



TECHNICAL GUIDANCE

BEST COST EFFECTIVE FLOW MEASUREMENT
EVEN FOR LARGE SIZE LINES

O-100 series

GLASS TUBE TYPE ORIFLO METER

GENERAL

O-100 series ORIFLO METER is a flow meter consisting of an orifice plate and a GLASS TUBE type variable area flow meter. Since the flow rate is measured with a "small sized" flow meter set to a bypass piping, the flow measurement even for "large sized" lines can be economically conducted. In addition to the local indication type, alarm contact version is also available.

STANDARD SPECIFICATION

Detection type : Bypass orifice type
 Measuring of fluid : Liquids (Viscosity : up to 3cP)
 and Gases
 (Not suitable for slurry and steam)

Available tapping and sizes :

- 1) 1D • 1/2D tap (O-1□□ - □P)
100mm (4") ~ 500mm (20")
- 2) Corner tap (with orifice ring) (O-1□□ - □C)
50mm (2") ~ 500mm (20")
- 3) Flange tap (O-1□□ - □F)
50mm (2") ~ 500mm (20")
- 4) Vena tap (O-1□□ - □V)
200mm (8") ~ 500mm (20")

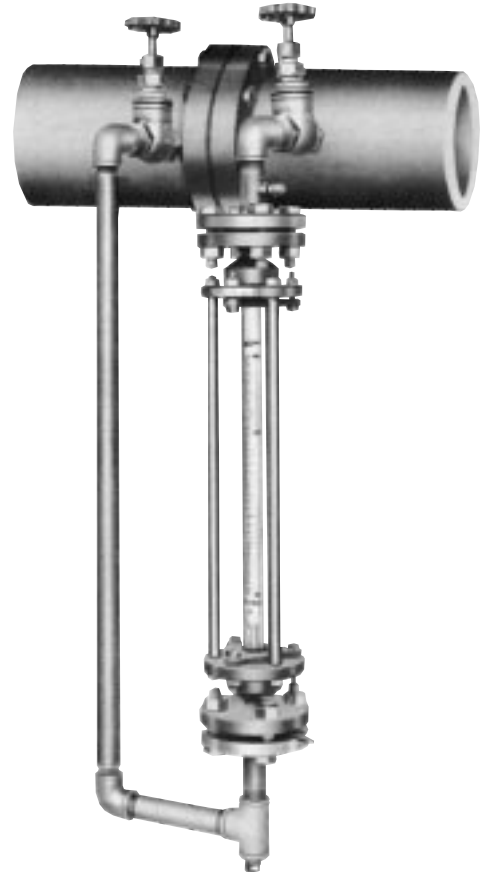
Note : 550mm (22") or more can be supplied on request.

Temperature of liquid : Max. 120 C
 Allowable thermal shock : 80 C
 Maximum operating pressure : 10kgf/cm² G
 (0.98MPa)

Maximum Dp :

For liquids : 1000*¹, 2000, 2500, 3000, or 5000mmH₂O
 For gases : 500*³, 1000*³, 1500*³, or 3000*³mmH₂O

Accuracy : ±3% (F.S.)



Range ability :

Maximum DP (mmH ₂ O)	500	1000	1500	2000	2500	3000
Liquids	—	10:2.5* ¹	10:2* ¹	10:2.5	10:2.2	10:2* ²
Gases	10:2.5* ³	10:2* ³	10:1.5* ³	—	—	—

* 1 : PVC or Teflon is used for float.

* 2 : 10 : 1.5 is possible by using PVC or Teflon float.

* 3 : PVC or Teflon aluminium is used for float.

Paint color : Munsell 7.5BG4/1.5 (only indicator painted)

Function :

O-10 □ - □□ Local indication only

O-75 □ - □□ Local indication with alarm contact

Material : Refer to ■ MATERIAL AND SCOPE OF SUPPLY for details.

MODEL CODE

MODEL CODE					DESCRIPTION
O-					
FUNCTION	10				LOCAL INDICATION ONLY
	75				LOCAL INDICATION WITH ALARM CONTACT
FLOW DIRECTION OF MAIN PIPE	1	-			BOTTOM TO TOP
	6	-			LEFT TO RIGHT (Horizontal)
	7	-			RIGHT TO LEFT (Horizontal)
	8	-			TOP TO BOTTOM
POSITION OF INDICATOR		A			ABOVE MAIN PIPE
		B			BELOW MAIN PIPE
TYPE OF TAPPING*1		P			1D • 1/2D TAP
		C			CORNER TAP (With orifice ring)*2
		F			FLANGE TAP*3
		V			VENA TAP

- * 1 : Available sizes for types of tapping is to be referred to ■ STANDARD SPECIFICATIONS.
- * 2 : Orifice ring is included in scope of supply as standard.
- * 3 : Orifice flanges are customers' scope of supply unless otherwise specified.

