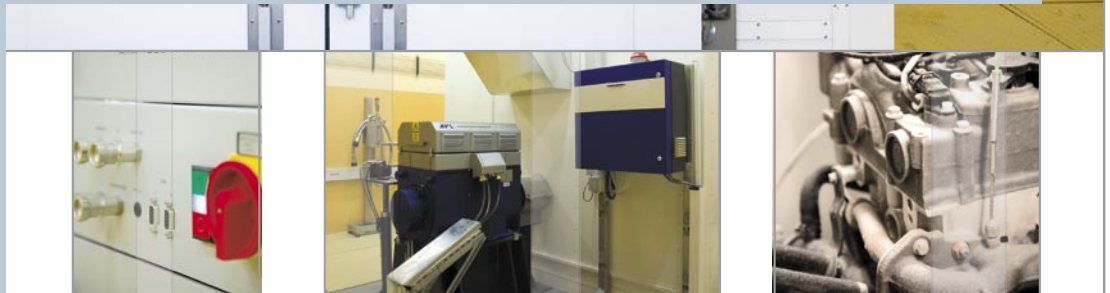


## Cold Start Test Cell



Cold start your engine into a green future



The **car of the future** will only be able to conform to increasingly stringent emission standards by having an engine that **minimizes emissions during cold start and warm up**. Our test bed offers precisely that: cold start testing in a climate-controlled chamber equipped with top of the line **emission analysis systems**. A fully **automated test bed** system with a range of measuring and conditioning units provides **complete control** and recording of all engine parameters.

## CLIMATIC CHAMBER

- Adjustable ambient temperature from -40 to +80 °C
- Two cold starts a day at -40 °C

## DYNAMOMETER

- High speed AC dynamometer (12.000 rpm) with throttle actuator
- Nominal generator capabilities of 525Nm and 220kW
- Optimised inertia for high speed gradients

## EMISSION BENCH SYSTEM

- Continuous analysis of undiluted diesel and gasoline exhaust gas
- TCH, NOx, CO2, CO and O2 analyzers

## OPACIMETER

- High sensitivity suitable for R&D of low emission engines
- Fulfils both ECE R 24 and EURO 3 & 4 ELR test requirements

## COMBUSTION ANALYSIS

- Combustion noise calculation
- Injection timing evaluation
- Heat release calculation

## OIL AND COOLANT CONDITIONING

- Temperature, pressure and flow control
- High accuracy and dynamic control

## AIR MASS FLOWMETER

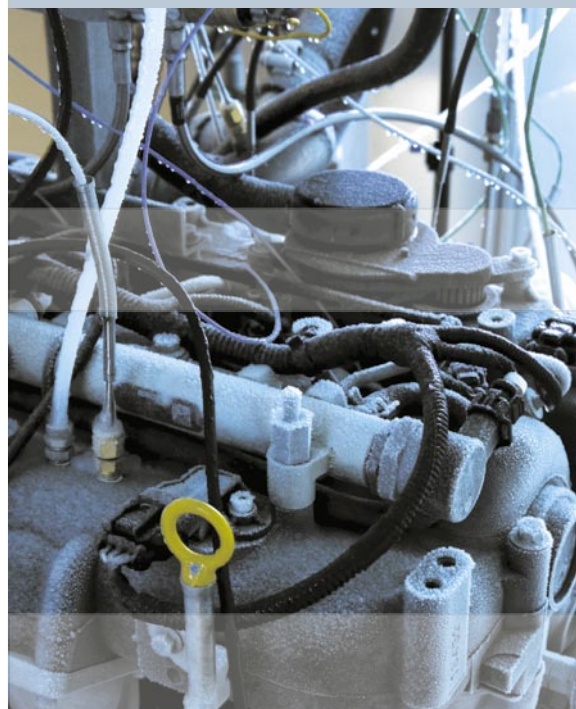
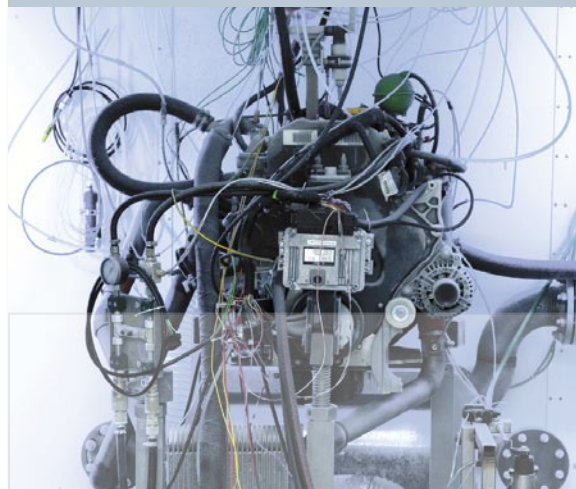
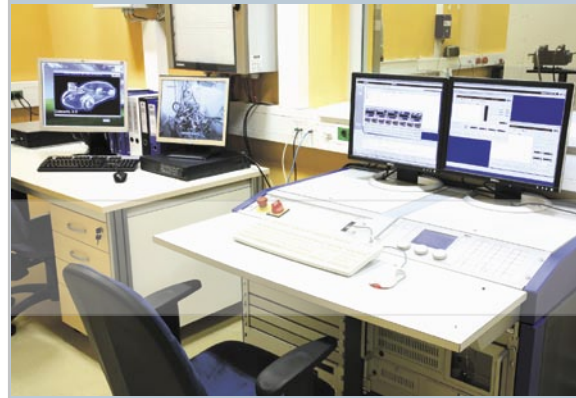
- Measuring range of 0 – 1200 kg/h
- Low response times for measurements in dynamic operation

## FUEL CONSUMPTION METER

- Measuring range of 0 – 150 kg/h
- High precision also at low flow rates and short measurement times

## TEST BED AUTOMATION SYSTEM

- Test bed and engine monitoring
- Fully automated system with 32-channel continuous recording
- Quick creation and running of test runs (cold start, endurance, thermo-shock cycles, power tests ...)



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