

# FRANKONIA

Frankonia EMC-BlueBox



FRANKONIA

Brief Introduction

## Frankonia

### Turnkey Solution Provider

The Frankonia Group was founded in 1987 as a solution provider for EMC laboratories, meeting the increasing demand for highly specialized testing environments for the electronic and automotive industry.

Without limitations in its capabilities, Frankonia develops future-oriented concepts for our complete product range, which guarantee the optimal use of resources, as well as the best possible customized solutions. Frankonia offers complete solutions for the electronic, military and automotive industry, which meet customers' individual requirements.

#### Frankonia at a Glance

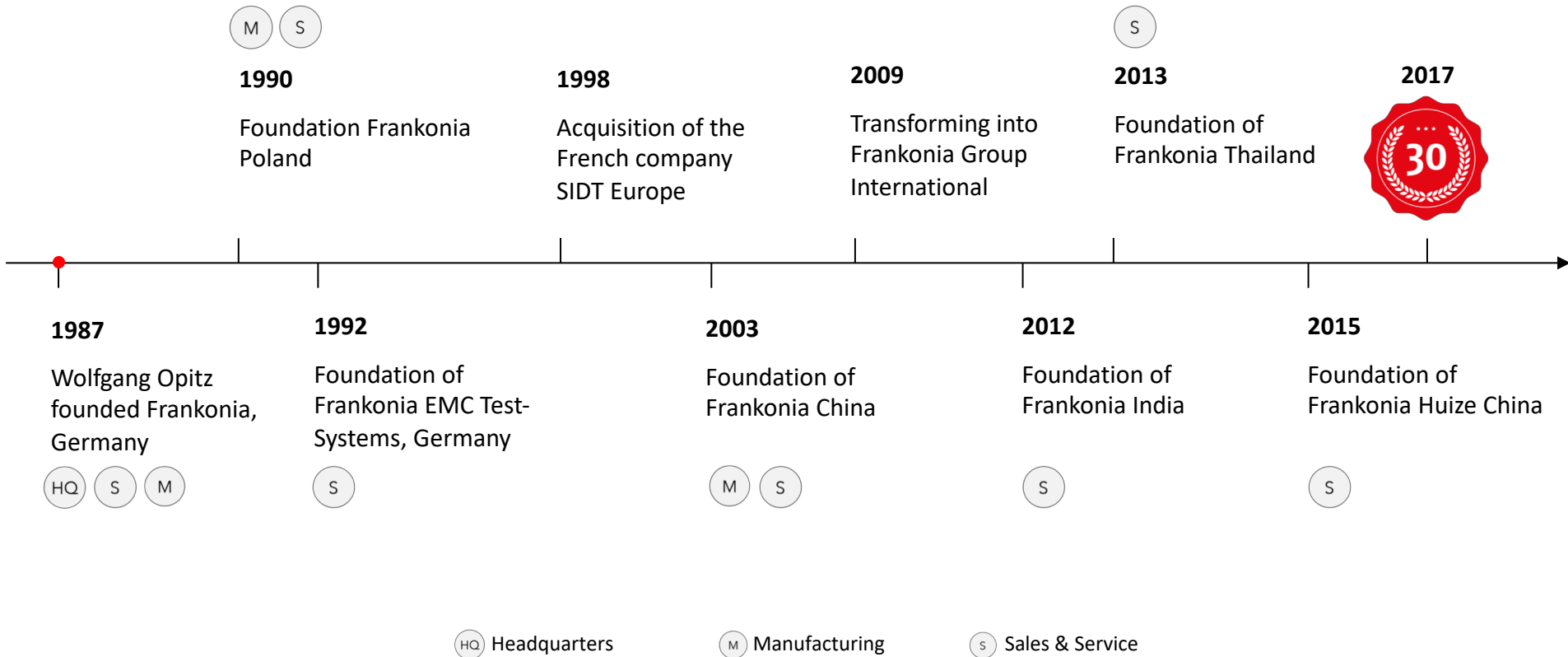
- ✓ Frankonia demonstrates a global presence in cooperation, with a well-structured network of productions, representations and service units.
- ✓ Frankonia strives to be the preferred partner for customized and state-of-the-art solutions.
- ✓ Frankonia provides fundamental knowledge to operate as a complete solution provider.
- ✓ Frankonia implements innovative technologies to enhance efficiency and improve the outcomes and quality along with customers' needs

