




# LABCO

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WE SHAPE THE FUTURE OF TESTING



LABCO is an **independent** and  
**globally active test laboratory.**

We are accredited according to  
DIN EN ISO/IEC 17025.

Loxstedt-Stotel,

„Loxpark“



> 500  
clients

LABCO  
+  
LABCO BTC  
> 4700 m<sup>2</sup>

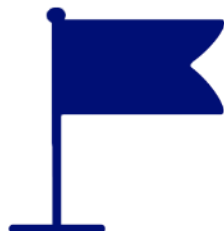


> 500  
accredited  
specifications



> 45  
employees

Founded in  
2003



> 60 %  
university degree

1978

Established in Brake as a development laboratory for cables and wires.

2003

Laboratory manager Dipl.-Ing. Costakis Constantinou bought the laboratory and founded LABCO - with 5 employees.

2018

Laboratory and office area extended to 2700 m².

2021

Dr.-Ing. Marios Constantinou became also Managing Director.

2000

LEONI AG bought the laboratory from Siemens AG.

2014

LABCO moved into their new building in Loxstedt-Stotel.

2020

The Battery Test Centre LABCO BTC was founded.

“ As an independent testing laboratory, our mission is to support clients in developing products which comply to guidelines and specifications. Furthermore we constantly develop and optimise testing methods and contribute in various standards committees.

In the end, we focus on making products **more innovative, reliable and safer** with our unique experience and know-how. ”



