

TEST-TRACK test editor screen

TEST-OK system Flexible testing assembled PCBs

The TEST-OK testing system for assembled printed circuit boards (PCBA) offers both short development time for the testing engineer as well as flexibility during production. The TEST-OK test platform enables a wide range of test solutions, for different types of Unit Under Tests.

The TEST-OK system forms an interface, in which a so-called TEST-OK module is placed. The system has an integrated measurement card TCC 1800-UE which interfaces with a computer, on which is running an application called TEST-TRACK and a database.

Modules must be specifically designed for each type of UUT. Each module is built with a minimum of three printed circuit boards which are fixed by two aluminum frames. A module can be exchanged quickly during the production process. Test parameters are configured automatically after detecting a new module.

TEST-OK offers a single and double side contacting system with different options. The TCC 1800-UE provides an extensive test interfacing, such as adjustable power supplies, analog in- and outputs, counters and communication interfaces.

Das TEST-OK Prüfsystem für bestückte Leiterplatten (PCBA) bietet sowohl kurze Entwicklungszeiten für den Prüfsystemingenieur als auch Flexibilität während der Produktion.

Die TEST-OK Testplattform ermöglicht eine breite Palette von Testlösungen für verschiedene Arten von Prüflingen.

Das TEST-OK-System bildet eine Schnittstelle, in die ein sogenanntes TEST-OK-Modul eingesetzt wird. Das System verfügt über eine integrierte Messkarte TCC 1800-UE, die mit einem Computer verbunden ist, auf dem eine Anwendung namens TEST-TRACK und eine Datenbank laufen.

Die Module müssen speziell für jede Art von Prüfling entwickelt werden. Jedes Modul besteht aus mindestens drei Leiterplatten, die durch zwei Aluminiumrahmen befestigt sind. Ein Modul kann in einer Fertigungsumgebung sehr schnell ausgetauscht werden. Die Prüfparameter werden nach dem Erkennen eines neuen Moduls automatisch konfiguriert.

TEST-OK bietet ein einseitiges und beidseitiges Kontaktierungssystem mit verschiedenen Optionen an. Das TCC 1800-UE bietet eine umfangreiche Testschnittstelle, wie einstellbare Stromversorgungen, analoge Ein- und Ausgänge, Zähler und Kommunikationsschnittstellen. Die Tests werden in einer proprietären High-Level-Skriptsprache geschrieben, was die Effizienz erhöht.



TEST-OK

Test system 4000 series

Test system with integrated Test Controller Card for single - and dual side contacting of UUT's
Testsystem mit integrierter Test Controller Card zur ein- und beidseitigen Kontaktierung von Prüflingen



Dual side



1. Cover
Deckel
2. Locking system for bottom module
Schliessmechanismus für Unterseite
3. Slide for top module
Schiene für Topmodul
4. Three positions for top module
Drei Höhen für Topmodul
5. Connection system for top module
Interface für Topmodul
6. Connection system for bottom module
Interface für Unterseite
7. Slide for UUT positioning module
Schiene für UUT Aufliegerplatte
8. Slide for bottom module
Schiene für Kontaktträgerplatte
9. Housing for Test Controller Card
Gehäuse für Test Controller Card

Single side

TCC1800-UE



Fixture ready to install a new module
Tester bereit für einsetzen Adapters



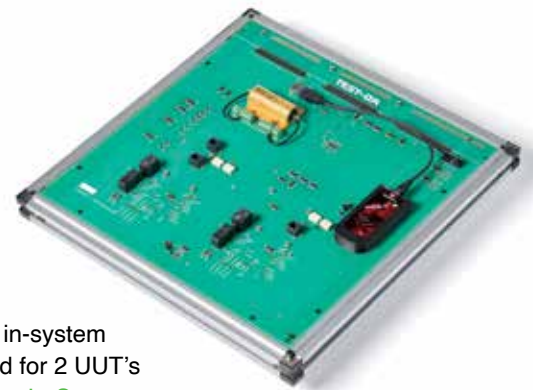
Bottom module inserted
Einschub der Kontakträgerplatte