The EMC testing industry is a high-technical, innovative and fast-changing niche industry. With 30 years of experience to date, Frankonia maintains its leading position in EMC solutions worldwide.



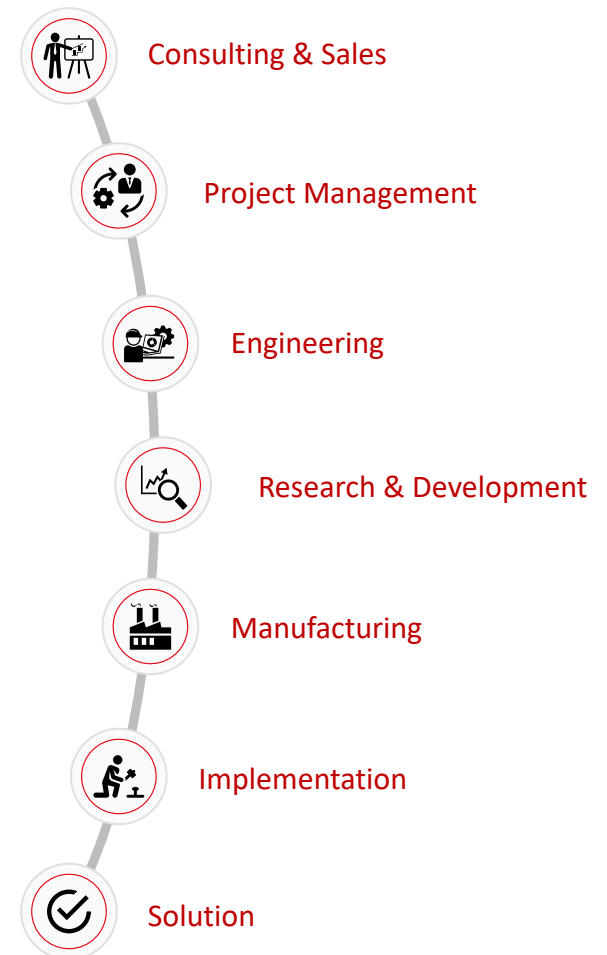
# Frankonia Group

## History



# Frankonia Group

## Solution Portfolio





## Frankonia

### Frankosorb® Absorber Technology for high-performance Anechoic Chambers

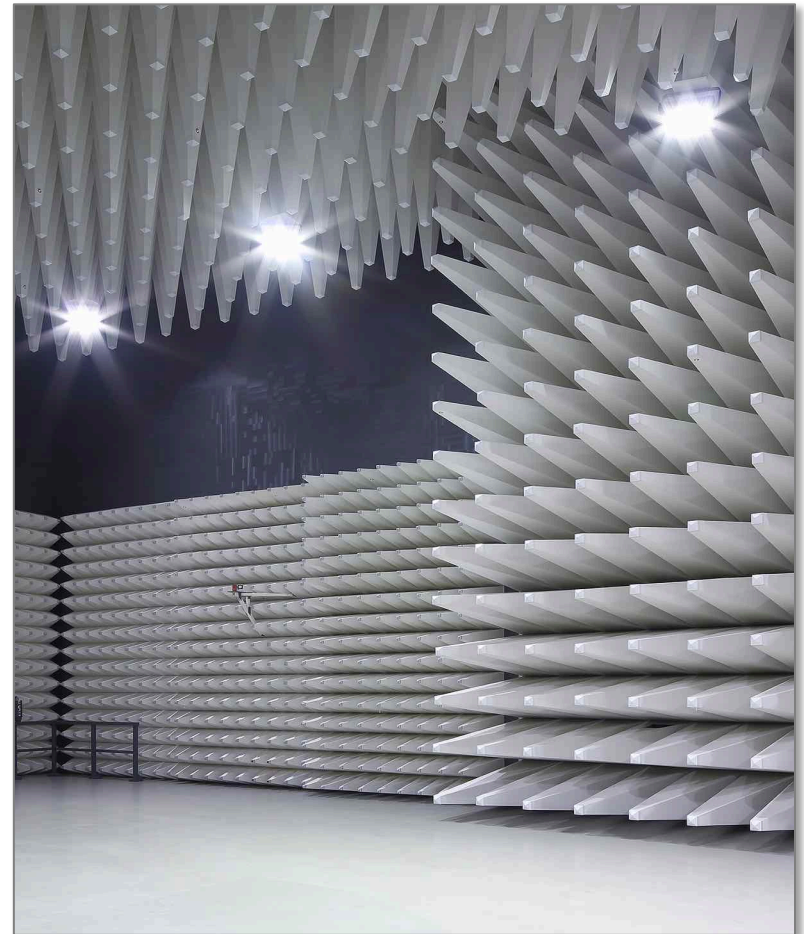
Within our Anechoic Chamber business that includes a wide range of standardized chambers from pre-compliance up to full compliance and customized chambers.

We offer a variety of innovative positioning devices and accessories required in modern testing facilities like monitoring equipment, antenna mast, turntables, doors and gates, and our unique absorber technology Frankosorb®.

#### Frankonia trusted solutions

- ✓ Unique Nano thin-film absorber technology (Frankosorb®)
- ✓ Modular and prefabricated standards
- ✓ Completely dismountable chambers as everything is screwed
- ✓ Stable quality and technology through our own manufacturing and engineering
- ✓ Complete range of products
- ✓ Customized turnkey solutions

Frankonia's Anechoic Chambers are part of testing laboratories of different industries all over the world. Customers from commercial test institutes, manufacturers of electronic devices, as well as customers from the automotive or military industry trust Frankonia's solutions for now more than 30 years.