POSSIBLE SCALE RANGES FOR LINE SIZES

□ FOR LIQUID APPLICATIONS

LINE SIZE		POSSIBLE SCALE RANGE m³/h (Water)					
mm	inch	DP 1000mmAq	1500mmAq	2000mmAq	2500mmAq	3000mmAq	5000mmAq
50	2	1.8-15	2-18	2.4-20	2.6-23	3-25	4-30
65	2½	3.5-24	4-30	5-35	5.2-38	6-40	8-50
80	3	4.2-32	5-40	6-45	6.5-50	7-55	10-70
100	4	7-55	8-70	9-80	10-90	12-100	15-120
125	5	12-80	15-100	18-120	20-130	22-140	30-180
150	6	16-120	20-150	25-180	26-190	30-210	40-250
200	8	35-200	40-250	50-280	55-320	60-350	80-450
250	10	50-300	60-400	70-450	80-500	85-550	100-700
300	12	65-450	80-550	90-650	100-700	120-800	140-1000
350	14	85-550	100-700	120-800	130-900	140-1000	180-1300
400	16	120-700	150-900	180-1100	200-1200	220-1300	250-1600
450	18	160-1000	200-1200	240-1400	260-1500	280-1700	350-2200
500	20	350-1200	400-1500	500-1700	520-1900	560-2100	700-2600

□ FOR GAS APPLICATIONS

LINE SIZE		POSSIBLE SCALE RANGE m³/h (Air, 0°C, 1atm)			
mm	inch	DP 500mmAq	1000mmAq	1500mmAq	3000mmAq
50	2	25-280	35-390	42-470	60-650
65	2½	45-450	64-640	76-760	110-1050
80	3	60-640	85-900	100-1100	150-1500
100	4	100-1100	140-1500	170-1800	250-2500
125	5	150-1700	220-2300	270-2800	370-3800
150	6	210-2400	300-3300	360-4000	500-5500
200	8	380-4000	500-5500	600-6500	850-9000
250	10	550-6400	800-8800	1000-10000	1400-14000
300	12	900-9000	1200-12000	1500-15000	2000-20000
350	14	1100-11000	1500-15000	1800-18000	2500-25000
400	16	1500-15000	2000-20000	2400-24000	3400-33000
450	18	1800-19000	2600-26000	3000-30000	4500-43000
500	20	2200-23000	3200-33000	4000-40000	5500-55000

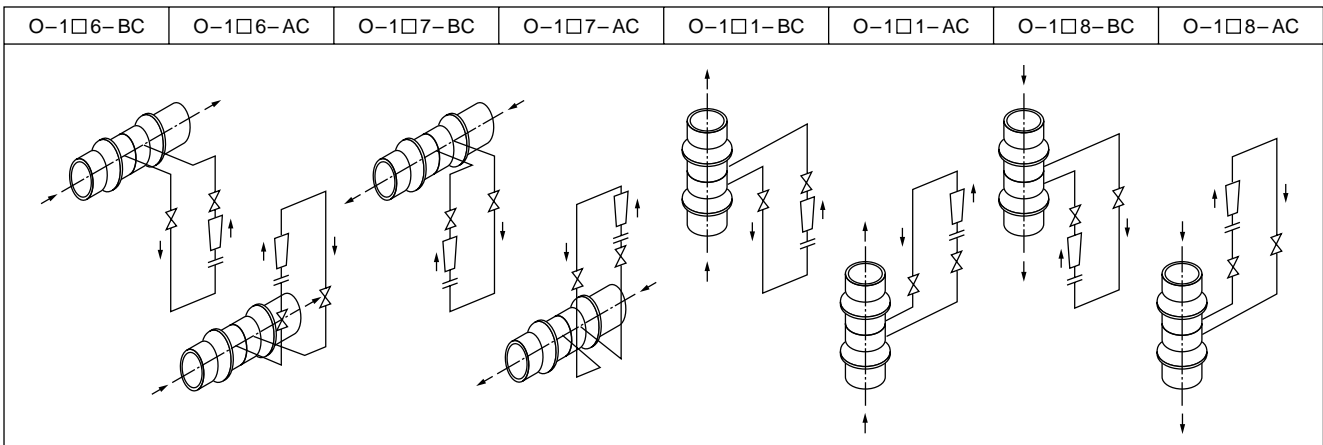
The full scale of flowmeter can be specified in the above mentioned POSSIBLE SCALE RANGE.

NOTE

- 1 : Above table are based on the fact that the material of main pipe is SGP (Standard carbon steel pipes). In case the diameter of piping is different from that of SGP, multiply ;

$$\left\{ \frac{\text{Actual pipe diameter}}{\text{SGP diameter}} \right\}^2$$
 to above figures.
- 2 : Above table is applicable for measurement of Water (Sp. Gr.1.0, Viscosity 1.0cP).

