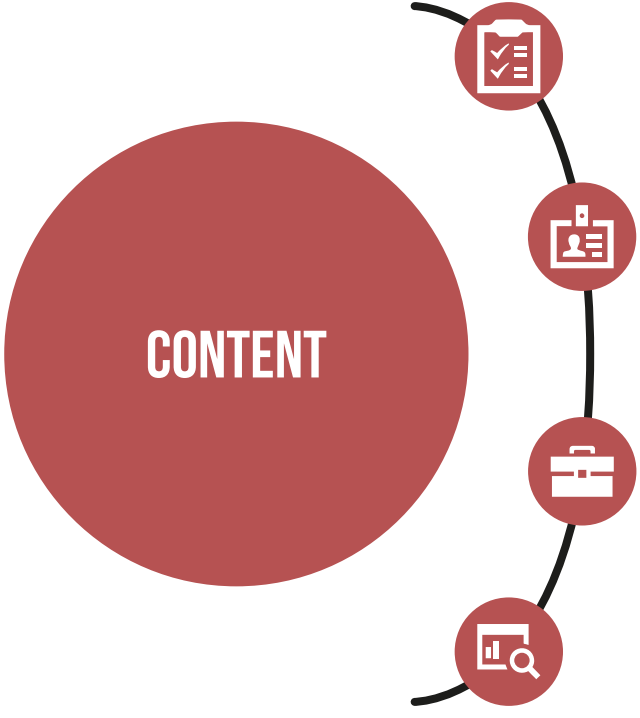
VTS 2030

From standard system to manufacturing line

V1.11.2019



COMPANY	Experience Branches Indicators
COMPARISON	Why standards? Standard system VTS 2030
DEVELOPMENT	Components Price information
POSSIBILITIES	Process Application Distribution

EXPERIENCE

From concept to commissioning, you receive everything from one hand

LEADING COMPANY OF TEST AND MEASUREMENT SYSTEMS

35 years of experiences.

Thousands of projects in over **50 countries**.

A lot of proprietary developments.

This leads to **standards**, that our customers today have a benefit from.

BRANCHES

MCD's customers industries are numerous

INDICATORS

The most important data about MCD Elektronik

INDICATORS	MCD
Founded	1983
Employees	80
Turnover	12 Mio. €
Headquarters	Birkenfeld (Germany, BW)
Branch offices	Shanghai (P.R. China), Budapest (Hungary)
Distribution of test systems	Over 50 countries worldwide
Management	Owner-managed
Certification	DIN ISO 9001:2015

WHY STANDARDS?
Changes in requirements

SHORTER TIME TO MARKET REQUIREMENTS ARE CHANGING THE TEST WORLD. TIME FOR STANDARDS!

Introduction phases often take place with **a basis system** as a **FCT or EOLT** for a lot of **different assemblies**.

Especially in the area of **eCars / electric mobility**, there are actually **low quantities**, which still have to be expedient and efficiently tested.

STANDARD SYSTEM VTS 2030

Achieve quick and safe results with standards

DEVELOPMENT OF TEST SYSTEMS IN A SHORT TIME

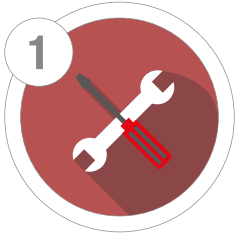
Standards are well-suited for **quick** solutions.

Customer is able to **manufacture** his adaption **on his own** or via MCD. The software can be modified at any time, is **self-creatable** and **adaptable** to changing requirements.

Scalable modules are a solution for the **future**.

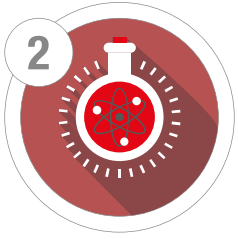
COMPONENTS

Development parts of a VTS standard system



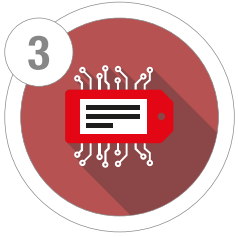
DEVELOPMENT

From a standard system to individual extensions



INTERFACES

Simple and quick adaptions

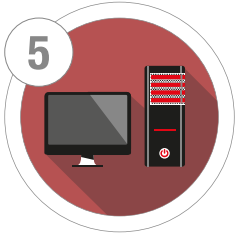


ADAPTIONS

Possible with or without exchangeable fixtures, as FCT, EOLT and repair version

PLANNING

Adjustments for adaptions, needle beds, etc.



