

Blower Tunnel Facility



Open air test centre allows testing of large platforms

The Blower Tunnel and Icing Facility are unique within Europe and widely used by a variety of military and commercial organisations. The facility is comprised of an open-air Wind Tunnel providing capability for the full scale testing of systems, including the simulation of driving rain and icing conditions, it is also a certified range for flare and munitions testing. Benefits provided to customers are reduced lead times, lower costs, high safety levels and the wealth of experience gained as an official testing centre for the Ministry of Defence

Customers

Examples of work undertaken by the facility include:

- the testing of telecommunication stations under driving rain conditions,
- safety of motor vehicle accessories,
- development of decoy flares
- aircraft and component icing
- ejector seat development and catchnet system,
- wind effects on masts and structures.



Certified testing ranges offer high safety levels and reduced costs

Construction

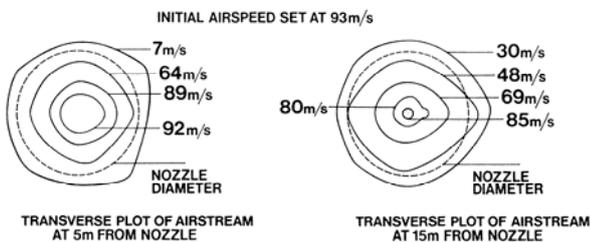
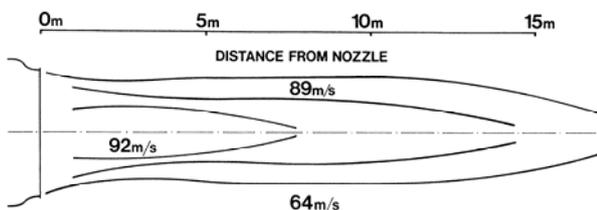
The blower tunnel comprises of a 3m-diameter tube 13m long which supports a concentric 1.5m diameter inner tube containing the drive motors for the fans. The complete tunnel is supported in a rigid framework and employs a counter-weight system, which permits the tunnel to be raised to provide downstream testing of the system. Additionally the tunnel may be tilted to angles of up to $\pm 7^\circ$ from the horizontal.



Risk reduced systems testing offer project cost reductions

Capabilities

Four Rolls-Royce Merlin engines drive the four fixed pitch ten blade fans in contra-rotating pairs, each engine capable of producing 1,610 b.h.p. These engines combined with r.p.m. settings and diameter of the exit nozzle; allow the airspeed to be varied over the range 20 to 180m/s.



Reduction of the air stream temperature below ambient can be achieved using liquid nitrogen to cool the air stream and water of the appropriate droplet size is added to form ice on the test subject. The reduction in temperature that can be achieved is up to 30°C depending on airspeed.

With the rain gun fitted to the blowing nozzle of the tunnel, controlled quantities of water can be introduced into the air stream to simulate wind driven rain.

QinetiQ uses a catchnet system allowing aircraft/canopies ejection seats to be safely caught after unrestricted release into the tunnel air stream

The facility also has a capability to provide instrumentation services for calibration of equipment in-house, should this be required. The system is capable of handling 50 parameters, with up to 16 pages of real time parameter displays.

Permanent records of data can be made on CD or floppy disc for subsequent analysis.

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