



DIGITAL
DEFINED
TESTING



Tailor-made Test Solutions

Company

In order, your products fulfill the actual market requirements, KARING is constantly strived to simplify and accelerate developments and innovations for your Company. We reach this aim with test systems, which are intended for a diversity of products and test situations.

KARING always realises possible future developments and includes them in today's systems.





- » Test components usable in climatic chambers
 - » Test systems
 - » End of line tests (EOL)
 - » E-Mobility test systems
 - » Test systems for autonomous systems
 - » Medical instruments
 - » Mechanical production parts
 - » Test system software
 - » Innovations
-
- » Development
 - » Construction
 - » Fabrication
 - » Installation
 - » Commissioning
 - » Training

Mechatronic components

Years of know-how flow into development, construction, assembly and manufacture of test and checking assemblies.

Our employees are specialists of electronic technology, informatics, engineering and project management. They offer a service which can only be offered with complete dedication.

KARING's service includes on-site training, online help, remote diagnostics and maintenance.





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» **Chassis test systems:**

slam door (actuators and roboters), seat, mirror, hood, sunroof, ignition lock

» **Components test systems:**

electric drive motor, spoiler, drive shaft incl. eDrive, actuator

» **End of line test systems:**

complete door module, control units, spoiler module, converter

» **E-Mobility test systems:**

motor, converter

All products can be used in a climate chamber.

Test components

By planning the use of standard components in the correct places we can reach a high re-use rate, an optimal cost structure and high quality.





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» Modular test systems

The concept of the modular test systems is achieved by modularising both - the test bench control including the safety technology and the test bench hardware. The Central Station (CS) is the brain of the modular concept. This is the main control for all test bench modules.

Software

ACTERE software is a complete package for automation and test bench control in the automotive sector and many other industries. It enables graphical programming of complex and parallel processes. Parallel processes can run concurrently or alternatively. ACTERE uses Java as script language based on Groovy. It offers open and extensive interfaces to the automotive and automation technology for communication and I/O.

Virtual Twin System

With the Virtual Twin System (VTS) it is possible to carry out a life visualisation teaching with 3D data in real time and to record the movement of the actuator/robot, e.g. in the climate chamber, which is not directly visible to the operator.



