow rate (/h, /min, %) are respectively shown on LCD display by MODE switching.
- Alarm for excessive flow rate, upper and lower limit, and battery (Field indication type only) are displayed.
- Output of analog, pulse and alarm signals. (Output type only)
- Field indication type does not require external power source.
- Explosion proof Output type only Ex db II B T4 Gb



### 3. Specification

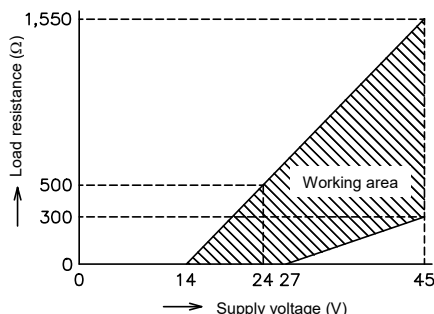
#### Specifications of measuring unit

| Nominal size symbol   | 025  |  | 040  |    | 050             |    | 080   |    | 100  |  |
|---|--|--|--|----|-----------------|----|---|----|------|--|
| Volume symbol   | A0   | B0   | A0   | B0 | A0              | B0 | A0  | B0 | A0   |  |
| Measured fluid  | Chemical solutions, edible liquids, petroleum, water, etc.                         |  |  |    |                 |    |   |    |      |  |
| Nominal size  | 25A  |  | 40A  |    | 50A             |    | 80A   |    | 100A |  |
| Liquid viscosity  | 0.5~500 mPa·s (Special 0.3 ~30,000 mPa·s)  |  |  |    |                 |    |   |    |      |  |
| Liquid temperature  | Non-explosion proof structure : 0~200°C (special -10~200°C for Material symbol S2) |  |  |    |                 |    |   |    |      |  |
|   | Explosion proof structure : 0~120°C (special -10~120°C for Material symbol S2)     |  |  |    |                 |    |   |    |      |  |
| Liquid pressure   | 2.0 MPa or under (By flange standards)   |  |  |    |                 |    |   |    |      |  |
| Measuring accuracy  | Within $\pm 0.5\%$ or within $\pm 0.2\%$   |  |  |    |                 |    |   |    |      |  |
| Standard connection   | Flange   |  | JIS5K,10K,16K,20K, ANSI class 150, 300 (For the details, see paragraph of "Process connection and face-to-face |    |                 |    |   |    |      |  |
| Material  | Material symbol  | FB   | Main body : FC200, Measuring chamber : CAC406, Rotor : PPS, GC, AC   |    |                 |    |   |    |      |  |
|   |  | FF   | Main body : FC200, Measuring chamber : FC200, Rotor : PPS, GC, AC  |    |                 |    |   |    |      |  |
|   |  | F2   | Main body : FC200, Measuring chamber : SCS14A, Rotor : PPS, GC, AC   |    |                 |    |   |    |      |  |
|   |  | DB   | Main body : FCD450, Measuring chamber : CAC406, Rotor : PPS, GC, AC  |    |                 |    |   |    |      |  |
|   |  | DD   | Main body : FCD450, Measuring chamber : FCD450, Rotor : PPS, GC, AC  |    |                 |    |   |    |      |  |
|   |  | D2   | Main body : FCD450, Measuring chamber : SCS14A, Rotor : PPS, GC, AC  |    |                 |    |   |    |      |  |
|   |  | S2   | Main body : SCS14A, Measuring chamber : SCS14A, Rotor : PPS, GC, AC  |    |                 |    |   |    |      |  |
| FC200: Cast iron; FCD450: Ductile cast iron; CAC406: Cast bronze; SCS14A: Stainless steel casting<br>PPS: Special plastic; GC: Carbon; AC: Corrosion-resistant aluminum |  |  |  |    |                 |    |   |    |      |  |
| Material & Permissible Pressure   |  | Nominal Pressure   | Flange standard  |    | Material symbol |    | Permissible Pressure (Liquid Temp.~200°C) MPa |    |      |  |
|   |  | 5K   | JIS5K  |    | FB/FF/F2        |    | 0.5   |    |      |  |
|   |  | 10K  | JIS10K, ANSI class150  |    | DB/DD/D2/S2     |    | 1.0   |    |      |  |
|   |  | 16K  | JIS16K   |    | DB/DD/D2        |    | 1.6   |    |      |  |
|   |  | 20K  | JIS20K, ANSI class300  |    | DB/DD/D2/S2     |    | 2.5   |    |      |  |
| Jacket specifications   |  | Thermal liquid (Hot water, Steam) pressure is 0.5MPa or less. Permissible Temp. 200°C, Permissible Pressure 1.0MPa                             |  |    |                 |    |   |    |      |  |
| Special specifications  |  | Article approved for high-pressure gas service: Only material symbol S2 is manufacturable (up to nominal size 80A).Liquid temperature -10~75°C |  |    |                 |    |   |    |      |  |

