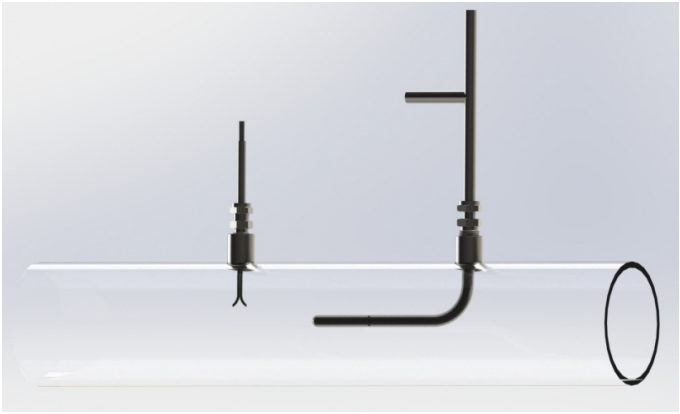
# STATIC PITOT TUBE

**■ MODEL : DHIF-PT670 SERIES** **DAEHAN & DS INSTRUMENT**



## ■ APPLICATIONS

These "STATIC PITOT TUBE" are used in HVAC field, vacuum cleaning and pneumatical transport.
They are mainly dedicated to measure hot and partice-charged air, and also high air velocity.

## ■ SPECIFICATIONS

**☐ Static Pitot Tube Type**
- "L" Type Pitot Tube
- "S" Type Pitot Tube
- Temp sensor Integral Type("S Type")

**☐ Flange Ratings**
- KS 10, 16, 20, 30, 40 and 63K
- ANSI class 150, 300, 600#

**☐ Nominal pipe sizes available**
- 15mm ~ 3200 mm(1/2"~128")

**☐ MATERIAL**
- Stainless Steel (304SS,316SS,321SS,321H)
- PTFE,PVDF
- Hastelloy C276
- Inconel 625

**☐ Standards**
- ISO 3966-2008, Measurement of Fluid flow in closed conduits,Part 2 Velocity area methods, Section 2.1 Method using Pitot Part 2 Velocity area methods, Section 2.1 Method static tubes using Pitot Method using Pitot

## ■ STATIC PITOT TUBE THEORY

The operation of the Pitot tube is dependent on a fundamental theory of fluid flow, which states that in a steady state, closed system, there is conservation of energy along a flow line. This was first described by Daniel Bernoulli in the 18th Century. The Bernoulli equation describes a nonturbulent, perfect, incompressible, and barotropic fluid undergoing steady motion. A number of forms of the equation can be derived, depending on assumptions and simplifications made about the fluid flow. One of the common forms of Bernoulli's Equation used for Pitot tube measurements is:

$$\frac{V^2}{2g} + \frac{p}{\rho g} = C \qquad \text{Eq.1}$$

where: **V** is the velocity of the fluid; **p** is the pressure of the fluid;
**ρ** is the density of the fluid; **g** is the acceleration due to gravity;
**C** is constant over a streamline.

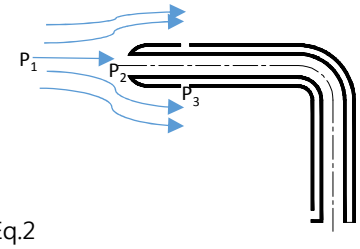
This form of the Bernoulli equation assumes that the fluid is incompressible, non-viscous, there is no change in height between points P1 and P2 (see Figure 2), and the temperature is constant. In the case of a Pitot-static tube, the streamline that impacts directly on the nose of the Pitot tube is brought to zero velocity. This point, P2, is called the stagnation point.

• Applying Equation 1 to two points, P1 and P2, along a single stream line gives:

$$\frac{V_1^2}{2g} + \frac{p_1}{\rho g} = \frac{V_2^2}{2g} + \frac{p_2}{\rho g}$$

• Point 2 is at the stagnation point, V2 = 0, the above equation reduces to:

$$\frac{V_1^2}{2g} + \frac{p_1}{\rho g} = \frac{p_2}{\rho g}$$




• Therefore the velocity of the fluid can be obtained from:

