DATA SHEET

PITOT TUBE

S Type

Measuring range from 3 to 85 m/s

Temperature range from 0 to +1000°C

Ideals for several applications
like climatic engineering, ventilation, dust-removal and pneumatic transport

Dynamic pressure measurement of a moving fluid in a duct

Sauermann offers a large range of **Pitot tubes** of great quality and accuracy realised according to the ISO 10 780 norm.

The Sauermann **Pitot tubes**, connected to a differential column of liquid manometer, with needle or electronic, enable to measure the dynamic pression of a fluid in movement in a pipe and determine its speed in m/s and its flow in m^3/h.

The **Pitot tubes** are used in climatic engineering, ventilation, dust-removal and pneumatic transport. They are particularly adapted for measurement in warm air, charged with particles and for high velocity.

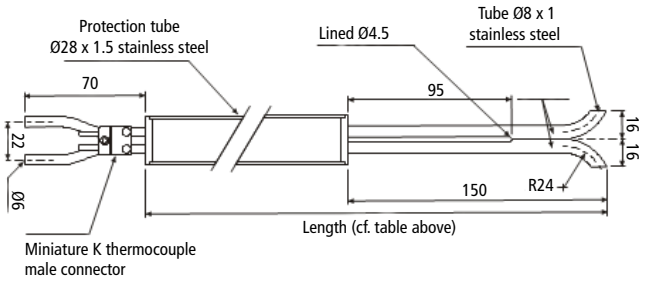
Technical features

Model	S type Pitot tube
Coefficient	0.84 ±0.01
Material	Stainless steel 316 L
Measuring range	3 to 85 m/s
Operating temperature	From 0 to 1000°C
Static pressure	Atmospheric
Global accuracy of the measurement system	1% of measurement + accuracy of the pressure sensor
Norms	ISO 10 780

Presentation of the range

Reference	Length	Reference	Length
TPS-08-500-T	500 mm	TPS-08-2000-T	2000 mm
TPS-08-1000-T	1000 mm	TPS-08-2500-T	2500 mm
TPS-08-1500-T	1500 mm	TPS-08-3000-T	3000 mm

Dimensions (in mm)



All dimensions and ratings of this document are specified in mm.

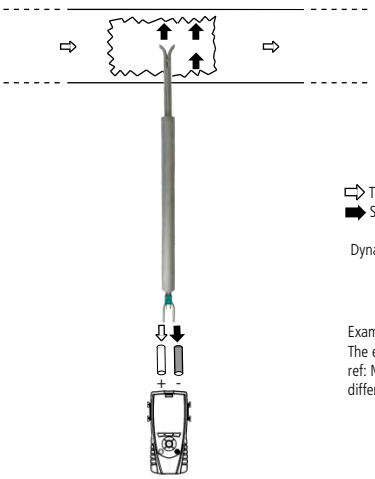
Operating principle

The Pitot tube is introduced perpendicularly in the pipe by pre-determined points.
The holes must be perfectly aligned with the air or gas flow direction.
The **Pitot tube S** is more sensitive to alignment errors thas the **Pitot tube L**.

Knowing that the Pitot tube is symmetrical, it is not necessary to identify the two legs, however the connecting to the measurement device must be carried out like following:

- The leg in front of the air flow is connected to the + signe of the micromanometer.
- The leg at the opposite of the air flow is connected to the – sign of the micromanometer.

Application



- GTC Record
- GTC Analyze

Low differential pressure transmitter sensor
CP210 and SQR/3

- Alarm
- Visualize
- Operate
- GTC Record
- GTC Analyze
- Live monitoring

Low differential pressure transmitter sensor with digital display
Si-C320 or CA 310 with SPI 2 – 100, 500, 1000, 10000 and SQR/3

- Alarm
- Visualize
- Record
- Analyze
- Live monitoring

Multifonction intelligent portable
AMI 310

Accessories

Name	Reference
Extension cable for K thermocouple class 1	-
Mounting flange in cast iron	-
Black silicone tube (4 x 7 mm)	SN-47-1
Transparent silicone (4 x 7 mm)	SB-47-1
Crystal tube (5 x 8 mm)	C-58-1
Plastic transport case type VTP for pitot tube and/or probe with a maximum size of 110 cm x 20 cm x 4 cm.	VTP / 23370
Junctions in Y for a tube Ø5 x 8 mm (bag of 10)	J.Y.C
Junctions in T for a tube Ø5 x 8 mm (bag of 10)	J.T.C

For every other cases, Sauermann offers special realisations. Consult us, we intervene on plans study, machining.

Measurement

- **Punctual velocity measurement**

From the dynamic pressure expressed in Pa, at an atmospheric pressure of 1013.25 mbar and a temperature of 20 °C, we determine the velocity in m/s, using the following simplified formula:

$$V = C_M \times 1.289 \times \sqrt{\Delta P} = 1.291 \times \sqrt{\Delta P}$$

With:
θ: temperature (°C)
P_0: given atmospheric pressure (Pa)
C_M: coefficient of the flow device element
Pitot tube S : $C_M = 0.84$

Complete formula:

$$V = C_M \sqrt{\frac{2\Delta P}{\rho}} \qquad \rho = \frac{P_o}{287.1 \times (\Theta + 273.15)}$$

- **Air flow measurement**

Air flow calculation

Flow = $Velocity_A$ x surface x 3600
Surface: surface of the circular sheath or rectangular in m²
Note: in the electronic devices, the surface is automatically adjustable.

With:
Flow: in m³/h
Surface: in m²
S_A: in m/s

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