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   | ×0.01L~×1m <sup>3</sup>   |  | ×0.1L~×1m <sup>3</sup> |                           | ×1L~×1m <sup>3</sup> |   |    |     |
|                                  |                       | 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)             | ×1L/h~×0.1m <sup>3</sup> /h  |   |  |                        | ×0.01~×1m <sup>3</sup> /h |                      |   |    |     |
|                                  | Unit (/min)           | ×0.01L/min~×1L/min   |   | ×0.1L/min~×0.01m <sup>3</sup> /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<br>(Note 1) Total flow rate and instantaneous flow rate cannot be displayed at same time.<br>(Note 2) The indicated item (Mode) is switched from outside the case by means of an operating magnet.   |   |  |                        |                           |                      |   |    |     |
| 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 backflow" and " Alarm for error". |                        |                           |                      |   |    |     |
|                                  |                       | Type of signal   |   | Voltage no-contact or open collector<br>Voltage no-contact output:<br>Signal level H: Approx. equal to voltage of external power source (at no load)<br>L: 0.5V or less (at no load)<br>Output resistance: Approx. 2.3kΩ (short-circuit protection resistance approx. 100Ω)              |                        |                           |                      | Open collector output<br>Voltage & current: 27VDC, 30 mA<br>Voltage at ON: 0.5V or less |    |     |
|                                  |                       | Signal logic   |   | Positive or Negative logic<br>Positive logic: Logic 1 at H (transistor: OFF)   |                        |                           |                      | Negative logic: Logic 1 at L (transistor: ON)   |    |     |
|                                  |                       | Unit pulse   | Unit Signal width   | 0.01L/P~1m <sup>3</sup> /P   |                        | 0.1L/P~1m <sup>3</sup> /P |                      | 1L/P~1m <sup>3</sup> /P   |    |     |
|                                  | Analogue output       | Number of outputs  |   | 1  |                        |                           |                      |   |    |     |
|                                  |                       | Output assignment  |   | Instantaneous flow rate  |                        |                           |                      |   |    |     |
|                                  |                       | Type of signal   |   | 4~20mADC   |                        |                           |                      |   |    |     |
|                                  |                       | Conversion accuracy  |   | ±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 "Analog output".  |   |  |                        |                           |                      |   |    |     |
| Power source                     | Field indication type |  | Built-in lithium battery (3.6VDC Service life approx. 5 years)  |  |                        |                           |                      |   |    |     |
|                                  | Type of output        | Pulse & alarm output   | External power source required, voltage 12/24VDC ±10%, Current consumption approx. 21~34 mA (with 12VDC power source), approx. 33~60 mA (with 24VDC power source) |  |                        |                           |                      |   |    |     |
|                                  |                       | Analog output  | External power source required, voltage 14~45VDC, current consumption approx. 23 mA. Refer to allowable load resistance.  |  |                        |                           |                      |   |    |     |
| Ambient temperature              |                       | -10~60°C   |   |  |                        |                           |                      |   |    |     |
| Explosion proof                  |                       | Flameproof enclosure type Ex db IIB T4 Gb Note: Output type only   |   |  |                        |                           |                      |   |    |     |
| Radiating fin                    |                       | Non-explosion proof structure : 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.<br>Explosion proof structure : Double-stage fins in the case where the liquid temperature exceeds 60°C, and cannot be manufactured if the temperature exceeds 120°C. |   |  |                        |                           |                      |   |    |     |
| Material                         |                       | Aluminium alloy casting  |   |  |                        |                           |                      |   |    |     |

Drawing of allowable load resistance



#### 4. Flow range

Accuracy  $\pm 0.5\%$

Unit(m<sup>3</sup>/h)

| Nominal diameter & Volume symbol | Operating conditions | 0.5mPa·s~  | 1mPa·s~                       | Hot water<br>(60.1~120°C) | 2mPa·s~    | 4mPa·s~    | 10mPa·s~    | 50~500mPa·s     |
|----------------------------------|----------------------|------------|-------------------------------|---------------------------|------------|------------|-------------|-----------------|
|                                  |                      | Gasoline   | Water<br>(normal temperature) |                           | Kerosene   | Light oil  | Heavy oil A | Heavy oil B / C |
| 025A0                            | Continuous           | 0.3 ~ 1.2  | 0.3 ~ 1.2                     | 0.4 ~ 0.9                 | 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                     | 0.4 ~ 1.1                 | 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                     | 0.46~ 2.0                 | 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                     | 0.46~ 2.5                 | 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                     | 1.1 ~ 4.8                 | 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                     | 1.1 ~ 6.0                 | 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                    | 2.1 ~ 9.6                 | 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                    | 2.1 ~ 12.0                | 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                    | 4.2 ~ 20.0                | 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                    | 4.2 ~ 25.0                | 3.5 ~ 50.0 | 1.8 ~ 50.0 | 1.4 ~ 50.0  | 1.1 ~ 50.0      |
| 100A0                            | Continuous           | 4.2 ~ 30.0 | 3.5 ~ 25.0                    | 4.2 ~ 20.0                | 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                    | 4.2 ~ 25.0                | 3.5 ~ 50.0 | 1.8 ~ 50.0 | 1.4 ~ 50.0  | 1.1 ~ 50.0      |