FRANKONIA

BlueBox

E-Drive Solution with Mobile Load Machine



BlueBox

Mobile Load Machine as per CISPR 25 Ed.4 (Standard Setup)





BlueBox

Mobile Load Machine as per CISPR 25 Ed.4 (Advanced Setup on Turntable)

## BlueBox

### E-Drive Testing Solution with BlueBox Mobile Load Machine

The BlueBox is the perfect and full compliant alternative when it comes to efficiency, flexibility and cost savings for EMC tests on motors, or in combination with battery tests.

#### Technical specifications

- External dimensions:  
**EDTC-BB**: 7,880 x 6,380 x 3,750 m (L x W x H)
- Frequency range: 150 kHz to 18 GHz (option 40 GHz)

#### BlueBox Mobile E-Drive Solutions

- 30 kW mobile load machine BlueBox up to 8.000 RPM
- 40 kW mobile load machine BlueBox up to 7.000 RPM
- 65 kW mobile load machine BlueBox up to 6.500 RPM
- 120 kW mobile load machine BlueBox up to 6.000 RPM

#### Special features

- Flexible solution for e-motor tests in front of absorber wall, or setup on turntable for 360° test
- Combination with any battery systems
- Inclusive EUT power source and battery emulation
- Usable in every CISPR 25 compliant EMC chamber; integration kit for existing chambers available
- Emission free and adapted to real EMC test conditions
- Premium references: BMW, EETI, CSA Group, CATARC, ...



