



Identification of the installation/facility:

Country: the Netherlands
Location (city): Amsterdam
Name of the facility: DNW-HST
Date of main refurbishment: 1996
Owner: DNW
Contact point: H.B.Vos
Internet site: www.dnw.aero

Technical characteristics:

1 - Type of infrastructure

Wind tunnel	<input checked="" type="checkbox"/>
Propulsion bench	<input type="checkbox"/>
Structures facility	<input type="checkbox"/>
Material facility	<input type="checkbox"/>
Simulator (ex. Flight simulator, tower, ...)	<input type="checkbox"/>
Flight test bed (aircraft, embedded facilities, ...)	<input type="checkbox"/>
Supercomputers	<input type="checkbox"/>
Other	<input type="checkbox"/>

2 - Main technical characteristics

Closed circuit, variable density, continuous wind tunnel with slotted top and bottom test section walls (12% open)

Main features

Test section

- 2.0 m wide by 1.6 m or 1.8 m height
- Laval nozzle for supersonic operation

Operating range

- $0.15 \leq Ma \leq 1.35$
- $25 \text{ kPa} \leq P \leq 390 \text{ kPa}$
- $Re_{0.1 r(S)} \leq 9 \times 10^6$
- $288 \text{ K} \leq T \leq 323 \text{ K}$

Model support

- Remotely controlled transonic sting support system combined with
- straight support boom



- double roll support boom
- articulated support boom
- Remotely controlled subsonic sting support system
- Side wall support
- 2D support

Auxiliary systems

- Compressed air supply with a capacity of 8 kg/s continuously at 40 bar
- Remotely controlled y-z traversing system
- Inlet test rig
- Permanently installed seeding rack for Particle Image Velocimetry (PIV)

Typical tests

- Configuration studies, database creation (civil and military transport aircraft, fighters, spacecraft)
- Engine integration studies by means of Turbofan Propulsion Simulators (TPS) for air turbines or propellers
- Air exhaust simulation with compressed air
- Internal and external air intake surveys

3 - Research domains which can be addressed (refer to ACARE taxonomy <http://www.acare4europe.com/docs/ASD-Annex-final-211004-out-asd.pdf>)

1. Flight Physics
 - a. Aeronautical Propulsion Integration
 - b. Airflow Control
 - c. High Lift Devices
 - d. External Noise Prediction
3. Propulsion
 - a. Performance (Nacelle/Thrust reverser/nozzle design)
10. Innovative Concepts and Scenarios
 - a. Unconventional configurations and new aircraft concepts

4 - Main (or specific) associated measurement techniques

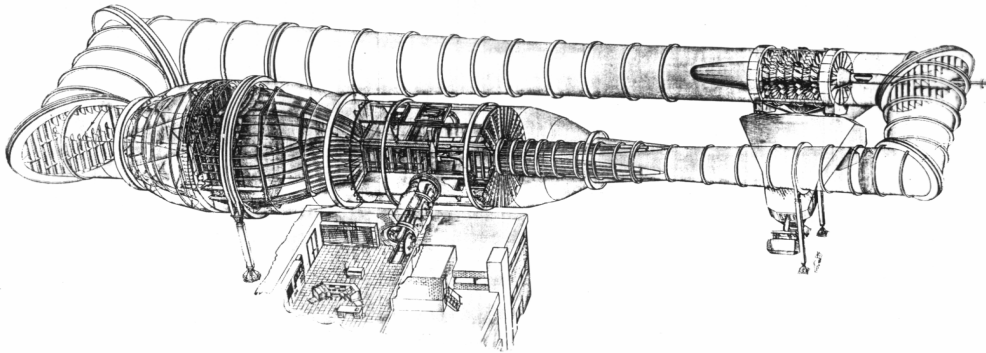
Load measurement (strain gauge balances)
Pressure measurements (static and dynamic)
Particle Image Velocimetry (PIV)
Pressure Sensitive Paint (PSP)

5 - Operational status

- Fully operational 800 hrs available per year



6 - Picture:



Financial elements:

Replacement cost (M€uros)

Less than 10

10 to 30

30 to 60

60 to 100

More than 100

Practices concerning:

Access policy : contract

Support : national

Comments:

For propulsion integration, the engine simulator calibration facility is available on site.

Origin of information ('signature'): author and date

Georg Eitelberg, Director DNW,
7 December 2011