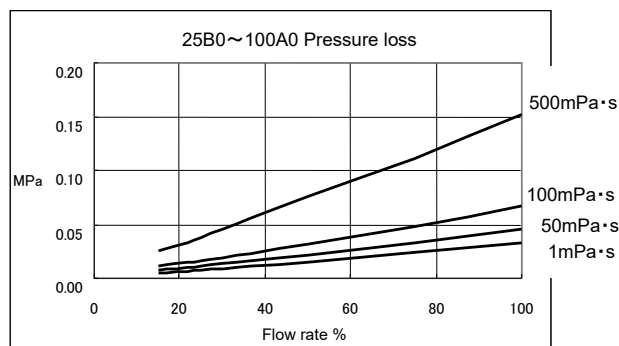
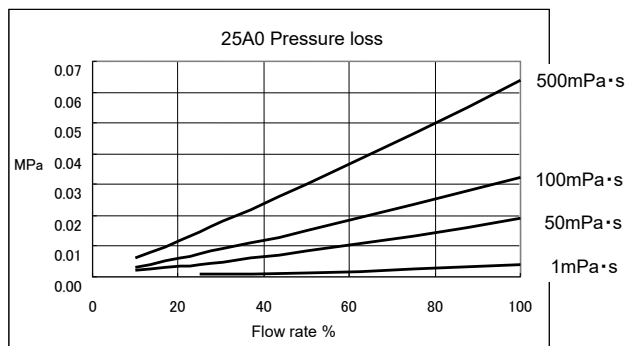
Accuracy  $\pm 0.2\%$

Unit(m<sup>3</sup>/h)

| Nominal diameter & Volume symbol | Operating conditions | 0.5mPa·s~   | 1mPa·s~                       | 2mPa·s~    | 4mPa·s~    | 10mPa·s~    | 50~500mPa·s     |
|----------------------------------|----------------------|-------------|-------------------------------|------------|------------|-------------|-----------------|
|                                  |                      | Gasoline    | Water<br>(normal temperature) | Kerosene   | Light oil  | Heavy oil A | 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      |
| 100A0                            | 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      |

- (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                    | 1.6m <sup>3</sup> /h  |
| 0 2 5 B 0<br>0 4 0 A 0       | 5.0m <sup>3</sup> /h  |
| 0 4 0 B 0<br>0 5 0 A 0       | 12.0m <sup>3</sup> /h |
| 0 5 0 B 0<br>0 8 0 A 0       | 24.0m <sup>3</sup> /h |
| 0 8 0 B 0<br>1 0 0 A 0       | 50.0m <sup>3</sup> /h |

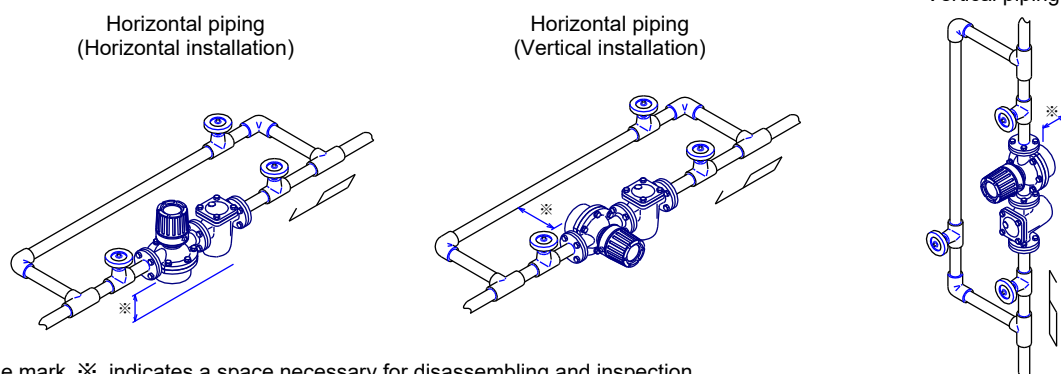
## 6. Process connection and face-to-face dimensions

| Nominal size&volume symbol | Material symbol | Unit(mm) |     |     |     |           |          |
|----------------------------|-----------------|----------|-----|-----|-----|-----------|----------|
|                            |                 | JIS      |     |     |     | ANSI, JPI |          |
|                            |                 | 5K       | 10K | 16K | 20K | class150  | class300 |
| 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<br>040B0             | FB/FF/F2        | 300      | 300 | --- | --- | 304       | ---      |
|                            | DB/DD/D2        | 300      | 300 | 300 | 304 | 304       | 310      |
|                            | S2              | 300      | 300 | --- | 304 | 304       | 310      |
| 050A0<br>050B0             | FB/FF/F2        | 370      | 370 | --- | --- | 378       | ---      |
|                            | DB/DD/D2        | 370      | 370 | 370 | 374 | 378       | 384      |
|                            | S2              | 370      | 370 | --- | 374 | 378       | 384      |
| 080A0<br>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

