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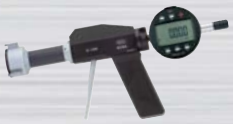
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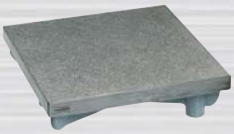
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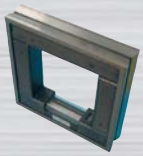
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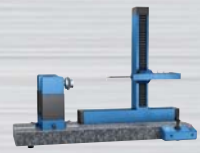
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Pictograms

Text and icon pictograms for quicker selection

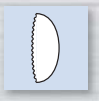
DIN 862	Standard of the tool	SHOCK PROOF	Shock-protected measuring unit
	Double prism guide		Wireless transmission
	Angular depth gauge	ABS	Absolute function
	Round depth gauge		Marking of workpieces
	Friction wheel		Ball guide of the measuring pin
	Sealed dial		Jewel bearing
IP40	Protection against dust		Reference Lock function
IP51	Protection against dust and vertically falling dripping water	MAX MIN	Dynamic measurement function MIN, MAX, MIN-MIN
IP52	Protection against diagonally falling dripping water		Switch output at tolerance monitoring
IP54	Protection against dust and splash water	0 TOL	Tolerance function
IP63	Dustproof and protection against spray water	Digimatic	DIGIMATIC interface
IP65	Dustproof and protection against jet water	RS232C	RS232 interface
IP67	Dust-tight and waterproof for temporary immersion	calibrated	Calibration of the tool
USB	USB ready, the new flexible MarConnect interface. For simple data transmission to the PC and for the fast universal setup of multiple measuring stations. Compatible with all measuring devices with USB ready output. Comprehensive data collection with the MarCom Professional software Optional measured value transmission via PC keyboard or straight at the meter		

Pictograms

Text and icon pictograms for quicker selection

Lens geometry

Aspherical lens
Allows even for high magnification
a large lens diameter and thus a wide field of view.



Diffractive aspherical lens
Has an additional diffractive structure
for correcting colour errors

Aplanatic lenses
They are characterized by their spherical aberration
free image with sharp outlines.

Achromatic lenses
A combination of two lenses with
different refractive power for correction
of chromatic aberration

Meniscus/aspheric lenses
A combination of meniscus lens and aspherical lens.
This allows larger distances than comparable magnifi-
cations of other lenses with edge-sharp image

Biconvex lens
Single lens with two convex (outward
curved), spherical lens surfaces.

Plano-convex lens
A special shape of the converging lens with only
one convex lens surface while the second surface is
planar.

In the **meniscus lens** both surface radii (r_1 und r_2)
have the same sign.
In converging menisci r_1 is greater than r_2
in divergent menisci r_1 is smaller than r_2.
Eyeglasses are usually menisci.

Lens material

PXM®

PXM® light lenses
The very light and break-resistant texture
enables the manufacture of products that are charac-
terized by the highest image quality, ergonomic design
and optimised operating conditions.

Silikat

Silicate
A melting product of quartz (binder),
potash and soda (flux) as well as oxides
(hardener). The glass melt, which has been dosed into
pellets, is polished to lentils after cooling.

CR 39

Polyallyl diglycol carbonate (PADC)
is a polymer which is used, inter alia, for producing
spectacle lenses and is also known under the desig-
nation CR-39.

Tri-
Acetat

Tri-acetate
A synthetic fibre from the sphere of
"natural polymers".

PC

Polycarbonate

Lens coating

cera-tec®
coating

cera-tec® hard coating
The extremely solid coating was developed
together with the Fraunhofer Institute for Silicate
Research (ICS) especially for our PXM® lenses. It
protects the lenses all-round and gives the user
safety and both visual and wearing comfort.

Duplex

DUPLEX coating
The antistatic coating of the lens
permanently prevents fogged-up lenses.

Super-
Duplex

Super DUPLEX coating
DUPLEX with additional hard coating

Other

Filter caps
for changing the colour temperature
enclosed.

Light bulb

LED
which is much more economical in consumption
than conventional light bulbs with comparable
brightness and has an
almost infinite life.

Fluorescent lamp

SMD-LED
(SMD: Surface Mounted Device, LED: Light Emit-
ting Diode) special, miniaturised LED with higher
light output than conventional LED.

Step Up

Step Up
Electronic control system that builds the con-
sumption voltage required by the LED and keeps
it constant even when the battery voltage drops.
The illuminance of the LED therefore does not
drop over the battery life cycle.

IP-Code / Protection Classes

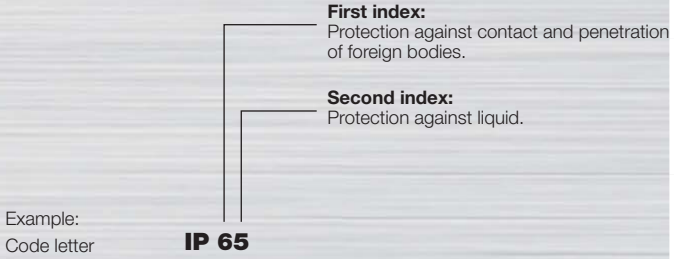
Definition of protection classes to IEC 60529

The standard IEC 60529 "Degrees of protection provided by enclosures (IP code)" provides a system for classifying the protection types through the housings of electrical equipment. This standard defines terms for enclosure types:

- Protection of persons against access to hazardous parts within the housing
- Protection of the equipment within the housing against penetration of solid foreign objects
- Protection of the equipment within the housing against harmful effects caused by the penetration of water

Degree of protection against solid foreign bodies		
first digit	**Abstract**	**Definition**
0	Unprotected	The object probe, sphere of 50 mm diameter, shall not fully penetrate.
1	Protected against solid foreign bodies 50 mm and larger.	The object probe, sphere of 12.5 mm diameter, shall not fully penetrate.
2	Protected against solid foreign bodies 12.5 mm diameter and larger.	The object probe,2.5 mm diameter, shall not penetrate at all.
3	Protected against solid foreign bodies 2.5 mm diameter and larger.	The object probe,2.5 mm diameter, shall not penetrate at all.
4	Protected against solid foreign bodies 1.0 mm diameter and larger.	The object probe, 1.0 mm diameter, shall not penetrate at all.
5	Dust-protected	Penetration of dust is not fully prevented, but dust must not penetrate in such an amount as to impair the satisfactory operation of the device or the safety.
6	Dust-protected	No penetration of dust.

Degree of protection against water		
second digit	**Abstract**	**Definition**
0	Unprotected	Vertically falling drops may not have any harmful effects.
1	Protected against dripping water.	Vertically falling drops may not have any harmful effects when the housing is tilted by an angle of up to 15° on either side of the vertical.
2	Protection against dripping water, when the housing is inclined up to 15°	Water, being sprayed at an angle of up to 60 ° on both sides of the vertical, may not have any damaging effects.
3	Protected against spray water.	Water spraying onto the housing from any direction must not cause any harmful effects.
4	Protected against splash water.	Jet water sprayed from any direction against the housing may not have any damaging effects.
4K	Protected against splashing water with increased pressure.	Water splashing from any direction with increased pressure against the housing, may not have any damaging effects. (Applies to DIN 40 050 part 9 only for road vehicles)
5	Protected against jet water.	Water splashing from any direction as jet against the housing, may not have any damaging effects.
6	Protected against strong jets of water.	Water splashing from any direction as strong jet against the housing, may not have any damaging effects.
6K	Protected against strong jet water with increased pressure.	Water sprayed from any direction as jet with increased pressure against the housing, may not have any damaging effects. (Applies to DIN 40 40050 part 9 only for road vehicles)
7	Protected against the effect on temporary immersion..	Water must not enter to an amount, which causes harmful effects in case the housing is under pressure and temporary conditions temporarily immersed in water.
8	Protected against the Effects of continuous immersion.	Water must not enter in a quantity that causes harmful effects in case the housing is permanently immersed.
9K	Protected against Water at high pressure/ steam jet cleaning	Water splashing from any direction with increased pressure against the housing. ay not have any harmful effects. (Applies to DIN 40050 part 9 only for road vehicles)



Calibration

...of measuring tools

Security and confidence,

the bedrock for lasting and prolific cooperation!

The measuring instruments used in the production process have to provide undeniable correct measured values for technical as well as legal reasons. To ensure this, the devices have to be regularly calibrated and traced to national standards.

In section 7.6 of the quality standards from the norm family DIN, EN, ISO 9001: 2000, is defined:
"If necessary to ensure valid results, the measuring equipment must be calibrated or verified at fixed intervals or before use. This, in turn, is based on measurement standards that are attributed to international or national measurement standards. "

The Mahr measuring equipment management assures this for the measuring parameter length, among others, by operating the calibration laboratories DKD-K-05401 and DKD-K06401, which are accredited by the Physikalisch-Technische Bundesanstalt PTB Braunschweig.

The calibration for an order takes about 2 days,for external brands approx. 5 days; a later calibration approx. 8 days.

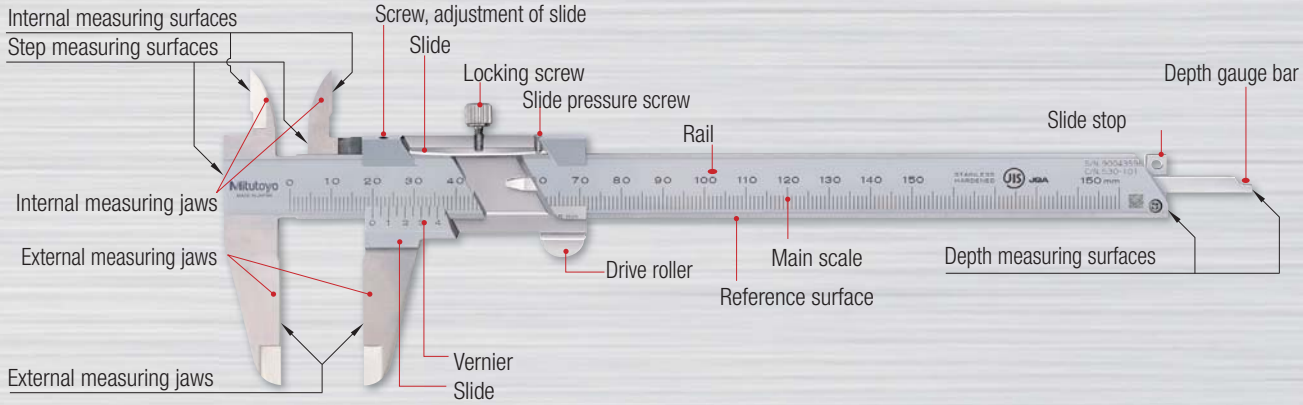
Delivery ex works plus packing costs. To calibrate a new ordered tool initially, please attach "-KAL" to the size.

Example: Digital outside micrometer measuring range 0-25 mm
inclusive calibration
= cat. no. **310294 0-25-KAL**

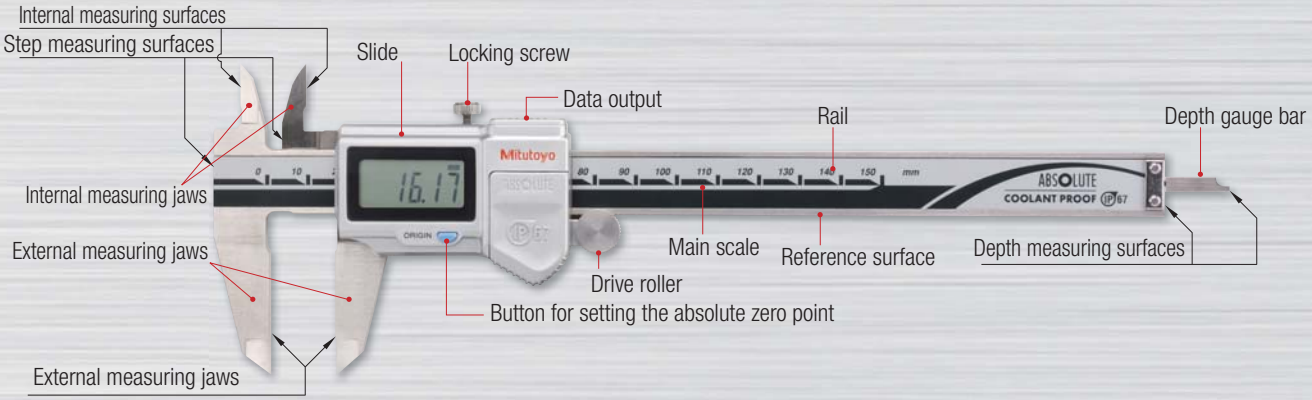
Product information

Terminology

Analogue caliper

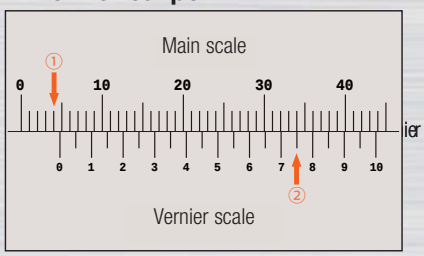


Absolute DIGIMATIC caliper



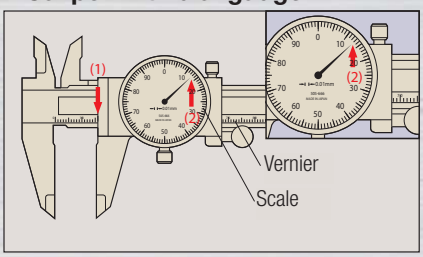
To read the scale

Vernier caliper



Graduation	0.05mm	
(1)Reading the main scale	4	mm
(2)Reading vernier scale	0.75	mm
Reading caliper	4.75	mm

Caliper with dial gauge



Graduation	0.01mm	
(1)Reading the main scale	16	mm
(2)Reading dial face	0.13	mm
Reading dial face caliper	16.13	mm

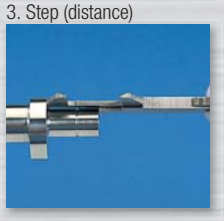
Note) At the top left, 0.75 mm (2) is read off at the position, where a graduation of the main scale matches with a graduation of the vernier scale

Application examples

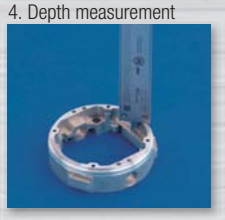
1. External measurement

2. Internal measurement

3. Step (distance)

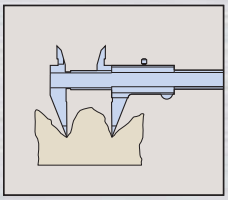


4. Depth measurement



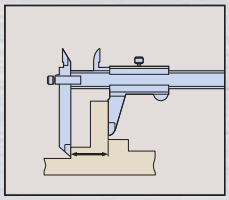
Vernier calipers for special applications

Type point jaw



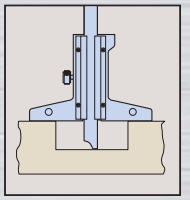
For measuring uneven surfaces

Type offset measuring jaws



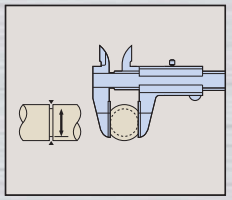
For measuring stepped workpieces

Type depth measuring



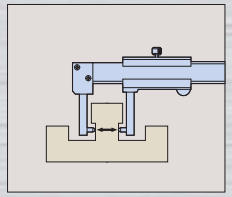
For depth measuring

Type shaft groove caliper



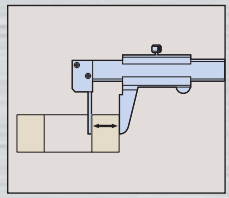
For measuring diameters of narrow grooves

Type inward neck caliper



For measuring outside diameters like e.g. the tickness of a recess

Type tube thickness caliper



For measuring wall thicknesses of tubes

Pocket vernier calliper

Design:
- matt chrome-plated, fully hardened
- suitable for 4-fold measurement

Use:
Small, handy pocket vernier calliper for general testing purposes

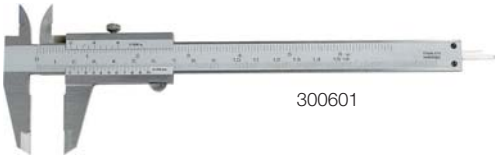
300050 with locking screw

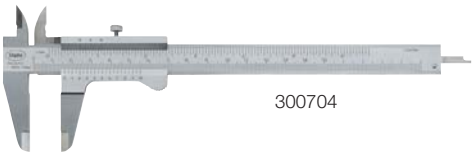
Measuring range mm	300050	Vernier mm
70	●	0.05
100	●	0.05

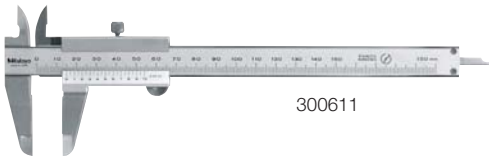
Precision pocket vernier calliper

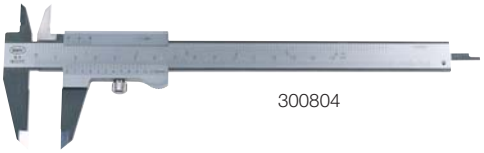
Design:
- with depth gauge, flat
- rail and slide made of hardened stainless steel
- scale and vernier matt chrome-plated
- heightened guideways

300704 and 300804: easy reading due to 14° inclined vernier scale


300601


300704


300611


300804

300601 PRECITOOL, with locking screw
300611 MITUTOYO 530, with locking screw
300621 MITUTOYO 530, with locking screw and HM measuring faces
300704 MAHR 16 FN, with scale display and locking screw
300804 MAHR 16 N, with scale display and low set locking screw

Measuring range mm	300601	300611	300621	300704	300804	300601 Vernier	300611 Vernier	300621 Vernier	300704 Vernier	300804 Vernier	Jaw length mm
150	●	●	○	●	●	0.05 - 1/128"	0.05	0.05	0.05 - 1/128"	0.05 - 1/128"	40
150-KAL	—	—	—	○	○	—	—	—	0.05 - 1/128"	0.05 - 1/128"	40
200	●	●	○	○	—	0.05 - 1/128"	0.05	0.05	0.05 - 1/128"	—	50
200-KAL	—	—	—	○	—	—	—	—	0.05 - 1/128"	—	50
300	●	●	○	●	—	0.05 - 1/128"	0.05	0.05	0.05 - 1/128"	—	60
300-KAL	—	—	—	○	—	—	—	—	0.05 - 1/128"	—	64

Depth measuring stop

Design:
- for pocket vernier callipers up to 200 mm
- hardened, very fine ground and lapped

300900 Standard

Measuring bridge length mm	300900	Measuring rail width mm
75	●	6.8
100	●	8.0

Precision pocket vernier calliper

Mitutoyo Mahr PRECITOOL PRÄZISIONSWERKZEUGE

DIN 862 | Rost frei | Delivered in case

Versions 300190+300651:
- matt chrome-plated, fully hardened
- for 4-fold measurement

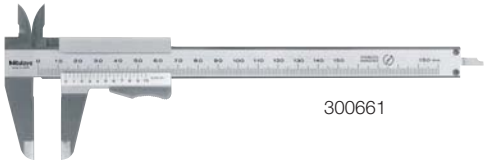
Design 300661:
- with depth gauge, flat
- rail and slide made of hardened stainless steel
- scale and vernier matt chrome-plated
- heightened guideways
- easy reading due to 14° inclined vernier scale

Design 300854 type 16 DN:
- vernier and main graduation satin chrome plated
- slide and rail hardened
- increased guideways to protect the scale
- depth gauge bar
- jaws for internal measurements, step measuring feature

Use:
For external, internal, depth and height measurements and for marking

300190

300651


300661

300854

300190 PRECITOOL, with instant lock, for left-handers
300651 PRECITOOL, with instant lock
300661 MITUTOYO 531, with quick-action lock
300854 MAHR 16 DN, with instant lock

Measuring range mm	300190	300651	300661	300854	300190 Vernier	300651 Vernier	300661 Vernier	300854 Vernier	Jaw length mm
150	●	●	●	●	0.05 - 1/128"	0.05 - 1/128"	0.05	0.05 - 1/128"	40
200	—	—	○	—	—	—	0.05	—	50
300	—	—	○	—	—	—	0.05	—	64

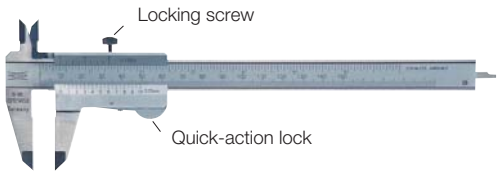
Pocket vernier calliper DUO-FIX

HELIOS·PREISSER

DIN 862 | Rost frei | Delivered in case

Design:
- reading parts satin chrome plated
- main graduation lowered

Use:
For external, internal, depth and height measurements and for marking



300130 with locking screw and quick-action lock

Measuring range mm	300130	Vernier mm	Jaw length mm
150	●	0.05	40

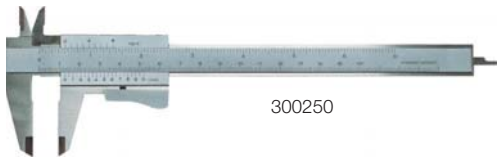
Pocket vernier calliper parallax-free

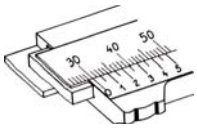
PRECITOOL PRÄZISIONSWERKZEUGE

DIN 862 | Rost frei | Delivered in case

Design:
- matt chrome-plated, fully hardened
- suitable for 4-fold measurement

300200


300250



300200 with locking screw
300250 with instant lock

Measuring range mm	300200	300250	Vernier mm/inch	Jaw length mm
150	●	●	0.05 - 1/128"	40

Workshop calliper made of light metal

Design:
- with exchangeable measuring jaws
- jaws made of stainless steel, hardened, fine ground
- optimal guiding and sliding properties due to the interior double prism guide
- good contrast - white scale on black surface
- flat vernier
- mm/inch graduation
- deviation according to DIN 862

300205 Parallax-free design

Measuring range mm	300205	reading mm
200	○	0.05
300	○	0.05
500	○	0.05
700	○	0.05
900	○	0.05

Precision dial calliper

DIN 862 · Factory standard · Rostfrei · SHOCK PROOF · calibrated · Delivered in case

Design 301200 and 301400:
- measuring faces fine ground and lapped
- matt chrome-plated, fully hardened
- quick adjustment with one hand
- cross-over jaws for 4-fold measurement

Design 301251 and 301451:
- guide rail titanium coated
- wearproof and smooth-running
- high precision
- easy reading
- scale matt chrome-plated
- all parts made of stainless steel
- delivery incl. manufacturer certificate

Design 301554 and 301604:
- slide and rail hardened
- matt chrome-plated lined scale, large high-contrast dial ∅ 34 mm
- zero adjustment by turnable dial face and locking screw
- covered gear rack
- impact-protected measuring mechanism, measuring edges for inside measurements
- depth rod, locking screw, step measuring feature

Use:
Handy dial calliper for testing and control purposes

301200
301400

301251
301451

301554
301604

301200 PRECITOOL, reading accuracy 0.02 mm
301251 MITUTOYO 505, reading accuracy 0.02 mm
301554 MAHR 16 U, reading accuracy 0.02 mm

Measuring range mm	301200	301251	301554	301200 Error limit µm	301251 Error limit µm	301554 Error limit µm	reading mm	Jaw length mm
150	●	○	●	30	30	30	0.02	40
150-KAL	—	—	○	—	—	30	0.02	40
200	●	○	—	30	30	—	0.02	50
300	●	—	—	40	—	—	0.02	60

301400 PRECITOOL, reading accuracy 0.01 mm
301451 MITUTOYO 505, reading accuracy 0.01 mm
301604 MAHR 16 U, reading accuracy 0.01 mm

Measuring range mm	301400	301451	301604	301400 Error limit µm	301451 Error limit µm	301604 Error limit µm	reading mm	Jaw length mm
150	●	●	●	30	20	30	0.01	40
150-KAL	—	—	○	—	—	30	0.01	40
200	●	○	—	30	30	—	0.01	50
300	○	—	—	40	—	—	0.01	60

Digital vernier calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- 4-fold measurement, 11 mm LCD display, setting screw
- on/off switch, ABS
- zero setting at any position
- mm/inch selection

DIN 862 | Rostfrei | ABS | Delivered in case

301701 with absolute function

Measuring range mm	301701	reading mm	Jaw length mm
150	●	0.01	40
200	●	0.01	50
300	●	0.01	64

Digital vernier calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- 4-fold measurement, 12 mm LCD display
- data output RS 232 C (RBI)
- setting screw and mm/inch selection

DIN 862 | Rostfrei | RS232C | Delivered in case

301703 with HM surfaces and data output

Measuring range mm	301703	reading mm	Jaw length mm
150	●	0.01	40

Precision digital calliper

Mitutoyo

Versions 301705 and 301707:
- electronic calliper with integrated absolute scale
- utmost measuring precision even at high operation speed
- without roller
- resolution 0.01 mm
- repeatability ± 0.02 mm

DIN 862 | ABS | ∅1.9 | Digimatic | USB | U-WAVE | Delivered in case

Functions:
- ORIGIN
- Zero/ABS
- ON/OFF
- low voltage alert

Delivery:
Incl. one battery and factory certificate

Design 301706:
- integrated absolute standard
- battery-free operation through solar technology already from 60 lux
- without roller
- depth gauge flat
- resolution 0.01 mm
- repeatability ± 0.02 mm

Functions:
- ORIGIN
- Data/Hold

Note:
Fitting connection cable see under 398001 on page 39/836.

301705

301706

301707

301705 MITUTOYO 500, without data output
301706 MITUTOYO 500 Solar, without data output
301707 MITUTOYO 500, with data output

Measuring range mm	301705	301706	301707	301705 Depth gauge	301706 Depth gauge	301707 Depth gauge	reading mm	Jaw length mm
150	●	●	●	flat	flat	flat	0.01	40
150R	●	—	●	∅ 1.9 mm	—	∅ 1.9 mm	0.01	40
200	●	○	●	flat	flat	flat	0.01	50
300	—	—	●	—	—	flat	0.01	64

Precision digital calliper

Design:
- slide and rail hardened
- lapped guide rails
- jaws for internal measurements
- step measuring feature and locking screw
- high-contrast 8.5 mm high LCD display (301713)
- high-contrast 11 mm high LCD display (301712)
- battery life approx. 3 years
- operation speed 2.5 m/s (100"/s)

Functions:
- ON/OFF, RESET (zero-setting of the display)
- mm/inch, Reference-Lock/Unlock, Auto-ON/OFF

Data output:
- MarConnect data output optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
With battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.

301712

301713

301712 MAHR 16 ER, without data output
301713 MAHR 16 ER, with data output

Measuring range mm	301712	301713	Depth gauge	reading mm/inch	Error limit mm	Jaw length mm
150	●	●	flat	0.01/0.0005"	0.03	40
150-KAL	○	○	flat	0.01/0.0005"	0.03	40
150R	●	●	∅ 1.5 mm	0.01/0.0005"	0.03	40
150R-KAL	○	○	∅ 1.5 mm	0.01/0.0005"	0.03	40
200	○	●	flat	0.01/0.0005"	0.03	50
200-KAL	○	○	flat	0.01/0.0005"	0.03	50
300	○	●	—	0.01/0.0005"	0.04	64
300-KAL	○	○	—	0.01/0.0005"	0.04	64

Precision digital calliper IP67

Design:
- made of stainless steel
- battery life up to 2 years
- operation speed 2.5 m/s
- high-contrast 7.5 mm high LCD display
- hardened rail
- jaws for internal measurements
- step measuring feature and locking screw
- measuring range 150/200 mm with 4-fold measurement
- measuring range 300 mm with 3-fold measurement
- protection class IP67, resistant to dust, coolants and lubricants

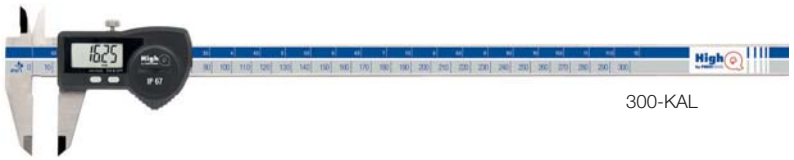
Functions:
- ON/OFF
- RESET (zero setting of the display)- ON/OFF, RESET (zero-setting of the display)
- selection mm/inch
- Auto ON/OFF
- ABS function (zeroed after being switched on)

Delivery:
With battery, instruction manual and test certificate, in case

new model

150-KAL

200-KAL


300-KAL

301711 HighQ, without data output, with test certificate

Measuring range mm	301711	Depth gauge	reading mm/inch	Error limit mm	Jaw length mm
150-KAL	●	flat	0.01/0.0005"	0.03	40
150R-KAL	●	∅ 1.5 mm	0.01/0.0005"	0.03	40
200-KAL	●	flat	0.01/0.0005"	0.03	50
300-KAL	●	—	0.01/0.0005"	0.03	65

Precision digital calliper IP67

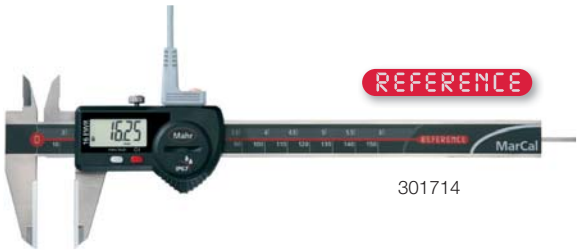
Design:
- measuring faces for outside measurements made of ceramics (only 301714)
- lapped guide rails
- jaws for internal measurements
- step measuring feature and locking screw
- high-contrast 8.5 mm high LCD display (301714 and 301842)
- high-contrast 11 mm high LCD display (301841)
- battery life approx. 3 years
- operation speed 2.5 m/s (100"/s)
- protection class IP67, resistant to dust, coolants and lubricants

Functions:
- ON/OFF, RESET (zero-setting of the display)
- selection mm/inch
- Reference Lock/Unlock
- data in connection with data cable
- Auto ON/OFF
- MarConnect data output:
  optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
With battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.

DIN 862 | Rost frei | IP67 | Ø1.5 | Digimatic | RS232C | USB | calibrated | Delivered in case



301714

301841

301842

301714 MAHR 16 EWR, with data output and ceramic measuring faces
301841 MAHR 16 EWR, without data output
301842 MAHR 16 EWR, with data output

Measuring range mm	301714	301841	301842	Depth gauge	reading mm/inch	Error limit mm	Jaw length mm
150	—	●	●	flat	0.01/0.0005"	0.03	40
150-KAL	—	○	○	flat	0.01/0.0005"	0.03	40
150R	○	●	○	∅ 1.5 mm	0.01/0.0005"	0.03	40
150R-KAL	○	○	○	∅ 1.5 mm	0.01/0.0005"	0.03	40
200	—	○	●	flat	0.01/0.0005"	0.03	50
200-KAL	—	○	○	flat	0.01/0.0005"	0.03	50
300	—	○	●	—	0.01/0.0005"	0.04	64
300-KAL	—	○	○	—	0.01/0.0005"	0.04	64

Precision digital wireless calliper IP67

Design:
- slide and beam stainless and hardened
- lapped guide rails
- jaws for internal measurements
- step measuring feature and locking screw
- high-contrast 11 mm high LCD display
- battery life approx. 3 years
- operation speed 2.5 m/s (100"/s)
- integrated wireless interface
- immediately ready to measure due to the reference system
- dirt wiper integrated in slide
- protection class IP67, resistant to dust, coolants and lubricants

Functions:
- ON/OFF
- Reset (zero-setting of display)
- mm/inch selection
- Reference-Lock/Unlock
- Auto ON/OFF
- Hold
- Data

Delivery:
Incl. battery and operating manual in case

Note:
Fitting radio receiver incl software 3.2 see under 398026 on page 39/839

150-300

301843 MAHR 16 EWRi, with wireless

Measuring range mm	301843	Depth gauge	reading mm/inch	Error limit mm	Jaw length mm
150	●	flat	0.01/0.0005"	0.03	40
150-KAL	○	flat	0.01/0.0005"	0.03	40
150R	○	∅ 1.5 mm	0.01/0.0005"	0.03	40
150R-KAL	○	∅ 1.5 mm	0.01/0.0005"	0.03	40
200	●	flat	0.01/0.0005"	0.03	50
200-KAL	○	flat	0.01/0.0005"	0.03	50
300	●	—	0.01/0.0005"	0.04	64
300-KAL	○	—	0.01/0.0005"	0.04	64

Universal digital calliper IP67 in set

Design:
- slide and rail hardened, non-corrosive
- lapped guide rails
- jaws for internal measurements
- step measuring feature and locking screw
- high-contrast 8.5 mm high LCD display
- battery life approx. 3 years
- operation speed 2.5 m/s (100"/s)
- immediately ready to measure due to the reference system
- protection class IP67, resistant to dust, coolants and lubricants
- dirt wiper integrated in slide

Functions:
- ON/OFF, RESET (zero-setting of the display), selection mm/inch
- Reference Lock/Unlock
- data in connection with data cable
- Auto ON/OFF
- MarConnect data output:
  optional with USB, OPTO RS232C or DIGIMATIC
- PRESET (presetting of fixed values)

Use:
Applicable as standard calliper (fourfold measuring feature, with standard accessories to measure recesses, grooves etc. plus special equipment to measure threads, bores, gears etc.

Delivery:
With battery, operating manual and standard accessories (depth gauge, setting gauge for internal measurements, measuring force device, anvils for exterior measurements, anvils for interior measurements, screws M2 × 8)

Note:
Fitting connection cable see under 398010 on page 39/836.

301652 MAHR 16 EWV, in set

Measuring range mm	301652	reading mm/inch	Error limit mm	Jaw length mm
200	●	0.01/0.0005"	0.03	48
200-KAL	○	0.01/0.0005"	0.03	48

Precision digital calliper IP67

Mitutoyo

DIN 862 | IP67 | ABS | Ø1.9 | Digimatic | USB | U-WAVE® | TÜV tested | Delivered in case

Design:
- ABSOLUTE system for reliable measurements (patented)
- without driver roll
- reading 0.01 mm
- repeatability 0.01 mm

Functions:
- ORIGIN
- Zero/ABS
- Auto Power OFF
- low voltage alert

Delivery:
Incl. one battery and factory certificate

Note:
Fitting connection cable see under 398004 on page 39/836.

301800 MITUTOYO 500, without data output
301805 MITUTOYO 500, with data output

Measuring range mm	301800	301805	Depth gauge	Jaw length mm
150	●	●	flat	40
150R	●	○	∅ 1.9 mm	40
200	●	●	flat	50
300	●	○	flat	64

301800

Precision digital solar calliper IP67

Mitutoyo

DIN 862 | IP67 | ABS | Ø1.9 | Digimatic | TÜV tested | Delivered in case | USB | U-WAVE®

Design:
- battery-free operation through solar technology, starting at 60 lux
- impact-protected housing
- voltage reserve below 60 lux illuminance due to super capacitor
- reading 0.01 mm
- without driver roll

Delivery:
Incl. factory certificate

Note:
Fitting connection cable see under 398004 on page 39/836.

301801 MITUTOYO 500 Solar, without data output
301806 MITUTOYO 500 Solar, with data output

Measuring range mm	301801	301806	Depth gauge	Jaw length mm
150	○	○	flat	40
150R	○	—	∅ 1.9 mm	40
200	○	○	flat	50

301801

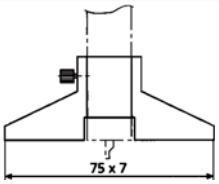
Depth measuring bridge for callipers

Mahr

Note:
For Mahr callipers

301900 MAHR 16 EM

W × H mm	301900
75×7	●



Depth measuring bridge for callipers

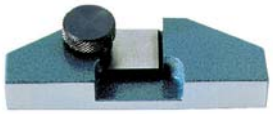
Mitutoyo

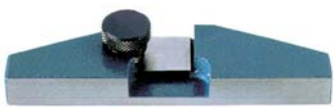
Design:
For upgrading DIGIMATIC vernier callipers, dial callipers and analogue callipers with depth gauge and measuring range 150 mm, 200 mm or 300 mm

Application example

301902 Depth measuring bridge

Size	301902	for measuring range	Weight kg
75×12	●	100 | 150 | 200 mm or 4 | 6 | 8"	0.130
100×12	●	100 | 150 | 200 mm or 4 | 6 | 8"	0.160


75 × 12


100 × 12

Precision workshop calliper lightweight construction

Mahr

Design:
- slide and beam made of aluminium, hard anodised (1100HV)
- measuring faces of stainless steel, hardened
- prism guideways for a more smooth and even movement
- parallax free reading, satin chrome-plated
- measuring edges for external measurements
- rounded measuring faces for internal measurements
- locking screw

Delivery:
With battery and operating manual

Delivered in case

302010 MAHR 18 NA, made of aluminium

Measuring range mm	302010	Vernier mm	Jaw length mm	Nib for inside measurement mm	Weight kg
300	○	0.02	90	10	0.50
500	○	0.02	150	20	1.40
800	○	0.02	150	20	1.60
1000	○	0.02	150	20	1.75
1500	○ +	0.02	200	30	2.10
2000	○ +	0.02	200	30	2.50

Precision digital workshop calliper lightweight construction

Mahr

Design:
- like 302010, albeit with digital display
- 6 mm or 10.5 mm LCD display

Functions:
- ON/OFF, reset - zero-setting, mm/inch selection
- operation speed 1.5 m/s
- only measuring range 300 mm with data output Opto RS232C

Note:
Fitting connection cable see under 398010 on page 39/836.

RS232C

Delivered in case

302020 MAHR 18 ESA, made of aluminium

Measuring range mm	302020	reading mm	Jaw length mm	Nib for inside measurement mm	Weight kg
300	○	0.01	90	10	0.46
500	●	0.01	150	20	1.20
800	○	0.01	150	20	1.50
1000	○	0.01	150	20	1.65

Precision digital workshop calliper Carbon fibre, IP66

Mitutoyo

Design:
- due to the composite construction the weight is reduced by down to 50 %
- ABSOLUTE system for reliable measurements (patented)
- easy reading due to large display characters
- OFFSET for direct reading at inner measurements
- resolution 0.01 mm
- for internal measurements from 20 mm
- battery life approx. 5,000 hours

IP66 | ABS | Digimatic | USB | U-WAVE® | Delivered in case

ABSOLUTE

Functions:
- ORIGIN
- Zero/ABS
- OFFSET
- PRESET
- Auto Power OFF
- Data/Hold
- low voltage alert

Note:
Fitting connection cable see under 398004 on page 39/836.

302050 MITUTOYO 552, with data output

Measuring range mm	302050	Error limit mm	Jaw length mm	Weight kg
450	○	0.04	100	0.715
600	○	0.04	100	0.790
1000	○	0.05	150	1.760
1500	● +	0.09	150	2.160
2000	○ +	0.12	150	2.560

Digital workshop calliper made of light metal

PRECITOOL PRÄZISIONSWERKZEUGE

Delivered in case

Design:
- jaws made of stainless steel, hardened, fine ground
- both jaws slidable and exchangeable
- ON/OFF function, mm/inch selection
- zero setting at any position
- inside double prism guiding
- slide rail and housing made of aluminium, oxide coated

Delivery:
Vernier calliper incl. battery SR44 and instruction

302605 Lightweight construction

Measuring range mm	302605	Error limit mm	Jaw length mm	Weight kg
300	●	0.04	90	0.50
500	●	0.05	90	0.60
800	●	0.06	90	0.73

Digital workshop calliper made of light metal

PRECITOOL PRÄZISIONSWERKZEUGE

EDELSTAHL Rost frei INOX STAINLESS STEEL

Design:
- with SYLVAC electronics
- adjustable jaws made of stainless, hardened steel, fine ground
- ON/OFF function
- zero setting at any position
- inside double prism guiding
- slide rail and housing made of aluminium, oxide coated

Delivery:
Vernier calliper incl. battery CR 2032 and instructions

302610 Lightweight construction

Measuring range mm	302610	Error limit mm	Jaw length mm	Weight kg
1000	○	0.06	150	1.70
1500	○ +	0.10	150	2.00
2000	○ +	0.13	150	2.40
2500	○ +	0.20	150	2.90
3000	○ +	0.25	150	3.40

Workshop calliper

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 862

EDELSTAHL Rost frei INOX STAINLESS STEEL

Delivered in case

Design:
- hardened
- reading parts satin chrome plated
- slide made of one piece, MONOBLOCK
- locking screw

303100 without knife-points, with fine adjustment

Measuring range mm	303100	reading mm	Jaw length mm
300	●	0.05	90
500	●	0.05	150
800	●	0.05	150
1000	●	0.05	150
1500	○ +	0.05	200
2000	○ +	0.05	200

303300 with knife-points, with fine adjustment

Measuring range mm	303300	reading mm	Jaw length mm
300	●	0.05	90
500	●	0.05	150
800	○	0.05	150
1000	●	0.05	150

Digital workshop calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- LCD display 12 mm
- locking screw
- ON/OFF-switch
- mm/inch selection and zero button
- with ABS and PRESET button
- with RS232C interface

Edelstahl Rostfrei – ABS – RS232C – Delivered in case

304400 without jaws, with fine adjustment

Measuring range mm	304400	reading mm/inch	Jaw length mm
300	●	0.01/0.0005"	100
500	●	0.01/0.0005"	150
600	○	0.02/ 1/1000"	150
1000	○	0.01/0.0005"	150

Precision digital workshop calliper IP65

Mahr

Design:
- immediately ready to measure due to the reference system
- excellent resistance against dust, coolants and lubricants, protection class IP65
- dirt wiper integrated in slide
- battery life up to 3 years
- high-contrast LCD display
- slide and rail hardened, non-corrosive
- measuring faces for external measurements
- blades with thread M2.5 to receive measuring inserts for external or internal measurements
- with locking screw

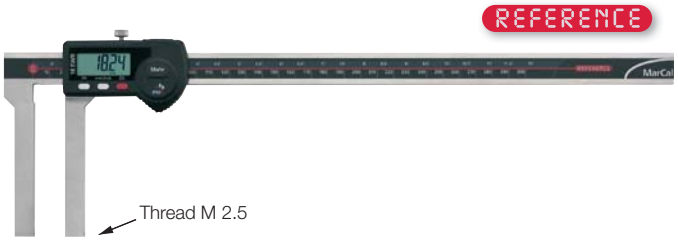
Edelstahl Rostfrei – IP65 – Digimatic – RS232C – USB – Delivered in case

Functions:
- ON/OFF
- RESET (zero setting of the display)- ON/OFF, RESET (zero-setting of the display)
- mm/inch selection
- Reference-Lock/Unlock
- PRESET (presetting of fixed values)
- DATA (in combination with data cable)
- Auto ON/OFF

Data output:
- MarConnect data output:
  optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
Incl. measuring inserts, battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.



301716 MAHR 18 EWR-V with data output

Measuring range mm	301716	reading mm/inch	Error limit mm
300	○	0.01/0.0005"	0.06
500	○	0.01/0.0005"	0.08

Digital workshop calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- LCD display 12 mm
- locking screw
- ON/OFF-switch
- mm/inch selection and zero button
- with ABS and PRESET button
- with RS232C interface

Edelstahl Rostfrei – ABS – RS232C – Delivered in case

304405 with pointed jaws, with fine adjustment

Measuring range mm	304405	reading mm/inch	Jaw length mm
300	●	0.01/0.0005"	90
500	●	0.01/0.0005"	150
600	●	0.02/1/1000"	150
1000	●	0.01/0.0005"	150

Precision digital workshop calliper IP65

Mahr

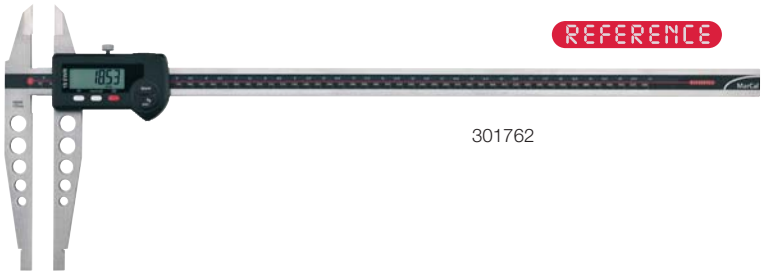
Design:
- slide and rail hardened
- with rounded measuring faces for interior measurement and lock screw
- high contrast 10 mm (at 300 mm) or 12.5 mm high LCD display
- dirt wiper integrated in slide
- battery life approx. 3 years
- operation speed 2.5 m/s (100"/s)
- protection class IP65, resistant to dust, coolants and lubricants

Functions:
- ON/OFF, RESET (zero-setting of the display), selection mm/inch
- Reference Lock/Unlock, Auto-ON/OFF
- DATA (only in combination with data cable)
- PRESET (presetting of fixed values)

Data output:
- MarConnect data output:
  optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
With battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.



