Identification of the installation/facility :

Country: Germany
Location (city): Neubiberg/Munich
Name of the facility: High-Speed Cascade Wind Tunnel
Date of construction or of acquisition or of main refurbishment: 1985
Owner: Institute of Jet Propulsion
Contact point: Prof. Dr.-Ing. Reinhard Niehuis
Internet site: http://www.unibw.de/isa

Technical characteristics:

1 - Type of infrastructure

Wind tunnel	☒
Propulsion bench	☐
Structures facility	☐
Material facility	☐
Simulator (ex. Flight simulator, tower, …)	☐
Flight test bed (aircraft, embedded facilities, …)	☐
Supercomputers	☐
Other	☐

2 - Main technical characteristics

For wind tunnels:
compressor and turbine cascade testing
Mach number range 0.2<Ma<1.05
test section area= 300x500 mm,
max Rey/m=16x$10^6$1/m ,
special features: Pmax=1.3MW electrical power drive,
wind tunnel installed in a large tank allowing an independent variation of Reynolds and Mach number by control of static pressure (static pressure in test section variable between 3500 and 120000 Pa),
secondary air supply with controlled temperature and pressure,
free stream turbulence level between 2 and 8%
wake generator for periodic unsteady inflow conditions

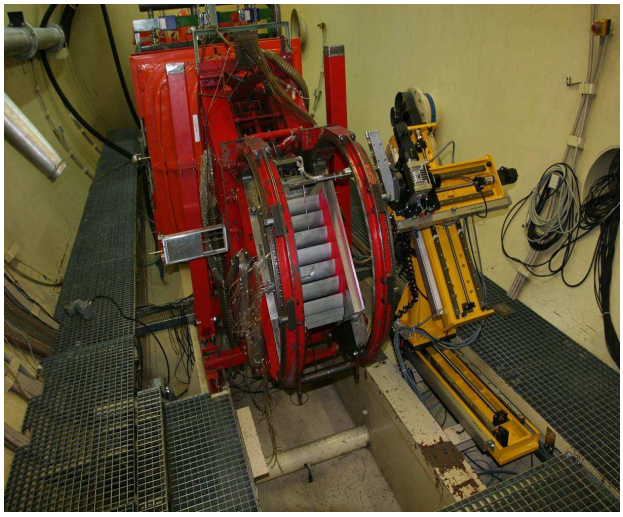
3 - Research domains which can be addressed (refer to ACARE taxonomy http://www.acare4europe.com/docs/ASD-Annex-final-211004-out-asd.pdf)
Key, Pacing, Emerging

4 - Main (or specific) associated measurement techniques
Static pressure measurement (blade loading, flow detachment)
Flattened Pitot-probe (Boundary layer measurements)
Five-hole probe (time averaged Mach, 3D-flow direction and total pressure measurements)
Constant temperature anemometry hot wire (time resolved 1D and 3D-velocity and velocity fluctuation measurements)
CTA hot film arrays (time resolved boundary layer measurements)

Thermochromic liquid crystals (temperature measurements for heat transfer and film cooling effectiveness analysis)
Optical systems: Schlieren, PIV, oil flow visualization

5 - Operational status
- Fully operational (hours available in 2010) 50 weeks running

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, voucher, free access for research, etc…)
contract

Support (regional, national, European, private, …)
national

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

Prof. Dr.-Ing. Reinhard Niehuis, 14.12.2010