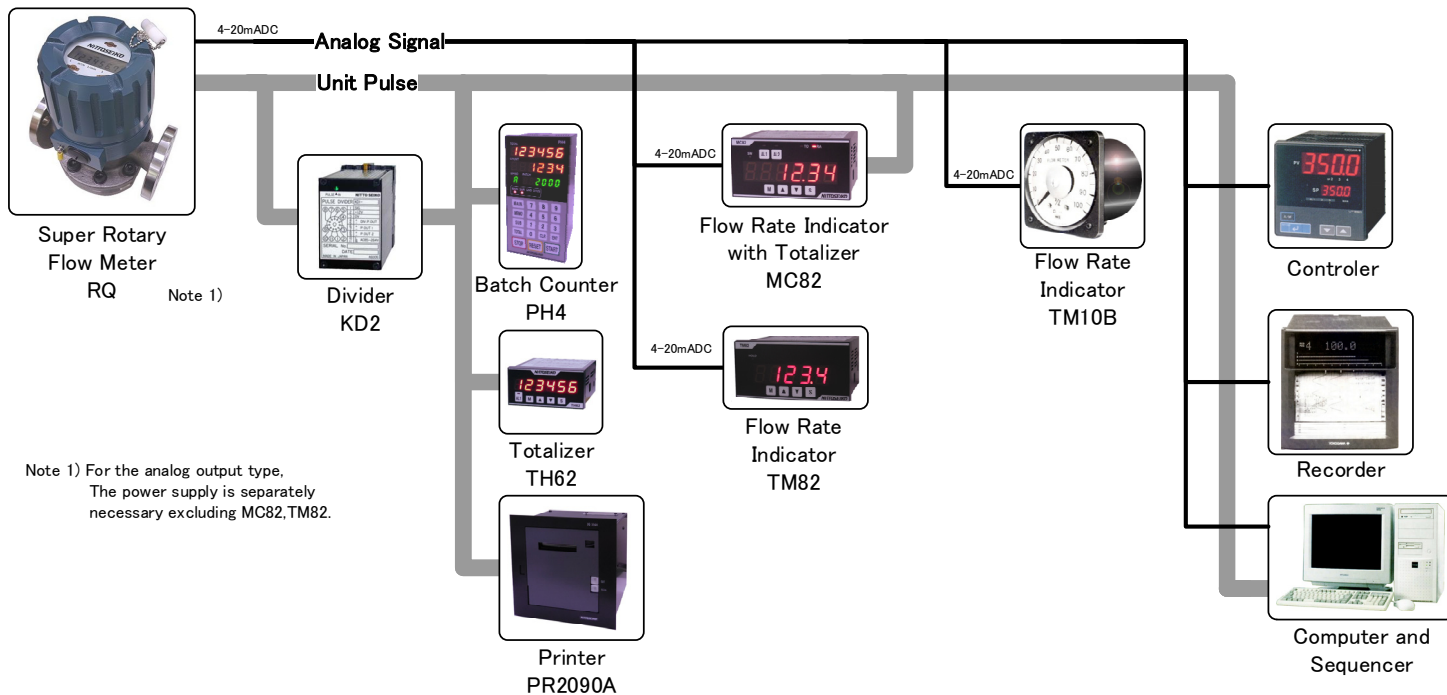


The mark ※ indicates a space necessary for disassembling and inspection.

Install the piping in a way to secure a dimension no smaller than the figures indicated on the table below.

| Nominal size & volume symbol | Unit (mm) |                |                |                |                |
|------------------------------|-----------|----------------|----------------|----------------|----------------|
|                              | 025A0     | 025B0<br>040A0 | 040B0<br>050A0 | 050B0<br>080A0 | 080B0<br>100A0 |
| ※Dimension                   | 154       | 192            | 246            | 312            | 444            |

### 8. Remote measurement system



※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.

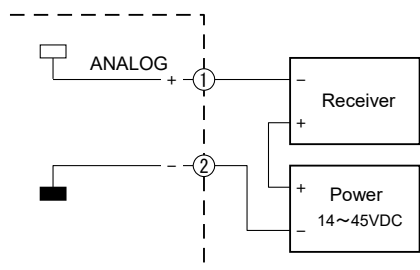
### 9. Terminal arrangement and wiring

#### 9.1 Terminal arrangement

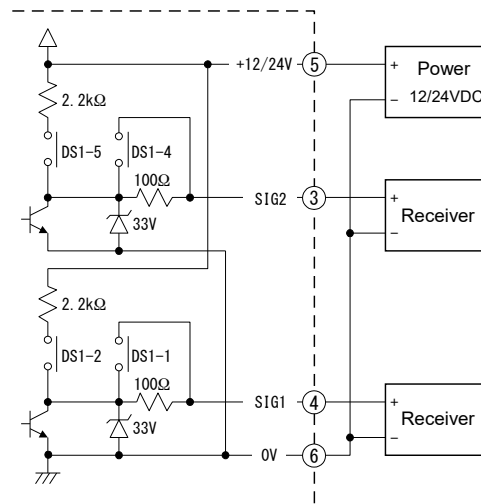
| No. | Signal name |  |
|-----|-------------|--|
| 1   | + ANALOG    | Analog output 4~20 mADC                        |
| 2   | - OUTPUT    |  |
| 3   | SIG2        | Pulse output or alarm output                   |
| 4   | SIG1        | Pulse output or alarm output                   |
| 5   | + 12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

