

Air flow measurement blades Debimo

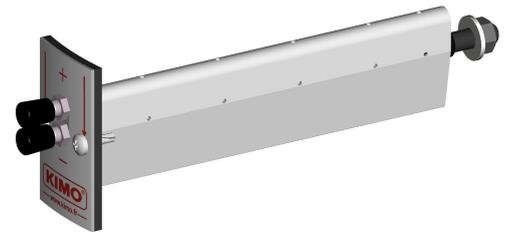


PRESENTATION

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

The **DEBIMO** air flow measurement blades, 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).

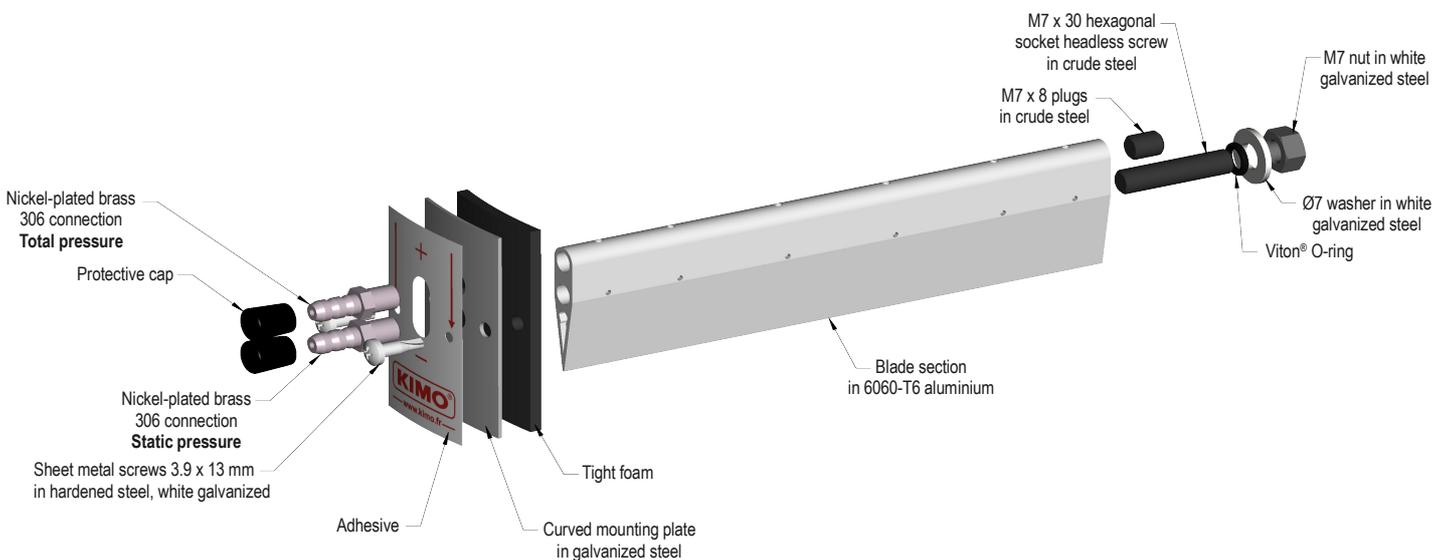
Application examples: blowing in laboratory, VMC, smoke removal, smoke extraction installations, dust-removal systems, climatic engineering...



Several useful lengths available: more details on page 2.

