

SIGMA

Airflow Resistivity Meter *ISO 9053 & ASTM C522-03*

SIGMA is designed to measure the *airflow resistance, resistivity and permeability* of acoustic materials (e.g. porous, fibrous and resistive screens).

It can be used for acoustic material characterization and quality control.



* Please note that the technical aspects of our equipment may be subject to change without notice.

Measuring System

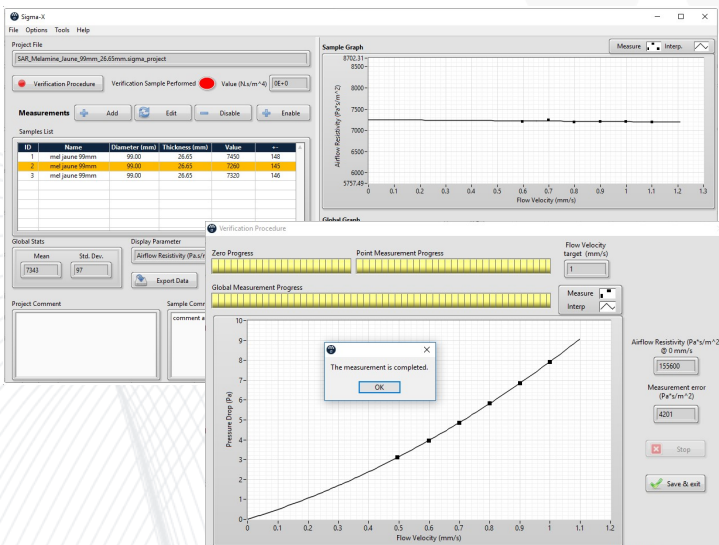
Test Bench

- Integrated high precision mass flow controller
- Integrated high precision pressure transducer
- Sample holder (44.44 and 100 mm diameter)
- Adaptor for resistive screen, fabrics and films.
- Set of grids and rings to support sample

Software SIGMA-X



- Automatic airflow control
- Airflow Resistance, Resistivity and Permeability calculations according to the direct method described in ASTM C522-03 and ISO 9053.
- Calculate the indicators at 0.5 mm/s (standard) and at 0 mm/s (static value)
- Report generation



Technical Data

Test Bench

- Dimensions: 432 (L) x 370 (W) x 135 (H) mm
- Power supply: 100-240 VAC / 50-60 Hz / 50 W
- Operating temperature: 10°C to 40°C
- Communication USB 2.0 type A
- Flow control: from 0.5 mm/s to 100 mm/s depending on sample holder diameter.
- Differential pressure sensor: from 0 to 25 Pa

Sample holder

- Sample diameter: 44.44 mm and 100 mm
- Maximum sample height: 100 mm
- Material: CNC machined aluminium black anodized

Measuring Range

Airflow Resistance :

- 10 to 110 000 Pa.s/m*

Airflow Resistivity:

- 400 to 4.6 x 10⁶ Pa.s/m²*

Airflow Permeability

- 3.9 x 10⁻¹² to 4.8 x 10⁻⁸ m²*

*For a sample of 100 mm diameter and 25.4 mm thickness

Optional Complements

- Circular cutter (29, 44.44 and 100 mm)
- Porous material slicer (29, 44.44 and 100 mm)
- Enclosure for harsh environments
- Air compressor
- Custom sample holder

Special Requirements

The SIGMA system requires clean, dry compressed air at 40 psi (276 kPa) minimum pressure.

