

### 1 Digital force gauge FK

SAUTER

- Robust Push/Pull force gauge for simple measurement.
- Turnable display: automatic direction identification
  - Secure operability due to ergonomic design
  - Peak-hold function to capture peaks (value is "frozen" for approx. 10 seconds) or Track function mode for a continuous measurement indication
  - Selectable measuring units: N, lb, kg, oz
  - Auto-Power-Off
  - Can be mounted on all SAUTER test stands

**Specifications**

Precision:	0.5 % of Max
Internal measuring frequency:	1000 Hz
Overload protection:	200 % of Max
Thread:	M8
Dimensions (W x D x H):	195 x 82 x 35 mm
Net weight:	approx. 0.72 kg
Power supply:	230 V, 50/60 Hz

Type	Measuring range (max.) N	Readability N	PK	Cat. No.
FK 25.	25	0.01	1	6.270 956
FK 50.	50	0.02	1	6.270 957
FK 100.	100	0.05	1	6.270 958
FK 250.	250	0.1	1	6.270 023
FK 500.	500	0.2	1	6.255 717
FK 1K.	1000	0.5	1	6.270 959



1

### 2 Digital force gauge FL-S

**NEW**  
SAUTER

- Universal digital force gauges with integrated measuring cell.
- Turnable display with backlight
  - Can be mounted on all SAUTER test stands
  - Metal housing
  - Selectable measuring units: N, kN, kg, oz, lb
  - Real time or Peak Hold Mode to observe transients or capture peaks
  - Capacity display: A bar lights up to show how much of the measuring range is still available
  - Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed, in pull and push direction. The process is supported by an acoustic and visual signal
  - Internal memory for up to 500 measurements
  - Continuous analogue output: Linear voltage signal in relation to the load (-2 up to +2 V)

**Scope of supply:** Digital force gauge, hard carrying case, 3 standard attachments (FL 2K: with external measuring cell, tension loops and pressure plates, without standard attachments)

Type	Measuring range (max.) N	Readability N	PK	Cat. No.
FL 5	5	0.002	1	4.676 244
FL 10	10	0.005	1	4.676 245
FL 20	25	0.01	1	4.676 246
FL 50	50	0.02	1	6.275 873
FL 100	100	0.05	1	4.676 247
FL 200	250	0.1	1	4.676 248
FL 500	500	0.2	1	4.676 249
FL 1K	1000	0.5	1	4.676 250



2

### 3 Test stand TVL-XS, manual

**NEW**  
SAUTER

The redesigned, superfine spindle enables exact testing in a force-measurement range up to 100 N in particularly fine steps and, in conjunction with the fine-dosing crank, ensures safe, reliable operation. For testing of low levels of force with short distances, such as, testing keyboard overlays, biological samples, blister packs.

- For vertical and horizontal use
- High level of security with repeated measurements
- Large base plate with various holes for fixture mountings
- Suitable for all SAUTER force measuring device up to 100 N (not included with the delivery)

**Specifications**

Travel distance per knob rotation (one turn):	2 mm
Dimensions (W x D x H):	300 x 250 x 160 mm
Net weight:	4.5 kg

Type	Measuring range (max.) N	PK	Cat. No.
TVL-XS	100	1	4.676 251



3

## Material testing/Hardness measurement

**1**


Shore D

Shore A0

Shore A

### 1 Shore hardness testers HB/HD

Shore hardness testers for hardness determination of plastics through penetration measurement

SAUTER

- Typical application: Measurement of penetration depth (Shore).
- Material thickness of the sample, min. 4 mm
- Particularly recommended for internal comparison measurement. Standard calibrations e. g. to DIN 53505 are not possible because of very narrow standard tolerances
- Can be attached to the test stands TI-AC (for Shore A and Shore A0) and TI-D (for Shore D)

**Shore A** for rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar materials

**Shore A0** for foams, sponges

**Shore D** for plastics, formica, epoxides, plexiglass etc.

**2**


### 2 Shore hardness testers, analogue, HB

Compact handheld durometer for plastics with drag indicator.

