

Product Name :
Closed Circuit Subsonic Wind Tunnels

Product Code :
NLAB-TECHNICALAB30007



Description :

Closed Circuit Subsonic Wind Tunnels

Technical Specification :

The wind-tunnels are equipped with stilling chambers with a honeycomb and grids of varying mesh sizes.

The contractions are designed to give an optimum velocity distribution in the test section.

The test sections are generally constructed in plexiglas for full flow visualization, and to permit the use of laser anemometry systems.

Models, aerofoils, balances and probes can be fitted to the test sections, together with single or multi-axis probe traversing systems.

The tunnel circuit also includes a diffuser and round to square transition sections upstream and downstream of the axial fan which is connected to the main structure through flexible sleeves. The corner sections are fitted with guide vanes to avoid separation and to maintain a satisfactory pressure distribution irrespective of changes in flow direction.

The fan is directly coupled to a variable speed electric motor with a frequency controller, to give a wide range of velocities in the test section. The motor speed can be varied by remote control or by an analogue signal.

The wind-tunnel is dimensioned for a plexiglas test section of 300 x 300 mm, and length 700 mm. An aerodynamic balance and models can be mounted on a vertical panel of the test section. Probes, including pitot

tubes and hot wires, can be positioned in the air stream through passages in the top panel of the test section.

The wind-tunnel is fitted with an air-water heat exchanger, connected to a mains water supply, to maintain a constant air temperature during prolonged operation of the tunnel. To allow easy access to the test section and models, a raised floor section and a working surface can be supplied as options if required.

The plexiglas test section dimensions are 300 x 200 mm, and the length 600 mm. Aerofoils and other models, together with a balance, can be mounted through the top panel. Passages for probes (pitot tubes, hot wires,...) are located on the front side panel.

The wind-tunnel can also operate in an open jet configuration. The closed circuit test section is removed and replaced by a profiled entry section mounted on the diffuser downstream flanges. The air speed in the open section is reduced by 5 m/s in this configuration.

The Closed Circuit Subsonic Wind Tunnels is of compact design. It can be used for fundamental experiments in aerodynamics.

The wind-tunnel can be supplied, on option, with full instrumentation (pressure transducers, temperature probes, etc) and transparent tunnel sections, to investigate wind-tunnel operating characteristics.

An optional intercooler can be supplied to maintain constant air temperature conditions.

Technical specifications

Overall dimensions: 4420 x 1420 x 2100 mm.

Test section dimensions: section : 300 x 300 mm, length: 700 mm.

Contraction ratio: 8.

Velocity range: 2 to 40 m/s.

Uniform velocity distribution in the test section.

Turbulence level: < 0.5 % at 40 m/s.

Power requirement: 7,5 kW.

Weight (approx.): 450 kg.

Overall dimensions: 3000 x 700 x 1500 mm.

Test section dimensions: section : 300 x 200 mm, length : 600 mm.

Contraction ratio: 4.

Velocity range: 2 to 40 m/s.

Uniform velocity distribution in the test section

Turbulence level: < 0.8 % at 40 m/s.

Power requirement: 3 kW.

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