#### Emission (EMI)

- Compliant according to CISPR 25 Ed. 4
- Reliable test results

#### Immunity (EMS)

- Compliant according to ISO 11452

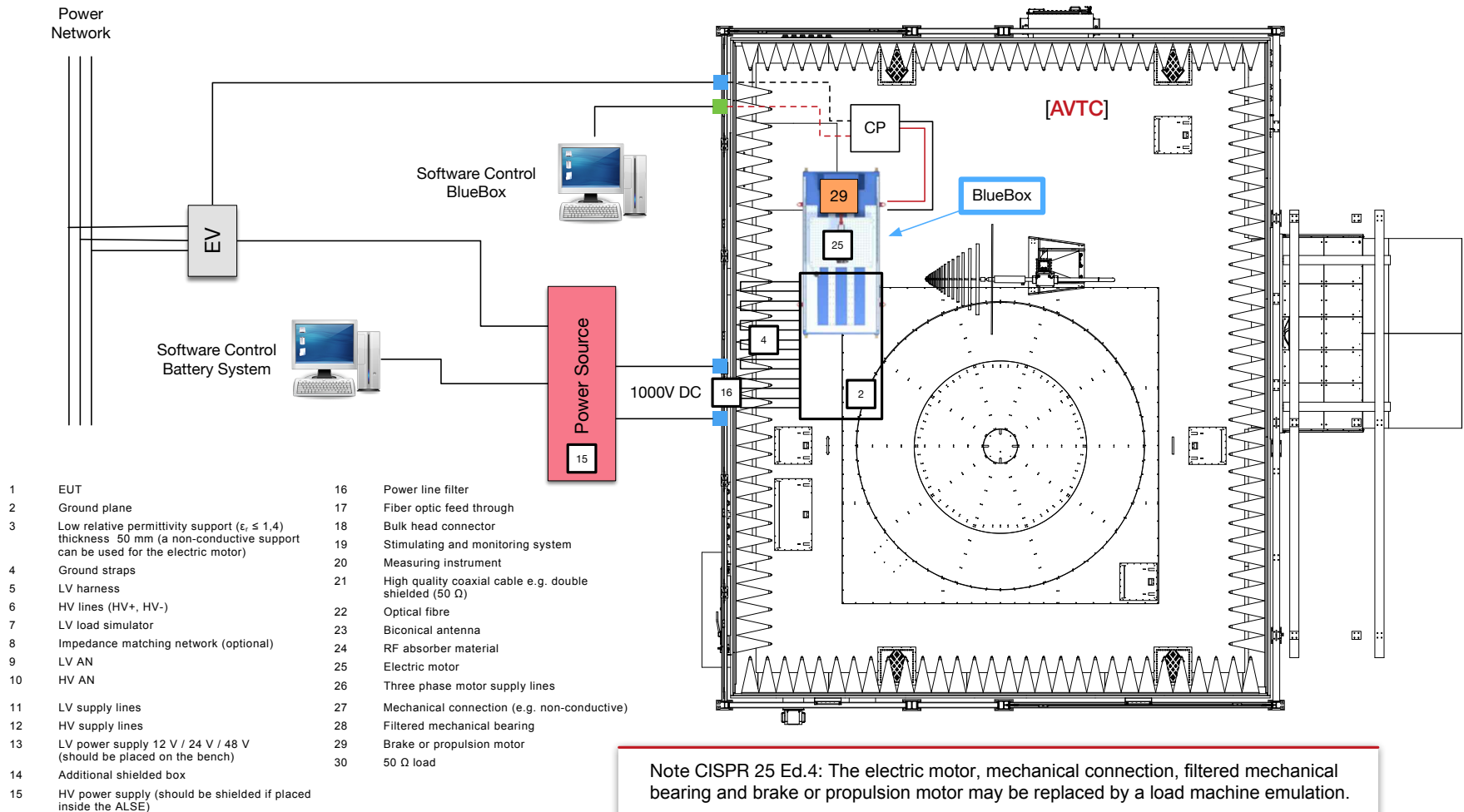
#### Verified conditions

- Fully integrated as per CISPR 25 (ALSE long-wire method)
- Fully compatible with low Ambient Noise