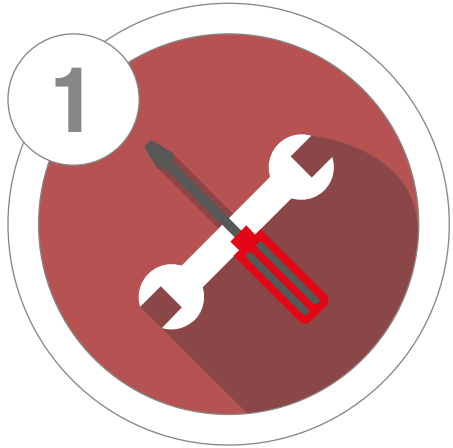
SOFTWARE TOOLS

Implementation of handling, process, data collection, controlling, etc.

The depicted test system partly reveals optional equipment at additional cost.

- IPC with Windows® / OS
- 19“ standard components, 10“ components
- 22“ monitor
- Keyboard drawer with wireless keyboard
- Emergency power supply
- Emergency stop control
- Power-up
- Display components
- Compact design, scalable

- *Height-adjustable (optional)*
- *RFID management (optional)*



DEVELOPMENT

The depicted test system partly reveals optional equipment at additional cost.

- 8 serial and 16 LAN interfaces (via switch)
- 2 CH power supply (e.g. 0-20 V, 2x 20 Amp.)
- Internal power supplies (5, 12, 24 V)
- Data logger with DAkkS calibration (e.g. Keysight, 2x 20 channels, expandable)
- Control unit (16 E/A, I²C bus, code measurement system)
- USB

- *CAN, LIN, SPS (optional)*
- *AudioAnalyzer (optional)*
- *Oscilloscope (e.g. PicoScope®, optional)*

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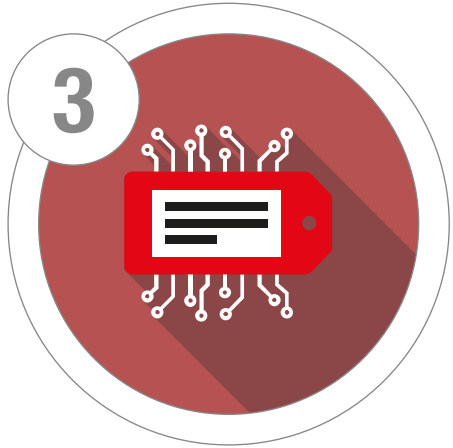
INTERFACES

The depicted test system partly reveals optional equipment at additional cost.

- FCT, EOLT, Repair adaption
- Mounting / test adaption
- Pylon receiver (e.g. 2x 170 pol., 4 Ampere load each, 2x 24 pol. high current, 1x 170 pol. with RS232, mech. I/O, I²C, transfer for USB 3.0, HDMI and network)
- Quickly changeable, sustainably adaptable
- Standard contact pins



ADAPTIONS

The depicted test system partly reveals optional equipment at additional cost.

- VTS 2030 Measurement system (3HU housing, 128 channels, ULC FPGA measurement card, voltage and frequency measurement, FFT analysis, creating of curve shapes)
- Up to 512 measurement and stimuli channels

- *CAN / LIN controller (optional)*
- *Additional test steps / test sequences (optional)*
- *Locking (optional)*

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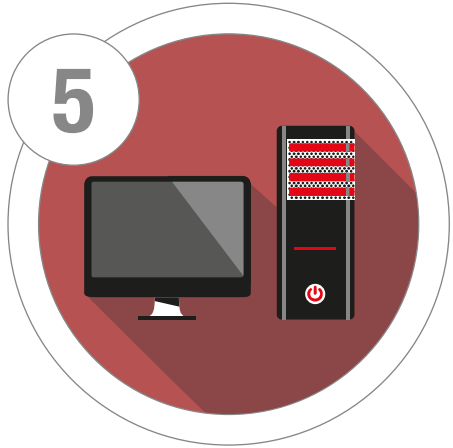
PLANNING

The depicted test system partly reveals optional equipment at additional cost.

