Propulsion Engineering

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Propulsion System Testing Software and Boardnet

Engine & H2 Systems Thermal and Energy Management Functional Integration Propulsion Systems Advanced Mobility Functions / ADAS

Propulsion System Testing



Our state-of-the-art test facilities, HIL-systems and tool chains offer an effective way to calibrate and validate complete system, ensuring performance targets, robustness and reliability.



- Testing Focus on Component & System Level
 - eDrive testing
 - Engine test bench
 - High altitude and climate test bench
 - Thermal- /AC-system test benches
 - Software in the loop (SiL)
 - Hardware in the loop (HiL)
 - Powertrain in the loop (PiL)
 - Chassis dyno
 - On-Site proving ground



Software and Boardnet





- Software development from concept phase to series production
 - SW development and testing for e-drives/inverter, HV battery, charger, H2 systems, thermal management and more
 - Vehicle controller development for prototype applications (BEV, hybrid, fuel cell, ...)



Boardnet

The boardnet is the foundation for communication of all electric components installed in a vehicle.

- Bus layout & control unit architecture
- Residual bus simulation
- LV energy management (wake up and shut down strategy)
- Function & gateway development
- Testing and validation

Engine & H2 Systems



We accompany our customers with our calibration and validation expertise from base calibration tasks to homologation.



- Engine
 - Base calibration
 - Emission
 - Driveability
 - OBD
 - Homologation support

H2 Systems

Integration and development of fuel cell (FCS) andhydrogen storage systems (HSS)

- Integration and development of fuel cell (FCS) and hydrogen storage systems (HSS)
- Concept development
- Refueling procedure
- Cooling system
- Safety concept
- Prototyping und testing

Thermal and Energy Management





Development of thermal and energy management systems and controls with focus on improvement potentials under real world conditions.

- Concept investigation
- Simulation and system development
- Vehicle integration and CAD
- Control logic and software development
- Prototype build-up and measurement integration
- System test benches and vehicle testing

Functional Integration Propulsion Systems



Integration know-how driven by electronic competencies and support by experienced mechanical engineers.



- System Integration
 - Requirements engineering
 - Functional safety
 - Simulation
 - Function development
 - Software development
 - Prototyping
 - System validation
- Applications
 - E-drive / e-Axle / inverter
 - HV battery
 - Fuel cell systems
- H2 storage system
- Boardnet & communication



Advanced Mobility Functions / ADAS



Hardware Integration



- Sensor integration
- Actuators
- Vehicle components

Software Integration



- Sensor drivers
- Actuator drivers
- CAN
- Data handling

Functional Software



- Functional modules
- GPU accelerated algorithms
- GUI/HMI