Air flow laboratory offers flow meter/flow product calibration & Testing/Consultancy services to customers from a wide range of industrial sectors like automotive, aerospace, Pharmaceuticals & Healthcare, Gas distribution & Process industries, Flow meter manufactures, Research & Development centers, Academic Institutes etc. These calibration facilities at FCI are traceable to national and international standards.

Major facilities at Air flow Laboratory are detailed below.

**Primary Air Flow Laboratory (PAFL)**

Primary Air flow laboratory is equipped with internationally accepted primary flow standards like Bell Provers and Piston Provers of various capacities for precise flow measurement. Calibration of flow meters at low pressure is carried out here for flow ranges up to 40 m³/h. As per the norms stipulated by the ISO, Primary air flow lab is always maintained at controlled ambient conditions for ensuring metrical qualities of the master flow meters and thereby providing highest quality and precision in calibration of flowmeters.

![Delivery Provers](image1)

500 hr capacity Bell Prover

50hr capacity Bell Prover

Piston Prover

**Secondary Air flow Laboratory (SAFL)**

Secondary air flow laboratory is operating at near atmospheric pressure and has Critical flow venturi nozzles (Sonic Nozzles) as reference standard. Calibration of flow meters up to a maximum flow range of 10,000 m³/h can be carried out here. Various types of flow meters and flow products of sizes up to 400 mm are calibrated/tested and Certified at these facilities. Critical flow venturi nozzles of different capacities designed as per ISO 9803 are used as reference flow standards. Sonic nozzles are considered as the best reference standard for Calibration of precision flow meters used for custody transfer applications.
Other major Calibration/testing capabilities of Air flow laboratory include:

- Model approval testing of Diaphragm gas meters as per BS EN 13669 & IS: 4439.
- Model approval testing of gas meters as per OIMLR 137-1.
- Gas regulator (OPSO/UPSO) type approval tests as per BS EN 334, BS EN 38-1 & BS EN 88-2.
- Calibration/testing of Blower/Fan/Respirable dust samplers, High volume samplers, Leak flow calibrators, Critical flow orifices, Smooth approach orifices, Laminar flow elements, Flow nozzles, Mass flow meters, Vortex Flow meters, Ultrasonic flow meters, Rotameters and Leakage and flow test on Valves, Pressure drop test on filters etc.
- Air/Gas flow measurement in large diameter ducts, Calibration of annuulators, aerofoils, venturis, orifices etc. at-in-situ conditions.
- Validation/Calibration of flow meters and Installation checking at site as per ISO/ACI standards.
- On the job training of industrial personnel in the field of gas flow metering and Calibration techniques.

**Major Specifications of Air Flow Calibration facilities**

<table>
<thead>
<tr>
<th>Testing conditions</th>
<th>Facility</th>
<th>Max. Flow rate (m³/h)</th>
<th>Uncertainty in Flow rate</th>
<th>Max. Line Size(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Ambient (1 hour air)</td>
<td>Primary Air Flow Lab (PAFL)</td>
<td>0.25-40.0</td>
<td>0.10%</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.05-0.25</td>
<td>0.30%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Air Flow Lab (SAFL)</td>
<td>11.25-400</td>
<td>0.15%</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400-10000</td>
<td>0.25%</td>
<td></td>
</tr>
</tbody>
</table>