- TestManager CE license
- Toolmonitors for control of components (e.g. Multimeter, PowerSupply, SerIO, Serialline, SQL)
- Test steps for measurements *(U / I / f / t / FFT)*
- Standardized control concept for adapters
- Data collection, statistic
- Quality analysis

- *Integration of MCD COMET and National's TestStand® (optional)*
- *Further Toolmonitors and LabVIEW® (optional)*



SOFTWARE TOOLS

PRICE INFORMATION

Declaration of budget prices for the development of a VTS 2030 test system

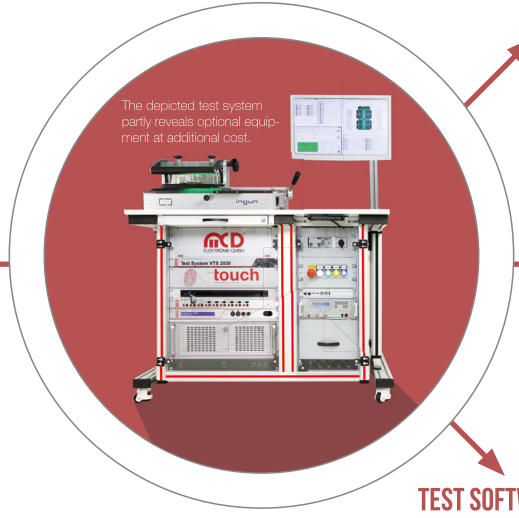
CALCULATION OF BUDGET PRICES FOR BASIC SYSTEM DEVELOPMENT

The flexible VTS 2030 test system can be expanded by **optional equipment** and can be adjusted **customer-specifically**.

Optional equipment is marked ***cursive*** and with *„(optional)“* at the **components description**. At the following site, there are **exemplarily component prices** listed with „+“ under the basic price.

PRICE INFORMATION

Budget prices for the development of a VTS 2030 test system (as of 11-2019)



BASIC SYSTEM **40.000 €**

+ Height-adjustable 1.650 €
+ RFID management 450 €

ADAPTIONS* **22.000 €**

+ Scanner (e.g. Keyence) 1.250 €
+ Automatical opening 2.100 €
+ Locking below 480 €
+ Locking above 630 €
+ Stress test DUT 1.070 €

PLANNING / NRE COSTS* **15.000 €**

+ Doc. for special countries 3.500 €

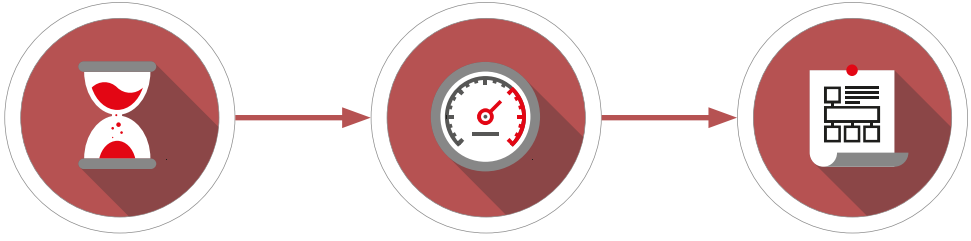
TEST SOFTWARE (TESTMANAGER CE, DONGLE VERSION) **900 €**

+ Toolmonitor Data Manager (dongle version) 1.010€

* Exemplarily calculation for a test system with a test sequence of approx. 50 test steps and about 60-80 contact points (includes planning, engineering, construction, software development and documentation in german/english)

PROCESS

Standardised process sequences of MCD test systems



DEBUG / TEST

Diagnosing, locating and fixing of errors in software and hardware modules.

MEASUREMENT

Test and endurance run. Does the test deliver relevant results quickly and safely?

100%

Manufacturing is rendered and test protocols are appropriately setted for customers.

APPLICATION

Integration of MCD systems to different test environments

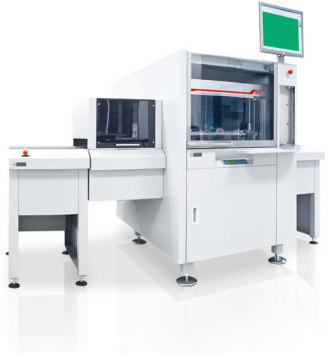
ADAPTIONS

HAPTIC TESTING

OPTIC TESTING

ROBOTIC TESTING

INLINE SYSTEMS



APPLICATION

VTS extension: wireless adaption

SIGNIFICANT REDUCTION OF TIME AND COST FACTORS

An **optimal needle bed design** allows to **reduce the project through-put times and cost substantially** by using standardized components

Circuit parts can be efficiently and simply supplemented, the **error rates during adaption construction** and **reproductions** are lowered against **zero percent**.

APPLICATION

VTS extension: robot application

AUTOMATION POSSIBILITIES BY A COLLABORATING ROBOT

By the **integration of a robot arm**, the VTS 2030 test system was optimized for the use within **fully automated assembly lines**.

