TesT

ForceGauges + **Load**Frames

one step ahead

Electronic and mechanical force gauges

Force gauges by **TesT** are available optionally as mechanical or digital models. While the mechanical designs primarily excel by their rugged construction and ease of use, the digital instruments shine with microprocessor-controlled electronics and high-resolution force sensors.

Force transmission via thread adaption
easy – flexible – precise

…with integrated or external load cell

With the integrated load cell, **TesT** force gauges form an unit that is immediately ready for use. For specific application scenarios, the measuring electronics are operated with external sensors. Here several sensors can be configured or activated by automatic identification (TEDS). Thus, in addition to force as measurand, torques can also be recorded and evaluated by means of appropriate sensors. Moreover, with external force sensors the available measurement ranges can be extended in both directions.

Test frames with manual control…

TesT provides self-locking one- and two-column test frames for manual operation. These are specifically designed on the moving crosshead for direct mounting of **TesT** force gauges or **TesT** load cells. The resulting reproducibility of testing procedures thus allows entry into professional testing.

…or motorized test devices.

In combination with **TesT** force measurement devices, motorized testing machines by **TesT** provide practical and modern additional functions. Integrated position measurement allows determination of force or torque values over a measured path. Furthermore, the test can be stopped automatically when defined force and stroke limits are reached, multiplying the applications of such testing devices.

Testing technology
Measure, convince, guarantee

Safety equipment, production plants, medical devices, articles of daily use

The requirements for materials and components may differ, but they all have one thing in common: Malfunction up to material failure carries risks including legal and financial consequences, and may even entail life-threatening danger. **TesT** is the competent partner for the establishment of testing procedures in the field of force and torque measuring. Our measurement technology ensures the quality of your products and thus contributes to the success of your business.

Our methods are suitable for a wide variety of applications. Here some exemplary industries and fields of business are named.

INDUSTRIES
Food, cosmetics, automotive, medical products, precision engineering, aerospace …

FIELDS
Research, development, production, quality assurance, incoming goods inspection …

For specific requirements, **TesT** keeps ready team of engineers from various disciplines.

FLEXIBLE AS A CONSTRUCTION KIT
The combination of long-term experience, a platform-oriented product range and highly flexible measuring technology leads directly to cost-effective solutions, tailored to your specific applications.

Contact us – we are looking forward to advising you and developing customized solutions for your testing needs.

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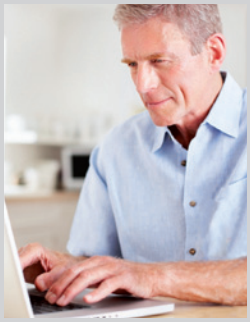
TesT CALIBRATION SERVICE



«We ensure reliable testing results.»

Measurement technology requires, in addition to care and maintenance, regular recalibration of the measurand. To this purpose, **TesT** maintains a dedicated calibration lab with various calibration and dead weight machines. **TesT** customers thus benefit from continuous service throughout the entire life cycle of the purchased instruments. The **TesT** calibration service is accredited by the Deutscher Kalibrierdienst (DKD / German Calibration Service) and thus stands for highest standards of professional data acquisition.

Kalibrierlaboratorium
DKD
DKD-K-52101
Deutscher Kalibrierdienst

Typical units under test

Joints, hinges, springs, buttons, switches, levers, cans, locks, food, cosmetics, connections, bonds, ropes & belts, packages, …

Mechanical hand dynamometer M1191

The force transmission of the device is connected to counter-mounted high-precision measuring springs. The change of displacement is detected by a precision micrometre dial and is scaled proportionally to the force in Newton, alternatively in kg or lbs. An integrated trailing pointer serves to display the peak values.

Scope of delivery
Force transmission accessories: Compression piece, extension, drawbar | Factory calibration certificate | Operating instructions | Carrying case

Available force measuring ranges
50, 100, 200, 500 N

Technical Data
- Measurement uncertainty: ≤ ± 1 % full scale
- Resolution: 100 mark lines
- Display: Dial gauge Ø 50 mm
- Aluminium housing in RAL5010 with 2 M6 mounting holes on each front side for flexible installation
- Dimensions H×W×D: (180 × 76 × 38) mm
- Weight: ~ 800 g

Hand dynamometer K326

The base starter model with digital peak value memory. Power is supplied by standard AA NiMH batteries that can be recharged via a mini-USB 2.0 interface.