SAUTER

- Max mode: Holds the maximum value in the display
- Point mode: Shows one instant value
- Screws to screw on to the TI: M7 fine thread
- Delivered in a plastic carrying case

**Specifications**

Precision: 3 % of max. measured value

Dimensions (W x D x H): 60 x 25 x 115 mm

Net weight: approx. 160 g

Type	Measuring range HS	Readability HS	PK	Cat. No.
HBA 100-0.	100 HA	1,0 HA	1	6.284 083
HBD 100-0.	100 HD	1,0 HD	1	6.270 975

**3**


### 3 Shore Hardness Testers, Digital, HD

Compact handheld durometer for plastics with digital display.

SAUTER

- Large display with backlight
- Selectable: AUTO-OFF function or continuous operation, charge indicator
- Delivered in a hard carrying case

**Specifications**

Precision: 1 % of max. measuring value

Dimensions (W x D x H): 162 x 65 x 38 mm

Net weight: 173 g

Type	Measuring range HS	Readability HS	PK	Cat. No.
HDA 100-1.	100 HA	1,0 HA	1	4.665 533
HDO 100-1.	100 HAO	1,0 HAO	1	4.665 590
HDD 100-1.	100 HD	1,0 HD	1	4.665 591

**4**


4.664 627

### Hardness comparison plates for Shore hardness testers, HB/HD

SAUTER

Description	PK	Cat. No.
7 plates for Shore A, tolerance up to $\pm 2$ HA	1	4.664 627 4
3 plates for Shore D, tolerance up to $\pm 2$ HD	1	6.290 428

#### Leeb hardness tester, mobile



1

The Leeb hardness tester measures metallic samples and offers mobility and flexibility compared to stationary tabletop devices and testing devices with internal sensor.

- External impact sensor
- All measurement directions possible (360°) thanks to an automatic compensation function
- Internal memory for up to 600 data groups
- Mini statistics function: displays the measured result, the average value, the impact direction, date and time
- Measurement value display: Rockwell (Type A, B, C), Vickers (HV), Shore (HS), Leeb (HL), Brinell (HB)
- Automatic unit conversion: The measuring result is automatically converted into all specified hardness units
- Measuring with tolerance range (limit-setting function): Upper and lower limiting can be programmed
- Acoustic and visual signal
- Matrix display: Backlit multi-function display
- Robust metal housing



4.676 255

**Scope of supply:**

HK-D: Mobile Leeb hardness tester, hard carrying case

HK-DB: Mobile Leeb hardness tester, hard carrying case, standard block for calibration, hardness approx. 800 HLD

**Specifications**

Measuring range: 170 ... 960 HL  
Readability: 1 HL

Type	PK	Cat. No.
HK-D	1	4.676 255 1
HK-DB	1	4.676 256

#### 2 Digital torque measurement



2

For torque testing of bottles and other packaging with screw tops. Quick pin system: The four bottle mounts are pushed in, instead of being screwed in, to save time. This allows you to reconfigure quickly for other bottle sizes.

- Can be used in both directions of rotation
- Metal housing
- Capacity display: A bar lights up to show how much of the measuring range is still available
- Peak hold mode to capture peaks
- Function to set limits: Input of an upper/lower limit value
- Visual and acoustic signal
- AUTO-OFF function
- Back-lit LCD graphic display
- Internal data memory saves up to 500 measurements
- Memory contents can be transferred to the PC using optional software
- USB and RS 232 data interfaces
- Rubber feet with anti-slip feature



**Scope of supply:** Digital torque measurement, four bottle mounts with rubber coat, sturdy carry case

Type	Measuring range	Readability	PK	Cat. No.
DA 1-4	1 Nm	0,0002	1	4.676 253
DA 5-3	5 Nm	0,001	1	4.676 254
DA 10-3	10 Nm	0,002	1	6.285 947

We can supply this  
manufacturer's  
whole  
product range !





6.285 921

### USB Hand held microscopes for industry

Dino-Lite

Dino-Lite digital USB microscopes are powerful, portable and easy to use for many different applications in the Industry and for Material Sciences. Most models have a polarizer for working with reflective objects. In addition to the standard white light LEDs, ultraviolet or infrared LED models are available for specific samples and applications.



