

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

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 aeraulics 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 theoric, so the definitive measurement largely depends on the aeraulics 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.



PRESENTATION OF THE RANGE

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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



MEASUREMENT

With

• Measurement of punctual speed S_A

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

 C_{F} : coefficient of the flow device element Debimo wing : C_{F} = 0.8165

 Θ : given temperature (°C) P_o : given atmospheric pressure (Pa)

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.

• Flow measurement

Flow calculating :

Flow = Speed x surface x 3600

<u>Surface</u> : surface of the circular sheath or rectangular in m² *N.B : in the electronic devices, the surface is automatically adjustable.* *With* Flow : in m³/h Surface : in m² S_A : in m/s



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



Circular sheath > A > 5D DEBIMO W D Mounting of a DEBIMO measurement system DEBIMO on an horizontal pipe. Before DEBIMO, safety distance : Mounting of a DEBIMO measurement system 4 x L x w * A > 5 x on an horizontal pipe. Before DEBIMO, safety distance : 5 x D* After DEBIMO, safety distance : After DEBIMO, safety distance : 3 x D*

* D = sheath diameter in m.

Rectangular sheath

$$B > 3 x \quad \sqrt{\frac{4 x L x w}{\pi}}$$

 * 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

info@taiwah.com.tw

- → 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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