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# DAEHAN PITOT TUBE

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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.

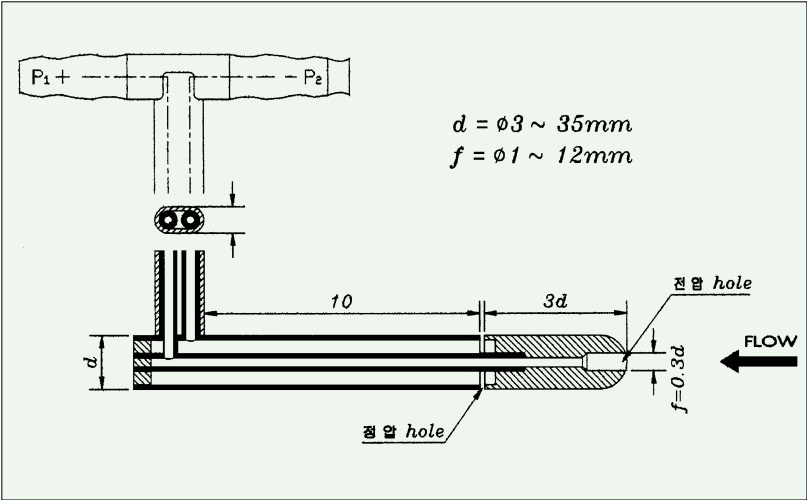
We has technical help from the korea institute of industrial technology for the six months since 1994. and we succeeded in the development of a new PITOT TUBE.

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.

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

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

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

$Q = A.V = A.C \sqrt{2g \frac{P_1 - P_2}{r}}$  ..... 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 \ r <sub>i</sub> /R	r <sub>1</sub>	r <sub>2</sub>	r <sub>3</sub>	r <sub>4</sub>	r <sub>5</sub>
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

