



BATHIRE

Identification of the installation/facility :

Country: FRANCE
Location (city):Palaiseau
Name of the facility:BATHIRE
Date of construction or of acquisition or of main refurbishment: 2004
Owner: ONERA
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Internet site: www.onera.fr

Technical characteristics:

1 - Type of infrastructure

Wind tunnel	<input 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 checked="" type="checkbox"/>

2 - Main technical characteristics

BATHIRE (Banc AéroTHermique d'Investigation en Rotation des Ecoulements) test bench is devoted to the experimental study of the cooling of turbine blades with or without representative rotating conditions. Basic researches on aerothermal exchanges inside a U-bend and radial flow systems are led. Databases are made up for the validation of the aerothermal models implemented in the CFD codes. Those data bases are obtained from experiments carried out in simplified basic configurations of cooling channels.

Maximum Air mass flow: 0,1 kg/s (maxi Reynolds Number : 60000)
Maximum pressure: 0.1 Mpa
Minimum pressure: 0.1 Mpa
Maximum temperature : 373 K
Maximum speed of rotation : +/- 1000 rpm

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

Propulsion/ Performance
- More efficient cooling technology

4 - Main (or specific) associated measurement techniques

-Dedicated to the bench: pressure, temperature, mass flow rate, gas analysis
-Specific measurements: non intrusive optical measurement methods (LDV, PIV, PLIF, ...)



5 - *Operational status*
- Operational

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 and free access

Support (regional, national, European, private, ...): regional, national, European, private (industries)

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

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