



Facility Factsheet

Trisonic Gas-Dynamics Facility (TGF)

Description: The TGF is a two-foot square, continuous-flow, closed-circuit wind tunnel which is optimal for conducting research experiments. The facility provides a cost effective, rapid test capability for AFRL to explore propulsive and weapons integration studies and aerodynamic performance on a multitude of air vehicles from subsonic to supersonic ($M=3$) speeds at various simulated altitudes. Since being built in 1950, over 250 experiments have been conducted and this research has helped develop the fundamental knowledge base in aircraft aerodynamic design, weapons and propulsion integration that is employed today in the aerospace industry. An additional benefit of the facility is the ability to test contractor technology concepts, thereby providing the Air Force with an independent audit capability of contractor claims. A major refurbishment was completed in 2005 which upgraded the tunnel systems and now provides reliable, flexible, state-of-the-art data acquisition capabilities.

Capabilities:

Subsonic & Supersonic Test Conditions:

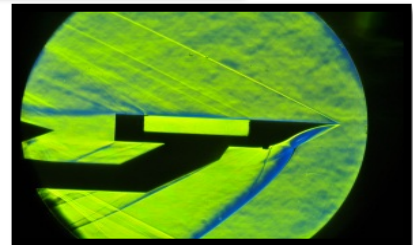
Mach Number: 0.23 – 0.8, 1.5, 1.9, 2.3, 3.0
Reynolds Number Range (1 to 4 million/ft)
Test Section: 2 ft. High x 2 ft. Wide
Stagnation Pressure: 0.5 to 2.0 Atmospheres

Test Capabilities:

Sting, Sidewall or Blade mounting; internal balances
Angle-of-Attack Range ($-1^\circ < \alpha < 18.5^\circ$)
Roll Capability (0° to $+360^\circ$)
Secondary Air / Vacuum System
TestSlate Data Acquisition System

Flow Diagnostics :

Schlieren, Reflective Background Oriented Schlieren, Pressure Sensitive Paint, Oil Flow



Examples of Current/Past Programs: Configuration and Component Research, Airframe / Propulsion & Weapons Integration, Test Technique Development

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