#### 9.2 Wiring

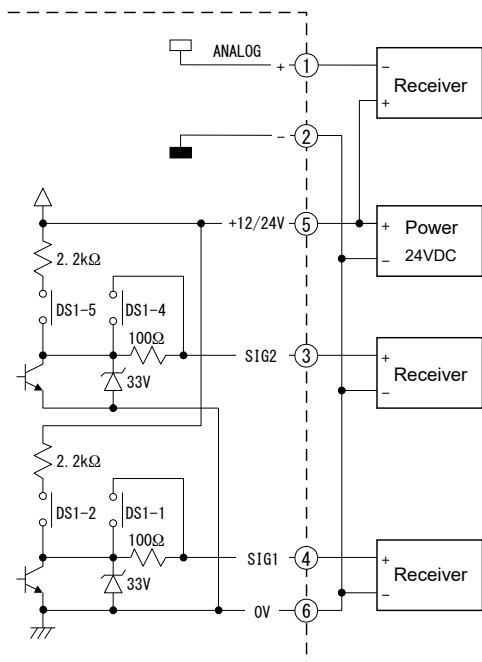
##### ● Connection of analog output



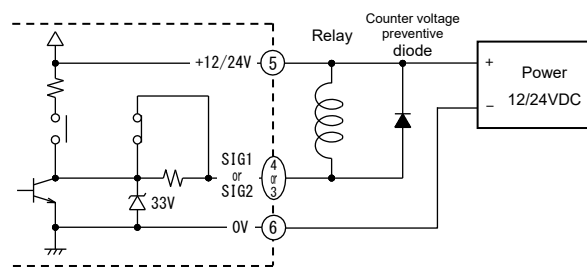
##### ● Connection of pulse and alarm output



- Connection of analog, pulse and alarm output  
(Case of power source common to analog, 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.

### 9.3 Cable gland

- Non-explosion proof output type

| Applicable cable outer diameter (mm) | Screw size for connection to bottom case. | Material |
|--------------------------------------|---|----------|
| φ6 ~ 10.5                            | M2.5 × 1.5                                | PA66     |

- Explosion proof output type

| Applicable cable outer diameter (mm) | Screw size for connecting to conduit tube. | Screw size for connection to bottom case. | Material            |
|--------------------------------------|--|---|---------------------|
| φ10 ~ 11                             | G 3 / 4                                    | M 2.5 × 1.5                               | Nickel plated brass |
| φ11 ~ 12                             |  |   |                     |
| φ12 ~ 13                             |  |   |                     |
| φ13 ~ 14                             |  |   |                     |
| φ14 ~ 15                             |  |   |                     |
| φ15 ~ 16                             |  |   |                     |

Note) 1. Cable gland is TIIS certified product.

Note) 2. Please specify your using cable diameter when ordering.

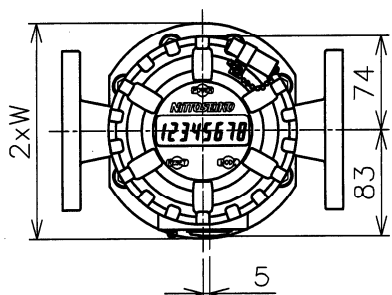
### 9.4 Cable conditions for explosion-proof / output type

If the ambient temperature of the flow meter is 50 °C or less, use a cable with heat resistant more than 60 °C, and if it exceeds 50 °C, use a cable with a heat resistance more than 70 °C.

