DAEHAN
PITOT TUBE

DAEHAN INSTRUMENT company worked hard to make a new PITOT TUBE that is solved a many problems in the existing PITOT TUBE such as low pressure drop, require for accuracy of installed location, difficulty of average velocity measurement in pipe.

We has technical help from the korea institute of industrial technology for the six months since 1994. and we succeeded in the development of a new PITOT TUBE.

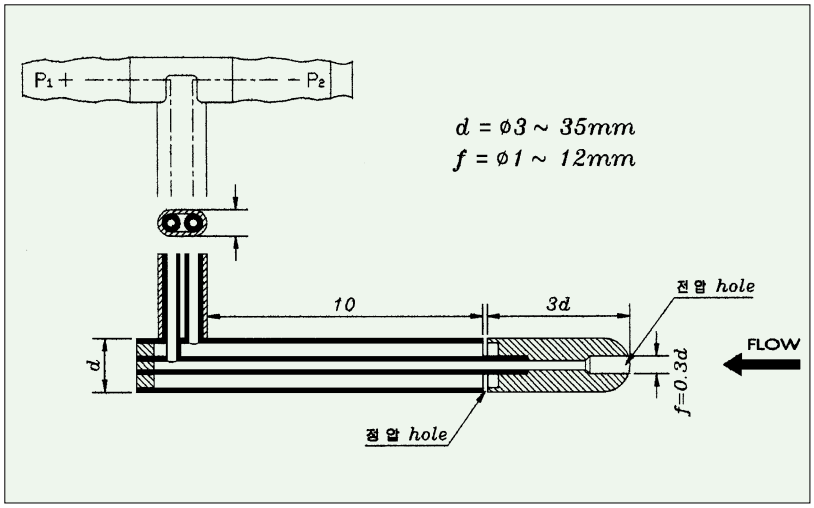
1. History of PITOT TUBE

Pitot tube was invented by Henri Pitot in france(1730). and are used to measure aboard aircraft in flight, propulsive speed of ship.

2. Feature of general Pitot tube

(advantage)
- Simple structure.
- Regardless of a diameter in pipe.
- Measurement of velocity at the relatively small area.

(defect)
- low pressure drop.
- require for accuracy of a installed location and a situation.
- difficulty of average velocity measurement in pipe.



3. Measurement of flux

Velocity of incompressible fluid is solved by Bernoulli Equation.

$$Q = A.V = A.\sqrt{2g\frac{P_1-P_2}{r}} \quad \cdots\cdots \text{equation (1)}$$

P1 : total pressure, V : velocity
P2 : static pressure, A : area in pine,
r : specific gravity

Actually. velocity of incompressible fluid is solved by application of velocity and pressure parameter which are obtained to experimental data.

$$Q = A.V = A.C\sqrt{2g\frac{P_1-P_2}{r}} \quad \cdots\cdots \text{equation (2)}$$

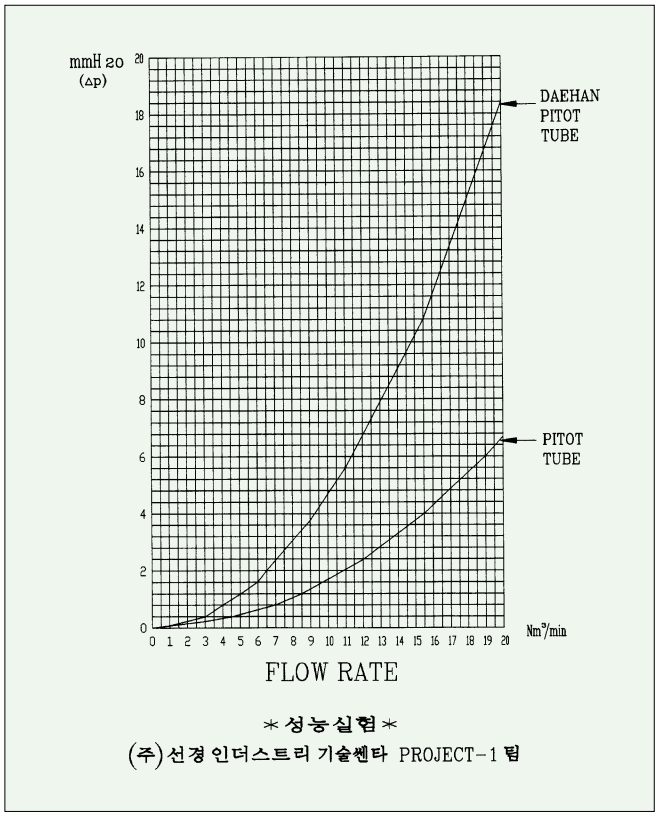
4. Feature of DAEHAN INSTRUMENT CO., LTD. Pitot tube

1) Easily measurement of the flux.
- The value of pressure drop is detected about 2~3 times larger than the existing one.