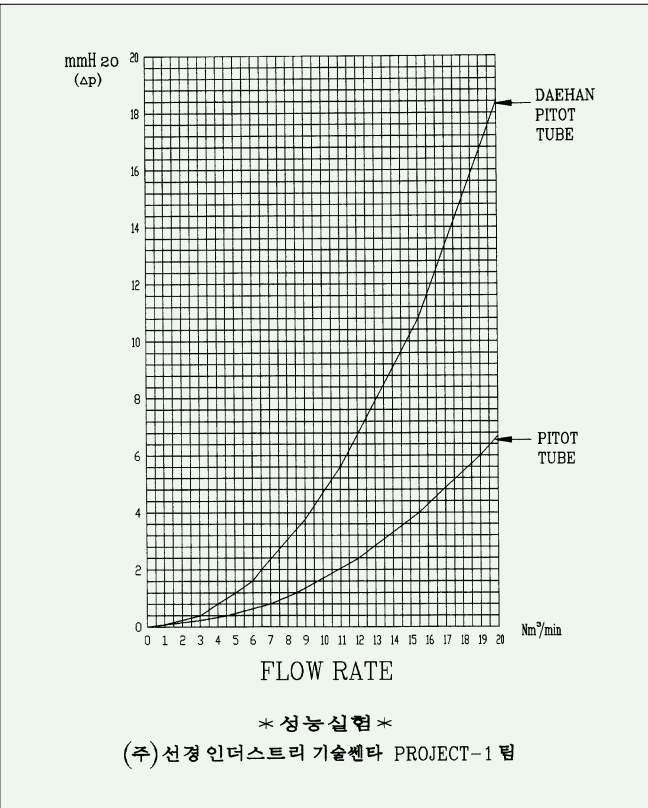


Table 1, For formance test of test of DAEHAN PITOT TUBE vs, PITOT TUB

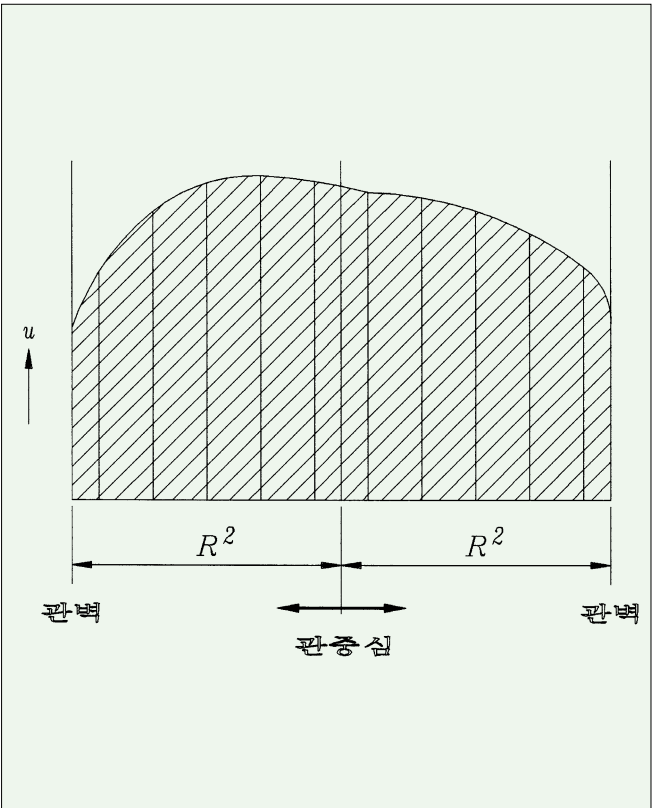


Figure 2, Velocity Profile

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

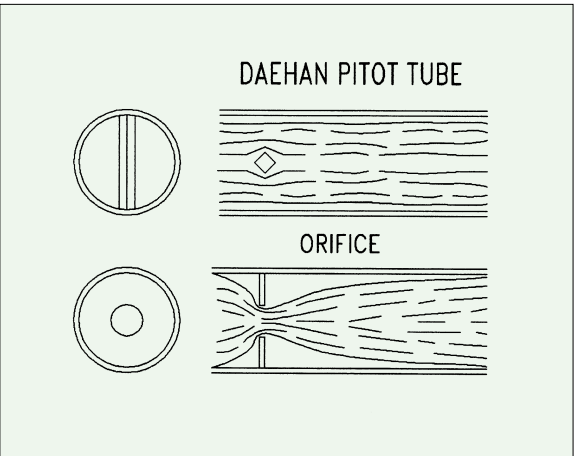


Figure 3

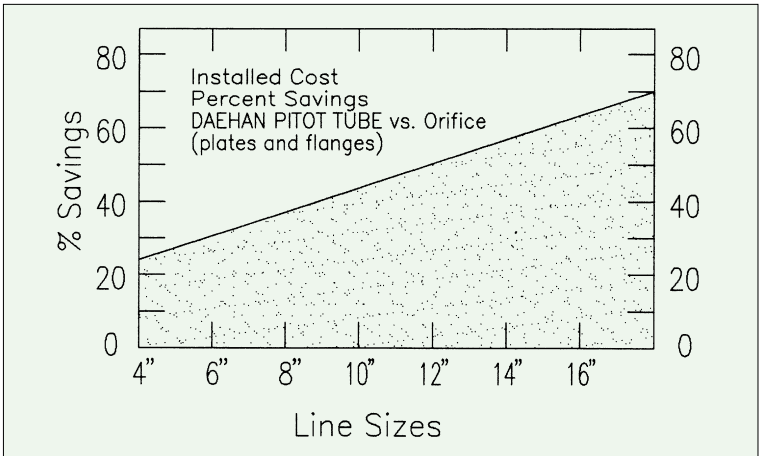
