Contributions to the Development of Turbochargers
Contents

- Whole Vehicle / Road Test
- Entire Engine/ Bench Test
- Integration of Turbocharger (Structural)
- Development of Exhaust Gas Systems
- Development of Turbochargers
Whole Vehicle / Road Test

Data Logging for Whole Vehicle

KST has been performing road tests on test tracks and public roads:

- Durability testing
- Mobile data logging (e.g. evaluation of load spectrums for bench testing)
Whole Engine / Bench Test

Various Load Cases for Engine / Turbocharger

Measuring grid: 100 ms
Whole Engine / Bench Test

Thermal Imaging of Exhaust Gas Components

Temperatures at Nominal Output
Whole Engine / Bench Test

Oil Consumption / Oil Dilution

- Real-time data logging of oil consumption and oil dilution (RNT with tracer)
Integration of TC (Structural)

Experimental Structure-Dynamic Analysis

- Modal analysis
- Analysis for structural integrity of assemblies and components
- Dynamic simulation testing
- Lifetime and wear testing
Vibration Analysis

Measurement system Müller-BBM,
(max. 160 channels, also applicable to vehicle)
Development of Exhaust Systems

- Structure-dynamic analysis
- Analysis for structural integrity of assemblies and components
- Dynamic simulation testing
- Lifetime and wear testing
- Optional: Hot gas testing with upstream burner

6-axis LCF Test for Exhaust Systems on Utility Vehicle Frame
Flow Lab

- Adjustment of exhaust mass flow rate and exhaust gas back pressure
- Optimization of geometry of flow
- Spatial twist and tumble measurement
- Maximum mass flow rate: 400 kg/h

Tippelmann Test Bench
Engine-Independent Testing of Function and Lifecycle: Hot Gas Generator Test Benches / Shaker Test Benches

Gas temperature : Max. 1200 °C
Operating supplement : Natural Gas
Exhaust gas mass flow rate : Up to 1200 kg/h
Exhaust gas back pressure : Max. 500 kPa
Truck Application via siamesed two gas generators
Development of TC

Development of TC: Thermo Shock cycle 2.0 Ltr. Passenger Car-Diesel

- TC Speed
- Temperature [°C]
- Exhaust Gas Mass Flow [kg/h]
- Cycle Time [s]

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Development of TC

Gas Flow Valve Configuration for Mass-flow Setting at the Hot Gas Generator Test Bench/Thermal Shock