## LABCO Management

Dipl.-Ing. Costakis Constantinou

Dr.-Ing. Marios Constantinou

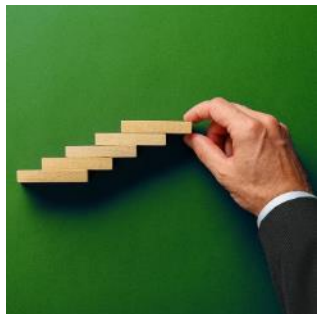
## Our key principles



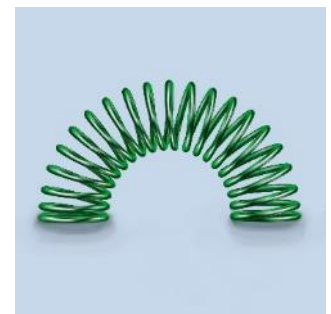
**Quality**



**Reliable service**



**Advancement**



**Flexibility**

## Our mindset



**Respect**

**Family friendliness**



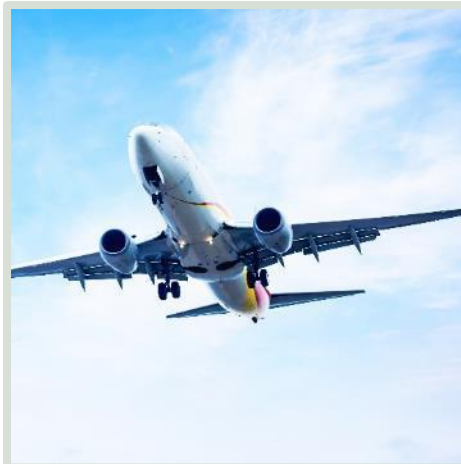
**Social commitment**

**Sustainability**

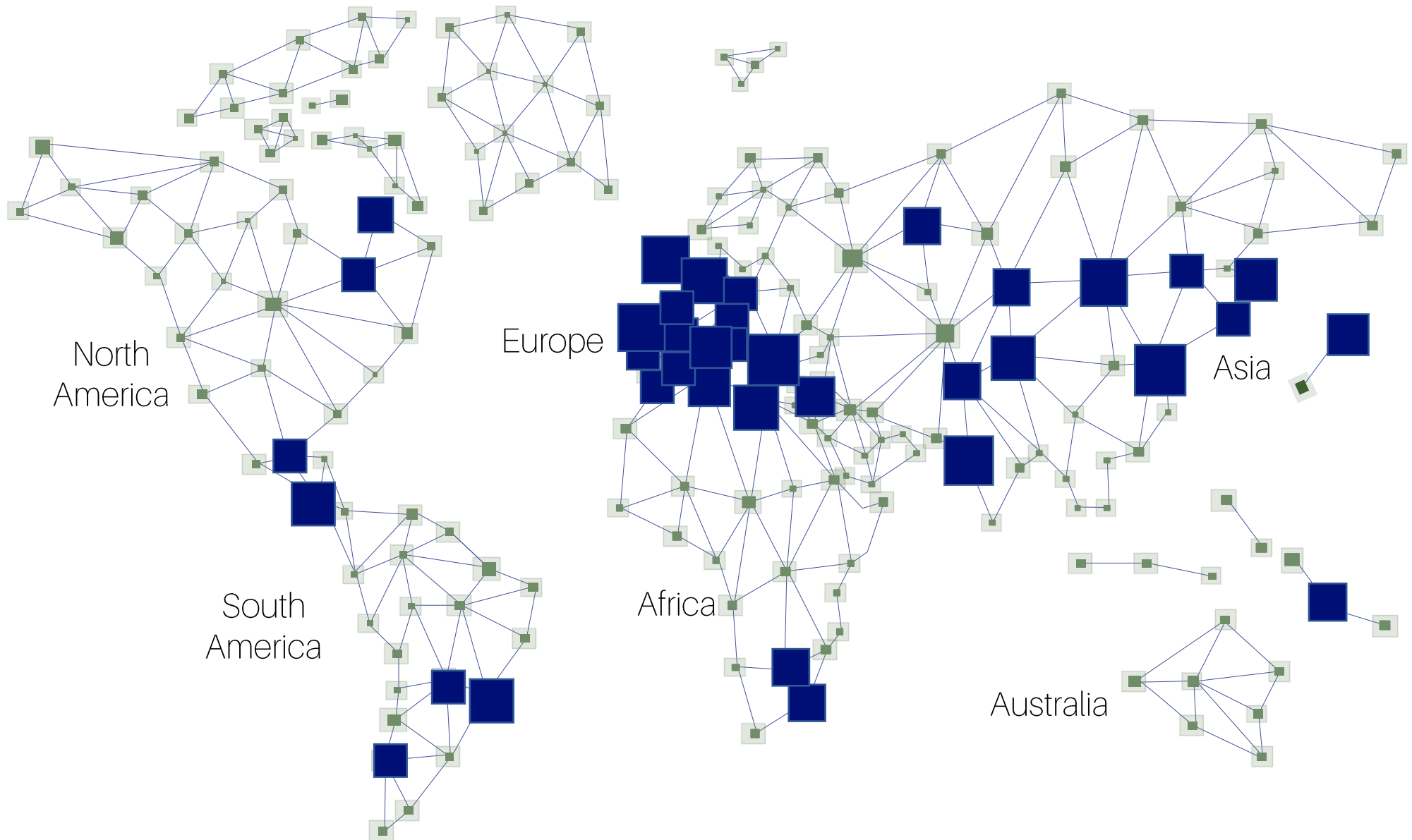




We are testing electrical and non-electrical components of  
**e.g. vehicles, aviation, aerospace, agricultural machines,  
building and domestic engineering, household devices**







ACOME  
add solution  
Aptiv  
ASK  
Audi  
Auto-Kabel  
Avery Dennison  
BMW  
certoplast  
Changchun jetty automotive  
parts corporation  
COFICAB  
Condumex  
Coroplast  
Daimler  
DRÄXLMEIER  
ERNI  
Erwin Quarder  
Federal mogul  
FRÄNKISCHE Industrial Pipes

Fujikura  
Gebauer & Griller  
Gustav Klauke  
HELLA  
HEW-KABEL  
Hirschmann  
HUBER+SUHNER  
INTERCABLE  
iprotex  
Joyson Safety Systems  
Jiangsu Hengtong Wire & Cable  
Technology  
Leopold Kostal  
Kromberg & Schubert  
Kyungshin Cable  
Lear  
LEONI  
MAHLE  
Marquardt  
Nexans

Ningbo KBE  
ODW-ELEKTRIK  
PFLITSCH  
Rosenberger  
Schulte  
SEWS-E  
Shanghai Force Electric  
Wire& Cable Co., Ltd.  
Shenzhen Jdd Tech New  
Material  
Sumitomo Electric  
Bordnetze  
TE Connectivity  
tesa  
U. I. Lapp  
VDE  
Volkswagen  
Yazaki  
  
And many more...

- Accredited according to **DIN EN ISO/IEC 17025**
- Received in July 2000
- Includes > **500** specifications
- **Flexible** accreditation for many tests
- Tests without accreditation/specification also possible



The accreditation includes various types of specifications from major OEMs  
as well as national and international standards and regulations.

You can find details of our accreditation [certificate](#) and the [annex](#) on [www.labco.de](http://www.labco.de).



OEMs worldwide appreciate our service as

**Independent** | **Trustful** | **Highly-qualitative**

Re-testing in OEM internal laboratories is not necessary.

LABCO has direct contact with many OEM development departments.

In more than 40 years of experience,  
our test scope has been expanded to  
a wide variety of test samples.

In simple words,  
we test everything that can be found  
**on and around a cable harness** –  
from any individual component to  
**complete high- and low-voltage**  
cable harnesses.



