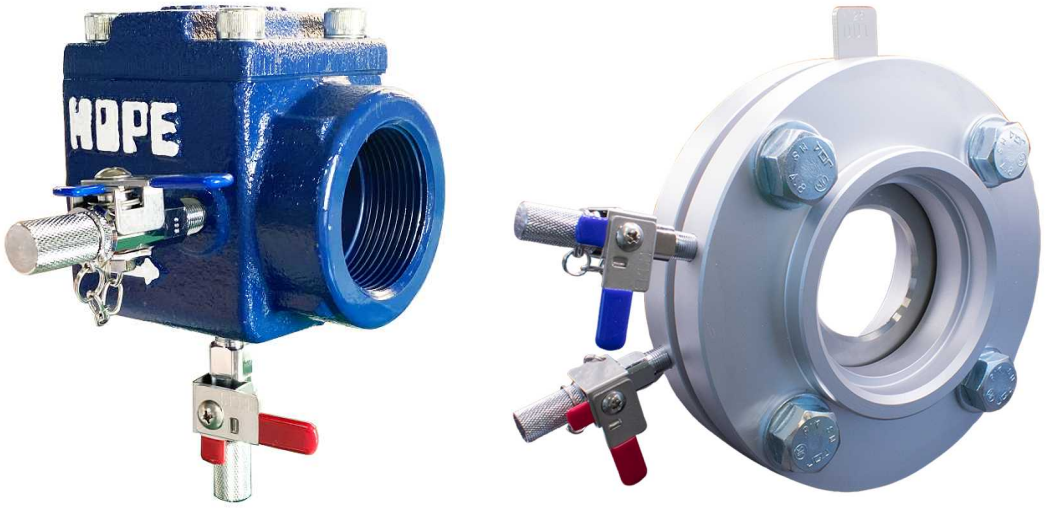
HA75047E

HOPE MO

ORIFICE FLOW METER

HANDLING MANUALS



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1) Confirmation, Overview and Specifications

Thank you very much for purchasing our Hope MO type Orifice Flowmeter. In order for you to be satisfied with the high performance of this product, ensure the safety and understand how to check and maintain this product, please read this instruction manual carefully.
Please deliver this instruction manual not only to the construction worker but also to the end user.

■ Confirmation upon purchase

Please check whether the product you have purchased is exactly what you have ordered. Also, please check for any damage caused to the product due to transportation.

■ Outline

Hope MO Type Orifice Flow Meter is suitable for the measurement of the flow rate of air and fuel gas. This product is available on standard as screwed type in sizes 15A through 50A and as flange type in sizes 15A through 400A. Several types of orifice plates are available for each size. The flange type is also available in non-standard sizes to order.

■ How to Operate

1. Differential pressure is measured with the attached P-Tap (manometric tap) by using a manometer or the like. For the information of how to use the P-Tap, refer to the attached operation manual of the P-Tap.
2. Obtain the flow rate by checking the measured differential pressure with the plate No. given in the attached flow characteristic table.
3. Multiply the flow rate by the correction coefficient according to the type of fluid as shown in the flow characteristic table to obtain the true flow rate.
4. Limit the operating temperature of fluid to 50℃ or less. (However, the flange type can be used at the operating temperature of fluid up to 500℃.)
5. Limit the pressure to 20kPa or less.

■ Cautions for Use

1. Provide a straight tube portion of the length equivalent to 6 times or more as much as the diameter before and behind the orifice, respectively.
2. If the measured value of the differential pressure gauge is 0.1kPa or less, do not measure the flow rate.
3. Attach the fluid inlet and outlet as per the arrows on the main body or the indications of IN and OUT on the orifice plate.
4. When replacing the screwed type orifice plate, be careful not to allow the orifice packing and the orifice plate to displace from each other. Also, be sure to replace the orifice plate No. indicating plate together.
5. When welding the flange type orifice, please remove a flange.
6. When replacing the flange type orifice plate, confirm the indications of IN and OUT marked on the orifice plate of the main body.

