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Competence Center Energy and Mobility

TransEngTesting

Transient Heavy Duty Engine Facility for Engine up to 4000 Nm Peak Torque

Investment Project
(in connection with the NEADS project)

Scope of project

The goal is to build a new transient engine dynamometer in Empa's engine laboratory in Dübendorf with CCEM seed-money. This dynamometer will enable dynamic experimental research on large heavy duty engines with peak torques up to 4000 Nm. Therefore, it is necessary to upgrade the corresponding building and infrastructure.

Goals and activities

For the engine dynamometer and the needed surrounding engine-specific devices, the offer from Horiba ATS was chosen. It showed the lowest investment and running costs. Empa runs already automation platforms from Horiba ATS so that programming and use of the new test bench will be compatible with the existing ones.

The test bench will consist of

- a vibration isolated base plate.
- an asynchronous electrical motor of the type Dynas3 HD600 (mounted on an cast iron base plate) for up to 4000 Nm load, operated through a 690 V coupled inverter.
- a high-precision torque-meter.
- a load pedal actuator
- specific process interfaces for data signals and commands.
- an automation system SRH STARS.

The adaptation/enlargement of the Empa's engine laboratory and the technical background infrastructure was planned by «BaFa Bauten Forschungsanstalten» and its expert advisers.

The new test bench should be ready in Summer 08. It can then be used for the CCEM projects NEADS and CELaDE.

Construction site in December 2007: The new engine test bench will be installed in the new annex building (left).

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