



Identification of the installation/facility:

Country: Germany
Location (city): Braunschweig
Name of the facility: DNW-NWB
Date of construction or of acquisition or of main refurbishment: 2010
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

Industrial wind tunnel for the low-speed domain with cutting edge technology and with capabilities for dynamic testing

Main features

Test section

- Closed or slotted wall test section: 3.25 m x 2.8 m x 8.0 m
- Open jet section: 3.25 m x 2.8 m x 6 m

Operating range

- Closed or slotted wall section: $0 \leq V \leq 85$ m/s
- Open jet section: $0 \leq V \leq 70$ m/s

Model support

- Full-models, half-models and 2D airfoil models
- Dynamic supports: Rotary motion support for coning and spinning motion as well as Model Positioning Mechanism (MPM) or maneuver simulation
- Fixed ground plane with scoop for automotive tests
- Moving belt for automotive tests



Auxiliary systems

- Compressed air supply: reciprocating compressor, screw compressors, with 2 kg/s with 30 bar for TPS tests, or combinations like 9 bar with 3.5 kg/sec, 3.5 bar with 5 kg/sec
- Vacuum pumps 4.6 kg/sec with 0.2 bar

Typical tests

- Database creation and configuration studies for aircraft, cars and trucks
- Engine integration
- Dynamic testing
- Air intake tests
- Air exhaust simulation
- Aeroacoustic investigations with microphone array techniques

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
2. Aerostructures
 - a. Helicopter Acoustics
 - b. Noise reduction
 - c. Acoustic Measurements and Test Technology
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)
Stereo Pattern Recognition (SPR)
Acoustics (microphone arrays)

5 - Operational status

- Fully operational 1200 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:



AirTN
Air Transport Net



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

Georg Eitelberg, Director DNW,
7 December 2011