



### Technical Description:

This Subsonic Open - Wind Tunnel Is For The Study Of Advanced Aerodynamics Theory And Research. A Wide Range Of Accessories And Instrumentation Options Are Available, Allowing A Comprehensive Study Of Subsonic Aerodynamics. The Facility Is Suitable For Undergraduate Training And Project Work.

The Model Being Studied Remains At Rest While The Flow Medium Is Set In Motion, And Thus The Desired Flow Around The Model Is Generated. Air Is Drawn In From The Environment And Accelerated Using An Axial Fan With 3 Hp Motor Installed At Exit Section. At The End Of Inlet Portion, Which Is Converging Along The Length, Air Passes Through A Honeycomb Structure To Straighten The Flow And To Ensure Uniform Velocity Of Air Along With Minimizing The Turbulence To As Low As Possible.

Then Air Enters The Working Section (straight Along The Length) Where Different Shape Models Can Be Incorporated To Visualize The Flow Around These Models / To Study The Lift And Drag On Aerofoil Shaped Models/To Study Pressure Distribution On Different Shape Models/To Study Boundary Layer Phenomenon. The Working Section Is Clear Acrylic From Both Front And Back To Give Good Visibility Of The Models. The Acrylic Window/Section Is Tightened Using Fly Nut Which Can Easily Be Unscrewed For Changing The Model As Per Experiment. Hence Making It User Friendly. The Air Leaving The Working Section, Enters The Diffuser (diverging In Shape) And Then The Variable Speed Axial Fan To The Atmosphere.

### Learning Objects/Experimentation:

- To Plot Speed Curve For Wind Tunnel.
- To Study Pressure Distribution Around (A) Aerofoil (B) Cylinder (C) Sphere.
- To Measure Lift And Drag On Aerofoil Model.
- To Study The Development Of Boundary Layer Along A Plate In Tunnel.

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*



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**Requirement For Operation:**

- Electricity Supply: 3phase, 440v Ac, 3 Kw.
- Floor Area 10 X 3.5 M.

**Technical Specification:**

- Speed Range From 0 To Max; Such As: ( $40\text{m/s} \leq V_{\text{max}} \leq 60 \text{ M/S}$ )
- Test Vein;
- Transparent Square: Passage Section  $01\text{m} \times 01\text{m}$  And Longue  $01.5\text{m} \leq L \leq 03\text{m}$  Dismounted (possibility To Introduce Measuring Instruments).
- A Space Of Length X Width X Height (m<sup>3</sup>) Below The Base Of The Test Section Completely Clear With: ( $1.5 \leq \text{Length} \leq 2\text{m}$ ), ( $1\text{m} \leq \text{Width} \leq 1.1\text{m}$ ), ( $1.3\text{m} \leq \text{Height} \leq 1.5\text{m}$ )
- Closed Circuit
- Horizontal Installation
- Turbulence Rate < 1% At Vmax
- Integrated Variable Speed Driven With Control System
- Control, Display And Data Acquisition System
- Noise Attenuator (to Ensure A Maximum Noise Level Of 70db)
- Provide A Vibration Damping System Especially From The Motor-Fan Unit
- Architecture Modular Plenum (access To Honeycomb Components And Screens Possible)
- High Performance Computing Station For Data Processing.

**Control Panel:**

- Standard Make On/Off Switch, Mains Indicator Etc.

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