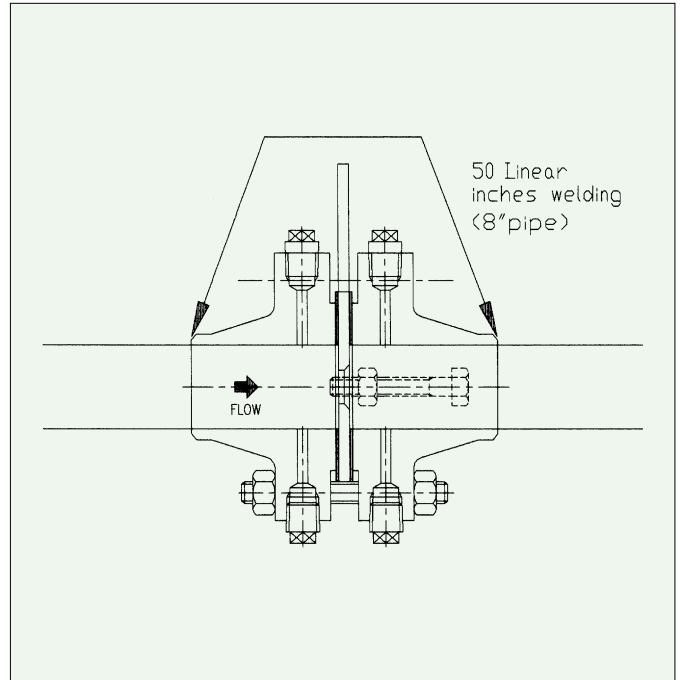
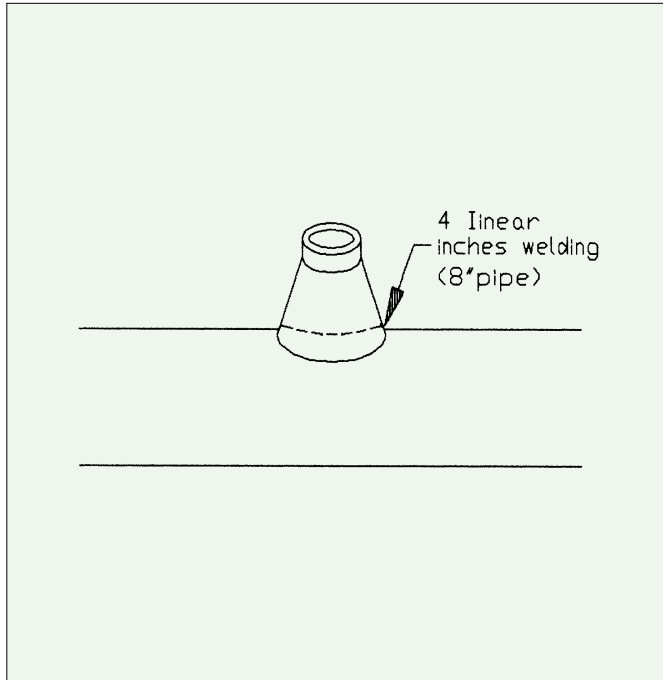


Table 3

4) Reduction of construction expenses and upkeep costs because of a simple equipment



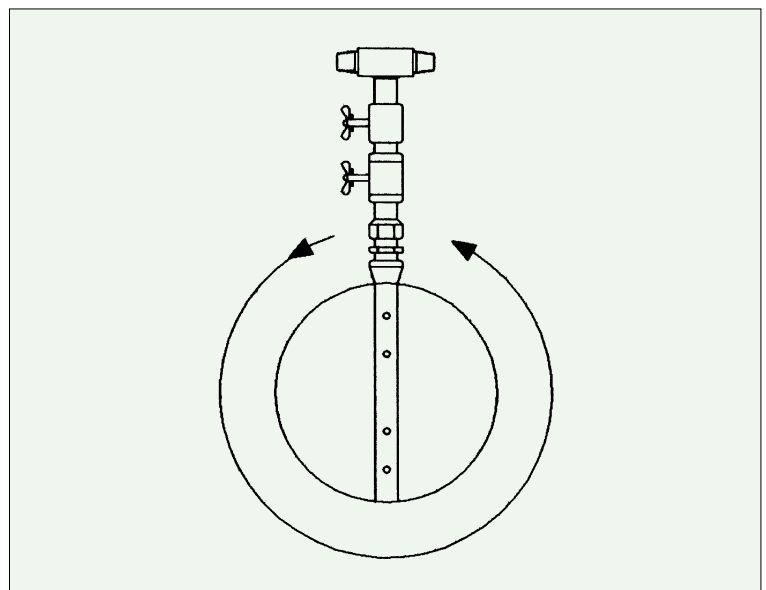
## 5. Notice

- 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.

