Accessories

Orifice meter

SOM-15,20,25,32,40,50,65,80,100

It is installed in the middle of piping and measuring the flow rate inside the pipe simply by measuring the pressure between the two pressure detecting parts.

Feature

1. Structure is simple and robust
2. It is a low price.
3. It is lightweight and easy to install.
4. If installed in the gas line of the burner it is easy to check the combustion capacity. Therefore, it is convenient when there is no installation space of the gas meter or where it is not installed nearby, or when you want to measure newly installed in existing pipe.
5. If installed also in the air line, air ratio management can be easily done, and efficiency is improved even during trial run adjustment.
6. Although the installation becomes screwed piping, it is possible to remove the orifice plate because the main body is a bolt stopper matching flange shape.
7. When you want to have a pressure loss in piping and for high cut prevention of burner's input over, and for vibration prevention when burner head pressure is low.
8. When the number of burners is large, flow measurement of each burner is inexpensive and easy.

Main Usage

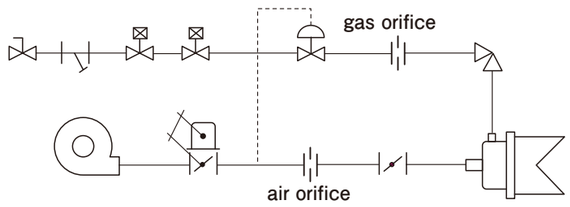
- Measurement of flow rate of gas and air.
- For limiting (upper limit resistance).

Option

In addition to the inspection tube (PSN: standard screw), the following types can be chosen for the pressure detection part.

- Stop valve with cap (SKV - 6P)
- Single-end screw cock with rubber cap (KT)
- High pressure specification ball cock (BT)

■ Example of using for equalization valve type system



parts used for BT

KT

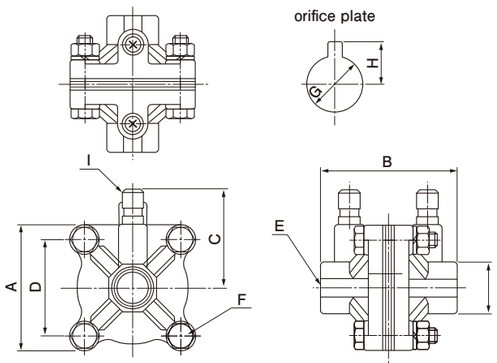
SKV-6P

Specifications

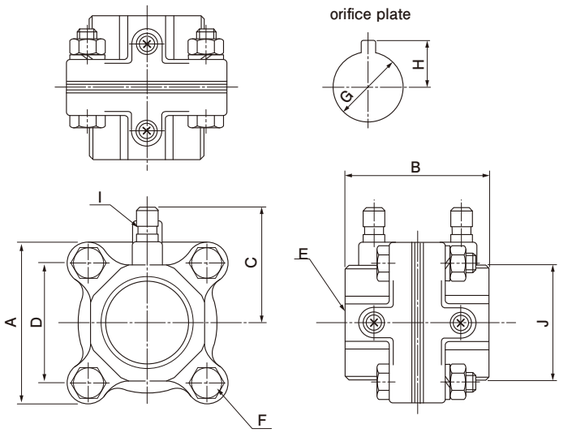
Orifice differential pressure	0.25～2.5kPa
Measurement target	Air, gaseous fuel(13A・6C・LPG)
Fluid pressure range	MAX.15kPa