301762

301761 MAHR 18 EWR with data output, without tips
301762 MAHR 18 EWR with data output, with tips

Measuring range mm	301761	301762	reading mm	Error limit mm	Jaw length mm
300	●	●	0.01	0.03	90
300-KAL	○	○	0.01	0.03	90
500	●	●	0.01	0.04	150
500-KAL	○	○	0.01	0.04	150
750	○	○	0.01	0.05	150
750-KAL	○	○	0.01	0.05	150
1000	○	○	0.01	0.05	150
1000-KAL	○	○	0.01	0.05	150

Spare battery

PRECITOOL PRÄZISIONSWERKZEUGE

Note:
Fitting for almost all digital measuring tools

301950 Spare battery (button cell)

Type	301950
357HD	●
CR2032	●

Precision digital workshop calliper

Mitutoyo

Design:
- with rounded measuring faces for inner and outer measurements
- blade type measuring faces
- with data output
- resolution 0.01 mm

IP67 | Digimatic | USB | U-WAVE® | TÜV tested | Delivered in case

304420: For inner measurements from 20 mm

Functions 304420:
- ORIGIN
- Zero/ABS
- ON/OFF
- low voltage alert

304425: For inner measurements from 10 mm

Functions 304425:
- ORIGIN
- Auto Power OFF
- low voltage alert

304425

304420 MITUTOYO 551, with rounded measuring faces

Measuring range mm	304420	Error limit mm	Jaw length mm	Weight kg	fitting connection cable
500	●	0.06	150	1.060	398001
750	●	0.06	150	1.410	398001
1000	●	0.07	150	3.430	398001

304425 MITUTOYO 551, with rounded measuring faces, protection class IP67

Measuring range mm	304425	Error limit mm	Jaw length mm	Weight kg	fitting connection cable
200	○	0.03	60	0.196	398004
300	●	0.04	90	0.420	398004

Marking calliper

HELIOS·PREISSER

Design:
- **with fine adjustment**
- with long T-shaped marking bar and fine adjustment
- special steel, scales satin chrome plated, marking edges hardened
- fine adjustment, locking screw

Use:
The marking surface allows precise marking. Marking values can be entered quickly and precisely

304820 with fine adjustment

Measuring range mm	304820	Length of marking area mm
160	○	135
250	●	135
300	●	160
500	○	160

Vernier calliper for measuring cutting tools

PRECITOOL PRÄZISIONSWERKZEUGE

Design and use:
- hardened
- scale satin chrome-plated, with locking screw
- reading 1/20 mm

Edelstahl Rostfrei

304860: 60° jaws for measuring 3-edged cutting or milling tools
304880: 108° jaws for measuring 5-edged cutting or milling tools

304860

304880

304860 for 3-point tools
304880 for 5-point tools

Measuring range mm	304860	304880	Vernier mm
1 - 40	—	●	1/20
4 - 40	●	—	1/20
20 - 75	○	—	—

Inside groove calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design and use:
- for measuring inside grooves larger than 10 mm
- matt chrome-plated, hardened

EDELSTAHL Rost frei INOX STAINLESS STEEL | Delivered in case

304900 for internal grooves

Measuring range mm	304900	reading mm	Jaw length mm
10 - 160	●	0.05	25
20 - 160	●	0.05	40
26 - 200	●	0.05	60
30 - 250	●	0.05	80

Depth gauge

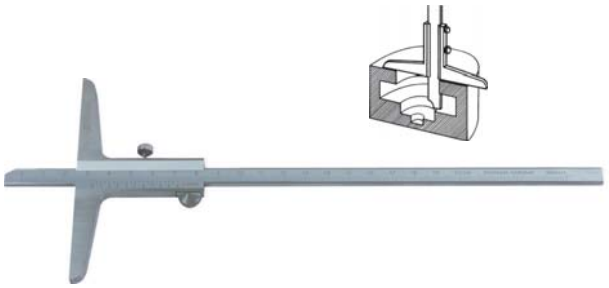
PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- reading parts satin chrome plated
- locking screw

DIN 862 | EDELSTAHL Rost frei INOX STAINLESS STEEL | Delivered in case

308000 straight measuring rail

Measuring range mm	308000	Vernier mm	Measuring bridge length mm	Measuring bar cross section mm
150	●	0.05	100	8 × 3
200	●	0.05	100	8 × 3
300	●	0.05	150	12 × 4
500	●	0.05	150	18 × 4
800	○	0.05	250	18 × 6
1000	○	0.05	250	18 × 8



Precision depth gauge

Mahr

Design:
- hardened
- vernier and main graduation satin chrome plated
- raised guideways, locking screw

DIN 862 | EDELSTAHL Rost frei INOX STAINLESS STEEL | Delivered in case

308204 MAHR 30 N with round measuring pin

Measuring range mm	308204	Pin ∅ mm	Vernier mm	Measuring bridge length mm	Measuring bar cross section mm
80	●	1.0	0.05	50	8 × 3
150	●	1.5	0.05	100	8 × 3
200	○	1.5	0.05	100	8 × 3
300	●	2.0	0.05	150	12 × 4
500	○	2.0	0.05	150	12 × 4

Precision depth gauge with hook

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- scale made of one piece
- reading parts satin chrome plated
- locking screw

DIN 862 | EDELSTAHL Rost frei INOX STAINLESS STEEL | Delivered in case

308452 PRECITOOL, with dual function

Measuring range mm	308452	Vernier mm	Measuring bridge length mm	Measuring bar cross section mm	Jaw size a × b mm
150	●	0.05	100	8 × 3	20 × 5
200	●	0.05	100	8 × 3	20 × 5
300	●	0.05	150	12 × 4	28 × 10
400	○	0.05	150	12 × 4	28 × 10
500	○	0.05	150	20 × 5	36 × 10

Precision depth gauge with hook

Mahr

Design:
- with hook and reversible beam
- hardened
- vernier and main graduation satin chrome plated
- raised locking screw

DIN 862 | Rostfrei | Delivered in case

308454 MAHR 30 NH, with dual function

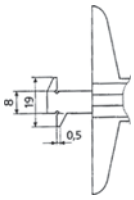
Measuring range mm	308454	Vernier mm	Measuring bridge length mm	Measuring bar cross section mm	Jaw size e × f mm
150	○	0.05	100	8 × 3	20 × 5
200	○	0.05	100	8 × 3	20 × 5
300	○	0.05	150	12 × 4	28 × 10
500	○	0.05	150	12 × 4	28 × 10

Precision depth gauge with double hook

Mahr

Design:
- depth gauge made of hardened steel
- scale satin chrome-plated, with locking screw
- dual function through twofold fixed measuring bar for width and distance measurement
- graduations on both sides to reverse the scale
- resolution at vernier 1/50 mm

DIN 862 | Rostfrei | Delivered in case



308504 MAHR 30 ND with dual function

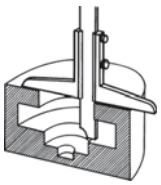
Measuring range mm	308504	Vernier mm	Measuring bridge length mm	Measuring bar cross section mm
300	●	0.05	100	8 × 3

Digital depth calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened
- metal housing
- LCD display 6 mm
- locking screw
- ON/OFF-switch
- zero setting at any position
- mm/inch selection

DIN 862 | Rostfrei | Delivered in case



309000 with straight measuring rail

Measuring range mm	309000	reading mm/inch	Measuring bridge length mm
150	●	0.01/0.0005"	100
200	●	0.01/0.0005"	100
300	●	0.01/0.0005"	150

Digital depth calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Functions:
- mm/inch selection
- ON/OFF/ZERO (0) button
- reading 0.01 mm/0.0005"

DIN 862 | Rostfrei | Delivered in pocket

309002 with round sensor

Measuring range mm	309002	reading mm/inch	Measuring bridge length mm
80	●	0.01/0.0005"	50

Digital depth calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Functions:
- mm/inch selection
- ON/OFF/ZERO (0) button
- reading 0.01/0.0005"

DIN 862 | Edelstahl Rostfrei | Delivered in pocket

309004 with exchangeable sensor tip

Measuring range mm	309004	reading mm/inch	Measuring bridge length mm
150	●	0.01/0.0005"	100
200	●	0.01/0.0005"	100
300	●	0.01/0.0005"	150

Digital depth calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Functions:
- mm/inch selection
- ON/OFF/ZERO (0) button
- reading 0.01 mm/0.0005"

DIN 862 | Edelstahl Rostfrei | Delivered in pocket

309006 with hook

Measuring range mm	309006	reading mm/inch	Measuring bridge length mm
300	○	0.01/0.0005"	150
500	○	0.01/0.0005"	150

Digital depth calliper

PRECITOOL PRÄZISIONSWERKZEUGE

Functions:
- mm/inch selection
- ON/OFF/ZERO (0) button
- reading 0.01 mm/0.0005"

DIN 862 | Edelstahl Rostfrei | Delivered in pocket

309008 with double hook

Measuring range mm	309008	reading mm/inch	Measuring bridge length mm
200	●	0.01/0.0005"	100
300	●	0.01/0.0005"	150

Digital depth gauge set made of light metal

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- the depth gauge consists of very light material
- surface oxide coated
- optimal guiding and sliding properties
- inside double prism guiding
- no damage to the guides by impact marks
- measuring bridges made of aluminium, hard anodised (62 HRC)
- measuring bridges can be changed easily
- different measuring tips (M2.5) can be inserted into 90° offset holes

Delivery:
In box including 3 measuring bridges, battery, measuring tip with insert and Allen key

Edelstahl Rostfrei

309010 with 3 measuring bridges (150/300/450 mm)

Measuring range mm	309010	Error limit mm
300	●	0.04
500	○	0.05
800	○	0.06

Digital depth calliper made of light metal

Design:
- the depth gauge consists of very light material
- surface oxide coated
- optimal guiding and sliding properties due to the interior double prism guide
- measuring bridges made of aluminium, hard anodised (62 roc)
- different measuring tips (M2.5) can be inserted into the measuring rods
- measuring rods:
  ∅ 4 mm for measuring depths of 200 - 300 mm
  ∅ 6 mm for measuring depths of 500 - 950 mm
- additional measuring bridge fixes itself in the desired position
- the measuring bridge is fixed with 2 screws

Delivery:
Standard measuring tip with steel ball, tip insert ∅ 10 mm or ∅ 20 mm, measuring bridge 150 mm, special measuring bridge 350 mm, 2 screws for fastening, Allen key, battery LR44

309012 with round measuring rod

Measuring range mm	309012	Disc insert ∅ mm	Measuring rod ∅ mm	Error limit mm
200	●	10	4	0.03
300	●	10	4	0.04
500	○	20	6	0.05
800	○	20	6	0.06
950	○	20	6	0.06

Precision digital depth gauge IP67

Design:
- battery life up to 3 years
- operation speed 2.5 m/s (100"/s)
- high-contrast 8.5 mm high LCD display
- measuring bridge and rail hardened
- with locking screw

Functions:
- ON/OFF, RESET (zero-setting of the display), selection mm/inch
- PRESET (presetting of fixed values)
- Reference Lock/Unlock, Auto-ON/OFF
- MarConnect data output:
  optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
With battery, measuring inserts (30 ENt / 1 mm, 902 and 903) and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.

100 mm

200/300 mm

309106 MAHR 30 EWN with data output

Measuring range mm	309106	reading mm/inch	Fehlergrenze mm/inch	Total length mm	Measuring bridge mm
100	●	0.01/0.0005"	0,03/0,001	268	85
200	●	0.01/0.0005"	0,03/0,001	281	100
300	●	0.01/0.0005"	0,04/0,001	381	150

Precision digital depth gauge IP67

High by PRECITOOL

Design:
- stainless steel, hardened
- locking screw on top
- straight measuring rod with measuring pin
- inductive measuring system
- high-contrast 7.5 mm high LCD display
- protection class IP67, resistant to dust, coolants and lubricants
- measuring pin 1.5 mm

Functions:
- ON/OFF
- RESET (zero setting of the display)
- ON/OFF, RESET (zero-setting of the display)
- mm/inch selection
- Auto ON/OFF
- PRESET function (presetting of fixed values)
- data output optional USB, DIGIMATIC, RS232C

Delivery:
With battery, instruction manual and test certificate, in case

NEW! IN PROGRAM

DIN 862 | Rostfrei | IP67 | ABS | Digimatic | USB | RS232C | calibrated | Delivered in case

309111 HighQ, with data output, with test certificate

Measuring range mm	309111	reading mm/inch	Error limit mm
150-KAL	●	0.01/0.0005"	0.03

Precision digital depth gauge IP67

Mahr

Design:
- battery life up to 3 years
- operation speed 2.5 m/s (100"/s)
- high-contrast 8.5 mm high LCD display
- lapped guide rails
- measuring bridge and rail hardened, locking screw

Functions:
- ON/OFF, RESET (zero-setting of the display), selection mm/inch
- PRESET (presetting of fixed values)
- Reference Lock/Unlock, Auto-ON/OFF
- MarConnect data output optional with USB, OPTO RS232C or DIGIMATIC

Delivery:
With battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.

Rostfrei | IP67 | Digimatic | RS232C | USB | calibrated | Delivered in case

309211 MAHR 30 EWR, with data output

Measuring range mm	309211	reading mm/inch	Error limit mm	Total length mm	Measuring bridge mm
150	●	0.01/0.0005"	0.03	234	100
150-KAL	○	0.01/0.0005"	0.03	234	100
200	○	0.01/0.0005"	0.03	284	100
200-KAL	○	0.01/0.0005"	0.03	285	100
300	●	0.01/0.0005"	0.04	388	150
300-KAL	○	0.01/0.0005"	0.04	388	150
500	●	0.01/0.0005"	0.05	584	150
500-KAL	○	0.01/0.0005"	0.05	584	150

Precision digital wireless depth gauge IP67

Mahr

Design:
- battery life up to 3 years
- high-contrast digit display
- lapped guide rails
- measuring surfaces, slide and rail hardened, locking screw
- increased guideways to protect the scale
- dirt wiper integrated in slide

Functions:
- ON/OFF, RESET (zero-setting of the display), selection mm/inch
- PRESET (presetting of fixed values)
- Reference Lock/Unlock, Auto-ON/OFF
- HOLD (measured value storage), counting direction reversal
- DATA (data transfer), integrated wireless

Delivery:
With battery and operating manual

Rostfrei | IP67 | Delivered in case

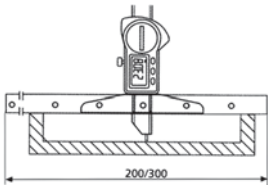
309212 MAHR 30 EWRI

Measuring range mm	309212	reading mm/inch	Error limit mm	Total length mm	Measuring bridge mm
150	○	0.01/0.0005"	0.03	234	100
200	○	0.01/0.0005"	0.03	284	100
300	○	0.01/0.0005"	0.04	384	150
500	○	0.01/0.0005"	0.05	584	150

Accessories

Mahr

Extended measuring bridge 200/300



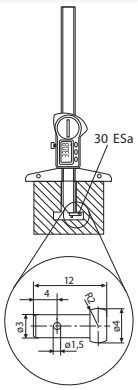
309250 MAHR 30 EXm, cross beam extension bridge

Length mm	309250
200	○
300	●

Accessories

Mahr

Anvil for distance measurement, to be mounted at measuring pin



309215 MAHR 30 ESa, anvil

Type	309215
30ESA	●

Precision digital depth gauge

Mitutoyo

Design:
- electronic calliper with integrated absolute scale
- easy reading due to large display characters
- excellent glide properties of the slide
- absolute system for reliable measurement

ABS | Digimatic | USB | U-WAVE® | Delivered in case

Functions:
- ORIGIN
- Zero/ABS
- ON/OFF
- low voltage alert

Note:
Fitting connection cable see under 398001 on page 39/836.

309216 MITUTOYO 571, with data output

Measuring range mm	309216	reading mm/inch	Error limit mm	Total length mm	Measuring bridge mm
150	●	0.01/0.0005"	0.02	237	100
200	●	0.01/0.0005"	0.02	287	100
300	●	0.01/0.0005"	0.03	403	100
450	○	0.01/0.0005"	0.05	635	250
600	○	0.01/0.0005"	0.05	785	250
750	○	0.01/0.0005"	0.06	935	250
1000	○	0.01/0.0005"	0.07	1200	250

Precision digital depth gauge IP67

Mitutoyo

Design:
- extreme high resistance for application in particularly harsh environments
- ABSOLUTE system for reliable measurements (patented)

IP67 | ABS | Digimatic | USB | U-WAVE® | TÜV tested | Delivered in case

Functions:
- ORIGIN
- Auto Power OFF
- low voltage alert

Note:
Fitting connection cable see under 398004 on page 39/836.

www.tuv.com TÜV TÜV Rheinland ID:30112074400

309221 MITUTOYO 571, with data output

Measuring range mm	309221	reading mm/inch	Error limit mm	Total length mm	Measuring bridge mm
150	●	0.01/0.0005"	0.03	237	100
200	●	0.01/0.0005"	0.03	287	100
300	●	0.01/0.0005"	0.03	404	100

Precision measuring tool set

Mahr

Design:
Set consisting of:
- pocket calliper 300704 150R
- outside micrometer 310204 0 - 25
- knife-edge square 350150 75 × 50 mm
- steel ruler 361650 150 mm

Delivered in case

309804 MAHR 50 B, 4-piece, with knife-edge square

parts	309804	Depth gauge	External micrometer	Knife-edge square	Steel rule
3	○	1	1	1	—
4	●	1	1	1	1

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Set consisting of:
- pocket vernier calliper 150 mm with quick adjustment
- outside micrometer 0-25 mm, matt chrome-plated
- knife-edge square 100 × 70 mm, DIN 875/1
- ruler 150 mm
- straightedge 100 mm, DIN 874/0
- dividers 150 mm

Delivered in case

309825 analogue, 6-piece

parts	309825
6	●

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Set consisting of:
- pocket vernier calliper 150 mm
- outside micrometer 0 - 25 mm, matt chrome-plated
- knife-edge square 100 × 70 mm, DIN 875/1
- ruler 150 mm
- straightedge 100 mm, DIN 874/0
- dividers 150 mm

Delivered in case

309826 digital / analogue, 6-piece

parts	309826
6	○

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Set consisting of
- pocket vernier calliper 150 mm with quick adjustment
- outside micrometer 0-25 mm, matt chrome-plated
- knife-edge square 100 × 70 mm, DIN 875/1
- ruler 300 × 30 × 1 mm
- straightedge 100 mm, DIN 874/0
- dividers 200 mm
- depth measuring bridge 75 mm
- scriber 250 mm with one straight and one bent point
- HM scriber 150 mm

Delivered in case

309830 analogue, 9-piece

parts	309830
9	○

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Set consisting of
- digital pocket vernier calliper 150 mm
- outside micrometer 0.25 mm, matt chrome-plated
- knife-edge square 100 × 70 mm, DIN 875/1
- ruler 300 × 30 × 1 mm
- straightedge 100 mm, DIN 874/0
- dividers 200 mm
- scriber 250 mm with one straight and one bent point
- HM scriber 150 mm

Delivered in case

309831 digital / analogue, 9-piece

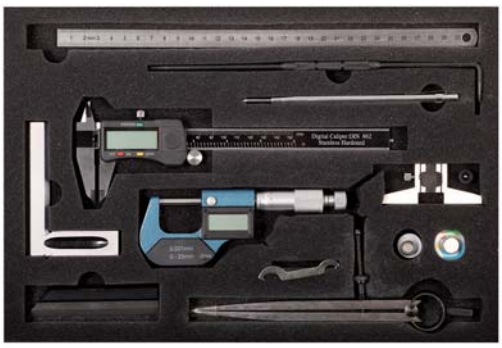
parts	309831
9	○

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Set consisting of
- digital pocket vernier calliper 150 mm
- digital outside micrometer 0 - 25 mm
- knife-edge square 100 × 70 mm, DIN 875/1
- ruler 300 × 30 × 1 mm
- straightedge 100 mm, DIN 874/0
- dividers 200 mm
- scriber 250 mm with one straight and one bent point
- HM scriber 150 mm

Delivered in case



309832 digital / digital, 9-piece

parts	309832
9	○

PRECITOOL®
PRÄZISIONSWERKZEUGE

Precision Digital Calipers

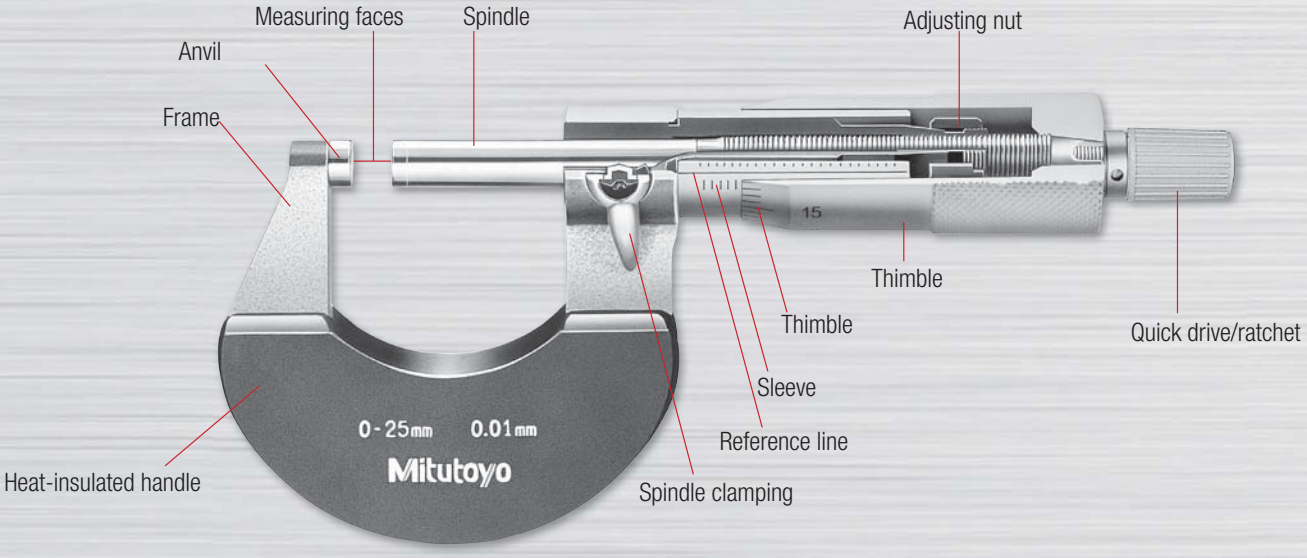
including test certificate **IP 67**

IP67

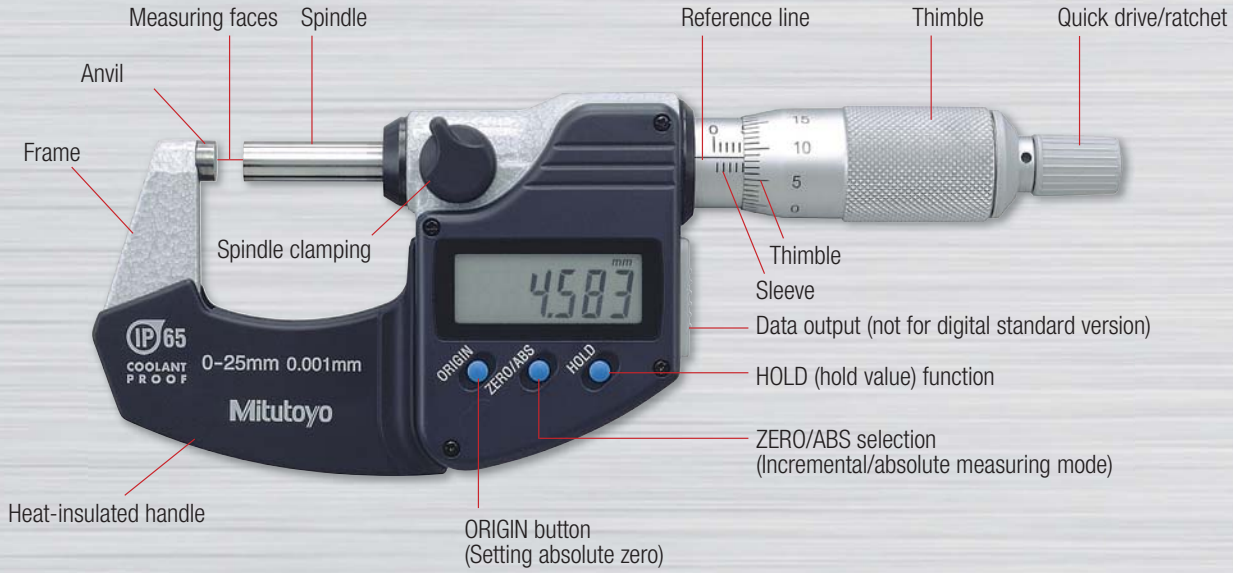
Product information

Terminology

Standard analogue outside micrometer



DIGIMATIC outside micrometer



External micrometer

Design:
- reading parts satin chrome plated
- carbide-tipped measuring faces
- insulating handle
- measuring spindle ∅ 6.5 mm, spindle pitch 0.5 mm
- from 25 mm with setting gauge
- resolution 0.01 mm

DIN 863/1 | Delivered in case

310100 Standard

Measuring range m	310100
0 - 25	●
25 - 50	●
50 - 75	●
75 - 100	●
100 - 125	●
125 - 150	●
150 - 175	●
175 - 200	●
200 - 225	●
225 - 250	●
250 - 275	○
275 - 300	○

Design:
- comprising outside micrometers 310100
- complete with reference dimensions and key

DIN 863/1 | Delivered in case

310120 Standard, set

Measuring range mm	310120	Contents
0 - 100	●	1 micrometer each cat. no. 310100 Measuring ranges mm: 0 - 25 | 25 - 50 | 50 - 75 | 75 - 100
0 - 150	●	1 micrometer each cat. no. 310100 Measuring ranges mm: 0 - 25 | 25 - 50 | 50 - 75 | 75 - 100 | 100 - 125 | 125 - 150
100 - 200	●	1 micrometer each cat. no. 310100 Measuring ranges mm: 100 - 125 | 125 - 150 | 150 - 175 | 175 - 200

Precision external micrometer

Design:
- steel frame with handguard, varnished
- measuring face ∅ 6.5 mm, carbide tipped, ground and lapped
- measuring spindle with clamping device
- spindle pitch 0.5 mm
- thimble and barrel scale matt chrome-plated
- reading drum ∅ 17.5 mm with fiftieth step graduation
- resolution 0.01 mm
- with setting key (from size 25 - 50 with setting gauge)

DIN 863/1 | calibrated | Delivered in case

Design:
- comprising outside micrometers 310204
- setting gauges 25 mm and 75 mm

DIN 863/1 | calibrated | Delivered in case

310204 MAHR 40 A

Measuring range mm	310204	Error limit mm
0 - 25	●	0.004
0 - 25-KAL	○	0.004
25 - 50	●	0.004
25 - 50-KAL	○	0.004
50 - 75	●	0.005
50 - 75-KAL	○	0.005
75 - 100	○	0.005
75 - 100-KAL	○	0.005
100 - 125	○	0.006
100 - 125-KAL	○	0.006
125 - 150	○	0.006
125 - 150-KAL	○	0.006
150 - 175	○	0.007
150 - 175-KAL	○	0.007
175 - 200	○	0.007
175 - 200-KAL	○	0.007

310210 MAHR, set 40 SA

Measuring range mm	310210	Contents
0 - 100	●	0 - 25 | 25 - 50 | 50 - 75 | 75 - 100
0 - 100-KAL	○	0 - 25 | 25 - 50 | 50 - 75 | 75 - 100

Precision external micrometer

Mitutoyo

Design:
- combined with a ratchet with feelable operation
- for one-hand operation and use with holder
- increased safety for one-hand operation
- thimble and barrel scale matt chrome-plated, ∅ 19 mm
- planarity 0.6 µm
- parallelism 2 µm
- measuring face carbide tipped, ultra fine lapped
- frame varnished
- measuring spindle pitch 0.5 mm with clamping feature, ∅ 6.35 mm
- measuring force 5 - 10 N

Delivered in case

Delivery:
Incl. hand guard, setting key, setting gauge (from 25 mm) and factory certificate

0-25

25-50

310230 MITUTOYO 102, reading 0.01 mm
310232 MITUTOYO 102, reading 0.001 mm

Measuring range mm	310230	310232	Error limit mm
0 - 25	●	●	0.004
25 - 50	●	○	0.004

Precision external micrometer

Mitutoyo

Design:
- light-weight workshop version
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated
- planarity 0.6 µm for versions up to 300 mm, beyond that 1 µm
- measuring faces carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle, pitch 0.5 mm with clamping feature
- measuring force 5 - 10 N

DIN 863/1

Delivered in case

Delivery:
Incl. setting gauge (from 25 mm), with factory certificate (up to 50 mm) and setting key

310235 MITUTOYO 103

Measuring range mm	310235	Error limit mm
0 - 25	●	0.004
25 - 50	●	0.004
50 - 75	●	0.004
75 - 100	●	0.006
100 - 125	●	0.006
125 - 150	●	0.006

Measuring range mm	310235	Error limit mm
150 - 175	●	0.008
175 - 200	●	0.008
200 - 225	○	0.008
225 - 250	○	0.010
250 - 275	○	0.010
275 - 300	○	0.010

Precision external micrometer set

Mitutoyo

Design:
- set consisting of 310230 and 310235
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated
- measuring faces carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle, pitch 0.5 mm with clamping feature
- measuring force 5 - 10 N

DIN 863/1

Delivered in case

Delivery:
Incl. setting key, setting gauge (from 25 mm) and factory certificate (up to 50 mm).

310237 MITUTOYO 103, set

Measuring range mm	310237	Contents
0 - 150	●	External micrometer (310230) 0 - 25 mm, External micrometer (310235) 25 - 50 | 50 - 75 | 75 - 100 | 100 - 125 | 250 - 125 | 275 - 150 mm 5 setting standards for external micrometers
150 - 300	○	External micrometer (310235) 150 - 175 | 175 - 200 | 200 - 225 | 225 - 250 | 250 - 275 | 275 - 300 mm 6 setting standards for external micrometers
0 - 300	○	External micrometer (310230) 0 - 25 mm, External micrometer (310235) 25 - 50 to 275 - 300 mm

External micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- reading parts satin chrome plated
- measuring spindle ∅ 8 mm
- thimble with scale division 0.01 mm for correct reading
- carbide-tipped measuring faces
- hand insulation and sensitive ratchet
- from 25 mm including setting gauge
- resolution 0.01 mm

DIN 863/1 | calibrated | Delivered in case

310259 with large thimble

Measuring range mm	310259
0 - 25	●
25 - 50	●

Measuring range mm	310259
50 - 75	○
75 - 100	○

Precision external micrometer

Mitutoyo

Design:
- with exchangeable anvil for variable measuring range
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, < 300 mm ∅ 18 mm, > 300 mm ∅ 21 mm
- planarity 0.6 µm for versions up to 300 mm, > 300 mm 1 µm
- measuring faces hardened and ground
- frame light construction, varnished
- measuring spindle up to 300 mm ∅ 6.35 mm, over 300 mm ∅ 8 mm, pitch 0.5 mm, with clamping device
- measuring force 5 - 10 N, over 300 mm 10 - 14 N

Delivery:
Incl. setting gauges, measuring inserts and setting key

DIN 863/1 | Delivered in case

310275 MITUTOYO 104

Measuring range mm	310275	Quantity of exchangeable anvils Piece	Quantity setting gauges Piece
0 - 100	○	4	3
100 - 200	○	4	4
200 - 300	●	4	4
300 - 400	●	4	4
400 - 500	○	4	4

Measuring range mm	310275	Quantity of exchangeable anvils Piece	Quantity setting gauges Piece
500 - 600	○	4	4
600 - 700	○	4	4
700 - 800	○	4	4
800 - 900	○	4	4
900 - 1000	○	4	4

Digital external micrometer

Mitutoyo

Design:
- practice-oriented base model
- handy and simple design
- measuring faces carbide tipped and precision lapped
- display with 7.5 mm high digits
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated
- Auto Power OFF after 20 minutes non-use
- measuring force 5 - 10 N

Functions:
- ORIGIN
- Auto Power OFF
- low voltage alert

Delivery:
Incl. setting key, battery and factory certificate

Delivered in case

310277 MITUTOYO 293, without data output

Measuring range mm	310277	Error limit mm
0 - 25	●	0.004

Digital external micrometer IP54

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 863 | IP54 | ABS | Delivered in case

Design:
- digital display, 7 mm digit height
- ABS/INC and set button for initial size
- automatic deactivation
- frame varnished
- drum matt chrome-plated
- with finest lapped HM measuring face and ratchet
- from 25 mm with setting gauge
- resolution 0.001 mm

310278 Standard
310283 Standard, set

Measuring range mm	310278	310283
0 - 25	●	—
25 - 50	●	—
50 - 75	○	—
75 - 100	○	—
100 - 125	○	—

Measuring range mm	310278	310283
125 - 150	○	—
150 - 175	○	—
175 - 200	○	—
0 - 150	—	○
150 - 300	—	○

Precision digital external micrometer IP40

Mahr

Design:
- Reference system
- high-contrast 8.5 mm high LCD display
- lacquered steel frame, heat insulated
- measuring spindle and anvil carbide reinforced
- measuring spindle non-corrosive totally hardened and ground
- with quick mode

Functions:
- RESET (zero setting of the display)
- ABS (switching from relative to absolute measurement)
- mm/inch
- PRESET (presetting of fixed values)

Delivery:
With battery and operating manual

DIN 863/1 | IP40 | Delivered in case

310293 MAHR 40 ER

Measuring range mm	310293	reading mm/inch	Spindelsteigung mm	Error limit mm
0 - 25	●	0,001/0,00005	0,635	0.002

Precision digital external micrometer IP65

Mahr

Design:
- with reference system
- reference lock function (Zero position protected against unintended adjustment)
- protection order IP65 against dust, coolants and lubricants
- 8.5 mm high LCD display
- hard lacquered steel frame, lagged
- measuring spindle and anvil carbide reinforced
- measuring spindle non-corrosive totally hardened and ground
- ratchet integrated in drum
- with quick mode
- spindle pitch 0.635 mm
- data output: optional DIGIMATIC, OPTO RS232C or USB
- reading 0.001 mm / 0.00005"

Functions:
- RESET (zero setting of display for relative measurements)
- ABS (switching from relative to absolute measurement)
- mm/inch
- Reference-Lock/Unlock
- PRESET (presetting of fixed values)
- DATA (in combination with data cable)

Delivery:
With battery, instruction manual and setting standard from measuring range 25-50 mm

Note:
Fitting connection cable see under 398010

DIN 863/1 | IP65 | ABS | Digimatic | RS232C | USB | calibrated | Delivered in case

310296

310300

310296 MAHR 40 EWR, with data output
310300 MAHR 40 EWR, without data output

Measuring range mm	310296	310300	Error limit mm
0 - 25	●	●	0.002
0 - 25-KAL	○	○	0.002
25 - 50	●	○	0.002
25 - 50-KAL	○	○	0.002
50 - 75	○	○	0.003
50 - 75-KAL	○	○	0.003
75 - 100	○	○	0.003
75 - 100-KAL	○	○	0.003

Precision digital wireless calliper IP65

Design:
- high-contrast digit display
- measuring spindle non-corrosive totally hardened and ground
- measuring spindle and anvil carbide reinforced
- fast drive
- ratchet is integrated in the thimble
- lacquered steel frame, heat insulated
- integrated wireless
- spindle diameter 6.5 mm
- spindle pitch 0.5 mm
- measuring force 5 - 10 N

Functions:
- RESET (zero setting of the display)
- ABS (display can be set to zero without losing the reference to PRESET)
- mm/inch
- ORIGIN (measurement presetting)
- LOCK function (keyboard lock)
- TOL (tolerance and warning limit input)
- DATA (data transmission)
- HOLD (measured value storage)

Delivery:
With battery, instruction manual and setting standard from measuring range 25 - 50 mm

310302 MAHR, 40 EWRi, with integrated wireless

Measuring range mm	310302	reading mm/inch	Error limit mm
0 - 25	○	0.001/0.00005"	0.002
0 - 25-KAL	○	0.001/0.00005"	0.002
25 - 50	○	0.001/0.00005"	0.002
25 - 50-KAL	○	0.001/0.00005"	0.002
50 - 75	○	0.001/0.00005"	0.003
50 - 75-KAL	○	0.001/0.00005"	0.003
75 - 100	○	0.001/0.00005"	0.003
75 - 100-KAL	○	0.001/0.00005"	0.003

310303 MAHR, 40 EWRi, set, with integrated wireless

Measuring range mm	310303	reading mm/inch	Error limit mm
0 - 100	○	0.001/0.00005"	0.003
0 - 100-KAL	○	0.001/0.00005"	0.003

Precision digital external micrometer IP65

Mitutoyo

IP65 | Digimatic | USB | U-WAVE® | Delivered in case | TÜV tested

Design:
- digital external micrometer with protection class IP65
- with ratchet
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated
- planarity 0.3 µm
- measuring faces carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle with clamping feature, ∅ 6.35 mm
- measuring force 5 - 10 N

Functions:
- ORIGIN (up to 100 mm)
- Zero/ABS
- Auto Power OFF
- Hold
- low voltage alert
- 2× PRESET (> 100 mm)
- key lock (> 100 mm)

Delivery:
Incl. setting standard (from 25 mm) and battery

Note:
Fitting connection cable for 310307 and 310309
see under 398005 on page 39/836.

310305 MITUTOYO 293, without data output
310307 MITUTOYO 293, with data output

Measuring range mm	310305	310307	Error limit mm
0 - 25	●	●	0.002
25 - 50	●	●	0.002
50 - 75	●	○	0.002
75 - 100	●	○	0.004
100 - 125	—	●	0.004
125 - 150	—	●	0.004
150 - 175	—	○	0.006
175 - 200	—	○	0.006
200 - 225	—	○	0.006
225 - 250	—	○	0.008
250 - 275	—	○	0.008
275 - 300	—	○	0.008

310309 MITUTOYO 293 set, with data output

Measuring range mm	310309	Contents
0 - 50	○	External micrometer (310307) 0 - 25 | 25 - 50 mm 1 gauge block 25 mm made of ceramics
0 - 75	○	External micrometer (310307) 0 - 25 | 25 - 50 | 50 - 75 mm Gauge blocks 25 | 50 mm
0 - 100	○	External micrometer (310307) 0 - 25 | 25 - 50 | 50 - 75 | 75 - 100 mm Gauge blocks 25 | 50 | 75 mm

Universal digital external micrometer IP52

Mahr

DIN 863/3 | IP52 | ABS | Digimatic | RS232C | USB | Delivered in case

Design:
- with non-revolving spindle
- mounting bore for interchangeable anvils
- steel frame, insulated
- measuring spindle non-corrosive, totally hardened and ground
- spindle and anvil carbide-tipped
- ratchet integrated in thimble
- fast drive
- high contrast 7.5 mm LCD display
- capacitive measuring system
- data output: optional Opto RS232C, USB or DIGIMATIC
- spindle pitch 0.635 mm
- power supply battery 3V type CR 2032

Functions:
- 0 (zero-setting of display for relative measurements)
- ABS (switching from relative to absolute measurement)
- mm/inch
- PRESET (reference setting)

310315 MAHR 40 EWV, without standard accessories

Measuring range mm	310315	reading mm/inch	Error limit mm
0 - 25	○	0.001/.00005"	0.004

Precision digital external micrometer IP54, Quick

Mitutoyo

IP54 | ABS | Digimatic | USB | U-WAVE® | Delivered in case

Design:
- digital display with 7.5 mm high digits
- battery life about 3.5 years
- with 10 mm spindle pitch
- for exact measurements on sensitive surfaces
- resolution 0.001 mm
- measuring face carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.5 mm with spindle lock
- measuring force 5 - 10 N

Note:
Fitting connection cable see under 398002 on page 39/836.

Functions:
- ORIGIN
- Zero/ABS
- ON/OFF
- Hold
- low voltage alert

ABSOLUTE

Delivery:
Incl. setting standard (from 25 mm) and battery

310332 MITUTOYO 293, with data output

Measuring range mm	310332	Error limit mm
0 - 30	●	0.004
25 - 55	○	0.004

Precision digital external micrometer IP65, QuantuMike

Mitutoyo

DIN 863 | IP65 | ABS | Digimatic | USB | U-WAVE® | Delivered in case | TÜV tested

Design:
- with 2 mm spindle pitch
- dual function of the ratchet at thimble and speeder allows easy operation on a rack or as one-hand device
- resolution 0.001 mm
- measuring face carbide-tipped, ground and fine lapped
- frame varnished
- measuring force 7 - 12 N

Delivery:
Incl. setting standard (from 25 mm) and battery

Note:
Fitting connection cable for 310337 see under 398005 on page 39/836.

ABSOLUTE

Functions:
- ORIGIN (up to 100 mm)
- Zero/ABS
- Auto Power OFF
- Hold
- low voltage alert
- key lock function

310335 MITUTOYO 293, without data output
310337 MITUTOYO 293, with data output

Measuring range mm	310335	310337	Error limit mm
0 - 25	●	●	0.002
25 - 50	●	○	0.002
50 - 75	●	○	0.002
75 - 100	●	○	0.004

Precision digital external micrometer

Mitutoyo

Design:
- high accuracy
- numerical increments selectable 0.1 µm / 0.5 µm
- limit for measurement error (MPE 0.6 µm), DIN EN ISO 3611
- constant measuring force of 7-9 N
- with absolute rotary encoder
- weight 400 g

Delivery:
With battery, hand guard and test certificate

Note:
Fitting connection cable see under 398005

ABS | Digimatic | USB | U-WAVE® | Delivered in case

small measuring surface

ABSOLUTE

310338 MITUTOYO 293, with data output

Measuring range mm	310338	Error limit µm
0 - 25	○	0.0005

Precision micrometer with dial comparator IP54

Mitutoyo

Design:
- for serial inspections
- large scale for easy reading
- dial ± 5 µm adjustable
- with zero setting and tolerance fingers for go/no-go measurements
- release lever in comfortable position
- scale division 0.001 mm
- thimble and barrel scale matt chrome-plated
- planarity 0.3 µm
- parallelism 0.6 µm/0.000024" for models up to 50 mm
- measuring faces carbide tipped, ultra-fine lapped
- measuring force 5 - 10 N

Delivery:
Incl. box, setting standard (from 25 mm) and setting key

IP54 | TOL | Delivered in case

310383 MITUTOYO 510, with dial comparator

Measuring range mm	310383
0 - 25	●
25 - 50	○

Precision micrometer with dial comparator

Mahr

Design:
- steel frame with insulation
- spindle Ø 7.5 mm made of stainless steel, fully hardened and ground, lockable
- operation and reading parts matt chrome-plated
- constant measuring force
- dial comparator integrated in frame
- adjustable tolerance fingers
- measuring faces carbide tipped
- lift-off distance 1 mm
- quick check of cylindrical parts, thickness and length measurements
- especially suited for serial components

DIN 863/1 | calibrated | Delivered in case

310384 MAHR, 40 F

Measuring range mm	310384
0 - 25	●
0 - 25-KAL	○
25 - 50	○
25 - 50-KAL	○

Precision external micrometer

Mahr

Design:
- steel frame with insulation
- spindle Ø 6.5 mm and anvil made of hardened steel, carbide-tipped
- operation and reading parts matt chrome-plated
- locking device
- spindle pitch 0.5 mm
- resolution 0.01 mm
- for measuring wall thicknesses of tubes etc.
- from 25 mm with setting gauge

DIN 863/3 | calibrated | Delivered in case

310424 MAHR 40 AR, with spherical anvil

Measuring range mm	310424	Error limit mm
0 - 25	○	0.004
25 - 50	○	0.004

Precision digital external micrometer IP65

Mitutoyo

IP65 | Digimatic | Delivered in case | TÜV tested

Design:
- for measuring all curved surfaces and wall thicknesses
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated
- planarity 0.6 µm/0.000024"
- measuring faces carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle with ∅ 6.35 mm
- spindle pitch 0.5 mm, with locking device
- measuring force 5 - 10 N
- automatic power switch-off after 20 min. non-use
- low voltage alert
- with data output

Delivery:
Incl. box, setting standard (from 25 mm), setting key and 1 battery

Note:
Fitting connection cable see under 398005 on page 39/836.

