



Facility Factsheet

Mach 3 High Reynolds Number Facility

Description: The Mach 3 High Reynolds Number Facility is an intermittent, blow-down supersonic wind tunnel with an 8 inch square test section. Primary customers are military science and technology development programs that are performing foundational and early developmental research. The Mach 3 HRNF Reynolds' Number capability is one of the highest in the portfolio of U.S. Government wind tunnels.

Capabilities:

Test Conditions:

Mach Number: 2.98
Reynolds' Range: (14 to 100 million/ft)
T0 Range: 500 °R
P0 Range: 80-600 psia
Test Section: 8 in. x 8 in. square

Test Capabilities:

Run times: Up to 60 minutes
Fixed strut and pitch rotation
Angle-of-Attack Range ($-10^{\circ} < \alpha < 10^{\circ}$)
Data Acquisition: 32 pressure channels, 8 thermocouple channels, 8 unsteady pressure channels, 32 accelerometer channels.



Flow Diagnostics: Schlieren, Oil Flow, Laser wave front optics, PIV, and TSP.

Examples of Current/Past Programs: Facility was returned to operation in 2014 and current programs include measurements of laminar, transitional and full turbulent boundary layers, shock/boundary layer interactions and separation, and CFD validation.

Cost/Scheduling Information: To be determined on case by case basis.

Contacts: Primarily in-house and related DoD contractor research. Other U.S. Government agency, DoD contractor and commercial customer programs upon request. Contact: 937-713-6678

