

Air flow measurement wings Debimo



PRESENTATION

Associated to one of the KIMO differential pressure control means (transmitter sensors, electronic micromanometers, column of liquid manometer, pressure switches...), the **DEBIMO air flow measurement wings** enables to indicate, manage and record the average values of the speed and flow of your installations.

The DEBIMO air flow measurement wings, conceived and manufactured by KIMO, can be installed in every aerualics system and works with the flow device element principle (flow depending on the differential pressure).

Application examples : blowing in laboratory, VMC, smoke removal, smoke extraction installations, dust-removal systems, climatic engineering...



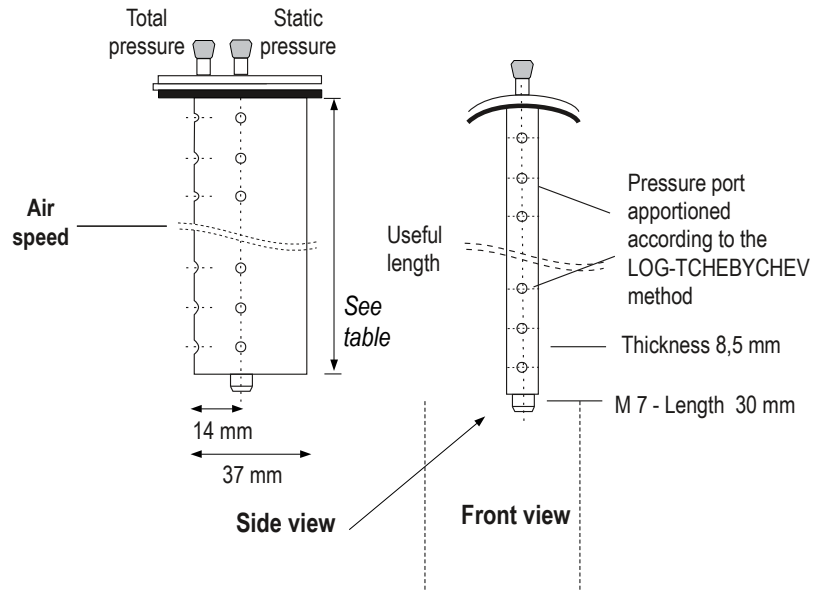
TECHNICAL FEATURES

Model	Air flow measurement wings
Coefficient	0,8165
Material	Extruded aluminium, mounting plate in galvanized steel, screw in stainless steel.
Temperature of use	0 to 210°C
Static pressure	2 bars maximum in static (check the holding of the used sensor), hereafter on request.
Accuracy on the installation	From 3 to 5% + accuracy of the pressure sensor, depending on the installation* (**).
Measuring range	0 to 40 m/s

* Depends on the low pressure controller used. The wing coefficient is theoretic, so the definitive measurement largely depends on the aerualics network. (bend, restriction, tee generating turmoils).