2) Superior efficiency.
- The pressure drop are observed at 4~8 point in the inner pipe.

n \ ri/R	r1	r2	r3	r4	r5
2	0.5	0.866			
3	0.408	0.707	0.912		
4	0.354	0.612	0.790	0.936	

Figure 2 show Velocity Profile



Toble 1, For formance test of test of DAEHAN PITOT TUBE vs, PITOT TUB

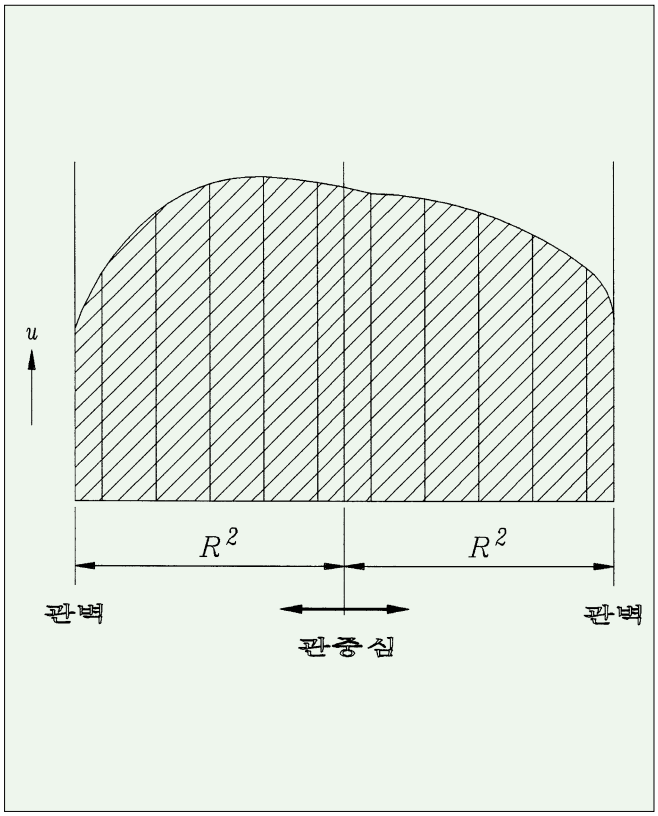


Figure 2, Velocity Profile

3) Retrenchment of energy.
- This products are 5~8% better as compared with the orifice meter.

