

## Pitot tube NPL type (L / straight)



### PRESENTATION

KIMO offers a broad range of **Pitot tubes** of great quality and accuracy realised according to the NF X 10-112 norm.

The KIMO **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<sup>3</sup>/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 speed.



**Pitot tube L type**

Pitot tubes with ellipsoidal top.  
A total pressure port and six holes of static pressure.  
Body in full stainless steel.



**Pitot tube L type with K TC**

Pitot tubes with ellipsoidal top.  
A total pressure port and six holes of static pressure.  
K thermocouple probe lined integrated with connecting cable of 1.5 meter long.  
Body in full stainless steel.



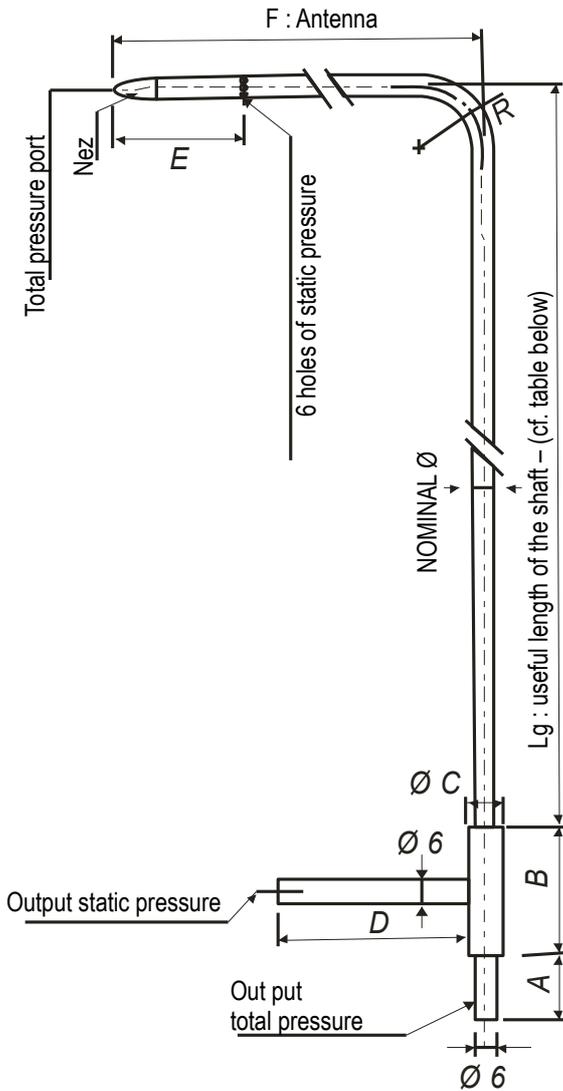
**Pitot tube straight type and straight type with K TC**

It enables to carry out measurement directly by immersing the tube in the air-diffusing equipment.  
Diameter and sizes : same as the NPL curved Pitot.

### FEATURES

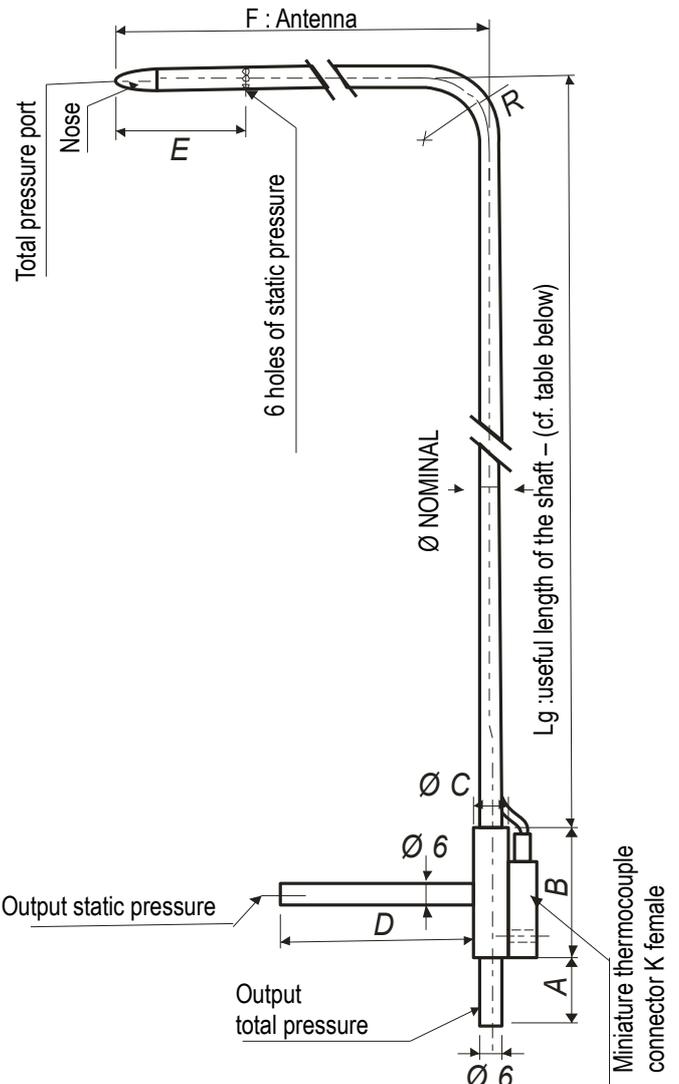
<b>Model</b>	AFNOR NF
<b>Coefficient</b>	1,0015±0,01
<b>Material</b>	Stainless steel 316 L
<b>Measurement range</b>	0 to 100 m/s
<b>Temperature of use</b>	from 0 to 600 °C in standard and until 1000 °C in option
<b>Static pressure</b>	2 bar maximum in static, hereafter on request
<b>Global accuracy of the measurement system</b>	Better than 1% for an alignment in relation to the flow axis of the fluid of ±10 °.
<b>Norms</b>	AFNOR NFX10-112. Annex of the 77.09.14 This norm is in accordance with the international norm ISO 3966.





