

## combiTEST mobile

Type 5413-5121/...

### Mobile calibration and testing device for torque tools

combiTEST mobile is a calibration and testing device for fast and precise calibration and testing of torque tools. Its compact dimensions and its line-independent battery operation enable it to be used directly on the assembly line.

- Testing of nutrunners in accordance with the requirements of VDI/VDE 2647 and VDI/VDE 2645 Part 2 up to 500 N·m
- Calibration and testing of indicating and setting torque wrenches in accordance with the requirements of DIN EN ISO 6789:2003 and VDI/VDE 2645 Part 2 up to 300 N·m
- CEUS software platform

#### Description

The calibration and testing device consists of a mobile base frame with wraparound casing, which holds the hybrid joint simulators, the mounting fixture for torque wrenches, a drive unit with a multirange torque reference transducer, an electronic measurement and control system, a hydraulic unit and the accumulator.

As an evaluation and operating unit, an optional rotating and tilting industrial PC system with a touchscreen and fold-out keyboard or a notebook on an optional notebook mount is used.

On the work surface of the calibration and testing device, up to four different joint simulators can be positioned side by side for testing the torque tools.

The torque tools to be tested are coupled to the joint simulators via square adapters as specified in DIN 3121.

The torque wrenches to be calibrated are mounted horizontally and coupled to the drive via exchangeable square adapters as specified in DIN 3121.



combiTEST mobile with optional document desk and label printer

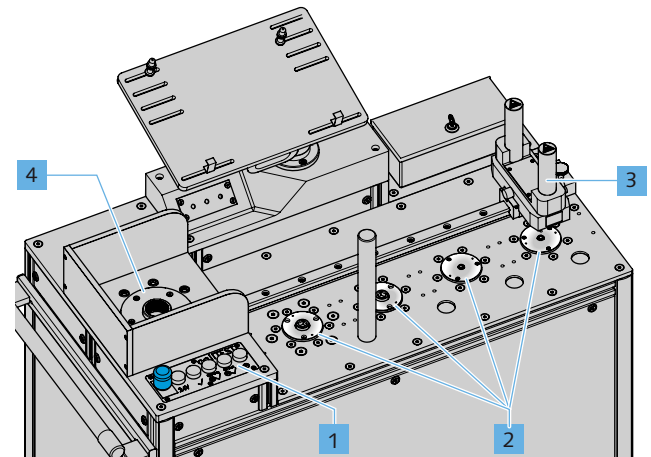
The calibration and testing device can be operated via a cord to the power grid, as well as line-independently via a built-in rechargeable battery.

### Application

Various tool technologies can be tested with the combiTEST. The hybrid joint simulators are used to test nutrunners and impulse power-tools. The multirange torque reference transducer is used to calibrate indicating and setting torque wrenches.

The tool to be tested or a corresponding test specification is selected or set in the Windows CEUS software via the evaluation unit, and the test program/test procedure is started.

All measured values are displayed on screen during testing and are subsequently analyzed by the CEUS software, evaluated according to specifications and used to create the certificate.

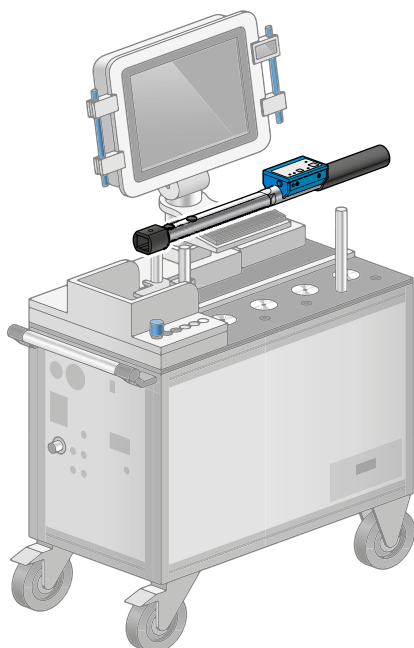


combiTEST at a glance

- 1 Operator control panel for torque wrench calibration
- 2 Joint simulators
- 3 Wrench support (adjustable)
- 4 Multirange torque reference transducer