An autonomous **gripping of tools and DUTs** as well as an **automized control** of the test adaption is possible. Further components, like cameras, are adaptable.

APPLICATION

VTS extension: test system monitoring

SOFTWARE FOR CONTROLLING OF CONNECTED MCD TEST SYSTEMS

Interconnected test systems according to **„Industry 4.0“** are monitored, controlled and analyzed **via mobile devices**.

Status requests, **statistics about test processes and DUTs** offer a permanent **control oportunity** of the test systems and minimize the inspection walkways and the idle times.

APPLICATION

VTS extension: MCD's software tool COMET

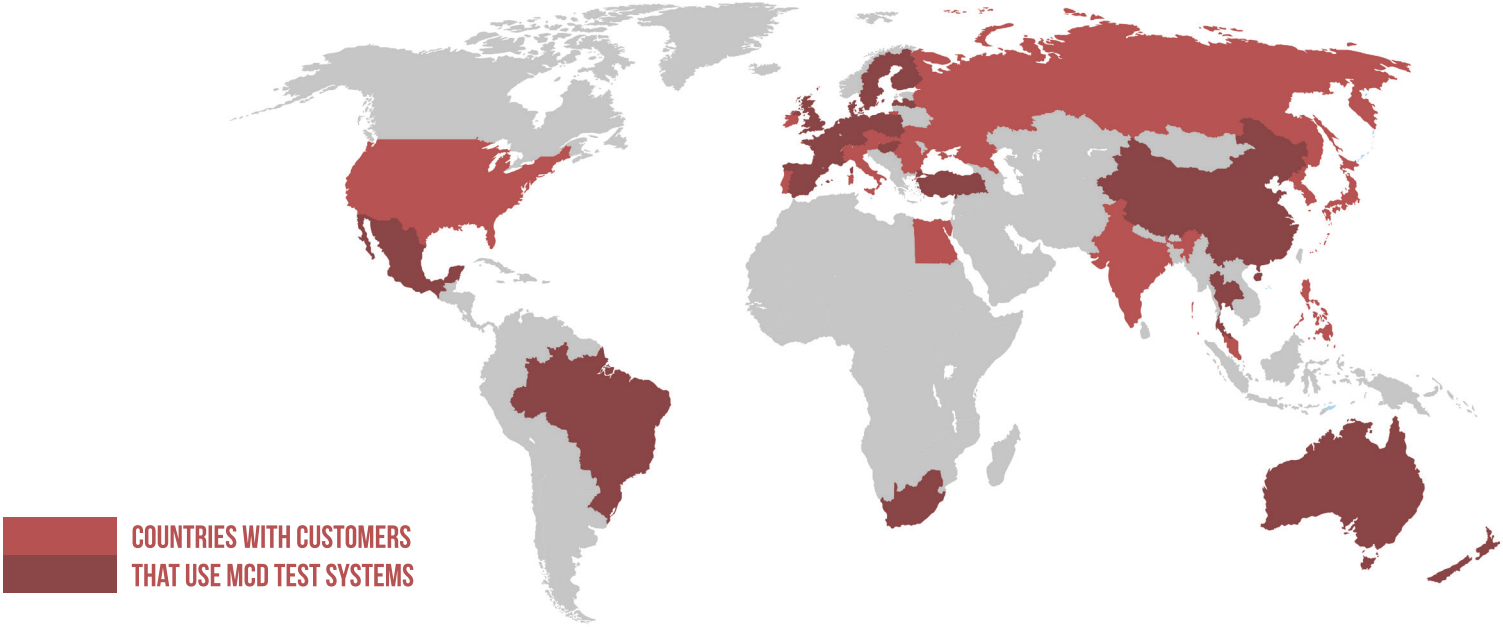
COMBINATION OF THE BENEFITS OF MCD PRODUCTS AND TESTSTAND®

Specific test and measurement processes of the sequencer **TestStand®** from National Instruments® are controlled via **intuitive interfaces** through integration of **MCD Toolmonitors**.

The tool provides **interfaces** for integration into other MCD tools and enables the **programming** of new functions via C#.

DISTRIBUTION

Worldwide use of MCD test systems



DISTRIBUTION

European use of MCD test systems

COUNTRIES WITH CUSTOMERS THAT USE MCD TEST SYSTEMS

MCD ELEKTRONIK GMBH
Hoheneichstr. 52
75217 Birkenfeld, Germany

www.mcd-elektronik.com

shop.mcd-elektronik.com