## Wires and Cables



High and low voltage single and multicore cables

RF cables:  
e. g. coaxial, LVDS, CAN  
Ethernet, Flexray

Twisted cables

## Protection Systems



Adhesive tapes

Sleeves, hoses, tubes:  
e. g. smooth, braided,  
corrugated, heat-shrink

Longitudinal  
wrapping systems

## Connection Systems



High and low voltage terminals, connectors and housings

RF terminals,  
connectors and  
housings

Sockets and plugs:  
e. g. charging devices,  
trailer couplings

## Batteries, Interfaces and Assemblies

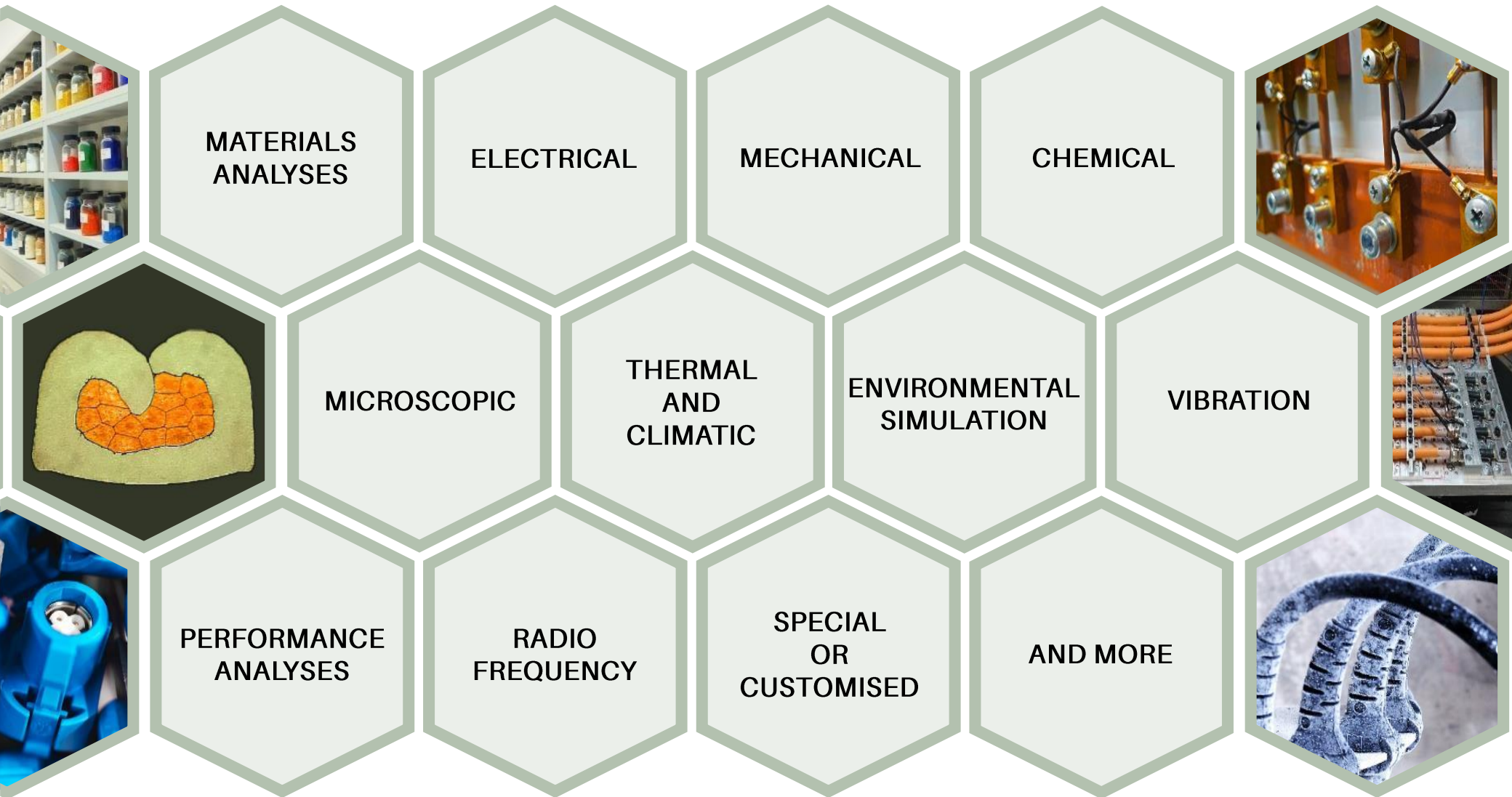


Batteries:  
e. g. cells,  
modules, packs

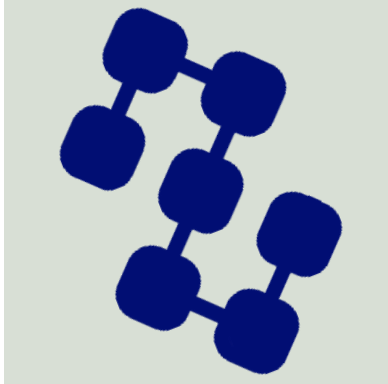
Interfaces:  
e. g. fuse boxes,  
controllers, relays