Warranty and Support

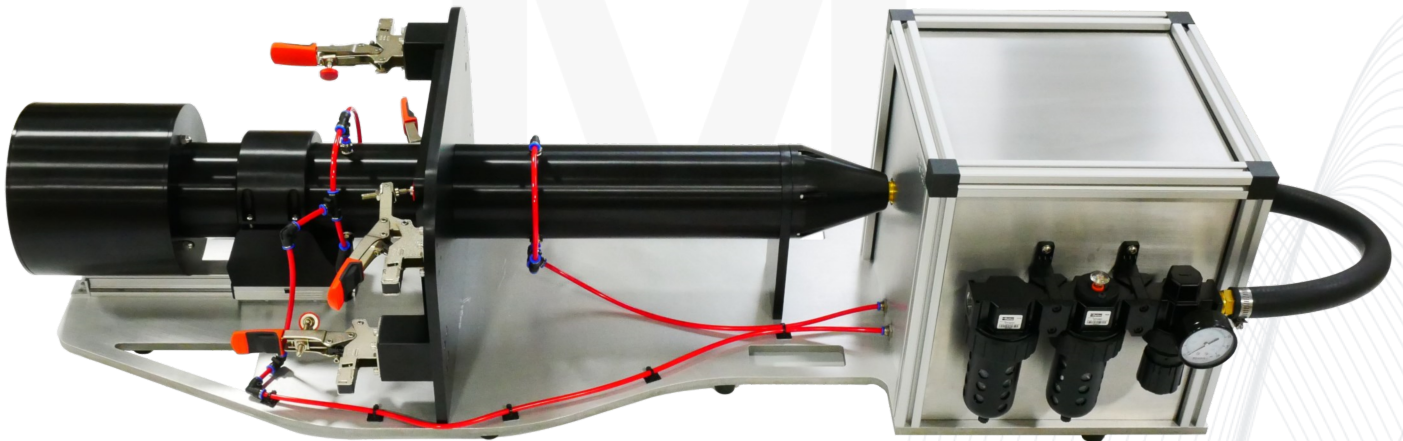
All Mecanum characterization systems are covered by a one-year limited warranty and technical support. The Mecanum warranty is valid only on manufacturing defects and does not cover damage due to abuse or improper use of the equipment.

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SIGMA HF

High flow resistivity meter

The High Flow Resistivity Meter (HF SIGMA) is designed to obtain reliable measurement of air-flow *resistivity*, *resistance*, *normalized resistance* and *permeability* as a function of flow velocity for a wide range of acoustical materials used for noise control.



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Measuring System

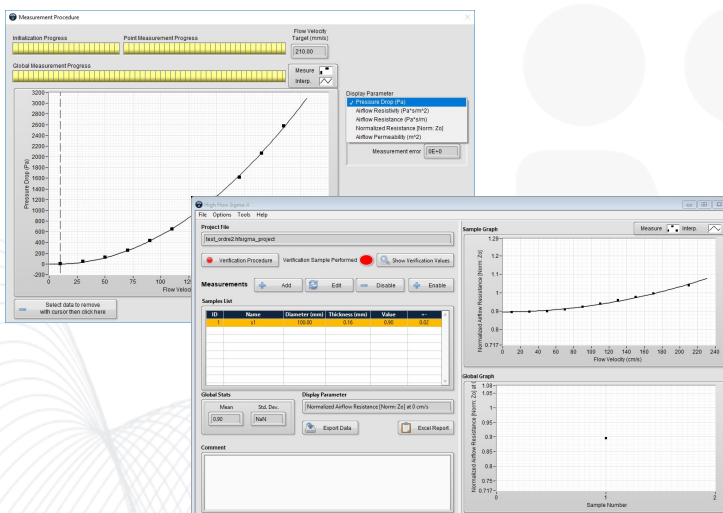
Test Bench

- Integrated mass flow controllers and pressure sensors
- Minimum square sample dimensions : 120 x 120 mm
- Maximum sample thickness: 50.8 mm



Software SIGMA-X HF

- Automatic airflow control
- Calculates airflow resistance, resistivity, permeability and normalized resistance
- Calculates indicators at different speeds and at 0 cm/s (static value)
- Report generation



Technical Data

Measuring system

- Dimensions: 1438 (L) x 600 (W) x 408 (H) mm
- Power supply: 100-240 V / 50-60 Hz / 90 W
- Communication USB 2.0 Type A
- Test section diameter: 100 mm
- Max flow rate : 1500 SLM
- Differential pressure sensor: up to 17 000 Pa
- Operating temperature: 0 to +50 °C
- Weight: 95 kg
- Material: CNC machined aluminum, black anodized

Measurement Range

- Flow Velocity (cm/s)*: 10 to 280
- Pressure drop (Pa)*: up to 17000
- Airflow resistance (Pa.s/m)*: 5 to 170 000
- Normalized airflow resistance (Pa.m.s²/kg)**: 0.012 to 411.2
- Airflow resistivity (Pa.s/m²)***: 197 to 6.69 x 10⁶
- Airflow permeability (m²)***: 2.7 x 10⁻¹² to 9.2 x 10⁻⁸

* for a 100 mm diameter sample

** for a 100 mm diameter sample at 20 °C and 1013 hPa

*** for a 100 mm diameter and 25.4 mm thick sample

Typical Tested Materials

- Perforated plate
- Resistive screen & fabrics
- Porous materials

Additions and Complements

- Customized sample holder (ex. Circular sample holder)

Special Requirements

The SIGMA HF system requires a clean, dry 60 CFM (1700 LM) at 40 psig (276 kPa) air line.

Warranty and Support

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