


SOFTWARE HARDWARE SERVICE

SCHATZ®- TEST
Tool testing systems

- **SCHATZ®-cer*TEST***
  Dynamic testing of torque tools
- **SCHATZ®-cali*TEST***
  Calibrator for indicating and click-type torque tools
- **SCHATZ®-combi*TEST***
  Mobile test center for all torque tools
- **SCHATZ®-cer*TEST-W***
  Rotation angle calibration system

www.schatz.ag

SCHATZ®
ADVANCED QUALITY

SCHATZ®-TOOL TESTING

SCHATZ®-cer*TEST*

Nutrunner testing compliant with VDI/VDE 2647

In the certification of threaded fastener systems, it is essential for the tests to be performed under repeatable conditions. Using SCHATZ®-cer*TEST*, you can assess and specify nutrunners to ensure that they have the performance capability necessary for your process.

Learn more on page 4

SCHATZ®-cali*TEST*

Torque wrench calibration compliant with ISO 6789

ISO 6789 specifies requirements and test methods for manual torque tools for the controlled tightening of bolted joints. Torque wrenches are classified by type and measuring range. They must be calibrated according to specific measurements after 5,000 operations.

Learn more on page 10

SCHATZ®-combi*TEST*

Capability testing of torque tools in accordance with VDI/VDE 2645-2

Machine capability testing determines the stability and reproducibility of the process parameters of machines. SCHATZ®-combi*TEST* gives you methods compliant with ISO 6789, ISO 5393 and VDI/VDE 2647 for assessing and specifying torque wrenches or nutrunners to ensure that they have the performance capability necessary for your process.

Learn more on page 14

SCHATZ®-cer*TEST-W*

Traceable calibration of indirect rotation angle systems in accordance with VDI/VDE 2648

Indicating torque/angle wrenches can be tested dynamically at defined intervals using freely configurable test sequences. Test parameters can be derived from existing bolted joints in production as well as standardized MCT specifications. SCHATZ®-cer*TEST-W* uses methods compliant with VDI/VDE 2648 to determine the measurement uncertainty parameters and enables calibration of torque/angle wrenches with indirect angle measurement.

Learn more on page 16

SCHATZ®-cer*TEST*

Process capability, proper configuration of torque tools and compliance with tolerances can be checked quickly and reliably with this test system. The results are recorded and documented. SCHATZ®-cer*TEST* is your test system for the dynamic testing of torque tools in assembly. The system can be configured to match your application scenario.

BOLTED JOINT SIMULATORS

The electronically controlled hybrid simulators simulate preprogrammed bolted joints with various degrees of joint hardness. Joint characteristics will be simulated from initial rundown to final tightening. The measurement and test ranges correspond to your application scenarios and enable you to test torque tools from 0.4 Nm to 5,000 Nm.

BATTERY-POWERED OPERATION

The integrated rechargeable battery makes you independent of AC power for approximately 16 hours. Test intervals can be extended by occasionally connecting the system to the AC line for recharging.

INTEGRATED PC WITH CEUS SOFTWARE

All programming, control and analysis tasks run in the integrated PC unit using client/server-capable CEUS software that supports both stand-alone and networked operation. All torque tools and bolted joint operations are stored in the database. Requirements, specifications and test procedures are presented clearly and unambiguously, and CEUS ensures traceable documentation.

EXTERNAL CONNECTIONS

Torque/angle transducers, stationary testers and additional bolted joint simulators can be connected using external connectors. External torque/angle transducers allow the parameters of the original bolted joint to be determined using the Joint Scanning learning function. After the joint has been measured under practical conditions, the system simulates the bolted joint. Stationary testers, such as mechanisms for testing torque wrenches, enable testing compliant with ISO 6789.

- Up to four simulators (2 Nm, 10 Nm, 20 Nm, 50 Nm, 120 Nm, 250 Nm, 500 Nm)
- Choice of industrial PC or laptop mount
- Industrial PC with 19“ touchscreen
- Built-in rechargeable battery with battery management system for battery life up to 16 hours

SCHATZ®-cer*TEST*
FAST AND EASY TOOL TESTING

TOOL SELECTION

Simply enter the tool number in the CEUS program on the PC, and the system is ready to test. Key test data, such as tolerance limits, joint characteristics and statistical parameters, is stored in a database, eliminating the need for repeat entry. Individual tools are tested with a combination of the tool and the assembly operation for which the tool is used. Once the tool and the joint have been paired, they remain linked together.

