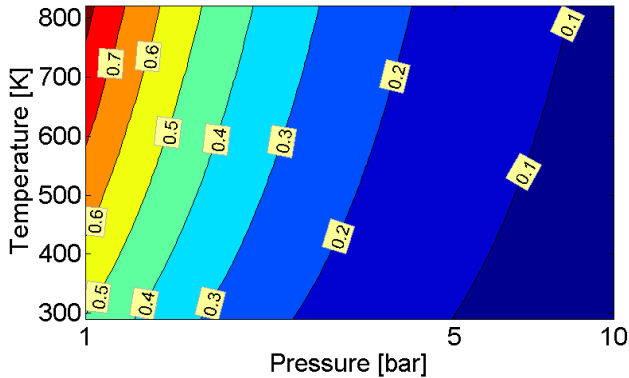


max. temperature of the grazing flow	800 K
max. pressure	10 bar
frequency range	160 – 2800 Hz
max. total mass flow rate	0.78 kg/s
Mach number (see figure below)	0 – 0.7
duct diameter	70 mm
high accuracy: error of damping results	< 3%



Mach number distribution of the HAT facility



**Technical University of Berlin**

Prof. Dr.-Ing. Dieter Peitsch  
Dipl.-Ing. Tobias Schliwka  
Technical University of Berlin  
Institute of Aeronautics and Astronautics  
Chair for Aeroengines  
Marchstraße 12-14  
10587 Berlin  
Germany

Telefon: +49-(0)30 314-26923  
Telefax: +49-(0)30 314-79448

tobias.schliwka@ilr.tu-berlin.de  
www.la.tu-berlin.de



**Deutsches Zentrum für Luft- und Raumfahrt e.V.**  
in der Helmholtz-Gemeinschaft

Prof. Dr. rer. nat. Lars Enghardt  
Dr.-Ing. Friedrich Bake  
German Aerospace Center  
Institute of Propulsion Technology  
Engine Acoustics  
Müller-Breslau-Str. 8  
10623 Berlin  
Germany

Telefon: +49-(0)30 310006-18  
Telefax: +49-(0)30 310006-39

friedrich.bake@dlr.de  
www.dlr.de/at/triebwerksakustik



**Hot-Acoustic-Testrig**

Research for  
quieter and cleaner  
aero-engines

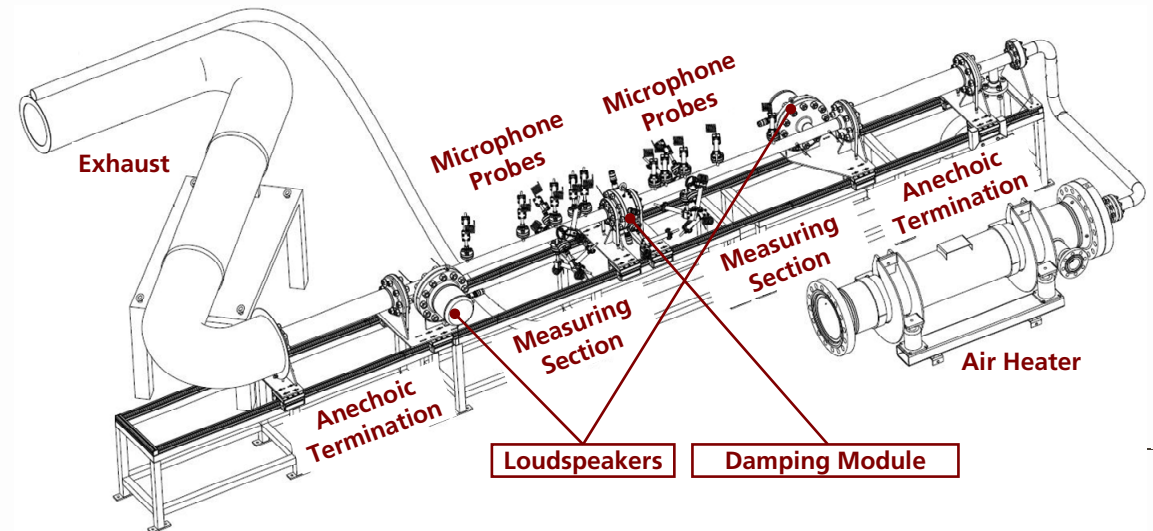


## A Unique Test Facility

- For acoustic and aero-thermal research on liner and other thermally stressed surfaces in aero-engines under steady and unsteady conditions
- A worldwide unique test facility for high accuracy measurements in controlled high pressure and / or high temperature environments including secondary cooling flows
- Very modular setup providing the possibility for flexible modifications and extensions
- Cooperation between TU Berlin and DLR

## Research Opportunities

- Acoustic characteristics (dissipation, reflection, transmission) of liner samples under realistic engine conditions
- Investigation of the liner surface heat transfer and flow-wall interaction under unsteady flow conditions (square cross section liner module with 3-way-optical access)
- Sound generation and transmission in a strongly accelerated flow (combustion chamber – turbine interaction; direct and indirect combustion noise; nozzle module up to choked conditions)
- Novel concepts for rotor-stator sealing in non-uniform main flow conditions



Setup of the HAT facility