### Calibration of torque wrenches:

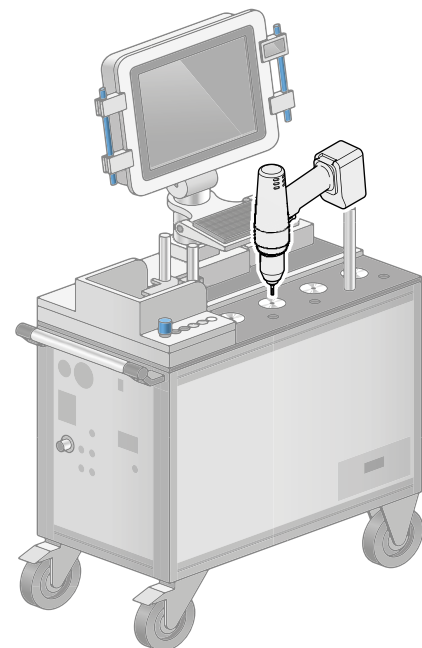
When calibrating torque wrenches, the multirange torque reference transducer measures the torque applied by the drive unit. The calibration device is controlled by an integrated electronic measurement and control system, so that fast automatic tests with cyclic load application are possible.



Calibration of torque wrenches

### Testing of nutrunners and impulse power-tools:

During testing of rotating torque tools, the hydraulic joint simulators simulate joint hardnesses at fastening points. Rapid simulation of the desired joint hardness makes it possible to test a rotating torque tool in a very short time. (This depends on the joint hardness specified.)



Nutrunner testing through electronically controlled joint simulators

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## Technical data

Measuring range for torque wrench calibration	3 ... 300 N·m
Maximum speed of rotation for torque wrench calibration	5.5 °/s
Minimum effective length	63 mm
Maximum effective length	820 mm
Maximum wrench length	910 mm
Maximum torque for nutrunner test	500 N·m; depending on the simulator
Simulator selection	2 N·m, 10 N·m, 20 N·m, 50 N·m, 120 N·m, 250 N·m, 500 N·m
Attainable measurement uncertainty for torque	
for cerTEST-Function acc. to DIN EN ISO 51309	≤ 1 % of m.v..
for caliTEST-Function acc. to DKD-R 3-8	≤ 1 % of m.v.
Attainable measurement uncertainty and display deviation for angle of rotation (each)	≤ 1 °
Line voltage	115V/230V +/-10%
Line frequency	50 Hz / 60 Hz
Power consumption	approx. 0.3 kVA
Accumulator	24 V / 40 Ah
Operating / Charging time for battery operation	8 hr / 8 hr for battery operation
Recommended minimum charging time	1x weekly 14 hr
Degree of protection (DIN EN 60529) combiTEST	IP 50
Optional industrial PC (IPC)	IP 51
Protection class (DIN EN 61140)	I
Maximum oil pressure	60 bar
Operating temperature range (nominal temperature range)	10 ... 35 °C
Storage temperature range	-20 ... 70 °C
Air humidity	max. 70%, non-condensing
Weight	approx. 290 kg ... 340 kg (depending on equipment)

## Joint simulators for nutrunners and impulse power-tools

Measuring range in N·m	Max. rotational speed in rpm
0.4 ... 2 <sup>1)</sup>	3 000
2 ... 10	2 500
4 ... 20	2 500
10 ... 50	600
25 ... 120	600
50 ... 250	250
100 ... 500	100
200 ... 1 000 <sup>2)</sup>	60
400 ... 2 000 <sup>2)</sup>	30
600 ... 3 000 <sup>2)</sup>	20
1 200 ... 6 000 <sup>2)</sup>	10

1) Not approved for impulse power-tools!