Overall size

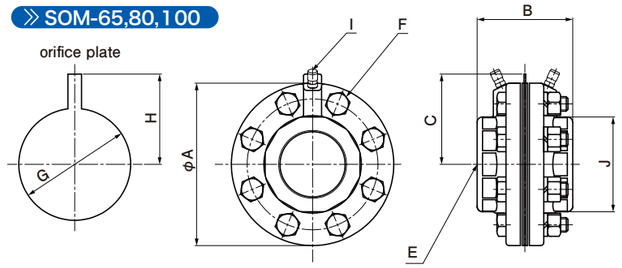
» SOM-15,20,25



» SOM-32,40,50



» SOM-65,80,100



Model		SOM-15	SOM-20	SOM-25	SOM-32	SOM-40	SOM-50	SOM-65	SOM-80	SOM-100
Overall size (mm)	A	66	66	66	84	84	98	180	180	200
	B	71	71	71	76	76	81	106	106	126
	C	56	56	56	64	64	72	100	100	110
	D	50	50	50	62	62	74	145	145	170
Connecting size(Rc)	E	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Mounting bolt	F	M8-35×4	M8-35×4	M8-35×4	M10-45×4	M10-45×4	M12-50×4	M16-65×8	M16-65×8	M16-75×8
Orifice plate size(mm)	G(ϕ)	58	58	58	73	73	90	124	124	140
	H	44	44	44	53	53	60	100	100	110
Inspection tube part(Rc)	I	1/8								
Connection part outline(mm)	J	27	33	40	61	61	75	108	108	138
Orifice plate thickness(mm)		1.0								
Packing thickness(mm)		2.0								

Selection and usage

Selection conditions

First of all, please check about the following items.

procedure

1. piping size ——— [ ] Inch pipe(inside diameter= [ ] mmϕ)
2. Fluid and temperature to be measured ——— [ ] [ ] ℃
3. Flow rate to be measured ——— [ ] m³/h MIN～ [ ] m³/hMAX
4. Hope of measuring differential pressure at that time —— (P_1-P_2) = [ ] kPa
5. Acceptable range of pressure loss ——— ΔP = [ ] kPa

Check the above, please let us know in our company.

Installation method and cautions

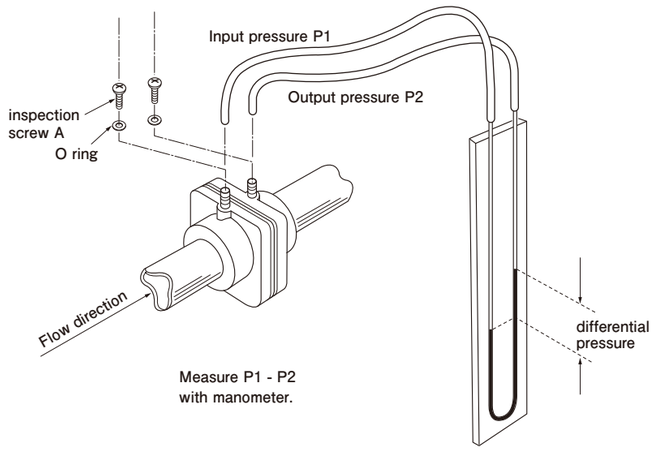
- The piping setting position of the orifice meter is a straight pipe part, and it is preferable to take a straight pipe length of 10D or more on the inlet side and 5D or more on the outlet side with respect to the pipe inner diameter Dϕ.
- The most accurate measurement can be done in the horizontal direction, but it is considered to be within the measurement error even in the vertical direction.
- When there is a bend such as elbow in front and behind of the orifice meter (the flow coefficient increases) the measured flow rate tends to increase.
- Match the hole center of the orifice plate with the axis center of the pipe as much as possible. If it is eccentric, turbulence will occur, making correct measurement impossible.
- Since the orifice meter originally causes loss of pressure, please give allowance for piping diameter beforehand.
- When disassembling the piping flanges and piping them and assembling them later, pay attention so that the joining faces are aligned in parallel, so that there is no distortion due to twisting.

Measuring method

- When measuring the differential pressure, set the manometer (underwater meter) to ""vertical"", pay attention to breakage of the hose and read the scale on the correct eye position (horizontal to the liquid level).