310425 MITUTOYO 395, with spherical measuring face

Measuring range mm	310425	Error limit mm
0 - 25	○	0.004
25 - 50	○	0.004

Precision external micrometer

Mahr

DIN 863/3 | Delivered in case

Design:
- with slim measuring faces ∅ 3 mm, length 8.5 mm
- steel frame with insulation (sizes 75 - 100 varnished)
- spindle ∅ 6.5 mm and anvil made of hardened steel, satin chrome plated
- drum ∅ 17.5 mm
- resolution 0.01 mm
- spindle pitch 0.5 mm
- for measuring grooves, recesses etc.
- from 25 mm with setting gauge

310444 MAHR 40 AB, with reduced measuring faces

Measuring range mm	310444	Error limit mm
0 - 25	○	0.004
25 - 50	○	0.004
50 - 75	○	0.005
75 - 100	○	0.005

Precision digital external micrometer IP65

Mitutoyo

DIN 863/1 | IP65 | ABS | Digimatic | USB | U-WAVE® | Delivered in case | TÜV tested

Design:
- suited to measure grooves, spline shafts, recesses etc.
- resolution 0.001 mm
- barrel scale matt chrome-plated, ∅ 18 mm
- measuring faces carbide-tipped, ground and fine lapped
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.5 mm and clamping mechanism
- measuring force 5 - 10 N

Functions:
- ORIGIN
- Zero/ABS
- Auto Power OFF
- Hold
- low voltage alert

Delivery:
Incl. setting standard (from 25 mm), setting key and battery

Note:
Fitting connection cable see under 398005

ABSOLUTE

310445 MITUTOYO 331, with offset measuring faces and data output

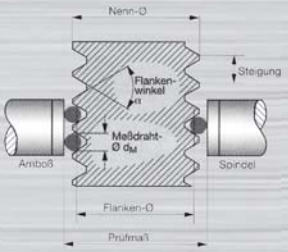
Measuring range mm	310445	Error limit mm
0 - 25	○	0.004
25 - 50	○	0.004
50 - 75	○	0.004
75 - 100	○	0.006

for precision external micrometers

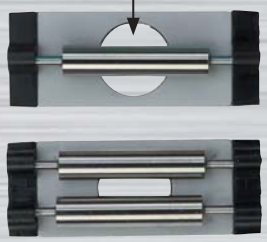
Design:
The holder for the spindle is equipped with a measuring wire, the holder for the anvil is equipped with two measuring wires. This gauge block serves for the required broadening of the micrometer´s measuring face (subtract 3 mm from the result).
Thread-Inserts are delivered in pairs.

Use:
For measuring external threads. The flank diameter is determined by the three-wire method.

Delivery:
In case. Prices on request.



Please observe the spindle diameter.



= 6.35 mm
= 6.50 mm
= 7.50 mm
= 8.00 mm

Size = thread wire ∅ D mm	**Metric thread** DIN 13 (coarse and fine threads) thread pitch P mm			**Whitworth thread** DIN 11, 239, 240, 259 (BSW, BSF, BSP) number of threads per 1"			**U.S. standard thread** (UNC, UNF) number of threads per 1“			**Trapezoidal thread** DIN 103, 378, 379 pitch h mm		
0.17	0.25		0.30		—			—			—	
0.195		—			—			80			—	
0.22		0.35			—			72			—	
0.25		0.40			—			64			—	
0.29	0.45		0.50		—			56			—	
0.335		0.60			—		48				—	
0.39		—			40		44		40		—	
0.455	0.70	0.75	0.80		32			36			—	
0.53		0.90			28		32		28		—	
0.62		1.00		26		24		24			—	
0.725		1.25		22		20		20			—	
0.895		1.50		19		16		18			—	
1.10		1.75		14				13			2	
1.35		2.00		12		11	12		11		—	
1.65		2.50		10		9	10		9		3	
2.05	3.00		3.50	8		7	8		7		4	
2.55	4.00		4.50		6			6			5	
3.20	5.00		5.50	5		4½	5		4½		6	
4.00		6.00		4		3½		4			7	

Precision external micrometer

Mahr

DIN 863/3 | Delivered in case

Design:
- with sliding spindle
- measuring spades 0.8 × 7.0 mm
- steel frame with insulation (size 75 - 100 varnished)
- spindle ∅ 8.0 mm and anvil made of hardened steel
- operation and reading parts matt chrome-plated
- drum ∅ 17.5 mm
- resolution 0.01 mm
- spindle pitch 0.5 mm
- for measuring narrow grooves, recesses etc.

310464 MAHR 40 AS, with flat measuring spades

Measuring range mm	310464	Error limit mm
0 - 25	○	0.004
25 - 50	○	0.004
50 - 75	○	0.005
75 - 100	○	0.005

Precision digital external micrometer

Mitutoyo

DIN 863/1 | ABS | Digimatic | USB | U-WAVE® | Delivered in case

Design:
- suited for measuring small external grooves
- with non-rotating spindle
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.5 mm
- measuring force 5 - 10 N

Functions:
- ORIGIN
- Zero/ABS
- Auto Power OFF
- Hold
- low voltage alert

Delivery:
Incl. setting gauge (from 25 mm), handguard, setting key and battery

Note:
Fitting connection cable see under 398005 on page 39/836.

310466 MITUTOYO 422, with flat measuring faces and data output

Measuring range mm	310466	Error limit mm
0 - 25	●	0.006
25 - 50	○	0.006
50 - 75	○	0.006
75 - 100	○	0.008

Precision digital external micrometer IP65

Mitutoyo

IP65 | ABS | Digimatic | USB | U-WAVE® | Delivered in case | TÜV tested

Design:
- for measuring tooth pitches or groove distances
- resolution 0.001 mm
- frame varnished
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring force 3 - 8 N
- measuring spindle with ∅ 6.35 m, pitch 0.5 mm with clamping feature

Functions:
- ORIGIN
- Zero/ABS
- Auto Power OFF
- Hold
- low voltage alert

Delivery:
Incl. setting gauge (from 25 mm), handguard, setting key and battery

Note:
Fitting connection cable see under 398005 on page 39/836.

310526 MITUTOYO 323, with disc probe tips and rotating spindle

Measuring range mm	310526	Error limit mm
0 - 25	○	0.008
25 - 50	○	0.008
50 - 75	○	0.012
75 - 100	○	0.012

Precision external micrometer

Mitutoyo

Design:
- for measuring the flange diameter of threads
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.5 mm and clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. setting standard 60° (from 25 mm) and setting key

DIN 863/1 | Delivered in case

310585 MITUTOYO 126, for thread checks

Measuring range mm	310585	Error limit mm
0 - 25	●	0.008
25 - 50	●	0.008
50 - 75	○	0.010
75 - 100	○	0.010

Precision digital external micrometer IP65

Mitutoyo

Design:
- for measuring the flange diameter of threads
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.5 mm and clamping mechanism
- measuring force 5 - 10 N

Functions:
- Zero/ABS
- Auto Power OFF
- Hold
- 2× PRESET
- low voltage alert
- key lock function

Delivery:
Incl. setting gauge 60° (from 25 mm), hand guard, setting key and battery

Note:
Fitting connection cable see under 398005 on page 39/836.

DIN 863/1 | IP65 | ABS | Digimatic | USB | U-WAVE® | Delivered in case | TÜV tested

310587 MITUTOYO 326, for thread checks

Measuring range mm	310587	Error limit mm
0 - 25	○	0.008
25 - 50	○	0.008
50 - 75	○	0.010
75 - 100	○	0.010

Interchangeable anvil for outside micrometers

Mitutoyo

310589 metric, for thread checks

Pitch mm	310589	Pitch mm	310589
0,4 - 0,5	●	2,0 - 3,0	●
0,6 - 0,9	●	3,5 - 5,0	●
1,0 - 1,75	●	5,5 - 7,0	○

Precision external micrometer

Mitutoyo

Design:
- for measuring triple-edge tools, e.g. taps or milling cutters
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring faces with prism angle 60°
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.75 mm, with clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. setting standard and setting key

DIN 863/1 | Delivered in case

310590 MITUTOYO 114, for 3-edged tools

Measuring range mm	310590	Error limit mm	Design
1 - 15	●	0.008	with grooves
10 - 25	○	0.008	with grooves
25 - 40	○	0.010	—
40 - 55	○	0.012	—

Precision digital external micrometer

Mitutoyo

DIN 863/1 | ABS | Digimatic | USB | U-WAVE® | Delivered in case

Design:
- to measure triple-edge tools, e.g. milling cutters or reamers
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring faces with prism angle 60°
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.75 mm, with clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. setting standard and battery

Note:
Fitting connection cable see under 398005

Functions:
- Zero/ABS
- Auto Power OFF
- Hold
- 2× PRESET
- low voltage alert
- key lock function

310591 MITUTOYO 314, with V-anvil, for triple-edged tools

Measuring range mm	310591	Error limit mm	Design
1 - 15	○	0.008	with grooves
10 - 25	○	0.008	with grooves
25 - 40	○	0.010	—

Precision external micrometer

Mitutoyo

DIN 863/1 | Delivered in case

Design:
- for measuring 5-edged tools, like taps or milling cutters
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring faces with prism angle 60°
- frame varnished
- measuring spindle with ∅ 6.35 mm, pitch 0.75 mm, with clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. setting standard and setting key

310593 MITUTOYO 114, for 5-edged tools

Measuring range mm	310593	Error limit mm	Design
5 - 25	○	0.008	with grooves
25 - 45	○	0.010	—
45 - 65	○	0.012	—

Stand for outside micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- solid, steady cast base
- pivotable jaws with rubber lining to protect the micrometer
- hammertone varnished
- both clamping jaw and hinge are fixed in place with one screw

310655 PRECITOOL

Type	310655
0100	●

Setting reference standard

Mahr

Design:
- for precision external micrometers 43A
- round steel bars with heat insulated handles
- measuring faces = ∅ 6.5 mm
- for testing the basic setting of a micrometer
- insulating hand sleeves
- manufacturing tolerance js2
- larger sizes on request

310720 Setting standard for outside micrometers

Setting length mm	310720
25	○
50	○
75	○
100	○
125	○
150	○
175	○

Dial comparator snap gauge

Design:
- forged steel frame with heat insulating grips
- probe in long guide way
- opposite anvil sensitive adjustable
- measuring spindle and anvil spindle made of stainless steel hardened and carbide tipped
- adjustable centre stop for alignment to the centre of measuring surface
- built-in force measuring spring

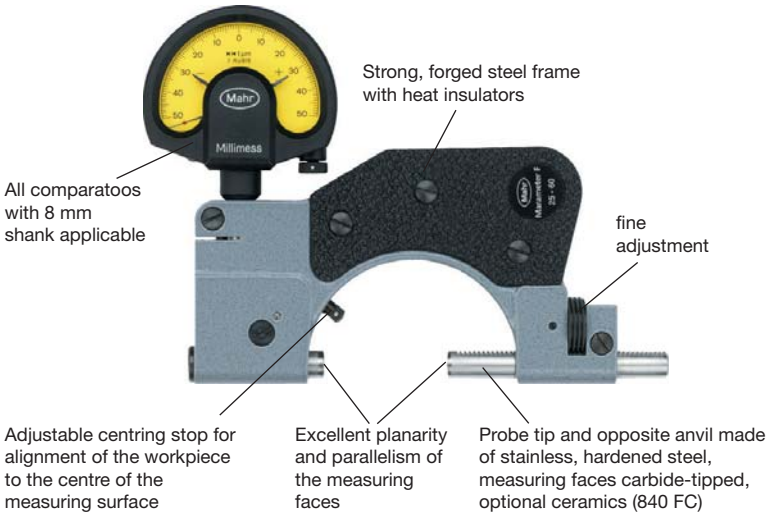
Measuring faces:
Planarity ≤ 0.2 µm/parallelism ≤ 1 µm for measuring range 0 - 25 mm
Planarity ≤ 0.2 µm/parallelism ≤ 2 µm for measuring range 25 - 100 mm

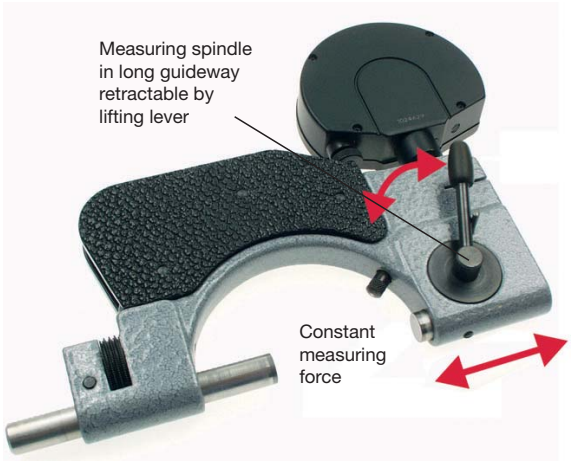
Use:
- for cylindrical parts such as bolts, shafts, etc.
- for thickness and length measurement
- universally

Display units:
- mechanic dial comparator 320694 type 1002, 1003, 1004
- inductive dial comparator 320640 type 2000, 2001

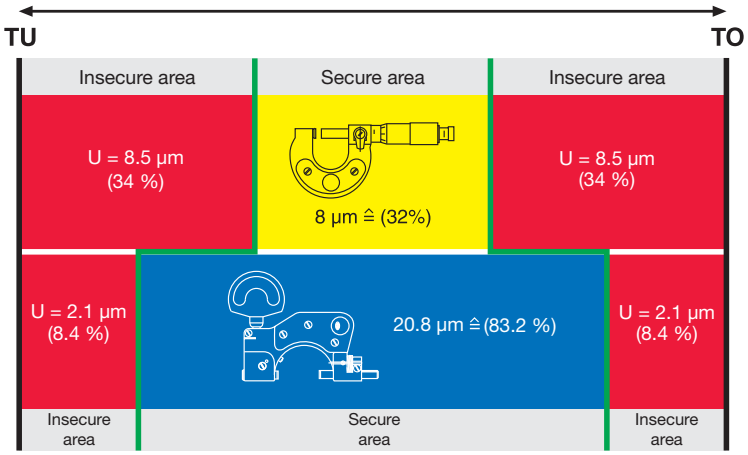
Delivery:
Without dial comparator

Delivered in case

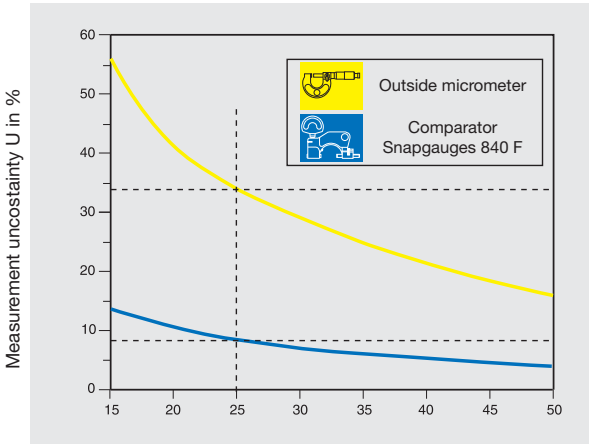




Workpiece tolerance = 25 µm



Measurement uncertainty U dependant on workpiece tolerances



310730 MAHR, 840 F

Measuring range mm	310730	Measuring area ∅ mm	Probe travel mm	Measuring force N
0 - 25	○	8	2.0	7.5
25 - 60	○	9	2.0	7.5
50 - 100	○	10	2.5	7.5

Dial comparator snap gauge stand

Mahr

Design:
- rigid frame
- handle with heat insulators, open on one end
- both spindles made of stainless steel and mounted in long guide ways
- carbide-tipped measuring faces, at the fronts slightly chamfered to facilitate positioning of the test items
- high measuring accuracy, measurement movements are exactly transmitted
- adjustable centring stop for adjustment to the centre of the measuring face
- the lateral protruding frame protects from shocks during measuring or placing the tool
- measuring faces: Planarity ≤ 0.5 µm/parallelism ≤ 3 µm

Delivered in case

Use:
- for cylindrical workpieces
- for measuring small centring wheels
- universally applicable, quickly adjustable to any dimension and fit
- built-in force measuring spring

Display units:
- mechanic dial comparator 320694 type 1002, 1003, 1004
- inductive dial comparator 320640 type 2000, 2001

Delivery:
Without dial comparator

310732 MAHR, 840 FS

Measuring range mm	310732	Measuring area ∅ mm	Probe travel mm	Measuring force N
10 - 30	○	18	0.7	13.5
30 - 60	○	18	0.7	13.5
60 - 100	○	22	0.7	13.5
100 - 150	○	22	0.7	15.0

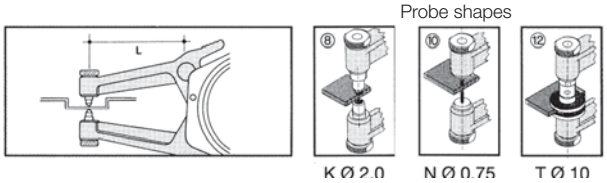
External quick calliper

Kroeplin Längenmesstechnik

Design:
- with one fixed and one movable calliper arm
- results via dial gauge
- direct measuring result through deflection of the movable calliper arm to the scale

Use:
Individually applicable due to different probe tips for thicknesses, grooves, wall thicknesses etc.

Probe shapes



310734 POCOTEST, analogue

Measuring range + probe shape	310734	reading mm	L mm	Error limit mm
0 - 10K	●	0.1	36	0.1
0 - 10N	○	0.1	36	0.1

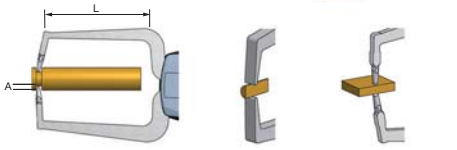
External quick calliper IP65

Kroeplin Längenmesstechnik

Design and use:
- for external measurements
- for measuring boreholes, grooves, distances etc.
- due to diverse stylus shapes universally applicable (form S = cutting edge, form K = carbide ball)

IP65

Delivery:
With test certificate and operating manual



Probe shape S Probe shape K

310735 ODITEST, analogue

Type/probe shape	310735	Scope of application mm	L mm	reading mm	Measuring range mm	A mm	Error limit mm
D110	○	0 - 10	35	0.005	10	19.1	0.015
D220	○	0 - 20	85	0.010	20	24.7	0.030

External quick calliper IP67

Design and use:
- for external measurements
- for measuring boreholes, grooves, distances etc.
- due to diverse stylus shapes universally applicable (form S = cutting edge, form K = carbide ball)

IP67

Delivery:
With test certificate and operating manual

310736 ODITEST, digital

Type/probe shape	310736	Scope of application mm	L mm	reading mm	Measuring range mm	A mm	Error limit mm
C110	○	0 - 10	35	0.005	10	19.1	0.015
C220	●	0 - 20	85	0.010	20	24.7	0.030

Thickness gauge

Design and use:
- with plane faces ∅ 6.35 or 10 mm, resp., varnished frame
- spindle and all main parts made of stainless hardened tool steel
- for measuring the thickness of a very wide range of materials such as leather, cardboard, paper, felt, rubber, glass, sheet metal, foils, plywood and synthetic materials
- the shape of the measuring inserts should be adapted to the material to be measured
- as standard we deliver thickness gauges with plane faces

Delivered in case

K15

J45

J50

310738 with plane faces

Type	310738	reading mm	Pointer revolution mm	Measuring span mm	Bracket depth mm	Plane surface ∅ mm
K15	○	0.10	10	10	15	6.35
K15/2	○	0.10	10	20	15	6.35
K50/2	○	0.10	10	20	50	10.00
J45	○	0.01	1	10	45	6.35
J50	○	0.01	1	10	50	10.00

Digital absolute thickness gauge QUICK MINI

Design:
- digital quick-acting thickness gauge without data output
- resolution 0.01 mm
- repeatability 0.01 mm
- measuring force 2 N
- accuracy 0.02 mm
- 5-digit LCD display with sign (minus)
- power supply via battery (SR-44)

ABS

Delivered in case

Functions:
- ORIGIN
- Zero/ABS
- ON/OFF

310740 MITUTOYO 700, without data output

Measuring range mm	310740
0 - 12	○

Digital absolute quick thickness gauge IP42

Mitutoyo

IP42 | ABS | TOL | Digimatic | USB | U-WAVE®

Design:
- for measuring films, paper etc.
- measuring precision even at high operation speed
- easy reading due to large display
- reading 0.01 / 0.001 mm
- accuracy 3 µm
- contact point made of carbide ball
- low voltage alert, counting error, overflow or tolerance input error alarm
- power supply via battery (SR-44)

Functions:
- Zero/ABS
- PRESET
- Data/Hold
- reversal of counting direction
- GO/±NG evaluation
- simplified calculation function
- ON/OFF
- locking function

Note:
Fitting connection cable see under 398000 on page 39/836.

310741 MITUTOYO 547, with data output

Measuring range mm	310741
0 - 12	○

Precision internal micrometer

Mahr

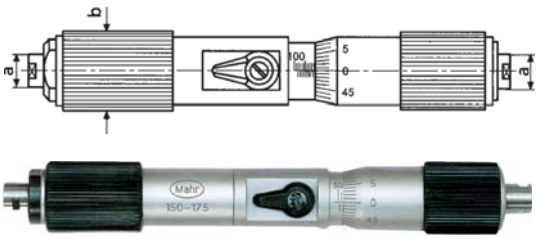
DIN 863/4

Design:
- kink-resistant, lightweight tubular construction
- spindle hardened and ground
- measuring faces spherically lapped
- one face adjustable
- operation and reading parts matt chrome-plated
- from measuring range 100 - 125 mm insulating handles and locking mechanism
- spindle pitch 0.5 mm
- resolution 0.01 mm

Delivery:
In tube

310744 MAHR, 44 F

Measuring range mm	310744	a mm	b mm	Error limit mm
30 - 40	○	7	12.5	0.004
40 - 50	○	7	12.5	0.004
50 - 70	○	7	12.5	0.005
70 - 100	○	7	13.5	0.005
100 - 125	●	8	20.0	0.006
125 - 150	○	8	20.0	0.006
150 - 175	○	8	20.0	0.007
175 - 200	○	8	20.0	0.007



Two-point internal micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 863/4 | Delivered in case

Design:
- with HM measuring faces up to 100 mm
- mat chrome-plated
- pitch 0.5 mm
- resolution 0.01 mm
- measuring range 5 - 30 mm and 25 - 50 mm with setting ring
- range 5 - 30 with probe tips

310970 with measuring jaws

Measuring range mm	310970
5 - 30	●
25 - 50	●
50 - 75	●
75 - 100	●
100 - 125	●
125 - 150	●
150 - 175	○
175 - 200	○

Precision two-point internal micrometer

Mitutoyo

Design:
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring spindle with pitch 0.5 mm and clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. setting key

Delivered in case

310972 MITUTOYO 145, with measuring jaws

Measuring range mm	310972	Error limit mm
5 - 30	●	0.010
25 - 50	●	0.012
50 - 75	○	0.014
75 - 100	○	0.016

Precision digital two-point internal micrometer

Mitutoyo

Design:
- resolution 0.001 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring faces carbide-tipped, ground and fine lapped
- measuring spindle with pitch 0.5 mm and clamping mechanism
- measuring force 5 - 10 N

Delivery:
Incl. operating manual and battery

Note:
Fitting connection cable see under 398005 on page 39/836.

Digimatic | USB | U-WAVE® | Delivered in case

310974 MITUTOYO 345, with measuring jaws

Measuring range mm	310974	Error limit mm
5 - 30	○	0.010
25 - 50	○	0.012

Precision depth micrometer

Mahr

Design:
- measuring spindle totally hardened and ground
- cross beam chrome plated and hardened
- contact face lapped
- insert hardened
- when using interchangeable extensions, recalibrating is not necessary
- operation and reading parts matt chrome-plated
- measuring range 25 mm
- resolution 0.01 mm
- spindle pitch 0.5 mm
- extensions 25 mm and 50 mm

DIN 863 | calibrated | Delivered in case

311004 MAHR 45 T, with exchangeable inserts

Measuring range mm	311004	Quantity of inserts	Measuring area of supporting bridge mm	Error limit mm
0 - 100	●	4	100 × 16	0.005

Wide measuring range due to interchangeable inserts

Precision depth micrometer

Mitutoyo

Design:
- resolution 0.01 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- measuring range 25 mm
- spindle pitch 0.5 mm, with clamping device
- measuring surface hardened, fine ground and lapped
- basis (W × D = 101.6 × 16 mm) consisting of hardened tool steel
- measuring force 5 - 10 N

Delivery:
Incl. setting key

Delivered in case

311006 MITUTOYO 129, with exchangeable inserts

Measuring range mm	311006	Quantity of inserts	Measuring area of supporting bridge mm	Error limit mm
0 - 100	●	4	101 × 16	0.008
0 - 150	○	6	101 × 16	0.008
0 - 300	○	12	101 × 16	0.012

Precision digital depth micrometer

Mitutoyo

ABS | Digimatic | USB | U-WAVE® | Delivered in case

Design:
- resolution 0.001 mm
- measuring range 25 mm
- insert 4 mm
- thimble and barrel scale matt chrome-plated, ∅ 18 mm
- spindle pitch 0.5 mm, with clamping device
- measuring surface hardened, fine ground and lapped
- basis (W × D = 101.6 × 16 mm) consisting of hardened tool steel
- measuring force 5 - 10 N

Functions:
- Zero/ABS
- 2× PRESET
- Auto Power OFF
- Data/Hold
- locking function
- low voltage alert

Delivery:
Incl. setting key

Note:
Fitting connection cable see under 398005 on page 39/836.

311008 MITUTOYO 329, with exchangeable inserts

Measuring range mm	311008	Quantity of inserts	Error limit mm
0 - 150	○	6	0.008
0 - 300	○	12	0.012

Three-point internal micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 863/4 | Delivered in case

Design:
- HM measuring face from 12 mm
- mat chrome-plated
- friction ratchet
- incl. setting ring, extension and key
- reading ∅ 6 - 12 = 0.001 mm
- reading ∅ 12 - 100 = 0.005 mm

311200 Standard

Measuring range mm	311200	Measuring range mm	311200	Measuring range mm	311200
6 - 8	○	20 - 25	●	62 - 75	○
8 - 10	○	25 - 30	●	75 - 88	●
10 - 12	○	30 - 40	●	87 - 100	○
12 - 16	●	40 - 50	●	—	—
16 - 20	●	50 - 63	●	—	—

Three-point internal micrometer set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- set compiled of micrometers from 311200
- incl. the required setting rings

DIN 863 | Delivered in case

311201 Standard, set

Measuring range mm	311201	reading mm	Contents
6 - 12	○	0.010	6 - 8 | 8 - 10 | 10 - 12
12 - 20	●	0.005	12 - 16 | 16 - 20
20 - 50	●	0.005	20 - 25 | 25 - 30 | 30 - 40 | 40 - 50
50 - 100	●	0.005	50 - 63 | 63 - 75 | 75 - 88 | 87 - 100

Precision three-point inside micrometer

Mahr

Design:
- reading and operation parts satin chrome plated
- measuring spindle totally hardened and ground
- rapid drive with integrated ratchet
- self-centring measuring head with 3 laterally positioned anvils, each offset at intervals of 120° (from 12.5 mm carbide tipped)
- from 40 mm head made of aluminium (weight reduction)
- from 12.5 mm for measurements to the bottom of the hole
- resolution 0.005 mm

DIN 863/4 | calibrated | Delivered in case

311214 MAHR 44 A, self-centring

Measuring range mm	311214	Error limit mm	Measuring range mm	311214	Error limit mm	Measuring range mm	311214	Error limit mm
6 - 8	○	0.004	16 - 20-KAL	○	0.004	50 - 60	○	0.005
6 - 8-KAL	○	0.004	20 - 25	○	0.004	50 - 60-KAL	○	0.005
8 - 10	○	0.004	20 - 25-KAL	○	0.004	60 - 70	○	0.005
8 - 10-KAL	○	0.004	25 - 30	○	0.004	60 - 70-KAL	○	0.005
10 - 12	○	0.004	25 - 30-KAL	○	0.004	70 - 85	○	0.005
10 - 12-KAL	○	0.004	30 - 40	○	0.004	70 - 85-KAL	○	0.005
12 - 16	○	0.004	30 - 40-KAL	○	0.004	85 - 100	○	0.005
12 - 16-KAL	○	0.004	40 - 50	○	0.004	85 - 100-KAL	○	0.005
16 - 20	○	0.004	40 - 50-KAL	○	0.004	—	—	—

Precision three-point internal micrometer set as set

Mahr

Design:
- set of three-point internal micrometers 311214
- complete with setting rings
- incl. traceable test report

DIN 863 | calibrated | Delivered in case

311224 MAHR 44 AS, self-centring

Measuring range mm	311224	Setting ring ∅ mm	Quantity of micrometers	Skalenteilungswert mm	Error limit mm
6 - 12	●	8, 10	3	0,001	0,004
6 - 12-KAL	○	8, 10	3	0,001	0,004
12 - 20	○	16	2	0,001	0,004
12 - 20-KAL	○	16	2	0,001	0,004
20 - 50	●	25, 40	4	0,005	0,004
20 - 50-KAL	○	25, 40	4	0,005	0,004
50 - 100	●	60, 85	4	0,005	0,005
50 - 100-KAL	○	60, 85	4	0,005	0,005

Precision three-point inside micrometer

Mitutoyo

DIN 863/4 | TiN | Delivered in case

Design 311300:
- thimble and barrel scale matt chrome-plated
- spindle pitch 0.5 mm
- measuring method:
  up to 6 mm = 2-point measuring

Delivery:
Incl. setting key and factory certificate

Design 311303:
- measuring faces titanium coated or made of carbide
- resolution > 12 mm = 0.001 mm and > 12 mm = 0.005 mm
- thimble and barrel scale matt chrome-plated
- measuring spindle with pitch 0.5 mm

Delivery:
Incl. setting key and factory certificate

311300
2-2,5

311303
30-40

311303
100-125

311300 MITUTOYO 368, measuring face carbide
311303 MITUTOYO 368, measuring faces hardened steel, TiN coated

Measuring range mm	311300	311303	Error limit mm
2-2,5	○	—	0.002
2,5-3	○	—	0.002
3-4	○	—	0.002
4-5	○	—	0.002
5-6	○	—	0.002
6-8	—	●	0.002
8-10	—	○	0.002
10-12	—	○	0.002

Measuring range mm	311300	311303	Error limit mm
12-16	—	●	0.002
16-20	—	●	0.002
20-25	—	●	0.003
25-30	—	●	0.003
30-40	—	●	0.003
40-50	—	●	0.003
50-63	—	●	0.003
62-75	—	○	0.003

Measuring range mm	311300	311303	Error limit mm
75-88	—	○	0.003
87-100	—	○	0.003
100-125	—	●	0.005
125-150	—	●	0.005
150-175	—	●	0.005
175-200	—	●	0.005
—	—	—	—
—	—	—	—

311305 MITUTOYO 368, set, measuring faces hardened steel, TiN coated

Measuring range mm	311305	Contents
6-12	●	Internal precision micrometer (311303) 6-8 | 8-10 | 10-12 mm Setting rings ∅ 8 | 10 mm
12-20	●	Internal precision micrometer (311303) 12-16 | 16-20 mm Setting ring ∅ 16 mm
20-50	●	Internal precision micrometer (311303) 20-25 | 25-30 | 30-40 | 40-50 mm Setting rings ∅ 25 | 40 mm
50-100	●	Internal precision micrometer (311303) 50-63 | 62-75 | 75-88 | 87-100 mm Setting rings ∅ 62 | 87 mm
100-200	○	Internal precision micrometer (311303) 100-125 | 125-150 | 150-175 | 175-200 mm Setting rings ∅ 125 | 175 mm

Precision digital three-point inside micrometer IP65, Holtest

Mitutoyo

DIN 863/4 | TiN | IP65 | ABS | Digimatic | USB | U-WAVE® | Delivered in case

Design:
- measuring face made of titanium coated hard metal
- resolution 0.001 mm
- 3-point measuring method

Functions:
- Zero/ABS
- 2-point PRESET
- Auto Power OFF
- Hold
- low voltage alert
- key lock function

Delivery:
Incl. setting key, battery SR44 and factory certificate

Note:
Fitting connection cable see under 398005 on page 39/836.

311313 MITUTOYO 468, with data output

Measuring range mm	311313	Error limit mm
6 - 8	○	0.004
8 - 10	○	0.004
10 - 12	○	0.004
12 - 16	○	0.004
16 - 20	○	0.004
20 - 25	○	0.006
25 - 30	○	0.006
30 - 40	○	0.006
40 - 50	○	0.006
50 - 63	○	0.006
62 - 75	○	0.006
75 - 88	○	0.006
87 - 100	○	0.006
100 - 125	○	0.010
125 - 150	○	0.010
150 - 175	○	0.010
175 - 200	○	0.010

6-8

8-10

311315 MITUTOYO 468, set with data output and exchangeable measuring heads

Measuring range mm	311315	Contents
6 - 12	○	Inside precision gauge 6 - 8 | 8 - 10 | 10 - 12 mm Setting rings ∅ 8 | 10 mm Extension 100 mm
12 - 20	○	Inside precision gauge 12 - 16 | 16 - 20 mm Setting ring ∅ 16 mm Extension 150 mm
20 - 50	○	Inside precision gauge 20 - 25 | 25 - 30 | 30 - 40 | 40 - 50 mm Setting rings ∅ 25 | 40 mm Extension 150 mm
50 - 100	○	Inside precision gauge 50 - 63 | 62 - 75 | 75 - 88 | 87 - 100 mm Setting rings ∅ 62 | 87 mm Extension 150 mm
100 - 200	○	Inside precision gauge 100 - 125 | 125 - 150 | 150 - 175 | 175 - 200 mm Setting rings ∅ 125 | 175 mm Extension 150 mm

311317 MITUTOYO 468, set, with fixed data output

Measuring range mm	311317	Contents
6 - 12	○	Three-point internal precision micrometer (311313) 6 - 8 | 8 - 10 | 10 - 12 mm Setting rings ∅ 8 | 10 mm
12 - 25	○	Three-point internal precision micrometer (311313) 12 - 16 | 16 - 20 | 20 - 25 mm Setting rings ∅ 16 | 20 mm
25 - 50	○	Three-point internal precision micrometer (311313) 25 - 30 | 30 - 40 | 40 - 50 mm Setting rings ∅ 30 | 40 mm
50 - 75	○	Three-point internal precision micrometer (311313) 50 - 63 | 62 - 75 mm Setting ring ∅ 62 mm
75 - 100	○	Three-point internal precision micrometer (311313) 75 - 88 | 87 - 100 mm Setting ring ∅ 87 mm

Precision digital three-point inside micrometer Borematic

Mitutoyo

Design:
- digit height 11 mm
- display 41.6 × 20.3 mm
- three-button operation
- measuring faces titanium coated
- resolution 0.001 mm

TiN | Digimatic | USB | U-WAVE® | Delivered in case

Functions:
- MODE
- SET
- ON/OFF

Note:
Fitting connection cable see under 398000 on page 39/836.

ABSOLUTE

311323 MITUTOYO 568, with data output

Measuring range mm	311323	Error limit mm
6 - 8	○	0.010
8 - 10	○	0.010
10 - 12	○	0.010
12 - 16	○	0.010
16 - 20	○	0.010
20 - 25	○	0.012
25 - 30	○	0.012
30 - 40	○	0.012
40 - 50	○	0.012
50 - 63	○	0.012
62 - 75	○	0.012
75 - 88	○	0.012
87 - 100	○	0.012
100 - 113	○	0.012
112 - 125	○	0.012

311325 MITUTOYO 568, set with data output and exchangeable measuring heads

Measuring range mm	311325	Contents
6 - 12	○	Three-point internal precision micrometer 6 - 8 | 8 - 10 | 10 - 12 mm Setting rings ∅ 8 | 10 mm
12 - 25	○	Three-point internal precision micrometer 12 - 16 | 16 - 20 | 20 - 25 mm Setting rings ∅ 16 | 20 mm
25 - 50	○	Three-point internal precision micrometer 25 - 30 | 30 - 40 | 40 - 50 mm Setting rings ∅ 30 | 40 mm
50 - 100	○	Three-point internal precision micrometer 50 - 63 | 62 - 75 | 75 - 88 | 87 - 100 mm Setting rings ∅ 62 | 87 mm

311327 MITUTOYO 568, set, with fixed data output

Measuring range mm	311327	Contents
6 - 12	○	Three-point internal precision micrometer 6 - 8 | 8 - 10 | 10 - 12 mm Setting rings ∅ 8 | 10 mm
12 - 25	○	Three-point internal precision micrometer 12 - 16 | 16 - 20 | 20 - 25 mm Setting rings ∅ 16 | 20 mm
25 - 50	○	Three-point internal precision micrometer 25 - 30 | 30 - 40 | 40 - 50 mm Setting rings ∅ 30 | 40 mm
50 - 75	○	Three-point internal precision micrometer 50 - 63 | 62 - 75 mm Setting ring ∅ 62 mm
75 - 100	○	Three-point internal precision micrometer 75 - 88 | 87 - 100 mm Setting ring ∅ 87 mm

Indicating bore gauges

Design and use:
Measuring head with hardened, hard chrome-plated guide cylinder and carbide-tipped measuring probes. The carbide expanding pin transfers radial movement to indicating instrument. Constant measuring force due to built-in measuring force spring Results are thus independent of the personal sense or influence of the user. For fast inspections of boreholes regarding diameter, roundness and conicity. Particularly suitable for serial control with tight tolerances. No oscillation required to determine the reversal point. Measuring head, holder, depth extension, right angle attachments and depth stops are part of an extensive modular system

Display units **cat. no. 320660 - 320964**

Measuring head type 844 Dk: Standard version

Measuring head type 844 Dks: For blind holes, for measurement to the bottom of the bore.

Measuring head type 844 Dkr: With extended guide cylinder for measurement of through-holes from the edge of the hole. Particularly suitable for narrow parts.

When ordering please specify nominal diameter and fit or the limits of the bore to be tested.

Example: Bore gauge for bore 35 D7

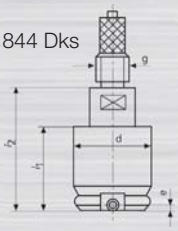
Nominal dimension 35 mm
Minimum dimension 35.080 mm
Maximum dimension 35.105 mm

Measuring range 35.050 - 35.280 mm

On request we will provide you with an offer.

Type 844 Dk

Type 844 Dks



Type 844 Dkr

Measuring head for through-holes type 844 Dk

Size = diameter D mm	Dimensions $l_1 \times l_2 \times e$ mm	Measuring range based on the minimum dimension	Connection thread G
2.98-3.99	23.3 × 31.3 × 1.5	-0.02 / +0.10	M6 × 0.75*
> **4-8**	23.0 × 31.3 × 1.5	-0.02 / +0.10	M6 × 0.75*
> **8-16**	25.0 × 33.5 × 3.0	-0.02 / +0.15	M6 × 0.075
> **16-44**	26.0 × 39.0 × 3.5	-0.02 / +0.20	M10 × 1
> **44-70**	26.0 × 39.5 × 4.0	-0.03 / +0.20	M10 × 1
> **70-200**	33.0 × 39.5 × 4.0	-0.04 / +0.20	M10 × 1

Measuring head for blind holes type 844 Dks

Size = diameter D mm	Dimensions $l_1 \times l_2 \times e$ mm	Measuring range based on the minimum dimension	Connection thread G
> **4-8**	23.3 × 31.3 × 1.5	-0.02 / +0.10	M6 × 0.75*
> **8-16**	25.0 × 33.5 × 3.0	-0.02 / +0.15	M6 × 0.075
> **16-44**	26.0 × 39.0 × 3.5	-0.02 / +0.15	M10 × 1
> **44-70**	26.0 × 39.5 × 4.0	-0.03 / +0.15	M10 × 1
> **70-150**	33.0 × 39.5 × 4.0	-0.04 / +0.15	M10 × 1

Measuring head with extended guide cylinder type 844 Dkr

Size = diameter D mm	Dimensions $l_1 \times l_2 \times e$ mm	Measuring range based on the minimum dimension	Connection thread G
2.98-3.99	28.0 × 36.0 × 6.0	-0.02 / +0.10	M6 × 0.75*
> **4-8**	28.0 × 36.0 × 6.0	-0.02 / +0.10	M6 × 0.75*
> **8-16**	31.0 × 40.0 × 9.0	-0.02 / +0.15	M6 × 0.075
> **16-44**	32.0 × 45.0 × 9.5	-0.02 / +0.20	M10 × 1
> **44-70**	26.0 × 46.0 × 10.5	-0.03 / +0.20	M10 × 1
> **70-200**	33.0 × 51.0 × 15.0	-0.04 / +0.20	M10 × 1

* = via adapter

Fitting adjustment rings see under 384160.

Precision digital three-point measuring pistol

Mahr

Digimatic | RS232C | USB | Delivered in case

Design type 844 A:
- consisting of pistol 844 Ag and measuring head 44 AK
- rapid covering of the entire measuring range
- for fast operations
- threaded connection for exchange of the heads
- self-centring head with three lateral protruding measuring probes, offset by 120°
- measuring probes from 12.5 mm carbide reinforced
- from 40 mm head made of aluminium to reduce weight
- for through-holes, blind holes and flanges

Delivery:
Without dial gauge and setting ring

312110 MAHR 844 A, self-centring

Measuring range mm	312110	Error limit mm	Measuring range mm	312110	Error limit mm	Measuring range mm	312110	Error limit mm
6 - 8	○	0.003	25 - 30	○	0.003	85 - 100	○	0.004
8 - 10	○	0.003	30 - 40	○	0.003	100 - 125	○	0.005
10 - 12	○	0.003	40 - 50	○	0.003	125 - 150	○	0.005
12 - 16	○	0.003	50 - 60	○	0.004	150 - 175	○	0.006
16 - 20	○	0.003	60 - 70	○	0.004	175 - 200	○	0.006
20 - 25	○	0.003	70 - 85	○	0.004	—	—	—

Design type 844 AS:
- set with self-centring pistol 312110 (incl. measuring head)
- with two setting rings

Delivery:
With traceable calibration certificate, without dial

312116 MAHR 844 AS, self-centring

Measuring range mm	312116	Quantity of sensing heads 44 Ak	Setting ring ∅ mm
6 - 12	○	3	8, 10
12 - 20	○	2	16
20 - 50	○	4	25, 40
50 - 100	○	4	60, 85

Universal measuring device MULTIMAR

Mahr

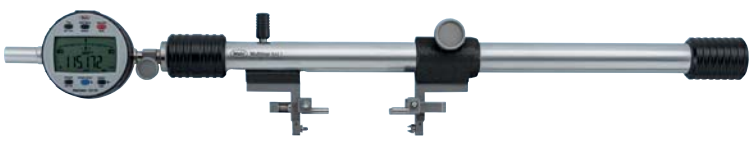
Delivered in case

Design:
- tilting safety of the movable measuring arm carrier
- measuring force direction can be changed for external and internal measurement
- constant measuring force due to built-in measuring force spring
- movable measuring arm support is mounted in a ball guide with low play and low friction
- strong, polished and hard chrome plated column
- the fixed measuring arm support is moved along the column for coarse adjustment

Use:
- exterior and interior dimensions
- external and internal threads
- centring wheels, narrow lugs, recesses and grooves
- external and internal cones, external and internal splines

Delivery:
- operating instruction, mounting and deposit blocks.

Note:
Further probe tips on request!