AUTOMATIC IDENTIFICATION

Tools can be equipped with your choice of barcode labels or electronic identification systems for unambiguous identification and traceability of all tools. The user only has to scan in the tool identifier and can start testing immediately, with no need for additional operator actions.

TOOL TESTING

The test stand precisely simulates the joint where the tool under test is used. Thanks to fast simulation of the reference joint, the tool can be tested within roughly 3 seconds. The test system measures torque, rotation angle and speed (rpm) during each measurement. Settings of click-type wrenches can be checked on the simulators. All measured values are displayed on the screen during the test and subsequently analyzed in the CEUS system.

DISPLAYING MEASUREMENT RESULTS

The CEUS user interface guides the user through the entire tool testing process. The target value is shown numerically and graphically. The graphic window where measured values are displayed shows at a glance whether they are within or outside the tolerance range, or where they are located within the tolerance range and how large the spread is. The measured torque, rotation angle and no-load speed of the tool are displayed. For more exact analysis, a graphic plot shows the characteristics of the tool as observed during the measurement process or during shutdown. Thanks to the automated test sequence, users can concentrate fully on the test and the tool.

SPECIAL SOLUTIONS FOR YOUR APPLICATION SCENARIO

The SCHATZ®-cer*TEST* system is built and configured to suit your application scenario.

TOOL TESTING WITH AN ARTICULATED ARM

For testing built-in torque tools, an articulated arm is used to position the simulator appropriately. The articulated arm can withstand torques up to 250 Nm, eliminating the need for additional braces.

PIVOTING SIMULATORS

The test stand is equipped with a pivot mechanism that allows the simulators to be used vertically, horizontally, or in any other orientation.
This facilitates the testing of tools mounted vertically or horizontally on the assembly line.

STATIONARY TEST STAND FOR HANDHELD NUTRUNNERS AND BUILT-IN SPINDLES

Stationary test stand for torque tools with torque capacity from 0.4 Nm to 500 Nm, with a vertically and horizontally adjustable mount for built-in spindles. Enables connection of an external vertically adjustable unit for built-in spindles up to 1,000 Nm.

SCHATZ®-cali*TEST* CALIBRATOR

The calibrator incorporates the metrological properties and drive methods necessary for performing tests in accordance with ISO 6789 or other test methods. It also supports user-programmable test methods as well as automatic testing and calibration.

Configurable for your application scenario:

- Calibration range 0.5 to 1,500 Nm
- Generates calibration certificates, tool histories and reminder lists
- Automatic calibration compliant with ISO 6789
- Internationally accredited as a calibration standard for laboratories
- Multirange sensor for fast calibration

ISO 6789 specifies requirements and test methods for manual torque tools for the controlled tightening of bolted joints. Torque wrenches are classified by type and measuring range with a tolerance of 4 % or 6 %. Calibration is required after every 5,000 measurements, and the maximum permissible measurement uncertainty of the calibration device is 1 %.

SCHATZ®-cali*TEST* is the only automatic calibrator for manual torque tools internationally accredited as a calibration standard.