TECHNICAL FEATURES

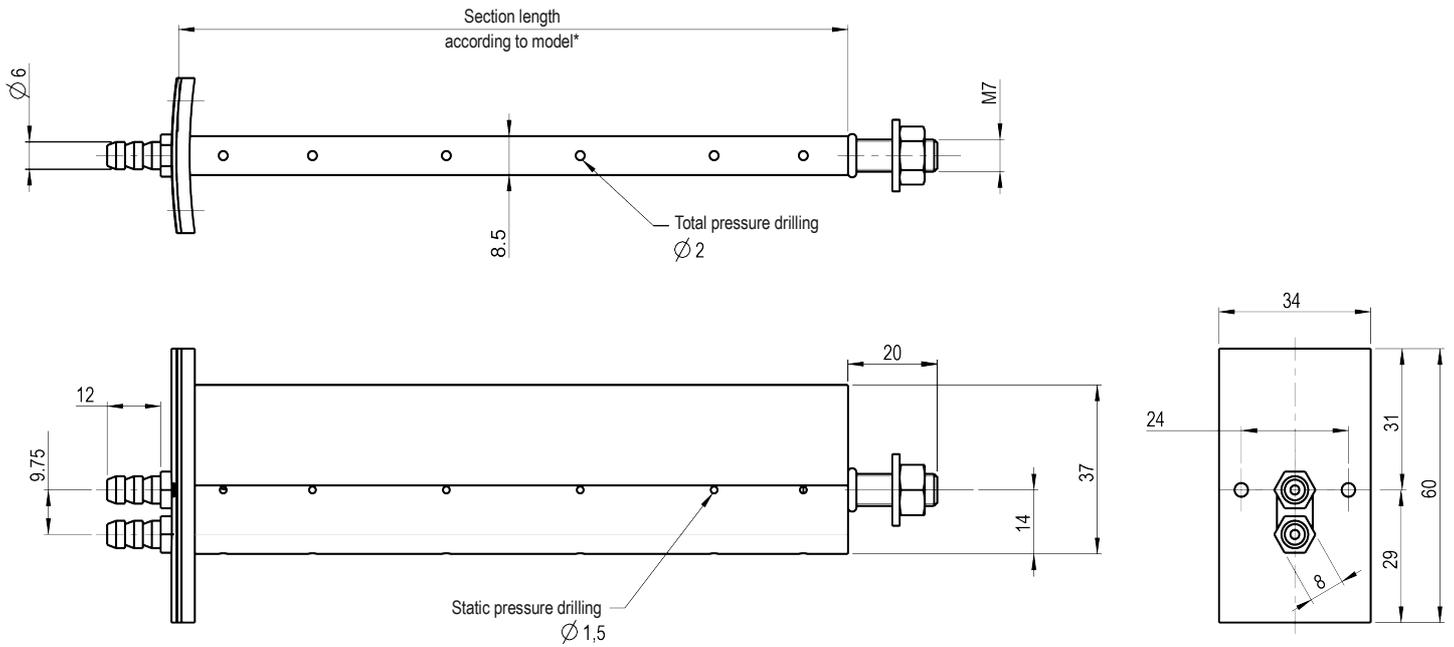
Model	Air flow measurement blades
Coefficient	0.8165
Measuring range	0 to 40 m/s
Materials	Please see the schema below
Temperature of use	0 to 210°C
Static pressure	2 bars maximum in static ¹ (check the holding of the used sensor), hereafter on request.
Accuracy on the installation	From 3 to 5% + accuracy of the pressure sensor, depending on the installation ² .



¹ On the air flow measurement blade only.

² Depends on the low pressure controller used. The blade coefficient is theoretic, 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.

DIMENSIONS (in mm)



i Total and static pressure ports location according to the LOG-TCHEBYCHEV** method.

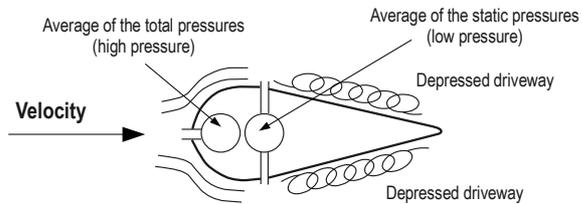
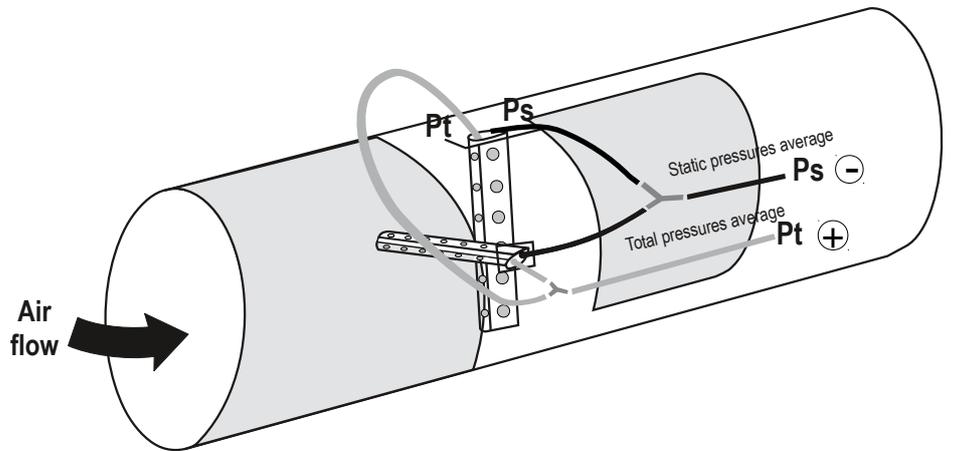
* See below "Presentation of the range".

** Available only on circular sections.

PRESENTATION OF THE RANGE

REFERENCE	USEFUL LENGTH in mm
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

WORKING PRINCIPLE



Section in plane blade limiting head losses (<3%) and turmoils.

Measurement holes repartition on the blade enables the control of the average flow (average of the differential pressures).

i Special dimensions available on request (from 100 to 3000 mm).