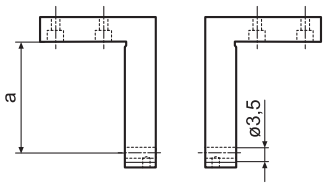


312600 MAHR 844 T

Field of application inside mm	312600	Field of application outside mm	Probe travel mm	Total length mm
30 - 115	○	0 - 85	12	280
110 - 265	○	80 - 235	12	430
260 - 615	○	230 - 585	12	740
610 - 1015	○	580 - 985	12	1140

Measuring arm

Design:
- for external and internal diameters
- on the holder these arms are reversible to extend the measuring range
- mounting bore 3.5 mm for exchangeable probes
- in each case 2 pieces are necessary

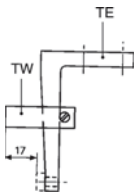


312601 MAHR 844 Te

Reach a mm	312601
25	○
35	○
70	○
100	○

Stop

Design:
- for setting the measuring depth limit
- can be attached to and moved along arms 844 Te and 844 Tx
- reversible for external and internal measurements
- in each case 2 pieces are necessary



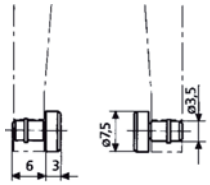
312603 MAHR 844 Tw

Type	312603
844TW	●

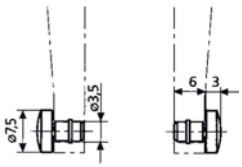
Anvil for measuring arms

Design:
- for external and internal measurements
- made of hardened steel, with cylindrical mounting shank and retainer ring that allows free rotation in the bore of the measuring arms 844 Te
- in each case 2 pieces are necessary

Type 844 Tp: flat, for outside diameters, distances and widths
Type 844 Ts: spheric, for inside diameters



844 Tp



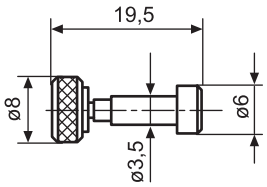
844 Ts

312604 MAHR 844 Tp/844 Ts

Type	312604
844TP	○
844TS	○

Adapter for measuring arms

Design:
- adapter ∅ 3.5 - M2.5 for measuring arms see under 312601



312605 MAHR 844 Tad

Type	312605
844TAD	○

Precision bore gauge micrometer SU

Design and use:
This bore gauge micrometer is a universal and robust 2-point comparator. It is suited for measuring tasks in production, receiving inspection and testing as well as for final checks. The centring happens automatically in the bore, the base being formed by the centring plate. The wider the centring basis the more reliable the device will be centred in the bore.
Utmost accuracy, repeatability max. 0.0005 mm, transmission error 0.0025 mm. During the measuring operation the reversal point has to be defined. This is done by oscillating of the device around the rigid measuring bolt. In doing so, the minimum value point automatically is passed through, where the axis of the measuring device is exactly vertical to the bore axis. On a mechanical display unit this will clearly be seen by the pointer´s change of direction. Using digital display units a minimum value memory will be helpful.
The measuring pins are as standard carbide ball tipped, wear parts are either made of carbide or wearproof, hardened steel

Adjustment via setting rings, micrometer screws or by use of adjustment tool ESU together with gauge blocks

Delivery:
In wooden case, with test certificate plus corresponding measuring pins and discs, without dial gauge

312610 Stylus steel, without dial gauge

Measuring range mm	312610	Measuring depth mm	Quantity of bolts	Quantity of measuring discs
18 - 35	○	110	9	2
35 - 60	○	138	7	2
50 - 100	○	177	11	3
100 - 160	○	234	7	4
160 - 290	○	234	7	4

312611 Probe tip carbide, without dial gauge

Measuring range mm	312611	Measuring depth mm	Quantity of bolts	Quantity of measuring discs
6 - 8	○	100	7	—
8 - 12	○	100	9	—
12 - 20	○	110	9	1
18 - 35	○	110	9	2
35 - 60	○	138	7	2
50 - 100	○	177	11	3
100 - 160	○	234	7	4
160 - 290	○	234	7	4

Precision setting device ESU

Design:
Frame with holder for adjustable jaws, a pair of adjustable jaws, measuring legs made of solid carbide in gauge block quality, clamping element, stand. The unit can be employed horizontally or vertically, depending on the desired mode of use. Combined with a set of gauge blocks it offers a cost-effective possibility to calibrate inside callipers. Setting uncertainty (without consideration of the gauge block quality) ≤ 2 µm, application area 4.5 - 800 mm

Use:
For calibration two measuring legs are wrought in contact to a gauge block or a combination thereof, these are fixed inside the tube of the device, so that the blades stay firmly attached to the gauge blocks. In this way the probing force of the gadget to calibrate has no influence

Delivery:
In wooden case, without gauge blocks and dial gauge

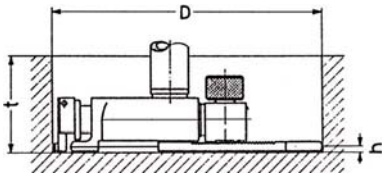
312612 for inside callipers, without dial gauge

Scope of application mm	312612
4,5 - 160	○
18 - 290	○
160 - 510	○

Precision bore gauge micrometer SS

Design and use:
This device allows measurements of blind bores close to the bottom of the bore and of short spigots. Min. distance to the bore bottom is h = 1.5 mm. Also available for min. distance h = 1 mm. During the measuring operation the device touches the bottom of the hole, hence no oscillating for reverse search is needed. Presetting by exchange or shifting of the toothed and scaled vernier callipers. Presetting by using setting rings (384160)

Delivery:
Holder, vernier calliper and probe carbide tipped in wooden case, without dial gauge



312613 for blind holes, without dial gauge

Measuring range D mm	312613	Vernier calliper mm	Front dimension h mm	Measuring depth t mm	Measuring path e mm
50 - 110	○	50 - 80 80 - 110	1.5	60	1.5
110 - 300	○	110 - 150 150 - 200 200 - 250 250 - 300	2.0	90	1.6

Precision bore gauge micrometer SV

Design:
This version comprehends two devices of different size to cover a large application range from 6 to 800 mm. Utmost accuracy. Repeatability 0.0005 mm, transmission error 0.0025 mm. The device encompasses a top section and two measuring heads. The touch probes are as standard equipped with a carbide ball

Delivery:
Wooden case, with the corresponding touch probes, measuring heads, without dial gauge

312614 Stylus steel, without dial gauge
312615 Probe tip carbide, without dial gauge

Measuring range mm	312614	312615	Measuring depth mm	Quantity of bolts/washers Piece
6 - 18	—	○	100	17/2
18 - 160	○	○	145	20/5

Bore gauge micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- holder matt chrome-plated
- with dial gauge, reading 0.01 mm

Delivered in case

312620 Measuring pin steel

Measuring range mm	312620	Measuring depth mm	Quantity of bolts	Extension mm
6 - 10	●	50	9	—
10 - 18	●	100	9	—
18 - 35	○	125	6	—
35 - 50	○	150	6	—
50 - 100	○	150	11	—
50 - 160	●	150	13	5
100 - 250	○	220	4	80
160 - 250	●	400	10	50
250 - 450	○	320	5	100

Bore gauge micrometer

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- holder matt chrome-plated
- dial gauge with reading 0.01 mm
- set compiled from 322200

Delivered in case

312625 Set

Measuring range mm	312625	Contents
18 - 160	●	18 - 35 mm | 35 - 50 mm | 50 - 160 mm

Internal quick calliper IP65

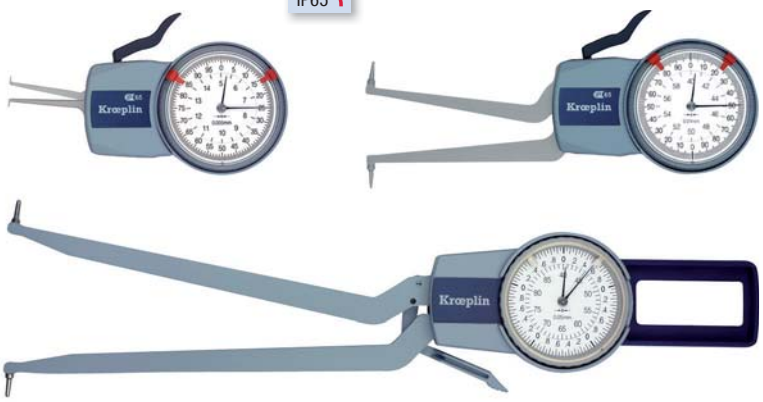
Krœplin Längenmesstechnik

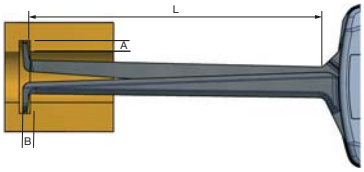
Design:
- device for measuring grooves and bores, with tolerance fingers
- dirt-protected and drip-proof
- measuring contacts in solid carbide
- absolute measuring device with clear and easy to read scale
- secure reproducibility of the display

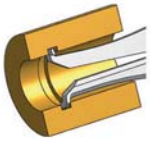
Use:
- for measuring boreholes, grooves, distances etc.
- due to diverse stylus shapes universally applicable (stylus shape S = cutting edge, K = carbide ball)

Delivery:
With test certificate and operating manual

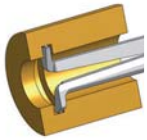
IP65







Probe shape S



Probe shape K

313000 INTERTEST, analogue

Type	313000	Scope of application mm	Measuring range mm	reading mm	L mm	A × B mm	Sensor design	Error limit mm
H102	○	2.5 - 12.5	10	0.005	12	0.7 × 0.5	S/R0.1	0.015
H105	○	5.0 - 15.0	10	0.005	35	2.3 × 0.8	K/0.6	0.015
H210	●	10.0 - 30.0	20	0.010	85	5.2 × 1.2	K/1.0	0.030
H220	●	20.0 - 40.0	20	0.010	85	7.0 × 1.2	K/1.0	0.030
H230	●	30.0 - 50.0	20	0.010	85	7.0 × 1.2	K/1.0	0.030
H240	○	40.0 - 60.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
H250	○	50.0 - 70.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
H260	○	60.0 - 80.0	—	0.010	85	8.3 × 1.2	K/1.0	0.030
H270	○	70.0 - 90.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
H280	○	80.0 - 100.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030

Internal quick calliper IP67

Krœplin Längenmesstechnik

Design:
- groove and bore measuring device with tolerance fingers
- dirt-protected and drip-proof
- measuring contacts in solid carbide
- absolute measuring device with clear and easy to read scale
- secure reproducibility of the display

Use:
- for measuring boreholes, grooves, distances etc.
- due to diverse stylus shapes universally applicable (form S = cutting edge, form K = carbide ball)

Delivery:
With test certificate and operating manual

IP67 | Digimatic | USB

313001 INTERTEST, digital, with data output

Type	313001	Scope of application mm	Measuring range mm	reading mm	L mm	A × B mm	Sensor design	Error limit mm
G102	○	2.5 - 12.5	10	0.005	12	0.7 × 0.5	S/R0.1	0.015
G105	●	5.0 - 15.0	10	0.005	35	2.3 × 0.8	K/0.6	0.015
G210	●	10.0 - 30.0	20	0.010	85	5.2 × 1.2	K/1.0	0.030
G220	●	20.0 - 40.0	20	0.010	85	7.0 × 1.2	K/1.0	0.030
G230	●	30.0 - 50.0	20	0.010	85	7.0 × 1.2	K/1.0	0.030
G240	○	40.0 - 60.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
G250	○	50.0 - 70.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
G260	○	60.0 - 80.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
G270	○	70.0 - 90.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030
G280	○	80.0 - 100.0	20	0.010	85	8.3 × 1.2	K/1.0	0.030

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Precision small dial gauge

DIN 878 | SHOCK PROOF | calibrated

Design:
- 1/100 scale division
- metal housing and smooth-running precision measuring mechanism
- clamping shank made of stainless steel, hardened and fine ground
- turnable scale for zero-setting at any pointer position, adjustable tolerance fingers
- rod made of stainless steel, ground and micro-finished
- exchangeable measuring insert, replaceable by special probes

ST = shock resistant version

320000 Standard

Type	320000	Measuring span mm	reading mm	Pointer revolution mm	Box Ø mm	Clamping shank Ø h6 mm
M6	●	3	0.01	0.5	32	8
M6-KAL	○	3	0.01	0.5	32	8
M4	●	3	0.01	0.5	40	8
M4-KAL	○	3	0.01	0.5	40	8
M4ST	●	3	0.01	0.5	40	8
M4ST-KAL	○	3	0.01	0.5	40	8
M4/5	●	5	0.01	0.5	40	8
M4/5-KAL	○	5	0.01	0.5	40	8
M4/5ST	●	5	0.01	0.5	40	8
M4/5ST-KAL	○	5	0.01	0.5	40	8
M4/10	●	10	0.01	1.0	40	8
M4/10-KAL	○	10	0.01	1.0	40	8

Precision small dial gauge IP54

DIN 878 | IP54 | SHOCK PROOF | calibrated

Design:
Type 803 A: - chrome-plated housing
- precision gears and pinions
- adjustable tolerance fingers
- detachable protection cap at the end of the spindle

Type 803 S: - shockproof version

Type 803 SW: - shockproof, water and oil protected
- detachable protection cap at end of spindle
- dial ring and clear screen sealed with O-rings
- rubber bellow at the measuring pin

320005 MAHR 803

Type	320005	Measuring span mm	reading mm	Pointer revolution mm	Dial Ø mm	Clamping shank Ø h6 mm
803A	●	3	0.01	0.5	38	8
803A-KAL	○	3	0.01	0.5	38	8
803S	●	3	0.01	0.5	38	8
803S-KAL	○	3	0.01	0.5	38	8
803SW	●	3	0.01	0.5	38	8
803SW-KAL	○	3	0.01	0.5	38	8

Precision dial gauge

DIN 878 | SHOCK PROOF | calibrated

Design:
1/100 reading, like 320000, but with housing diameter 58 mm

ST: - Shockproof version with fine adjustment of pointer

STO: - Shockproof version without fine adjustment of pointer

M2M: - Low-price standard version

TS: - with high-quality shock protection
- metal outer ring and lifting sleeve
- measuring insert with ruby ball

320100 KÄFER, standard
320101 PRECITOOL, standard

Type	320100	320101	Measuring span mm	reading mm	Pointer revolution mm	Box Ø mm	Clamping shank Ø h6 mm
M2M	—	●	10	0.01	1	58	8
M2	●	—	10	0.01	1	58	8
M2-KAL	○	—	10	0.01	1	58	8
M2STO	●	—	10	0.01	1	58	8
M2STO-KAL	○	—	10	0.01	1	58	8
M2ST	●	—	10	0.01	1	58	8
M2ST-KAL	○	—	10	0.01	1	58	8
M2TS	●	—	10	0.01	1	58	8
M2TS-KAL	○	—	10	0.01	1	58	8

Precision dial gauge IP54

Mahr

DIN 878 | IP54 | SHOCK PROOF | calibrated

Design:
- chrome-plated housing, precision gears and pinions
- adjustable, coloured tolerance fingers
- detachable protection cap at the end of the spindle

Type 810 A:
- standard design

Type 810 S:
- shockproof version

Type 810 SW:
- shockproof, water and oil protected
- with rubber bellow at measuring pin to avoid ingress of liquids and dirt
- detachable protection cap at end of spindle

320105 MAHR 810

Type	320105	Measuring span mm	reading mm	Pointer revolution mm	Dial Ø mm	Clamping shank Ø h6 mm
810A	●	10	0.01	1	50	8
810A-KAL	○	10	0.01	1	50	8
810S	●	10	0.01	1	50	8
810S-KAL	○	10	0.01	1	50	8
810SW	●	10	0.01	1	50	8
810SW-KAL	○	10	0.01	1	50	8

Precision dial gauge

Mitutoyo

DIN 878 | SHOCK PROOF

Design:
- with continuous scale
- cover flat
- accuracy 13 µm
- repeatability 5 µm
- measuring force ≤ 1.4 N
- scale 0 - 100 or 100 - 0
- weight approx. 135 g

320107 MITUTOYO 2046

Type	320107	Measuring span mm	reading mm	Pointer revolution mm	Box Ø mm	Clamping shank Ø h6 mm
2046SB	●	10	0.01	1	57	8

Precision dial gauge IP67

Käfer

DIN 878 | IP67 | calibrated | SHOCK PROOF

Design:
- like 320000 and 320100 as shockproof version
- with a rubber sleeve where the pin enters the shank
- the upper end of the measuring pin is sealed by a protection cap with O-ring
- metal outer ring
- an additional O-ring is located between the rotatable outer ring and the metal housing
- back sealed by a rubber ring

320150 shock-protected

Type	320150	Measuring span mm	reading mm	Pointer revolution mm	Box Ø mm	Clamping shank Ø h6 mm
M4STWD	○	3	0.01	0.5	44	8
M4STWD-KAL	○	3	0.01	0.5	44	8
M2STWD	●	10	0.01	1.0	61	8
M2STWD-KAL	○	10	0.01	1.0	61	8

Precision dial gauge

Design:
- robust housing, with smooth-running precision gear measuring system in sapphire bearing
- clamping shank made of stainless steel, hardened and fine ground
- pivotable scale for zero setting, adjustable tolerance fingers
- rod made of stainless steel, ground and micro-finished
- exchangeable insert

S = shock resistant version

Factory standard | SHOCK PROOF | calibrated

320220 with high resolution

Type	320220	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
KM1000	●	1	0.001	0.2	40	8
KM1000-KAL	○	1	0.001	0.2	40	8
KM1000S	○	1	0.001	0.2	40	8
KM1000S-KAL	○	1	0.001	0.2	40	8
FM1000	●	1	0.001	0.2	58	8
FM1000-KAL	○	1	0.001	0.2	58	8
FM1000S	●	1	0.001	0.2	58	8
FM1000S-KAL	○	1	0.001	0.2	58	8
FM1000/5	●	5	0.001	0.2	58	8
FM1000/5-KAL	○	5	0.001	0.2	58	8

Precision dial gauge

Design:
- precision gears and pinions
- axes in stone bearing
- dial ring and clear screen
- sealed with O-rings
- detachable protection cap at end of spindle
- chrome-plated housing
- with integrated back

DIN 878 | SHOCK PROOF | calibrated

320225 MAHR 810 SM, shock-proof

Type	320225	Measuring span mm	reading mm	Dial ∅ mm	Accuracy f_e µm	Clamping shank ∅ h6 mm
810SM	○	1	0.001	50	3	8
810SM-KAL	○	1	0.001	50	3	8

Precision dial gauge

Design:
- with display on both sides
- jewel bearing
- measuring force ≤ 1.5 N
- scale from 0 - 100 - 0
- cover flat

Type 2109SB-10:
- shock-resistant
- accuracy 5 µm
- repeatability 0.5 µm
- weight approx. 139 g

Type 2119SB-10:
- accuracy 10 µm
- repeatability 1 µm
- weight approx. 137 g

DIN 878 | SHOCK PROOF

320227 MITUTOYO, display on both sides

Type	320227	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
2109SB-10	●	1	0.001	0.2	57	8
2119SB-10	●	5	0.001	0.2	57	8

High precision dial gauge

Design:
- with 1/1000 and 2/1000 mm scale division
- like 320220, though as oil- and waterproof version

Factory standard | SHOCK PROOF | calibrated

320250 sealed dial

Type	320250	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
KM500SW	○	1	0.002	0.2	44.5	8
KM500SW-KAL	○	1	0.002	0.2	44.5	8
FM1000SW	○	1	0.001	0.2	61.5	8
FM1000SW-KAL	○	1	0.001	0.2	61.5	8

High precision dial gauge

Design:
- the pin travel is magnified and transferred by a lever to the pointer
- measuring range division of 1 mm
- due to the lever transmission, the reading range of inversion is very low at max. 1.5 µm
- suited for very precise comparison measurements
- deviation spans fe and fges are almost halved
- measuring mechanism with the lever system offers a good impact protection

Delivery:
With metal outer rings and lifting sleeves

Factory standard | calibrated

320320 with comparator precision movement

Type	320320	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
KM1101	○	1	0.001	0.1	40	8
KM1101-KAL	○	1	0.001	0.1	40	8
FM1101	●	1	0.001	0.1	58	8
FM1101-KAL	○	1	0.001	0.1	58	8

Precision dial gauge

Design:
- with extreme robust metal housing and smooth-running mechanic
- clamping shank made of stainless steel, hardened and fine ground
- pivotable scale for zero setting at any position
- adjustable tolerance fingers
- rod made of stainless steel, ground and micro-finished
- exchangeable measuring insert, replaceable by special probes

STO = impact-protected, without fine-adjustment of pointer

Factory standard | DIN 878 | SHOCK PROOF | calibrated

320400

320350

320350 with large measuring range
320400 with large housing

Type	320350	320400	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
GM80	—	○	10	0.01	1	80	8
GM80SW	—	○	10	0.01	1	80	8
GM100	—	○	10	0.01	1	100	8
M2/20	●	—	20	0.01	1	58	8
M2/20-KAL	○	—	20	0.01	1	58	8
M2/30	●	—	30	0.01	1	58	8
M2/30-KAL	○	—	30	0.01	1	58	8
M2/30STO	●	—	30	0.01	1	58	8
M2/30STO-KAL	○	—	30	0.01	1	58	8
M2/50	●	—	50	0.01	1	58	8
M2/50-KAL	○	—	50	0.01	1	58	8
M2/50STO	●	—	50	0.01	1	58	8
M2/50STO-KAL	○	—	50	0.01	1	58	8
M2/80	●	—	80	0.01	1	58	8
M2/80-KAL	○	—	80	0.01	1	58	8
M2/100	○	—	100	0.01	1	80	10
M2/100-KAL	○	—	100	0.01	1	80	10

Error-free dial gauge

Design:
- measuring pin and clamping shank made of stainless steel
- seated at the clamping shank
- shock proofed version with free lift and limited indicating range
- the large free lift supports the insertion of the test items

SI = safety

DIN 878 | SHOCK PROOF | calibrated

SI-45

SI-90

320450 with free lift and measuring range limited to 1 revolution

Type	320450	Measuring span mm	reading mm	Free lift mm	Box ∅ mm	Clamping shank ∅ h6 mm
SI-45	●	0.4	0.01	4.5	40	8
SI-45-KAL	○	0.4	0.01	4.5	40	8
SI-90	●	0.8	0.01	9.0	58	8
SI-90-KAL	○	0.8	0.01	9.0	58	8

Error-free dial gauge IP52

Design:
- dial gauges with full pointer revolution prevent reading errors
- dust- and shock-protected
- repeatability 5 µm
- measuring force ≤ 1.4 N
- weight approx. 75 g

DIN 878 | IP52 | SHOCK PROOF

2971TB

2972TB

2973TB

320455 MITUTOYO, with one pointer revolution

Type	320455	Measuring span mm	reading mm	Error limit µm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
2971TB	○	0.5	0.01	11	0.7	55.6	8
2972TB	○	1.0	0.01	13	1.5	55.0	8
2973TB	○	1.6	0.02	16	2.0	55.6	8

Precision dial gauge

Design:
Like 320100, but with rearward pin or with magnetic back

DIN 878 A

Type KM4R/M2R:
- with rearward pin
- these models can be either held on the 8 mm ∅ h6 shank or on the 28 mm ∅ h6 spigot

Type KM4TM/M2TM:
- with magnetic back, usable even without holder and stand
- no influence by sinter magnet

M2R

M2TM

320570 with rearward measuring pin
320590 with magnetic back

Type	320570	320590	Measuring span mm	reading mm	Pointer revolution mm	Box ∅ mm	Clamping shank ∅ h6 mm
KM4R	○	—	3	0.01	0.5	40	8
M2R	○	—	3	0.01	1.0	58	8
KM4TM	—	○	3	0.01	0.5	40	8
M2TM	—	●	10	0.01	1.0	58	8

Digital dial gauge

Design:
- aluminium housing with robust plastic covering, housing ∅ 57 mm
- measuring pin and clamping shank stainless, hardened and ground
- LCD display, digit height 11 mm
- with data output (RS232 interface)

Functions:
- mm/inch selection
- AUS (OFF), EIN (ON)
- NULL (ZERO) setting in any position

Factory standard | RS232C

320595 with data output

Measuring span mm	320595	reading mm	Box ∅ mm	Clamping shank ∅ h6 mm
10,5	●	0.01	58	8

Digital dial gauge IP52

Design:
- immediately ready to measure due to the reference system
- high-contrast 12 mm high LCD display
- operating temperature 10 - 40 °C
- operation speed 1.5 m/s
- data output optional USB, OPTO RS232C, DIGIMATIC
- reading 0.01 mm / 0.0005"

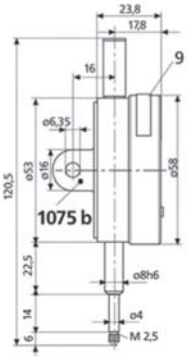
IP52 | Digimatic | RS232C | USB | calibrated

REFERENCE

Functions:
- ON/OFF, 0 (zero-setting of display)
- mm/inch selection, reversal of counting direction
- PRESET (presetting of fixed values)
- DATA (in combination with data cable)
- LOCK function: all keys are locked
- Auto-OFF (optional)

Delivery:
With battery and operating manual

Note:
Fitting connection cable see under 398010 on page 39/836.



320604 MAHR 1075 R, with data output

reading mm	320604	Measuring span mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
0,001	●	12.5	0.005	0.5 - 1	8
0,005	○	12.5	0.015	0.5 - 1	8
0,005-KAL	○	12.5	0.015	0.5 - 1	8
0,01	●	12.5	0.020	0.5 - 1	8
0,01-KAL	○	12.5	0.020	0.5 - 1	8

Digital dial gauge IP42

Mahr

Design:
- inductive measuring system
- data output optional USB, OPTO RS232C, DIGIMATIC
- data in connection with data cable
- operation speed 1.5 m/s
- detachable protection cap at the end of the spindle

IP42 | TOL | ABS | Digimatic | RS232C | USB

Functions:
- ON/OFF, RESET (zero-setting of the display)
- PRESET (presetting of fixed values)
- ABS (display can be set to zero without losing the reference to PRESET)
- 0 (mode of tolerance indication)

Delivery:
With battery

Note:
Fitting connection cable see under 398010 on page 39/836.

320615

320620

320615 MAHR 1086 R, with data output, 0.01 mm

Measuring span mm	320615	reading mm/inch	Error limit mm	Repeatability mm	Measuring force N	a mm	b mm	c mm
12,5	○	0.01/.0005"	0.02	0.010	0.65 - 0.90	126.3	23.0	13.5
25	●	0.01/.0005"	0.02	0.010	0.65 - 1.15	153.4	26.8	26.5
50	○	0.01/.0005"	0.02	0.010	1.25 - 2.70	267.3	40.0	52.0
100	○	0.01/.0005"	0.02	0.010	1.60 - 3.50	420.3	91.0	103.0

320620 MAHR 1086 R, with data output, 0.001 mm

Measuring span mm	320620	reading mm/inch	Error limit mm	Repeatability mm	Measuring force N	a mm	b mm	c mm
12,5	●	0.001/.00005"	0.005	0.002	0.65 - 0.90	126.3	23.0	13.5
25	●	0.001/.00005"	0.005	0.002	0.65 - 1.15	153.4	26.8	26.5
50	●	0.001/.00005"	0.006	0.002	1.25 - 2.70	267.3	40.0	52.0
100	●	0.001/.00005"	0.008	0.002	1.60 - 3.50	420.3	91.0	103.0

Digital dial gauge IP42

Mitutoyo

Design:
- one-time setting of the starting position
  (remains the absolute zero point until the battery is changed)
- measuring precision even at high speed
- easy reading due to large display characters
- 6-digit LCD display
- digit height 9 mm
- with reversal of counting direction
- contact point made of carbide ball
- low voltage or counting error alert
- measuring force ≤ 2.0 N
- cover flat
- die cast housing
- with factory calibration certificate

IP42 | ABS | Digimatic | USB | U-WAVE®

Note:
Fitting connection cable see under 398000 on page 39/836.

320616 MITUTOYO 543, with data output, 0.01 mm

Measuring span mm	320616	reading mm	Error limit mm	Clamping shank ∅ h6 mm
12,7	●	0.01	0.004	8

Precision digital solar dial gauge IP42

Mitutoyo

Design:
- solar-powered operation from 40 lux upwards
- LCD display
- digit height 9 mm
- with reversal of counting direction
- contact point made of carbide ball
- low voltage or counting error alert
- measuring force ≤ 1.5 N
- cover flat

IP42 | ABS | Digimatic | USB | U-WAVE®

Note:
Fitting connection cable see under 398000 on page 39/836.

ABSOLUTE

320617 MITUTOYO 543, with data output, 0.01 mm

Measuring span mm	320617	reading mm	Error limit mm	Clamping shank ∅ h6 mm
12,7	○	0.01	0.004	8

320622 MITUTOYO 543, with data output, 0.001 mm

Measuring span mm	320622	reading mm	Error limit mm	Clamping shank ∅ h6 mm
12,7	●	0.001	0.006	8

Digital dial gauge IP42, for 2-point internal measurements

Mitutoyo

Design:
- for 2-point internal measurements
- 7-digit LCD display
- reading position can be rotated up to 330°
- power supply 1 battery CR2032

IP42 | TOL | ABS | Digimatic | USB

Functions:
- ON/OFF
- PRESET
- tolerance setting
- Data/Hold
- Fast Mode
- Reset
- key lock function
- data output

Note:
Fitting connection cable see under 398000 on page 39/836.

ABSOLUTE

320624 MITUTOYO 543, with data output, 0.001 /0.01 mm

Measuring span mm	320624	reading mm	Error limit mm	Clamping shank ∅ h6 mm
12,7	○	0.01/0.001	0.006	8

Digital dial gauge IP42, for 2-point internal measurements

Mahr

Design:
- for 2-point internal measurements, e.g. for bore gauge micrometers 322050 et seq.
- the point of reversal is detected during the oscillation
- reversal of counting direction
- individual buttons can be locked
- inductive measuring system
- data output MarConnect

IP42 | TOL | ABS | MAX MIN | Digimatic | RS232C | USB

Functions:
- ON/OFF, RESET (zero-setting of the display)
- PRESET (presetting of fixed values)
- TOL (tolerance display)
- START/STOP of the reversal point searching
- MAX/MIN memory of the reversal point searching
- ABS (display can be set to zero without losing the reference to the preset value)
- 0 (analogue display set to zero)

Note:
Fitting connection cable see under 398010 on page 39/836.

NEW!

REFERENCE

320625 MAHR 1087 BR, with data output, 0.001 mm

Measuring span mm	320625	reading mm/inch	Repeatability mm	Measuring force N	Clamping shank ∅
12,5	○	0.001/.00005	0.002	0.65 - 0.90	8h6

Precision digital wireless dial gauge IP42

Design:
- integrated wireless transmitter
- high-contrast LCD display
- control panel and display rotatable by 280°
- detachable protection cap at the end of the spindle
- clamping shank and measuring pin made of stainless, hardened steel
- immediately ready to measure due to the reference system

IP42 | TOL | ABS | MAX MIN | Digimatic | RS232C | USB

Functions:
- Null (setting the analogue display to zero)
- ABS (display can be set to zero without losing the reference to PRESET)
- Auto ON/OFF
- data in connection with data cable
- factor adjustable
- Lock (individual key lock)
- Max./Min. memory to find the reversal point
- ON/OFF
- PRESET (presetting of fixed values)
- Range (switching of measuring range and scale division)
- Reset (zero-setting of display)
- TIR (MAX-MIN) for concentricity and planarity check
- tolerance indication
- reversal of counting direction
- mm/inch selection

Delivery:
Incl. operating manual and battery

Note:
Fitting radio receiver incl software 3.1 see under 398026 on page 39/839.

REFERENCE

320628 MAHR 1087 Ri, with data output, 0.001 mm

Measuring span/ reading mm	320628	Error limit mm	Repeatability mm	Measuring force N	Clamping shank ∅ h6 mm
12,5/0,001	●	0.005	0.002	0.65 - 1.10	8

Digital dial gauge IP54

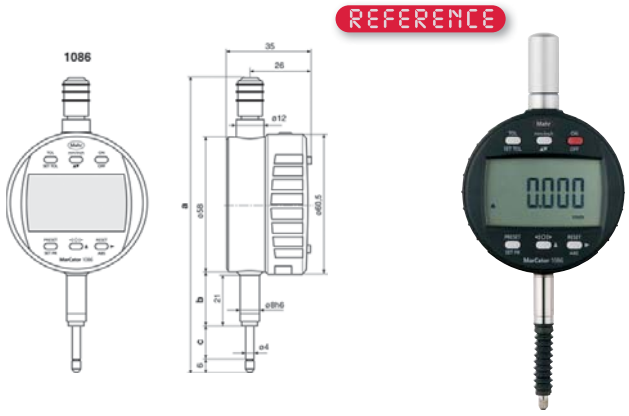
Mahr

Design/Functions:
- like 320615 or 320620, resp.
- splashproof to IP54

IP54 | TOL | ABS | Digimatic | RS232C | USB

Delivery:
With battery

Note:
Fitting connection cable see under 398010 on page 39/836.



320630 MAHR 1086 W, with data output

Measuring span/ reading mm	320630	Error limit mm	Repeatability mm	Measuring force N	a mm	b mm	c mm
12,5/0,001	○	0.005	0.002	0.65 - 1.40	126.3	23.0	13.5
25/0,001	○	0.005	0.002	1.00 - 2.25	153.4	26.8	26.5

Digital dial gauge IP42

Mitutoyo

Design:
- one-time setting of the starting position (remains the absolute zero point until the battery is changed)
- measuring precision even at high speed
- easy reading due to large display characters
- slim design
- 6-digit LCD display
- with reversal of counting direction
- contact point made of carbide ball
- low voltage or counting error alert
- measuring force ≤ 1.8 N

IP42 | ABS | Digimatic | USB | U-WAVE

ABSOLUTE

Note:
Fitting connection cable see under 398000 on page 39/836.

320631 MITUTOYO 575, with data output, 0.01 mm

Measuring span mm	320631	reading mm	Error limit mm	Clamping shank ∅ h6 mm
25,4	●	0.01	0.004	8

Digital dial gauge IP42

Mitutoyo

Design:
- one-time setting of the start position (remains absolute zero point until battery change)
- measuring precision even at high speed
- easy reading due to large display characters
- 7-digit LCD display, rotatable by 330°, with 11 mm digit height
- with reversal of counting direction
- with simplified calculation and locking function
- contact point made of carbide ball
- low voltage alert, counting error, overflow or tolerance input error alarm
- cover flat

Functions:
- Zero/ABS
- PRESET
- Data/Hold
- GO/±NG evaluation
- ON/OFF

Note:
Fitting connection cable see under 398000 on page 39/836.

IP42 | TOL | ABS | Digimatic | USB | U-WAVE®

Measuring range 12,7 mm | Measuring range 25,4 mm | Measuring range 50,8 mm

320632 MITUTOYO 543, with data output, 0.01 mm

Measuring span mm	320632	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
12,7	○	0.01	0.004	≤ 0.9	8
25,4	○	0.01	0.004	≤ 1.8	8
50,8	●	0.01	0.004	≤ 2.3	8

320633 MITUTOYO 543, with data output, 0.001 /0.01 mm

Measuring span mm	320633	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
12,7	●	0.01/0.001	0.006	≤ 1.5	8
25,4	○	0.01/0.001	0.006	≤ 1.8	8
50,8	●	0.01/0.001	0.010	≤ 2.3	8

Digital dial gauge IP42

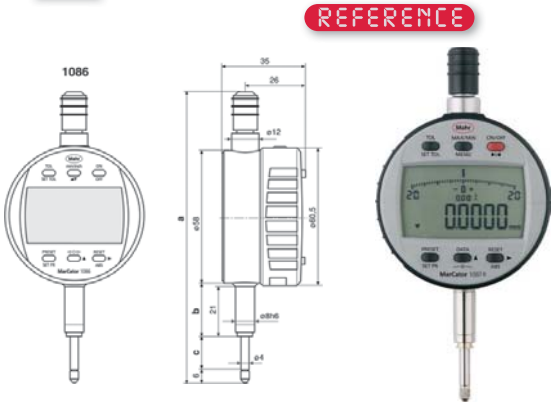
Mahr

Design:
- combined digit and scale display
- inductive measuring system
- tolerance and dynamic measuring functions
- tolerance indication: the integrated bar graph visualizes the tolerance deviation
- the out of tolerance state is indicated by arrows appearing on the display
- data output MarConnect
- data in connection with data cable
- operation speed 1.5 m/s
- high-contrast LCD display, digit height 8.5 mm

Dynamic measuring functions:
- MAX-MIN function for concentricity and planarity testing
- MAX/MIN memory to find the reversal point
- ON/OFF, RESET (zero-setting of the display)
- PRESET (to enter fixed values), reversal of counting direction
- TOL (tolerance input)
- ABS (display can be set to zero without losing the reference to PRESET)

Note:
Fitting connection cable see under 398010 on page 39/836.

IP42 | TOL | ABS | MAX MIN | Digimatic | RS232C | USB



320635 MAHR 1087 R, with data output, 0.001 mm

Measuring span mm	320635	Repeatability mm	Measuring force N	a mm	b mm	c mm
12,5	●	0.002	0.65 - 0.90	126.3	23.0	13.5
25	○	0.002	0.65 - 1.15	153.4	26.8	26.5

Digital dial gauge IP66

Mitutoyo

Design:
- for installation in devices with limited space
- with data output
- graphic display when the tolerance is exceeded
- flexible installation options due to reversible display
- contact point made of carbide ball
- alarm in case of low voltage, counting or tolerance limit error
- with reversal of counting direction

Functions:
- Zero/ABS
- PRESET
- Data/Hold
- GO/±NG evaluation
- ON/OFF

Note:
Fitting connection cable see under 398006 on page 39/836.

IP66 | TOL | ABS | Digimatic | USB | U-WAVE®

ABSOLUTE

Measuring range 5.0 mm

Flexible installation due to switchable orientation of the display

320636 MITUTOYO 543, with data output, 0.01 mm

Measuring span mm	320636	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
5,0	○	0.01	0.004	2.0	8
12,7	○	0.01	0.004	2.5	8

320637 MITUTOYO 543, with data output, 0.001/0.01 mm

Measuring span mm	320637	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
5,0	○	0.01/0.001	0.008	2.0	8
12,7	○	0.01/0.001	0.008	2.5	8

Inductive dial comparator IP54

Mahr

Design:
- resolution 0.2 µm
- linearised, inductive absolute measuring system
- mm/inch selection, reversal of counting direction
- remote operation via interface
- LCD display, operating and display units 280° rotatable

Functions:
- ON/OFF
- Reset (zero-setting of numeric and scale reading)
- PRESET (presetting of fixed values)
- Range (switching of measuring range and scale graduation)
- ABS (reference to electric zero point)

Additional functions only with type 2001:
- MAX/MIN, TOL (tolerance input)
- Lock: operating function lockable via PC software option
- control bus compatible with dial comparator with limit contacts

Delivery:
Power adapter, rubber bellow and key for forward stroke setting

Note:
Fitting connection cable see under 398011 on page 39/836.

IP54 | TOL | MAX MIN | ABS | Digimatic | RS232C | USB 2000 | calibrated

320640 MAHR 2000/2001, with data output

Type	320640	Measuring ranges switchable mm/inch	reading mm/inch	Indication range of scale display mm	Error limit mm	Clamping shank ∅ h6 mm
2000	○	1.8 (.07") 1.8 (.07") 0.8 (.031")	0.001/.00005" 0.0005/.00002" 0.0002/.00001"	0.030 0.015 0.006	0.0006 0.0006 0.0003	8
2000-KAL	○	1.8 (.07") 1.8 (.07") 0.8 (.031")	0.001/.00005" 0.0005/.00002" 0.0002/.00001"	0.030 0.015 0.006	0.0006 0.0006 0.0003	8
2001	○	1.8 (.07") 1.8 (.07") 0.8 (.031")	0.001/.00005" 0.0005/.00002" 0.0002/.00001"	0.030 0.015 0.006	0.0006 0.0006 0.0003	8
2001-KAL	○	1.8 (.07") 1.8 (.07") 0.8 (.031")	0.001/.00005" 0.0005/.00002" 0.0002/.00001"	0.030 0.015 0.006	0.0006 0.0006 0.0003	8

Digital dial gauge

Mitutoyo

Design:
- multifunctional version
- tolerance function shown in colour
- external control option and data transfer to the outside
- optional with remote control (to be ordered separately)
- contact point made of carbide ball
- alert in case of counting error, overrun or tolerance limit error
- power supply via mains adapter
- lift lever over 30 mm with cable release (optional, to be ordered separately)

TOL | MAX MIN | Digimatic | RS232C | USB | U-WAVE®

Functions:
- Zero
- PRESET
- Data/Hold
- reversal of counting direction
- resolution selectable
- analogue measuring range selectable
- Max-Min-Runout value
- GO/± evaluation
- DIGIMATIC data input/output
- DIGIMATIC data output RS232C
- data input RS232C ASCII data
- ON/OFF
- locking function

Delivery:
Incl. lift lever and AC adapter

Note:
Fitting connection cable see under 398003 on page 39/836.