Scope of delivery
Force transmission accessories: Compression piece, extension, hook (up to 1000 N) | CD with manuals | 230V/50Hz charger | 3 NiMH batteries | Certificate of factory calibration | Operating manual | Carrying case

Available force measuring ranges
20, 50, 100, 200, 500, 1000, 2000, 5000 N

Technical Data
- Measurement uncertainty: ≤ ± 0.1 % full scale
- 32-bit RISC microprocessor
- A / D converter: 16-bit
- Measuring frequency: 1000 Hz
- Backlit LCD display: 5 digits + point
- Die-cast aluminium housing in RAL7035 with recessed grips with 2 M6 mounting holes both on each front side and on the backside for flexible installation
- Operating time ≥ 10 h
- Dimensions H×W×D: (170 × 75 × 35) mm
- Weight: ~ 700 g

Hand dynamometer K323

The high-performance unit with replaceable digital storage (SD memory chip) for recording of peak values and test series in csv file format (Excel™ compatible). Alternatively, continuous data (ASCII) transfer is possible via USB 2.0. Furthermore, force limits can be configured as switch-off criteria, optionally also stroke limits in connection with displacement signal, e.g. by TesT testing devices. Power is supplied by commercially available AA NiMH batteries.

Scope of delivery
Force transmission accessories: Compression piece, extension, hook (up to 1000 N) | CD with manuals | CD with virtual COM port driver (optionally visualization software W913) | 230V/50Hz charger with integrated charging electronics | 3 NiMH batteries | Certificate of factory calibration | Operating manual | Carrying case

Available force measuring range
20, 50, 100, 200, 500, 1000, 2000, 5000 N

Technical Data
- Measurement uncertainty: ≤ ± 0.05 %
- 32-bit RISC microprocessor
- A / D converter: 24-bit
- Measuring frequency: 50…2000 Hz
- Backlit graphic LCD display: 7 digits + point
- Data recording on integrated 2 GB SD Memory Card
- Analogue output port 0...2 V DC (optional 2-point calibration)
- 2 open collector output ports for controlling external devices
- Optional connection of an incremental path signal (5 V TTL)
- Die-cast aluminium housing RAL7035 with recessed grips with 2 M6 mounting holes both on each front side and on the backside for flexible installation
- Operating time ≥ 10 h
- Dimensions H×W×D: (170 × 75 × 35) mm
- Weight: ~ 820 g

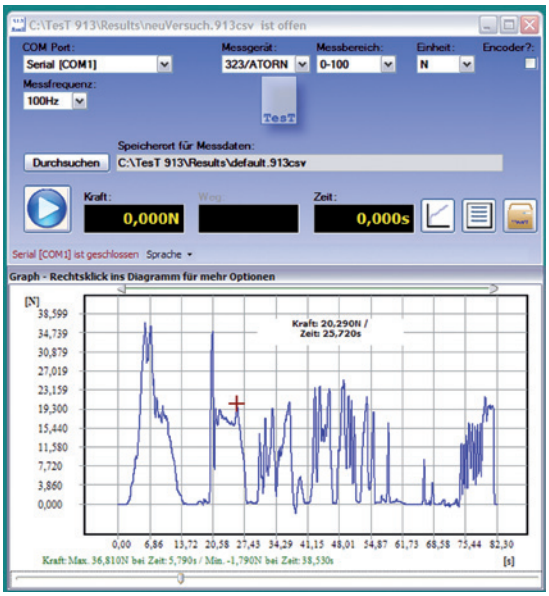
Measurement electronics E813 for external force and torque sensors

High-performance digital electronics with replaceable digital storage (SD memory chip) for recording of peak values and test series in csv file format (Excel™ compatible). Alternatively, continuous data (ASCII) transfer is possible via USB 2.0. Furthermore, force limits can be configured as switch-off criteria, optionally also stroke limits with connection of a path signal, e.g. by **TesT** testing devices. Power is supplied by commercially available AA NiMH batteries. Supports TEDS technology for automatic sensor detection.