Assemblies:  
e. g. mountings,  
fixtures, fasteners





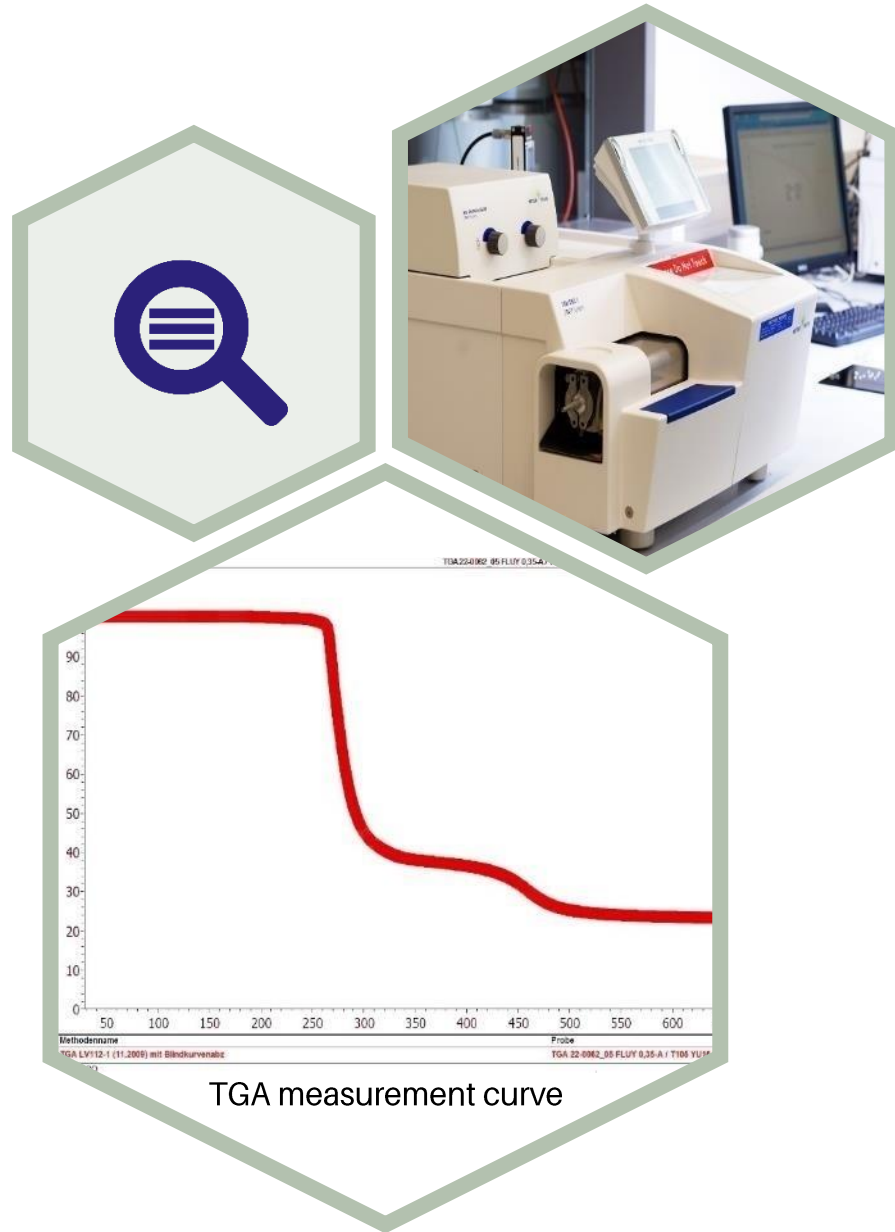




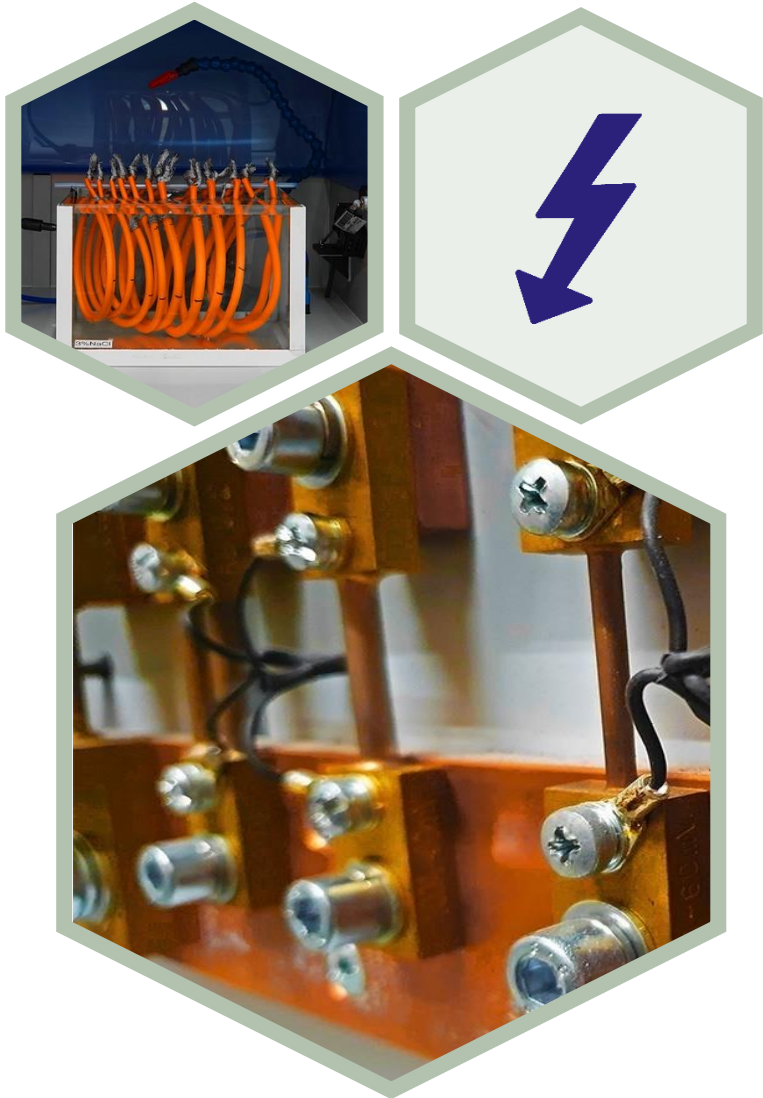
- Pre-development projects
- Competitive analysis
- Development of new tests
- Failure-cause analysis



