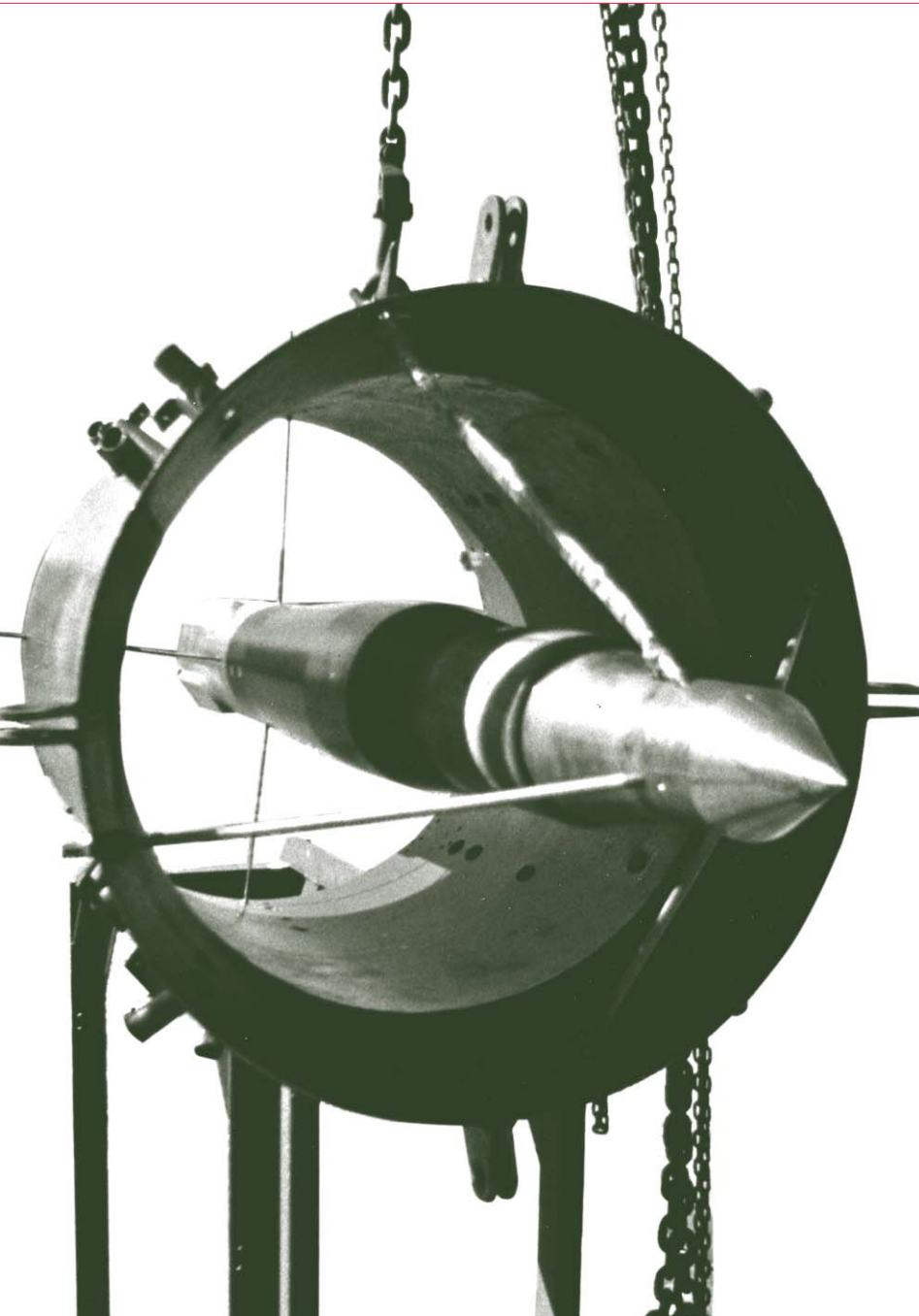


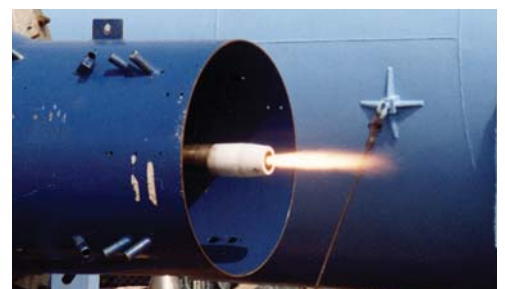
Aerodynamic Test 0.45m Guided Weapons Wind Tunnel and High Speed Blower Facility



Introduction

The 0.45m Guided Weapons Wind Tunnel (GWWT) is a blowdown type, operating from a storage pressure of 4,200 kPa and exhausting to atmosphere. The tunnel provides variable Reynold's number testing over a Mach number range 1.7 to 6.0. The tunnel can be used for force and moment data.

The tunnel also drives a High Speed Blower Facility (HSBF). The HSBF provides a test environment up to Mach 1.8 in various nozzle configurations up to 1m in diameter. The blower can be used for store ejection / deployment, rocket motor / flare firing, pilot equipment air blast testing, parachute deployment tests and general load and pressure measurement studies.



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Guided Weapons Wind Tunnel

Performance

Speed range	Mach 1.7 to 6.0
Run time	1 second to 6 minutes
Temperature	Ambient to 200°C

	M	1.7	3.0	4.0	5.0	6.0	
Total pressure range	Pt	2-10	2-25	2-31	2-33	2-34	bar
Reynolds no. range	Re/m	10-135	10-200	10-140	10-66	10-37	million

Working Section

Cross Section	0.45m x 0.45m
Model Support	Continuously rolling and pitching sting facility allowing full vehicle attitude coverage in a single tunnel run.
Attitude range	Incidence/sideslip -5 to 25° at 1°/sec with continuous roll rates up to 270°/sec.

High Speed Blower Facility

Performance

Nozzles	M	0-0.8	0-1.1	1.3	1.5	1.8
	Diam	1.02	0.76	0.61	0.61	0.56 m
	Pt	0-1.54	0-2.16	2.81	3.72	5.82 bar
Run time		Over 20 seconds				
Temperature		Ambient				
Pressure		Atmospheric				

Test Area (HSBF)

Environment	External, open, secure
Test article support	Via floor stands or mounted to a cruciform in the nozzle exit plane.

Special Rigs (HSBF)

Light duty spin rig. Will spin a 2kg component at up to 250Hz. At air speeds of a few m/s up to Mach 1.8.

Test Support

In house wind tunnel design and manufacture capability.

Data Acquisition

The facility contains a flexible data acquisition system that can accommodate a wide variety of sensors.

Compact pressure scanning hardware is also available that can provide over 1000 pressure measurements.

Data Processing

In house software support.

Outputs

Data	Networked user friendly plotting software.
Flow visualisation	Schlieren, video, and fluorescent oilflow.



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