Torque wrench calibration in accordance with ISO 6789

SCHATZ®-cali*TEST*
EASY EXECUTION OF TEST SEQUENCES AND FAST ANALYSIS OF RESULTS

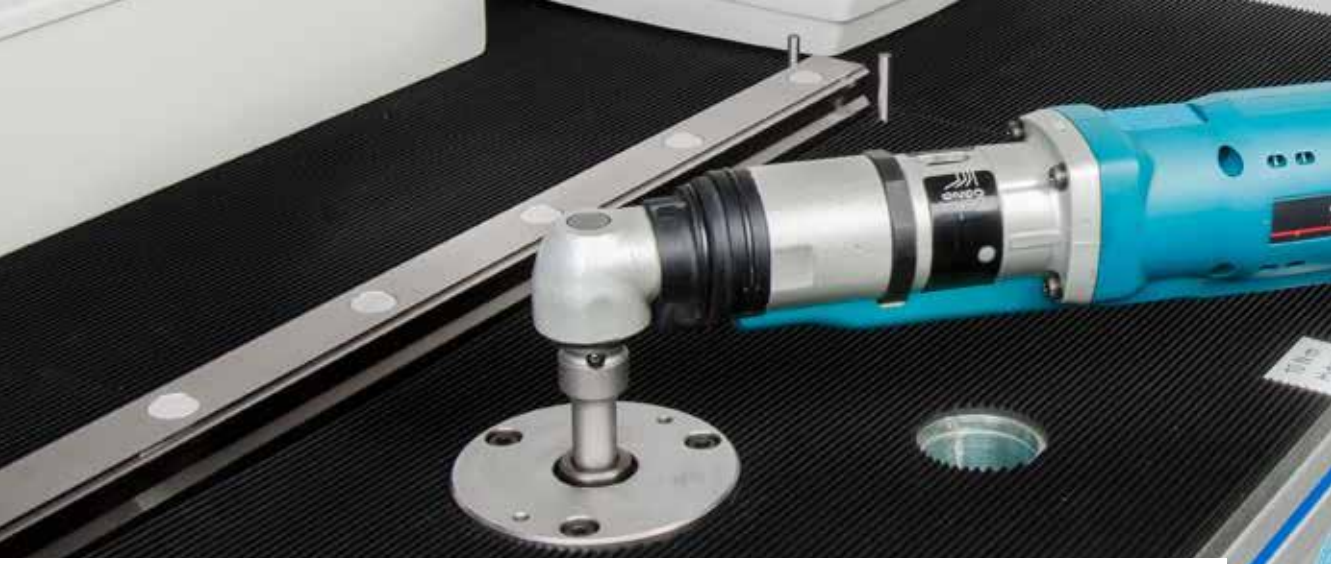
Test execution

Indicating and click-type torque wrenches can be adapted to the system quickly using interchangeable adapters and a reaction bar with adjustable height and length.

The test stand is equipped with a multirange sensor to keep measurement uncertainty less than 0.5 % over the entire measuring range from 15 Nm to 1,500 Nm. For lower torque ranges from 0.5 Nm to 50 Nm, the system can be equipped with an optional 50 Nm unit.

MOBILE CALIBRATOR FOR TORQUE WRENCHES

Mobile tester with two drive units and two multirange sensors for the calibration of torque wrenches from 0.5 Nm to 1,000 Nm. Equipped with electric traction drive and laptop mount for a removable laptop computer.



SCHATZ®-combi*TEST* – THE MOBILE TEST CENTER FOR FAST, PRECISION TOOL TESTING

The overall system is built as a small, agile and compact mobile unit for quick and easy use on the assembly line. It is powered by a rechargeable battery for up to 16 hours of continuous operation in measurement mode from a fully charged battery. The integrated PC runs the CEUS® 8.2 test software and manages all tool test data, so the inspector on-site does not have to perform any setup tasks on the test system – the tools to be tested can simply be selected from a list.

This innovative and unique test system allows all tools used in assembly to be tested accurately on site in conformance with relevant standards.

By giving inspectors access to the full scope of test options on site, the system reduces test times and simplifies the processes necessary to ensure seamless quality assurance.

Torque tool certification and calibration

To ensure high quality in assembly processes, it is necessary to use tools with proven performance capabilities, which in turn must be documented by suitable tests.

For calibration or certification of threaded fastener systems, it is essential that the tests are performed under reproducible conditions.

Using SCHATZ®-combi*TEST* you can assess and specify nutrunners to ensure that they have the performance capability necessary for your process.

- Torque wrench calibration up to 300 Nm compliant with ISO 6789
- Nutrunner testing compliant with VDI/VDE 2647
- Up to four simulators (2 Nm, 10 Nm, 20 Nm, 50 Nm, 120 Nm, 250 Nm, 500 Nm)

Programmed simulators enable testing of every bolted joint scenario.

Motor drive loads the torque wrenches to the appropriate torque level.

SCHATZ®-cer*TEST-W* MOBILE TEST STAND FOR TORQUE/ANGLE WRENCHES

Indicating torque/angle wrenches can be tested dynamically on the assembly line at defined intervals using freely configurable test sequences. Test parameters can be derived from existing bolted joints in production as well as standardized MCT specifications. Tests can be performed torque controlled or angle controlled.

Bolted joints corresponding to the classifications hard, medium and soft according to ISO 5393 or VDI/VDE 2647 can be configured and simulated in the reference test system.