2) Matters to be attended for safety

Before installing, trial- operating, maintaining or inspecting this burner, please learn the inside of this burner, information of safety and other matless to be attended by reading this instruction manual and all of attached documents.
The rank of the matters .to be attended is classified to "Top danger"
"Danger "and "Caution" in this instruction manual.

In case of wrong operating, it is predicted that serious dangerous situation will happen and the operator or other people.
May die or may be seriously injured.

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NOTE, Even the matters classified to CAUTION have a possibility of causing serious results. Then, never fail to abide by matters described.

Meaning of the mark		Example
 Compulsion	This symbol indicates the contents that force or direct an action. Specific contents of such action are given nearby.	 Be sure to do!
 Prohibition	This symbol indicates the contents that prohibit an action. Specific contents of such action are given nearby.	 Don't touch!
 Precaution	This symbol indicates the contents that call attention. Specific contents of such attention calling are given nearby.	 Be careful. It's hot!

3) Read without fail

TOP DANGER

Be sure to do!

Never foil to exhaust the air in the furnace (pre-purge) before igniting. Repeated ignitions may cause explosion due to the gas stagnated in the furnace, please install safety devices like a flame supper visor.

DANGER

Electric-shock Caution

Never fail to cut the electricity of transformer when you take off the ignition plug in order to check the spark of it.

Prohibited

Never fail to take off the site-hole when igniting or on-fire the burner.
※flame in the furnace may blow out.

CAUTION

Don't touch!

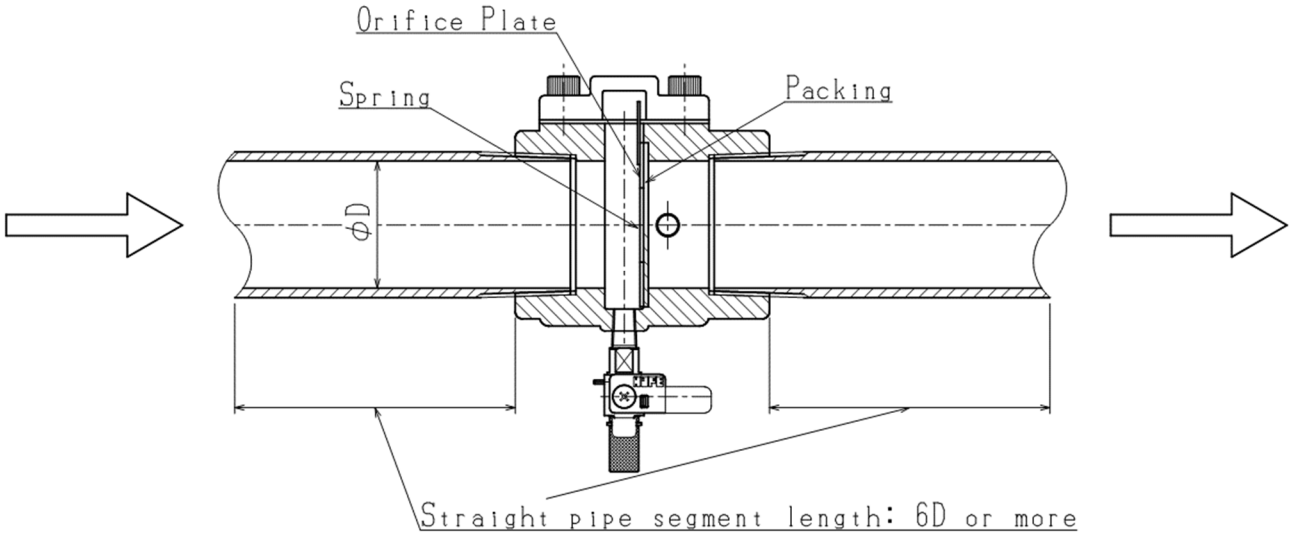
Never touch the mounting plate of the burner and fitting parts of the burner, Ceramic-tube-base, Air-body.
These area are high temperature when the burner is burning.