6.285 934

- USB 2.0, maximum 30 fps
- 1.3 or 5 MP image resolution
- Edge sensor for very low image errors or vignetting
- Extended Depth of Field (EDOF)
- Extended Dynamic Range (EDR)
- Automatic Magnification Reading (AMR)
- Adjustable Polariser
- Flexible-LED-Control (FLC)



4.668 456

**Scope of supply:** Carrying pouch, Software CD for Windows and Mac OS (not for EDOF, EDR models), calibration slide, manual

Type	Resolution	Magnification	Lighting	PK	Cat. No.
AM4113ZT	1,3 MP	10x ... 70x, 200x	LED, white	1	6.285 921 1
AM4113ZTL	1,3 MP	10x ... 90x	LED, white	1	6.285 926
AM4113T-FV2W	1,3 MP	10x ... 70x, 200x	LED, UV 375 nm, white	1	6.286 111
AM4113T-FVW	*	10x ... 70x, 200x	LED, UV 390/400 nm, white	1	6.285 933
AD4113T-I2V	*	20x ... 220x	LED, 390/400 nm UV + 940 nm IR	1	6.285 934 2
AM4115ZTL	***	10x ... 140x	LED, white	1	6.272 603
AM4515ZT (AMR)	***	20x ... 220x	LED, white	1	6.285 922
AM4515ZT4 (AMR)	***	400x ... 470x	LED, white	1	6.285 931
AM4515T8 (AMR)	*/***	700x ... 900x	LED, white	1	6.285 932
AM4515ZTL (AMR)	***	10x ... 140x	LED, white	1	6.285 927
WF4515ZT (AMR)	**/**	20x ... 220x	LED, white	1	4.668 455
AM4815ZT (EDOF, EDR)	***	20x ... 220x	LED, white	1	6.285 923
AM4815ZTL (EDOF, EDR)	***	10x ... 140x	LED, white	1	6.285 928
WF4915ZT (AMR, EDOF, EDR, FLC)	**/**	20x ... 220x	LED, white	1	4.668 456 3
AM7515MZT (AMR, FLC)	***	20x ... 220x	LED, white	1	6.285 924
AM7515MZTL (AMR, FLC)	***	10x ... 140x	LED, white	1	6.285 929
AM7515MT8A (AMR, FLC)	***	800x ... 900x	LED, white, coaxial	1	4.668 454
AM7915MZT (AMR, EDOF, EDR, FLC)	***	20x ... 220x	LED, white	1	6.285 925
AM7915MZTL (AMR, EDOF, EDR, FLC)	***	10x ... 140x	LED, white	1	6.285 930

\*without polarizer  
\*\*with WIFI streamer  
\*\*\*Edge



6.285 944

6.275 263

### Accessories for USB Hand held microscopes

Dino-Lite

Description	PK	Cat. No.
Table top stand with quick-release incl. extension arm	1	6.285 944 4
Metal stand, vertical and horizontal positioning	1	6.275 263 5



#### 1 Zoom Stereo Microscope SMZ-Series

Convincing optical performance combined with compact footprint and robust mechanics for various industrial applications.

- Greenough Type
- Trinocular head, 45° inclined, 360° rotating
- Fixed optical split 50:50
- Widefield eyepieces WF10X/23 mm, incl. eyecups (SMZ-171), widefield eyepieces WF10X/20 mm, incl. eyecups (SMZ-161)
- Coarse focus, adjustable
- Black/White stage plate (SMZ-171) and dust cover
- Plain stand
- Head holder without light

**SMZ-161-TP:** 6.1 Zoom ratio, working distance 110 mm  
**SMZ-171-TP:** 6.7:1 Zoom ratio, working distance 110 mm

Accessories and options available on request.

Motic



Type	Description	PK	Cat. No.
SMZ-161-TP	Trinocular	1	6.287 151
SMZ-171-TP	Trinocular	1	7.659 855
60T	LED ring illumination	1	7.655 592

#### Incident and transmitted light microscopes Panthera TEC MAT

**NEW**

Motic

Incident and transmitted light microscopes for science materials, inspection of semiconductor components, LCD displays and wafers, equipped with an intelligent brightfield/darkfield illumination concept. The microscope models with additionally integrated LED transmitted light expand the application options in the direction of complex composite materials.

