

Appendix-I

Sr. No.	Name of the item with Specification	Qty.
1.	<p><u>Subsonic Wind Tunnel Specifications:</u></p> <ul style="list-style-type: none"> • Test section size: 500x500x2000 mm • Max Velocity: 50 m/s • Min Velocity: 1 m/s (VFD control fan movement) • Turbulence levels: max 2% at working speeds • Contraction ratio- 9:1 • Overall length 12000 (L) x 2500 (W) x 2500 (H) mm • Maximum Power Requirement 30 HP, 3 Phase, 415 V <p>Parts:</p> <p>a) Honeycomb Flow Straightener</p> <p>b) Aerodynamically designed effuser (cone)</p> <p>c) Test Section</p> <p>d) Diffuser</p> <p>e) Variable speed axial fan (Electronic Drive Control for speed controlling)</p> <p>f) Silencer</p> <p>g) Dynamically Balanced fan impeller</p> <p>h) Wooden body of wind tunnel with suitable thickness</p> <p>i) Angle Inclination and setting accessories for varying the angle of attack of aerofoil model</p> <p>j) Digital Velocity Indicator</p> <p>k) Perspex Material for Test Section</p>	01 Unit.
2.	<p><u>Smoke Generator with stand for model placement Specifications:</u></p> <p>Type: Preston Sweating Mist Generator Type</p> <p>Tank Capacity-2 Ltr. (approx.)</p> <p>Output- 15000 Cu.ft/min</p> <p>Circuitry control with remote control</p> <p>Maximum power consumption- 1500 W</p>	01 Unit.
3.	<p><u>Pitot Tube with mountings Specifications:</u></p> <p>L type Pitot- Static Tube mounted vertically adjustable length allowing wake survey of a model</p> <p>Piping connection of suitable length for connection with Digital differential manometer</p> <p>DPT Make: HK Instruments (Finland) or similar</p>	01 Unit

4.	<u>Digital Multi Tube Manometer Specifications:</u> ESP – 32HD Miniature Pressure Scanner Number of ports 32 Pressure Range $\pm 10''$ H ₂ O Accuracy 0.1% of Full Scale Manifold Purge Temperature Sense Standard (i.e. no temperature compensation) Amplifier Generation (Conventional) Computerized Data Acquisition System with Software	
5.	<u>Six component balance with digital readout</u> 6 component floor mountable strain gauge balance for measuring forces (Lift, Drag, Pitching Moment, Rolling Moment, Side Force & Yawing Moment) on a model in wind tunnel <ul style="list-style-type: none"> • Lift- 0-50 Kg • Drag-0-10 Kg • Side Force-0-6 Kg • Pitching Moment-0-150 Kg-cm • Yawing Moment-0-20 Kg • Rolling Moment-0-20 Kg-cm • Provision for pitching & yawing the model over range -10° to 20° in pitch and -10° to $+10^\circ$ in yaw • Full bridge strain gauge elements, proper transfer of forces after isolation with very little interference • Full bridge strain gauge amplifiers with gain and off set adjustments • Processor for controlled measurement system • Provision to implement calibration and calibration constants • Proper computation of forces and • display of forces Computerized Data Acquisition System for Six component balance	01 Unit
6.	<u>Measurement of Drag Forces and Lift Forces in Different Models</u> <ul style="list-style-type: none"> • Sphere Drag Model • Drag model of hemisphere convex to airflow • Circular Plate Drag Model • Ring Drag Model • Square Plate Drag Model • Cylinder Drag Model • Streamlined Shape Drag Model • Paraboloid Drag Model 	01 Unit

	<ul style="list-style-type: none"> • Drag Model for Hemisphere Concave to Airflow • Wing with flaps Drag Model • Flag Drag Model • Wing Model with NACA 0015 Profile • Wing Model with NACA 54118 Profile • Wing Model with NACA 4415 Profile • Dimpled Sphere Drag Model <p>(a) Boundary Layer Analysis with Pitot Tube</p> <ul style="list-style-type: none"> • i) Two plates rough and smooth, L x W x H = 279x250x3 mm • ii) Vertically movable Pitot Tube measures at various distances from the plate surface • iii) Horizontally movable plate for recording pressures along the flow <p>(b) Study of Pressure and flow distribution around a model</p> <ul style="list-style-type: none"> • Pressure distribution in a wing model with NACA 0015 Profile • Pressure distribution in a wing model with NACA 54118 Profile • Pressure distribution in a wing model with NACA 4415 Profile <p>Pressure distribution in a cylinder</p>	
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