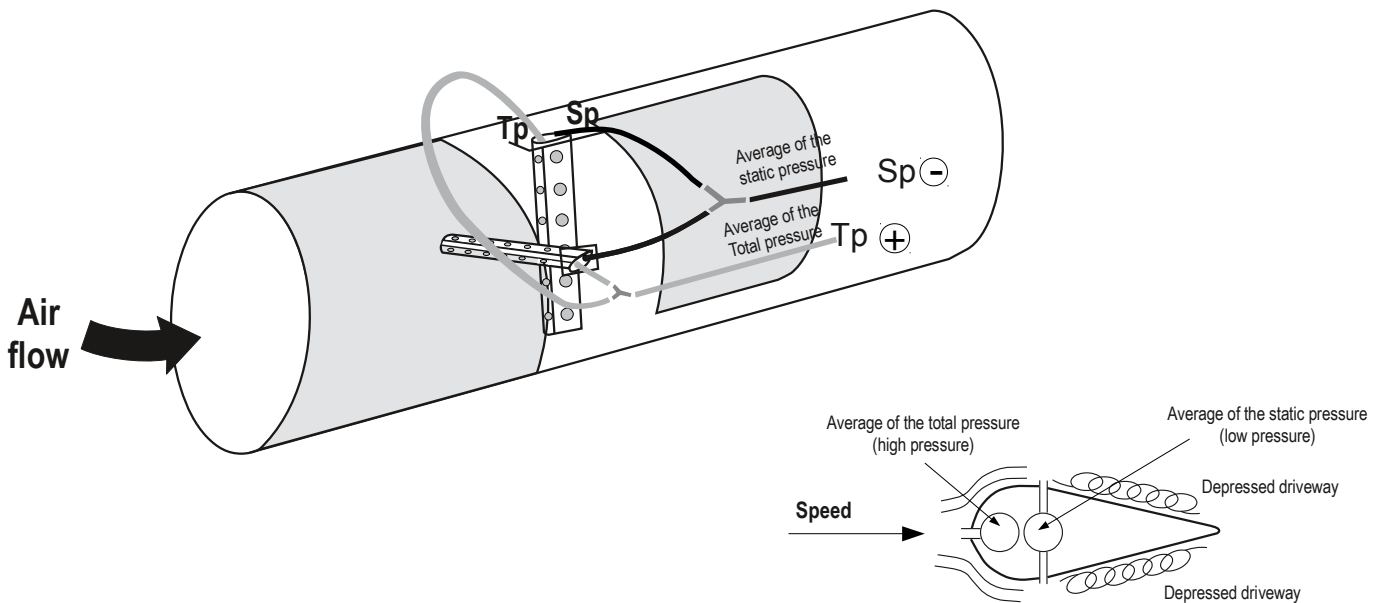
** KIMO recommends after installation an on-site measurement with an accuracy anemometer and an adjustment on the reader of the real value of the flow.

REFERENCE	USEFUL LENGTH
DEBIMO 100	100
DEBIMO 125	125
DEBIMO 160	160
DEBIMO 200	200
DEBIMO 250	250
DEBIMO 315	315
DEBIMO 400	400
DEBIMO 500	500
DEBIMO 630	630
DEBIMO 800	800
DEBIMO 1000	1000
DEBIMO 1500	1500
DEBIMO 2000	2000
DEBIMO 2500	2500
DEBIMO 3000	3000



Special sizes possible on request (from 100 to 3000 mm).

WORKING PRINCIPLE



Profiled in plane wing limiting the head losses (<3%) and the turmoils.

Distribution of the measurement holes on the wing enables the control of the average flow (average of the differential pressures).

APPLICATION

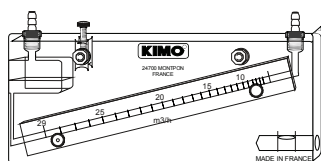


GTC Record



GTC Analyze

Transmitter sensor low differential pressure
CP210 and SQR/3



Inclined column of liquid manometer MG
serial with ruler m3/h



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



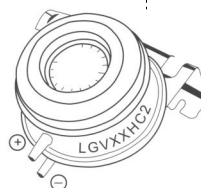
Analyze

Trace in direct

Multifunction intelligent portable
AMI 310



Watch and visualize in direct your flow.



Very low pressure differential pressure switch



Alarm at the flow threshold.

MEASUREMENT

• Measurement of punctual speed S_A

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

With

C_F : coefficient of the flow device element
Debimo wing : $C_F = 0.8165$

Θ : given temperature ($^{\circ}\text{C}$)

P_o : given atmospheric pressure (Pa)

• Flow measurement

Flow calculating :

Flow = Speed_A x surface x 3600

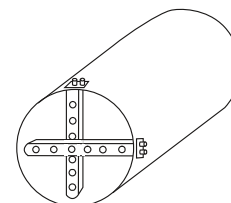
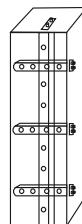
Surface : surface of the circular sheath or rectangular in m^2
N.B : in the electronic devices, the surface is automatically adjustable.