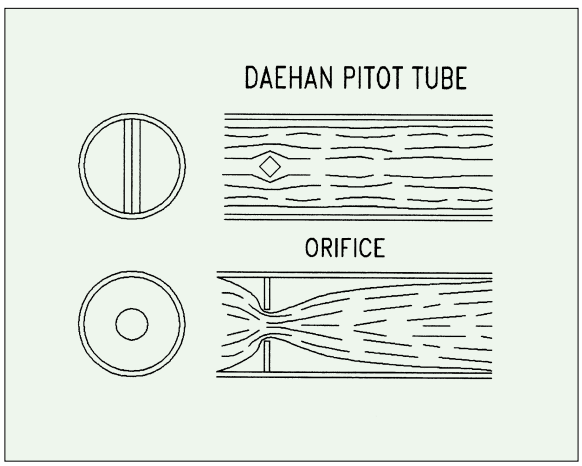


Figure 3

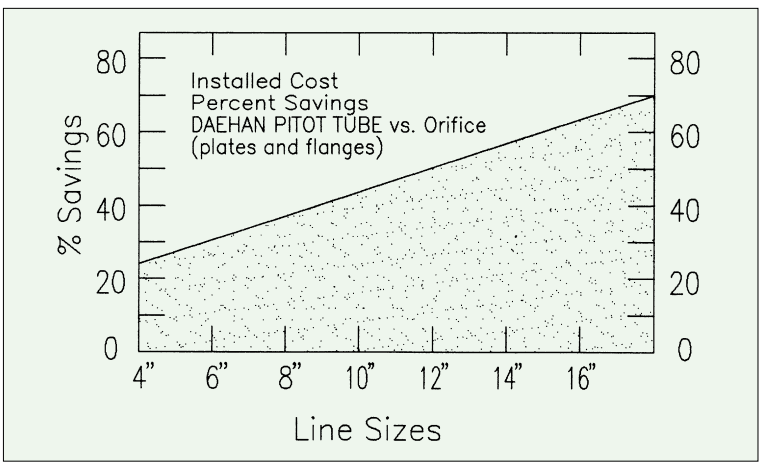
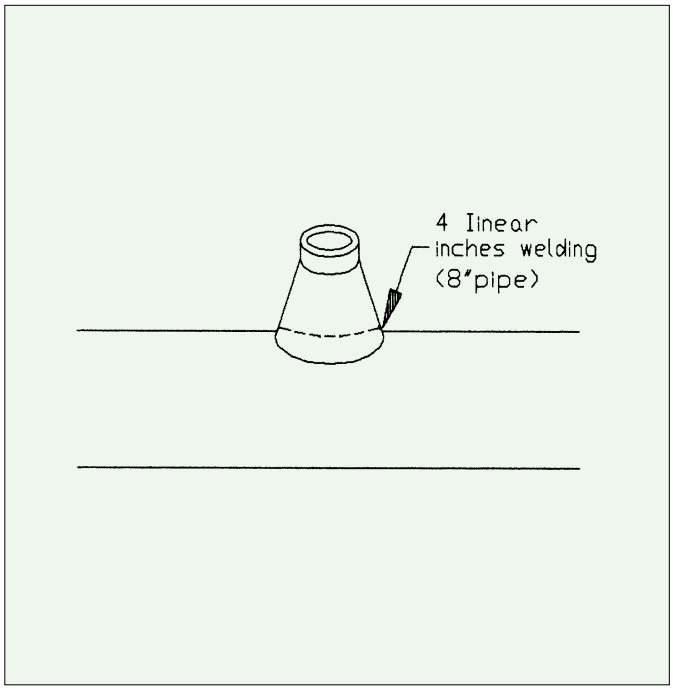
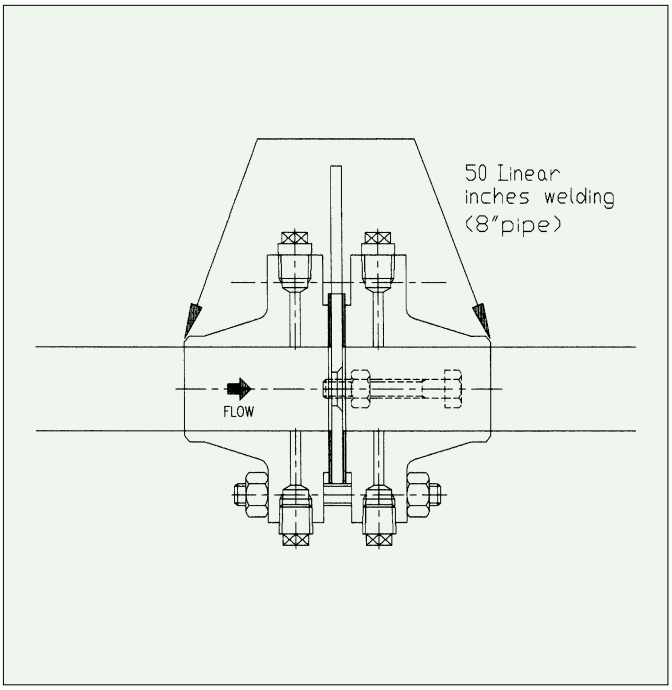


Table 3

4) Reduction of construction expenses and upkeep costs because of a simpleequipment





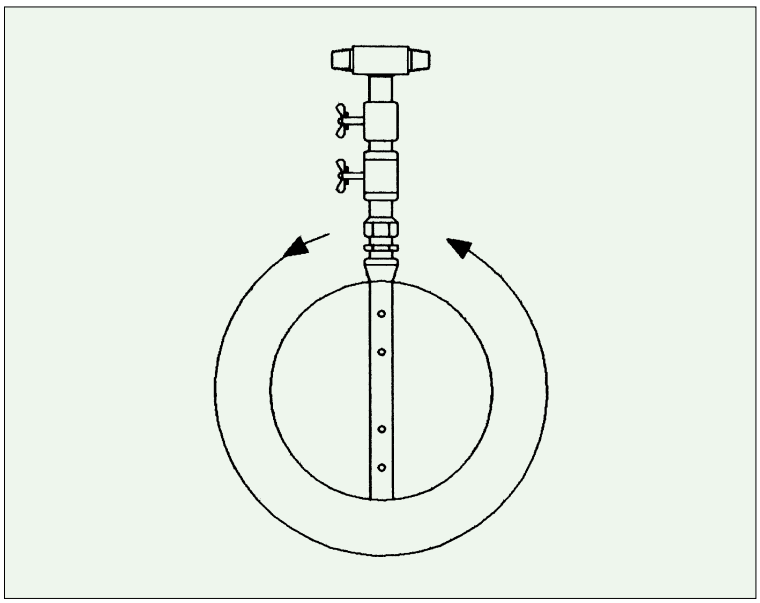
5. Notice

1) Avoidance a dusty place
   - If pressure detection hole is closed up an opening with dusts, you can solve through a spray of high pressure air
2) Not congenial to turbulent flow
3) Not using the place of high pressure steam, vibration existence.