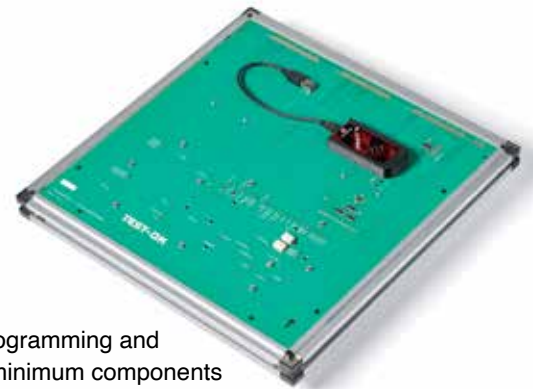
Positioning module with UUT
Aufliegerplatte mit UUT



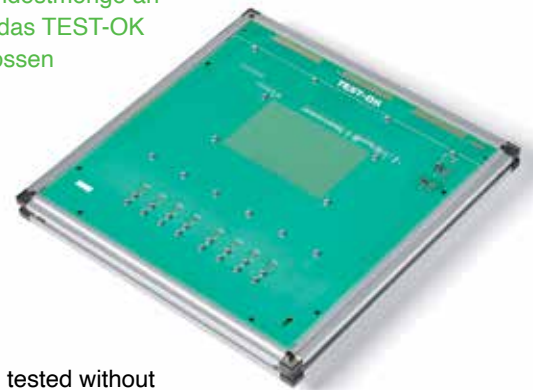
Module examples



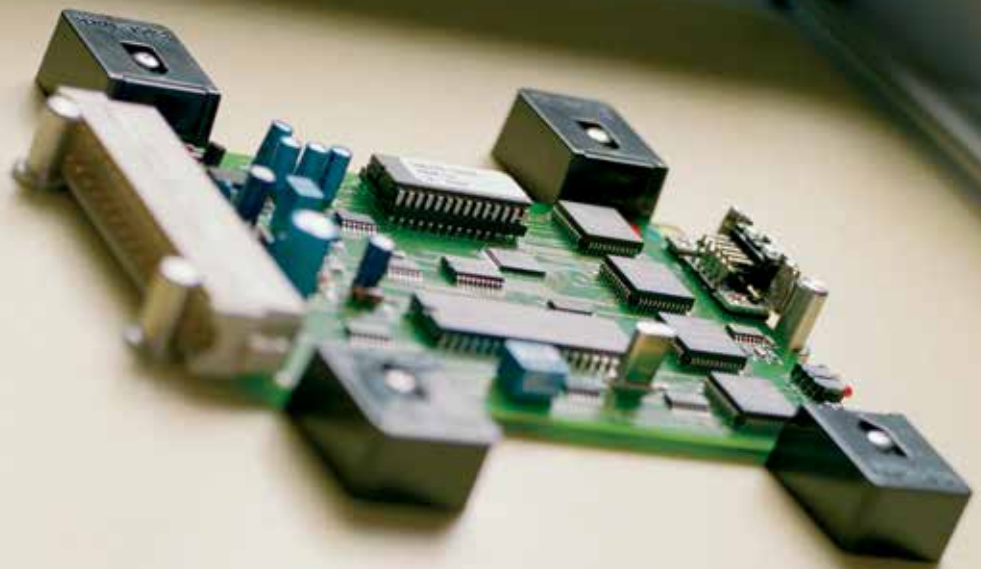
With electric load, in-system programming, build for 2 UUT's
Mit Strombelastung, In-System Programmierung, für 2 UUT's



With in-system programming and test Module with minimum components connected to the TEST-OK system
Mit In-System Programmierung und Test Modul mit Mindestmenge an Komponenten an das TEST-OK System angeschlossen