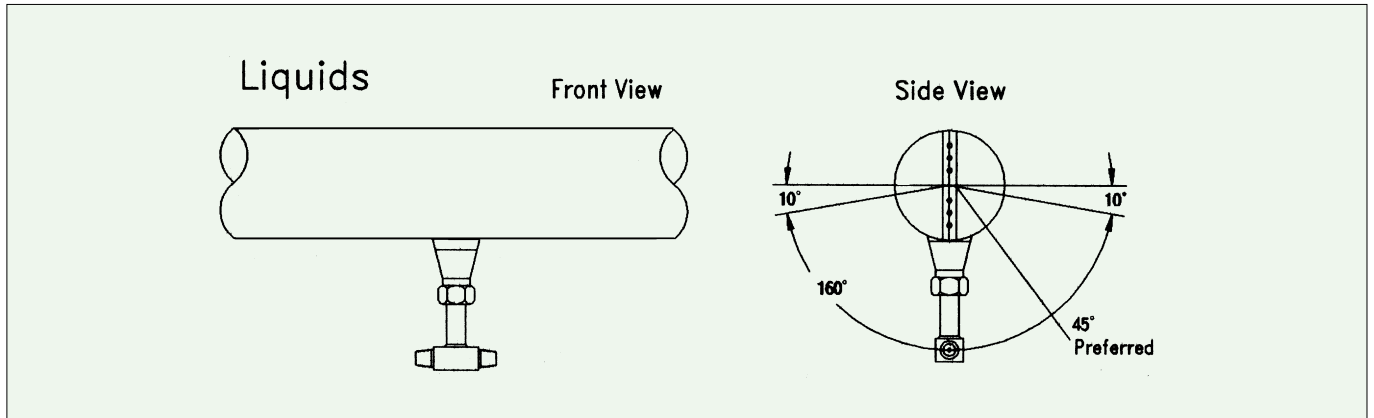
## 6. Method of equipment

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

(Refer to the Figure 5)

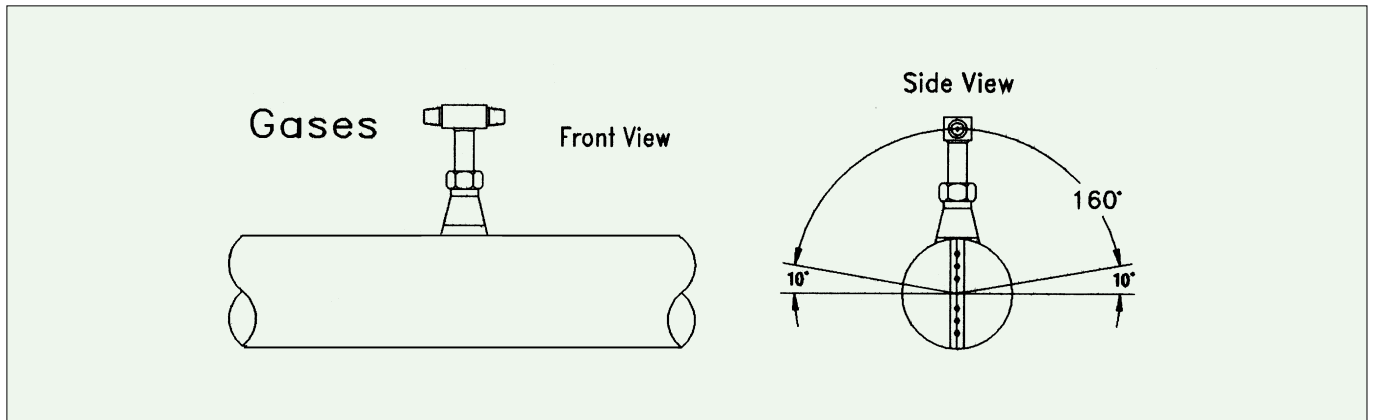


- 2) At the horizontal tube, we are select installation method by a kind of a fluid  
 2) In case of liquid, install this pitot tube at the bottom tip in the tube. (Refer to the Figure 6)