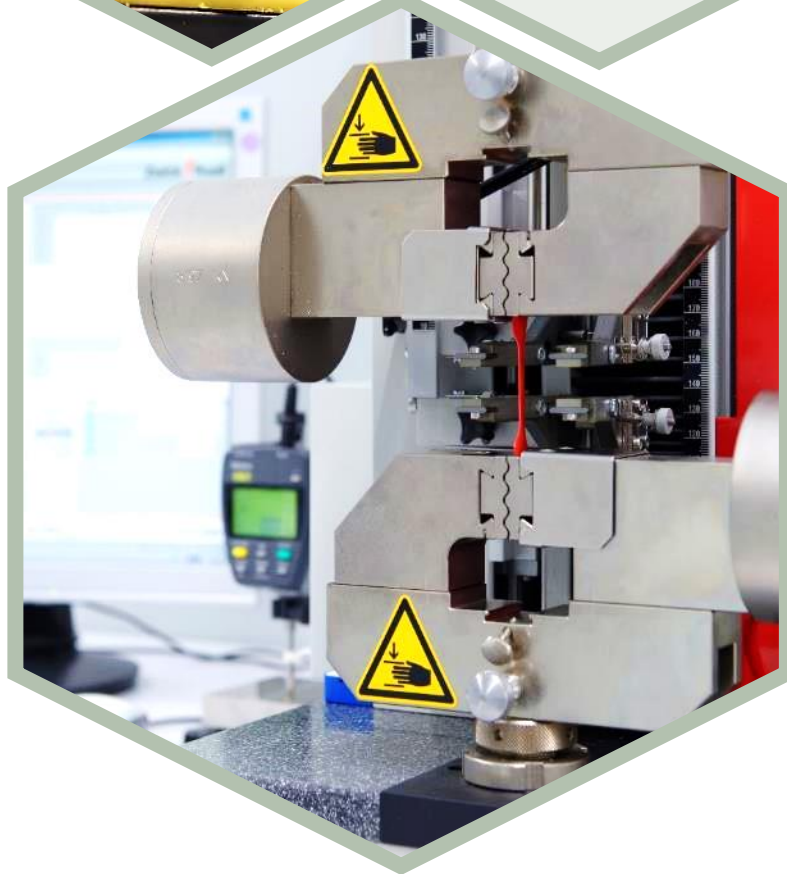
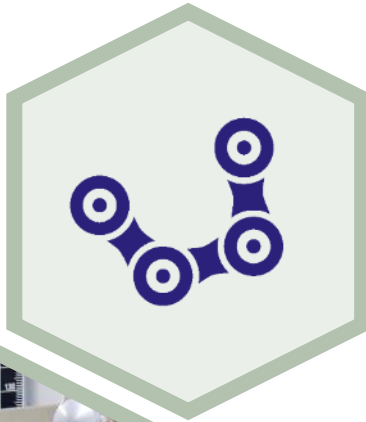
- 20 years participation in (inter-)national committees of specifications
- Represented in important work groups in the German automotive industry



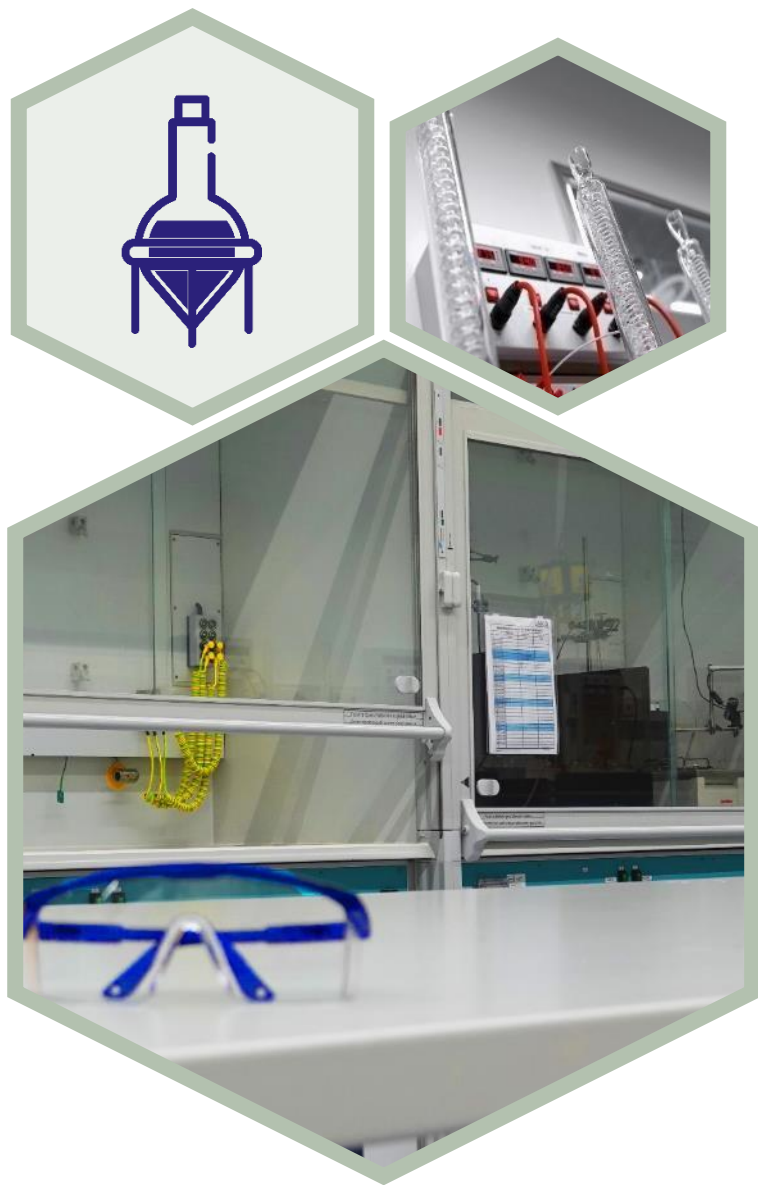
- DSC (Differential scanning calorimetry)
- TGA (Thermogravimetric analysis)
- FTIR (Fourier-transform infrared spectrometer)
- MFR/ MVR test equipment (Mass flow rate / Mass volume rate)
- X-ray fluorescence spectroscopy