Group of 8 UUT's, tested without additional electronics; TCC1800-UE has all the necessary IO's and flexibility
Gruppe von 8 UUT's, getestet ohne zusätzliche Elektronik; TCC1800-UE hat alle notwendige IO's und Flexibilität



Easy implementation of a Eurocard with FAST-LOCK, no downholders needed

Einfacher Aufbau für eine Euro-Karte, es werden keine Niederhalterfinger benötigt

Test System

Input

Voltage	85 - 264 VAC
Frequency	47 - 63 Hz
Max. power	100 W

Dimensions

TEST-OK Bench	w x d x h	600 x 550 x 300 mm
Net surface		400 x 400 mm
Weight		45 kg
Interfacing	Ethernet	

Test Interface specifications

TCC 1800 UE

2 Programmable Power Supplies	Power Supply 1 and 2	1.2 - 24 V, 3 A
Current measurement	Resolution 1 mA	0 - 3 A
2 Fixed Power Supplies		5 V, 0.5 A / 28 V, 0.75 A
16 Analog Inputs		0 - 24 V, 5.9 mV resolution
16 Analog Outputs		0 - 24 V, 5.9 mV resolution
24 Digital Inputs with Schmitt Trigger	1 frequency measurement/pulse counter	0 - 24 V
	4 pulse width/pulse counters	0 - 24 V
52 Digital Outputs (20 bi-directional)	3 groups of 8 bits with programmable logic '1' level	1.5 - 24 V
	4 'High-Side' power outputs with programmable output voltage	5.5 - 24 V
	24 open collector outputs, capable of driving relays	
2 PWM Outputs		5 V, 0 - 1 MHz, 0 - 100% Duty Cycle
I2C Interface		
SPI extension interface	Additional in- and outputs	
1 Serial Channel	UART	5 V
1 In-Circuit programmer	For microcontrollers	
SPI interface		78 kHz
CAN		2-wire, 1-wire
3 Ethernet	Module, Expansion Board, Backside	10/100 Mbits/s
4 USB over Ethernet	Module, Expansion Board, 2 Backside	2.0 High Speed supported
Current measurement	Resolution 1 mA	0 - 3 A

The tests are written in a high level proprietary scripting language, which increases efficiency.

All test results and measurement values are stored in a database. An advanced report generator is part of TEST-TRACK, which can be used to design and print reports and labels.

TEST-TRACK offers user levels for administration, production and development. Efficient debugging is possible with advanced tools such as a manual screen to control the TCC 1800-UE in real time, placing breakpoints in the scripts, and parameters to repeat tests where extensive results can be written in a log file. Test, and script results and can be analyzed using advanced filter functions, such as for example yield, number of sessions, date and duration.