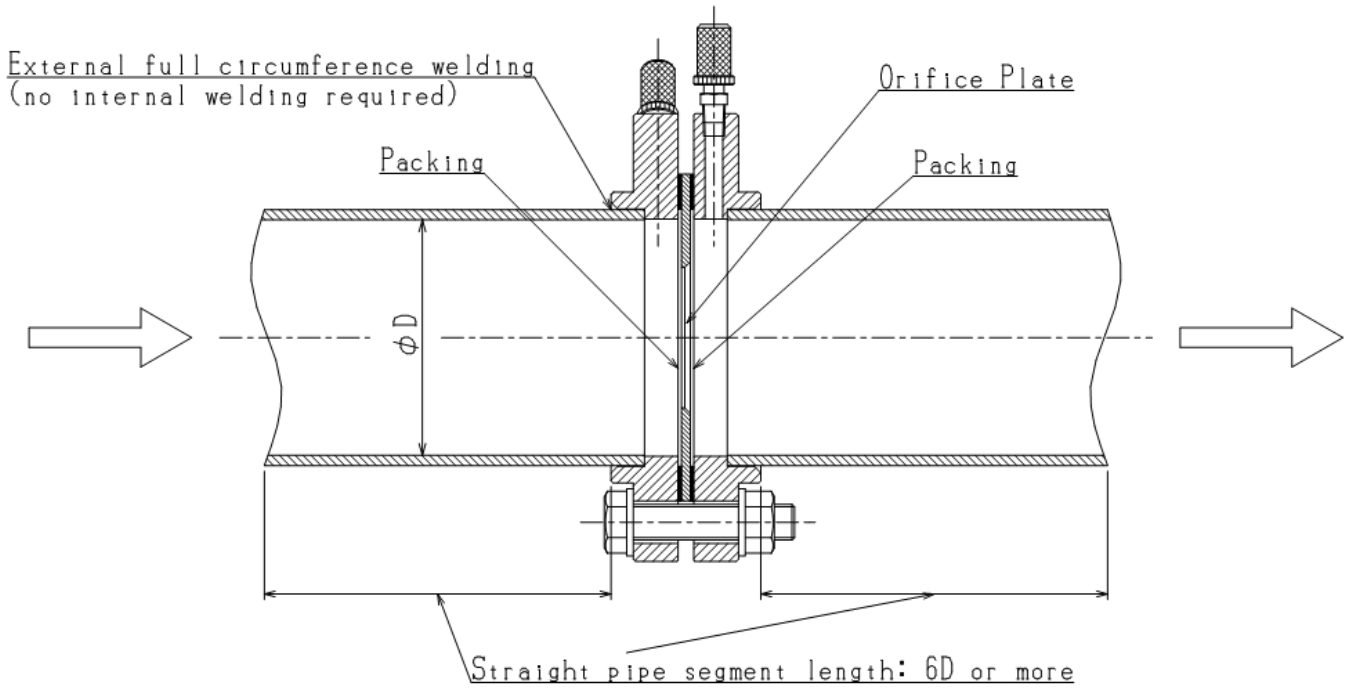
Packings

1. Do not use the attached gasket for sealing this burner.
2. Put the replaced old gaskets pouch and there away them according to the waste disposal regulation or the waste cleaning regulation. Never burn up them.

4) MO piping method

●For both the screw type and the flange type, provide the straight pipe segment with the length of 6 times or more as much as its inside diameter before and behind the orifice, respectively, as shown below.



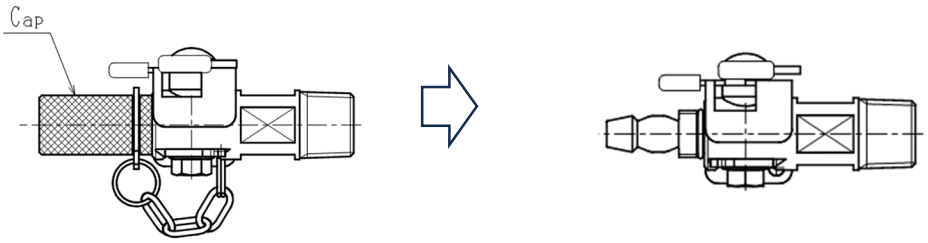


※After completing the piping work, be sure to check that there is no misalignment of the internal orifice plate.