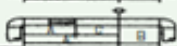

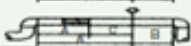
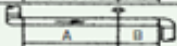
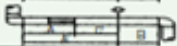
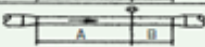
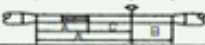
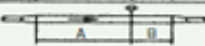
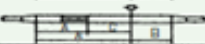

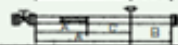
(Figure 6)

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



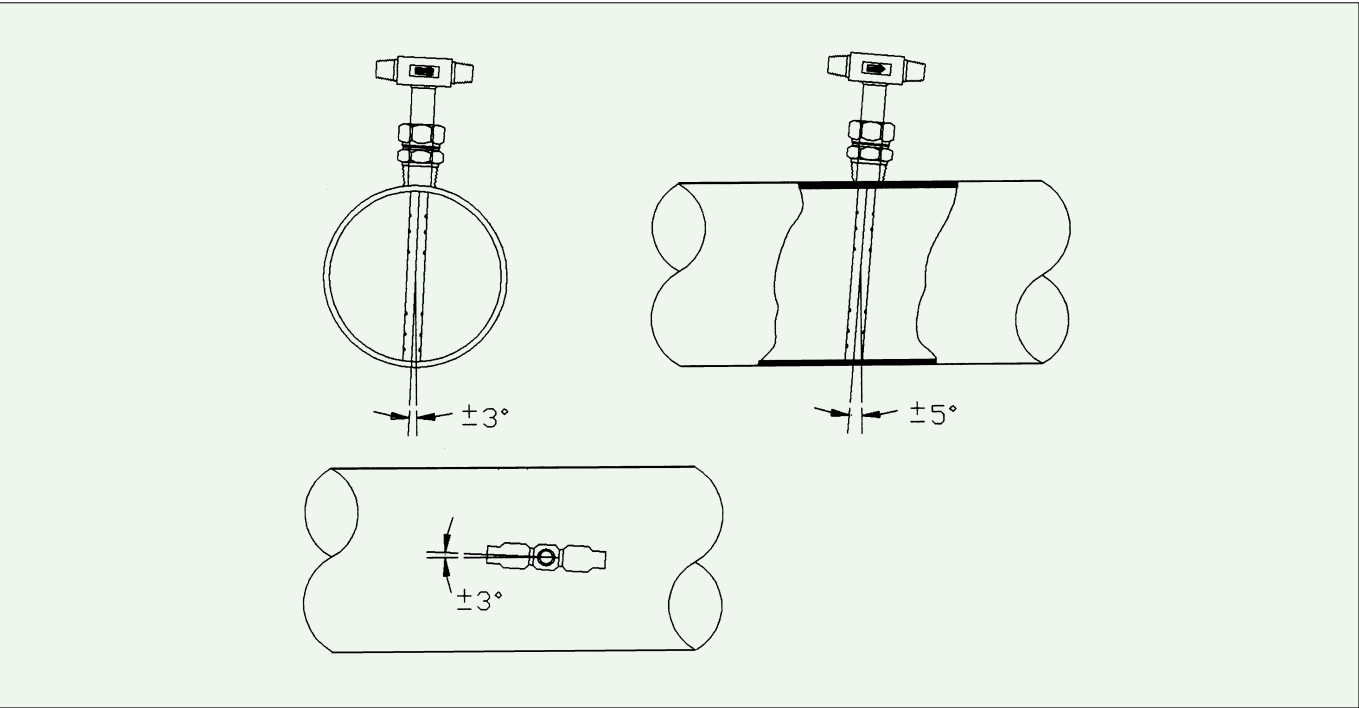
(Figure 7)

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

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

(Table 4)