Scope of delivery:
CD with manuals | CD with virtual COM port driver (optionally visualization software W913) | 230V/50Hz charger with integrated charging electronics | 3 NiMH batteries | Factory calibration certificate | Operating manual | Carrying Case

Sensor interface
TEDS IEEE-1451 compatible interface for unlimited automated strain gauge sensor detection, 8 memory slots for conventional strain gauge sensors

Technical Data
- 32-bit RISC microprocessor
- A / D converter: 24-bit
- Measuring frequency: 50…2000 Hz
- Backlit graphic LCD display: 7 digits + point
- Data recording on integrated 2 GB SD Memory Card
- Analogue output port 0…2 V DC (optional 2-point calibration)
- 2 open collector output ports for controlling external devices
- Optional connection of an incremental path signal (5 V TTL)
- Die-cast aluminium housing RAL7035 with recessed grips with 2 M6 mounting holes both on each front side and on the backside for flexible installation into testing devices
- Operating time ≥ 10 h
- Dimensions H×W×D: (170 × 75 × 35) mm
- Weight: ~ 820 g



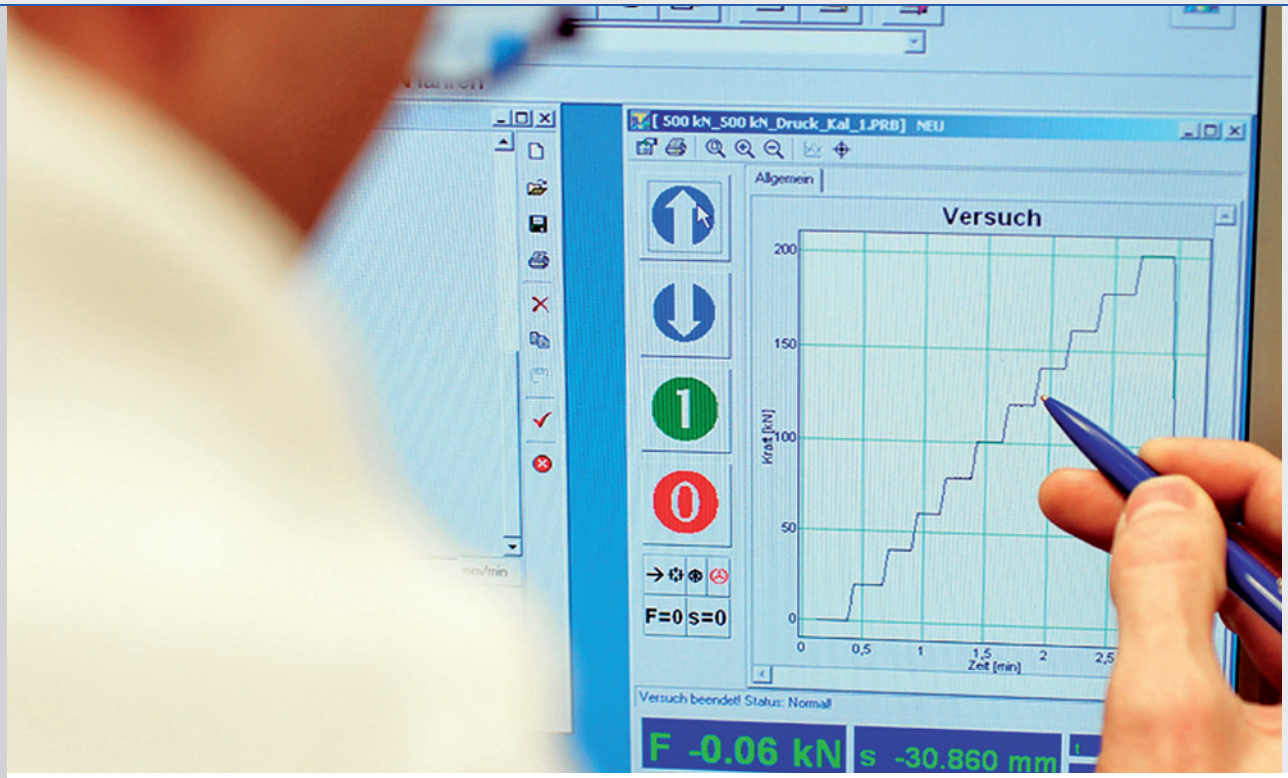
W913 software for E813 + K323

Features
- Recording of measurement curves with measuring frequency of up to 2000 Hz
- Live display of measured values as numeric values and graph
- Free scaling of plot
- Automatic maximum and minimum determination
- Manual evaluation of a measuring point on the curve
- Determination of average values over curve section
- Data in Excel™-compatible *.csv format
- Chart export (*.jpg, *.bmp)
- Storage and recall of existing measurement series
- Generation of test reports in *.pdf format, including integration of a company logo, free documentation fields, comment field, and results (max, min, med, fractional value)
- Languages: German, English, French, Spanish and Italian

System requirements:
- Windows™ XP, Vista™ and Windows™ 7 (32-bit and 64-bit)
- Hard disk space min. 10 MB + measurement data
- At least 1 GB of RAM

Storage case

We deliver all instruments with non-ageing, rugged plastics case. We recommend the storage case for protection during transport and storage.



Models P101 / P102 / P103 / P104 / P105

In combination with force gauges with internal or external sensors, **TesT** testing frames become fully-fledged testing machines.