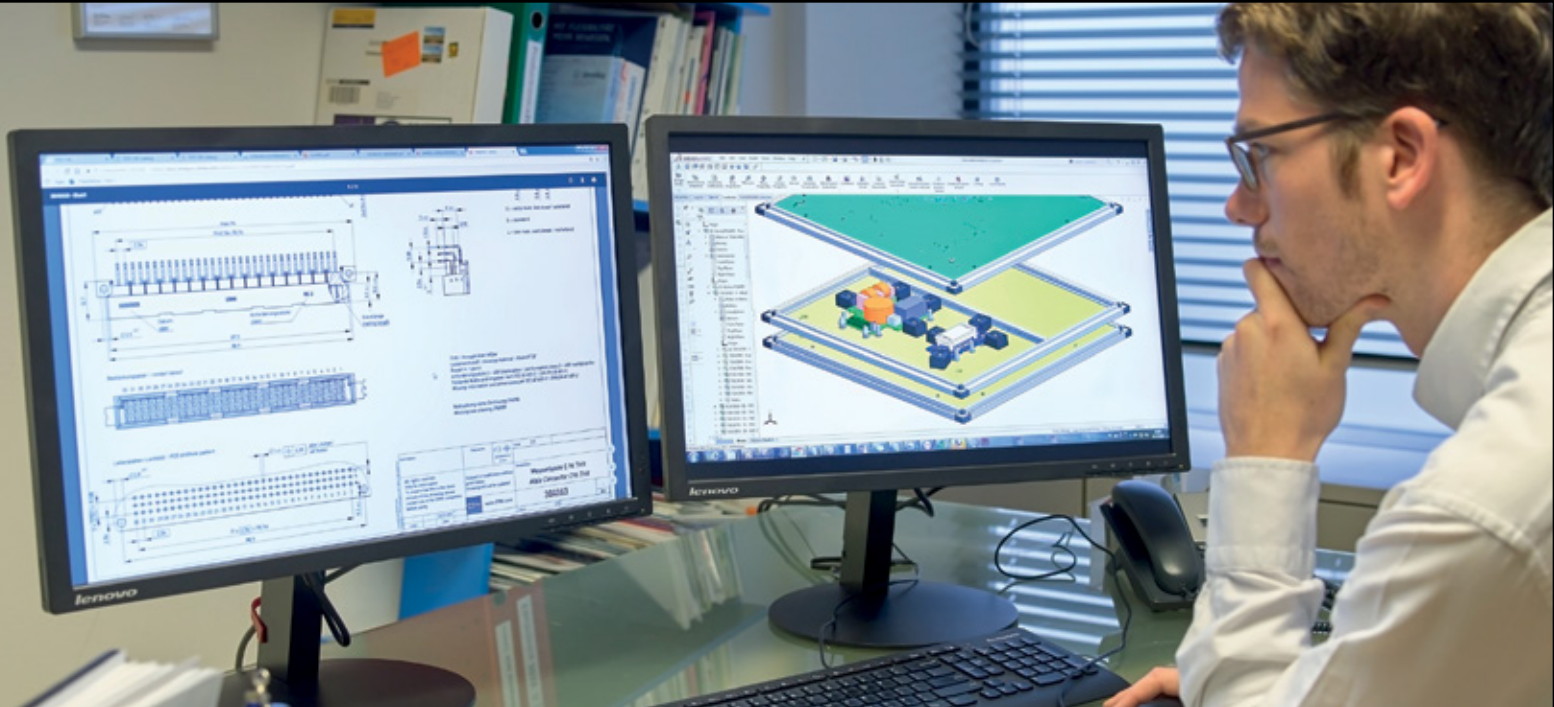
Alle Testergebnisse und Messwerte werden in einer Datenbank gespeichert. Ein Report Generator ist Teil von TEST-TRACK, mit dem Berichte und Etiketten entworfen und gedruckt werden können.

TEST-TRACK bietet Benutzerebenen für Administration, Produktion und Entwicklung. Effizientes Debugging ist mit fortschrittlichen Werkzeugen möglich, wie z.B. einem Bildschirm zur händische Steuerung des TCC 1800-UE in Echtzeit, dem Setzen von Haltepunkten in den Skripten und Parametern zur Wiederholung von Tests, deren umfangreiche Ergebnisse in eine Protokolldatei geschrieben werden können.

Test- und Skriptergebnisse können mit Hilfe erweiterter Filterfunktionen analysiert werden, z. B. nach Ertrag, Anzahl der Sitzungen, Datum und Dauer.

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Development of a TEST-OK Module

Full engineering service to develop custom test solutions

TEST-OK is built around the design and construction of functional testing of PCB assemblies, and has evolved into a full spectrum test development company. We provide turn-key solutions for both simple and complex test designs, keeping in sight our customer's goals for quality, performance, cost and schedule.

TEST-OK test solutions are implemented at renowned companies and multinationals in all of Europe. Our engineering team provides test solutions for PCB assemblies in different branches such as automotive, industrial, medical, security, robotics and home control.

The knowledge and experience of our engineers in these fields makes it possible to offer a full functional test solution within a short lead time. To guarantee a high initial performance with low costs, your test system is always based on the TEST-OK standards, with which your specific test solution is designed and executed. This guarantees future compatibility and support.