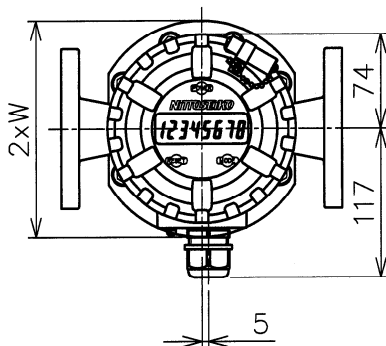
10. External dimension

- Standard type

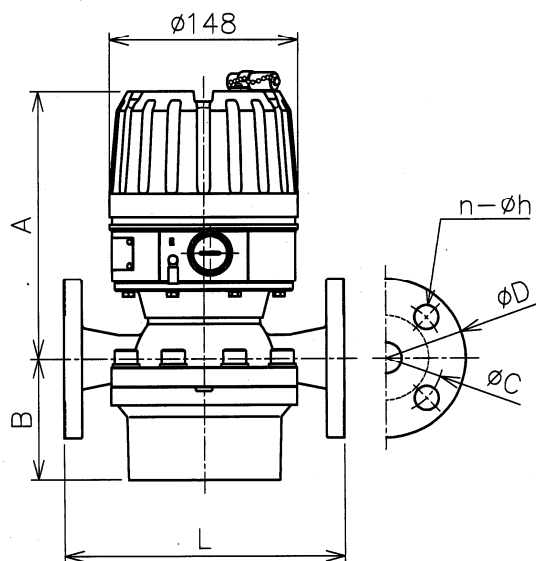
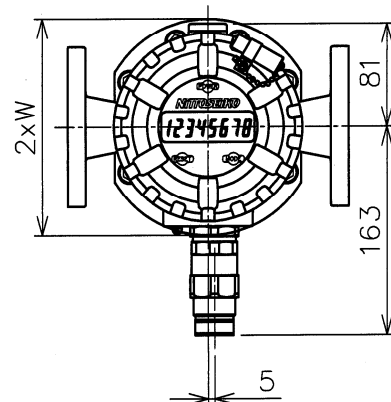
Non-explosion proof  
Field counter type



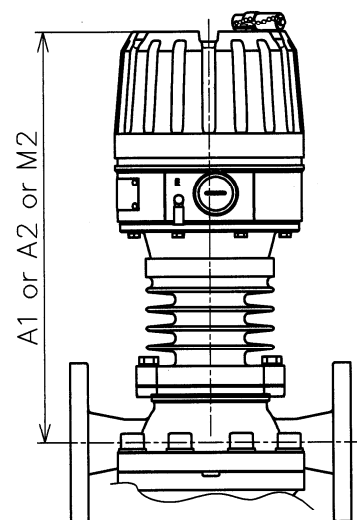
Non-explosion proof  
Output type



Explosion proof  
Output type



With radiating fin



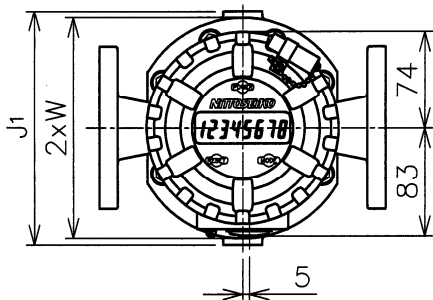
(Unit: mm)

| Nominal size | Nominal size symbol & volume symbol | Flange standard | L   | A   | B   | W   | D   | C   | n | h  | Approx weight (kg) |
|--------------|-------------------------------------|-----------------|-----|-----|-----|-----|-----|-----|---|----|--------------------|
| 25A          | 025A0                               | JIS10K          | 200 | 247 | 81  | 75  | 125 | 90  | 4 | 19 | 14                 |
|              |                                     | JIS20K          | 204 |     |     |     |     |     |   |    | 15                 |
|              | 025B0                               | JIS10K          | 220 | 210 | 96  | 85  | 125 | 90  | 4 | 19 | 16                 |
|              |                                     | JIS20K          | 224 |     |     |     |     |     |   |    | 17                 |
| 40A          | 040A0                               | JIS10K          | 300 | 210 | 96  | 85  | 140 | 105 | 4 | 19 | 18                 |
|              |                                     | JIS20K          | 304 |     |     |     |     |     |   |    | 19                 |
|              | 040B0                               | JIS10K          | 300 | 221 | 123 | 110 | 140 | 105 | 4 | 19 | 26                 |
|              |                                     | JIS20K          | 304 |     |     |     |     |     |   |    | 27                 |
| 50A          | 050A0                               | JIS10K          | 370 | 221 | 123 | 110 | 155 | 120 | 4 | 19 | 28                 |
|              |                                     | JIS20K          | 374 |     |     |     |     |     |   |    | 29                 |
|              | 050B0                               | JIS10K          | 370 | 207 | 156 | 143 | 155 | 120 | 4 | 19 | 42                 |
|              |                                     | JIS20K          | 374 |     |     |     |     |     |   |    | 45                 |
| 80A          | 080A0                               | JIS10K          | 400 | 207 | 156 | 143 | 185 | 150 | 8 | 19 | 44                 |
|              |                                     | JIS20K          | 408 |     |     |     | 200 | 160 |   |    | 23                 |
|              | 080B0                               | JIS10K          | 400 | 213 | 222 | 170 | 185 | 150 | 8 | 19 | 72                 |
|              |                                     | JIS20K          | 408 |     |     |     | 200 | 160 |   |    | 23                 |
| 100A         | 100A0                               | JIS10K          | 460 | 213 | 222 | 170 | 210 | 175 | 8 | 19 | 75                 |
|              |                                     | JIS20K          | 472 |     |     |     | 225 | 185 |   |    | 23                 |