# BlueBox

## E-Drive Testing Solution with BlueBox Mobile Load Machine



## BlueBox

### E-Drive Testing Solution with BlueBox Mobile Load Machine

#### Features

- Radiated Emission (EMI): Full compliant according to CISPR 25 Ed.4
- Radiated Immunity (EMS): Full compliant according to ISO 11452-2
- Load machine (dynamometer) available as a mobile version from 30 kW up to 120 kW
- Battery emulation up to 1.000 V and 300 A available (adapted to BlueBox power range)
- 360° EMC test with position on a turntable, or in combination with CISPR test table
- Solutions for powertrain component (full flexible use)
- Test setup preparation outside the EMC chamber possible
- Plug & Play function
- Bulk body of BlueBox can be considered as a vehicle structure
- Highest European safety standards
- Integration kit for existing chambers available
- Turnkey solution by Frankonia

#### Chamber Setup

- The BlueBox can be integrated in any chamber that meets CISPR 25 Ed. 4 requirements.
- The BlueBox requires a power and data line connection.
- Emergency stop integration is recommended.
- The BlueBox is ready to use within minutes, and the test setup can be arranged in advance and outside the EMC chamber.

#### Software

- The BlueBox is designed as an independent solution for integration within an EMC environment.





## BlueBox

### E-Drive Testing Solution with BlueBox Mobile Load Machine

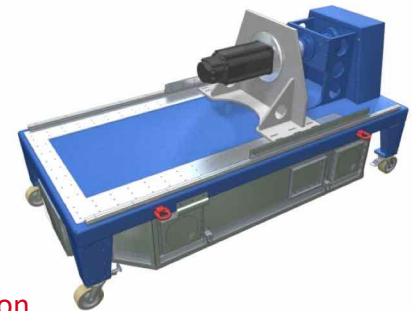
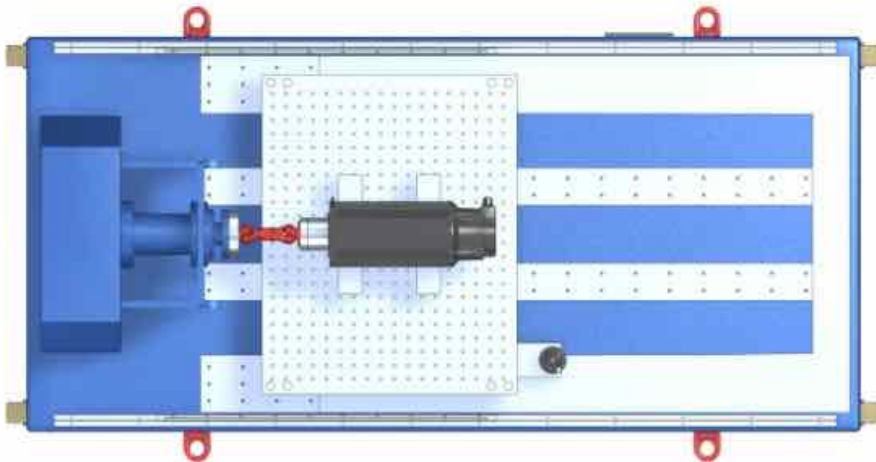
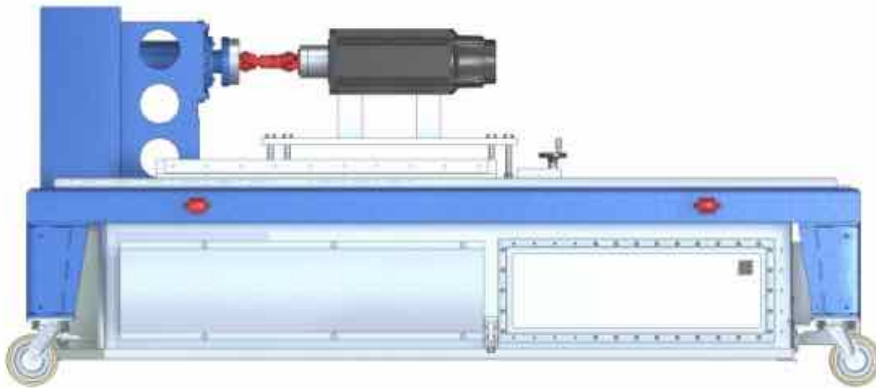
#### Power Range and Specifications