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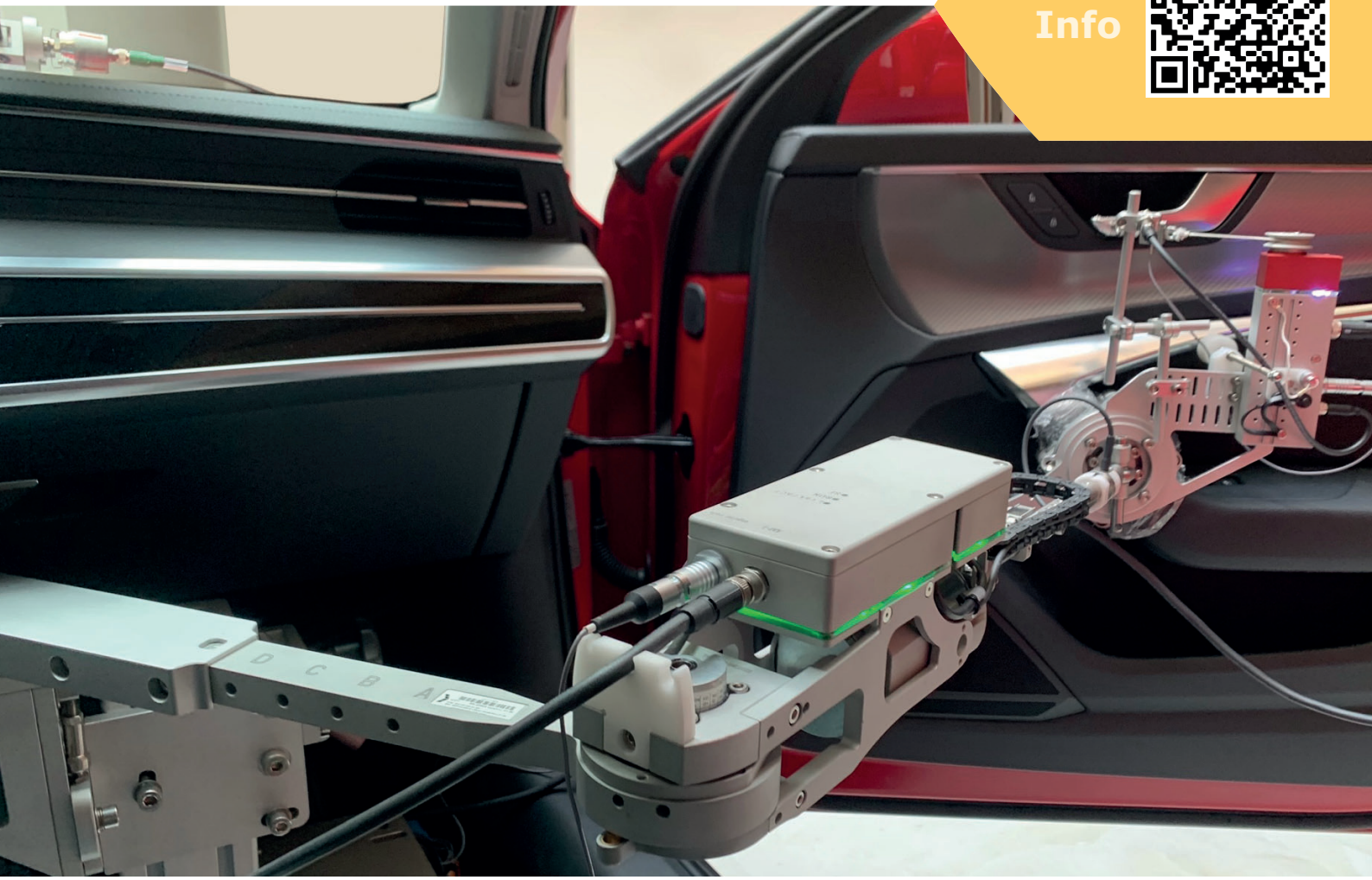
Test systems

» in Car Durability Tester - iCDT

ICDT is a reliable and accurate test system for testing vehicle doors. The doors are dynamically opened and closed from inside with a mechatronic actuator.

As an extension, you can test with the DUTA Modular (option), parallel other door functions, like electric mirrors, electric windows, electric locking, etc..

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» End of Line - EOL

KARING offers EOL test systems as rotary table and transfer line for various components in the exterior and interior area. These are equipped with tactile, camera and electronic test systems for a 100% final inspection.

» Small motor test bench

Various parameters can be tested with the small motor test bench:

- » Adjustment characteristics
- » Characteristic curve
- » Self-locking
- » Load collectives
- » Block / strike simulation
- » Blocked force measurement
- » Acoustics

The test stand servo motor can be used as a load unit for the DUT. In this way torque curves, that were previously recorded on a real system, can be used as a specification for the load.

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» SirkuFlex

Fully encapsulated, fast and precise six-axis robots, that have been modified for use in the climatic chamber (without additional covers), are called SirkuFlex. Each robot is built individually for the respective area of application.