In addition, the number of so called TEST-OK modules can expand and cover your future demands for test solutions. This results in further savings on the cost of ownership.

During the development of your tests, a team of electrical -, mechanical - and software engineers will work closely together to ensure that the provided test solution fully meets your requirements.

Installation, support & training

Based on a support contract TEST-OK can keep your test solution up and running on request. The TEST-OK team can install your system on site or on an alternative location, for example your EMS subcontractor.



TEST-OK



Schematics of a connector board for a TEST-OK Module

Complexity of testing made easy by TEST-OK

Standard parts of a TEST-OK system are a TEST-OK mechanical test bench, the Test Controller Card (TCC) and the testing software application TEST-TRACK.

For every UUT (Unit Under Test), single, group or panel, a TEST-OK Module is needed. These TEST-OK modules fits in the TEST-OK system, and forms the UUT specific part of the system. TEST-OK modules are coded and identified by the TEST-TRACK software.

A typical TEST-OK module consist of a Bottom Module and a Positioning Module on which the UUT is placed. For double sided connecting of the UUT an additional Top Module can be installed.

All modules are based on an aluminum frame including standard FR4 PCB material at the dimensions of 420 x 420 mm. A minimum build-up consist of three different PCB's of the same size.

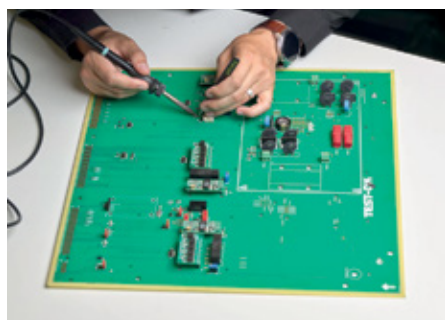
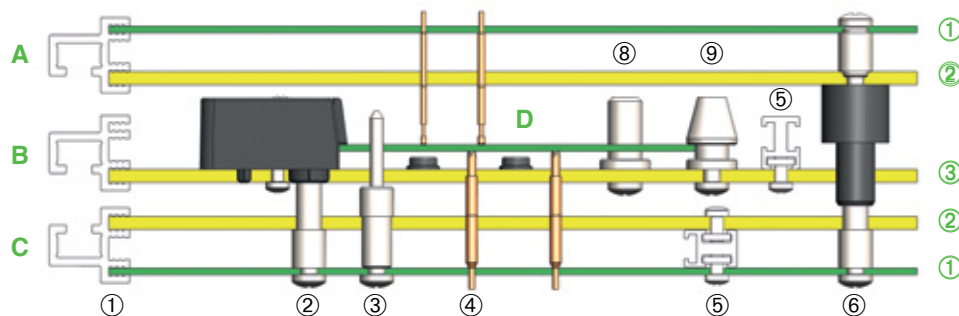
For centering and fixating the UUT a wide range of specific components are developed. For all TEST-OK parts aswell as for a considerable range of test probes digital templates are available for Cadsoft Eagle and Altium Designer.

- A Top Module
- B Positioning Module
- C Bottom Module
- D UUT (Unit Under Test)

- ① Connector Board
- ② Spacer Board
- ③ Positioning Board

- ① Module Frame
- ② FAST-LOCK fastener
- ③ Centre Pin
- ④ Test receptacle with test probe
- ⑤ Reinforcement Beam
- ⑥ Positioning Slider
- ⑦ Test receptacle with test probe
- ⑧ Peripheral Positioning Pin
- ⑨ Peripheral Hook Pin

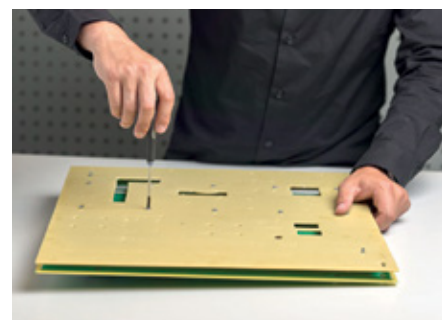
Cross section of a typical TEST-OK Module Set with test probes, tools and fasteners.