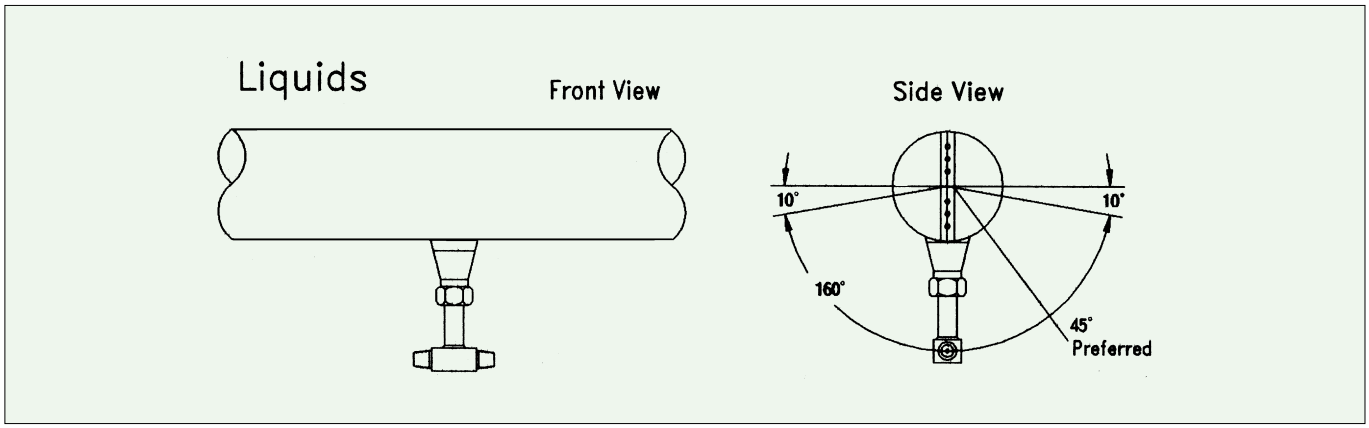
6. Method of equipment

1) In case of verticality tube, install this pitot tube at the point of a horizontal plane.

   (Refer to the Figure 5)

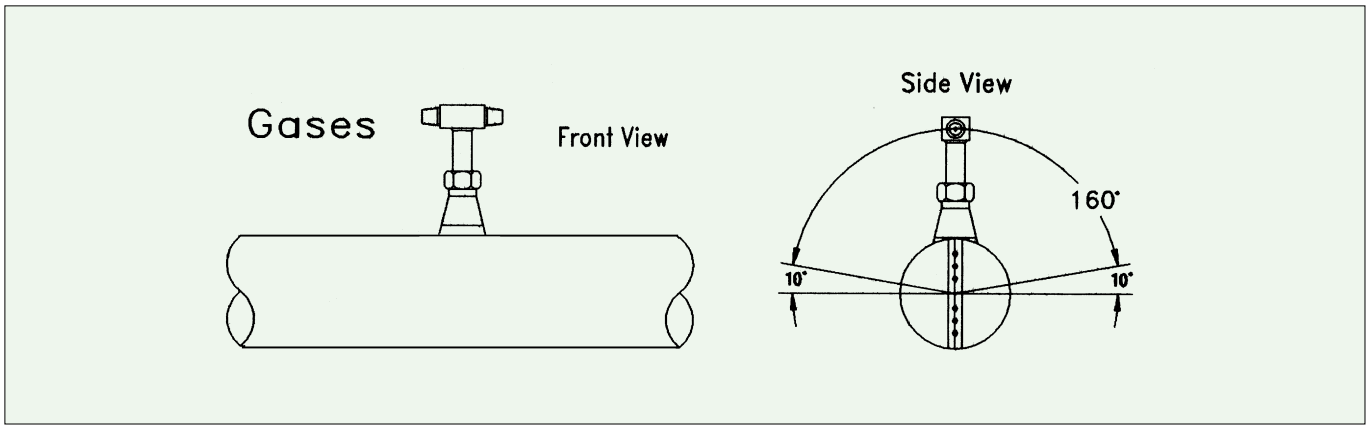


2) At the horizontal tube, we are select installation method by a kind of a flud
2) In case of liquid, install this pitot tube at the bottom tip in the tube. (Refer to the Figure 6)



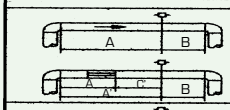
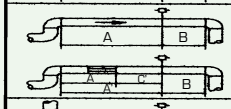
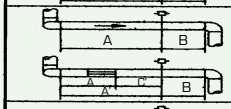
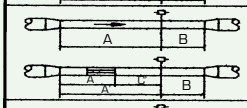
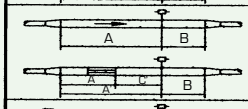
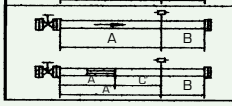
(Figure 6)

3) In case of gas, install this pitot tube at the top end in the tube.
(Refer to the Figure 7)