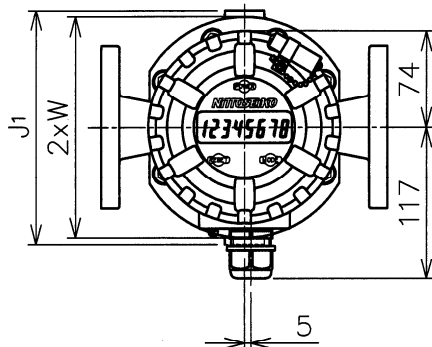
- Note) 1. Size "A" with radiating fin for Single-stage: A1=A+113, Double-stage: A2=A+214, Explosion proof structure counting unit fin: M2 = A + 241.  
 2. Weight shown above is for material code FF (10K), DD (20K).

• With jacket type

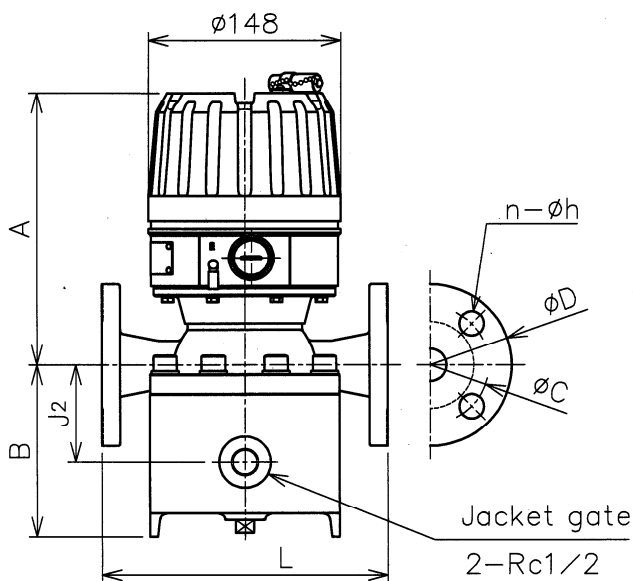
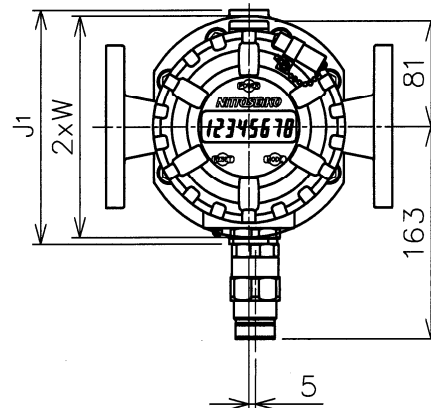
Non-explosion proof  
Field counter type



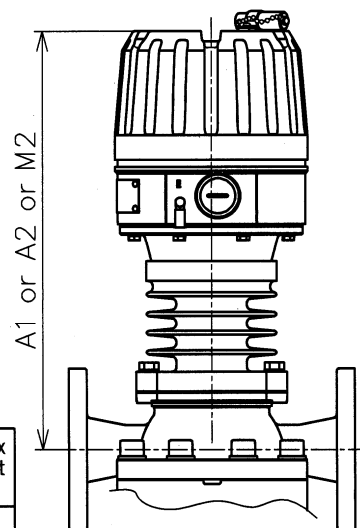
Non-explosion proof  
Output type



Explosion proof  
Output type



With radiating fin



(Unit: mm)

| Nominal size | Nominal size symbol & volume symbol | Flange standard | L   | A   | B   | J1  | J2      | W   | D   | C   | n | h  | Approx weight (kg) |
|--------------|-------------------------------------|-----------------|-----|-----|-----|-----|---------|-----|-----|-----|---|----|--------------------|
| 25A          | 025A0                               | JIS10K          | 200 | 247 | 116 | 158 | 55      | 75  | 125 | 90  | 4 | 19 | 19                 |
|              | 025B0                               | JIS10K          | 220 | 210 | 133 | 180 | 75 (70) | 85  | 125 | 90  | 4 | 19 | 20                 |
| 40A          | 040A0                               | JIS10K          | 300 | 210 | 133 | 180 | 75 (70) | 85  | 140 | 105 | 4 | 19 | 22                 |
|              | 040B0                               | JIS10K          | 300 | 221 | 175 | 236 | 97 (85) | 110 | 140 | 105 | 4 | 19 | 40                 |
| 50A          | 050A0                               | JIS10K          | 370 | 221 | 175 | 236 | 97 (85) | 110 | 155 | 120 | 4 | 19 | 43                 |
|              | 050B0                               | JIS10K          | 370 | 207 | 209 | 300 | 108     | 143 | 155 | 120 | 4 | 19 | 57                 |
| 80A          | 080A0                               | JIS10K          | 400 | 207 | 209 | 300 | 108     | 143 | 185 | 150 | 8 | 19 | 61                 |
|              | 080B0                               | JIS10K          | 400 | 213 | 285 | 360 | 136     | 170 | 185 | 150 | 8 | 19 | 105                |
| 100A         | 100A0                               | JIS10K          | 460 | 213 | 285 | 360 | 136     | 170 | 210 | 175 | 8 | 19 | 108                |