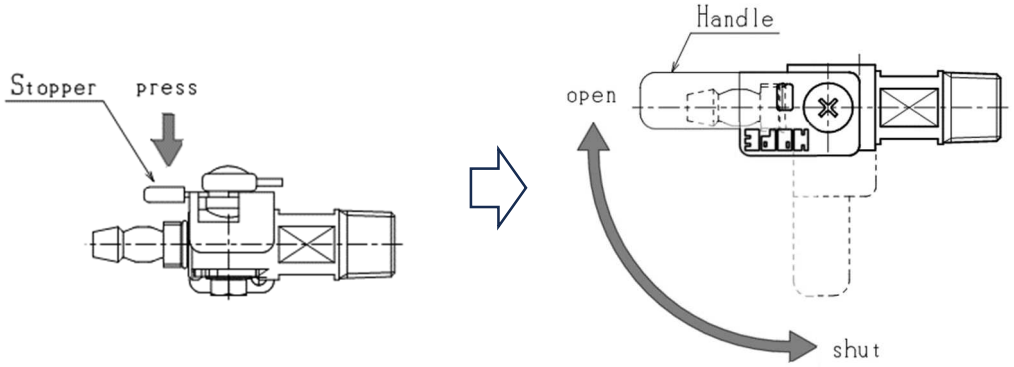
5) Operation Manual for P-Tap (Manometric Tap)

[Instructions for use]

- When measuring pressure
  - ① Remove the cap by turning it counterclockwise.



  - ② Insert the rubber tube for pressure measurement into the hose end.
  - ③ Press the stopper and turn the handle in the opening direction.