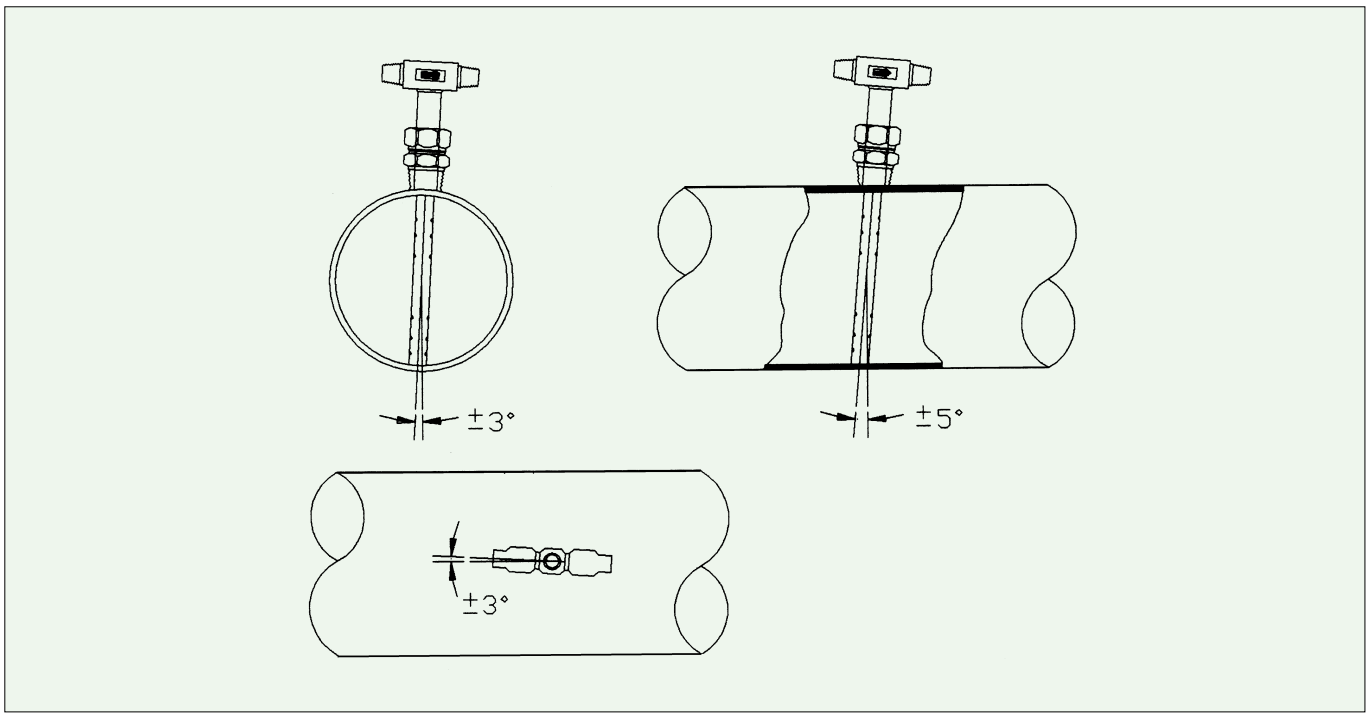
(Figure 7)

4) A necessary intuitive tube (Refer to the Table 4)

직관부	상류측 직관부					하류측 직관부
	Conditioner 가 없는 경우		Conditioner 를 설치할 경우			
	동일평면내	동일평면외				
	A	A	A'	A	C'	B
	7	9				3
			6	3	3	
	9	14				3
			8	4	4	
	19	24				4
			9	4	5	
	8	8				3
			8	4	4	
	8	8				3
			8	4	4	
	24	24				4
			9	4	5	

(Table 4)

5) Limits of a tolerance (Refer to the Figure 8)