Testing can be performed manually or automatically. The objective of manual testing is to assess the accuracy of the torque/angle wrench while taking human factors into account, while the objective of automatic testing is to determine the inherent accuracy of the tool while excluding human factors. Both test methods provide information about the repeatability of the torque wrench. The test stand is operated using an integrated industrial PC, which includes measurement and analysis software running on the CEUS® 8.2 software platform controlling the test system.

The operating torque range of the system is 10 Nm to 300 Nm, and the maximum operating rotation angle range in automatic mode is 220 degrees. The speed can be configured at two different levels in the range of 0.2 to 2.5 rpm. Wrenches with an overall length up to 750 mm can be tested. If wrenches with accessory extensions have to be tested, the test system can optionally be equipped with manual height adjustment.

Automatic testing
The wrench is placed in the rotating arm, the appropriate data set is retrieved, and the test is started. After the specified test sequence is completed, the result is read from the wrench, the data is imported into the program, the rotating arm returns automatically to its home position, and the next test sequence begins.

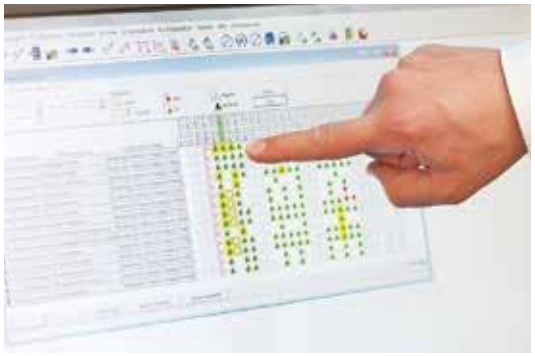
Manual testing
The appropriate data set is retrieved. The wrench is manually adapted and operated as usual. A relatively large rotation angle (such as 360 degrees) can be covered by ratcheting the wrench several times. Data entry is performed in the same way as for automatic testing.

- Testing of indicating torque/angle wrenches on the assembly line (systems with indirect angle measurement)
- Operating range: torque 10 to 300 Nm, angle 0 to 220 degrees
- Simulation of actual bolted joints
- Manual or automatic testing

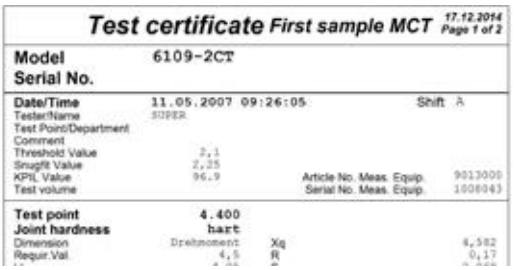
ANALYSIS OF RESULTS

Analysis of results

Periodic testing of all tools is documented in the test schedule. Results can be visualized and compliance with test intervals can be seen at a glance. Individual values and graphic plots for fault diagnosis can be viewed by clicking a test point.



Customized certificates can be generated with the report editor. Key data, company logos, images and drawings are integrated into the report.



Test certificate *First sample MCT* 17.12.2014 Page 1 of 2

Model	6109-2CT		
Serial No.			
Date/Time	11.05.2007 09:26:05		Shift A
Tester/Name	SUPER		
Test Point/Department			
Comment			
Threshold Value	2,1		
Snugfit Value	2,35		
KPIL Value	96,9	Article No. Meas. Equip.	9013000
Test volume		Serial No. Meas. Equip.	1006043
Test point	4.400		
Joint hardness	hart		
Dimension	Drehmoment	Xq	6,582
Requir.Val.	4,5	R	0,17

LOCAL CALIBRATION SERVICE

The calibration service of our DAkkS calibration laboratory (DK-17572-01-00) ensures the traceability of measured torque/angle data. Using suitable transfer standards directly traceable to reference standards, we carry out complete torque/angle calibrations on site at your premises so that you can use your systems again as quickly as possible. Maintenance and calibration are important factors in maintaining value and ensuring the availability of test equipment.

Our maintenance service keeps your test equipment in good working order, and in combination with software maintenance it ensures that your test equipment is always up to date and compliant with standards. Wear parts are replaced, functions and procedures are checked, software is updated to the latest version, and cosmetic repairs and cleaning are performed as necessary.

SCHATZ
ADVANCED QUALITY

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