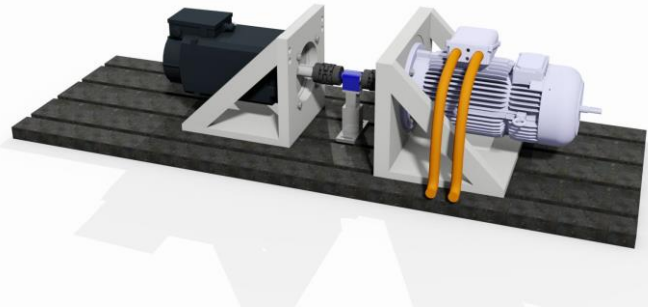


# Test Bench for Simulation of Wind Power Drive Systems

## Technical data

- Drive system with servo asynchronous machine to simulate wind loads (Siemens)
- asynchronous machine with slip ring rotor (Emod) as test object

	Emod	Siemens
Rated power	11 kW	29 kW
Maximal power	19.5 kW	82 kW
Rated speed	1450 rpm	2300 rpm
Maximal speed	1500 rpm	4600 rpm
Rated torque	72 Nm	120 Nm
Maximal torque	132 Nm	340 Nm



## Equipment

- Rapid control prototyping system: dSPACE DS1006 QuadCore Controller Board
- Converter Siemens: Sinamics S120 with S7-300 SPS
- Converter Emod: Two LTi ServoOne S084.045.1 (BG5) in back-to-back order
- Control and pulse pattern for the LTi converters by dSPACE via PGI1 LTi TWINSync interface

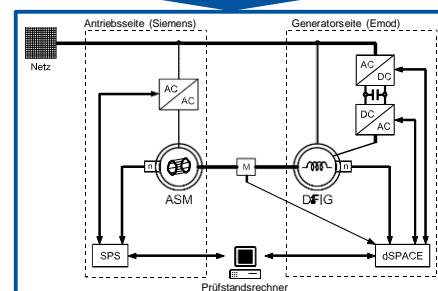
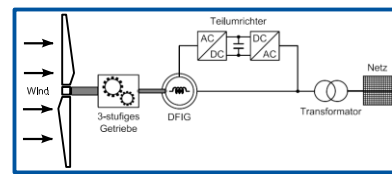


### Measurement technology

Torque	Lorenz DR2112-R – 500 Nm (accuracy class 0.2 %)
Speed	Sick Hiperface (SinCos) SFM60 1024 per rad., 4096 multiturn
Voltage, current, power maps	Yokogawa WT1800 (accuracy class 0.01 %)

## Current application/ Opportunities

- Lecture-accompanying demonstrator
- Three possible operations for Emod as the test object:
  - asynchronous machine with squirrel cage rotor (grid operation)
  - inverter-fed asynchronous machine with squirrel cage rotor
  - double-fed induction generator (DFIG)
- simulation of other wind energy drive systems



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