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

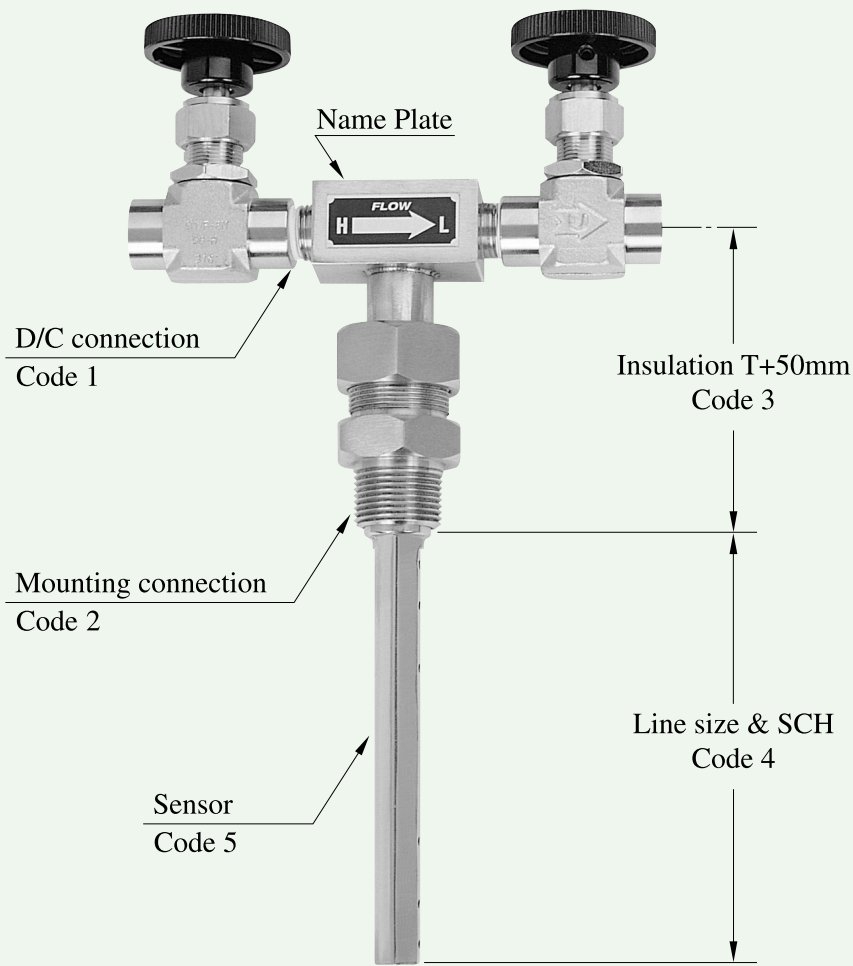


(Figure 8)

# 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 :  
Ordering sample : 301 series

301	Code 1	Code 2	Code 3	Code 4	Code 5	Option
301	PT <sup>1</sup> / <sub>4</sub>	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.

The diagram illustrates the components of a DAEHAN Pitot Tube. At the top, there is a Name Plate with a 'FLOW' indicator and 'H' and 'L' markings. Below the name plate are two side connections labeled 'D/C connection' with 'Code 1'. The main body of the tube has a 'Mounting connection' labeled 'Code 2'. The sensor part is labeled 'Sensor' with 'Code 5'. The insulation section is labeled 'Insulation T+50mm' with 'Code 3'. The line size and SCH are labeled 'Line size & SCH' with 'Code 4'.

How to Specify :  
Ordering sample : 302 series

302	Code 1	Code 2	Code 3	Code 4	Code 5	Option
302	PT <sup>1</sup> / <sub>2</sub>	PT1 <sup>1</sup> / <sub>2</sub>	150	STPT 20B SCH40 or 508.0	STS304	