**Pitot tube L type**

	A	B	ØC	D	E	F	R
<b>Pitot tube Ø 3 mm</b>	17	32	10	30	48	96	18
<b>Pitot tube Ø 6 mm</b>	20	40	10	45	48	96	18
<b>Pitot tube Ø 8 mm</b>	20	40	10	45	64	128	24
<b>Pitot tube Ø 12 mm</b>	25	50	16	60	96	192	36
<b>Pitot tube Ø 14 mm</b>	25	50	16	60	112	224	42



**Pitot tube L type with K TC**



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

PRESENTATION OF THE RANGE

**Pitot tubes L type and straight type**

Diameter	Reference L type	Reference straight type	Length
Ø 3 mm	TPL-03-100	TPL-D-03-100	100 mm
	TPL-03-200	TPL-D-03-200	200 mm
	TPL-03-300	TPL-D-03-300	300 mm
Ø 6 mm	TPL-06-300	TPL-D-06-300	300mm
	TPL-06-500	TPL-D-06-500	500 mm
	TPL-06-800	TPL-D-06-800	800 mm
Ø 8 mm	TPL-08-1000	TPL-D-08-1000	1000 mm
	TPL-08-1250	TPL-D-08-1250	1250 mm
Ø 12 mm	TPL-12-1500	TPL-D-12-1500	1500 mm
	TPL-12-2000	TPL-D-12-2000	2000 mm
Ø 14 mm	TPL-14-2500	-	2500 mm
	TPL-14-3000	TPL-D-14-3000	3000 mm

**Pitot tubes L type and straight type with K TC**

Diameter	Reference L type	Reference straight type	Length
Ø 3 mm	TPL-03-100-T	TPL-D-03-100-T	100 mm
	TPL-03-200-T	TPL-D-03-200-T	200 mm
	TPL-03-300-T	TPL-D-03-300-T	300 mm
Ø 6 mm	TPL-06-300-T	TPL-D-06-300-T	300 mm
	TPL-06-500-T	TPL-D-06-500-T	500 mm
	TPL-06-800-T	TPL-D-06-800-T	800 mm
Ø 8 mm	TPL-08-1000-T	TPL-D-08-1000-T	1000 mm
	TPL-08-1250-T	TPL-D-08-1250-T	1250 mm
Ø 12 mm	TPL-12-1500-T	TPL-D-12-1500-T	1500 mm
	TPL-12-2000-T	TPL-D-12-2000-T	2000 mm
Ø 14 mm	TPL-14-2500-T	-	2500 mm
	TPL-14-3000-T	-	3000 mm

## WORKING PRINCIPLE

The **Pitot tube** is introduced perpendicularly in the pipe by pre-determined points (cf. "Measurement").

The antenna composed of an ellipsoidal nose (bow) maintained in parallel and in front of the flow to control.

The total pressure (+) is picked up by the bow and is connected to the + sign of the manometer.

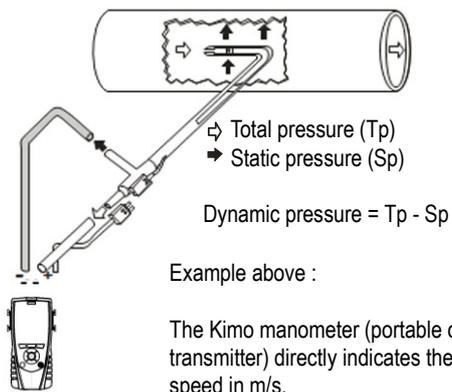
The static pressure (-) picked up by the small holes located around the antenna is connected to the – sign of the manometer.

