

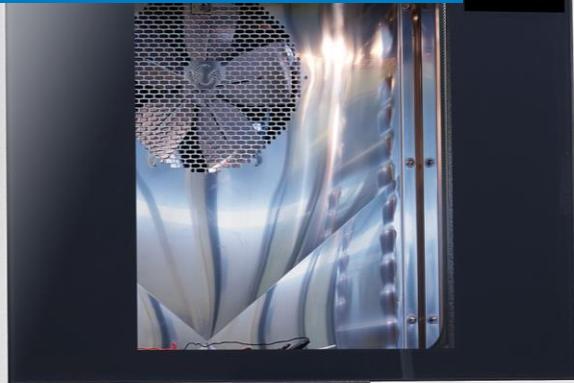


Power electronics test bench

500 kW | 1.200 Arms | -35°C – 120°C



45.6 °C



TempEvent



Bosch Engineering



BOSCH



Highly dynamic and fully automated driving profiles

can be provided in four quadrants to ensure a targeted as well as resource saving development of electric drive systems



Replication of extreme ambient and coolant temperatures

of -40°C and low coolant flow rates from 1 l/min



Emulation of e-machines up to 500 kW and 1.200 Arms

is covered by our battery simulation to test current as well as future drive technologies

PRODUCT BENEFITS

With our power electronics test bench, we offer you full featured facilities that will assist you in the development of power electronics of electrified drive systems.

Our expertise in electrified drive systems as well as our state-of-the-art testing and measuring facilities enables us to offer you the best possible support in the development of pioneering drive technologies.

We can support you with a wide range of services finely tuned to your development goals to help you with prototype engineering as well as in the customization of Bosch volume-production products to suit your particular application scenarios.

In particular, our test bench for power electronics offers the benefits of being able to analyze inverters under a wide variety of realistic, reproducible ambient conditions without having to perform complex, time-consuming vehicle integration engineering work and road tests. All of this adds up to faster development times and lower engineering costs.

SCOPE OF SERVICE

- Analysis of partial and overall efficiencies as well as continuous performance in fully automated driving cycles increase in and safeguarding of the degree of maturity for the application of power electronics without an e-machine
- Validation of safety functions under testing conditions that can be controlled very precisely
- Individually adapted test bench setups; for example, realistic DUT setups with realistic vehicle cable lengths and integrated current and voltage measurement
- Can be set up quickly, for example in order to ensure a quick changeover between sample states or to carry out commissioning tests for customer machines.
- Quick product adjustments on site through integrating prototype workshop and HV laboratory
- Automated hardware and system tests
 - Electrical HV test according to LV123
 - Electrical LV test according to LV124
- (replication of transient voltage curves)
- Thermal measurements
 - Operability and performance at different temperatures
- Minimization of risk, costs, and test time due to the high degree of automation
- Storage of an e-machine characteristic diagram in the emulator

E-MACHINE EMULATION

Electrical frequency	up to 5 kHz
Power output	500 kW
Phase current	1.200 Arms
synchronous generator voltage	690 Vrms

BATTERY SIMULATION

Voltage	50 – 1.000 V (max. 500 kW)
max. current	1.200 A (max. 500 kW)
Power output	500 kW

CONDITIONING

Coolant conditioning	$-35 - 200^{\circ}\text{C}$ 1 – 20 l/min
Oil conditioning	On request
Residual bus simulation	<ul style="list-style-type: none"> ▪ CANoe ▪ LabCar ▪ customer-specific

MEASURING EQUIPMENT

Measurement channels	8 x analog outputs 24 x analog inputs 16 x digital inputs, of which 8 x are PWM
current/voltage/ power measurement	Yokogawa WT1800
Transient signal recording	Yokogawa DL850 (16 channels @ 100 kHz; red. Setup up to max. 100 MS/s)
Setups	<ul style="list-style-type: none"> ▪ highly dynamic LV power supply unit for voltage profiles according to LV124 ▪ customer-specific residual bus simulation ▪ CAN ▪ CAN-FD ▪ FlexRay

SYSTEM OVERVIEW

