EMISSIONS

ELECTRIFICATION

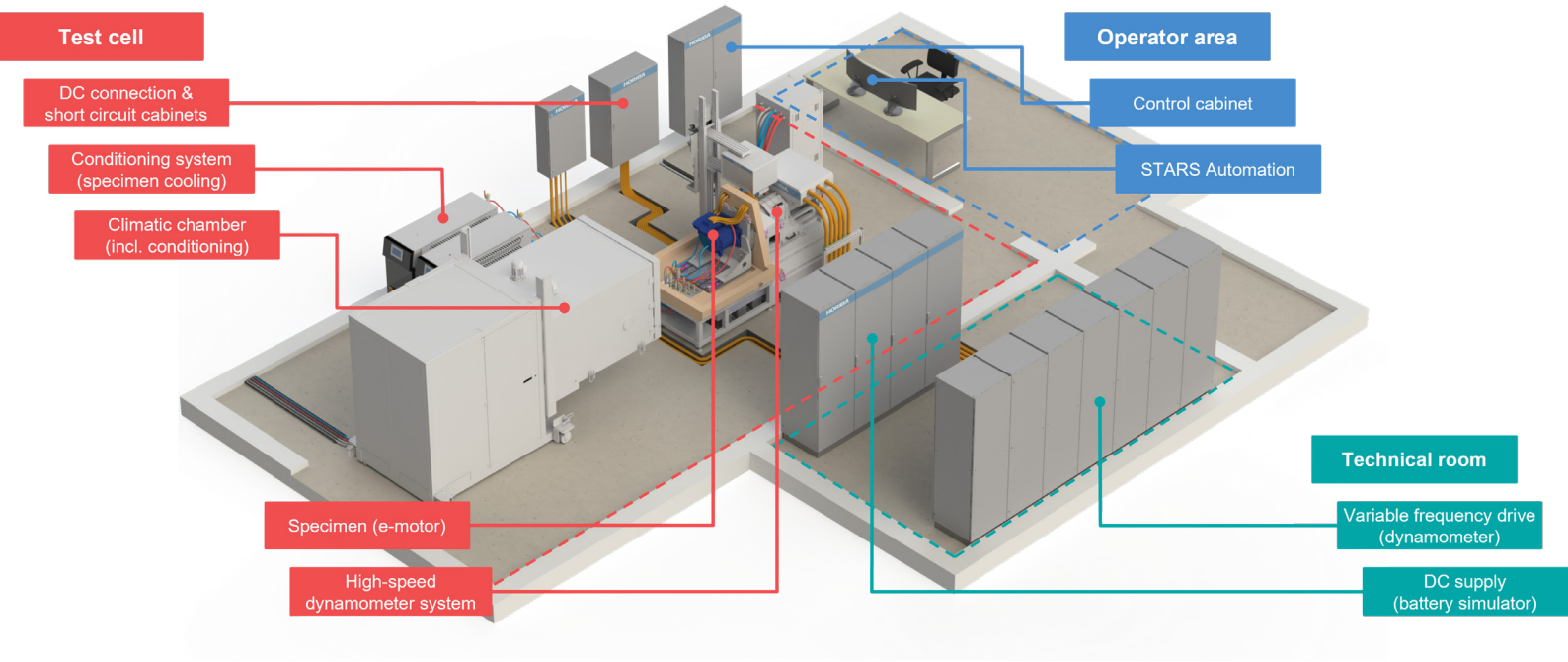
CAV

DATA

TITAN eDrive

E-Motor Testing

HORIBA
Automotive



System Design - E-Motor Test Cell Layout

E-MOTOR TESTING

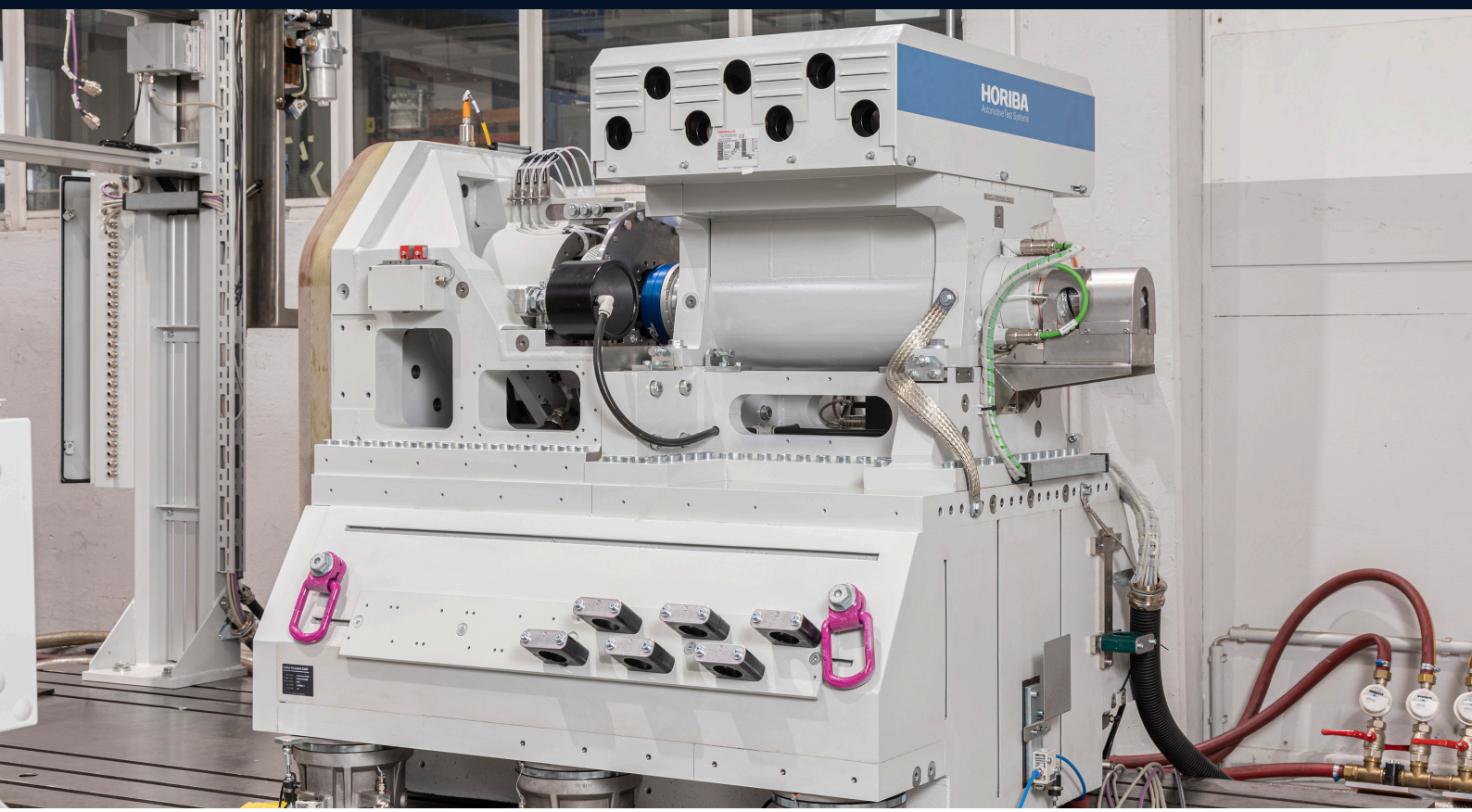
The use of e-motors in vehicle production is gaining momentum and its development potential is far from exhausted. In addition, there is a wide range of applications for the drives in various vehicle types. To support this technological diversity, a modular test stand system for testing traction electric motors is required to quickly adapt to the needs of the respective application.

The new generation of the TITAN eDrive is especially made for high-speed durability and functionality testing as well as e-motors with a high overload capacity. It also includes battery simulation capabilities and provides reliable power measurement and analysis for highest flexibility. The TITAN eDrive has a modular and future-proof test stand design for easy customization, as well as extension possibilities that can tackle new requirements e.g. expansion with climate chamber.