Version:	BlueBox-30	BlueBox-40	BlueBox-65	BlueBox-120
Power range (kW)	30	44	63	120
Speed max. (1/min)	11.000	9.000	6.500	6.000
Acceleration (rad/s <sup>2</sup> )	100	100	100	100
Torque (Nm)	82	140	240	470
Input Power (A)	63	100	125	2x125
Weight (kg)	1.100	1.200	1.700	2.500
Payload (kg)	800	800	1.000	1.400
Dimension (m)	2,0 x 1,3 x 1,3	2,2 x 1,3 x 1,3	2,5 x 1,4 x 1,3	2,8 x 1,6 x 1,3

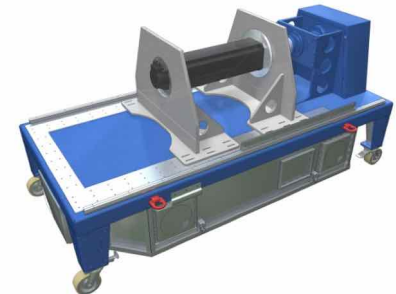


## BlueBox

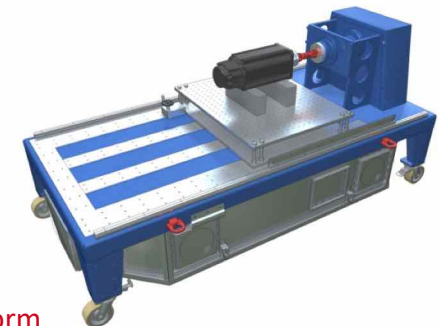
### E-Drive Testing Solution with BlueBox Mobile Load Machine: E-Motor Fixation