320641 MITUTOYO 543, with data output, switchable

Measuring span mm	320641	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
30,4	○	0.001/0.0005	0.004	≤ 2.0	8
60,9	●	0.001/0.0005	0.006	≤ 2.5	8

Digital dial gauge IP30

Mitutoyo

Design:
- electronic multifunctional dial gauge
- with absolute capacitive scale
- one-time setting of the start position
- measuring precision even at high operation speed
- large display digits and analogue display
- with visual tolerance monitoring
- measuring insert with carbide ball, thread M2.5 × 0.45 mm
- resolution 0.001/0.01 mm, selectable
- power supply via mains adapter

IP30 | TOL | MAX MIN | Digimatic

Functions:
- ON/OFF
- modes max. hold value, min. hold value, Max-Min Mode (TIR)
- analogue measuring range selectable
- zero setting INC/ABS
- PRESET (preselection)
- tolerance setting
- reversal of counting direction
- key lock function
- data output

320642 MITUTOYO 543, with data output, switchable

Measuring span mm	320642	reading mm	Error limit mm	Measuring force N	Clamping shank ∅ h6 mm
25	○	0.001/0.01	0.006	≤ 1.8	8
50	●	0.012	0.006	≤ 2.3	8

Precision dial comparator

Mahr

Design:
Box-like protective housing, lockable fine adjustment, self contained measuring mechanic (exchangeable). Mounting shank and spindle made of stainless steel. Insensitive to lateral forces. Maximal sensitivity and accuracy are ensured by the spindle axes running in jewel bearings and precision geared wheels and pinions. Lifting of the measuring pin by screw-in wire lifter or lifting button. Adjustable tolerance fingers, clear scale

DIN 879/1 | SHOCK PROOF | calibrated | Delivered in case

Type 1002/1003/1004 Millimess:
Precision ball guiding of the measuring pin for small reversal range

Type 1003-A:
Millimess in three-pack incl. 1 MAGLITE torch

Type 1010 Zentimess:
Accuracy better than DIN 879/1

1003

1010

320694 MAHR 1002 / 1003 / 1004 / 1010 / 1050

Type	320694	Measuring range	reading mm	Free lift mm	Measuring force N	Clamping shank ∅ h6 mm
1002	●	± 25 µm	0.0005	2.8	1	8
1002-KAL	○	± 25 µm	0.0005	2.8	1	8
1003	●	± 50 µm	0.0010	2.8	1	8
1003-KAL	○	± 50 µm	0.0010	2.8	1	8
1003×L	●	± 130 µm	0.0020	2.5	1	8
1003×L-KAL	○	± 130 µm	0.0020	2.5	1	8
1004	○	± 0.13 mm	0.0050	2.5	1	8
1004-KAL	○	± 0.13 mm	0.0050	2.5	1	8
1010	○	± 0.25 mm	0.0100	2.5	1	8
1010-KAL	○	± 0.25 mm	0.0100	2.5	1	8
1050	○	± 1.50 mm	0.0500	0.3	1	8
1050-KAL	○	± 1.50 mm	0.0500	0.3	1	8

Accessories for precision dial comparators

Mahr

Use:
- for lifting the measuring spindle

320698 Accessories

Type	320698
DRAHTABHEBER	○
ABHEBETASTE	○

Depth measuring bridge

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- for measurements of dimensional distances, blind holes, millings and all types of grooves
- for mounting dial gauges
- support surface hardened, ground and finely lapped
- measuring bridge burnished
- with shank diameter 8 h6
- flatness tolerance to DIN 874 sheet 1, GG 00

320699 DIN 874/00

Type	320699	Dimensions mm	Flatness tolerance µm	Weight kg
0080	●	80 × 16	1.5	0.20
0100	●	100 × 16	1.7	0.30
0150	○	150 × 20	2.0	0.50

Precision depth gauge

Käfer

Design:
- lined scale pivotable
- inserts exchangeable
- bridge satin chrome plated and hardened
- contact face fine lapped
- collet ensures safe clamping of the gauge

Delivery:
Fully assembled

Factory standard

TM2

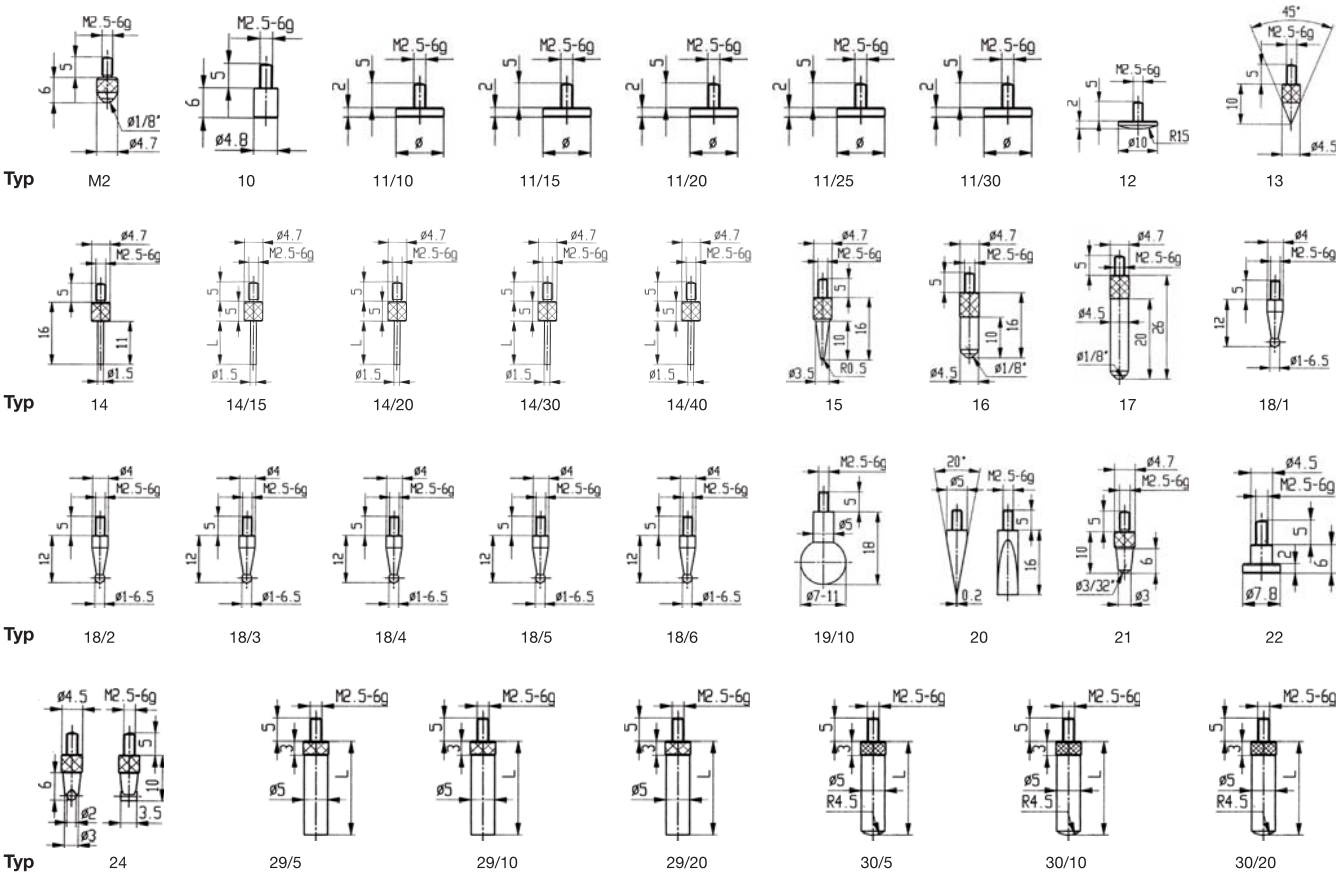
TM2/30

320550 with measuring bridge

Type	320550	Measuring span mm	reading mm	Pointer revolution mm	Outer ring ∅ mm	Bearing face mm
TM/2	●	10	0.01	1	58	80 × 16
TM2/30	●	30	0.01	1	58	80 × 16

Measuring insert and special probe for dial gauges and dial comparators

Design:
- measuring inserts with connecting thread M 2.5 made of steel
- carbide and ruby tipped
- for measuring tools with connecting thread M 2.5 to create special measuring equipments



320705 Inserts made of steel
320710 Inserts carbide tipped
320720 Contact points with ruby balls

Type	320705	320710	320720
M2	●	●	●
10	●	●	—
11/10	●	○	—
11/15	●	—	—
11/20	●	—	—
11/25	○	—	—
11/30	●	—	—
12	●	○	—
13	●	○	—
14	●	●	—
14/15	●	—	—
14/20	●	—	—

Type	320705	320710	320720
14/30	●	—	—
14/40	●	—	—
15	●	—	—
16	●	○	●
17	●	○	○
18/1	●	○	—
18/2	●	●	—
18/3	●	○	—
18/4	●	○	—
18/5	●	○	—
18/6	●	○	—
19/10	●	—	—

Type	320705	320710	320720
20	●	○	—
21	●	○	—
22	●	—	—
24	●	○	—
29/5	○	—	—
29/10	●	—	—
29/20	●	—	—
30/5	○	—	—
30/10	○	—	—
30/20	○	—	—
—	—	—	—
—	—	—	—

Feeler extension

Design:
- with connecting thread M 2.5 (6g), in different lengths
- suitable for all gauge slides and special feelers 320705/320710/320720

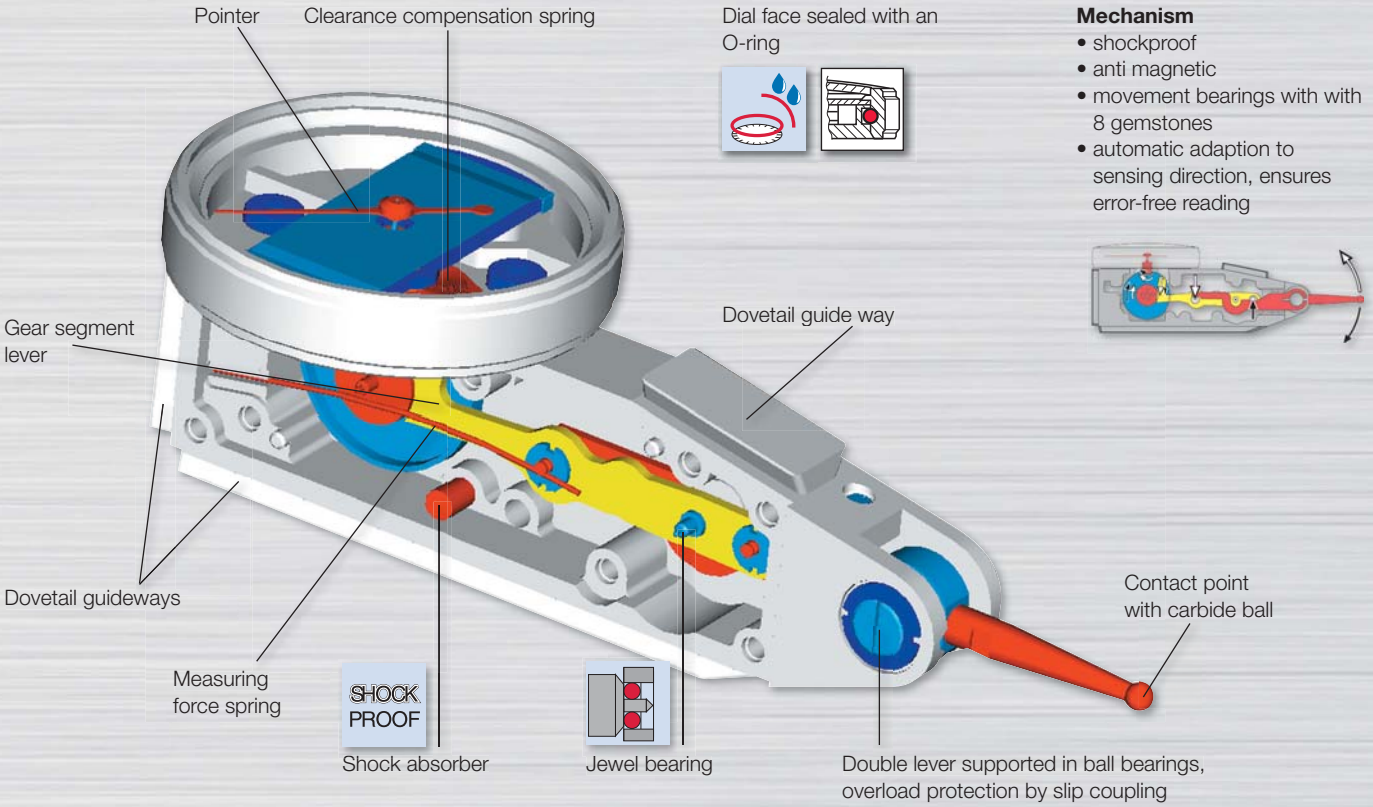
320760 Feeler extension

Length mm	320760
10	●
20	●
30	●

Length mm	320760
40	●
50	●
60	●

Length mm	320760
70	●
80	●
90	●

Design features



Dial face sealed with an O-ring

Mechanism

- shockproof
- anti magnetic
- movement bearings with with 8 gemstones
- automatic adaption to sensing direction, ensures error-free reading

MarTest applications

The test indicator serves as an instrument for comparative measurements. It can be employed in any kind of measuring stand. Due to the swivelling feature of the stylus and the reversal of its sensing direction, the Mahr test indicator is suitable for various measuring and inspection tasks.

Areas of application are e.g.:

- testing of concentricity and run-out of shanks and bores
- testing of parallelism and alignment of surfaces in engineering and tool making

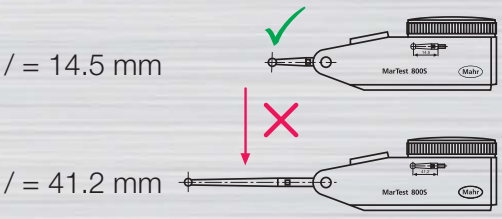
Concentricity test of shafts

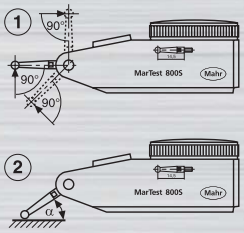
Concentricity test of sleeves

Centring of bores

Aligning of surfaces

Testing parallelism





For accurate measurements, the axis of the contact point has to be perpendicular to the measuring device (fig. 1).
If this is not possible, it is necessary to multiply the reading from the dial with a correction coefficient, which depends on angle α (fig. 2). For angles less than 15° the correction factor is negligible.

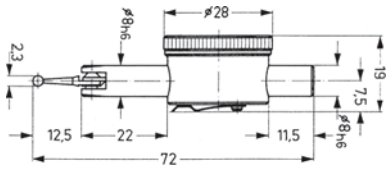
Angle α	15°	30°	45°	60°
Corr. coeff.	0.96	0.87	0.70	0.50

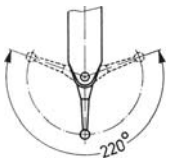
Dial test indicator

Design:
- universal dial test indicator for the workshop
- the feeler is switchable for 110° lever movement to the right or left side
- mounting at upper or lower clamping shank ∅ 8 mm h6
- bezel pivotable
- square holder **321090** as optional accessory

DIN 2270 | Delivered in case

Delivery:
In case, without holder





321080 Tastboy

Box ∅ mm	321080	reading mm	Measuring span in each direction mm
28	●	0.01	0.80

321090 Square holder for lever gauge

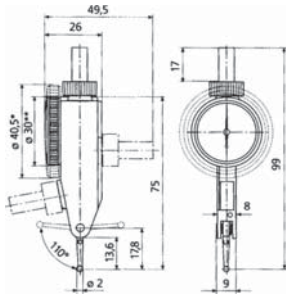
Type	321090
1.0958	○

Dial test indicator

Design:
- satin chrome plated housing, dial face sealed with O-ring
- contact point with carbide ball, double lever supported in ball bearings
- overload protection provided by slip clutch
- mechanism shockproof, anti magnetic
- axes in stone bearings with 8 gems
- automatic adjustment to probe direction

Type 800 SGE with large measuring range
Type 800 SGM with high resolution for high-precision measurements, with water-protected display
Type 800 SL with long measuring insert
Type 800 S standard design
Type 800 SG with large dial
Type 800 SGB with long measuring insert

DIN 2270 | SHOCK PROOF | calibrated | Delivered in case



321704 MAHR 800, resolution 0.01 mm, shockproof and water-protected
321705 MAHR 800, resolution 0.001/0.002 mm, shockproof and water-protected

Type	321704	321705	Measuring range mm	reading mm	Dial ∅ mm	Free length for gauge slides mm	Measuring force N
800SGE	—	●	± 0.07	0.001	38.0	8.3	0.20
800SGE-KAL	—	○	± 0.07	0.001	38.0	8.3	0.20
800SGM	—	●	± 0.10	0.002	38.0	14.5	0.15
800SGM-KAL	—	○	± 0.10	0.002	38.0	14.5	0.15
800SL	●	—	± 0.25	0.010	27.5	41.2	0.07
800SL-KAL	○	—	± 0.25	0.010	27.5	41.2	0.07
800S	●	—	± 0.40	0.010	27.5	14.5	0.15
800S-KAL	○	—	± 0.40	0.010	27.5	14.5	0.15
800SG	●	—	± 0.40	0.010	38.0	14.5	0.15
800SG-KAL	○	—	± 0.40	0.010	38.0	14.5	0.15
800SGB	●	—	± 0.50	0.010	38.0	32.3	0.07
800SGB-KAL	○	—	± 0.50	0.010	38.0	32.3	0.07

Dial test indicator

Mitutoyo

DIN 2270 | Delivered in case

Design:
- rotatable scale for easy zero-setting
- precision gear wheels in jewel bearings for trouble-free and precise measurement
- non-magnetic
- contact point with thread M1.7 × 0.35
- carbide tip with ∅ 2.0 mm
- scale from 0 - 40 - 0
- accuracy 8 µm

Delivery:
Incl. clamping shank ∅ 8 mm and union nut

321720 MITUTOYO 513, with carbide measuring tip

Measuring range × dial Ø mm	321720	reading mm	Measuring force N
0,8×40	●	0.01	≤ 0.3

Dial test indicator

Mitutoyo

DIN 2270 | Delivered in case

Design:
- rotatable scale for easy zero-setting
- precision gear wheels in jewel bearings for trouble-free and precise measurement
- contact point with thread M1.7 × 0.35 mm
- accuracy 8 µm
- scale from 0 - 40 - 0
- carbide tip with ∅ 2 mm
- non-magnetic

Delivery:
Incl. clamping shank with ∅ 8 mm and union nut

321722 MITUTOYO 513, vertical version

Measuring range × dial Ø mm	321722	reading mm	Measuring force N
0,8×40	●	0.01	≤ 0.3

Dial test indicator

Mitutoyo

DIN 2270 | Delivered in case

Design:
- compact construction
- rotatable scale for easy zero-setting
- precision gear wheels in jewel bearings for trouble-free and precise measurement
- contact point with thread M1.7 × 0.35 mm
- accuracy 10 µm
- scale from 0 - 25 - 0
- carbide tip with ∅ 2 mm

Delivery:
Incl. clamping shank with ∅ 8 mm and spanner

321724 MITUTOYO 513, with long probe tip

Measuring range × dial Ø mm	321724	reading mm	Measuring force N
0,5×33	●	0.01	≤ 0.3

Dial test indicator

Mitutoyo

DIN 2270 | Delivered in case

Design:
- rotatable scale for easy zero-setting
- precision gear wheels in jewel bearings for trouble-free and precise measurement
- revolution counter centred
- non-magnetic
- contact point with thread M1.7 × 0.35 mm
- carbide tip with ∅ 2 mm
- scale from 0 - 100 or 0 - 40 - 0

Delivery:
Incl. clamping shank with ∅ 8 mm and union nut

321726 MITUTOYO 513, horizontal version

Measuring range × dial Ø mm	321726	reading mm	Measuring force N
0,4×40	●	0.002	≤ 0.3
1,6×40	●	0.010	≤ 0.3

Dial test indicator

Mahr

Design:
- like 321704, but with special design for specific applications
- with water protected display

DIN 2270 | SHOCK PROOF | calibrated

Type 800 H: Stylus can be moved horizontally to the dial face
Type 800 SR: With large measuring range
Type 800 SRM: With high accuracy

321804 MAHR 800

Type	321804	Measuring range mm	reading mm	Dial ∅ mm	Free length for gauge slides mm	Measuring force N
800H	●	± 0.4	0.010	27.5	13.6	0.25
800H-KAL	○	± 0.4	0.010	27.5	13.6	0.25
800SR	●	± 0.8	0.010	38.0	13.6	0.15
800SR-KAL	○	± 0.8	0.010	38.0	13.6	0.15
800SRM	●	± 0.2	0.002	38.0	13.6	0.15
800SRM-KAL	○	± 0.2	0.002	38.0	13.6	0.15

800 H

800 SR

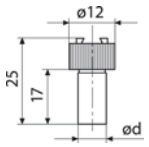
Accessories for dial test indicator

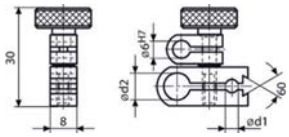
Mahr

Shank diameter cat. no. 321810
800a8 = 8 mm
800a6 = 6 mm
800a4 = 4 mm

321810 Mounting shank for dovetail

Type	321810	Shank ∅ mm
800A8	●	8
800A6	○	6
800A4	●	4

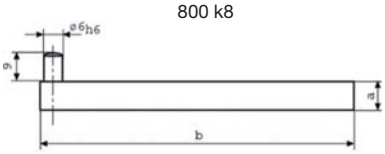




800 k8

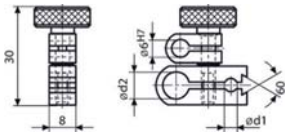
321812 Holder for universal clamp

Type	321812
800H	●



800 h

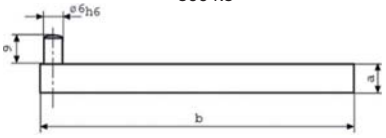
800 h with 800 k8



800 k8

321814 Universal clamp

Type	321814
800K8	●

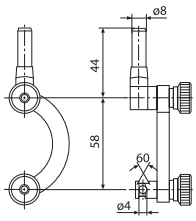


800 h

800 h with 800 k8

321816 Universal centring support frame

Type	321816
800B	●



321818 Universal holder with dovetail clamp

Type	321818
800HS8	●

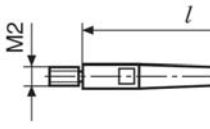
Anvil for Mahr dial test indicators

Mahr

Design and use:
- with connecting thread M2
- length of stylus 14.5 mm: Dial test indicators size 800 S, 800 SG, 800 H, 800 SR, 800 SRM
- length of stylus 9.1 mm: Dial test indicators size 800 SG
- length of stylus 41.2 mm: Dial test indicators size 800 SL
- length of stylus 32.3 mm: Dial test indicators size 800 SGB

321825 Stylus with carbide ball

Measuring insert length / ball Ø mm	321825
14,5/1	●
14,5/2	●
14,5/3	●
9,1/1	○
9,1/2	○
9,1/3	○
41,2/1	●
41,2/2	●
41,2/3	●
32,3/1	○
32,3/2	●
32,3/3	○



321825

321830

321830 Stylus with ruby ball

Measuring insert length / ball Ø mm	321830
14,5/2	●
9,1/2	○
41,2/2	○
32,3/2	○

Precision centring device

HAIMER

Design:
- non-rotating dial for centring bores and arbors
- clamping shank 16 mm, to be clamped into the spindle of the milling machine
- replaceable probe tip
- centring accuracy 0.003 mm

Use:
- for quick and precise centring of bores and shafts
- for testing and adjusting the axial run-out of a surface to the spindle
- concentricity errors of spindle or fixing are compensated
- adjustment not required

Delivery:
With straight stylus Ø 5 mm

321870 HAIMER Centro

Type	321870	Measuring range interior Ø (bore) mm	Measuring range outside Ø (shaft) mm	Centring accuracy mm	Clamping shank mm	Casing Ø / dial gauge Ø mm	Length (without shank) mm	max. speed min $^{-1}$
16	●	3 - 125	0 - 125	0.003	DIN 1835 B 16.00	80/60	92	150
HSKA50	○	3 - 125	0 - 125	0.003	DIN 69893	80/60	92	150

321875 Probe tips for precision centring device Centro

Type	321875	Sensor design
301	●	Straight stylus, with ball Ø 5 mm (standard probe tip)
302	●	Bent probe tip, with ball Ø 5 mm
303	●	Straight probe tip, with ball Ø 2 mm for small bores

Height measuring and marking device

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- reading accuracy at vernier 0.02 mm
- made of stainless steel, satin chrome plated
- with fine adjustment
- magnifier
- carbide-tipped scriber

Delivered in case

325100 Standard

Measuring range mm	325100
300	●
600	● +
1000	○ +

Height measuring and marking device

Mitutoyo

Design:
- precise and quick reading due to matt chrome-plated scale and vernier
- scale hardened and ground
- scriber cranked and carbide tipped
- with fine adjustment
- resolution 0.02 mm

Delivery:
200 mm: Incl. scriber and scriber holder (L × H = 47 × 25 mm).
300 mm: Incl. scriber holder, clamping for measuring inserts and scriber (L × H = 80 × 32 mm)

Measuring range 0-200 mm

Measuring range 0-300 mm

325110 MITUTOYO 506/514

Measuring range mm	325110	Fine adjustment mm
200	○	—
300	○	4

Digital height measuring and marking device

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- column made of stainless hardened steel
- scriber carbide-tipped
- stand fine ground and lapped
- floor space with dirt grooves
- LCD digital display, digit height 6 mm
- power supply lithium battery type 357 HD
- ON/OFF
- mm/inch selection, zero-setting at any position with RESET
- presetting of values for both directions

Delivered in case

325400 Standard

Measuring range mm	325400	Repeatability µm
300	●	30
600	●	50
1000	○ +	70

Digital height measuring and marking device

Mahr

ABS | Digimatic | RS232C | USB | Delivered in case

Design:
- hardened, lapped base, smooth and even movement, stable base
- slide and beam stainless and hardened
- hand crank for positioning and measuring
- fine adjustment, locking screw
- interchangeable scriber point, carbide tipped
- 12 mm high LCD display

Use:
- for scribing and marking of workpieces
- for measuring of heights and distances

Functions:
- RESET (zero-setting)
- ABS (switching relative/absolute measurement)
- selection mm/inch
- Reference Lock/Unlock
- PRESET (presetting of fixed values)
- battery life up to 3 years
- operation speed 1.5 m/s (60“/s)
- MarConnect data output:
  Optional USB, OPTO RS232C or DIGIMATIC (in connection with data cable 301910 on page 39/836)

Delivery:
With scriber point, battery and operating manual

325411 MAHR 814, SR

Measuring range mm	325411	reading mm/inch	Error limit mm
350	●	0.01/0.0005"	0.04
600	○	0.01/0.0005"	0.05

Digital absolute height measuring and marking device HDS

Mitutoyo

ABS | Digimatic | USB | U-WAVE®

Design:
- resolution 0.01 mm
- LED display

Functions:
- ORIGIN
- Zero/ABS
- ON/OFF
- Data/Hold
- low voltage alert

Delivery:
Incl. battery, scriber (L × H = 80 × 32 mm) and clamp for measuring inserts

Note:
Fitting connection cable see under 398000 on page 39/836.

325420 MITUTOYO 570

Measuring range mm	325420	Error limit mm
300	●	0.06
600	○	0.10

Digital height measuring and marking device HD-A

Mitutoyo

Design:
- standard type in column shape with data output
- zero-setting at the touch of a button in any position
- via PRESET button 2 values can be entered and recalled
- resolution 0.01 mm
- LED display
- operation speed 500 mm/s

Functions:
- Zero/ABS
- PRESET
- switching ±
- ON/OFF
- signal probe tip diameter compensation
- Data/Hold
- low voltage alert

Delivery:
Incl. HM scriber (L × H = 80 × 32 mm), clamping for measuring inserts and dust cover

Note:
Fitting connection cable see under 398000 on page 39/836.

325425 MITUTOYO 192

Measuring range mm	325425
300	○
600	●
1000	○ +

Digital height measuring device QM-Height

Mitutoyo

Design:
- achieves the highest degree of accuracy
- offers all relevant functions for height measurements and the processing of the results
- unlimited operation speed
- measurement of internal and external diameters in one measuring process
- results for tolerance utilization are displayed both in numeric and visual way
- DIGIMATIC and RS232C output are standard
- air cushion only for easy and jerk-free shifting (only type 465L / 715L)

Delivery:
Incl. 4× battery LR-6, ball probe tip ∅ 5 mm and calibration block

Note:
Fitting connection cable see under 398000 on page 39/836.

465L 715L

325430 Linear height measuring device

Size		715L
325430		○ +
Measuring range	mm/inch	0 - 600 / 0 - 24"
Scope of application	mm	0 - 715
reading	mm	0.001/0.0005
Error limit	µm	2.4 + 2.1L/600, L in mm
Repeatability	µm	1.8
Deviation from squareness	µm	12
Battery operating time	h	80
Measuring force	N	1.5 ± 0.5
Total height	mm	1018
Base area	mm	275 × 360
Weight	kg	30

Digital height measuring device Linear Height LH-600D

Mitutoyo

Design:
- excellent accuracy
- **pneumatic motion mechanism**
- self-explanatory control panel with menu control on display
- bright and easily readable LCD display with backlight
- GO/NG response for each measurement
- mains-independent operation through rechargeable battery
- easy handling and low deadweight
- RS232-C data output
- USB port only for data storage
- DIGIMATIC data input for digital dial indicators
- various display languages selectable
- equilibration through counterweights
- max. 50 memo programs
- max. 60,000 data can be saved
- reading switchable 0.1/0.01/0.001/0.0001 mm

Digimatic RS232C USB

Type 972HG = with handle

Delivery:
Incl. calibration block, ball calliper ∅ 5 mm with mount, rechargeable battery, cover and mains adapter

Note:
Fitting connection cable see under 398000 on page 39/836.

972 972HG

325435 MITUTOYO 518

Size		972	972HG
325435		○ +	○ +
Measuring range	mm/inch	0 - 972 / 0 - 38.6"	0 - 972 / 0 - 38.6"
Scope of application	mm	600	600
reading	mm	0.0001/0.001/0.01/0.1	0.0001/0.001/0.01/0.1
Error limit	µm	1.1 + 0.6L/600, L in mm	1.1 + 0.6L/600, L in mm
Repeatability	µm	0.4	0.4
Deviation from squareness	µm	5	5
Battery operating time	h	5	5
Measuring force	N	1	1
Total height	mm	1013	1013
Base area	mm	237 × 288	237 × 288
Weight	kg	24	24

Digital height measuring device Digimar

Mahr

Design:
- robust construction of guide column and slide
- measuring accuracy and reliability due to optical incremental measurement system with double reader head
- dynamic touch probe for high repeatability
- air bearings system for easy, jerk-free shifting
- measuring head guide on stainless steel guideways
- easy measuring procedures due to motorised measuring slide
- integrated temperature sensor with temperature compensation
- probe constant is preserved after switch-off
- integrated rechargeable battery with long service life
- control and display unit graphical LCD display with backlit
- clear function keys
- language-neutral user guidance via self-explanatory icons
- memory for up to 99 results
- MarConnect data output with optional USB or OPTO RS232 C

RS232C USB

Delivery:
Height gauge incl. control and display unit, carrier 817h1, measuring insert K6/51, setting gauge 817 eb, operating monitor and battery charger

Note:
Fitting connection cable see under 398012 on page 39/836.

325465 MAHR 816 CL

Size		350	600
325465		○ +	○ +
Measuring range	mm/inch	350/14"	600/24"
Scope of application	mm	540	770
reading	mm	0.01/0.001	0.01/0.001
Error limit	µm	2,8+L/300, L in mm	2,8+L/300, L in mm
Repeatability	µm	2 (level), 3 (bore)	2 (level), 3 (bore)
Deviation from squareness	µm	frontal 15	frontal 20
Battery operating time	h	up to 14	up to 14
Measuring force	N	1.0 ± 0.2	1.0 ± 0.2
Total height	mm	741	985
Base area	mm	240 × 250	240 × 250
Weight	kg	25	30

Height measuring device Digimar

Design:
- robust guide column, made of stainless steel
- measuring head guided in precision ball bearings
- fast measurement by hand with „Quick Mode“
- comfortable handling of all measuring functions via function keys with clear symbols and user guidance via icons
- ergonomic control and display unit
- universal measuring options
- wide range of evaluating features
- measuring accuracy and reliability due to optical incremental measurement system with double reader head
- dynamic touch probe for high repeatability
- RS232 or USB data output for data processing

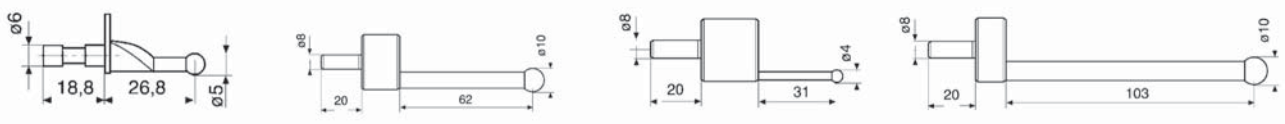
Delivery:
Height measuring device incl. display unit, carrier 817h1, probe K6/51, setting block 817eb, mains power adapter

Note:
Fitting connection cable see under 398012 on page 39/836.

325555 MAHR 817 CLM 2D plus statistics

Size		350	600	1000
325555		○ +	○ +	○ +
Scope of application	mm	520	770	1.170
reading	mm	0.01/0.005/0.001/0.0005/0.0001	0.01/0.005/0.001/0.0005/0.0001	0.01/0.005/0.001/0.0005/0.0001
Error limit	µm	1.8+L/600 (L in mm)	1.8+L/600 (L in mm)	1.8+L/600 (L in mm)
Repeatability	µm	0.5 (flat), 1 (bore)	0.5 (flat), 1 (bore)	0.5 (flat), 1 (bore)
Deviation from squareness	µm	frontal 5	frontal 6	frontal 10
Battery operating time	h	up to 15 hrs	up to 15 hrs	up to 15 hrs
Measuring force	N	1.0 ± 0.2	1.0 ± 0.2	1.0 ± 0.2
Relative air humidity	%	65 (non condensing)	65 (non condensing)	65 (non condensing)
Working temperature	°C	20 ± 1	20 ± 1	20 ± 1
Operating temperature	°C	10 - 40	10 - 40	10 - 40
3-point air bearing, height	µm	approx. 9	approx. 9	approx. 9
Measuring system		incremental scale with optical scanning	incremental scale with optical scanning	incremental scale with optical scanning
Total height	mm	741	985	1.392
Base area	mm	240 × 250	240 × 250	240 × 250
Weight	kg	25	30	35

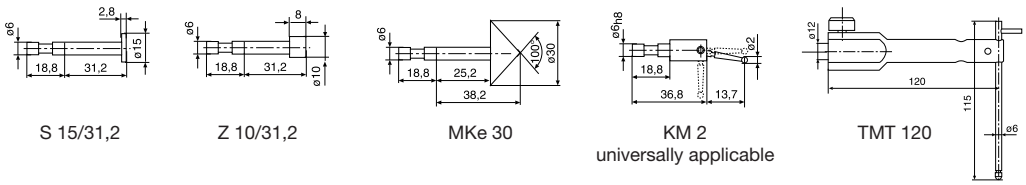
Size	0-350 2 D	0-600 2 D	0-1000 2 D
2D	●	●	●
Motor operated slide	●	●	●
Bore diameter	●	●	●
Max-Min	●	●	●
Tolerance monitoring	●	●	●
Measurem. of perpendicularity	●	●	●
Measurem. of straightness	●	●	●
Computation of angle	●	●	●
Statistics	●	●	●
Measuring program	40	40	40
Air bearing	●	●	●
Integrated USB memory	●	●	●
Data interface	RS232	RS232	RS232
USB printer interface	●	●	●



K/5/51 K6/51 K 10/60 K 4/30 K 10/60 ... K 10/100

325560 Ball anvil

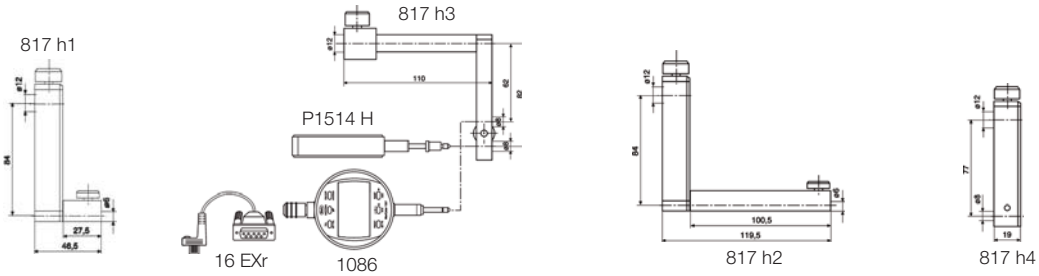
Type	325560	Ball ∅ mm	Reach a in mm	Holder ∅ mm
K5/51	○	5	26.8	6
K6/51	○	6	24.2	6
K4/30	○	4	30.0	8
K6/40	○	6	40.0	8
K10/60	○	10	60.0	8
K10/100	○	10	100.0	8



S 15/31,2 Z 10/31,2 MKe 30 KM 2 universally applicable TMT 120

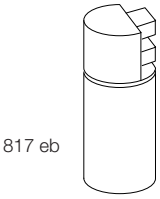
325562 Special probe tips

Type	325562	Designation	Holder ∅ mm
S15/31,2	○	Disc probe	6
Z10/31,2	○	Cylindrical probe	6
MKE30	○	Taper probe	6
TMT120	○	Depth probe incl. carrier	6
KM2	○	Probe for MarTest with probe M2	6



325564 Carrier for probes and transducers

Type	325564	Designation	Reach mm	Holder ∅ mm
817H1	○	Carrier for probes	27.5	6
817H2	○	Carrier for probes	100.0	6
817H3	○	Carrier for dial gauges	—	8
817H4	○	Carrier for probes	—	8



817 eb

325566 Setting block

Type	325566	Designation
817EB	○	Setting block

Accessories for DIGIMAR height measuring device

Mahr

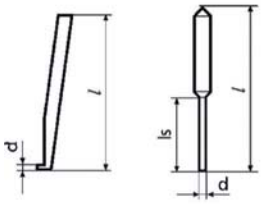
325570 Probe set TS1

Type	325570	consisting of:
817TS1	○	Accessory case Carrier for probes 817 h2 Disc probes S15/31,2 Cylindrical probe Z10/31,2 Taper probe MKe 30 Probe for recess measurement incl. carrier TMT 120 Probe KM2 for MarTest M2 Carrier for probes 817 h4 Spherical probes K4/30, K6/40, K10/60, K10/100

325572 Probe set TS2

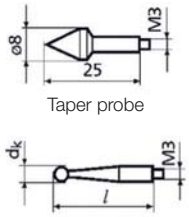
Type	325572	consisting of:
817TS2	○	Accessory case Carrier for probes 817 h2 Disc probe S15/31.2 Cylindrical probe Z10/31,2 Taper probe MKe 30 Probe for recess measurement incl. carrier TMT 120 Probe for MarTest probes M2, KM2

Note:
Please necessarily also order 325564 817H4!

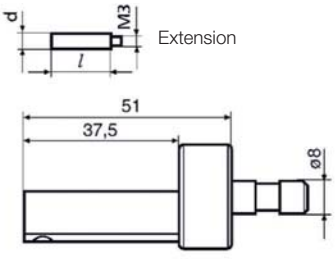


Measuring crook

Stylus



Taper probe
Spherical probe



Extension
Probe carrier

325574 Universal probe set CXT2

Type	325574	consisting of:
CXT2	○	Packaging box Probe carrier Measuring crook Stylus/stylus tip Taper probe Spherical probe Spherical probe Spherical probe Extension M3-M3 Extension M3-M2.5

Measurement transducer for perpendicularity check

Mahr

Use:
Type P1514 H: Incremental feeler to check perpendicularity.
Alternatively this may be done by means of the digital dial gauge 320620 in combination with the data connection cable 301910 RS232C

325576 Incremental probe

Type	325576	Designation
P1514H	○	Incremental probe 12 mm P1514H

Magnetic measuring stand

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- with switchable magnet base
- mounting bore mm 8H7
- with fine adjustment

330050 Simplified type

Total height mm	330050	Reach mm	Magnet base L × W × H mm	Adhesive power kp	Column ∅ mm	Column height mm	Swivel arm ∅ mm	Weight kg	Dial gauge mount ∅ mm
231	●	150	63 × 50 × 55	60	12	175	10	1.45	8

330100 Standard design

Total height mm	330100	Reach mm	Magnet base L × W × H mm	Adhesive power kp	Column ∅ mm	Column height mm	Swivel arm ∅ mm	Weight kg	Dial gauge mount ∅ mm
260	●	230	70 × 46 × 65	60	16	230	16	2.33	8
460	●	420	75 × 60 × 80	80	20	420	16	4.98	8

Magnetic hinged stand

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- for measurements in any position
- 4-piece joint linkage is clamped centrally by a tension knob
- calibration via fine adjustment
- on/off-switchable magnetic base with prismatic bottom
- mounting bore 8H7

330510 with hydraulic clamping

Operating range mm	330510	Height mm	Magnet base L × W × H mm	Weight kg
260	●	310	60 × 50 × 55	1.50
400	●	480	75 × 50 × 55	2.20

Magnetic hinged stand

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- with powerful round magnet; not switchable
- turnable fine adjustment at base for all-around measurement
- 100 % flexibility
- for all kinds of measurements in any position
- even for hard to access places, which cannot be reached by using other tripods or stands
- central hydraulic clamping (mechanical clamping of the joint linkage)
- especially suited for lever gauges

330530 with hydraulic clamping and round magnetic base

Operating range mm	330530	Magnet base ∅ × height mm
150	●	35 × 30

Magnetic hinged stand

Design:
- with powerful magnetic base in prismatic sole
- central hydraulic clamping
- one-hand operation
- patented hydraulic clamping, maintenance-free, adjustable from smooth-running to absolutely rigid adjustable
- measuring jaw suited for all current dial gauges
- stand movable in all directions, even in hard-to-reach places
- connection thread M8
- adhesive force 80 N

330540 with hydraulic clamping

Operating range mm	330540	Magnet base L × W × H mm
260	●	60 × 50 × 55

Magnetic measuring stand

Design:
- flexible in any direction
- adjustable arm with fine calibration
- with switchable magnet base
- the bottom being constructed as prism allows application on all flat and cylindrical steel surfaces
- mounting bore for dial gauge ∅ 8 mm

Delivery:
Without dial gauge

330610 with flexible jointed arm

Total height mm	330610	Operating range mm	Magnet base L × W × H mm	Adhesive power kp	Dial gauge mount ∅ mm	Weight kg
350	●	200	70 × 46 × 65	60	8	1.85

Magnetic hinged stand

Design:
- high flexibility with high clamping force by means of a tension knob
- magnetic base with great holding power
- magnetic base can be switched on and off by means of rotary switch
- combined attachment for dial gauges, dial comparators or probes with shank ∅ 8 mm H7
- for lever gauges in dovetail mounting

Delivery:
Without dial gauge

330700 with central clamping and fine adjustment

Total height mm	330700	Operating range mm	Magnet base L × W × H mm	Adhesive power kp	Weight kg
310	●	200	65 × 50 × 55	50	1.22
430	●	285	70 × 46 × 65	60	2.20

Universal measuring stand

Design:
- like 330700, with vacuum base
- for use on hard stone plates and other non-magnetic supports

Delivery:
Without dial gauge

330750 with vacuum base

Total height mm	330750	Operating range mm	Vacuum base ∅ mm	Adhesive power kp
390	○	285	100	23

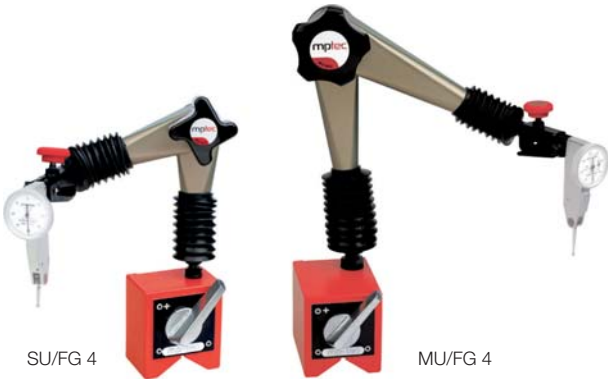
Magnetic hinged stand

Design:
- progressive fixation of 5 rotary movements by one locking screw
- high clamping force with great flexibility

Type SU/FG 4, MU/FG 4:
- rubber bellows at the joints
- dial gauge mount for challenging applications in the µm range
- free of play with adjusting comfort and excellent repeatability
- with dovetail mounting for most commonly used with dial test indicators
- adapter for dial gauges with clamping shank ∅ 8 mm (Int. pat. pending)

Type MU/F 3:Type 3:
With standard dial gauge seat

Delivery:
Without dial gauge



SU/FG 4 MU/FG 4

330780 for supreme demands

Type	330780	Jib radius, without magnet mm	Size magnet: W × H × D mm	Adhesion approx. kg
SU/FG4	○	245	53 × 60 × 36	50
MU/FG4	○	370	52 × 60 × 68	90
MU/F3	○	370	54 × 60 × 86	90

Holder for dial gauges

Design:
- permanent magnet base with great holding power
- top part made of metal
- lightweight handy construction

Type P18:
- extremely low version
- rotatable and swivellable

Type P19:
- with prismatic lamella magnetic base
- very high magnetic power
- adhesive at base and both sides
- holder for dial gauges by 360° swivelling
- prismatic base allows use as shaft alignment system

Type P22:
- with round magnetic base, rigid

Delivery:
Without dial gauge

P18 P19 P22

330820 with magnetic base

Type	330820	Height mm	Adhesion approx. N	Size of magnet base mm
P18	●	46	180	38 × 73
P19	●	59	260	37 × 72
P22	●	66	130	∅ 40

Universal measuring stand

Design type 815 NG:
- rugged base ensures both max. stability and sturdiness
- topside of the base with grip
- easy and vibration-free relocatability
- front ground as end stop to allow conduction alongside edges and rules
- statically perfect support due to three supporting surfaces
- fine adjustment at extension arm
- column and extension arm made of stainless steel
- display unit by ± 90° pivotable
- mounting bore mm 8H7

Delivery:
Without dial gauge

331100 with fine-adjustment at cross arm

Column height mm	331100	Base mm	Reach mm	Column ∅ mm	Swivel arm ∅ mm
500	○	190 × 180	200	25	18

Measuring table

Design:
- table surface with dust grooves (only type 0060)
- table surface with longitudinal grooves (only type 0098)
- column hardened and fine-honed
- vertical column hard chrome-plated (only type 0098)
- table top adjustable with three-point support (only type 0098)
- location hole for dial gauge 8H7

Delivery:
Without dial gauge

331200 Table surface lapped

Type	331200	Measuring range mm	Reach mm	Measuring table ∅ mm	Measuring table top mm	Vertical column mm	Horizontal column mm	Length of swivel arm mm	Total height mm	Weight kg
0051	○ +	100	49	50	—	22	—	—	200	2.3
0060	○ +	100	100	—	60 × 68	22	—	120	200	3.5
0098	○ +	150	135	—	98 × 98	28	20	—	284	7.1

Measuring table

Design:
- adjustable table with three-point support
- vertical column hard chrome-plated
- table with thread at the column, adjusting ring and horizontal measuring arm
- table face finest ground
- location hole for dial gauge 8H7

Delivery:
Without dial gauge

331201 Table surface ground

Type	331201	Measuring range mm	Reach mm	Measuring table top mm	Vertical column mm	Horizontal column mm	Total height mm	Weight kg
0098	○ +	160	180	98 × 180	35	22	320	13
0170	○ +	160	180	170 × 215	35	22	320	23