- Tube type Siedentopf, swiveling
- Widefield oculars for spectacle wearers with diopter adjustment on both oculars
- CCIS® Plan Achromat & S-APO (PB free), DIN objectives
- Reversed coded nosepiece
- LED incident light illuminator with field and aperture diaphragm, with slots for polariser/analyser sliders
- With interchangeable illumination
- Motic LightTracer: Light memory, sleep mode (auto on-off), nosepiece LED light intensity and mode indicator
- Coaxial coarse and fine focusing system with tension adjustment
- Integrated power supply with sleep mode
- USB 2.0 for external camera power

Additional equipment depending on the model with bright field (transmitted light), segmentable dark field (reflected light), polarization (reflected light)

**Scope of supply:** Dust cover, power cord, allen key, screws for metal extension support

#### Specifications

Inclination Tube:	25°
Angle of rotation Tube:	360°
Eyepieces:	Widefield UC-WF10X/22 mm
Nosepiece:	Quintuple
Objectives:	5X/0.13 (AA 20.3 mm), 10X/0.25 (AA 17.5 mm), 20X/0.40 (AA 8.1 mm), S-Apo 50X/0.80 (AA 1 mm)
Interpupillary distance:	48 ... 75 mm
Condenser:	LED condenser
Illumination:	3 W LEDs
Fine focus increment:	2 µm
Focusing stroke:	25 mm
Dimensions Stage (W x D):	300 x 180 mm
Dimensions (W x D x H):	410 x 300 x 450 mm
Net weight:	10.4 kg
Power supply:	110 ... 240 V, 50/60 Hz

Type	Description	PK	Cat. No.
TEC MAT BF	Trinocular, incident light	1	4.672 116 2
TEC MAT BF-T	Trinocular, incident / transmitted light	1	6.311 821



4.672 116

1



### 1 Polarisation microscope Panthera TEC POL



Powerful polarisation microscope for all material sciences. Maximum flexibility for all applications in polarisation microscopy, suitable for transparent as well as opaque samples from the education sector and industrial quality assurance.

- Tube type Siedentopf, swiveling
- Widefield oculars for spectacle wearers with diopter adjustment on both oculars
- CCIS® Plan achromatic objectives UC PL (strain-free)
- Reversed coded nosepiece with single centering holes
- Bertrand lens and slot for compensators
- Focusable and centerable Achromat Swing-out Abbe condenser N.A. 0.90/0.13 (strain-free) and rotatable polariser
- Illumination acc. to Köhler, with interchangeable illuminator
- Motic LightTracer: Light memory, sleep mode (auto on-off), nosepiece LED light intensity and mode indicator
- Coaxial coarse and fine focusing system with tension adjustment
- Compact, built-in mechanical stage
- Integrated power supply with sleep mode
- Visual camera output
- USB 2.0 for external camera power

**Scope of supply:** Microscope, dust cover, power cord, Allen key, blue filter, halogen bulb, LED module, adjustable key for nosepiece, interference color chart, screws for metal extension support

#### Specifications

Inclination Tube:	25°
Angle of rotation Tube:	360°
Eyepieces:	Widefield UC-WF10X/22 mm
Nosepiece:	Quintuple
Objectives:	4X/0.1 (AA 30.5 mm), 10X/0.25 (AA 17.4 mm), 40X/0.65/S (AA 0.6 mm), 60X/0.8/S (AA 0.35 mm)
Interpupillary distance:	48 ... 75 mm
Trinocular light split:	Fixed 50:50
Condenser:	N.A. 0.90/0.13 Abbe-Condenser
Illumination:	3 W LEDs/30 W Halogen
Fine focus increment:	2 µm
Focusing stroke:	25 mm
Dimensions Stage (W x D):	1 increment, 0.1 skale
Stage size (Ø):	160 mm
Dimensions (W x D x H):	410 x 300 x 395 mm
Net weight:	9.8 kg
Power supply:	110 ... 240 V, 50/60 Hz

Type	Description	PK	Cat. No.
TEC POL	Trinocular	1	4.672 117

2



### 2 Drying pads Grade 556Z

For retaining specimen visibility (50 sheets).

Whatman

Width mm	Length mm	PK	Cat. No.
37	100	1	9.069 003

3



### 3 Microscope Cleaning Kit

Content: 1 power blower, cotton swabs, cleaning liquid, cleaning cloth, lens cleaning paper, retractable brush

Motic

Type	PK	Cat. No.
Mikroskope Cleaning Kit	1	6.280 087