Standard fixation



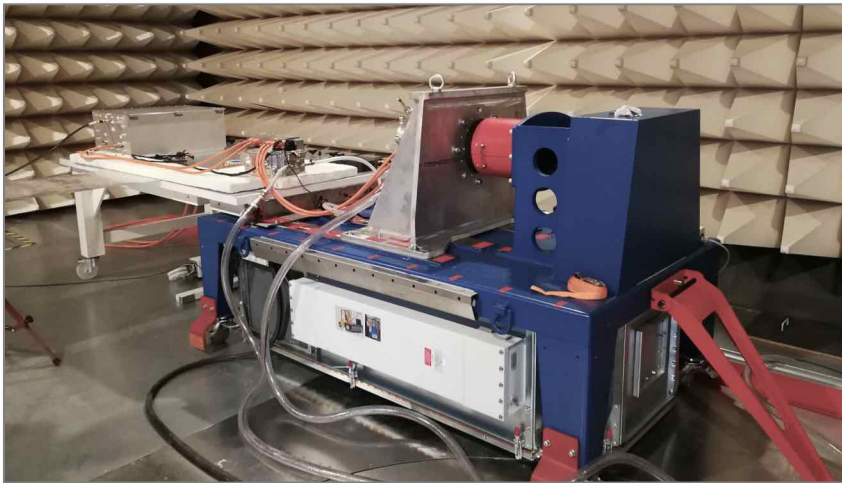
Extended motor fixation



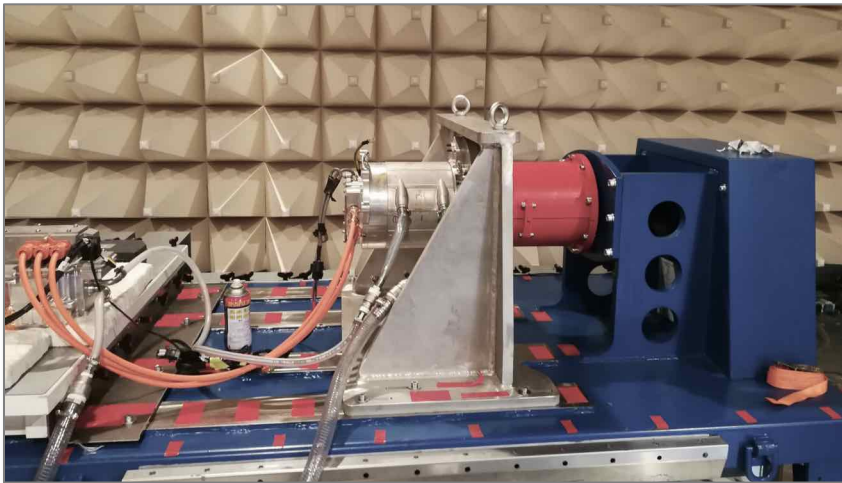
Motor on guided platform

## BlueBox

### E-Drive Testing Solution with BlueBox Mobile Load Machine: Setup as per CISPR 25



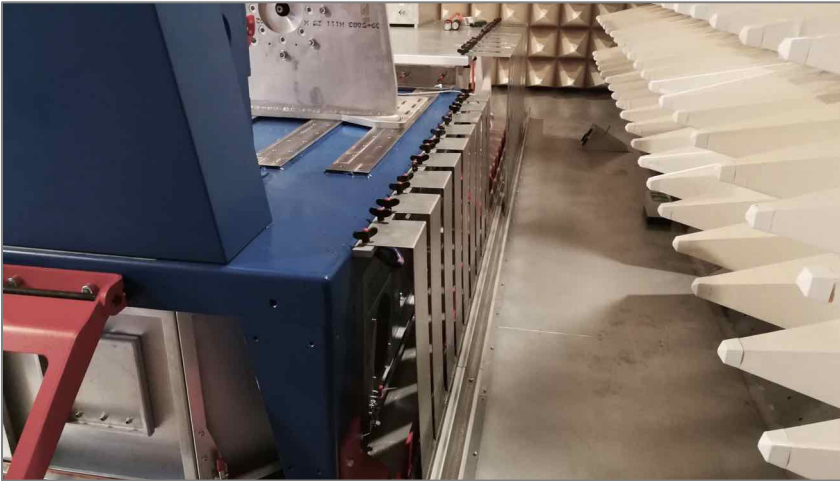
- Note CISPR 25 Ed.4:  
The electric motor, mechanical connection, filtered mechanical bearing and brake or propulsion motor may be replaced by a load machine emulation.
- Typical setup acc. to CISPR 25 in front of the absorbing wall
- BlueBox with hook system for easy handling with pushcart (mover)
- E-motor with water cooling system
- E-motor with DC power source up to 1000V and 300A, adapted to the BlueBox power range, prepared for users' inverter



- E-motor setup on EUT fixation unit (aluminum frame)
- Aluminum frame customized to the EUT fixation
- Protected shaft connecting the BlueBox to the e-motor
- Glass-fiber reinforced (GRP) coupling, or
- Steel coupling

## BlueBox

### E-Drive Testing Solution with BlueBox Mobile Load Machine: Setup as per CISPR 25



- Grounding to the floor (or wall possible)
- Double-row floor system in order to adjust the BlueBox and the EUT as close as possible to the test table
- Full flexible EUT setup
- Adapted to the e-motor size




- Adapted CISPR 25 test table
- Different table sizes possible
- Table grounded to the BlueBox (adjustable)
- Table grounded to the floor, or wall





The unique and trustworthy partner for EMC solutions worldwide.

A large anechoic chamber with white pyramidal absorbers. A person is visible on a ladder on the left side, and several bright spotlights are mounted on the ceiling. The floor is a smooth, light-colored surface.

Thank you.

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