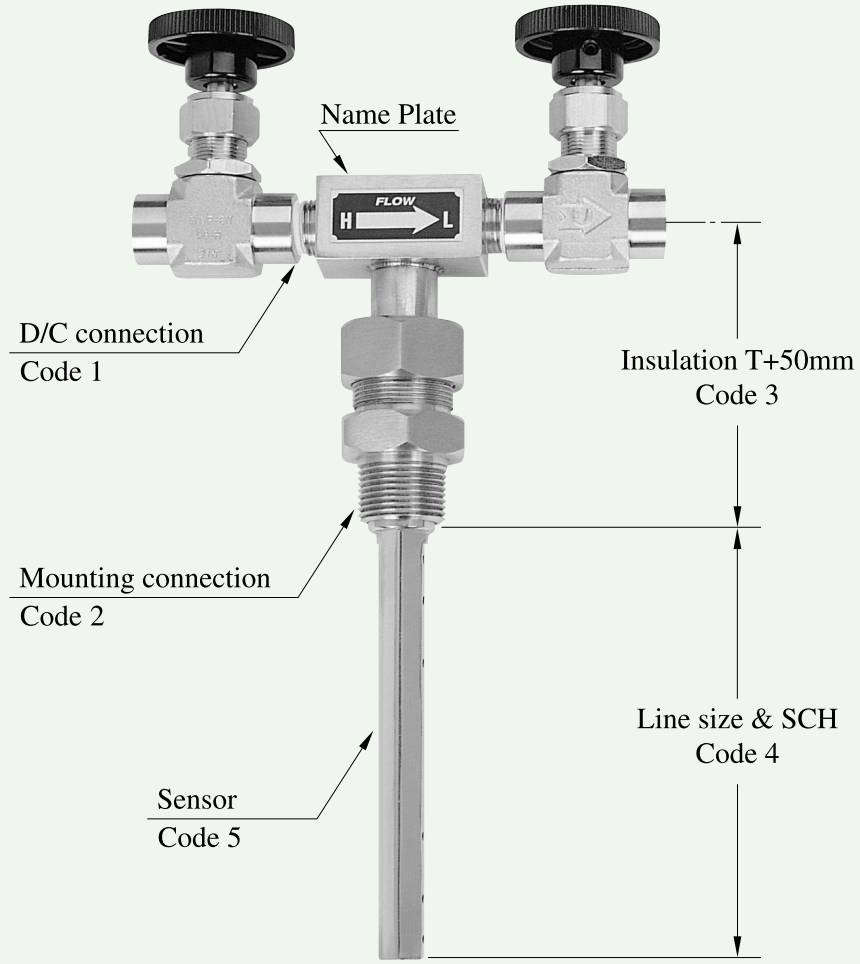


(Figure 8)

How To Order

※ Single support type

1. Suitable for low pressure(under 10K) and Duet.
2. Simple equipment.
3. Application size : 3B to 16B



How to Specify :
Odering sample : 301 series

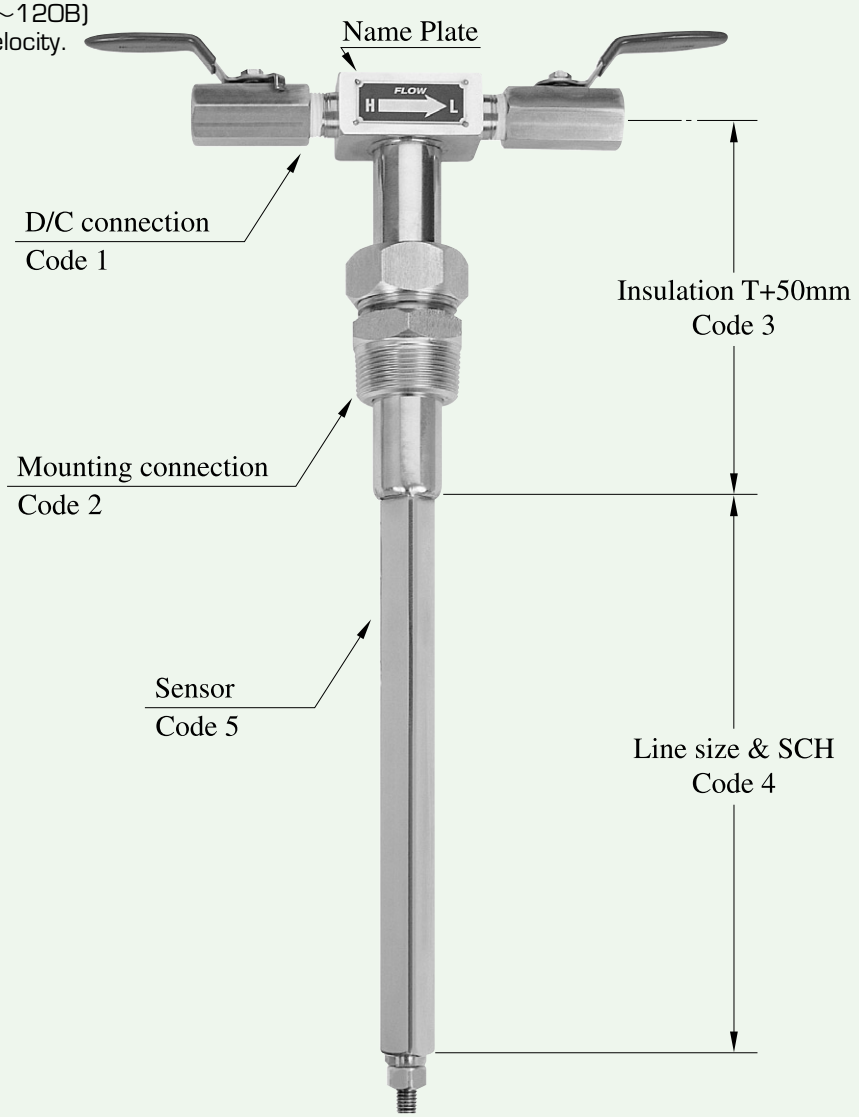
301	Code 1	Code 2	Code 3	Code 4	Code 5	Option
301	PT1/4	PT1	150	STPG 38 8B SCH40 or 203.5	STS304	

Code 1 : D/P Connection
Code 2 : Mounting connection
Code 3 : Insulation Tkness + 50mm
Code 4 : Line size & SCH or Line India
Code 5 : Sensor Material (Standard sts304)
Option :