Measuring table

Design:
- column hardened and fine-honed
- surface made of ceramic $AL_2 0_3$ 99.7 % lapped
- planarity <= 2 µm
- location hole for dial gauge 8 H7

Delivery:
Without dial gauge

331202 Ceramic table surface lapped

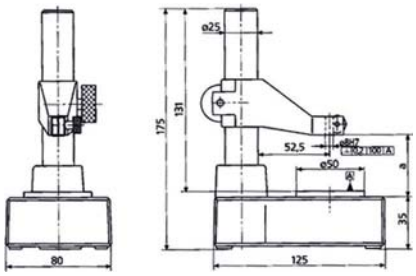
Type	331202	Measuring range mm	Reach mm	Measuring table top mm	Vertical column mm	Total height mm	Weight kg
0050	○ +	100	49	∅ 50	22	200	2.3
0065	○ +	100	100	65 × 75	22	200	3.2

Precision measuring table

Mahr

Design type 820 N:
- sturdy construction
- table top made of hardened steel
- flatness tolerance DIN 876/00
- rugged ground column of stainless steel
- adjustable support arm for display unit
- mounting bore mm 8H7

Delivery:
Without dial gauge



331700 without fine-adjustment

Table face Ø mm	331700	Total height mm	Measuring range mm	Reach mm	Column Ø mm
50	●	175	0 - 110	52.5	25

Design type 820NG:
- sturdy construction
- table top of black hard granite
- flatness tolerance DIN 876/00
- rugged ground column of stainless steel
- adjustable support arm for display unit
- mounting bore mm 8H7
- with fine adjustment by rigid parallel spring system (only 331755)
- fine adjustment range ± 0.2 mm (only 331755)

331750

331755

331750 without fine-adjustment
331755 with fine adjustment

Table face mm	331750	331755	Total height mm	Measuring range mm	Reach mm	Column Ø mm
100×160	○	○	228.5	228.5	67.5	25

Precision measuring table

Mahr

Design type 821 FG:
- sturdy construction
- table top made of black hard granite lapped
- flatness tolerance DIN 876/0
- robust ground column and adjustable support arm made of stainless steel
- adjustable arm with fall brake for indicator
- mounting bore mm 8H7
- with fine adjustment by strong rigid parallel spring system
- fine adjustment range ± 0.2 mm

Delivery:
Without dial gauge

331890 with fine adjustment

Table face mm	331890	Total height mm	Measuring range mm	Reach mm	Column Ø mm
200×300	○ +	375	300	90 - 200	35
300×400	○ +	675	500	95 - 280	50

Concentricity test bench

Design:
- planarity of base plate to DIN 876/1
- support area in prism 5 - 20 mm (only type 0075)
- seat for dial gauge 8 H7
- travel of movable tip 8 mm

Equipment:
- 1 base plate
- 1 pair of tailstocks
- 1 measurement stand

Delivery:
Without dial gauge

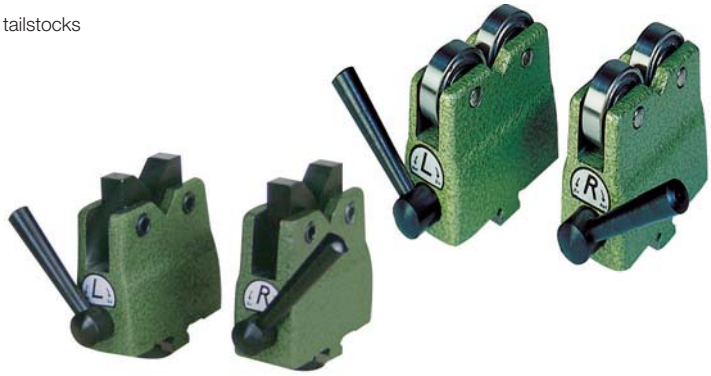
332100 Degree of accuracy 1

Type	332100	max. distance between centres mm	Height of tip mm	Base plate L × W mm	Width of T-slot	Distance guide/clamping groove mm	Total height with stand mm	Weight kg
0050	○ +	200	50	350 × 110	10 H7	58	260	8
0075	○ +	350	75	500 × 110	10 H7	58	260	12
0100	○ +	450	100	700 × 180	12 H7	100	320	35

V-support block and roller support in pairs

Design:
- prism panels exchangeable, hardened and ground
- prism angle 90°

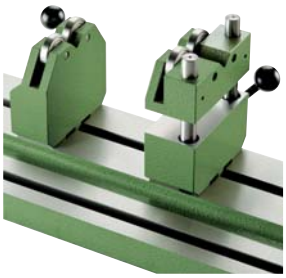
Use:
V-support and roller support blocks are mounted to the base plate instead of tailstocks



332200 V-support
332201 Roll-off block

Type	332200	332201	Support area mm	Height of tip mm	Width of T-nuts	Weight kg/pair
0050	○	○	d = 5 - 25	65	10 h6	1
0100	○	○	d = 8 - 50	100	12 h6	4

Roller bearing V block in pairs



332202 height-adjustable

Type	332202	Support area mm	Height of tip mm	Width of T-nuts	Min. distance L mm	Tape width b mm	Weight kg
0050	○	2 - 32	66	10 h6	16	8	1.8
0100	○	2 - 65	99	12 h6	19	8	5.7

Marking-off and surface plate

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 876

Design:
- made of special cast iron, ribbed design

Accuracy:
Quality I: ground
Quality III: milled

Note:
Further dimensions available on request

340000 Quality I
340050 Quality III

Length × width mm	340000	340050	Weight kg
200×200	○ +	○ +	7
300×300	○ +	○ +	15
400×300	○ +	○ +	25

Length × width mm	340000	340050	Weight kg
400×400	○ +	○ +	35
500×400	○ +	○ +	40
500×500	○ +	○ +	50

Measuring and inspection plate made of hard rock

MYTRI PRECISION GRANITE

DIN 876

Design:
- manufactured of black hard stone with a very fine and uniform texture
- surface lapped, sides ground, underside properly sawn
- resistance to bending extremely good, moisture absorption very low
- rustproof and acid-resistant

Quality I: Diamond lapped (10µ + L/100)
Quality 0: Fine diamond lapped (4µ + L/250)
Quality 00: Ultra fine diamond lapped (2µ + L/500)

Delivery:
With steel ball inserts, test record and transport packaging

Note:
On request also with T-grooves made of steel
(to DIN 650, nominal dimension 14 mm, precision 0.01/10000 mm),
with threaded bushings made of stainless steel or brass
in other (intermediate) sizes and accuracies (e.g. quality 000) available

340500 Quality I
340550 Quality 0
340600 Quality 00

Length × width mm	340500	340550	340600	Thickness mm	Weight kg
250×250	○ +	○ +	○ +	50	9
400×250	○ +	○ +	○ +	60	18
400×400	○ +	○ +	○ +	60	29
630×400	○ +	○ +	○ +	80	60
630×630	○ +	○ +	○ +	80	95
800×500	○ +	○ +	○ +	100	120

Length × width mm	340500	340550	340600	Thickness mm	Weight kg
1000×630	○ +	○ +	○ +	100	190
1000×1000	○ +	○ +	○ +	100	300
1200×800	○ +	○ +	○ +	150	432
1500×1000	○ +	○ +	○ +	150	675
2000×1000	○ +	○ +	○ +	200	1200
—	—	—	—	—	—

Safety pedestal

MYTRI PRECISION GRANITE

Design:
- made of solidly welded angular steel, with 3-point bearing and tipping protection
- the plate is secured against slipping and collision through sectional angles
- working height adjustable (incl. plate) between approx. 900 - 1000 mm adjustable
- standard colour silver grey RAL 7001, powder-coated

Note:
Other colours on request

340670 for hard rock measuring plates

Size of reference plate mm	340670
630×400	○ +
630×630	○ +
800×500	○ +
1000×630	○ +

Size of reference plate mm	340670
1000×1000	○ +
1200×800	○ +
1500×1000	○ +
2000×1000	○ +

Accessories for hard rock measuring plates

Design:
- cleaning agent for hard rock
- by additional use of the caring oil smooth sliding of the workpiece is ensured and the abrasion is considerably reduced

340880 Cleaning agent
340890 Cleaning and caring oil set

Contents	340880	340890	Containers
5L	●	—	Canister (5 l)
SET	—	●	2 × 500 ml spray can

Master square 90° Triangular shape

DIN 875 | DIN 876

Design:
- manufactured of black hard stone with a very fine and uniform texture
- two small leg surfaces lapped rectangular to each other (DIN 876/00)
- remaining surfaces polished
- rectangularity to DIN 875
- for weight reduction and better handling with through holes

Use:
For checking the 90° angle at verticals in the control room

Delivery:
With test certificate

340900 Quality 0
340920 Quality 00

Leg length mm	340900	340920	Angular accuracy mm	Width mm	Weight kg
200×150	○ +	—	0.004	50	2.5
300×200	○ +	○ +	0.005	50	5.0
400×250	—	○ +	0.003	60	10.0
500×300	○ +	○ +	0.060	80	20.0
630×400	—	○ +	0.003	80	35.0
800×500	—	○ +	0.004	100	90.0
1000×630	—	○ +	0.004	100	120.0

Gauge block

Design:
- made of black hard rock
- made of MYTRI fine black granite
- both surfaces are accurately and parallel ground
- from length 800 mm provided with 2 handles

Delivery:
With test certificate

340930 Quality 00

Length mm	340930	W × H mm	Accuracy mm	Weight kg
630	○ +	50 × 100	0.003	10
800	○ +	50 × 120	0.003	15
1000	○ +	60 × 150	0.004	27

Length mm	340930	W × H mm	Accuracy mm	Weight kg
1200	○ +	60 × 180	0.004	39
1500	○ +	70 × 200	0.005	63
2000	○ +	80 × 250	0.006	120

Pair of precision parallel supports

Design:
- made of black hard rock
- two slim measuring surfaces parallel machined to DIN 876/00 or DIN 876/0 as a pair

Use:
In the control room

Delivery:
With test certificate

DIN 876/0

340950 Quality 0
340980 Quality 00

L × W × H mm	340950	340980	340950 Accuracy mm	340980 Accuracy mm	Weight per pair kg
150×20×30	○	○	0.004	0.0020	0.50
200×25×40	○	○	0.005	0.0025	1.20
300×40×70	○	○	0.005	0.0030	5.00

V-block pair

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 876/0 | DIN 876/I | DIN 876/III

Delivered in case

Design:
- machined in pairs
- cut-in angle 90°
- accuracy 0.008 mm (341130)
- accuracy 0.016 mm (341131)
- accuracy 0.064 mm (341133)

Delivery:
in pairs.

341130 Special steel, quality 0
341131 Special cast, quality 1
341133 Special cast, quality 3

L × W × H mm	341130	341131	341133	for shaft ∅ mm
75×35×30	●	—	—	5 - 40
75×40×30	—	○	●	5 - 40
100×40×30	—	○	●	5 - 55
100×47×40	●	—	—	5 - 55
150×50×40	—	○	●	5 - 60
150×55×45	○	—	—	5 - 60
200×65×55	○	—	—	5 - 75
200×70×50	—	●	○	5 - 75

Four-way parallel V-block pair (Parallels)

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- machined in pairs
- the parallels have each four prismatic grooves of different size
- tolerance and parallelism ± 0.016 mm
- prisms and base ground

Use:
For marking, controlling and machining cylindrical parts

Delivery:
In pairs

341220 Special cast, quality 1

L × W × H mm	341220	for shaft ∅ mm
120×100×60	●	8 - 90
150×130×75	●	10 - 120
200×170×90	○	12 - 150

Double V-block pair

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- hardened, finely ground and calibrated in pairs
- accuracy 0.004 mm
- made of steel, top precision quality, with two grooves 90°
- 341300 (type D) with foldable clamp and 6 support faces

Use:
- for machining and inspecting cylindrical workpieces
- 341300: The prism with clamped workpiece can be laterally placed, too

Delivery:
In pairs

341250 341300

341250 with clamp, type N
341300 with fold-down clamp, type D

L × W × H mm	341250	341300	for workpiece ∅ mm
50×40×40	●	—	5 - 30
60×58×40	—	○	5 - 30
75×55×55	●	—	5 - 50
100×75×75	●	—	7 - 70

Divider

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- forged of steel with 3-piece milled joint surface, ground and burnished
- octagonally ground legs, points hardened and ground

342550 with setting wing

Length mm	342550
150	●
200	●
250	●
300	●
500	●

Spring divider

Design:
- extra strong square legs with steady spring tension and through spindle
- with quick-action nut and exchangeable points made of steel or carbide
- inside calliper with strong, outwards bent tips
- outside calliper with strong, inwards arched and domed tips

342700

342700 Dividers with exchangeable steel points

Length mm	342700
150	●
200	●
250	●
300	●

342750

342720 Pair of spare tips, steel

Length mm	342720
150 - 300	●

342780

342740 Pair of spare points, HM

Length mm	342740
150 - 300	○

342750 Inside calliper

Length mm	342750
150	○
200	●
250	○
300	●

342780 Outside calliper

Length mm	342780
150	○
200	○
250	○
300	○

Scriber

Design:
125: With straight point, biro form incl. 20 interchangeable scribers, chromium-vanadium steel, hardened

160: With straight point, plastic handle, carbide tipped

200: With 1 straight and 1 bent point, screwed-in and burnished, chromium-vanadium steel, hardened

250: With 1 straight and 1 bent point ∅ 4 mm, chromium-vanadium steel, hardened

125

160

200

250

343000 fixed

Total length mm	343000
125	●
160	●
200	●
250	●

Carbide scriber

Design:
- straight form with hexagonal steel handle and clip
- point made of carbide, soldered-in

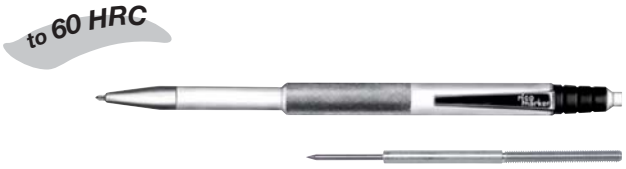
343150 with hexagonal shank

Total length mm	343150
150	●

Carbide scriber

Design:
- shank made of aluminium with clip, pen-type
- HM points regrindable, adjustable and exchangeable

Use:
For marking steel, sheet metal, cast, tiles, glass, plastics etc.



343170 with exchangeable carbide point
343200 Spare point (also for RICO markers)

Total length mm	343170	343200
150	●	●

Carbide scriber

Design:
- full-metal version with anti-slip surface
- scriber point holder in pen shape with pocket clip
- after use the needle slides into the shaft to protect the lead and the user
- the points are regrindable several times
- lead length adjustable
- due to the chuck the tip has a secure hold

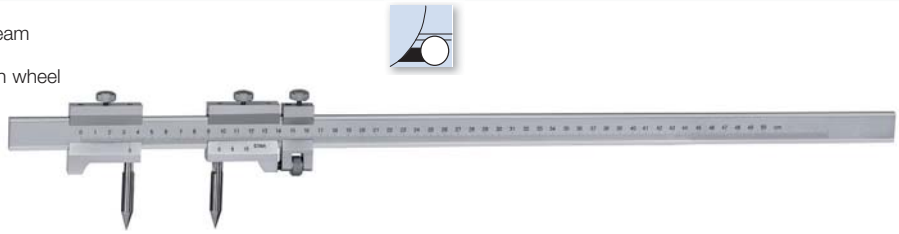
Use:
- for professional use at toolmaking and mould making etc.
- for marking steel, sheet metal, casting, tiles, glass, plastic etc.

343300 with exchangeable carbide point
343320 Spare points for scribers

Total length mm	343300	343320
150	●	●

Beam trammel

Design:
- made of gauge steel with sturdily dimensioned flat beam
- slide with 1/10 vernier
- exact and easy to calibrate fine adjustment via friction wheel
- position slide incl. reference marking
- exchangeable steel points hardened and exactly ground



343650 with friction wheel

Measuring range mm	343650	Cross section of measure beam mm
500	○ +	30 × 6
1000	○ +	30 × 6
2000	○ +	40 × 6

343660 Pair of spare points

Type	343660
1	○

Marking gauge

Design 343800:
- stainless steel, chrome finished
- flat pattern 40 x 3 mm
- marking-out edges hardened, laser-cut mm graduation, vernier 1/10 mm
- reference markers at slide

Design 343801:
- aluminium, anodised, black
- laser-cut mm graduation

343800

343800 stainless
343801 anodised aluminium

Measuring range mm	343800	343801
200	●	●
250	●	●
300	●	●

343801

Marking gauge

Design:
- mm/inch graduation, vernier 1/10 - 1/128
- with exchangeable hardened scriber

Use:
- ideal for parallel marking of convex, concave and other shapes

Delivery:
Incl. 1 spare scriber

343810 with track roller

Measuring range mm	343810	Cross-section mm
200	●	40 × 3

343812 Spare scriber

Type	343812
1	●

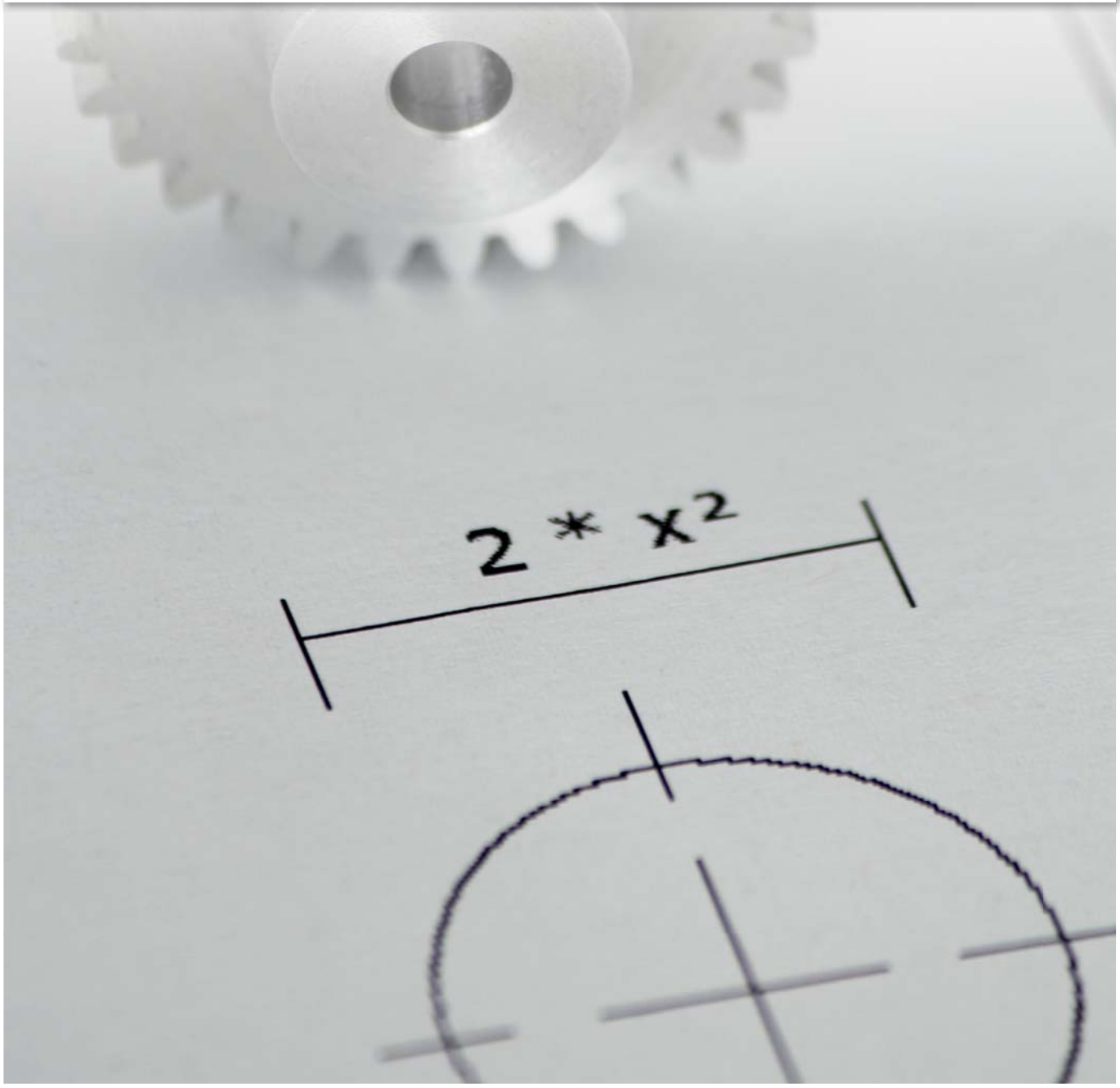
Marking calliper

Design:
Special steel, with locking screw, laser-graduated scale

Use:
For direct marking without using special measuring instruments

343900 with hardened scribers
343950 with HM scriber

Measuring range mm	343900	343950	Jaw length mm	reading mm	Weight kg
200	○	○	40	0.1	0.18
250	○	○	40	0.1	0.21
300	○	○	40	0.1	0.25



Knife-edge square DIN 875

Design:
- mat chrome-plated
- with 2 knife-edges, totally hardened

DIN 875

350151 Quality 00, stainless

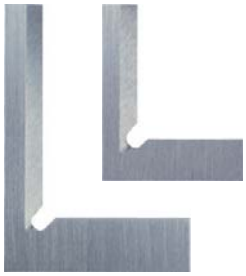
Leg length mm	350151	Leg length mm	350151
50×40	●	150×100	●
75×50	●	200×130	●
100×70	●	300×200	●

Die maker´s square DIN 875

Design:
- with a ground and lapped knife-edge at the inside of the small inner blade
- fully hardened and annealed, high edges ground and lapped
- flat edges finely ground

Use:
For the making of tools, jigs and fixtures

DIN 875 | calibrated



350300 Quality 00, stainless

Leg length mm	350300	Cross-section of base mm	Cross-section handle mm
25×20	●	6.0 × 3.5	5.0 × 3.5
40×28	●	6.0 × 3.5	5.5 × 3.5

Universal bevel protractor set

Design:
- all pieces hardened, measuring faces and edges lapped

Use:
For tool makers, precision engineers, mould-makers, inspectors, training workshops and vocational schools

Delivery:
Handpiece with large ruler

Delivered in case

350400 Universal bevel protractor set

Handle length mm	350400	Straightedge length mm
40	●	60

Measuring tool set

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 875 | DIN 874 | Edelstahl Rostfrei

Delivered in case

Design:
5-piece set comprising:
- 1 knife-edge square, stainless 75 × 50 mm
- 1 piece each die maker´s square 90°, stainless 25 × 20 and 40 × 28 mm
- 1 knife-edge straight edge made of normal steel, 100 mm
- 1 scriber for gauging 60 × 9 × 9 mm

Use:
For tool makers, precision engineers, mould-makers, inspectors, training workshops and vocational schools

350450 Quality 00, stainless, 5-piece

Quantity of parts	350450	Weight approx. kg
5	●	0.38

Flat square DIN 875/II

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 875/II

Design:
- made of special gauge steel
- high edges ground and calibrated, flat edges exactly dressed
- angle accuracy DIN 875/II

Use:
For mechanic engineering and general-purpose jobs

350880 Quality II, gauge steel

Leg length mm	350880	Cross-section mm
75×50	●	15 × 5
100×70	●	20 × 5
150×100	●	25 × 6
200×130	●	30 × 6
250×165	●	35 × 7
300×175	●	35 × 7
400×200	●	35 × 7
500×250	○	40 × 8
600×300	○ +	40 × 8
750×375	○ +	45 × 10
1000×500	● +	50 × 10

Try square DIN 875/II

PRECITOOL PRÄZISIONSWERKZEUGE

Design and use:
Like 350880, but with stop

DIN 875/II

351080 Quality II, gauge steel

Leg length mm	351080	Cross-section mm
75×50	●	15 × 5
100×70	●	20 × 5
150×100	●	25 × 6
200×130	●	30 × 6
250×165	●	35 × 7
300×175	●	35 × 7
400×200	●	35 × 7
500×250	●	40 × 8
600×300	● +	40 × 8
750×375	● +	45 × 10
1000×500	● +	50 × 10

Flat square DIN 875/I

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of special gauge steel
- high edges ground and calibrated
- flat edges exactly dressed
- angle accuracy DIN 875/I

DIN 875/I | Edelstahl Rostfrei

Use:
For production control and mechanical engineering

350800 Quality I, gauge steel
350850 Quality I, stainless

Leg length mm	350800	350850	Cross-section mm
75×50	●	●	15 × 5
100×70	●	●	20 × 5
150×100	●	●	25 × 5
200×130	●	●	30 × 6
250×165	●	○	35 × 7
300×200	●	●	40 × 8
400×265	○	—	45 × 10
500×330	○	○	50 × 10

Try square DIN 875/I

PRECITOOL PRÄZISIONSWERKZEUGE

Design and use:
Like 350800/350850, but with stop

DIN 875/I | Edelstahl Rostfrei

351000 Quality I, gauge steel
351050 Quality I, stainless

Leg length mm	351000	351050	Cross-section mm
75×50	●	●	15 × 5
100×70	●	●	20 × 5
150×100	●	●	25 × 5
200×130	●	●	30 × 6
250×165	●	●	35 × 7
300×200	●	●	40 × 8
400×265	●	○	45 × 10
500×330	●	○	50 × 10

Workshop square

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of steel, galvanised (rust-protected)
- both high and flat edges levelled and smoothed

Use:
For simple metalwork (levelling, marking)

351500

351550

351500 Flat square, galvanised
351550 Try square, galvanised

Leg length mm	351500	351550	Cross-section mm
150×100	●	●	20 × 5
200×130	●	●	20 × 5
250×160	●	●	25 × 5
300×180	●	●	25 × 5
500×280	●	●	30 × 5
750×375	● +	● +	30 × 5
1000×500	● +	● +	30 × 5

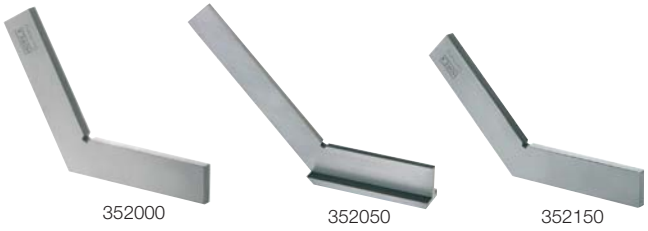
Mitre square DIN 875/II

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 875/II

Design:
- made of special gauge steel
- with ground high edges and finely finished flat edges
- with or without stop

Use:
For checking and marking the cornering 45°/90° (mitre) or the angles (hexagon) 60°/120°



352000 352050 352150

352000 Quality II, 135°, without stop
352050 Quality II, 135°, with stop
352150 Quality II, 60°/120°, without stop

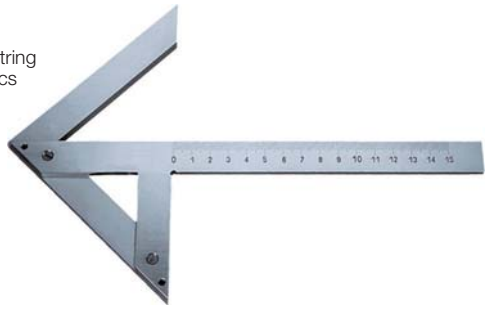
Leg length mm	352000	352050	352150	Cross-section mm
50×50	○	—	○	15 × 5
75×75	○	—	○	18 × 5
100×100	●	—	●	20 × 5
120×80	—	●	—	20 × 5
150×100	—	●	—	20 × 5
200×130	—	●	—	20 × 5

Centre square

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of gauge steel with mm graduation on the rail
- edges ground

Use:
For marking and centring shafts and round discs



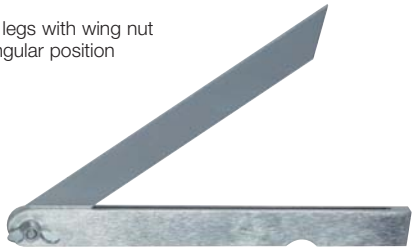
352600 made of gauge steel

Leg length mm	352600	for max. Ø mm
100×70	●	90
150×130	●	190
200×150	●	220
250×160	●	230
300×180	●	280

Bevel rule
Sliding T-bevel square

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of galvanised steel, 2 legs with wing nut
- adjustable to any desired angular position



352800 galvanised

Leg length mm	352800	Cross-section mm
200	●	20 × 5
250	●	20 × 5
300	●	20 × 5
500	○	20 × 5

Acute angle square DIN 875/II

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 875/II

Design:
- made of special gauge steel
- with fine machined edges and sides
- with or without stop

Use:
For testing, marking and measuring of 45° angles

352500 352550

352500 Quality II, 45°, without stop
352550 Quality II, 45°, with stop

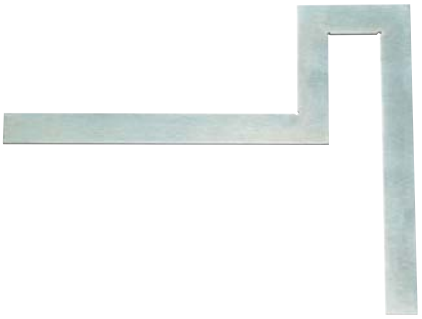
Leg length mm	352500	352550	Cross-section mm
120×80	●	●	20 × 5
150×100	○	●	20 × 5

Flange square

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of steel galvanised
- edges and sides machined

Use:
For aligning flanges



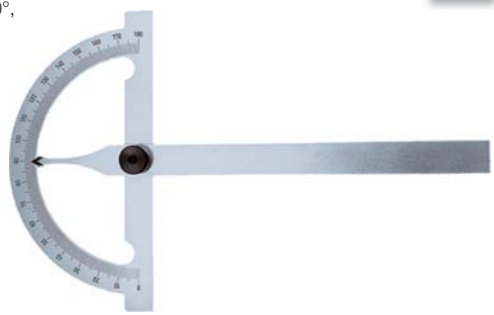
352700 galvanised

Leg length mm	352700	Cross-section mm
300×300	●	30 × 5
400×400	●	30 × 5

Protractor

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of stainless gauge steel, satin chrome plated (glare-free)
- with locking screw
- graduation 0 - 180°, reading 1°



354150 with protractor, stainless

Protractor × leg length mm	354150	Cross-section mm
80×120	●	11 × 2
120×150	●	13 × 2
150×200	●	16 × 3
200×300	●	20 × 3
300×500	●	30 × 4
300×600	○	30 × 4

Protractor

Design:
- surface hardened aluminium (HRC 62), black anodised
- with locking screw
- graduation 0 - 180°, reading 1°

354151 with protractor

Protractor × leg length mm	354151	Cross-section mm
80×120	●	11 × 2
120×150	●	13 × 2
150×200	●	16 × 3
200×300	●	20 × 3
300×500	●	30 × 4

Protractor

Design:
- with semicircular, open arc, blade adjustable in length
- locking screw made of tool steel
- adjustable measuring rail
- measurements on workpieces with tiny lugs and extensions

354180 with adjustable rail

Protractor × leg length mm	354180	Cross-section mm
100×150	●	20 × 4
150×300	●	20 × 4
200×400	●	20 × 4
250×500	●	20 × 4

Universal protractor

Design:
- with fine adjustment
- made of stainless steel with hardened measuring edges
- glare-free and parallax-free reading through counter thrusting vernier
- with large magnifying lens and additional angle
- partition of base plate in 4 × 90°
- reading accuracy 1/12° = 5 arc minutes
- with 3 exchangeable measuring bars of 150, 200 and 300 mm length
- measuring bars slidable in the entire length and with additional fine adjustment

Edelstahl Rostfrei – Inox Stainless Steel

Delivered in case

Use:
- for measuring angles at workpieces, fixtures, machines etc.
- usable as ruler and mitre square

354350 with fine adjustment, stainless

Length of rail mm	354350
150/200/300	●

Digital universal protractor

Design:
- with fine adjustment
- quick clamping
- 3 measuring rails 150, 200 and 300 mm
- reading 1“/0,01, Tol ± 5“
- measuring range 0 - 90°, 0 - 180°, 0 - 360°

Delivered in case

Delivery:
Incl. test certificate

354610 with fine adjustment

Length of rail mm	354610
150 - 300	●

Straightedge DIN 874/00

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 874/00

Design:
- bevel edge hardened, ground and fine lapped
- with insulation
- glare-free burnished

360020 Quality 00, regular steel

Length mm	360020	Cross-section mm
75	●	20 × 5
100	●	20 × 5
125	●	20 × 5
150	●	25 × 6
200	●	25 × 6
300	●	35 × 8
500	●	40 × 10

Steel ruler DIN 874/II

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 874/II

Design:
Edges and sides precisely machined, unhardened

Use:
For marking and alignment purposes

360150 Quality II, with test certificate

Length mm	360150	Cross-section mm	Weight approx. kg
500	● +	30 × 6	1.6
750	○ +	40 × 8	1.8
1000	● +	40 × 8	2.8
1500	○ +	50 × 10	6.0
2000	○ +	60 × 12	11.0

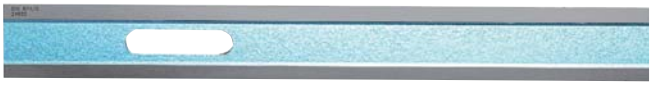
Steel ruler DIN 874/I

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 874/I

Design:
- edges and sides precisely machined, unhardened
- from size 2,000 mm with H-section profile and with 2 hand slots

Use:
For control purposes



360180 Quality I, with test certificate

Length mm	360180	Cross-section mm	Weight approx. kg
500	● +	40 × 8	1.4
750	○ +	50 × 10	3.0
1000	● +	50 × 10	4.7
1500	○ +	60 × 12	8.4
2000	○ +	70 × 14	15.0

Steel ruler DIN 874/0

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 874/0

Design:
- edges and sides precisely machined, unhardened

Use:
For the most accurate inspections

360230 Quality 0, with test certificate

Length mm	360230	Cross-section mm	Weight approx. kg
500	○ +	50 × 10	1.65
1000	○ +	60 × 12	5.60

Workshop rule DIN 866/B

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 866/B

EDELSTAHL Rost frei INOX STAINLESS STEEL

Design:
- ground on all sides and additionally polished on the graduation part
- the lengths of the scale lines are structured in mm, 5 mm and 10 mm

361150 stainless, form B

Length mm	361150	Cross-section mm	Weight approx. kg
500	● +	25 × 5	0.5
1000	● +	30 × 6	1.5
1500	○ +	30 × 6	3.5
2000	○ +	40 × 8	5.2
3000	○ +	40 × 8	8.2

Workshop rule DIN 866/A

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 866/A

EDELSTAHL Rost frei INOX STAINLESS STEEL

361200 Standard steel, form A
361250 stainless, form A

Length mm	361200	361250	Cross-section mm	Weight approx. kg
500	● +	○ +	30 × 6	0.75
1000	● +	● +	40 × 8	2.80
1500	○ +	○ +	40 × 8	4.70
2000	○ +	○ +	50 × 10	8.00
3000	○ +	○ +	50 × 10	14.00

Light metal rule

Design:
- aluminium profile 50 × 5 mm
- glare-free reading due to black mm scale
- not calibratable

361400 Aluminium anodised

Length mm	361400
300	●
600	●
1000	● +

Steel rule DIN 866/B

Design:
- the scale is abrasion-resistant
- insensitive to chemicals, greases and oils
- the matt surface guarantees prime readability
- curved edges
- EG accuracy class II

DIN 866/B | approved to EG-II | Rostfrei

361600 1/1 mm graduation top and bottom

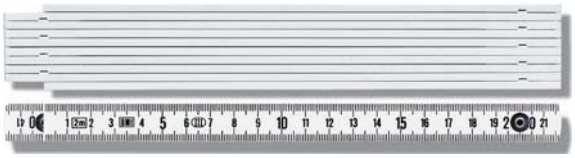
361650 1/2 mm graduation top and 1/1 mm graduation bottom

361600 stainless, form B, graduation mm/mm
361650 stainless, form B, graduation mm / 1/2 mm

Length mm	361600	361650	Cross-section mm
150	●	●	13 × 0.5
200	●	●	13 × 0.5
250	●	●	13 × 0.5
300	●	●	13 × 0.5
500	●	●	18 × 0.5
1000	●	●	18 × 0.5

Folding rule

Design:
- white plastic folding rule with black graduation (EG II)
- riveted metal joint springs



363100 Plastic, white

Measuring length m	363100	Width mm × Number of sections
1	●	13 × 10
2	●	16 × 10

Steel rule DIN 866/B

Design:
matt chrome-plated

DIN 866/B | Rostfrei

361500 stainless, form B, graduation mm/mm

Length mm	361500	Cross-section mm
300	●	30 × 1
500	●	30 × 1
1000	●	30 × 1
1500	● +	30 × 1
2000	● +	30 × 1
3000	● +	30 × 1

Folding rule

Design:
- duplex division, black graduation
- red decimal graduation
- brass-plated steel springs
- through-riveted joints

363000 beechen

Type	363000	Measuring length m	Width mm × Number of sections
2P	●	2	16 × 10

Folding rule

Design:
- spring-hard special aluminium alloy
- section thickness 1.4 mm
- section height 14 mm
- black with silver-coloured mm graduation
- digits and graduations deep etched in the anodized coat
- the graduation is anti-abrasive and withstands chemicals, grease and oil
- exactly latching, galvanized steel springs
- EG accuracy class II

NEW! IN PROGRAM

363200 Aluminium, black

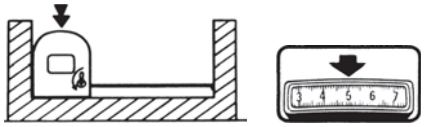
Measuring length m	363200	Width mm × Number of sections
1	●	14 × 10
2	●	14 × 10

Pocket spring tape measure

Design:
- housing made of polyamide
- direct reading of internal dimensions through window
- free-running tape made of spring strip, white stove-enamelled
- black/red mm graduation with EU qualification approval, calibratable
- coated to prevent premature wear

approved to EG-II

Type 2/F and 3/F with tape locking
Type 3/M with stainless steel base



2/F u. 3/F

3/M

363600 with window

Measuring range m	363600	Range mm	Casing dimension W × D × H mm
2	●	13	65 × 65 × 21
2/F	●	13	60 × 60 × 21
3	●	13	65 × 65 × 21

Measuring range m	363600	Range mm	Casing dimension W × D × H mm
3/F	●	13	65 × 65 × 21
3/M	●	13	60 × 60 × 21
—	—	—	—

Pocket spring tape measure STANLEY

Design:
- shockproof housing, enamelled tape for longer service life
- flexible tape end fitting for exact internal and external measurements

approved to EG-II

363625 with locking device

Measuring range m	363625	Range mm
3	●	12.7
5	●	19.0
8	●	25.0

Pocket spring tape measure

Design:
- housing made of impact-resistant ABS
- accuracy of the tape according to EC II
- graduation mm
- steel, white varnished with black graduation

approved to EG-II

363681 Vario

Measuring range m	363681	Range mm	Casing dimension W × D × H mm
2	●	13	58 × 57 × 26
3	●	13	58 × 57 × 26
5	●	16	75 × 70 × 26
8	○	19	76 × 75 × 32

Pocket spring tape measure

Design:
- stainless steel measure
- with stopper
- white varnished
- unbreakable and durable
- the convex tape makes it a perfect ruler
- rolls out by itself

363650 PRECImeter

Measuring range m	363650	Range mm
2	●	13

Pocket spring tape measure

BMI

approved to EG-II

Design:
- made of impact-resistant ABS
- stainless tape design
- tape, return spring and end hook are completely rustproof
- graduation mm/mm
- stainless steel with black graduation
- accuracy of the tape according to EC II

363686 Vario, stainless

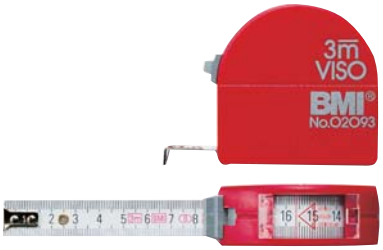
Measuring range m	363686	Range mm	Casing dimension W × D × H mm
2	●	13	58 × 57 × 26
3	●	13	58 × 57 × 26
5	○	16	75 × 70 × 26

Pocket spring tape measure

BMI

approved to EG-II

Design:
- housing made of polyamide
- free-running tape made of spring strip, white stove-enamelled
- black/red mm graduation with EU qualification approval, calibratable
- horizontal window for internal measurements and foldout callipers
- the spring tape measures provide the following functions: linear measure, internal dimension and radius



363700 Viso, with additional functions

Measuring range m × number of functions	363700	Range mm	Casing dimension W × D × H mm
3×3	●	16	65 × 65 × 25

Pocket spring tape measure

STANLEY

Design:
- brown plastic housing
- direct reading of internal dimensions through wide display window
- yellow steel tape with two-colour print
- no automatic tape return "push and pull"
- the housing is protected by an U-shaped aluminium rail
- movable end hook for inside and outside measurement

approved to EG-II

363760 PANORAMIC

Measuring range m	363760	Range mm
3	●	12.7

Pocket spring tape measure

STANLEY

Design:
- with chrome-plated plastic housing, removable belt clip
- automatic tape return with locking device
- yellow varnished steel tape with mm graduation and MYLAR protective coating

approved to EG-II

363800 POWERLOCK

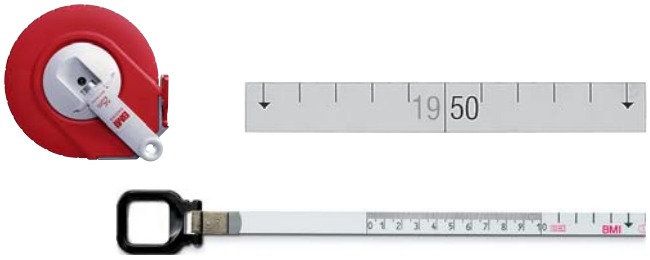
Measuring range m	363800	Range mm
5	●	19
8	●	25
10	●	25

Tape measure

BMI

Design:
- start of scale A approx. 10 cm from fitting end
- fibreglass tape 13 mm wide with cm graduation

approved to EG-II



364000 in capsule

Measuring range m	364000
10	●
20	●
25	○
30	●

Tape measure

Design:
- start of scale B from fitting with 0
- tape white enamelled steel, with mm graduation

approved to EG-II

364050 in capsule

Measuring range m	364050
10	●
15	●
20	●
25	○
30	○
50	●

Tape measure

Design:
- start of scale B from fitting with 0
- tapes made of steel with polyamide coating, mm graduation

approved to EG-II

364180 on a frame

Measuring range m	364180
20	○
30	○

Circumference tape Circometer

Design:
- made of spring strip
- 16 mm wide flexible tape with lasered scale graduation
- reading at vernier, option: Resolution 0.05 mm
- scale spacing 1 mm, vernier reading 0.1 mm
- accuracy of graduation to DIN 866/B

DIN 866/B

Use:
- for measuring circumference and diameter at round pieces (arbors, tubes, balls etc.)
- size 15 - 115 vernier reading 0.05 mm
- for measuring external diameters

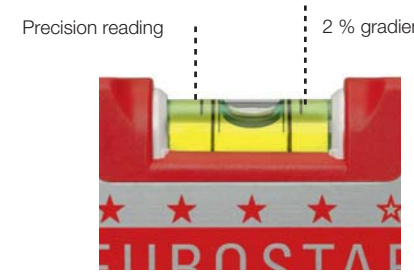
365100 stainless

Measuring range/circumference mm	365100	for Ø mm
15 - 115	○	—
60 - 950	●	20 - 300
940 - 2200	●	300 - 700
2190 - 3460	○	700 - 1100

Aluminium spirit level

Design:
- aluminium profile, cross-section 50 × 22 mm, silver-coloured anodised
- bubbles laser scaled, with magnifying effect
- levelling accuracy 0.5 mm/m at normal and at overhead measurement

Note:
- horizontal level with additional marking
- normal position and 2 % inclination at a glance



The original.
With laser scaled spirit levels (patented) and non-glare reading!

- **2 % gradient marking in the horizontal spirit level**
- **Markings for precision reading in the spirit level**
- **Laser-marked spirit levels, thus lifelong high measuring accuracy of 0.5 mm/m**
- **Optimal reading due to tube level**
- **Durable due to thick walls and shock-absorbing rubber end cap**
- **No more double bubbles**

370100 EUROSTAR

Total length mm	370100
300	●
400	●
600	●
800	●
1000	● +

Aluminium spirit level

Design:
- corrugated alu profile, cross-section 50 × 22 mm, silver anodised
- with 2 barrel-shaped bubbles in perspex, horizontal and vertical
- accuracy 0.5 mm/m for normal measurements

The original.
With ultra welded spirit levels and non-glare reading!