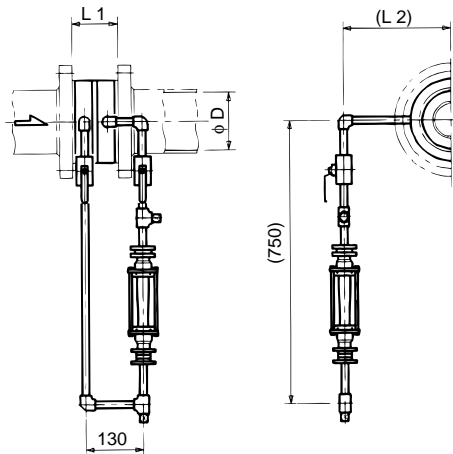
FLOW DIRECTION AND BYPASS PIPING



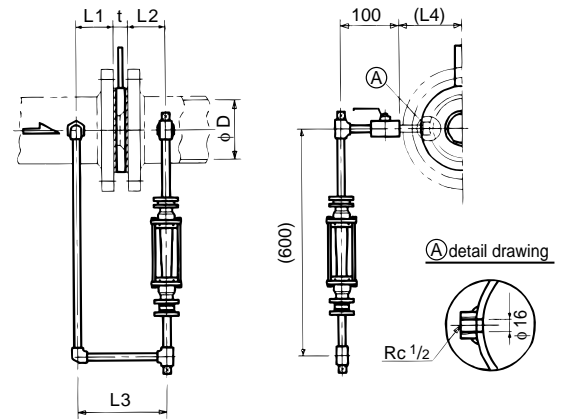
O-1 □ □ - □ C

STANDARD SIZES OF BYPASS PIPING

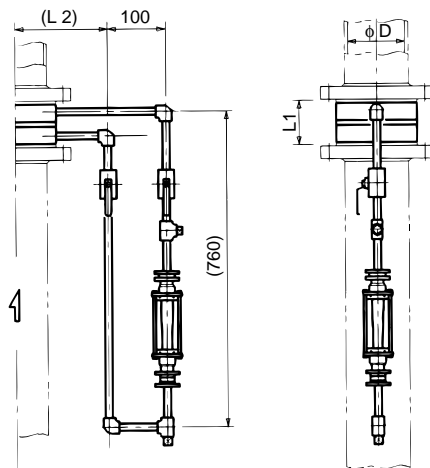
(1) CORNER TAP (With orifice ring)
 □ HORIZONTAL PIPING



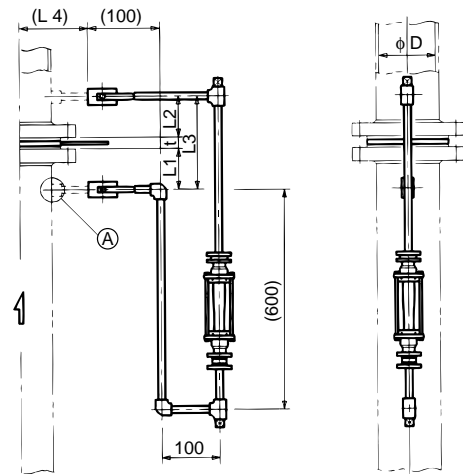
(2) 1D • 1/2D TAP
 □ HORIZONTAL PIPING



□ VERTICAL PIPING (BOTTOM TO TOP)



□ VERTICAL PIPING (BOTTOM TO TOP)



LINE SIZE		L1	L2
50mm	2"	68	125
65mm	2 1/2"	68	135
80mm	3"	68	140
100mm	4"	71	150
125mm	5"	71	165
150mm	6"	71	180
200mm	8"	71	205
250mm	10"	71	245
300mm	12"	71	265
350mm	14"	71	290
400mm	16"	71	325
450mm	18"	71	355
500mm	20"	71	380

LINE SIZE		L1	L2	t	L3	L4
50mm	2"	/	/	/	/	/
65mm	2 1/2"	/	/	/	/	/
80mm	3"	/	/	/	/	/
100mm	4"	102	47	9	158	110
125mm	5"	128	59	9	196	130
150mm	6"	152	71	10	233	150
200mm	8"	202	95	10	307	170
250mm	10"	251	119	11	381	210
300mm	12"	302	144	11	457	230
350mm	14"	337	162	11	510	250
400mm	16"	388	186	12	586	280
450mm	18"	438	212	12	662	310
500mm	20"	489	237	12	738	350