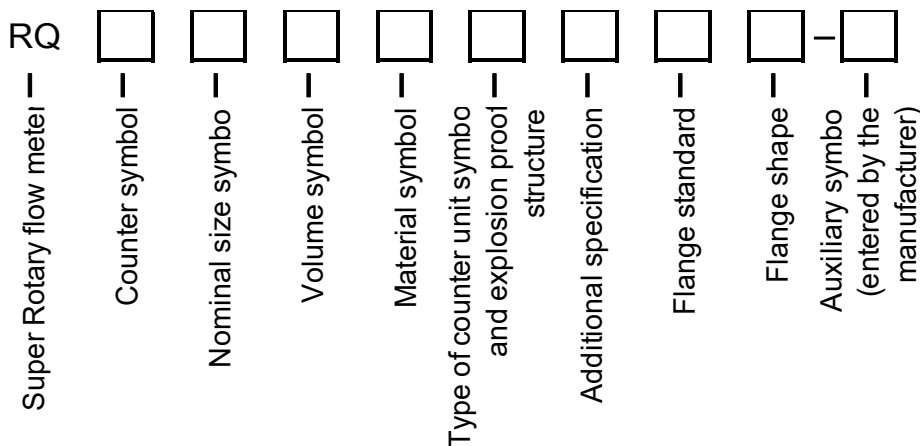
Note) 1. Size "A" with radiating fin for Single-stage: A1=A+113, Double-stage: A2=A+214, Explosion proof structure counting unit fin: M2 = A + 241.

2. Weight shown above is for material symbol S2.

3. When the material symbol is FF, the dimension of size "J2" is the dimension shown in 0.

4. Nominal size symbol & volume symbol 080B0, 100A0 is becomes the production only for materials symbol F2, D2, 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  | 3E                 |  | Electronic indication   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| Nominal size symbol<br>※1                                 | 025                |  | Nominal diameter : 25A  | ●  | ●  |    |    |    |    |    |    |     |
|   | 040                |  | Nominal diameter : 40A  |    |    | ●  | ●  |    |    |    |    |     |
|   | 050                |  | Nominal diameter : 50A  |    |    |    |    | ●  | ●  |    |    |     |
|   | 080                |  | Nominal diameter : 80A  |    |    |    |    |    |    | ●  | ●  |     |
|   | 100                |  | Nominal diameter : 100A   |    |    |    |    |    |    |    |    | ●   |
| 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   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| Type of counter unit symbol and explosion-proof structure | 12345              |  | Field counter type:<br>Non-explosion proof structure, no signal output, built-in battery.   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
|   | PA345              |  | Output type:<br>Non-explosion proof structure, with pulse / alarm / analog output, no battery.  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | PAX00              |  | Output type:<br>Explosion proof type, with pulse / alarm / analog output, no battery.   | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
| Additional specification<br>Radiating fin<br>Jacket ※1    | 0                  |  | No additional specifications.   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
|   | 1                  |  | Single-stage fin:<br>Non-explosion-proof structure with liquid temperature exceed 80 °C and 150 °C or less  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | 2                  |  | Double-stage fins:<br>Non-explosion-proof structure with liquid temperature exceed 150 °C and 200 °C or less  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | M                  |  | Double-stage fin for explosion proof counter: Explosion proof structure with liquid temperature exceed 60 °C and 120 °C or less<br>※ The upper limit of the liquid temperature for the flame proof structure is 120 °C. | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | J                  |  | Jacket type   | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | W                  |  | jacket with single or double stage fin  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
| 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  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | AS3                |  | ANSI class 300 (Material symbol : DB,DD,D2,S2 only be selected)   | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
| Flange shape  | F                  |  | FF flange   | ×  | ●  | ○  | ○  | ○  | ○  | ○  | ○  | ○   |
|   | R                  |  | RF flange   | ●  | ○  | ●  | ●  | ●  | ●  | ●  | ●  | ●   |
| Auxiliary symbol (entered by the manufacturer)            | A                  |  |   | ●  | ●  | ●  | ●  | ●  | ●  | ●  | ●  |     |

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

| Specification code        | Specification | Nominal size symbol & Volume symbol |    |    |    |    |    | Material symbol |    |    |    |    |    |    |    |   |
|---------------------------|---------------|-------------------------------------|----|----|----|----|----|-----------------|----|----|----|----|----|----|----|---|
|                           |               | 025B0~080A0                         |    |    |    |    |    | 080B0, 100A0    |    |    |    |    |    |    |    |   |
|                           |               | FB                                  | FF | F2 | DB | DD | D2 | S2              | FB | FF | F2 | DB | DD | D2 | S2 |   |
| Additional specifications | 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 given here are subject to change without notice.

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