Soldering components and test probe receptacles on the connector board



Mounting of reinforcement beams between connector and spacer board



Assembling of connector and spacer board to ensure a rigid construction



Verification of aTCC-controller card in the TEST-OK System

In detail

A Bottom Module consist of a single aluminum frame including two PCB's - the Connector Board and Spacer Board. This module provides the test probes towards the UUT, and the communication between the TEST-OK system and the UUT.

The Connector Board can provide UUT specific, additional electronics. It is therefore a traditional 1,6 mm FR4 based PCB.

The Spacer Board is used to stiffen the module and guide the receptacles; it has no electronic function. To guarantee stability it is made of 3,0 mm. FR4 material.

The Positioning Module, which is the second module needed, also consist of an aluminum frame with only one PCB; the Positioning Board, made of 3,0 mm FR4 material.

The optional Top Module has the same build-up as the Bottom Module.

TEST-OK systems are known for its accuracy

Starting point for the design of the TEST-OK Modules is the design data from the UUT. One can work with the same CAD package as the UUT or the data must be imported (for example as Gerber file). In any case, all methods will lead to a very precise positioning of test probes towards the test pads on the UUT. Finally all PCB boards are generated from the same CAD file, and are produced on the same high precision machines which are used for the UUT itself.

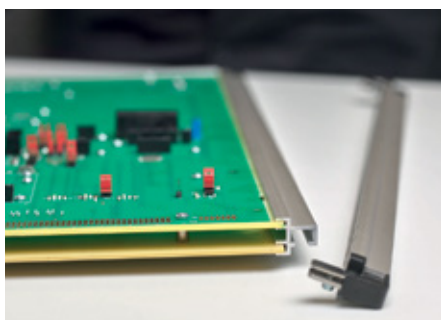
Depending on the format of the UUT, contact pads starting from 0,7 mm with 1,20 mm pitch can be contacted. TEST-OK also provides test probes and receptacles.

Short lead times without hassle!

As TEST-OK boards are conventional PCB's they can be ordered online at any preferred PCB supplier.

TEST-OK offers an online ordering service in cooperation with Eurocircuits.com

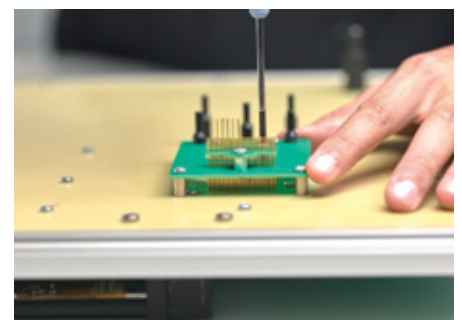
These PCBs can be ordered with a fixed pricing, starting from 3 to 7 days lead time. PCBs can be ordered in 2-layer or 4-layer, in all classifications.



Sliding the mounted boards in frames to complete the Bottom Module



A finished Bottom Module



Additional electronics mounted, for example of guided test probes



Programming the test scripts with TEST-TRACK

TEST-OK test electronics

The integrated TEST-OK Test Controller Card provides all necessary digital and analogue I/O, power supplies and the most common communication interfaces towards the UUT, such as CAN, UART, USB, Ethernet, SPI and I2C. The TEST-OK system is connected over LAN, which provides not only a robust connection and isolation, but makes it possible to connect to the test system from any place on your local area network.

TEST-TRACK, the powerful script solution

TEST-TRACK offers the best of both: flexibility and standardization of your tests. In addition to the production interface it offers a comprehensive scripting language for test development.

After inserting a TEST-OK Module TEST-TRACK reads the correct configuration from the database. In case more UUTs are attached to this module, the operator can choose the desired UUT.

When the board is detected and the serial number of the UUT is entered, the test starts. During testing all test results and test session data (such as serial number, test results - passed, failed, in progress -, operator, date, time, etc.) are stored in the database and can be traced back later. Labels and reports can be printed.