The TITAN's powerful HORIBA STARS automation system provides full integration of all devices and dedicated application packages for e-motor testing as well as co-simulation and interfaces to common simulation systems.

SPECIAL APPLICATIONS FOR E-MOTOR TESTING

- Efficiency and energy optimization
- Power mapping
- Climatic and non-climatic testing
- Start-up and zero-speed behavior testing
- Torque ripple measurement
- Thermal management and simulation of ambient optimization
- Back Electromotive-Force (EMF) testing



KEY BENEFITS

FLEXIBLE

- Modular design enables individually adapted test procedures e.g. expansion with climate chamber (-40 to + 180 °C)
- Test stand configurations for different speed, torque and power ranges
- Complete solution for testing high-power electric motors including battery simulation up to 1000 kW, 1200 V and 1600 A simulation modules
- Testing of all common DUT types regardless of mechanical attachment type
- 180-degree accessibility for DUT adaptation

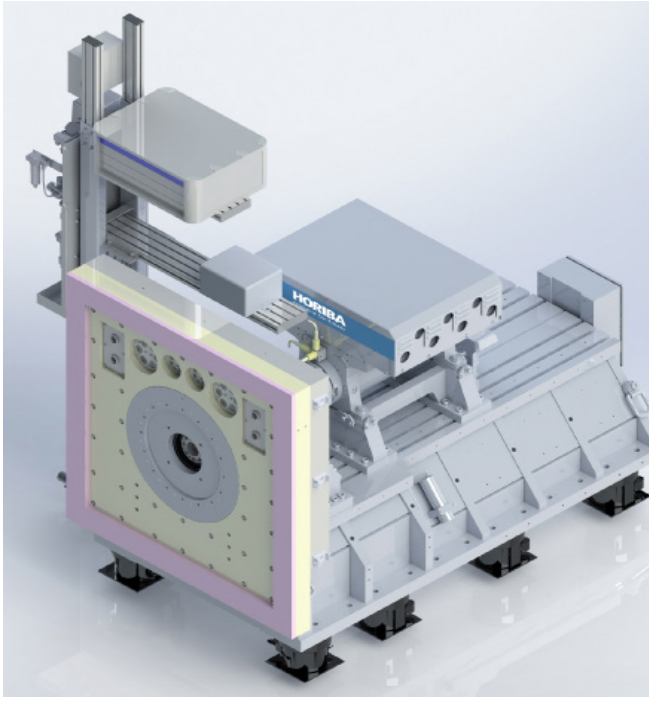
EFFICIENT

- Full integration of measurement equipment and power electronics
- Sophisticated and intuitive handling concept
- Small footprint due to compact design and fully integrated power measurement equipment
- Time saving specimen handling and alignment concept with high accuracy and repeatability
- Mechanical design of all test stand components optimized and tested for high speed applications over the complete driving range

KEY BENEFITS

SERVICEABLE

- Long maintenance intervals save resources
- Modular and future proof test stand design for easy customization as well as extension in case of new requirements



HIGH PERFORMANCE

- Testing of rotational speeds up to 30,000 rpm, power of up to 750 kW* and torque of up to 1300 Nm*
- High vibration resistance of the complete test stand over the entire operating range
- Virtual test rig simulation for prediction of vibration behavior
- Detailed analysis of the test stand structure via FEM during the design process

***Overload**

HORIBA Automotive, a business segment within the HORIBA Group, provides advanced mobility leadership and comprehensive engineering and measurement expertise to support the gradual shift from traditional propulsion, to fully electrified solutions.

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THE HORIBA GLOBAL NETWORK

ASIA
HORIBA Ltd.
2 Miyanohigashi
Kisshoin Minami-ku
Kyoto, Japan
info@horiba.co.jp

EUROPE
HORIBA Europe GmbH
Hans-Mess-Straße 6
61440 Oberursel
Germany
info.he@horiba.com

THE AMERICAS
HORIBA Instruments Inc.
5900 Hines Drive
Ann Arbor, MI 48108
USA
sales-ats.us@horiba.com

HORIBA Automotive