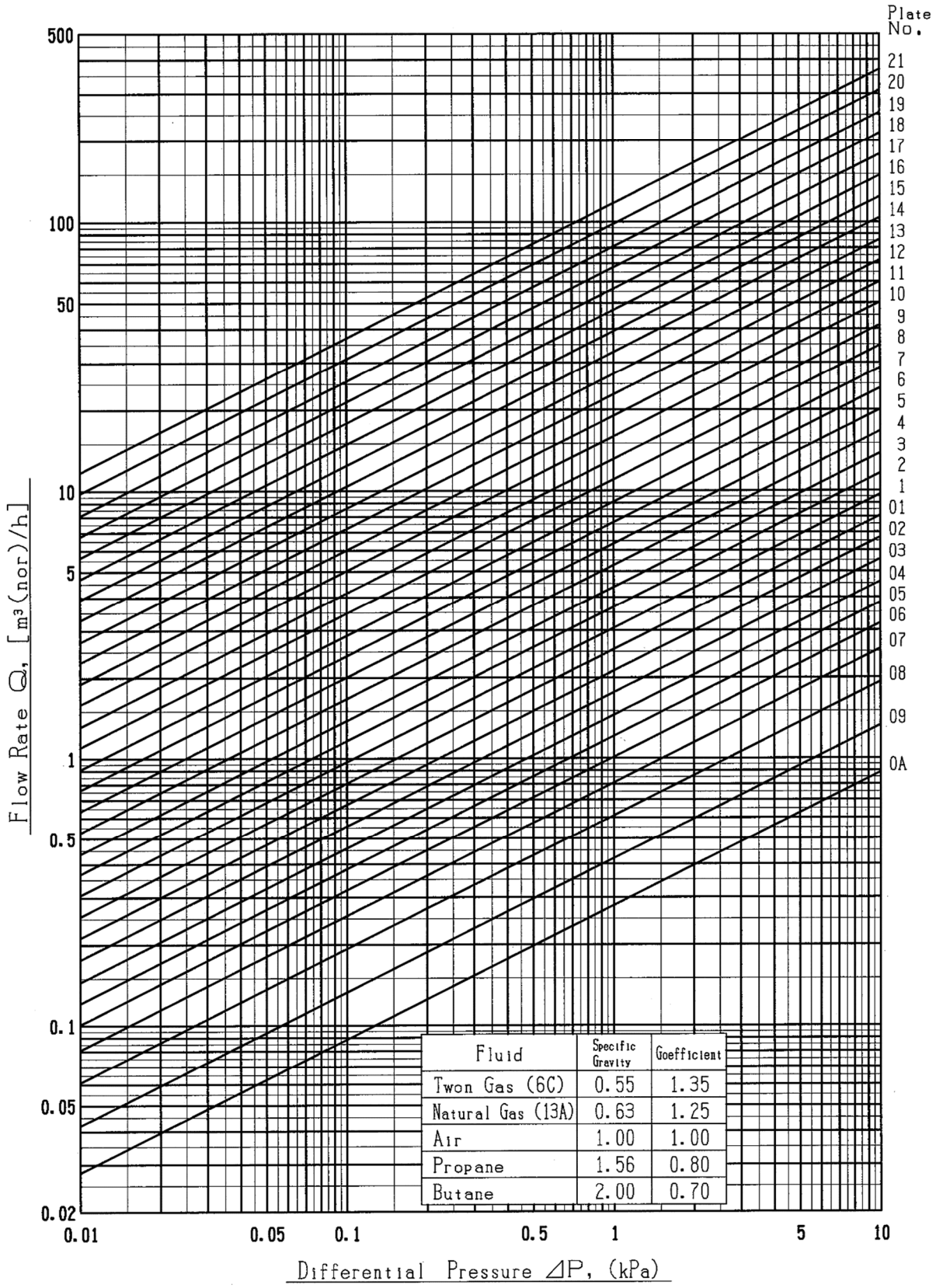


- At the end of measurement
  - ① Turn the handle in the closed direction. (No need to press the stopper)
  - ② Remove the rubber tube from the hose end.
  - ③ Put the cap on and turn it clockwise.