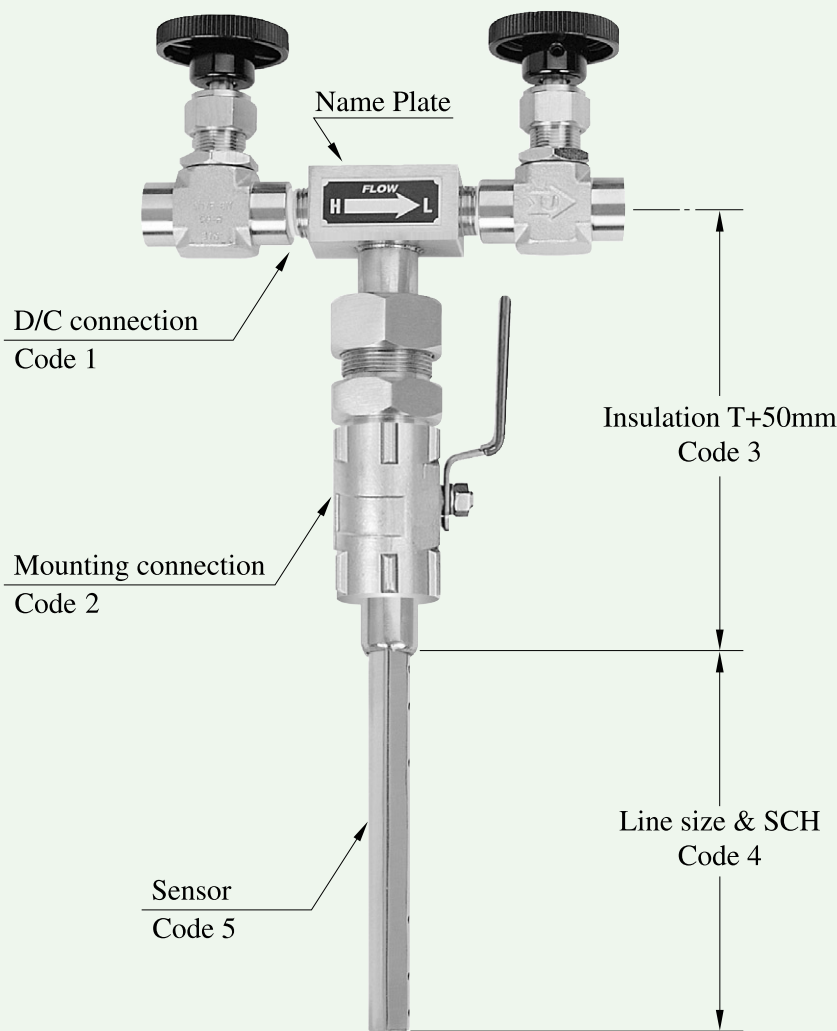
Code 1 : D/P Connection  
Code 2 : Mounting connection  
Code 3 : Insulation T + 50mm  
Code 4 : Line size & SCH or Line India  
Code 5 : Sensor Material (Standard sts304)  
Option :



# 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	PT <sup>1</sup> / <sub>2</sub>	10K50A RF or PT1 <sup>1</sup> / <sub>2</sub>	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.

Connections Code 1

Packing gland. & cage nipple Code 7

Isolation valve Code 6

Mounting connection Code 2

Sensor Code 5

Insulation T Code 3

Line size & SCH Code 4

Insesertion rods Code 8

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	PT <sup>1</sup> / <sub>2</sub>	PT1 <sup>1</sup> / <sub>2</sub> 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

<div>How to Specify 304 Series</div> <div>How to Specify 303 Series</div> <div>How to Specify 301, 302 Series</div>	Series	301, 302, 303, 304
	Code 1	D/P Connection 2 ... PT $1/2$ 8 ... PT $3/8$ 4 ... PT $1/4$
	Code 2	Mounting conin      7 ... 20K40A    11 ... 150# 2B    15 ... 300# 3B 1 ... PT1"    4 ... 10K40A    8 ... 20K50A    12 ... 150# 3B    0 ... Option 2 ... PT $1\frac{1}{2}$ "    5 ... 10K50A    9 ... 20K80A    13 ... 300# $1\frac{1}{2}$ B 3 ... PT2"    6 ... 10K80A    10 ... 150# $1\frac{1}{2}$ B    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	Islation 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	