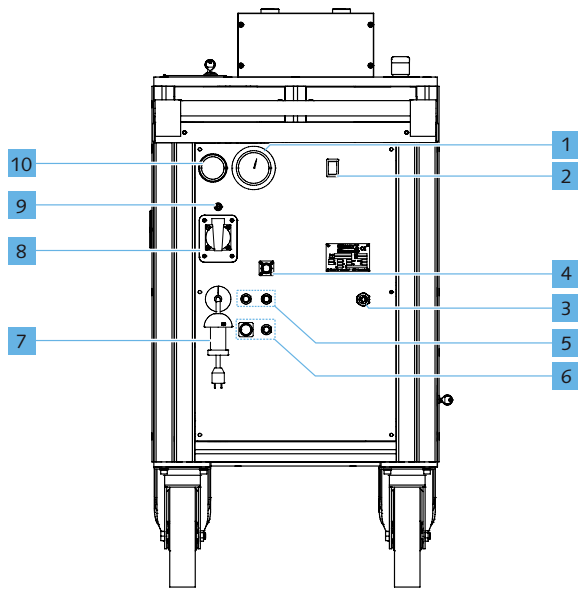
2) Joint simulators > 500 N·m can only be connected as external joint simulators.

Up to 5 joint simulators in total can be connected simultaneously.

## Options

- Connections for external joint simulators
- Connections for external sensors
- Wrench support to 250 N·m for short torque wrenches
- Industrial PC (IPC)
- Notebook mount
- Electric motor drive
- Nutrunner or spindle testing device with external joint simulator
- Document desk
- Label printer
- Barcode scanner
- Handling systems
- Special custom solutions

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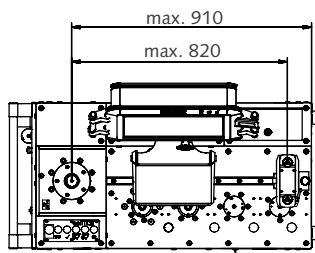
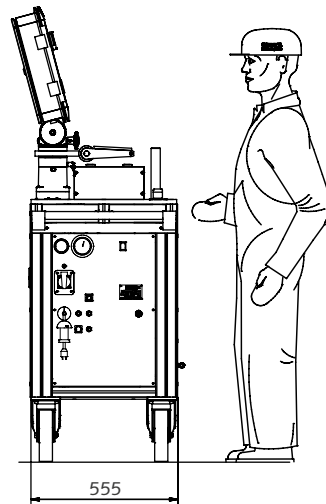
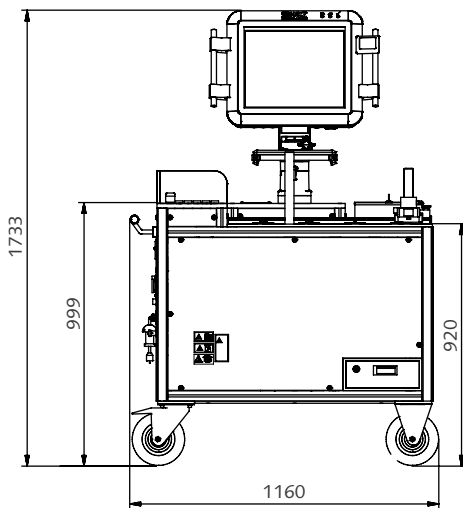


- 1 Manometer, hydraulic
- 2 Toggle switch, ON/OFF
- 3 Temperature and humidity sensor

Connections for External Sensors (Optional):

- 4 cerTEST active
- 5 caliTEST, passive (left)/cerTEST, passive (right)
- 6 Connections for external simulators (optional)
- 7 Power plug
- 8 Socket (optional)
- 9 Socket fuse (optional)
- 10 Voltage indicator for accumulator

Connections



Device dimensions

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