Identification of the installation/facility :

Country: Germany
Location (city): Göttingen
Name of the facility:Wind Tunnel for Rotating Cascades
Date of construction or of acquisition or of main refurbishment:1974 / 2002
Owner: German Aero Space Center
Contact point: Institute for Propulsion Technolgy, Turbine
Internet site: www.dlr.de/at

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 (Turbine test bed)	☒

2 - Main technical characteristics

For wind tunnels : max velocity (or Mach number), test section area, max Rey/m, special features (power if continuous, pressure and temperature if blow down, …)
For aeroby propulsion bench: air mass flow, temperature, pressure, type of fuel,…
For solid combustion bench : max force,…

Renolds number	$3 * 10^4 - 1 * 10^6$
Radius of hub and tip (min. / max.)	200 mm / 350 mm
Blade true chord	20 - 60 mm
Rotor speed	14.500 RPM
Max. mass flow	6,0 kg/s
Total pressure	10 kPa – 150kPa
Total temperature	25°C – 180°C

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

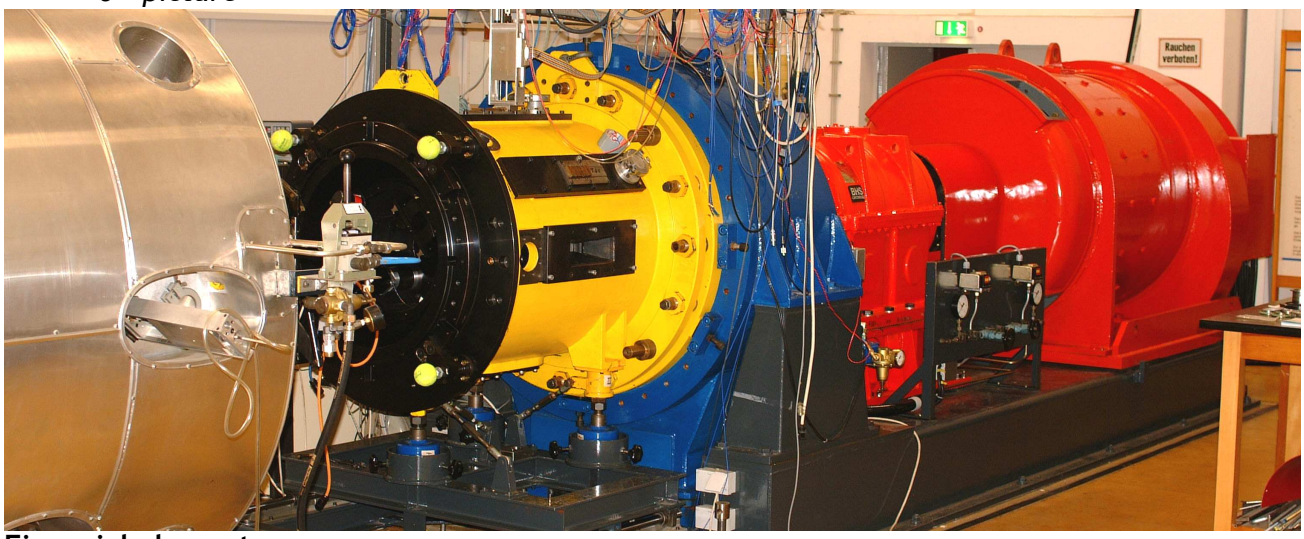
4 - Main (or specific) associated measurement techniques

Ejection of coolant and leakage air
Wake flow traverses using pneumatic probes (2D and 3D)
Static pressure measurements on blades and side walls
Laser 2 Focus Velocimetry (L2F)
Heat transfer measurements
Measurements of stationary and instationary flow values

5 - Operational status

- Fully operational (hours available in 2010) 200 days within 2 R&D programms
- Sleeping but possible to reactivate within 6 months (or a reasonable time frame)
- Not used since 5 years or more

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: regional, national, European, private

Comments:

- The wind tunnel is in operation according to the institut's policy within national and European R&D-projects as well as within direct industrial demands
- Investigations concerning the aerodynamics of turbine stages

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

Peter-Anton Gieß, Institute of Propulsion Technology, Turbine, 10.12.2010