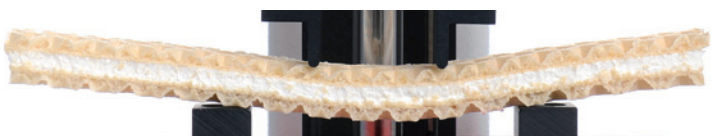
They allow reliable detection of forces and displacements (optionally) or torques and angles (optionally) when examining materials and components. They are designed to be used for force ranges up to 5000 Newton.

Potential applications include, for example, incoming / outgoing goods inspection and occa-sional quality control in production. These instruments are used in research as well.

In particular, actuation forces and strengths of components and devices such as springs, buttons, switches, levers, locks, etc., are measured.

Application-specific test frames

The modular structure makes versions for all kinds of applications possible. Whether compressive or tensile forces or torques. Take advantage of our many years of experience. We will be happy to develop a test system for your specific tasks in quality assurance.



P101

One-column test stand, preferred for the transmission of compressive forces of up to **500 Newton**.

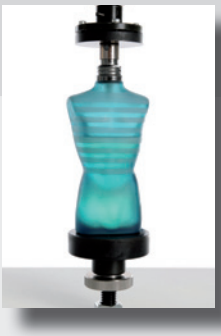
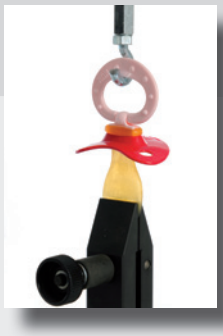
Force range	≤ 500 N
Total height	500 mm
Total width	210 mm
Total depth	285 mm
Total stroke	250 (70) mm
Width / depth of working space	100/100 (210/210) mm
Radius of action around force axis	105 mm
Crosshead length	150 mm
Crosshead bore	Ø 20 mm
Base plate bore	M8
Weight	~ 6 kg
Display for measured Stroke limit	Scale 0…70 mm
Travel limit	mechanically
Load limit	---
Drive	manual lever

… and what do you want to measure?

Depending on the unit under test, a wide variety of clamping and testing devices are used. A comprehensive collection of standardized clamping devices are available in our show-rooms for targeted preselection.

Contact us!
We will be pleased to TesT your materials in advance or support you in the construction of a suitable testing device.

For swift replacement of the clamps, we recommend adaptation via a quick release adapter (SP100). This makes your testing system highly flexible and quickly ready for a variety of tasks.

P102

One-column test stand for manual transmission of compressive and tensile forces of up to **1000 Newton**. Also suitable as a basis for the positioning of torsion tests.