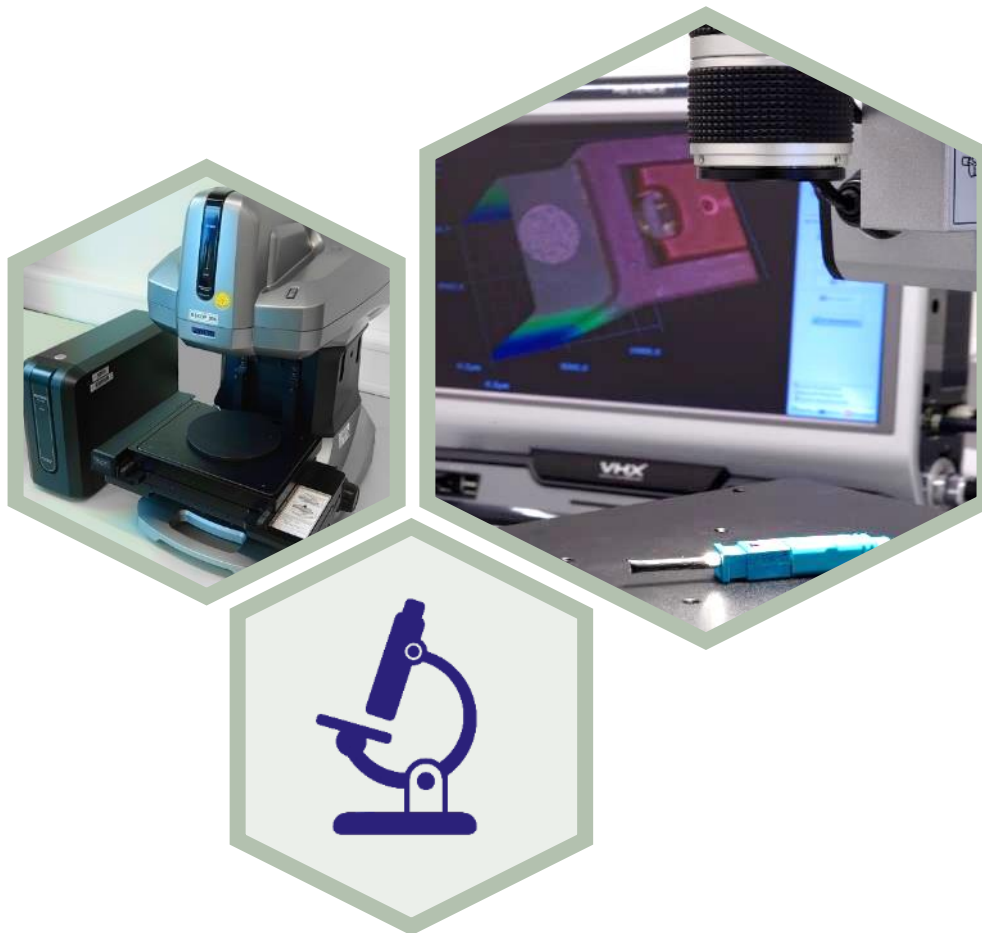
- Derating systems
- Power supplies up to ca. 3000 A for e. g. short-circuit tests
- Precision resistance measuring equipment into the  $\mu\text{Ohm}$  range
- High resistance measuring equipment covering the TOhm range
- High voltage testing equipment up to 50 kV



- Tensile testing machines
- Bending cycle testing apparatus
- Impact testing equipment
- Abrasion test devices
- Motorised mandrels for winding tests



- Extraction test equipment
- Equipment for different chemical tests, e. g. storage in
  - oil
  - fuels
  - battery acid
  - other fluids and chemicals



- Video microscope
- Stereo microscope
- Digital microscope with a magnification of 0 – 200x and a depth of focus of 4 cm
- Overhead-light microscope
- Fully automatic microscope equipment for cables and wires
- Micro-section laboratory for measuring crimp contacts
- 3D Optical Profilometer



