

School V | Institute of Physics
Turbulence, Wind Energy and Stochastics - TWIST

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Wind tunnel measurements and dynamic stall

Contact

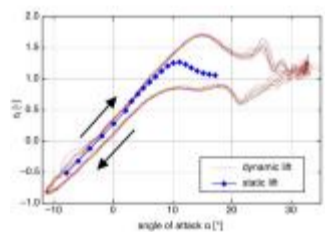
Contact:

[Dr. Michael Hölling](#)

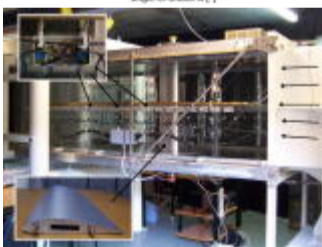
see: **ForWind**
Zentrum für Windenergieforschung

Even modern computers are not able to handle complex flow situations by numerical simulations. Thus many issues have to be studied with the help of measurements using models. The wind tunnel of the University of Oldenburg allows for many different experiments, e.g. wake measurements of cylinders, investigate wind turbine and wind park models or new kinds of anemometers. For this purpose, there is a number of standard measurement techniques, like pressure probes, one or multidimensional hot-wires or laser-Doppler anemometers.

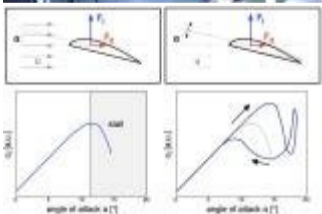
Measurements addressing the acting forces on airfoils, represented by lift and drag, are of special interest. This is achieved without contact by obtaining the pressure distribution behind the airfoil and over the wind tunnel walls. This also allows to analyse the forces during a fast change in the angle of attack of the airfoil, which generates strong short time fluctuations in the lift (dynamic stall). There is a need for knowledge over this effect for adequate models.



Schematic diagram of lift under static and dynamic changes in the angle of attack



Picture of the closed test section mounted in the wind tunnel of the University of Oldenburg.



Comparison of lift measurements under static and dynamic conditions.

Contact: Dr. Matthias Wächter

see also:

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