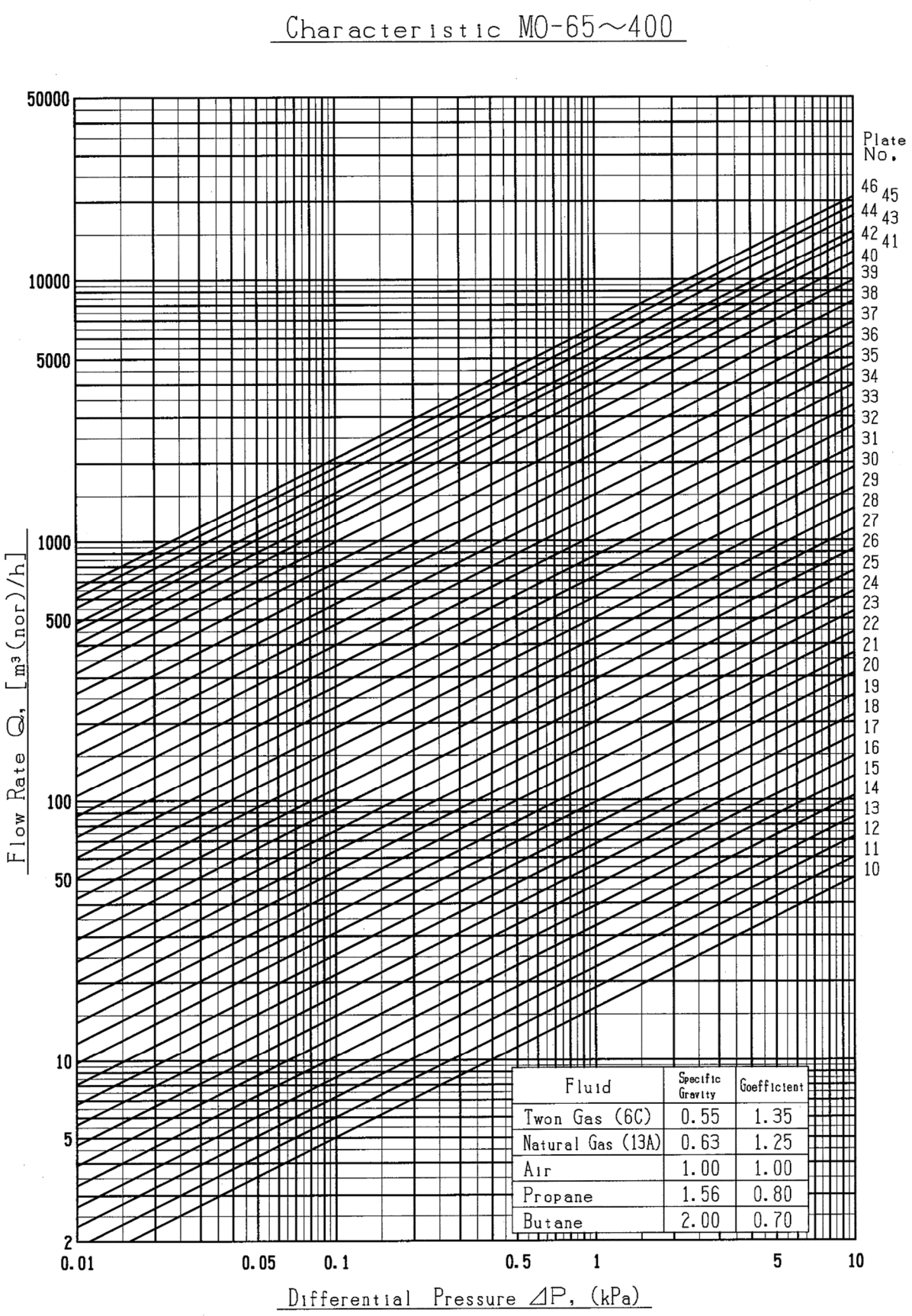
6) Type of matching Orifice Plate

Piping shape		Type	Plate NO.
Screwed Type	Flange Type	MO-15	0 A～8
		MO-20	0 8～1 1
		MO-25	0 8～1 4
		MO-32	0 6～1 7
		MO-40	0 5～1 8
		MO-50	0 2～2 1
		MO-65	1 0～2 4
		MO-80	1 0～2 6
		MO-100	1 2～2 9
		MO-125	1 3～3 1
		MO-150	1 4～3 3
		MO-200	1 6～3 6
		MO-250	1 7～3 8
		MO-300	1 8～4 1
		MO-350	1 9～4 3
		MO-400	2 1～4 6

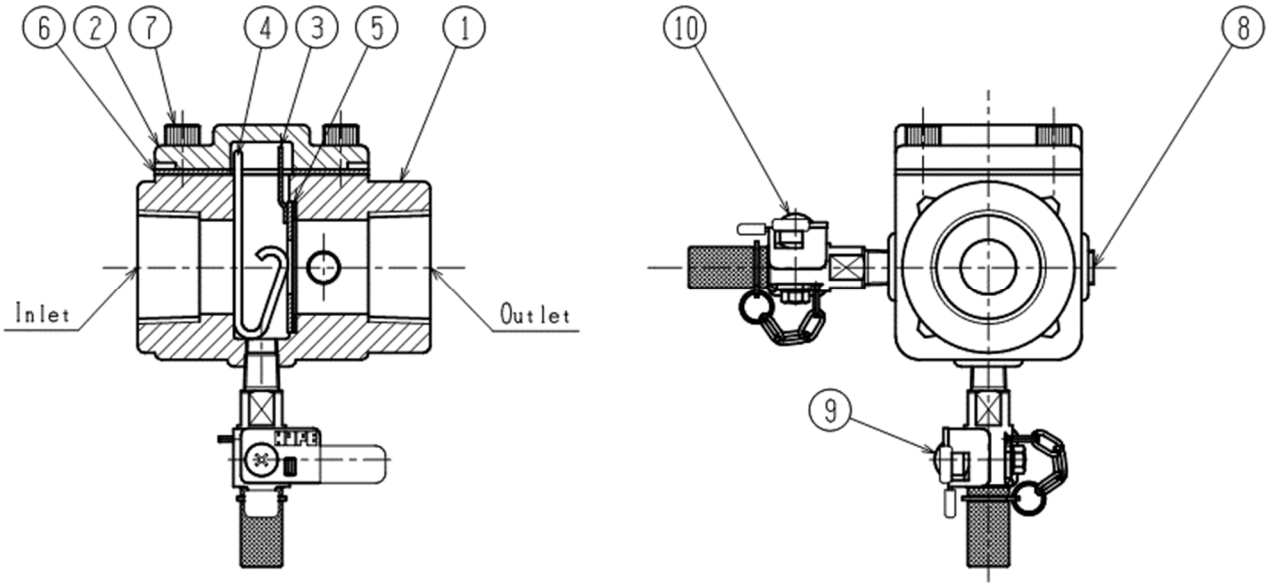
7) Characteristic (MO-15～50)