How To Order

※ Double support type

1. Suitable for high pressure(10~20K) and large diameter(10~120B)
2. Prepared to fast velocity.



How to Specify :
Odering sample : 302 series

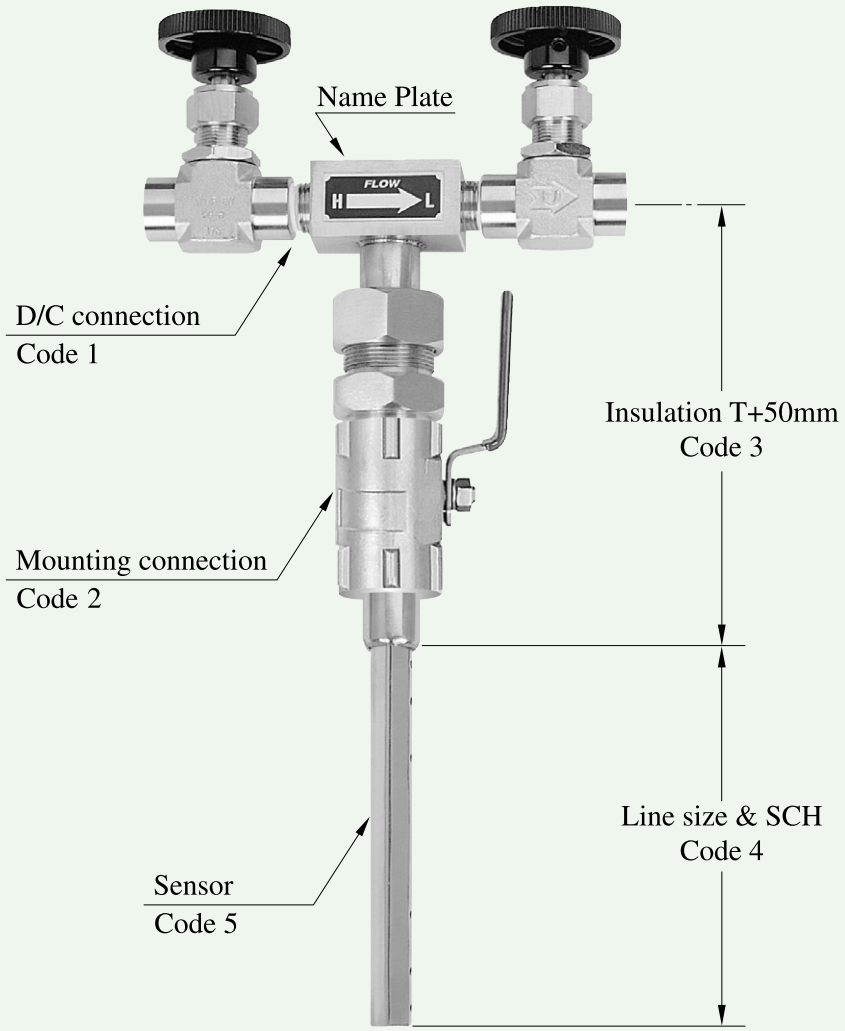
302	Code 1	Code 2	Code 3	Code 4	Code 5	Option
302	PT1/2	PT11/2	150	STPT 20B SCH40 or 508.0	STS304	

Code 1 : D/P Connection
Code 2 : Mounting connection
Code 3 : Insulation T + 50mm
Code 4 : Line size & SCH or Line India
Code 5 : Sensor Material (Standard sts304)
Option :

How To Order

※ Isolation Valve type

Isolation valve installed in order to overflow prevention of liquid in tube at time of maintenance and repair.



