Mecanum’s impedance and transmission tubes are designed to measure the main acoustic indicators of a wide range of acoustical materials from simple foams to complex multilayers including resistive screens and fabrics.
Adds and Complements

Hardware
- Impedance tube
- Microphones
- DAQ system
- Ultra-low distortion audio amplifier
- TUBE-X software
- Verification sample
- Mounting grids and rings

Software - TUBE-X
- Fully controls the measurement procedure (from calibration to measurement).
- Corrects mistakes caused by atmospheric conditions, tube’s internal dissipation, mounting rings, mounting grids and automatically controls the sound level inside the tube.
- Results file format: Tab delimited text and Excel files.

<table>
<thead>
<tr>
<th>Measured Normal Incidence Properties</th>
<th>2-mic</th>
<th>3-mic</th>
<th>4-mic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound absorption coefficient</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Complex reflection coefficient</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Specific normal impedance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Characteristic acoustic impedance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sound transmission loss</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Complex wave number</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Equivalent/effective dynamic density</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Equivalent/effective dynamic bulk modulus</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Transfert matrix coefficients</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Warranty and Support
The system is covered by a 1-year limited warranty¹ and technical support.

Related Accessories
- Grids and rings
- Verification and calibration samples
- Porous material slicer
- Circular cutter
- Resistive screen and fabric holder
- Enviro Weather station

Technical Data

Tube
- Internal diameter:
  - 29 mm [200-6600 Hz]
  - 44.44 [100-4300 Hz]
  - 100 mm [35-1900 Hz]
- Maximum samples length: 125 mm
- Nominal dimensions:
  - 29 mm tube: 80(L) x 20(W) x 20(H) cm
  - 44.44 mm tube: 80(L) x 20(W) x 20(H) cm
  - 100 mm tube: 120(L) x 20(W) x 20(H) cm
- Customized dimensions are possible

Material: CNC machined aluminum, black anodized

Instrumentation

DAQ
- Dimensions: 215.9(L) x 203.2(W) x 133.4(H) mm
- Input: 4 channels 102.4 kHz/ch 24 bit
- Output: 1 channel 96 kHz/ch 24 bit
- Power supply: USB port

Audio amplifier
- Type: 15 W Ultra-low distortion amplifier
- Power supply: 100-240 Vac 50/60 Hz

Microphones
- Type: ¼” PCB pressure type microphones
- Frequency response: 20 Hz to 20 kHz

Mecanum Warranty is only valid on manufacturing defects and will not cover damage due to any abusive or improper use.

¹ Please note that the technical aspects of our equipment may be subject to upgrades without prior notice.