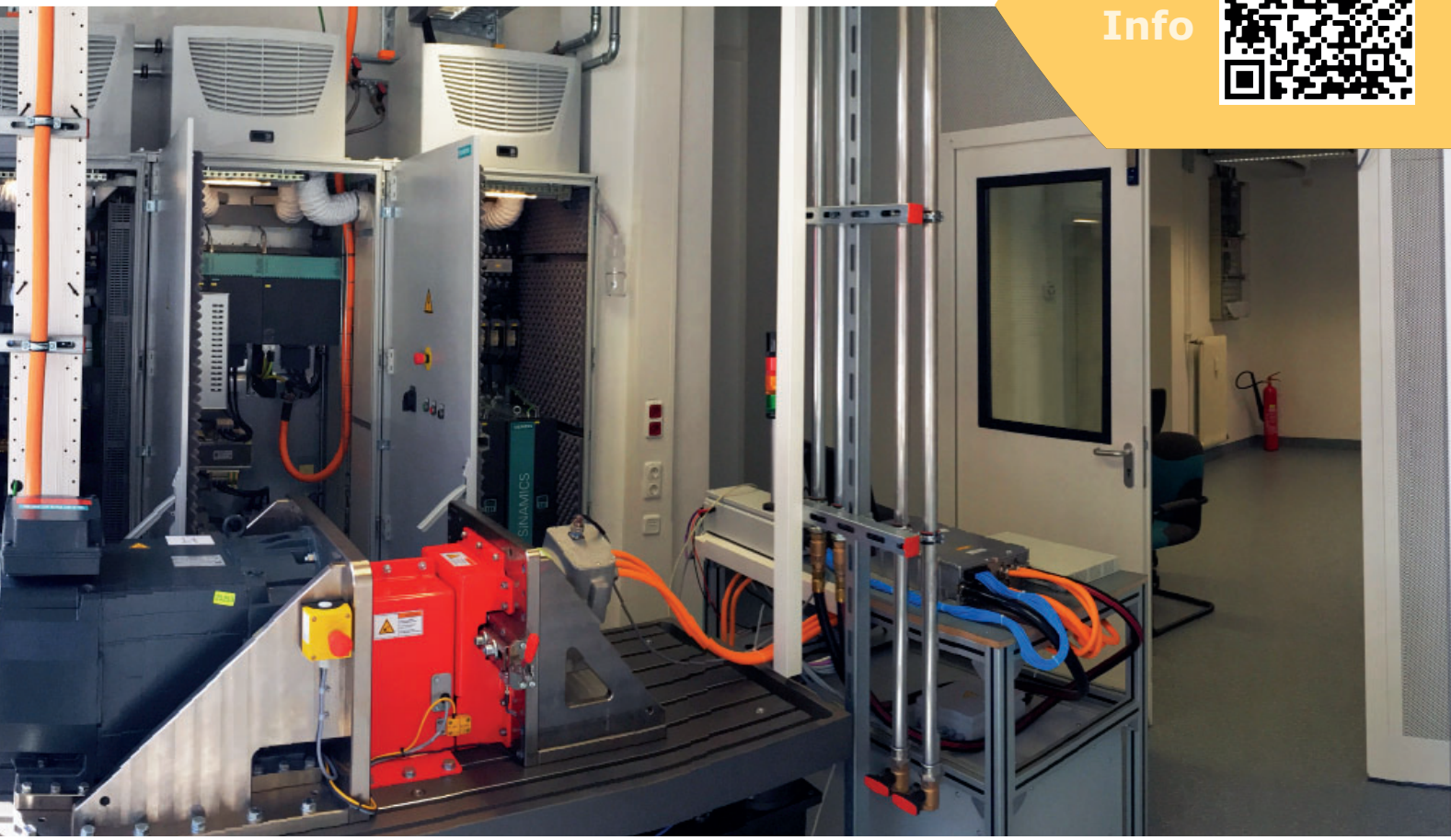
KARING SirkuFlex documents in real time and reliably checks the quality of components and vehicle systems under a wide variety of conditions.

» E-Mobility

With the test bench for electric drives, electric motors and their electronic control are tested in an uncomplicated manner.

The test item can be subjected to various loads under real operating conditions. After this, the determined characteristic curves become documented and evaluated.

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» References

Audi AG, DE | BAIC, CN | BHTC, DE, BG, MX |
BMW AG, DE; Brilliance BMW, CN |
Baier & Köppel, DE | Baolu, CN | Bosch, DE |
Brose, DE, BR, CN, IN, IT, NL, TH, CZ, SE, ZA, US |
Cataarc, CN | Daimler, DE; Fujian Benz, CN |
EDAG, DE | Faurecia, DE | FEES, DE |
Ford, DE; Otosan Ford, TR | Grupo Antolin, DE |
Hi-Lex, DE | Hofer, DE | Hytorc, DE | Lear, DE |
Nissan, JP | Opel, DE | Panasonic, DE | PSW, DE |
Porsche, DE | Schaeffler, DE | Semikron, DE |
Siemens, DE | Skoda, CZ | Tofas Fiat, TR |
Valeo Siemens, DE, HU | Valmet, DE, PL |
Volke, DE | Volkswagen, D; SAIC VW, CN; FAW, CN

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