Pitot Static Tube PT

The pitot tube PT is designed to measure the vehicle speed relative to the surrounding air. Its main application is the aerodynamic car setup.

The pitot static tube consists basically of two concentric tubes. The ellipsoidal nose form has a single forward facing hole for sensing total pressure and a ring of side holes for sensing the static pressure. Measuring the difference of both pressures (see Bosch different pressure sensor), the velocity related to the air can be calculated.

Mechanical Data	
Weight	50 g
Height	150 mm

Part Number	
Pitot Static Tube PT	**B 261 209 700**

total pressure = static pressure + velocity pressure
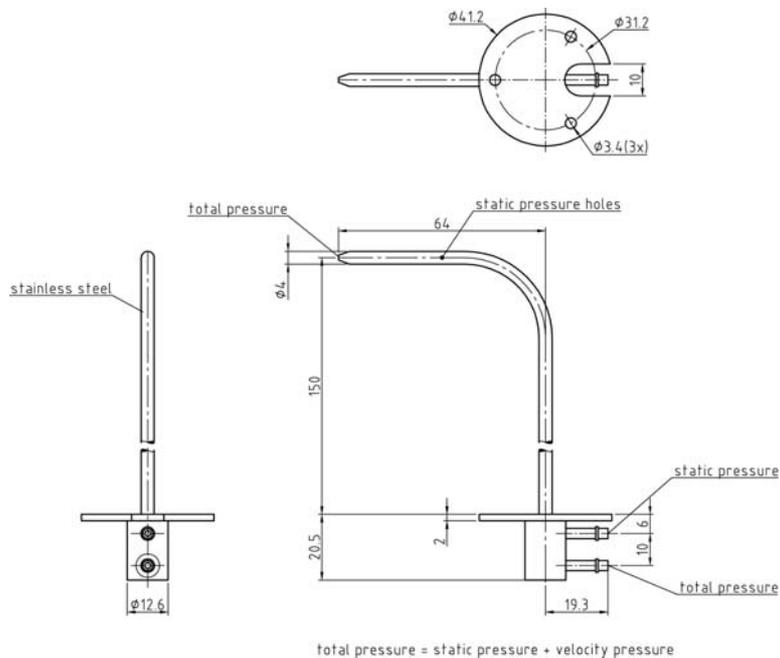
Application Hint

The standard formula for calculating the velocity from velocity pressure is:

$$V = 1.291 * \sqrt{Pv}$$

This is only valid for an air density of 1.2 kg/m³. For all other conditions, more complex equations have to be used.

V = velocity [m/s]
Pv = velocity pressure Pa [mbar] (Signal output of the differential pressure sensor)

The expression $\dfrac{100,000}{100,000 + Ps}$ is a correction for the static pressure in the duct and can be ignored, if Ps is less than 2,500 Pa.

Please find further application hints in the offer drawing (http://www.bosch-motorsport.com).

Principle of Operation

Total Pressure Hole   Nosepiece   Static Pressure Hole

= Static Pressure (A)
= Velocity Pressure (B)
= Total Pressure (A+B)

P2   P1

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The Differential Pressure Sensor will read (A+B)-A=B