8) Characteristic (MO-65～400)

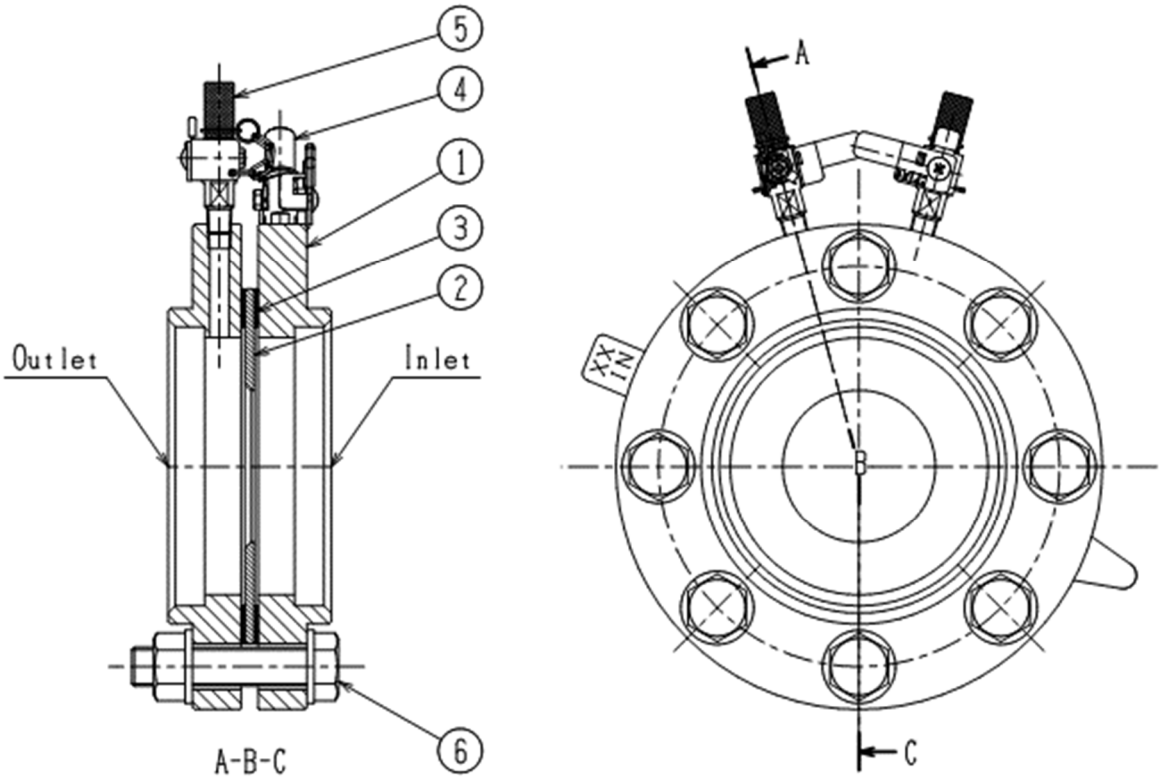


9) Structural Drawing (Screwed Type MO-15～50)



NO.	Parts	Quan.	Note
1	Orifice Body	1	
2	Cover	1	
3	Orifice Plate	1	
4	Spring	1	
5	Orifice Packing	1	
6	Cover Packing	1	
7	Hexagon Bolt	4	
8	Plug	1	
9	P-tap 6 A	1	Color cap (RED)
10	P-tap 6 A	1	Color cap (BLUE)

10) Structural Drawing (Flange Type MO-15～400)



NO.	Parts	Quan.	Note
1	Orifice Flange	2	
2	Orifice Plate	1	
3	Packing	2	
4	P-tap 6 A	1	Color cap (RED)
5	P-tap 6 A	1	Color cap (BLUE)
6	Hexagon Bolt	1	