

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 pressure of a fluid in movement in a pipe and determine its speed in m/s and its flow in m³/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.

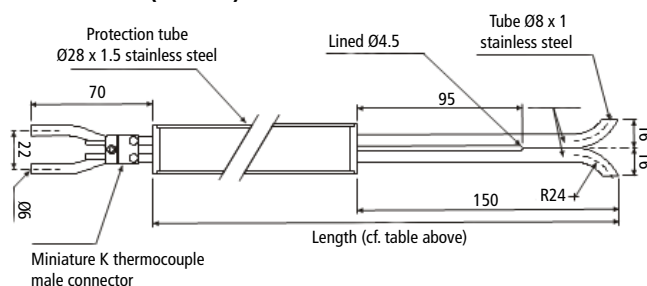
Technical features

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.

Options

Graduation (mm) with red mark on the shaft, on request.

Operating principle

The Pitot tube is introduced perpendicularly in the pipe by pre-determined points.

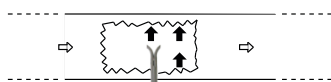
The holes must be perfectly aligned with the air or gas flow direction.

The **Pitot tube S** is more sensitive to alignment errors than 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 + sign of the micromanometer.
- The leg at the opposite of the air flow is connected to the – sign of the micromanometer.

Application



⇨ Total pressure (Tp)
 ⇩ Static pressure (Sp)
 Dynamic pressure = Tp - Sp

Example above:
 The electronic micromanometer
 ref: MP210 indicates the
 differential pressure



- 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
 C310 or CA 310 with
 SPI 2 – 100, 500, 1000, 10000 and SQR/3



- Alarm
- Visualize
- Record
- Analyze
- Live monitoring

Multifunction intelligent portable
 AMI 310

With:

C_f : coefficient of the flow device element
S Pitot tube: $C_f = 0.84$

θ : given temperature (°C)

P_o : given atmospheric pressure (Pa)

With:

Flow: in m³/h

Surface: in m²

S_A : in m/s

Measurement

- Punctual velocity measurement: V_A

$$V_A = C_F \sqrt{\frac{2 \Delta P}{\rho}} \quad \rho = \frac{P_o}{287.1 \times (\theta + 273.15)}$$

- 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.

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
Transport case VTP type for Pitot tubes: - 1210 X 320 mm, length 1000mm, max. Ø8 - 810 X 100mm, length 500mm, max. Ø6	-
Spherical ball valve female / female	555 F/F
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.