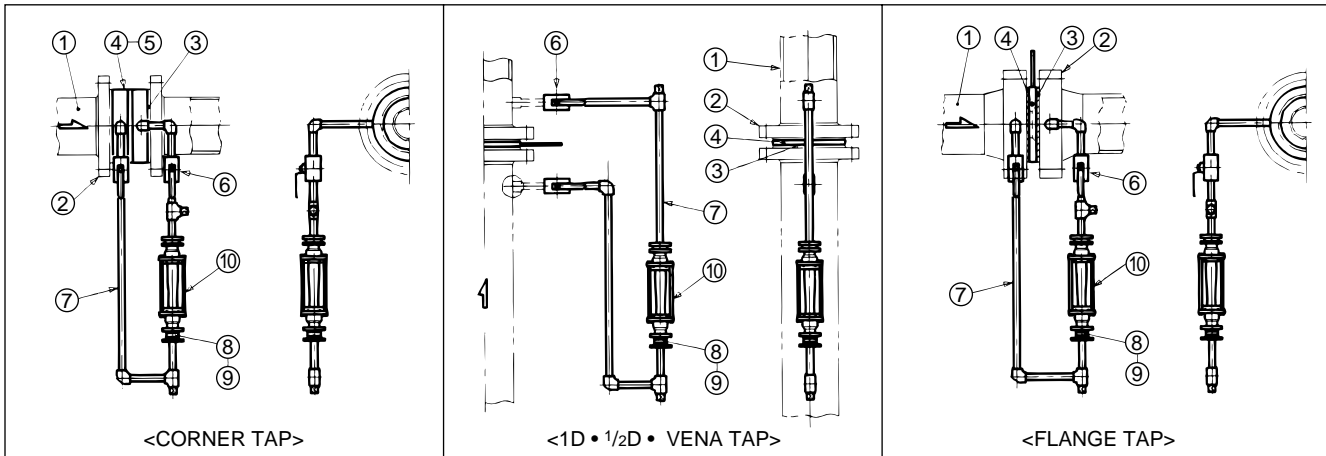
L1 includes thickness of gaskets.
 50mm~80mm ; t1.5 x 2pcs
 100mm and above ; t3 x 2pcs

L1 includes thickness of gaskets. t3 x 2pcs
 L1 and L2 are for SGP piping.
 For other piping material;
 L1=1D - 3, L2=1/2D - (t-3) : D=Pipe diameter

SUGGESTIONS FOR INSTALLATION

1. Straight runs both for up and down stream are required for accurate measurement. Refer to instruction manual for details.
2. Since the pressure loss within the bypass pipe is precalculated, do a specified bypass piping in accordance with the related approval drawing.
3. If you need bypass pipes of which sizes are different from those of standard ones due to a piping design in your factory, please contact us.

MATERIAL AND SCOPE OF SUPPLY



No.	DESCRIPTION	MATERIAL		
		Class 1	Class 2	Class 3
①	MAIN PIPE	Customer's supply		
②	ORIFICE FLANGE	Customer's supply (Optionally available)		
③	FLANGE GASKET	Customer's supply (Optionally available)		
④	MAIN ORIFICE	SUS 304	SUS 304	SUS 316
⑤	ORIFICE RING	SS 400	SUS 304	SUS 316
⑥	BALL VALVE	BsBFE 2	SCS 13A	SCS 14A
⑦	BYPASS PIPING	SGP or STPG	SUS 304	SUS 316
⑧	BYPASS ORIFICE	SUS 304	SUS 304	SUS 316
⑨	GASKET	For Liquids : Non Asbestos, For Gas : NBR or VITON		
⑩	INDICATOR	SCS13/SS 400	SCS13/SUS 304	SCS14/SUS 316

* Gaskets between Main pipe orifice (or Orifice ring) and piping flanges as well as bolts and nuts for installation are customer's scope of supply unless otherwise specified.

ORDERING INFORMATION

MODEL	O-10□-□□	O-75□-□□	
FLUID NAME			
DENSITY			
VISCOSITY			
PRESSURE			
TEMPERATURE			
SCALE RANGE			
MATERIAL CLASS	<input type="checkbox"/> CLASS 1 <input type="checkbox"/> CLASS 2 <input type="checkbox"/> CLASS 3 <input type="checkbox"/> Special ()		
MAIN PIPE	NOMINAL SIZE	_____ mm	
	MATERIAL	<input type="checkbox"/> SGP <input type="checkbox"/> STPG,STPT sch No. _____ <input type="checkbox"/> Stainless Steel Pipe sch No. _____ <input type="checkbox"/> Lining Pipe (ID _____ mm) <input type="checkbox"/> Others (OD _____ mm, ID _____ mm) <input type="checkbox"/> PVC (<input type="checkbox"/> VP <input type="checkbox"/> VU) <input type="checkbox"/> STPY (t _____ mm)	
		FOR O-75□-□□	Type of alarm <input type="checkbox"/> High <input type="checkbox"/> Low
		(ALARM VERSION)	Setting point _____

* Specification subject to change without notice

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