The connecting cable of the K thermocouple is connected to the input K of the manometer (for the **Pitot tube type L with KTC**).

The device then indicates the dynamic pressure, sometimes called speed pressure.

The dynamic pressure corresponds to the difference between total pressure and static pressure :  $Dp = Tp - Sp$

## APPLICATION



- GTC Record
- GTC Analyze

Transmitter sensor low differential pressure  
**CP210 and SQR/3**



- Alarm
- Visualize
- Operate
- GTC Record
- GTC Analyze
- Trace in direct

Transmitter sensor low differential pressure with digital display  
**C310 or CA 310 with SPI 2 – 100,500,1000, 10000 and SQR/3**



- Alarm
- Visualize
- Record
- Analyze
- Trace in direct

Multifunction intelligent portable  
**AMI 310**

• **Measurement of punctual speed**

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

**With**

$C_F$  : coefficient of the flow device element  
 Pitot tube L :  $C_F = 1.0015$

$\Theta$  : given temperature (°C)  
 $P_o$  : given atmospheric pressure (Pa)

• **Flow measurement**

Average (A) of several measurements of punctual speed according to Log-Tchebychev (see measurement scheme above).

**Flow calculating :**

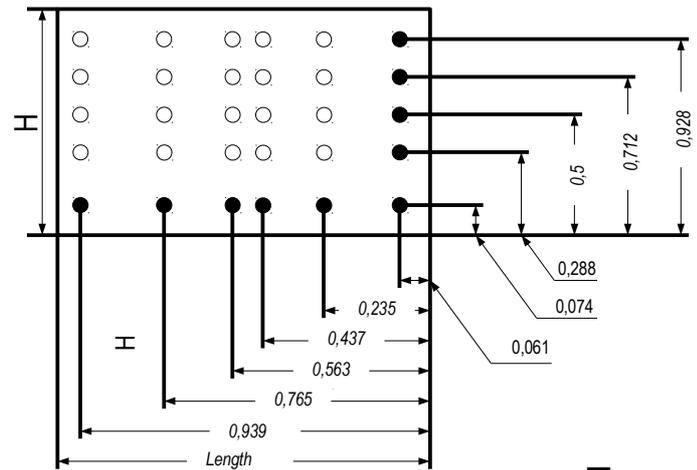
Flow = Speed<sub>A</sub> x surface x 3600

Surface : surface of the circular sheath or rectangular in m<sup>2</sup>

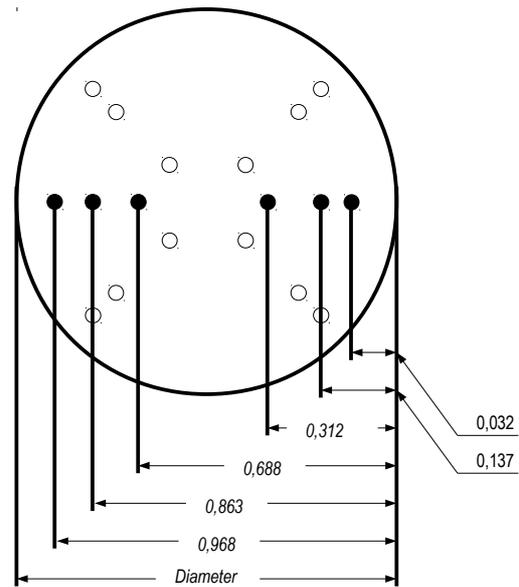
*N.B : in the electronic devices, the surface is automatically adjustable.*

**With**

Flow : in m<sup>3</sup>/h  
 Surface : in m<sup>2</sup>  
 S<sub>A</sub> : in m/s



Log-Tchebychev in 3 points



OPTIONS

- **Graduation** (mm) with red mark on the shaft, on request
- **TIG Welding** for a use until 1000°C (exception : Pitot tube Ø 3)

ACCESSORIES

- **Gland** in plated brass (for the installation of Pitot tubes for fixed station)
- **Mounting flange** stainless steel and cast iron
- **Sliding connections** with stainless steel turn or Teflon
- **Extension cable** for K thermocouple class 1
- **Stopper cap** in caoutchouc : bag of 10 pieces
- **Caps** : bag of 10 pieces
- **Tubes** :
  - Black silicone (4 x 7 mm) REF SN-47-1
  - Transparent silicone (4 x 7mm) REF SB-47-1
  - Cristal tube (5 x 8 mm) REF 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
- **555 F/F** : spherical ball valve female / female
- **J.Y.C** : junctions in Y for a tube Ø 5 x 8 mm (bag of 10)
- **J.T.C** : junctions in T for a tube Ø 5 x 8 mm (bag of 10)



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

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