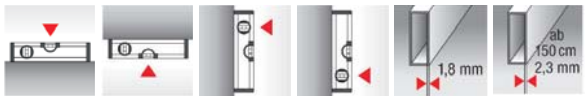
- **Round horizontal spirit level with magnifying effect**
- **Edgeless horizontal spirit level creates distortion-free view of the bubble, even when using the reversal method**
- **Durable due to thick walls and shock-absorbing rubber end cap**
- **Lifelong high measuring accuracy (0.5 mm/m) due to ultra welded spirit Levels**
- **Reversal measurement possible (0.75 mm/m)**
- **No more double bubbles**

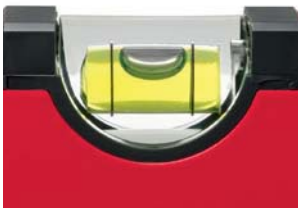
370150 ALUSTAR
370250 ALUSTAR with 2 powerful holding magnets

Total length mm	370150	370250
300	●	—
400	●	● +
500	●	—
600	●	●
800	●	—
1000	● +	● +
1500	○ +	○ +

Aluminium spirit level

Design:
- smooth, strong aluminium profile, cross-section 50 × 22 mm, milled face
- powder-coated surface
- with 2 barrel-shaped bubbles in perspex, horizontal and vertical
- the horizontal level with magnifying effect
- accuracy 0.5 mm/m in normal position, for reversal measurements





The original.
With ultra welded spirit levels and non-glare reading!

- **Round horizontal spirit level with magnifying effect**
- **Edgeless horizontal spirit level creates distortion-free view of the bubble, even when using the reversal method**
- **Lifelong high measuring accuracy (0.5 mm/m) due to ultra welded spirit Levels**
- **Reversal measurement possible (0.75 mm/m)**
- **Solid wall and shock absorbing rubber end caps maintain the high measuring accuracy**
- **Milled measuring surface (up to 200 cm)**
- **No more double bubbles**

370220 SUPERSTAR

Total length mm	370220
300	●
400	●
500	●
600	●
800	●
1000	● +

Aluminium spirit level

Design:
- cross section 22 × 50 mm, wall thickness 1.8 mm
- with head vial and rotatable angle vial
- robust horizontal perspex vial, with magnifying effect, easy to read
- measuring accuracy 0.5 mm/m in normal position or at reversal measurements
- with magnet

Magnet

370400 ULTRASONIC

Total length mm	370400
200	●

Aluminium spirit level

Design:
- at the same inclination the spirit bubbles have a five times longer way than in standard levels
- inaccuracies become visible immediately
- round levels for non-glare display
- mounting accuracy of levels 0.3 mm/m in normal position
- 4-chamber profile
- additional protection through shock-absorbing rubber end caps

370300 HIGHPRECISION

Total length mm	370300
600	○
800	○
1000	○ +
1200	○ +
1800	○ +
2000	○ +

Aluminium spirit level with inclinometer

Design and use:
- solid powder-coated 4-chamber profile with 2 milled faces
- electronically measured angle, digital display
- the computer can be calibrated on site within seconds
- display can be toggled between degrees and percentage
- measured value display in 0.1° or in 0.1% steps
- arrows in the display indicate the direction of movement for the inclinometer to reach the 0° or 90° position
- hold button to save the current measured value
- connectible acoustic signal for 0° or 90° position
- due to horizontal and vertical vial applicable as spirit level

Note:
Measuring accuracy at 0° and 90° = ± 0.1°
Measuring accuracy from 1° to 89° = ± 0.3°

Delivery:
With batteries, in screw cap plastic mailing tube

370620 Incli Tronic plus

Total length mm	370620
600	●
800	○
1200	○ +

Protractor with LCD display

Design and use:
- solid powder-coated light-metal profile
- fixing screw for locking the angle-setting
- range 355°, display in 0.1° increments
- profile-integrated bubbles allow to determine the horizontal and the vertical line
- can be used as spirit level

Delivery:
With batteries, in screw cap plastic mailing tube

370650 Quadranfix

Total length mm	370650
600	●

Plastic spirit level

Design:
Handy spirit level made of impact-proof plastic, furnished with acrylic glass vials

Type 670: With horizontal and vertical bubble
Type 671: Post level with prismatic base
Type 673: With horizontal, vertical and 45° bubble

370700 Plastic

Type	370700	Dimensions mm
670	●	100 × 35 × 13
671	●	150 × 25 × 23
673	●	200 × 42 × 17

Precision spirit level DIN 877

Design:
- made of grey cast iron, with prismatic base, measuring faces fine ground
- for aligning horizontal faces and shafts
- with ground and split horizontal vial and complete thermal protection
- tension-free mounting of the vial

DIN 877 | Delivered in case

370960 Acc. 0.10 mm
370970 Acc. 0.04 mm
370980 Acc. 0.02 mm

Length mm	370960	370970	370980	W × H mm
160	●	●	●	42 × 42
200	●	●	●	42 × 42
250	○	○	●	42 × 42
300	○	○	●	42 × 42
500	○	○	○	42 × 42

Light-metal spirit level

Design:
- with prismatic base (120°)
- scale graduation of vial approx. 0.6 mm/m

Delivered in case

371060 made of aluminium

Length mm	371060
150	●
200	●
250	○
300	○

Frame level DIN 877

Design:
- made of grey cast iron, 3 sides prismatic, one vertical side plane
- for aligning horizontal and vertical faces and shafts
- with complete thermal protection, measuring faces fine ground
- tension-free mounting of the vial

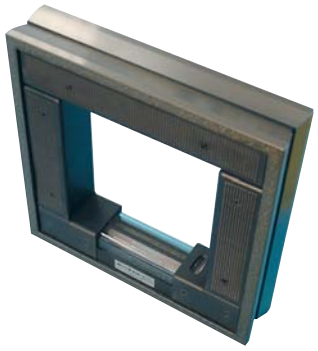
DIN 877 | Delivered in case

371560 Acc. 0.10 mm

L × H mm	371560	Width mm
100×100	○	34
150×150	●	42
200×200	●	42
300×300	○	44

371570 Acc. 0.02 mm

L × H mm	371570	Width mm
150×150	○	42
200×200	●	42
300×300	○	44



Crankpin spirit level DIN 877

Design:
- made of grey cast iron, with ground and split horizontal and vertical vial
- measuring faces fine ground
- with horizontal and transverse prism
- suited for aligning crankshafts and pins on engines and machines

DIN 877 | Delivered in case

372010 made of grey cast iron

Length mm	372010	Accuracy mm/m	Width mm	Height mm
60	●	0.20	42	42
90	●	0.10	42	42

Bench type spirit level

Design:
- measuring faces ground
- with one ground and split horizontal vial and flat base
- suited for simple calibrations

Delivered in case

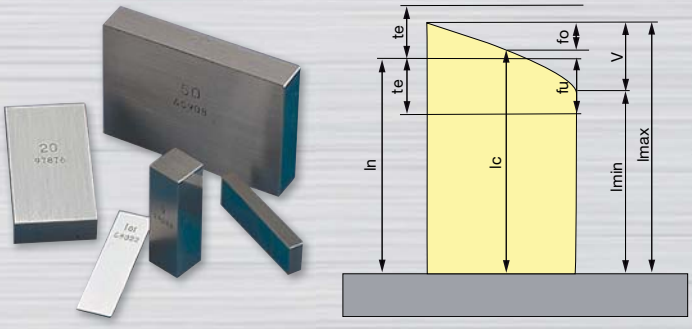
372305 made of grey cast iron

Length mm	372305	Accuracy mm/m	Width mm	Height mm
100	●	0.30	24	22
150	●	0.30	24	22

Tolerance classes and their application areas

The parallel gauge blocks according to DIN EN ISO 3650 are produced in different tolerance classes

Calibration class K	reference standard gauge blocks, are used predominantly for gauge block tests with gauge block testers in calibration laboratory, in conjunction with a DKD calibration certificate.
Tolerance class 0	Factory and reference standard in the calibration laboratory or in the air-conditioned measuring room for setting or calibrating gauges and measuring instruments
Tolerance class 1	Commonly used reference standard for the testing of gauges and for the adjustment of measuring instruments. Use in the measuring room and at the test station in production
Tolerance class 2	Gauge blocks of this class are used as a reference standard at inspection stations in production areas, for adjusting and calibration of measuring instruments and for adjustment and inspection of tools, devices and machines.



Deviation limits of the length of the nominal dimension and tolerances for the deviation span (extract from DIN EN ISO 3650, table 4)

Nominal size range		Tolerance class 0		Tolerance class 1		Tolerance class 2	
above	to	Deviation limits of the length of the nominal size at any point ± te µm	Tolerance for deviation span tv µm	Deviation limits of the length of the nominal size at any point ± te µm	Tolerance for deviation span ± te µm	Deviation limits of the length of the nominal size at any point ± te µm	Tolerance for deviation span tv µm
-	**10**	0.12	0.10	0.20	0.16	0.45	0.30
10	**25**	0.14	0.10	0.30	0.16	0.60	0.30
25	**50**	0.20	0.10	0.40	0.18	0.80	0.30
50	**75**	0.25	0.12	0.50	0.18	1.00	0.35
75	**100**	0.30	0.12	0.60	0.20	1.20	0.35
100	**150**	0.40	0.14	0.80	0.20	1.60	0.40
150	**200**	0.50	0.16	1.00	0.25	2.00	0.40
200	**250**	0.60	0.16	1.20	0.25	2.40	0.45
250	**300**	0.70	0.18	1.40	0.25	2.80	0.50
300	**400**	0.90	0.20	1.80	0.30	3.60	0.50
400	**500**	1.10	0.25	2.20	0.35	4.40	0.60
500	**600**	1.30	0.25	2.60	0.40	5.00	0.70
600	**700**	1.50	0.30	3.00	0.45	6.00	0.70
700	**800**	1.70	0.30	3.40	0.50	6.50	0.80
800	**900**	1.90	0.35	3.80	0.50	7.50	0.90
900	**1,000**	2.00	0.40	4.20	0.60	8.00	1.00

Comparison table on material properties

Property	**Ceramics**	**Carbide**	**Steel**
Linear expansion coefficient	9.5 x 10-E-6 / K	4.23 x 10-E-6 / K	11.5 x 10-E-6 / K
Thermal conductivity	very low	low	high
Wear resistance	excellent	good	less well
Wringing characteristics	acceptable	excellent	excellent
Geometric fidelity	excellent	excellent	acceptable at proper handling
Corrosion resistance	excellent	good	less well
Mechanic solidity	good	good	very good

Parallel gauge block set

PRECITOOL PRÄZISIONSWERKZEUGE

DIN ISO 3650 | Delivered in case

Design:
- made of top-quality special steel, age-hardened, annealed
- with good wringing performance, hand-lapped
- edges slightly chamfered

Accuracy level 0:
- for checking gauges actually used at work
- adjustment of measuring devices and measuring machines with high precision

Accuracy level 1:
- for checking control gauges
- for calibrating measuring devices
- control work in the measuring room

Accuracy level 2:
- working and setting gauge for control in workshop and production

Delivery:
Incl. test certificate of manufacturer

Calibration costs see survey of test devices from page 39/841.

380100 Degree of accuracy 0
380150 Degree of accuracy 1
380200 Degree of accuracy 2

Quantity of gauge blocks	380100	380150	380200	Contents Qty × Size (stepping) mm
32	○	●	●	1 × 1.005 9 × 1.01 - 1.09 (0.01) 9 × 1.1 - 1.9 (0.1) 9 × 1 - 9 (1.0) 3 × 10 - 30 (10.0) 1 × 50
47	●	●	●	1 × 1,005 20 × 1.01 - 1.20 (0.01) 7 × 1.30 - 1.90 (0.1) 9 × 1.00 - 9.00 (1.0) 10 × 10 - 100 (10.0)
87	○	●	●	9 × 1.001 - 1.009 (0.001) 49 × 1.01 - 1.49 (0.01) 19 × 0.5 - 9.5 (0.5) 10 × 10 - 100 (10.0)
103	○	●	●	1 × 1,005 49 × 1.01 - 1.49 (0.01) 49 × 0.5 - 24.5 (0.5) 4 × 25 - 100 (25.0)

Parallel gauge block

PRECITOOL PRÄZISIONSWERKZEUGE

DIN ISO 3650 | Delivered in case

Design:
- made of top-quality special steel, age-hardened, annealed
- with good wringing performance, hand-lapped
- edges slightly chamfered
- each gauge block is delivered with engraved ID no. and quality class

Accuracy levels 0 and 2 available on request

Delivery:
In plastic package, from 125 mm in wooden box

Calibration costs see survey of test devices from page 39/841.

380600 Accuracy level 1, single

Nominal size mm	380600	Graduation mm	Nominal size mm	380600	Graduation mm	Nominal size mm	380600	Graduation mm
0,5	●	—	40	●	—	250	○	—
1,001 - 1,009	○	0.0010	50	●	—	300	○	—
1,00 - 1,47	●	0.0100	60	●	—	400	○	—
1,48 - 1,90	○	0.0100	70	●	—	500	○	—
2,00 - 5,00	●	0.5000	80	●	—	600	○	—
5,50 - 9,50	●	0.5000	90	○	—	700	○	—
10,0	●	0.5000	100	●	—	800	○	—
10,5 - 25,0	○	0.5000	125	○	—	900	○	—
25,0	●	—	150	○	—	1000	○	—
30	●	—	200	●	—	—	—	—

Delivery:
- linen cloth
- chamois leather
- can of anti-corrosion oil
- hone
- fine brush
- grease brush
- operating manual

Delivered in case

381450 Gauge block care kit

Type	381450
1901	○

Design:
- with quick adjustment and clamping mechanism for rapid and secure chucking of gauge blocks
- smooth supporting faces all around
- excellent rigidity of shape due to longitudinal ribs

381700 Gauge block holder

Clamping range mm	381700
0 - 100	●
100 - 200	●
200 - 400	●
300 - 500	○

Use:
- only for external measurements
- suitable for forming snap gauges or adjustable limit snap gauges

381720 Plane jaws

Total length mm	381720	W × H mm
100	○	9 × 20

Use:
- for internal and external measurements (not suitable for bores)
- height corresponds to tolerance class 2

381730 Plane-parallel legs

Total length mm	381730	W × H mm
100	○	9 × 20

Use:
For internal and external measurements

16

381750 Measuring jaws with cylindrical shoulder

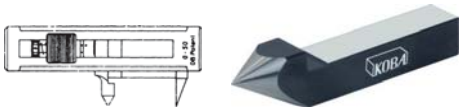
Lug Ø (pair of jaws) mm	381750	Measuring depth mm	Length mm	Shank size (clamping piece) mm
4	○	8	43	9 × 7
10	○	15	50	9 × 9
16	○	20	55	9 × 10
20	○	40	75	9 × 10
30	○	65	100	9 × 15
40	○	95	130	9 × 20

Use:
For measuring and checking grooves, recesses, etc.

381780 Knife-edge jaws

Total length mm	381780	Max. measurable Ø mm	Shank size (clamping piece) mm
55	○	26	9 × 10
65	○	50	9 × 10
90	○	100	9 × 15
140	○	200	9 × 20

Use:
For forming a marking divider



381800 Centre point

Total length mm	381800	Shank (clamping part) mm
55	○	9 × 8

Use:
For forming a precise height marking gauge

381820 Scriber

Total length mm	381820	Shank (clamping part) mm
55	○	9 × 8

Use:
For checking graduations and exact distances between lines and points

Delivery:
In pairs

381840 Control points

Total length mm	381840	Shank (clamping part) mm
55	○	9 × 8

Design:
- made of special cast, base minutely machined and lapped
- supporting face sharply aligned

Use:
For holding gauge block holders or combinations of them

381850 Holder base

Type	381850	Length mm	Width mm	Height mm
HF	○	106	70	28 (20)

Accessories for parallel gauge block

381855 Measuring jaw

Type	381855	Measuring range mm	Design
0001	○	all	upper measuring jaw
0003	○	18 - 35	lower measuring jaw
0005	○	35 - 100	lower measuring jaw
0007	○	100 - 280	lower measuring jaw
0009	○	280 - 510	lower measuring jaw

Accessories for parallel gauge block

Use:
- for adjustment of bore gauge micrometers

Delivered in case

100

280

381860 Accessory set for gauge blocks

Measuring range mm	381860	Contents
100	○	1× upper measuring jaw 1× lower measuring jaw 18 - 35 1× lower measuring jaw 35 - 100 1× gauge block holder 0 - 100 1× holder base
280	○	2× upper measuring jaw 1× lower measuring jaw 18 - 35 1× lower measuring jaw 35 - 100 1× lower measuring jaw 100 - 280 1× gauge block holder 0 - 50 1× gauge block holder 0 - 100 1× gauge block holder 100 - 200 1× gauge block holder 100 - 300 1× holder base
510	○	1× upper measuring jaw 1× lower measuring jaw 100 - 280 1× lower measuring jaw 280 - 510 1× gauge block holder 100 - 600 1× holder base

Accessories for parallel gauge block

Design:
- 11 mm thick
- 0.1 µm flatness accuracy
- weight 0.16 kg

Delivered in case

Use:
For checking the slidability of the gauge block measuring surface

381870 Optical flat

Diameter mm	381870
45	○

Gauge block set for outside micrometers

Design:
- the inserts can be unscrewed for easy cleaning of the inner boxes
- bottom and cover are lined with special paper, which creates a rust-proofing atmosphere when closed
- reading while seated is facilitated by an inclined scale

Delivered in case

381875 KOBA gauge block test kit

Type	381875	Contents
11	○	1 × 2.5 mm 1 × 5.1 mm 1 × 7.7 mm 1 × 10.3 mm 1 × 12.9 mm 1 × 15.0 mm 1 × 17.6 mm 1 × 20.2 mm 1 × 22.8 mm 1 × 25.0 mm 1 × test glass ∅ 30 mm

Gauge block set for callipers

Design:
- the inserts can be unscrewed for easy cleaning of the inner boxes
- bottom and cover are lined with special paper, which creates a rust-proofing atmosphere when closed
- reading while seated is facilitated by an inclined scale
- for callipers from 0 - 150 mm
- incl. test report

Delivered in case

381877 KOBA gauge block test kit

Type	381877	Contents
03	○	1 × 41.3 mm 1 × 131.4 mm 1× ring ∅ 30 mm

Precision pin gauge

Design:
- made of alloyed tool steel
- hardened and tempered, ground and lapped
- hardness 58 - 62 HRC
- degree of accuracy 1 = ± 0.001 mm, roundness 0.5 µm
- degree of accuracy 2 = ± 0.002 mm, roundness 0.5 µm

DIN 2269

Use:
See application examples (drawings on page 38/794)

383000 with handle, acc. 1

Diameter (increasing by 0.01) mm	383000	l_1 mm	l_2 mm	Diameter (increasing by 0.01) mm	383000	l_1 mm	l_2 mm
0,10 - 0,19	○	53	33	0,30 - 0,49	○	53	33
0,20 - 0,29	○	53	33	0,50 - 0,99	○	53	33

383002 with handle, acc. 2

Diameter (increasing by 0.01) mm	383002	l_1 mm	l_2 mm	Diameter (increasing by 0.01) mm	383002	l_1 mm	l_2 mm
0,10 - 0,19	○	53	33	0,30 - 0,49	○	53	33
0,20 - 0,29	○	53	33	0,50 - 0,99	○	53	33

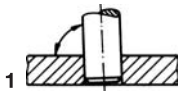
Precision pin gauge

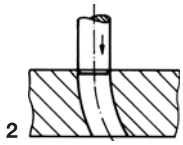
PRECITOOL PRÄZISIONSWERKZEUGE

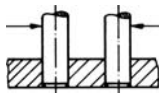
Design:
- made of alloyed tool steel
- hardened and tempered, ground and lapped
- hardness 58 - 62 HRC
- from ∅ 3.00 mm labelled

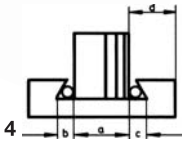
Use:
See application examples (drawings)

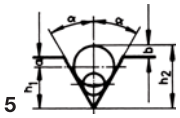
DIN 2269 | DIN 2269

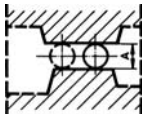

1 Angularity of bores and bore tolerances

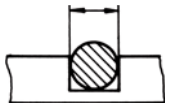

2 Straighness of bores

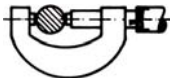

3 Hole spacings


4 V-guides


5 Profile depths of angles


6 Guide surfaces


7 Determine groove dimensions


8 Micrometer pitch

383100 with accuracy 0.001 mm

Diameter (increasing by 0.01) mm	383100	l mm	Diameter (increasing by 0.01) mm	383100	l mm
0,30 - 0,49	○	40	10,00 - 11,99	●	70
0,50 - 0,99	●	40	12,00 - 13,99	●	70
1,00 - 2,99	●	40	14,00 - 15,99	○	70
3,00 - 5,99	●	70	16,00 - 18,99	○	70
6,00 - 9,99	●	70	19,00 - 20,00	○	70

383102 with accuracy 0.002 mm

Diameter (increasing by 0.01) mm	383102	l mm	Diameter (increasing by 0.01) mm	383102	l mm
0,30 - 0,49	○	40	10,00 - 11,99	●	70
0,50 - 0,99	●	40	12,00 - 13,99	●	70
1,00 - 2,99	●	40	14,00 - 15,99	○	70
3,00 - 5,99	●	70	16,00 - 18,99	○	70
6,00 - 9,99	●	70	19,00 - 20,00	○	70

Precision pin gauge set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
- made of high-quality gauge steel, hardened and age-hardened to 58- 62 HRC
- ultra-fine ground to top contour-accuracy
- cylindrical pin gauges (test probes in set)
- the pins are checked at a reference temperature of 20 °C
- from 3.0 mm ∅ labelled at the front face
- facet ground on only one side to reduce damaging
- immutable measuring bobs

Use:
For various measuring and testing tasks

DIN 2269 | Delivered in case

383550 in wooden box, accuracy 0.001 mm
383551 in wooden box, accuracy 0.002 mm

Measuring range/grading mm	383550	383551	Length mm	Quantity/ contents
0,5 - 1/0,01	○	○	40	51
1 - 2/0,01	○	○	40	101
2 - 3/0,01	○	○	40/70	101
3 - 4/0,01	○	○	70	101
4 - 5/0,01	○	○	70	101
5 - 6/0,01	○	○	70	101
6 - 7/0,01	○	○	70	101
7 - 8/0,01	○	○	70	101
8 - 9/0,01	○	○	70	101
9 - 10/0,01	○	○	70	101
1 - 2/0,05	○	○	40	21
2 - 3/0,05	○	○	40/70	21

Limit plug gauge

PRECITOOL PRÄZISIONSWERKZEUGE

DIN 2245 | H7

Design:
- go and no-go sides made of hardened gauge steel
- ground and lapped
- limit plug gauges with different tolerances and intermediate dimensions available on request

Use:
For inspecting bores for dimensional accuracy

Calibration costs see survey of test devices from page 39/841
Please add "-KAL" to the size indication
Example: 384000 35-KAL

Note:
From size 65 upwards two-part

384000 with fit H7

Nominal size mm	384000	Nominal size mm	384000	Nominal size mm	384000	Nominal size mm	384000
1	●	15	●	30	●	48	●
1,5	●	16	●	32	●	50	●
2	●	17	●	33	○	52	○
3	●	18	●	34	●	55	●
4	●	19	●	35	●	58	○
5	●	20	●	36	●	60	●
6	●	21	●	37	○	62	○
7	●	22	●	38	●	65	●
8	●	23	●	39	○	68	○
9	●	24	●	40	●	70	○
10	●	25	●	42	●	75	○
11	●	26	●	44	●	80	○
12	●	27	●	45	●	85	○
13	●	28	●	46	○	90	●
14	●	29	●	47	○	100	○

Pin gauge accessories

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Holder made of fine zinc casting alloy, enamelled, with clamp screw

Use:
- for mounting gauge pins
- for producing individual go/no-go gauges

383300 Holder

Size	383300	Clamping range ∅ mm	Holder length mm
1	●	1 - 2	60
2	●	2 - 4	68
3	●	4 - 6	76
4	●	6 - 8	84
5	●	8 - 10	92

Limit plug gauge set

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Made of gauge steel hardened, tempered and fine ground

DIN 2245 | H7 | Delivered in case

384001 with fit H7

Nominal size mm	384001	Contents
3-12	●	1 × each ∅ 3 | 4 | 5 | 6 | 8 | 10 | 12 mm

Ring gauge (Control ring)

PRECITOOL PRÄZISIONSWERKZEUGE

Design:
Made of gauge steel, hardened, ground and lapped

DIN 2250 | Form C

Use:
For calibrating measuring instruments like three-point internal micrometers 311200, dial bore gauges etc.

Calibration costs see survey of test devices from page 39/841.
Please add "-KAL" to the size indication
Example: 384160 28-KAL

Note:
- further nominal diameters available on request
- ring gauges to DIN 2250 form B for pneumatic length measuring devices

384160 separate

Nominal size mm	384160	Nominal size mm	384160	Nominal size mm	384160	Nominal size mm	384160
3	○	29	○	58	○	100	●
4	○	30	●	60	●	105	○
5	○	31	○	62	○	110	○
6	●	32	○	64	○	112,5	○
7	○	33	○	65	○	115	○
8	●	34	○	66	○	120	○
9	○	35	●	68	○	125	●
10	●	36	○	70	●	130	○
11	○	37	○	72	○	135	○
12	●	38	○	74	○	137,5	○
13	○	39	○	75	●	140	○
14	○	40	●	76	○	145	○
15	●	41	○	78	○	150	○
16	●	42	○	80	●	155	○
17	○	43	○	82	○	160	○
18	●	44	○	84	○	162,5	○
19	○	45	○	85	●	165	○
20	●	46	○	86	○	170	○
21	○	47	○	87	○	175	○
22	○	48	○	88	○	180	○
23	○	49	○	90	○	185	○
24	○	50	●	92	○	187,5	○
25	●	52	○	94	○	190	○
26	○	54	○	95	○	195	○
27	○	55	○	96	○	200	○
28	●	56	○	98	○	—	—

Thread plug gauge

JBO

Design:
- made of gauge steel, hardened, tempered and fine ground
- one-piece arbor with go/no-go side
- the go-side is furnished with a complete thread profile
- the no-go side is equipped with a shortened thread profile with only a few thread leads

M Metric thread | Metric 60° | DIN 13 | 5H | 6H

Tolerance field:
≤ M1.4 = 5H
≥ M1.6 = 6H

Calibration costs see survey of test devices from page 39/841
Please add KAL (for "Calibration") to the size indication.
Example: 387000 M10-KAL

387000 JBO, metric

for threads	387000	for threads	387000	for threads	387000	for threads	387000
M1	○	M3	●	M12	●	M27	●
M1,2	●	M3,5	●	M14	●	M30	●
M1,4	○	M4	●	M16	●	M33	○
M1,6	●	M5	●	M18	○	M36	●
M2	●	M6	●	M20	●	M39	○
M2,2	○	M8	●	M22	○	—	—
M2,5	●	M10	●	M24	●	—	—

Thread ring gauge

Design:
Made of gauge steel hardened, tempered and fine ground

Tolerance field:
< M1.4 = 6h
> M1.4 = 6g

Calibration costs see survey of test devices from page 39/841.
Please add KAL (for "Calibration") to the size indication.
Example: 387100 M10-KAL

M Metric thread | Metric 60° | DIN 13

387100

387120

387100 JBO, metric, go
387120 JBO, metric, no-go

for threads	387100	387120	for threads	387100	387120	for threads	387100	387120	for threads	387100	387120
M1	○	○	M3	●	●	M12	●	●	M27	○	○
M1,2	○	○	M3,5	○	○	M14	●	○	M30	●	○
M1,4	○	○	M4	●	●	M16	●	●	M33	○	○
M1,6	○	○	M5	●	●	M18	○	○	M36	●	○
M2	●	○	M6	●	●	M20	●	●	M39	○	○
M2,2	○	○	M8	●	●	M22	○	○	—	—	—
M2,5	●	○	M10	●	●	M24	●	○	—	—	—

Thread plug gauge

Design:
- made of gauge steel, hardened, tempered and fine ground
- one-piece arbor with go/no-go side
- the go-side is furnished with a complete thread profile
- the no-go side is equipped with a shortened thread profile with only a few thread leads

Tolerance field:
P < 0.25 = 5H
P > 0.25 = 6H

Calibration costs see survey of test devices from page 39/841.
Please add KAL (for "Calibration") to the size indication.
Example: 387200 M10 × 0.35-KAL

MF Metric fine thread | Metric 60° | DIN 13 | 5H | 6H

387200 JBO, metric fine thread

for threads	387200	for threads	387200	for threads	387200	for threads	387200
M1×0,2	○	M9×0,35	○	M17×0,75	○	M27×0,75	○
M1,2×0,2	○	M9×0,5	○	M17×1	○	M27×1	○
M1,4×0,2	○	M9×0,75	○	M17×1,5	○	M27×1,5	○
M1,6×0,2	○	M9×1	○	M18×0,5	○	M27×2	●
M1,8×0,2	○	M10×0,35	○	M18×0,75	○	M28×0,75	○
M2×0,2	○	M10×0,5	○	M18×1	●	M28×1	●
M2×0,25	○	M10×0,75	○	M18×1,5	●	M28×1,5	○
M2,5×0,2	○	M10×1	●	M18×2	○	M30×0,75	○
M2,5×0,25	○	M10×1,25	●	M19×0,5	○	M30×1	●
M2,5×0,35	○	M11×0,5	○	M19×0,75	○	M30×1,5	●
M3×0,25	○	M11×0,75	○	M19×1	○	M30×2	●
M3×0,35	○	M11×1	○	M20×0,5	○	M32×1	○
M3,5×0,25	○	M12×0,5	○	M20×0,75	○	M32×1,5	●
M3,5×0,35	○	M12×0,75	○	M20×1	●	M33×1	○
M3,5×0,5	○	M12×1	●	M20×1,5	●	M33×1,5	○
M4×0,25	○	M12×1,25	●	M20×2	○	M33×2	●
M4×0,35	○	M12×1,5	●	M21×0,75	○	M34×1	○
M4×0,5	○	M13×0,5	○	M21×1	○	M34×1,5	○
M4,5×0,35	○	M13×0,75	○	M22×0,75	○	M35×1	○
M4,5×0,5	○	M13×1	○	M22×1	●	M35×1,5	●
M5×0,25	○	M13×1,5	○	M22×1,5	●	M36×1	○
M5×0,5	●	M14×0,5	○	M22×2	○	M36×1,5	●
M5×0,75	○	M14×0,75	○	M23×0,75	○	M36×2	●
M6×0,25	○	M14×1	●	M23×1	○	M36×3	○
M6×0,35	○	M14×1,25	○	M24×0,75	○	M38×1	○
M6×0,5	●	M14×1,5	●	M24×1	●	M38×1,5	●
M6×0,75	●	M15×0,75	○	M24×1,5	●	M39×1,5	○
M7×0,35	○	M15×1	○	M24×2	●	M39×2	○
M7×0,5	○	M15×1,5	○	M25×0,75	○	M39×3	○
M7×0,75	○	M16×0,5	○	M25×1	○	M40×1	○
M8×0,35	○	M16×0,75	○	M25×1,5	○	M40×1,5	●
M8×0,5	○	M16×1	●	M26×0,75	○	—	—
M8×0,75	○	M16×1,5	●	M26×1	○	—	—
M8×1	●	M17×0,5	○	M26×1,5	●	—	—

Thread ring gauge

Design:
Made of gauge steel, hardened, tempered and fine ground

Tolerance field:
P < 0.25 = 6h
P > 0.25 = 6g

Calibration costs see survey of test devices from page 39/841.
Please add KAL (for "Calibration") to the size indication.
Example: 387300 M10 × 0.35-KAL

MF Metric fine thread | Metric 60° | DIN 13

387300

387320

387300 JBO, metric fine pitch thread, go
387320 JBO, metric fine thread, no-go

for threads	387300	387320
M1×0,2	○	○
M1,2×0,2	○	○
M1,4×0,2	○	○
M1,6×0,2	○	○
M1,8×0,2	○	○
M2×0,2	○	○
M2×0,25	○	○
M2,2×0,25	○	○
M2,5×0,2	○	○
M2,5×0,25	○	○
M2,5×0,35	○	○
M3×0,25	—	○
M3×0,35	○	○
M3,5×0,25	○	○
M3,5×0,35	○	○
M3,5×0,5	—	○
M4×0,25	○	○
M4×0,35	○	○
M4×0,5	○	○
M4,5×0,35	○	○
M4,5×0,5	○	○
M5×0,25	○	○
M5×0,35	○	○
M5×0,5	●	○
M5×0,75	—	○
M6×0,25	○	○
M6×0,35	○	○
M6×0,5	○	○
M6×0,75	●	○
M7×0,35	○	○
M7×0,5	○	○
M7×0,75	○	○
M8×0,35	○	○
M8×0,5	○	○
M8×0,75	●	○
M8×1	●	○
M9×0,35	○	○
M9×0,5	○	○
M9×0,75	—	○

for threads	387300	387320
M9×1	○	○
M10×0,35	○	○
M10×0,5	○	○
M10×0,75	○	○
M10×1	●	●
M10×1,25	○	○
M11×0,5	○	○
M11×0,75	○	○
M11×1	○	○
M12×0,5	—	○
M12×0,75	○	○
M12×1	●	●
M12×1,25	●	○
M12×1,5	●	○
M13×0,5	○	○
M13×0,75	○	○
M13×1	○	○
M13×1,5	○	○
M14×0,5	—	○
M14×0,75	○	○
M14×1	●	○
M14×1,25	○	○
M14×1,5	●	●
M15×0,75	○	○
M15×1	○	○
M15×1,5	○	○
M16×0,5	○	○
M16×0,75	○	○
M16×1	●	○
M16×1,5	●	●
M17×0,5	○	○
M17×0,75	○	○
M17×1	○	○
M17×1,5	○	○
M18×0,5	—	○
M18×0,75	—	○
M18×1	●	○
M18×1,5	●	●
M18×2	○	○

for threads	387300	387320
M19×0,5	○	○
M19×0,75	○	○
M19×1	○	○
M20×0,5	○	○
M20×0,75	○	○
M20×1	●	○
M20×1,5	●	●
M20×2	○	○
M21×0,75	○	○
M21×1	○	○
M22×0,75	○	○
M22×1	●	○
M22×1,5	●	●
M22×2	○	○
M23×0,75	○	○
M23×1	○	○
M24×0,75	○	○
M24×1	○	○
M24×1,5	●	●
M24×2	●	●
M25×0,75	○	○
M25×1	○	○
M25×1,5	○	○
M26×0,75	○	○
M26×1	○	○
M26×1,5	●	○
M27×0,75	○	○
M27×1	○	○
M27×1,5	○	○
M27×2	○	○
M28×0,75	○	○
M28×1	●	○
M28×1,5	●	○
M30×0,75	○	○
M30×1	○	○
M30×1,5	●	○
M30×2	●	○
M32×1	○	○
M32×1,5	●	○

for threads	387300	387320
M33×1	○	○
M33×1,5	○	○
M33×2	○	○
M34×1	○	○
M34×1,5	○	○
M35×1	○	○
M35×1,5	○	○
M36×1	○	○
M36×1,5	○	○
M36×2	●	○
M36×3	○	○
M38×1	○	○
M38×1,5	○	○
M39×1,5	○	○
M40×1	○	○
M40×1,5	●	○
M42×1	○	○
M42×1,5	○	○
M45×1	○	○
M45×1,5	○	○
M48×1	○	○
M48×1,5	○	○
M50×1	○	○
M50×1,5	○	○
M52×1	○	○
M52×1,5	○	○
M55×1	○	○
M55×1,5	○	○
M56×1	○	○
M56×1,5	○	○
M58×1	○	○
M58×1,5	○	○
M60×1	○	○
M60×1,5	○	○
M62×1	○	○
M62×1,5	○	○
M64×1	○	○
M64×1,5	○	○
—	—	—

Thread plug gauge

Design:
- made of gauge steel, hardened, tempered and fine ground
- one-piece, for non self-sealing threaded connections (limit thread plug gauge)
- tolerance class medium

Calibration costs see survey of test devices from page 39/841.
Please add KAL (for "Calibration") to the size indication.
Example: 387500 M10 × 8-KAL

G Cylindrical pipe thread | DIN 228 | G. Whitworth pipe thread 55°

387500 JBO, cylindrical pipe thread

for threads	387500
G1/8	●
G1/4	●
G3/8	●
G1/2	●
G5/8	○
G3/4	●
G7/8	○
G1	●

Thread plug gauge

Design:
- for non self-sealing threaded connections, like 387500
- only one-sided with either go or no-go end
- tolerance class: medium

G Cylindrical pipe thread | DIN 228 | G. Whitworth pipe thread 55°

Calibration costs see survey of test devices from page 39/841.
Please add KAL (for "Calibration") to the size indication. Example: 387560 G1.1/4-KAL

387560 JBO, cylindrical pipe thread, go
387580 JBO, cylindrical pipe thread, no-go

for threads	387560	387580
G1.1/4	●	●
G1.1/2	●	●
G1.3/4	○	○
G2	●	○

Thread ring gauge

Design:
- for non-self-sealing threaded connections
- made of gauge steel, hardened, tempered and fine ground

G Cylindrical pipe thread | DIN 228 | G. Whitworth pipe thread 55°

Tolerance class A

Calibration costs see survey of test devices from page 39/841
Please add KAL (for "Calibration") to the size indication.
Example: 387600 M10 × 8-KAL

387600 JBO, cylindrical pipe thread, go
387620 JBO, cylindrical pipe thread, no-go

for threads	387600	387620
G1/8	●	●
G1/4	●	●
G3/8	●	●
G1/2	●	●
G5/8	○	○

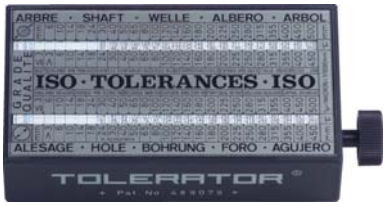
for threads	387600	387620
G3/4	●	●
G7/8	○	○
G1	●	○
G1.1/8	○	○
G1.1/4	●	○

for threads	387600	387620
G1.1/2	●	○
G1.3/4	○	○
G2	●	○
—	—	—
—	—	—

ISO tolerance indicator

Design:
Dust-proof plastic housing

Use:
- direct reading of all tolerance values to ISO recommendation R 286 - 1962
- the indicator comprises a complete list of all ISO tolerances in use at home and abroad up to nominal size 500 mm = more than 6400 pairs of tolerance values



388100 Tolerator

Type	388100
TOLERATOR	●

Thread indicator

Design:
Dust- and dirt-proof plastic housing

Use:
- indicates the determination of threads, the range and the relevant data
- for core hole diameters

388200 Filetor

Type	388200
FILETOR	●

Hardness tester

PRECITOOL PRÄZISIONSWERKZEUGE

Design and use:
- testing device after Brinell for materials with solidities between 35 and 220 kg/mm²
- especially for controlling the as-delivered condition of semi-finished products of all forgeable iron and steel grades like hardened, tempered and high-alloyed steels, construction steels, tool steels, cast steel, grey cast iron, round steel, profile iron, rails, forgings, thick plate, boiler plate and thick-walled tubes
- for checking hardness and strength at large dies, blanking punches, anvils, machine supports, built-in iron girders etc.
- measured values can be taken from separate tables
- with the reference bar (gauging rod) approx. 40 measurements can be performed

Delivered in case

Scope of delivery:
- hardness tester with reference bar
- measuring magnifier and operating manual with comparative tables

388600 Ball impact hardness tester
388620 Spare measuring bar

for material strength kg/mm²	388600	388620
35 - 220	○	○

Hardness tester

KERN

Design:
- compact build
- for 1-handed operation
- LCD display with switchable strong brightness and backlighting, allowing reading from all directions
- tests in all test directions (360°) by automatic compensation function
- internal impact rebound sensor
- measured values optional in Rockwell (Type B and C), Vickers (HV), Brinell (HB), Shore (HSD) and Leeb (HL)
- internal data memory for up to 500 measurement data with date and time
- easy to install on all PCs
- measurement uncertainty ± 4 HLD
- dimensions L × W × H = 145 × 35 × 25 mm
- battery powered
- external mains adapter
- weight approx. 0.07 kg

USB | Delivered in case

388630 KERN HN-D, mobile

Type	388630
0001	○

Hardness tester

KERN

Design:
- measures all metallic samples (> 3 kg, thickness > 8 mm)
- offers the highest degree of mobility and flexibility in use compared to stationary table devices and hardness testers with an internal sensor
- robust metal housing
- external impact sensor
- measured values in Rockwell (Type A, B and C), Vickers (HV), Shore (HS), Leeb (HL) and Brinell HB)
- automatic unit conversion (the measuring result is converted into all the mentioned hardness units)
- tests in all test directions (360°) by automatic compensation function
- limit value function (input of the upper and lower limit value; an optical and acoustic signal supports the measuring process)
- internal data memory for up to 600 measuring groups, up to 32 individual values per group, from which the average value of the group is formed)
- mini statistics function shows measured value, average value, measuring direction, date and time
- matrix display backlit multi-function display of all relevant functions at a glance
- precision ± 1 % at 800 HLD
- smallest bending radius of the test object (concave/convex) 50 mm (with stabilizing ring 10 mm)
- thinnest measurable layer 8 mm
- dimensions W × D × H = 132 × 82 × 31 mm
- permissible ambient temperature range -10 °C / +40 °C
- battery operation 2× 1.5 V AA (not included in the scope of delivery), operating time up to 100 h, AUTO-OFF function for battery protection, battery level indicator
- weight approx. 0.45 kg

USB | TOL | Delivered in case

388631 KERN HK-D, mobile

Type	388631
0001	○

Hardness tester

Design:
- impact sensor
- external impact sensor (type D)
- offers the highest degree of mobility and flexibility in use compared to stationary table devices and hardness testers with an internal sensor
- tests in all test directions (360 °) by automatic compensation function
- data output to PC
- wireless, infrared-connected printer, for on-site printing of measurement protocols (battery operated)
- hardness reference block and guide ring for curved test objects (radius > 10 mm)
- internal data memory for up to 9 measuring groups, up to 9 individual values per group, from which the average value of the group is formed)
- mini statistics function shows measured value, average value, difference from max. and min. value, date and time
- measured values in Rockwell (Type A, B and C), Vickers (HV), Brinell (HB), Shore (HS), Leeb (HL) and tensile strength (MPa)
- automatic unit conversion (the result is converted into all the hardness units)
- precision 1 % at 800 HLD (± 6 HDL)
- measuring range tensile strength 375 - 2639 MPa (steel)
- smallest test weight on massive basis sensor D & DC 3 kg / sensor G 15 kg
- thinnest measurable layer sensor D & DC 8 mm / sensor G 10 mm
- smallest bending radius of the test object (concave/convex) 50 mm (with stabilizing ring 10 mm)
- dimensions L × W × H = 150 × 80 × 30 mm
- external mains adapter
- battery operation possible, batteries (3 × 1.5 V AAA) included, AUTO-OFF function for battery recharging, battery level indicator
- weight approx. 0.2 kg

USB | Delivered in case

388632 KERN HMM, mobile

Type	388632
0001	○

Hardness tester

Design:
- for measuring the penetration depth (Shore)
- for internal comparison measurements, standard calibrations e. g. to DIN 53505

Delivered in case

- **type 0001** (Shore A) for rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **type 0003** (Shore D) for plastics, synthetic resin, Formica, epoxides, plexiglass etc.

- Max mode collects the peak value
- Point mode shows the stable measured value
- mountable on test stands
- precision 3 % of Max

- **type 0001 / type 0003** Measuring range max: 100 HA / 100 HD
- **type 0001 / type 0003** Readability: d 1.0 HA / 1.0 HD

- dimensions L × W × H = 115 × 60 × 25 mm
- weight approx. 0.16 kg

0001

0003

388633 KERN HB, analogue

Type	388633
0001	○
0003	○

Hardness tester

Version type 0001 / type 0003:
- for hardness determination of plastics through penetration measurement

RS232C | Delivered in case

- **type 0001** (Shore A) for rubber, elastomers, neoprene, silicone, vinyl, soft plastics, felt, leather and similar material
- **type 0003** (Shore D) for plastics, synthetic resin, Formica, epoxides, perspex etc.

