#### You have the innovation.

We are the trailblazer to its marketproof production.

#### Who we are.

Welcome to LABCO – an independent and globally active German test laboratory accredited according to DIN EN ISO/IEC 17025. Our speciality and core business is the testing of electrical automotive system components, such as all components on and around cable harnesses, connection systems and also batteries. We are specialised in the electrical and mechanical testing of most different components. In addition to that, we offer environmental simulations, material analyses and much more. We constantly work on the optimisation of test methods and participate in various standardisation committees. For more than 20 years we work for renowned international brands from the fields of automotive. We extend our services to the sectors. aviation / aerospace, domestic engineering, household technologies and other fields to follow.

It is our mission to make your products more innovative, more reliable and, above all: safer.

#### Why to choose us as a test laboratory.

Our expertise and outstanding equipment make us a reliable partner to accompany you in new developments and provide support for the tests needed in the release process of also complex products.

#### It is our job...

- to make your innovative product developments conform to standards and guidelines.
- as your general testing partner to bundle all your (often complex and protracted) different testing procedures "under one roof".
- to explore new testing methods responding to new requirements of both our customers and their products.

What can we test for you? Let's get in touch.

# AB(O

#### LABCO GmbH

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#### Do you know LABCO BTC?

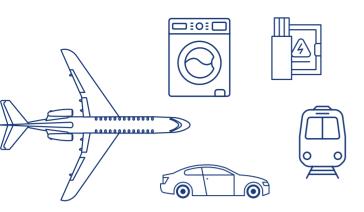
In our Battery Test Centre we test all kinds of battery cells, modules and packs with respect to safety, durability and performance.

→ Check out www.labcobtc.com

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# We shape the future of testing.





### We proof your invention.

Release tests for cables, plugs and contact systems: We test your products according to national, international and OEM standards and specifications. Our test reports are officially accepted by OEMs, so that you can subsequently go into production.

Indiviual tests and analyses: We test your prototypes in terms of microscopy or material characterisations.

#### **Development of innovative test methods:**

You want to launch a new product or struggle with product failures? We find a test method that gives proof.

Benchmark analyses: What are potentials for your next product launch? We test and analyse your selection of competitive technical products.

New test standards: Innovative products ask for adequate testing standards. We participate in different international committees of specifications in order to develop new test and analysis methods for future product solutions.

#### You have anything else to be tested?

We are looking forward to your challenge.

#### Mechanical

- · Tensile and bending tests
- · notch resistance
- Bending cycle tests from -40 °C to 180 °C and -70 °C to 23 °C
- Winding tests from -70 °C to 23 °C
- · Shore and micro hardness
- Abrasion (needle/sandpaper)
- Impact tests
- etc.



#### Environmental simulation

- · Thermal and climatic ageing
- Water storage apparatus for hydrolysis
- Flame test apparatus
- Water and dust tightness
- · Hot water iet test
- Salt spray test
- · Temperature shock test
- Resistance to fluids and ozone
- Fogging tests
- etc.



#### **Electrical**

- · High-voltage tests up to 50 kV
- Derating
- Power supplies up to 3000 A
- · Precision resistance measuring equipment into the uOhm range
- · High resistance measuring equipment covering the TOhm range

· etc.



### 2 Electrodynamic

#### Max. Force: 80 kN

Vibration

Max. Shock: 160 kN

vibration test systems

- Frequency: 5 Hz to 2700 Hz
- Temperature range: -70 °C to 180 °C
- etc.

#### Radio frequency

- Screening attenuation
- · Characteristic impedance
- Return loss
- Transfer impedance
- · Network analysers (5 Hz to 26.5 GHz)
- · Triaxial-measurement tubes
- · Line injection measurement equipment
- Return and insertion loss
- Line symmetry
- etc.







AB(O

Our world

of testing

### Microscopy

- · Fully automated microscopic measuring equipment for cables and wires
- · Digital microscope for images with extreme depth of focus and 3D-measurement
- Micro-section lab for measuring crimp contacts
- 3D optical profilometer



#### Material analyses

- · Differential scanning calorimetry (DSC)
- · Thermogravimetric analysis (TGA)
- Fourier-transform infrared spectroscopy (FTIR)
- Melt Flow Rate (MFR) and Melt Volume Rate (MVR) test equipment
- X-ray fluorescence spectroscopy
- · etc.



#### Customised tests

- · Door slam trial apparatus
- · ABS-simulation test equipment
- Slow-motion-test apparatus (up to 260 °C)
- Flexural strength (from -40 °C to 180 °C)
- · etc.