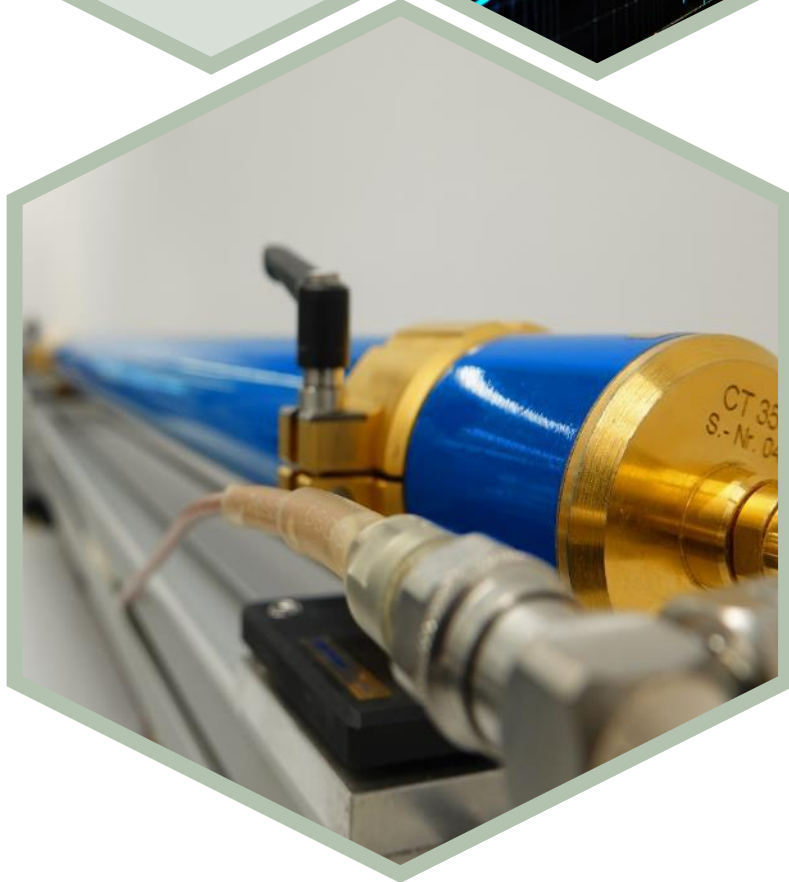
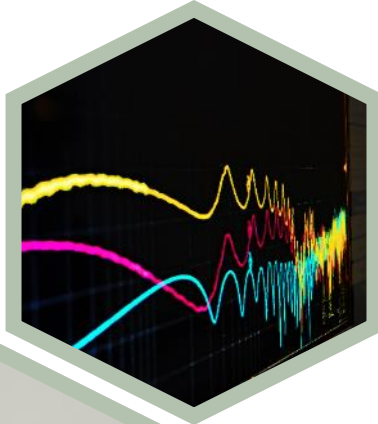
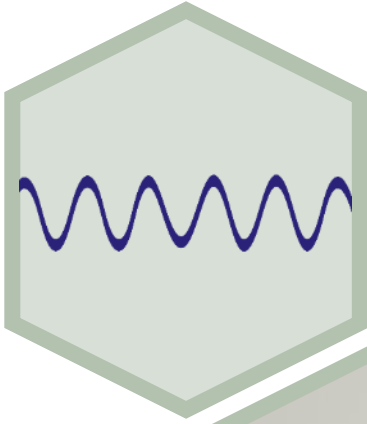


- > 40 climatic/temperature test cabinets and chambers
  - incl. temperature shock chamber
- 3 walk-in temperature/climatic test chambers (11,5 m<sup>3</sup> test space)
  - Temperature range: - 80 °C to + 250 °C
  - Humidity range: 10 % to 98 % RH
- Tests under thermal/climatic profiles are possible, e. g. vibration tests
- > 100 ovens for ageing tests (Up to 1200 °C)

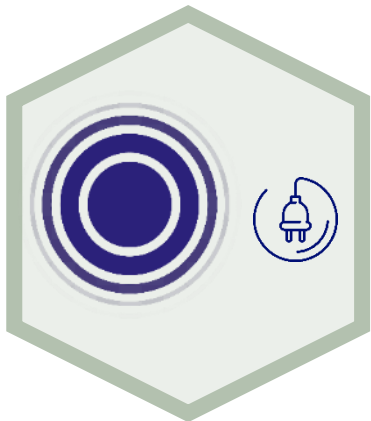




- Test equipment for fogging tests
- Laboratory for storing in environmental fluids, e. g. storage in salty fluids
- Salt spray chamber for e. g. corrosion tests
- Ozone chamber
- Flame test apparatus
- IPX-chamber for e. g. water tightness tests
- Water storage apparatus for hydrolysis



- Network analysers (5 Hz to 26,5 GHz)
- Triaxial-measurement tubes (40 and 90 mm diameter)
- Line injection measurement equipment
- Extract of the measurement possibilities:
  - Return and insertion loss
  - Characteristic impedance
  - Determination of shielding effectiveness
  - Line symmetry