APPLICATION



- ✓ GTC record
- ✓ GTC analyze

Low differential pressure transmitter sensor
CP210 and SQR/3



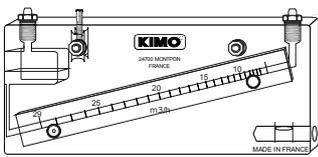
- ✓ Alarm
- ✓ Visualize
- ✓ Operate
- ✓ GTC record
- ✓ GTC analyze
- ✓ Live monitoring

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



- ✓ Alarm
- ✓ Visualize
- ✓ Save
- ✓ Analyze
- ✓ Live monitoring

Multifunction intelligent portable
AMI 310



Inclined liquid column manometer
with ruler m³/h

- ✓ Live monitoring and visualization of your flow



Very low differential pressure switch

- ✓ Alarm at flow threshold

MEASUREMENT

• Measurement of Air Velocity average V_A

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

With

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

Θ : given temperature (°C)

P_o : given atmospheric pressure (Pa)

• Air flow measurement

Air flow calculation: Air flow = Air Velocity_A x surface x 3600

Surface: surface of the circular sheath or rectangular in m²

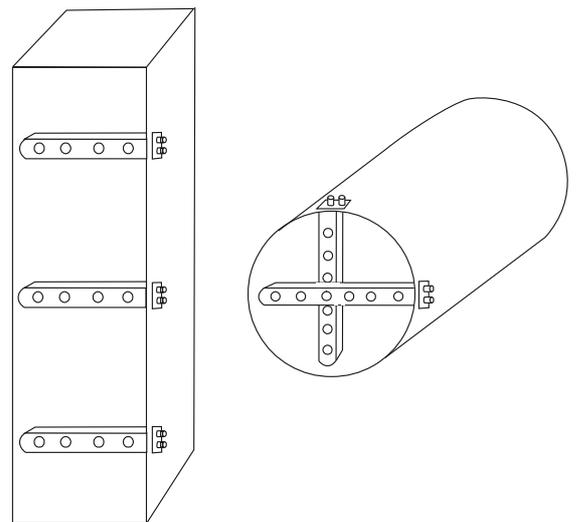
N.B: in the electronic devices, the surface is automatically adjustable.

With

Flow: in m³/h
Surface: in m²
 V_A : in m/s

Examples of mounting in a sheath:

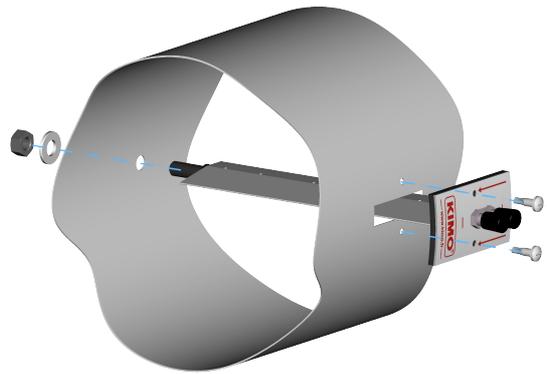
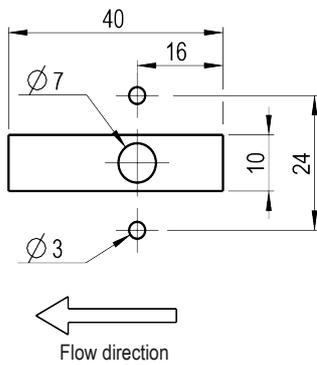
The number of blades chosen depends on the sheath form and the desired accuracy. The installation is done by the insertion of one or several DEBIMO elements in the existing sheath.



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.

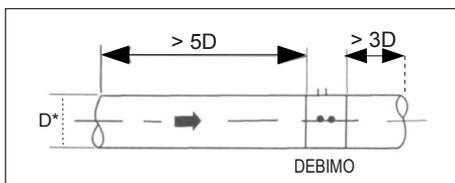
DIMENSIONS OF THE SHEATH CUT



IMPLANTATION ADVICES

Minimum right length necessary

Circular sheath



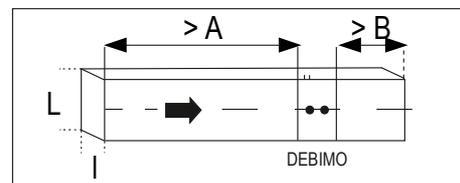
Mounting of a DEBIMO measurement system on an horizontal pipe.

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:

$$A > 5 \times \sqrt{\frac{4 \times L \times l}{\pi}}$$

After DEBIMO, safety distance:

$$B > 3 \times \sqrt{\frac{4 \times L \times l}{\pi}}$$

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



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

OPTIONS

- **Anodizing sulfuric oxidation** for severe environment
- **HALAR®** treatment for severe environment
- **Stainless steel rigid outputs**

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 \varnothing 5 x 8 mm (bag of 10)
- **J.T.C:** junctions in T for a tube \varnothing 5 x 8 mm (bag of 10)