P103

One-column testing device for the motorized transmission of compressive and tensile forces of up to **1000 Newton**. Integrated incremental position measurement and automatic shut-off for interruption upon reaching limits (force/stroke) available.

P104

Two-column test stand for manual transmission of compressive and tensile forces of up to **5000 Newton**. Also suitable as a basis for the positioning of torsion tests.

P105

Two-column testing device for the motorized transmission of compressive and tensile forces of up to **5000 Newton**. Integrated incremental position measurement and automatic shut-off for interruption upon reaching limits (force/stroke) available.

	P102	P103	P104	P105
Force range	≤ 1000 N	≤ 1000 N	≤ 5000 N	≤ 5000 N
Total height	680 mm	885 mm	870 mm	870 mm
Total width	290 (200) mm	300 mm	590 (485) mm	485 mm
Total depth	300 mm	360 mm	310 mm	310 mm
Total stroke	495 mm	550 mm	590 mm	620 mm
Width / depth of working space	200/150 mm	120/110 mm	341/310 mm	345/310 mm
Radius of action around force axis	60 mm	57 mm	163 mm	167 mm
Crosshead length	60 mm	57 mm	---	---
Crosshead bore	Ø 14 mm	Ø 14 mm	M12	M12
Base plate bore	M8	M8	M12	M12
Weight	~ 10 kg	~ 21 kg	~ 32 kg	~ 43 kg
Display for measured stroke limit	Position measurement rod (optional)	electronic (optionally)	Position measurement rod (optional)	electronic (optionally)
Travel limit	---	0.1 mm resolution	---	0.1 mm resolution
Load limit	---	electronic (optionally)	---	electronic (optionally)
Drive	manual crank	motorized 230V / 50Hz~ / 1A 50...200 mm/min	manual crank	motorized 230V / 50Hz~ / 1A 50...200 mm/min

Subject to technical changes

TesT

Universal testing machines

Torsion testing machines

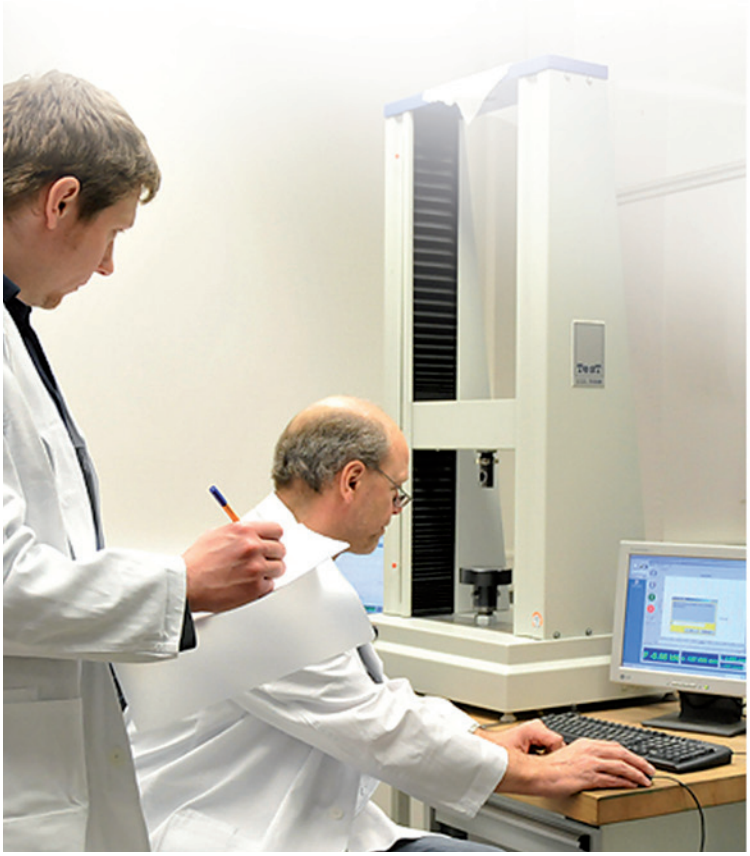
Screw test benches

Calibration machines

Load cells

Torque transducers

DKD - Calibration Lab



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