TEST-TRACK offers extensive technical and administrative features for electronic development (such as read out of real time data from the UUT, setting break points in scripts) and production environments.



TEST-OK storage system - safe and dust-free storage of TEST-OK Modules



Due to the concept of the TEST-OK Modules, it is possible to test different types of UUTs with high components on both sides

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TEST-OK



TEST-OK trolley, secure and dust-free storage of TEST-OK Modules

For the quality and continuity of your tests, the ESD-safe and damage-free handling, storage and transport of TEST-OK Modules is of the utmost importance. TEST-OK now offers a storage system that fully meets these requirements and with which a flexible and mobile test site is created.

Every TEST-OK system fits exactly on top of the storage system. This creates a flexible workplace suitable for development, testing and production. The trolley, including TEST-OK system and Modules, can easily be transported from one location to another.

The storage system is available as a lockable cabinet with adjustable feet and as a trolley, equipped with anti-static wheels including brake. It is possible to mount two cabinets together for more storage.

The standard capacity of the cabinet is 7 sets* of modules (a combination of Bottom and Positioning Modules). Special attention has been paid to the fact that any fragile part of the Modules can never touch and/or damage during handling and storage. The storage system is equipped with a lockable, transparent polycarbonate door.

The design is in line with all existing TEST-OK systems and offer your workspace a clean and clear look.

** A single Top module takes up space from a set of Bottom and Positioning Module. For example, the cabinet offers space for 3 sets of Top-Middle and Bottom Modules and 1 set of Bottom and Positioning Module.*





TEST-OK Storage Systeme zur sicheren und staubfreien Lagerung von TEST-OK-Modulen



Für die Qualität und Kontinuität Ihrer Tests sind eine ESD-sichere und schonende Lagerung sowie der sichere Transport der TEST-OK Module von größter Bedeutung. TEST-OK bietet nun ein Speichersystem, das diese Anforderungen voll erfüllt und mit dem eine flexible und mobile Testumgebung geschaffen wird.

Arbeitsplatz, Trolley, Storage System

Jedes TEST-OK-System passt genau auf den Trolley. Dies schafft einen flexiblen Arbeitsplatz, der für Entwicklungs-, Test- und Produktionsbereiche geeignet ist. Der Wagen einschließlich TEST-OK-System und den zugehörigen Modulen kann einfach und sicher von einem Ort zum anderen gefahren werden.

Das Aufbewahrungssystem gibt es in der Ausführung als abschließbarer Schrank mit verstellbaren Füßen und als rollbaren Trolley mit antistatischen Rädern inklusive Bremse. Beide Optionen bieten zudem die Möglichkeit, zwei Schränke übereinander zu montieren, was Ihnen doppelte Lagerkapazität gibt.

Die Standardkapazität des Schrankes beträgt 7 komplette Modulsätze von Modulen* (Boden- und Positioniermodule). Besonderes Augenmerk haben wir darauf gelegt, dass sich die einzelnen Teile der Module während der Lagerung und Handhabung nicht berühren können und somit keine Beschädigungen entstehen können.

Die Konstruktion des Schrankes besteht aus pulverbeschichtetem Stahlblech und ABS-vorgeformten Seitenwänden, die ein einfaches und genaues Einsetzen und Herausnehmen der Module gewährleisten. Alle Schränke sind mit einer transparenten Polycarbonat-Tür ausgestattet. In der Türe ist ein Schließsystem mit Druckknopf und Schloss verbaut.

Sowohl Design als auch die Farbgebung ist exakt auf die Lackierung der TEST-OK-Systeme angepasst und verleiht Ihrem Arbeitsplatz eine perfekte Optik.

** Ein einzelnes Topmodul belegt einen Lagerplatz entweder eines Bottom- oder Positioniermoduls. Ein Schrank bietet beispielsweise Platz für 3 komplette Sätze von Top- und Bottom-Modulen sowie einem weiteren Satz von Bottom- und Positioniermodul.*

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