With

Flow : in m^3/h
Surface : in m^2
 S_A : in m/s

Examples of mounting in a sheath :

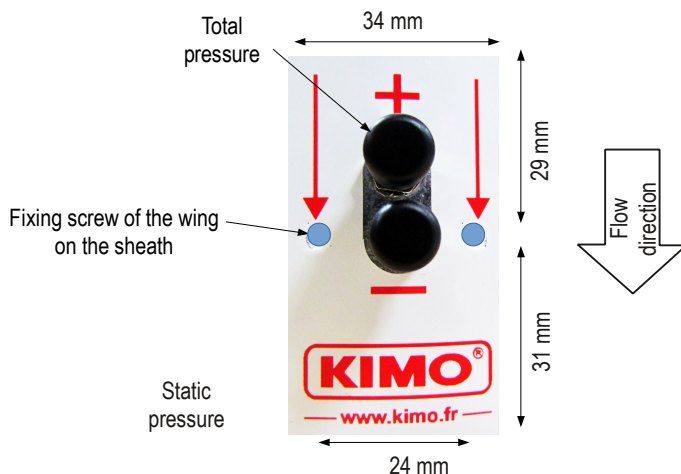
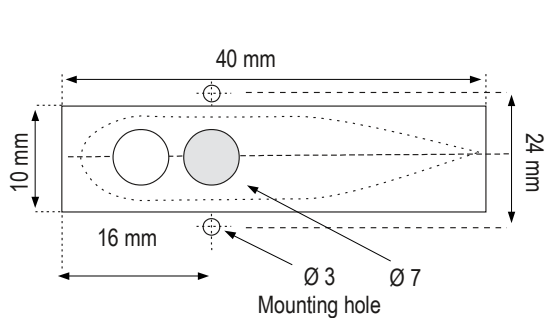
The choice of the number of wings depends on the sheath form and on the desired accuracy. The installation is done by the insertion of one or several DEBIMO elements in the existing sheath.



It is largely the accuracy of the measurement device of the differential pressure associated to the DEBIMO system which will make the quality of the flow measurement.

KIMO, specialist of the very low pressure measurement, offers a broad range of products, column of liquid, analog transmitter sensor, pressure switch, allowing to answer to this application.

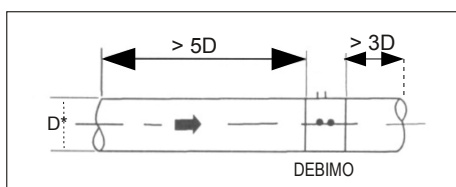
SIZES OF CUT OF THE SHEATH



IMPLANTATION ADVICES

Minimum right length necessary

Circular sheath



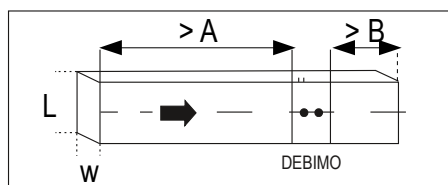
Mounting of a DEBIMO measurement system on an horizontal pipe.

Before DEBIMO, safety distance : $5 \times D^*$

After DEBIMO, safety distance : $3 \times D^*$

* D = sheath diameter in m.

Rectangular sheath



Mounting of a DEBIMO measurement system on an horizontal pipe.

Before DEBIMO, safety distance :

$$A > 5 \times \sqrt{\frac{4 \times L \times w^*}{\pi}}$$

After DEBIMO, safety distance :

$$B > 3 \times \sqrt{\frac{4 \times L \times w^*}{\pi}}$$

* with L and w in m (length and width of the sheath).

More the right lengths are important, more the accuracy increases.

OPTIONS

- **Anodic oxidation** for rugged environment.

ACCESSORIES

- **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
- **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)



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