How to Specify :
Odering sample : 303 series

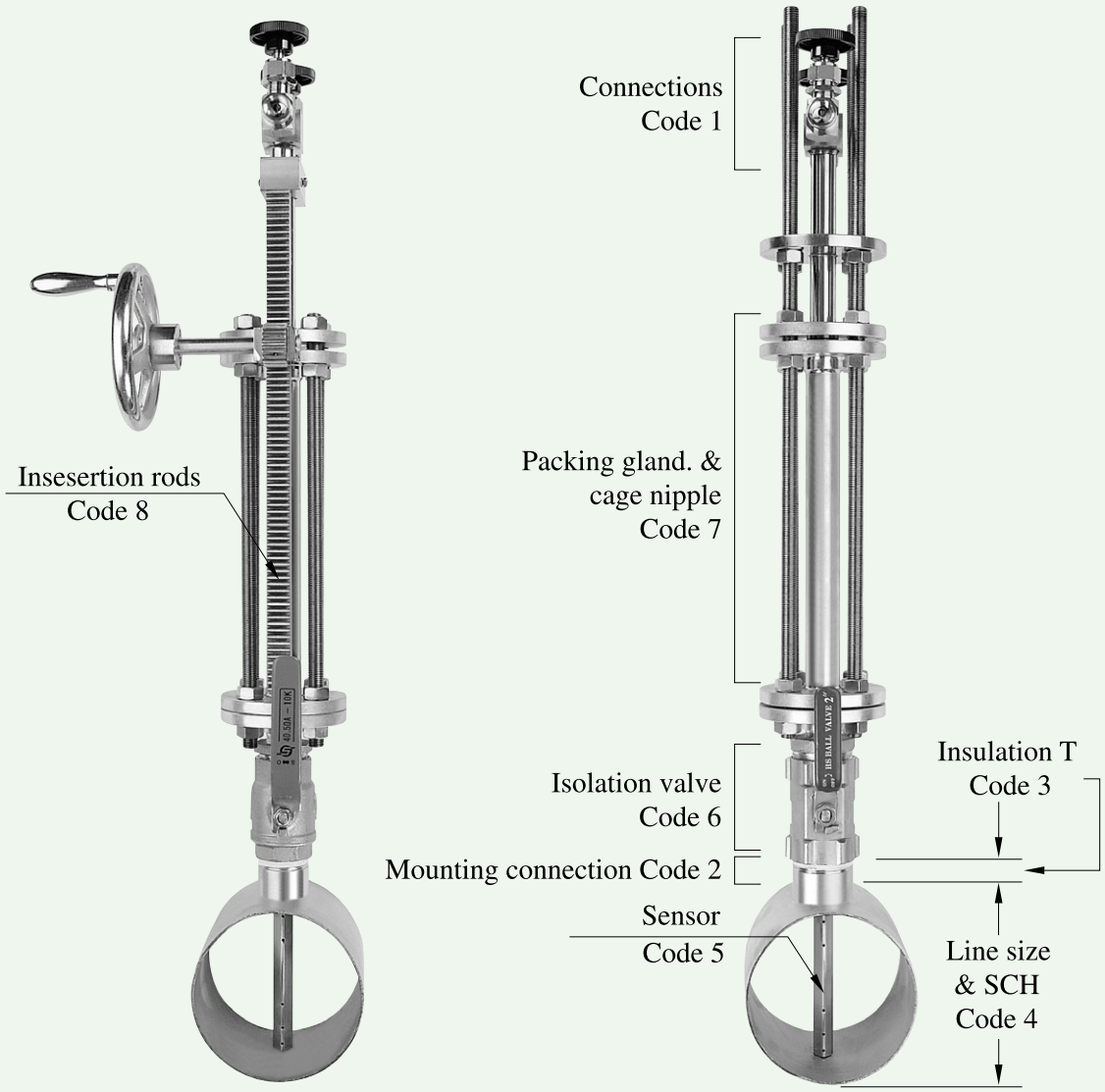
303	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Option
303	PT1/2	10K50A RF or PT11/2	100	10B SCH40	STS316	SCPH2 STS316	

Code 1 : D/P Connection
Code 2 : Mounting connection Flange or Therad
Code 3 : Insulation
Code 4 : Line size & SCH or Line India
Code 5 : Sensor Material
Code 6 : Isolation valve material Body/ Ball
Option :

How To Order

※ Isolation valve & Rod type

Overflow prevention system in high pressure condition at the time of maintenance and repair.



How to Specify :
Odering sample : 304 series

304	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Option
304	PT1/2	PT1 1/2 or 10K50A RF	50	6B SCH80	STS316	SCS13/ SUS316	Graphite/ SUS304	STS	★ Handle

Code 1 : D/P Connection
Code 2 : Mounting connection
Code 3 : Insulation T
Code 4 : Line size & SCH or Line India
Code 5 : Sensor Material
Code 6 : Isolation valve material Body/ Ball
Code 7 : Packing Gland & Cagenipple material
Code 8 : Isolation rods material
Option :

How To Order

How to Specify 304 Series

How to Specify 303 Series

How to Specify 301, 302 Series

Series	301, 302, 303, 304
Code 1	D/P Connection 2 ··· PT1/2 8 ··· PT3/8 4 ··· PT1/4
Code 2	Mounting conin 1 ··· PT1″ 4 ··· 10K40A 7 ··· 20K40A 11 ··· 150# 2B 15 ··· 300# 3B 2 ··· PT11/2 5 ··· 10K50A 8 ··· 20K50A 12 ··· 150# 3B 0 ··· Option 3 ··· PT2″ 6 ··· 10K80A 9 ··· 20K80A 13 ··· 300# 11/2B 10 ··· 150# 11/2B 14 ··· 300# 2B
Code 3	Insulation T 301, 302 series + 50 m/m
Code 4	Line size & SCH or Line India
Code 5	Sensor material 5 ··· STS304 8 ··· Inconel 6 ··· STS316 9 ··· Hastelloy 7 ··· STS316L 0 ··· Option
Code 6	Islastion Valve matil Body / Ball 1 ··· SCPH2/316 4 ··· 316/316 2 ··· SCPH13/316 5 ··· Option 3 ··· 304/316
Code 7	Packing & Cage Nipple matil Packing Glanc R ··· Rubber 0 ··· Option Cage Nipple 0 ··· Option T ··· Tetlon C ··· Corbonsteel G ··· Graphite S ··· Stainless steel
Code 8	Insertion Rods Mat'l C ··· Carbon steel S ··· Stainless steel
Option	