$$V = \sqrt{\frac{2\Delta P}{\rho}} \qquad \text{Eq.2}$$

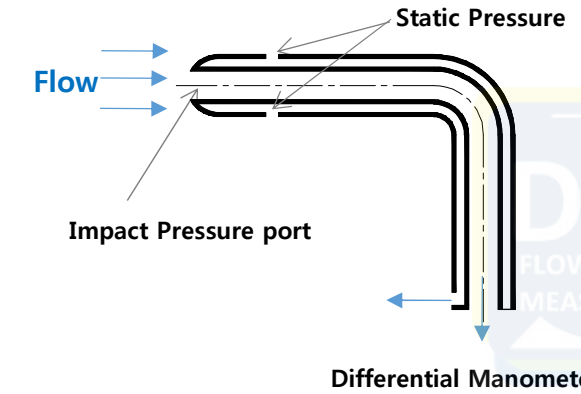
# STATIC PITOT TUBE

■ MODEL : DHIF-PT670 SERIES

DAEHAN & DS INSTRUMENT

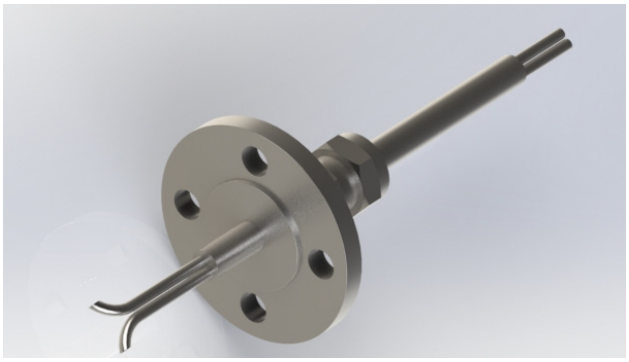
## ■ STATIC PITOT TUBE TYPE

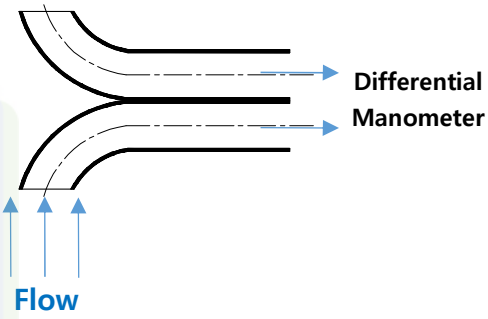
### ▶ "L" TYPE PITOT TUBE (Model : DHIF-PT671)




- Defined Standard
- Criteria on its construction

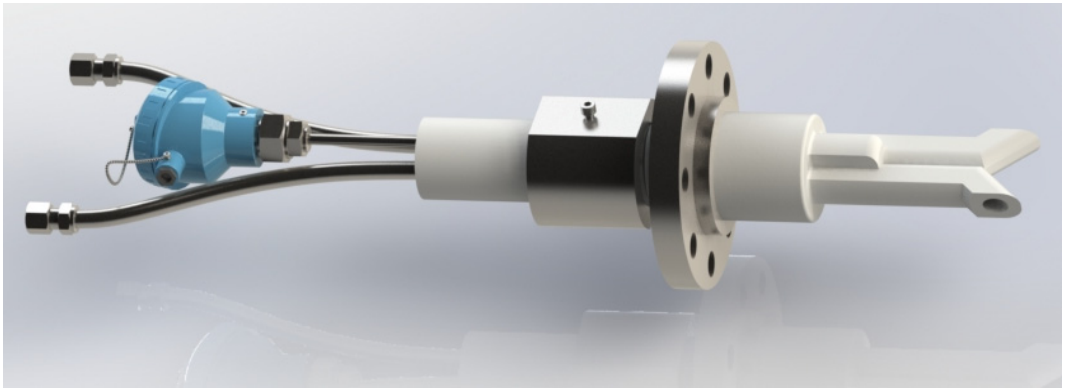
### ▶ "S" TYPE PITOT TUBE (Model : DHIF-PT672)






- Larger bore pressure orifices
- Less susceptible to clogging by moisture/dust
- Calibrated against the standard tube
- Easier to fit into stack

### ▶Temp sensor Integral Type("S Type") (Model : DHIF-PT673)



• Temp sensor Integral Type Pitot Tubes consist of an special nose casting or special Material, which is welded to stainless steel total and sub-static pressure tubes, enclosed in an overall stainless steel sheath. It is widely used in sampling applications where particulate levels are high as their relatively large sensing holes make them less prone to clogging than other Pitots. They only require a Ø12~Ø35mm access hole, regardless of duct wall thickness and the integral thermocouple allows for simultaneous monitoring of duct air temperature and velocity with minimal disturbance.

# STATIC PITOT TUBE

■ MODEL : DHIF-PT670 SERIES

DAEHAN & DS INSTRUMENT

## ■ ORDERING INFORMATION

| MAIN ORDER | CODE | DESCRIPTION |
|---|---|---|
| 1. Base Model | DHIF - PT670 SERIES | Base Model |
| 2. Type | PT671 | "L" Type Pitot Tube |
| | PT672 | "S" Type Pitot Tube |
| | PT673 | Temp sensor Integral Type("S Type") |
| 3. Line Size | □□□ A | Pipe Size (mm) |
| 4. Probe/Fitting Material | A | 316SS(316LSS) |
| | B | 304SS(304LSS) |
| | C | Hastelloy C276 |
| | PT | PTFE |
| | PV | PVDF |
| | OP | Option |
| 5. Mounting Connection | 1 | KS 10K ( 50A ~ 200A ) |
| | 2 | KS 20K ( 50A ~ 200A ) |
| | 3 | ANSI 150# ( 2B ~ 8B ) |
| | 4 | ANSI 300# ( 2B ~ 8B ) |
| | O | Option |
| 6. End Connection | D | NPT 1/4" (F) |
| | E | NPT 3/8" (F) |
| | F | NPT 1/2" (F) |
| 7. DP Transmitter | T | Transmitter Include. |
| | E | Transmitter Exclude. |
| 8. Probe Quantity | 1 | 1 Pair |
| | 2 | 2 Pair |
| | 3 | 3 Pair |
| | 4 | 4 Pair |
| 9. Option | OP | Option |