## Parameters

**Nominal force Sine / Random / Shock**

**Frequency Range**

**Smax (Peak to Peak: Sine / Random + Shock)**

**Dimensions slip table and head expander**

**Test space of the climatic chamber (W x D x H)**

**Temperature range**

## Shaker 1

50 kN / 50 kN / 100 kN

5 Hz to 2700 Hz

36 mm / 50,8 mm

600 mm x 600 mm

1040 mm / 960 mm / 1080 mm

- 70° to 180 °C

## Shaker 2

80 kN / 80 kN / 160 kN

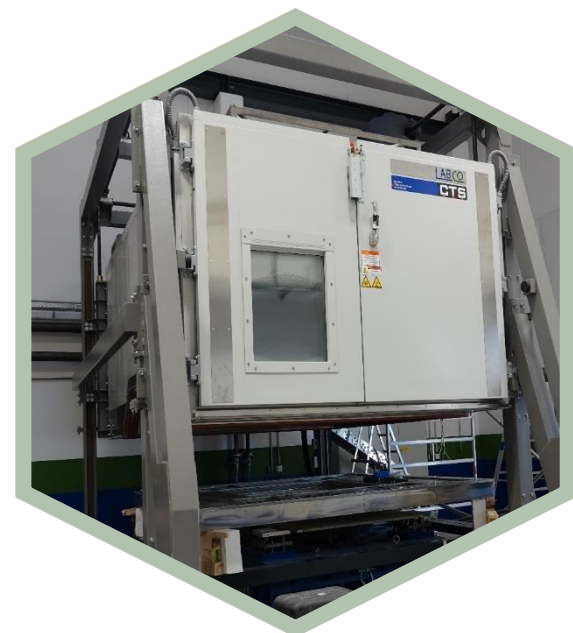
5 Hz to 2500 Hz

50,8 mm / 76,2 mm

600 mm x 600 mm

1020 mm / 890 mm / 1120 mm

- 70 °C to 180 °C



## Parameters

**Nominal force Sine / Random / Shock**

**Frequency Range**

**Smax (Peak to Peak: Sine / Random / Shock)**

**Dimensions slip table and head expander**

**Test space of the climatic chamber (W x D x H)**

**Temperature range**

## Shaker 3 + Shaker 4

300 kN / 270 kN / 900 kN

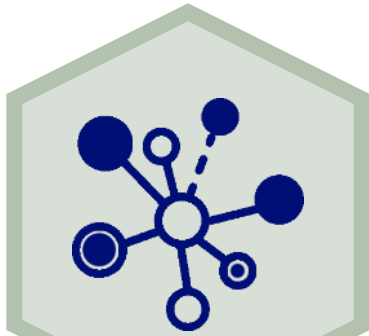
5 Hz to 2000 Hz

63,5 mm / 63,5 mm / 76,2 mm

2100 mm x 2100 mm / 2100 mm x 1900 mm

2500 mm / 3115 mm / 1500 mm

- 45 °C to 150 °C



- Door slam trial apparatus
- Micro- and shore-hardness test equipment
- ABS-Simulation test equipment
- Slow-motion-test apparatus (up to 260 °C)
- Flexural strength (from -40 °C to 180 °C)





- Battery test systems for e. g.
  - Cyclic charging and -discharging
  - Over- and discharging
  - Cyclic deep discharge

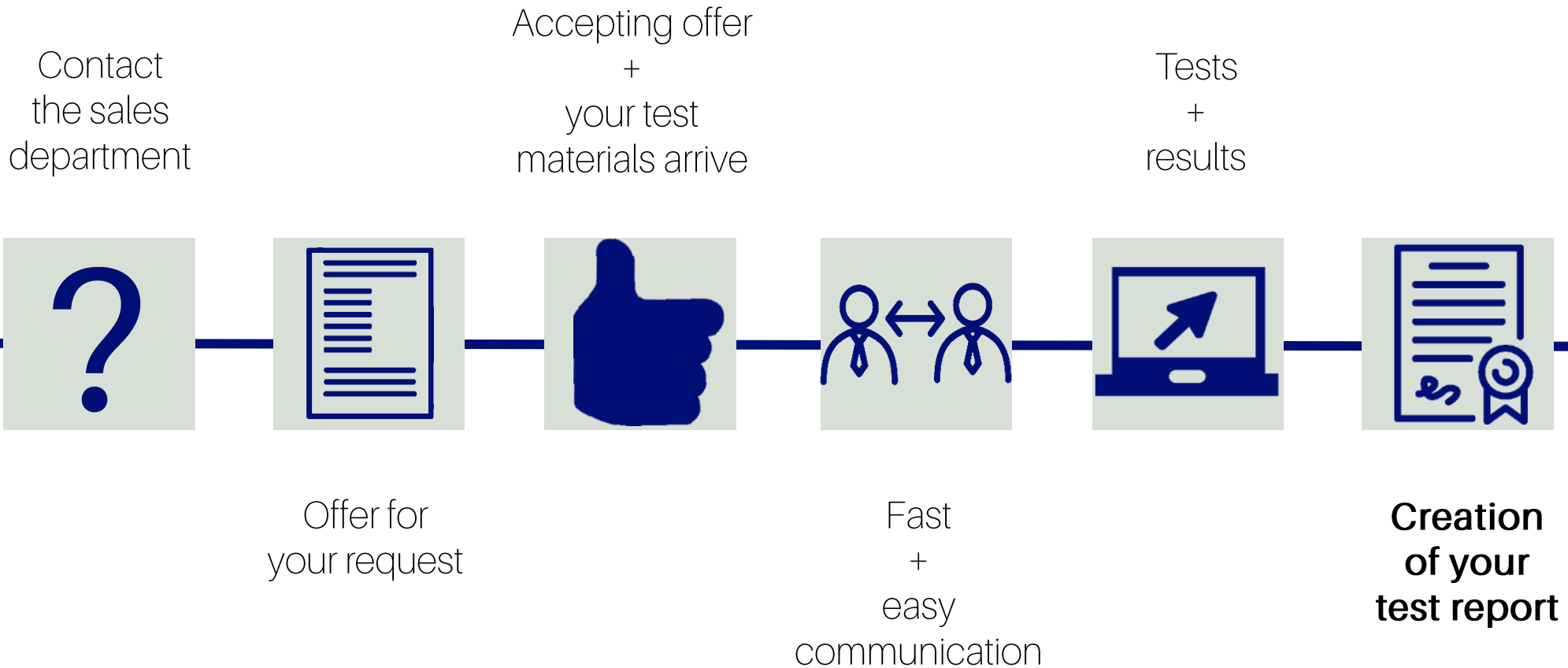
Test equipment	Max. number of test channels	Max. power per channel
Cell tester	36	10,8 kW
Module tester	4	64 kW
Pack tester	6	1100 kW
Max. voltage per channel: 1200 V Max. current per channel: 2000 A		

Our **High-pressure water mist extinguishing system** is connected to every test system for high safety standards

Battery tester	Number of channels per climate / temperature system	Number of climate / temperature systems	Max. number of channels	Test space
Cell tester	6	6	36	0,35 m <sup>3</sup>
Module tester	2	2	4	1,0 m <sup>3</sup>
Pack tester	2	2	4	11,5 m <sup>3</sup>
Pack tester	1	1	1	11,5 m <sup>3</sup>
Pack tester (Vibration)	1	1	1	11,0 m <sup>3</sup>

Different combinations of channels per tester system are possible







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if you have any further questions!

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