Large Pressure Apertures and Pressure Channels

Large diameter pressure sensing apertures and pressure channels allow the long term uninterrupted use even in contaminated fluids. Condensate in form of drops can more easily flow off through the larger areas. A mechanical blockage of the pressure channels through condensate drops is thus eliminated. The table below lists the characteristic dimensions depending on the type of sensor.

	Sensor Type				
	15	20/21	25/26	35/36	65/66/100
Width of profile perpendicular to flow	11 mm	12 mm	25,4 mm	42 mm	56 mm
Height of profile in flow direction	10,5 mm	11 mm	23 mm	36 mm	50 mm
Diameter of pressure sensing apertures	4 mm	4 mm	8,5 mm	10 mm	16 mm
Area of pressure channel	28 mm^2	14 mm^2	62 mm^2	78 mm^2	113 mm^2

Very Good Mechanical Stability

The mechanical stability in situations of static and dynamic stress to the sensor profile is one of the most important criteria in the constructive design of the sensors.

The dislodging of a one-side mounted sensor profile through static stress caused by the flowing medium is inversly proportional to the 2nd degree axial area-momentum of the sensor.. For this reason the ITABAR-pitot tube sensor is designed with a very high 2nd degree axial area-momentum. Similar arguments are valid for a sensor's resonance-frequency oscillations, which are determinant for dynamic stresses.

Commercially available pitot tubes made of only 1 mm thick stainless steel sheet metal have a low 2nd degree axial area-momentum. The mechanical stability of such thin-sheet sensors under static and dynamic stresses is lower compared to the ITABAR-sensor (e.g. as shown in Fig 4.2).