Measurement procedure

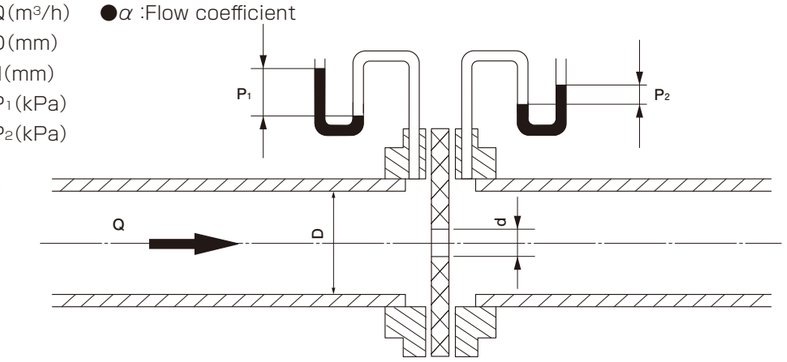
1. If possible, stop the piping flow temporarily.
2. Remove the inspection screw Ⓐ.
   (Open in case of cock after hose is inserted)
3. Insert the hose of the manometer.
4. Measure differential pressure.



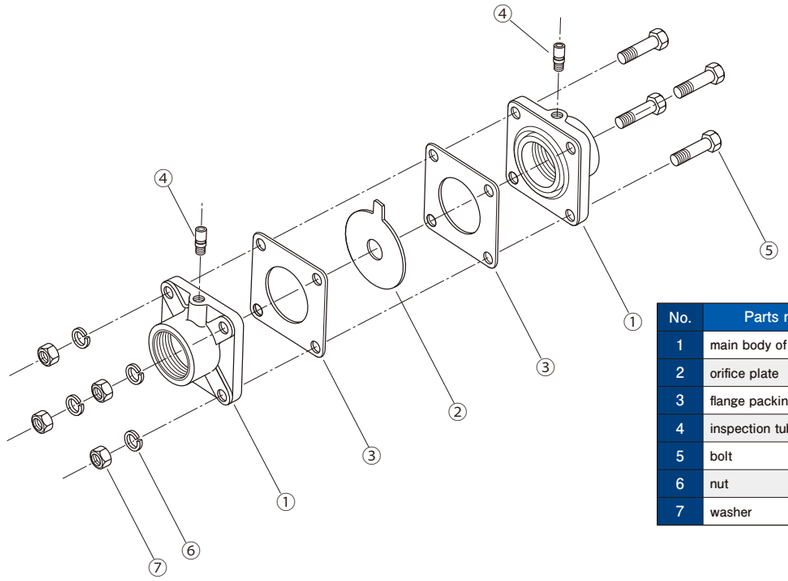
Method of calculating flow rate by orifice meter

- flow rate :Q(m³/h)
- piping diameter :D(mm)
- orifice diameter :d(mm)
- Orifice primary pressure :P_1(kPa)
- orifice secondary pressure :P_2(kPa)
- α :Flow coefficient

(Calculated based on the above. Please contact our technical department for details)



Part names



No.	Parts name	Q'ty	Material and special mention
1	main body of orifice meter	2	FCD450,FC250
2	orifice plate	1	SUS304,1.0t
3	flange packing	2	Non asbestos
4	inspection tube	2	Brass (plating)
5	bolt	4	Iron (plating)
6	nut	4	Iron (plating)
7	washer	4	Iron (plating)

Maintenance and attention

- Check the adhesion of rust and dirt to the orifice hole, always wipe the orifice hole to prevent change in hole shape.
- Handle the orifice plate carefully. Damage or distortion caused by excessive force or heat will result in a significant reduction in measurement accuracy.
- The inspection tube has optional rubber cap and cock with stop valve (SKV-6P) etc.
- Also be careful not to damage the flange packing when inserting or removing the orifice plate or setting it. Also, if you discover that it is damaged, please exchange it promptly with a new one. There is a danger of fluid leak.
- Do not over tighten the replacement of the pressure tapping screws, be sure to use the tape·sealant.
- After measurement, be sure to close the screw of the inspection tap.