- internal memory for up to 500 measurements
- for internal comparison measurements, standard calibrations e. g. to DIN 53505
- can be attached to test stands to improve measuring uncertainty
- large display with backlight
- selectable AUTO-OFF function or continuous operation, charge indicator

- **type 0001 / type 0003** Measuring range max: 100 HA / 100 HD
- **type 0001 / type 0003** Readability d: 1.0 HA / 1.0 HD

Design type 0010:
- data transfer software incl. interface cable
- suited for coating thickness gauges

Shore D

Shore A

388634 KERN ATC-01 software (without fig.)

Type	388634
0010	○

388634 KERN HD, digital

Type	388634
0001	○
0003	○

Surface measuring device MarSurf

Mahr

Design M 300:
- integrated standard in feed unit
- Bluetooth interface
- illuminated colour display
- integrated memory for results and profiles plus function of tolerance monitoring
- vertical scale selection and setting of unsymmetrical intersections

Design M 300:
- automatic profile detection and corresponding selection of filter and traversing length conforming to standards
- individual sampling lengths and shortened filters can be selected. Printing of R-profile (ISO/ASME/JIS), P-profile (MOTIF), material ratio curve, measuring record Measuring units (µm / µin) and standards (ISO/JIS/ASME/MOTIF) are selectable

Use:
- on shafts, housing parts, large machines, automotive construction, large workpieces, milling and turning parts or on ground and honed workpieces
- on the production line or directly upon a machine, for rapid testing of the surface roughness of a workpiece in or on a machine

Technical data:
- measuring range up to 350 µm (0.014 in)
- measuring units µm / µin selectable
- standards ISO / ASME / JIS and MOTIF selectable
- scan length to DIN EN ISO 4288 and ASME B46.1: 1.75 mm / 5.6 mm / 17.5 mm (0.07 in / 0.22 in / 0.7 in) according to EN ISO 12085: 1 mm / 2 mm / 4 mm / 8 mm / 12 mm / 16 mm
- number of sampling lengths selectable from 1 to 5
- automatic selection of the filter and the scanning distance
- phase correct Gaussian filter according to DIN EN ISO 11562
- cutoff 0.25 mm / 0.80 mm / 2.50 mm (0.010 in / 0.032 in / 0.100 in)
- shortened cutoff selectable - parameters according to: DIN / ISO: Ra, Rq, Rz, Rmax, Rp, Rpk, Rk, Rvk, Rv, Mr1, Mr2, A1, A2, Vo, Rt, R3z, RPc, Rmr, RSm, Rsk, JIS: Ra, Rz, RzJIS, Sm, S, tp
- ASME: Rp, Rpm
- MOTIF: R, Ar, Rx, W, CR, CL, CF
- tolerance monitoring in display and measuring record
- automatic or fixed scaling
- printing of R-profile (ISO / ASME / JIS), P-profile (MOTIF)
- material ratio curve and measuring record
- date and/or time of the measurement
- integrated memory for the results of up to 40,000 measurements and 30 profiles
- dynamic calibration function
- lock and/or password protection for device setting

Delivery M 300:
- evaluation unit M 300
- feeding unit RD 18
- feeler PHT 6-350, Mahr calibration certificate
- roughness standard (integrated in feed unit)
- 1 roll of thermal paper, height adjustment
- front prism, feeler protection, feeler protection with prismatic underside
- 2× USB cable
- screwdriver
- universal plug-in power pack 90-240 V (with three mains plug adapters)
- shoulder strap and instruction manual

388712 MAHR, M 300

Type	388712
M300	●

Surface measuring device MarSurf

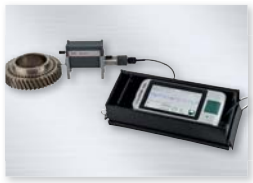
Design:
- handy roughness measuring device for mobile use
- easy and intuitive menu navigation
- large, illuminated 4.3 "TFT touch display
- display rotatable
- Start button simultaneously Home button for direct access to the start screen
- data backup as TXT, X3P, CSV and PDF file
- mains-free operation - over 1200 measurements without charging
- flexible thanks to removable feed unit
- for all measuring positions - horizontal, vertical, overhead
- with integrated, removable roughness standard
- quick access to functions by favourites in the display
- standards DIN-ISO/JIS/ASME/MOTIF selectable
- setting unbalanced profile section levels for peak counting
- tolerance monitoring
- lock and/or password protection for device setting
- date and time for recording

Use:
- roughness measurements on site directly at the workpiece
- measuring in the production process
- universal on the processing machine
- in the incoming goods inspection

Delivery:
MarSurf PS10 basic unit, feed unit, standard feeler (according to norm), rechargeable battery (built-in), roughness standard (including Mahr calibration certificate), feeler protection, charger, 3 mains adapters, operating instructions, carrying case with shoulder strap, USB cable, extension cable feed unit, height adjustment (integrated)

Functions:
- **measuring unit:** ..... Metric/inch
- **measuring principle:** ..... Profile method
- **feeler:** ..... Inductive skid sensor, 2 µm feeler tips, measuring force approx. 0.7 mN
- **parameters:** ..... => DIN/ISO: Ra, Rq, Rz, Rmax, Rp, Rpk, Rv, Rk, Rvk, Mr1, Mr2, A1, A2, Vo, Rt, Rv, RPc, Rmr, RSm, Rsk, CR, CF, CL, R, AR, Rx
  ..... => JIS: Ra, Rq, Ry (corr. Rz), RzJIS, tp (corr. Rmr), RSm, RS
  ..... => ASME: Rp, Rpm, RPc, Rsk, tp (corr. Rmr)
  ..... => MOTIF: R, AR, Rx, CR, CF, CL
- **languages:** ..... 17, of which 3 are Asian
- **measuring range:** ..... 350 µm
- **profile resolution:** 8nm
- **filter*:** ..... => Gaussian filter according to ISO 16610-21
  ..... => special filter according to DIN EN ISO 13565-1
  ..... => ls-filter according to DIN EN ISO 3274 (on-off-switchable)
- **Cutoff lc*:** ..... 0.25 mm / 0.8 mm / 2.5 mm / automatic
- **traversing length Lt*:** ..... 1..5 mm / 4.8 mm / 15 mm / automatic / N × Lc, freely selectable
- **traversing length (acc. to MOTIF):** ..... 1 mm / 2 mm / 4 mm / 8 mm / 12 mm / 16 mm
- **shortened Cutoff*:** ..... Selectable
- **total measuring distance ln*:** ..... 1.25 mm / 4.0 mm / 12.5 mm
- **number of the individual measuring sections*:** ... Selectable from 1 to 16
- **calibration function:** ..... Dynamic
- **memory capacity:** ..... 3900 profiles, 500,000 results, 1500 PDF files, expandable with microSD card up to 32 GB
- **dimensions:** ..... H × W × D = 160 × 77 × 50 mm
- **weight:** ..... 500 g
- **battery:** ..... Li-ion battery, 3.7 Volt, nominal capacity 11.6 Wh
- **interfaces:** ..... USB device, MarConnect (RS232, USB), micro SD slot for SD™ / SDHC cards up to 32 GB
- **wide range power supply:** ..... 100 Volt to 264 Volt

*According to ISO/JIS



388750 MAHR, PS10

Type	388750
PS10	●

Accessories

Mahr

Design:
PHT 6-350: Standard probe, **already included in set PS 10,** for measurements in boreholes from ∅ 6 mm
PHT 3-350: For measurements in boreholes from ∅ 3 mm
PHT 11-100: For measurements at recessed measuring points, e.g. in grooves from 2.5 mm width to 7.5 mm depth
PHTR 100: For measurements on concave and convex surfaces
PHTF 0.5-100: For measurements on tooth flanks
PT 150: Dual-skid probe for roughness measurements on metal sheets and roller surfaces according to DIN EN 10049 (SEP)

PT 150

PHTR 100

PHT 11-100

PHTF 0,5-100

PHT 3-350

388762 MAHR, probe

Type	388762
PHT6 - 350	●
PHT3 - 350	○
PHT11 - 100	○
PHTR100	○
PHTF0,5 - 100	○
PT150	○

388766 MAHR 814 SH

Type	388766
814SH	○

Accessories

Mahr

Use:
E.g. for measuring points located deep inside cylinders

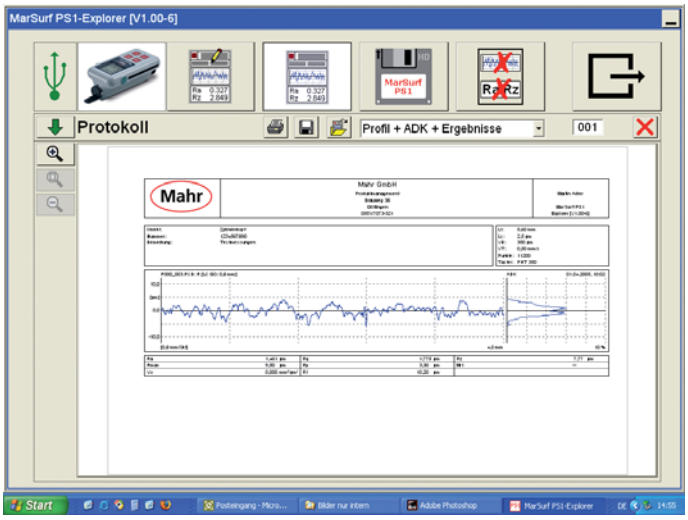
388760 MAHR, 80 mm

Probe length mm	388760
80	○

Explorer software

Mahr

Use:
- easy to operate PC software to document and record results and profiles
- connection PS1 to PC via USB cable (Included in standard set)



388769 for MarSurf M300

Type	388769
0001	○

Surface roughness tester Surftest

Mitutoyo

Design:
- measuring range 360 µm
- touch probe measuring force 0.75 mN
- probe tip angle 60°
- probe tip radius 2 µm

Digimatic USB U-WAVE®

Type SJ210: Standard feed for measurements in X direction
Type SJ210R: The touch system lowers itself after the measurement started, feed in X measuring direction
Type SJ210S: For special purpose measuring tasks, only in Y direction (transversely to the standard measuring direction)

Note:
Software free of charge from www.mitutoyo.de

388775 MITUTOYO 178

Type	388775
SJ210	●
SJ210R	○
SJ210S	○

Standard

R-type

S-type

Surface roughness tester Surftest

Mitutoyo

Design:
- portable
- with touch-sensitive LCD monitor (touch screen) and integrated printer
- 5.7" colour LCD
- easy and intuitive menu navigation
- follows industrial standards like DIN EN ISO, VDA, ANSI or JIS
- 10 different measuring conditions can be stored
- statistic function and coloured tolerance evaluation
- two different evaluation criteria with one measuring operation
- each function can be protected separately by a password
- 16 languages available
- touch probe measuring force 0.75 mN
- probe tip angle 60°
- probe tip radius 2 µm

Digimatic USB U-WAVE®

Note:
Software free of charge from www.mitutoyo.de

388776 MITUTOYO 178

Type	388776	Design
SJ310	○	Standard version
SJ310R	○	with X measuring direction
SJ310S	○	for special purpose measuring tasks, only in Y direction (transversely to the standard measuring direction)

Standard

R-type

S-type

Surface roughness tester Surftest

Mitutoyo

Design:
- high-precision measurements
- high-resolution probe tip with wide measuring range
- feed unit with high straightness
- reference plane system for measuring of primary, roughness and waviness profile
- 35 different roughness parameters
- data preparation with an analysis program possible
- measuring force touch probe 0.75 mN
- probe tip angle 60°
- probe tip radius 2 µm

Digimatic USB U-WAVE®

388777 MITUTOYO 178

Type	388777	Measuring range (X-axis) mm	Straightness	Dimensions probe system mm
SJ411	○	25	0.3 µm/25 mm	128 × 36 × 47

Surface normal

Design and use:
- according to standards ISO/R 468, ISO 2632/1-1975 and NF E 05-051
- for comparison by sight and touch with finger tip or nail
- at roll milling, face milling, turning, grinding, lapping, planing and honing

Delivered in case

Delivery:
Incl. table

388800 RUGOTEST for tactile and visual comparison

Quantity of comparative values	388800	Comparison range RA µm	Size of master blocks mm
27	●	0.05 - 12.5	120 × 90

Geometry normal

Design:
- surface normal with sinusoidal groove profile
- for dynamic checking of the roughness measuring position
- Ra, Rz, Rmax
- optical flat

388801 with sinusoidal groove profile

Type	388801	Design
0001	○	MarSurfPGN 1
0003	○	MarSurfPGN 3
0010	○	MarSurfPGN 10

Geometry normal

Design:
- surface normal with turned profile
- chrome-plated
- profile depth approx. 10 µm
- for checking the roughness measuring station
- incl. test certificate

calibrated

388802 with turned profile

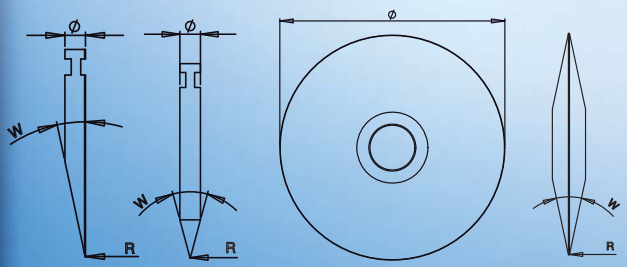
Type	388802	Design
0010	○	MarSurfPRN 10

PRECICOM 225

Contour measurement
Roughness measurement
Touch probes

precise, cost-cutting and flexible.

A chain is only as strong as its weakest link - a control system only as good as probe arm and probe tip. Therefore, we pay the same attention to these details as our machines. All touch probes are manufactured with the same care as the PRECICOM measuring systems. And they are equally elaborate: Our practical and cost-cutting system consisting of a variety of probe tips, disk feelers and miniature probe arms, which can be exchanged in seconds using the practical quick-change fastener, proves this every day in measurement labs worldwide.



The measure of all things
Our all-rounder for highly accurate measuring

Are you looking for an all-round system that can handle the whole variety of contour measuring tasks with fascinating precision?

Then the PRECICOM 225 will perfectly match your needs. It performs contour measurements alone or in combination with simultaneous roughness measurement* as well as roundness measurements* or composite measurements*. Thus, even the most sophisticated measuring tasks on complex shaped objects become a very simple operation.

Furthermore, the PRECICOM 225 is convincing not only by simple operation, but also by its outstanding precision.
At the tip of the probe, it reaches a true, not just a mathematical best fit approximation, resolution of less than 3 nm - for the entire measuring range.

* optional

PRECICOM 225 in standard version

*** Scope of delivery:**

1 PRECICOM 225 measuring range 225 × 225 mm
1 Industrial PC with Windows XP
1 mains plug
1 mouse
1 keyboard
1 cable set for the desk
1 monitor
1 cable set for measuring systems
1 power strip
1 monitor cable
1 printer
1 USB cable
1 USB hub
1 documentation incl. driver
1 calibration standard
1 probe tip 33 mm
1 probe tip 20.5 mm
2 probe tip holders

388900 Precicom 225

Type	388900	Measuring range horizontal/vertical (X-/Z-axis) mm	W × D × H mm	Weight kg
0225	○	225	950 × 380 × 725	150
0325	○	325	1150 × 380 × 725	180
0425	○	425	1150 × 380 × 725	200

Technical data:

Resolution in X / Z axis	0.002 µm
Measuring path vertical (Z axis)	225 mm
Measuring path horizontal (Y axis)	225 mm
Measuring system	optical, incremental in all axes (X, Z, T)
Accuracy	+/- (0.5 + L/100) µm
Accuracy to DIN ISO standard	5 % class 1
Resolution at the probe tip	< 3 nm
Maximum measuring force	150 mN
Measuring speed	0.1 - 2 mm/sec (automatically optimized)
Cut-off lengths [mm]	0.08/0.25/0.80/2.50/8.00/ and freely adjustable
Number cut-offs	freely selectable
Filter	Gaussian, 2RC, λs-filter, DIN EN ISO 13565-1
Resolution	Scale 1: 1 to 5,000: 1
Radius of probe tip	0.002 - 1 mm
Measurable gradients	78° upwards, 87° downwards
Roughness parameters, DIN EN ISO 4287	Rp, Rv, Rz, Rc, Ra, Rq, RSm, Rdq, Rdc, Rt, Rku, Rsk, Rmr, Rmr (c)
Waviness parameters, DIN EN ISO 4287	Wp, Wv, Wz, Wc, Wa, Wq, WSm, Wdq, Wdc, Wt, Wku, Wsk, Wmr, Wmr (c)
Waviness parameters, DIN EN ISO 12085	AW, W, Wx, Wt
Profile parameters, DIN EN ISO 4287	Pp, Pv, Pz, Pc, Pa, Pq, PSm, Pdq, Pdc, Pt, Pku, Psk, Pmr, Pmr (c)
Material parameters to DIN EN ISO 13565-2	Mr1, Mr2, A1, A2, Rpk, Rvk, Rk
Roughness parameters, DIN EN ISO 12085	AR, R, Rx
Profile parameters JIS B-0601B	Pp, Pv, Pz, Pc, Pa, Pq, PSm, Pdq, Pdc, Pt, Pku, Psk, Pmr, Pmr (c)
Waviness parameters JIS B-0601	Wp, Wv, Wz, Wc, Wa, Wq, WSm, Wdq, Wdc, Wt, Wku, Wsk, Wmr, Wmr (c)
Roughness parameters JIS B-0601	Rp, Rv, Rz, Rc, Ra, Rq, RSm, Rdq, Rdc, Rt, Rku, Rsk, Rmr, Rmr (c)
Calibration standard	is delivered with a certificate along with the machine
Dimensions (B × T × H)	950 × 380 × 725 mm
Weight	150 kg

Y-table

Design:
- for manual or automatic finding of the highest/lowest point
- robust, universal and precise
- due to linear guidance and ground ball screws movable totally free of play and precise
- the automatic version additionally has a stepping motor and an optical, incremental, contact-free measurement system
- spindle pitch: 3 mm
- table load: 500 kg

Use:
For extending automated CNC programs by an Y axis for user-independent, reproducible topdown measurements on the µm scale

388910 manual

Type	388910	L × W × H mm	Design	Weight kg
0025	○	185 × 250 × 85	with 25 mm travel	11

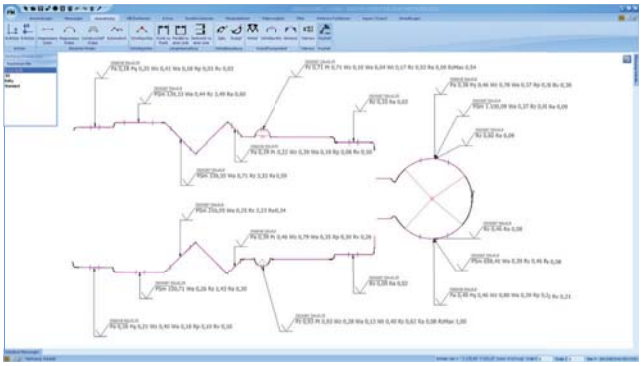
388912 automatic

Type	388912	L × W × H mm	Design	Weight kg
0025	○	185 × 250 × 85	with 25 mm travel	11
0100	○	375 × 250 × 85	with 100 mm travel	17

Extension module topdown

Design:
For composite top-down measurements

Scope of delivery:
- software PRECICOM topdown
- double-sided calibration standard with certificate (for machine calibration)
- 1× double stylus tip quick-release fastener
- 2× 20.5 mm probe tip

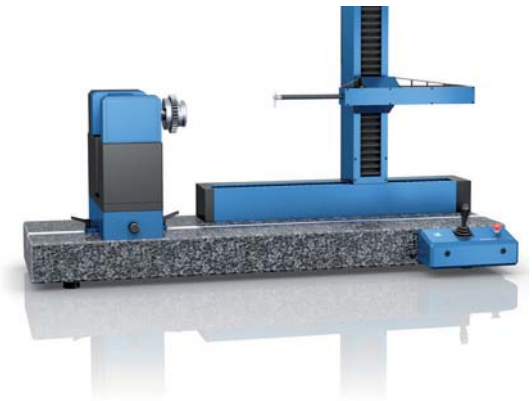


388915 Precicom topdown module

Type	388915	Design
0001	○	Module when ordering machine
0005	○	Retrofit kit

Extension module

Design:
- combines the advantages of a round (rotary) table and a swivelling object holder
- simplest roundness measurements
- concentricity 2.5 µm
- as standard on a special motorised Y-table with measuring system and 25 mm travel
- as standard with manual three-jaw chuck
- fully integrated in the Precicom software
- absolutely torsion-resistant
- in-out clamping
- swing ∅ over granite base 190 mm
- roughness fully measurable on the ∅ at circumference
- CNC programmable
- movement controllable via machine console provided with buttons and joystick
- three integrated optical, incremental and contactless measuring systems



388917 Rotary swivelling table

Type	388917	L × W × H mm	Y-travel mm	Spindle pitch mm	Swing angle	Weight kg
0025	○	365 × 145 × 255	25	3	± 120°	30

388920 Probe tip 3.5 mm

Type	388920	Design	Ø mm	R µm	W
0035	○	made of carbide	0.5	25	19°

388920 Probe tip 6 mm

Type	388920	Design	Ø mm	R µm	W
0060	○	made of carbide	1.0	25	19°

388920 Probe tip 13 mm

Type	388920	Design	Ø mm	R µm	W
0130	○	made of carbide	1.0	25	19°

388920 Probe tip 20.5 mm

Type	388920	Design	Ø mm	R µm	W
0205	○	made of carbide	3.5	25	12°

388920 Probe tip 33 mm

Type	388920	Design	Ø mm	R µm	W
0330	○	made of carbide	3.5	25	12°

388920 Probe tip 59.5 mm

Type	388920	Design	Ø mm	R µm	W
0595	○	made of carbide	3.5	25	12°

388922 Probe tip 20.5 mm, tapered

Type	388922	Design	Ø mm	R µm	W
0205	○	made of carbide	3.5	25	24°

388922 Probe tip 33 mm, tapered

Type	388922	Design	Ø mm	R µm	W
0330	○	made of carbide	3.5	25	24°

388924 Double probe tip 9 mm, for top/bottom measurements

Type	388924	Design	Ø mm	R µm	W
0090	○	made of carbide	1.0	25	2× 19°

388926 Roughness probe tip 3 mm, tapered, with diamond

Type	388926	Design	Ø mm	R µm	W
0030	○	made of carbide	1.0	25	24°

388926 Roughness probe tip 33 mm, tapered, with diamond

Type	388926	Design	Ø mm	R µm	W
0330	○	made of carbide	3.5	25	24/90°

388928 Quick-release fastener horizontal

Type	388928	Use
0030	○	for horizontal extensions with Ø 3.0 mm (miniature probe arms / disc stylus systems)

388928 Quick-release fastener

Type	388928	Use
0035	○	for probe tips with Ø 3.5 mm

388932 Miniature stylus arm for removable stylus tip Ø 1 mm

Type	388932	Design	Ø mm	R µm	W
0010	○	made of carbide	1.0	25	19°

388930 Quick-release fastener topdown

Type	388930	Use
0035	○	for probe tips with ∅ 3.5 mm for top-down measurement

Disk stylus system

388936 Disc stylus system 1 mm

Type	388936	Design
0010	○	incl. arm extension and quick-release fastener

388936 Disc stylus system 3 mm

Type	388936	Design	Length from front edge SWV mm
0030	○	incl. arm extension and quick-release fastener	25

388936 Disc stylus system 6 mm

Type	388936	Design	Length from front edge SWV mm
0060	○	incl. arm extension and quick-release fastener	51

388936 Disc stylus system 10 mm

Type	388936	Design	Length from front edge SWV mm
0100	○	incl. arm extension and quick-release fastener	51

388937 Disc stylus 6 mm, apart

Type	388937	Design	∅ mm	R µm	W
0060	○	made of carbide	6	25	2× 12°

388937 Disc stylus 3 mm, apart

Type	388937	Design	∅ mm	R µm	W
0030	○	made of carbide	3	25	2× 12°

388937 Disc stylus 1 mm, apart

Type	388937	Design	Length from front edge SWV mm
0010	○	incl. extension (made in one piece - carbide)	25

388937 Disc stylus 10 mm, apart

Type	388937	Design	∅ mm	R µm	W
0100	○	made of carbide	10	25	2× 12°

Software package

Design:
- considerable time-saving
- contour and roughness analysis in one operation
- no incorrect evaluations due to Cut-Off and automatic filter mode
- thanks to given profile specifications no technical expertise is needed
- significant cost reduction by use of carbide tips instead of the usual diamond tips
- roughness evaluation also for top-down and roundness measurements possible
- roughness evaluation on lines, radii and inclines
- several diverse standards on one evaluation profile possible
- all evaluations in graphical and numerical form feasible
- overhead roughness evaluation possible
- fully automated calibrating of HM and diamond probe tips
- factory calibration of the roughness renders on-site calibration superfluous
- roughness automatic supports DIN compliant evaluation
- roughness analysis is integrated into the reference test automatically

388939 Precicom rough

Type	388939	Design
0005	○	Software package
0010	○	Software package complete incl. 1× diamond tip 33 mm, 1× roughness standard and 1× quick-release fastener

Radius gauge

Design:
- consisting of concave and convex shaped templates
- complete in holder, foldable, with locknuts

Use:
For testing internal and external radii

389000 Steel

for radius mm	389000	0.25 mm incremental	0.5 mm incremental	1.0 mm incremental	Quantity of blades
1 - 7	●	up to 3 mm	from 3.5 mm	—	17
7,5 - 15	●	—	7.5 - 15 mm	—	16
15,5 - 25	●	—	up to 20 mm	21 - 25 mm	15

Thread gauge

Design:
Foldable, in low-built holder, with locknut

Use:
For testing the pitches of male and female threads

389100 Steel

Thread	389100	Contents increment/metric mm	Contents TPI	Quantity of blades	Thread type
M	●	0.25 - 6	—	24	metric
M/WH	●	0.25 - 6	4 - 62	52	metric/inch
G	●	—	8 - 28	6	Gas pipe

Feeler gauge (Valve setting gauge)

Design:
- with single labelling
- complete foldable set in holder, with locknut
- the blades are conically shaped, approx. 100 mm length

389200 Steel
389220 stainless
389250 Steel, blade length 200 mm, on ring

Qty of blades	389200	389220	389250	Blade thicknesses 0.05 mm incremental	Blade thicknesses 0.1 mm incremental
8	—	●	—	0.05 - 0.25	0.30 - 0.50
13	●	●	●	0.05 - 0.25	0.30 - 1.00
20	●	●	●	0.05 - 1.00	—
20/1	●	—	—	—	0.10 - 2.00

Feeler gauge strip

Design:
- with high accuracy
- length 5 m, width 12.7 mm, in plastic box
- from size 0.80 bulk rolled
- can be pulled out and cut to the desired length

Use:
- for alignment and calibration
- as lining foil in the engineering industries, in production and installation
- for controlling dovetail guides, parallel fits etc.
- other tape thicknesses available on request

389300 Steel

Belt thickness mm	389300	Belt thickness mm	389300	Belt thickness mm	389300	Belt thickness mm	389300
0,01	●	0,08	●	0,20	●	0,60	●
0,02	●	0,09	●	0,25	●	0,70	●
0,03	●	0,10	●	0,30	●	0,80	●
0,04	●	0,11	●	0,35	●	0,90	●
0,05	●	0,12	●	0,40	●	0,95	○
0,06	●	0,15	●	0,50	●	1,00	●
0,07	●	0,18	●	0,55	○	—	—

Feeler gauge accessories

Design:
Plastic holder with spring-supported clamp, purpose-built for feeler gauge strips **389300**.

389350 Blade holder

Length mm	389350
135	●

Thread cutting gauge

Design:
- precision version
- edges ground, surface fine ground

Use:
- for threads Whitworth 50°
- metric threads 60°

389500 60° / 50°

Thread	389500
55	●
60	●

Thread cutting gauge

Design:
- precision version
- recesses neatly milled
- for trapezoidal threads of 2 - 12 mm, pitch to DIN 103
- side angle 30°, with recess 30°

389550 Trapezoid

Pitch mm	389550
2 - 12	●

Thread cutting gauge

Design:
- precision version
- for flat, trapezoidal and V-shaped threads 55° and 60°

389580 combined

Type	389580
KGL	●

Grinding gauge

Design and use:
- for twist drills with a point angle of 118°
- gauge angle 121° results in a twist drill angle of 118°
- measuring range for twist drills up to 50 mm Ø

389720 for twist drills

Type	389720
SPL	●

Measuring wedge

Design:
- special steel, polished, matt chromium-plated
- scale lasered, knurled handle
- ABS plastic, scale CNC-divided
- resolution 0.1 mm

Use:
- for measuring gap dimensions

389810 Measuring wedge

Measuring range mm	389810	Dimensions mm	Weight g
0,5 - 7	●	124 × 8 × 8	39
2,0 - 7	○	109 × 8 × 8	38
0,5 - 11	●	153 × 12 × 8	62
0,5 - 11K	○	155 × 12 × 8	17

Nozzle gauge

Design:
With cylindrical steel pins, foldable in flat holder, with locknut

Use:
- for measuring and inspecting of all types of nozzles
- also suitable as tolerance gauge for small bore holes

389850 in holder

Quantity of pegs	389850	Measuring range mm
16	●	1.50 - 3.0 (0.1 mm increm.)
20	●	0.45 - 1.5 (0.05 mm increm.)

DIN fit conversion slide rule

Use:
- tolerance slides for standard bores H6 to H13 following DIN 7154 from 1 to 160 mm diameter
- for standard shafts h5 to h12 following DIN 7155 from ∅ 1 to 160 mm

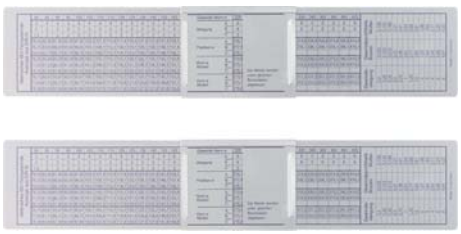
389910 Aluminium

Type	389910
PS	●

DIN thread conversion and fit slide rule

Use:
Type GS:
- for metric ISO standard threads DIN 13
- Whitworth threads DIN 11, Whitworth taper threads DIN 259
- for shank diameter 10-500 mm as well as for measurements of wedges and grooves

Type FGS:
- for metric ISO fine thread DIN 13
- 1 to 420 mm thread diameter



389930 Aluminium

Type	389930
GS	●
FGS	●

Welding seam gauge

Design:
- made of gauge steel, bright, engraved scales and digits, with locknut
- for inspection of flat welded seams and welds in corners
- for testing V-welded angles the gauge bears angles of 60°, 70°, 80° and 90°

389950 Steel

Measuring range mm	389950
20	●

Watchmaker´s magnifier

ESCHENBACH

Design:
- diameter 25 mm
- magnification 5-fold and 7-fold, lens plano-convex
- magnification 10-fold, lens bi-convex

PXM® | Duplex

391000 with plastic housing

Magnification	391000
5×	●
7×	●
10×	●

Linen tester

ESCHENBACH

Design:
- housing made of brass
- satin chromium plated

Silikat

391250 with brass housing

Magnification	391250	Field of vision mm
5×	●	30 × 30
8×	●	20 × 20
10×	●	15 × 15

Folding magnifier

ESCHENBACH

Design:
- metal lens frame, precision glass optics
- aplanatic lens 23 mm ∅

Silikat

391280 with brass housing

Magnification	391280
6×	●
8×	●
10×	●
12×	●

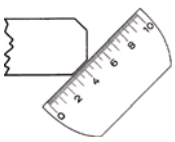
Measuring magnifier

PRECITOOL PRÄZISIONSWERKZEUGE

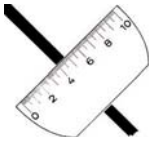
Design:
- all-metal version with 0.1 mm direct reading
- adjustable aplanatic glass magnifier with eightfold magnification
- exchangeable stainless steel scale
- engraved blackened graduation
- distortion-free reading
- focus adjustable by shifting
- can be taken out of the housing and used as a hand magnifier
- scale 10 mm long

Use:
For measuring tasks e.g. in toolmaking and engineering, in electronics, in laboratory, at test and control stations

Delivery:
In plastic screw container



e.g. bevel width 1.75 mm



e.g. line width 0.85 mm

e.g. fit 0.01 mm

391100 with brass housing

Magnification	391100	Measuring range mm	reading mm
8×	●	10	0.1
ETUI	●	—	—

Folding magnifier

ESCHENBACH

Design:
- dust-tight housing, precision optics
- two plane-convex glass lenses ∅ 23 mm

Silikat

391300 with plastic housing

Magnification	391300
10×	●

Scale magnifier

ESCHENBACH

Design and use:
- for precise measurements with distortion-free high-quality optics
- tempered glass optics for distortion-free and sharp images
- adjustment via focussing ring, lens 23 mm ∅
- exchangeable precision scales
- housing made of glass-fibre reinforced polyamide

391510:
- LED illuminating equipment for precision scale magnifier 391520
- battery handle for 2 baby type batteries (R14)
- delivery with bulb, but without batteries
- illumination through 2 high-contrast white LEDs, 123 mA

391520:
- magnification 10-fold Delivery with standard scale (type 1152/01)
- measuring range 20 mm with 1/10 mm graduation
- complete in plastic box with storage space for further scales

Silikat | Delivered in case

391510

391510 LED battery handle (without magnifier)
391520 Scale magnifier
391560 Scale

Type	391510	391520	391560
11514	●	—	—
1154/10	—	●	
1152/01	—	—	●
1152/02	—	—	●
1152/03	—	—	●

391520

1152/01

1152/03

1152/02

Micro magnifier

ESCHENBACH

Design and use:
- focusing via rotating ring
- for surface inspections of all kinds of materials, e.g. metals, enamel etc.

Silikat

Delivery:
Incl. optic glass lenses and 2 batteries AA

392100 with illumination

Magnification	392100
30×	●

Handle magnifier (Technician´s magnifier)

ESCHENBACH

Design:
Black anodised with black plastic handle

PXM® | cera-tec® coating | Duplex

392250 with light metal frame

Magnification	392250	Lens ∅ mm
6×	●	50

Reading magnifier

ESCHENBACH

Design:
Black plastic handle

PXM® | Duplex

392400 with light metal frame

Magnification	392400	Dimensions ∅ mm
2,5×	●	80

Magnifier lamp

ESCHENBACH

Design:
- up to 1500 lux intensity
- 4-fold magnification with lens diffractive aspheric, without Ceratec®coating

Delivery:
Incl. second light filter and batteries

PXM® | cera-tec® coating | Step Up | Delivered in case

392502 mobilux with SMD-LED

Magnification	392502	Lens ∅ mm
4×	●	75 × 50
6×	●	58
7×	●	35
10×	●	35

Magnifier lamp

ESCHENBACH

Design:
- robust and compact construction
- even and very precise bright and non-glare illumination through 2 SMD-LED
- magnification 20 dpt (5-fold); light colour chalk white, approx. 8,000K
- automatic switch off after 30 minutes

PXM® | cera-tec® coating | Delivered in case

Delivery:
Incl. 3 Mignon batteries

392503 Powerlux with SMD-LED

Magnification	392503	Lens ∅ mm
5×	●	58
7×	○	58

Magnifier lamp

ESCHENBACH

Design:
- ring lighting provided by 36 long-life SMD-LED for working free of shadows
- primary optics for optimal concentration of light, dimmable for individual intensity, approx. 3500 lux at 250 mm distance, flicker-free
- for clear cut and distortion-free images
- with 3.55 dpt / 1.9-fold magnification and lens ∅ 132 mm
- lens cover foldable and removable
- head swivellable by 180°
- 6 joints and 0.9 m deflection
- joints lockable in each position

PXM® | cera-tec® coating

Magnifier lamp

ESCHENBACH

Design:
- enlargement and light in credit card size
- no bulb exchange
- very tiny LED lights with high luminous intensity
- threefold magnification
- light slimline SMD-LED
- available in housing colours black and silver

PXM®

Delivery:
Incl. 2 button cells, 1.5 V, type 2025

392505 Easy Pocket with LED

Type	392505	Colour
152110	●	black
152111	○	silver

392510 Vario LED with ring illumination

Type	392510	Design
27770	○	Reading magnifier Vario LED with ring light

Magnifier lamp

ESCHENBACH

Design:
- selection between ring or segment illumination for surface control
- minimum lighting focus for shadow-free illumination of 3.5 cm
- illuminance approx. 6,000 lux (in 150 mm working distance)
- gooseneck with protective cover for better hygiene
- with desk clamp
- mains adapter for EU, GB, US, AUS included
- cable length 3 m

PXM® | cera-tec® coating

392511 VarioLED™ Flex

Type	392511	Length of stand mm	Dioptres (dpt)	Magnification
2781	●	350	6.0	2.5×
27815	●	600	6.0	2.5×

392511 Table base for vario LED flex

Type	392511
27819	○

Headband magnifier

ESCHENBACH

Design:
- visor closed on all sides
- various options for individual height adjustment
- forehead rest perforated to allow ventilation
- lens sections may be easily replaced

PXM® | Delivered in case

Use:
- for binocular spatial vision
- suitable for wearer of glasses

Delivery:
Complete with one lens part

392650 Headband magnifier

Magnification	392650	Working distance mm
2,5×	●	180
3,0×	●	160

Magnifying eyeglasses

ESCHENBACH

Design:
- extremely lightweight magnifying eyeglasses with independently adjustable lenses (system Galileo)
- clip-on temple ends
- dioptre adjustment on both sides from ± 3 dpt.
- large focussing range of approx. Ø 16 cm and large working distance of 40 cm

PXM® | Delivered in case

Use:
For model-making, soldering, adhesive bonding, grinding, needlework and other precision work

Delivery:
With retaining bracket

392660 MaxDetail

Magnification	392660	Working distance mm	Weight g
2×	●	400	49

Digital stereo zoom microscope MarVision

Mahr

Design:
- magnification continuously adjustable via zoom lens (7- to 45-fold)
- focusing via ergonomic hand wheel (for left- and right-handers on both sides)
- prismatic head 45°, by 360° pivotable with dioptre compensation
- integrated incident and transmitted light, continuously adjustable
- a CCD camera can be attached (only type SM 151)

Use:
- for luminous, sharp, three-dimensional images
- for the inspection of workpieces during production or in quality management

Delivery:
Microscope incl. dust cover, glass plate and white/black plate

SM 150

SM 151

392905 MAHR, SM 150 / SM 151

Type	392905
SM150	○ +
SM151	○ +

392905 MAHR 150LR (LED ring light)

Type	392905
150LR	○

Eyepieceless stereo inspection system

Design:
- high value at low cost
- 3D imaging of the components to control
- increase in production and throughput
- long working distances for easy sample manipulation and rework
- magnification through quick-change lenses
- colourfast LED illumination with long service life (10.000 hours)
- illumination 20 LEDs (9,400 lux)
- transmitted light (only for table-top stands) with 13 LEDs (1,200 - 4,000 lux)
- excellent handling for ergonomic working
- reduction of eye fatigue through patented eyepieceless technology

Delivery:
Type 0001: Head MCH-001 with LED incident light (without lens), swivel stand MCS-005, dust cover MS-003 and mains adapter MPS-005

Type 0003: Head MCH-001 with LED incident light (without lens), table stand MES-006 with LED transmitted light, dust cover MS-003 and mains adapter MPS-005

0001

0003

392927 Mantis Compact

Type	392927	Height mm	Width mm	Depth mm	Total weight approx. kg	Design
0001	○	396 - 605	213	335 - 545	5.4	with universal stand
0003	○	526 - 641	305	487	6.6	with table stand

1060 1040

392927 Lens for Mantis Compact

Type	392927	Magnification	Working distance mm	Picture detail mm
1040	○	4×	96	27.5
1060	○	6×	93	19.2

Eyepieceless stereo inspection system

Design MANTIS Elite:
- excellent optical performance
- magnification from ×2 to ×20 optional
- maximal freedom of head movement and reduction of eye fatigue through patented eyepieceless technology
- superb ergonomics and hand-eye coordination for inspection and manipulation tasks
- increase in production and throughput
- very bright and colourfast LED illumination with long service life (10,000 hours)
- illumination with 24 LEDs (11,000 LUX)
- transmitted light (only for table-top stands) with 13 LEDs (1,200-4,000 LUX)
- great working distance and large picture detail for manipulation and rework

Design MANTIS Elite-Cam with 2D measuring software:
- like MANTIS Elite, however with factory integrated USB2.0 camera inside the projector head plus 2D measuring software for additional inspection on the monitor, for archiving, to insert texts and arrows plus the execution of simple measuring tasks (length measurement, determination of diameter and surface area, 3-point angle measurement)
- permanently masked live image on the monitor, at the same time unobstructed optical view through the microscope
- ideal for training and educational purposes
- storage of picture data in BMP, JPEG and PNG

Delivery:
Type 0001: Head MEH-001 with 2 stations lens exchange turret (without lenses) and LED incident light, swivel stand MES-005, dust cover MS-003 and mains adapter MPS-005

Type 0003: Head MEH-001 with 2 stations lens exchange turret (without lenses) and LED incident light, table stand MES-006 with LED transmitted light, dust cover MS-003 and mains adapter MPS-005

Types 0005 and 0007: Like type 0001 or type 0003, but with integrated camera, USB cable (1 m length), standard image recording and storage software plus installation CD

0001

0003

0007

392928 Mantis Elite / Elite-Cam

Type	392928	Height mm	Width mm	Depth mm	Total weight approx. kg	Design
0001	○	415 - 624	212	352 - 622	6.3	with universal stand
0003	○	526 - 641	305	487	6.6	with table stand
0005	○	415 - 624	212	352 - 622	6.3	with universal stand, integrated camera and PC software
0007	○	526 - 641	305	487	6.6	with table stand, integrated camera and PC software

392928 Lens for Mantis Elite

Type	392928	Magnification	Working distance mm	Picture detail mm
1040	○	4×	96	34.0
1060	○	6×	68	23.0
1080	○	8×	59	17.0
1100	○	10×	54	13.5
1150	○	15×	40	8.8
1200	○	20×	29	6.5

392928 Sliding table

Type	392928	Design
MS002	○	for versions with table stand, 100 × 100 mm, usable with adjustable transmitted light illumination, even manoeuvrability

Profile projector

Mitutoyo

Design:
- table top version to control small and medium size workpieces
- vertical, rotatable cross-hair monitor
- easy to operate coordinate plane table with quick and fine adjustment
- direct and clearly visible XY digital display
- halogen transmitted light and incident illumination (24 V / 150 W) are installed in the housing
- as standard equipped with digital angle measurement display
- monitor ∅ 315 mm / 12.4"
- as standard lens 10-fold
- max. workpiece weight 8 kg

A3010

392950 MITUTOYO 302, table version, vertical

Type	392950	Size of measuring table mm	Travel mm	Weight kg
A3005	○	280 × 152	150 × 50	116
A3010	○	380 × 250	200 × 100	140

Profile projector

Mitutoyo

Design:
- robust floor-mounted version
- large, rotatable monitor
- monitor ∅ 508 mm / 20"
- halogen transmitted light and incident light 24 V / 150 W
- as standard lens 10-fold
- max. workpiece weight 5 kg

392951 MITUTOYO 304, floor-mounted version

Type	392951	Size of measuring table mm	Travel mm	Weight kg
PV5110	○	380 × 250	200 × 100	210

Digital length measuring system Linear Scale

Mitutoyo

Design:
- effective measuring range from 100 to 3,000 mm available
- max. speed 50 m/min
- operation temperature from 0° to +45 °C
- dust- and water-protected (IP67)
- automatic zero point setting after power on

IP67

393000 MITUTOYO 539, AT715

Type	393000	Measuring range mm/inch	max. measuring head path mm	Cable length m
0100	○	100/4"	120	3.5
0150	○	150/6"	170	3.5
0200	○	200/8"	220	3.5
0250	○	250/10"	270	3.5
0300	○	300/12"	330	3.5
0350	○	350/14"	380	3.5
0400	○	400/16"	430	3.5
0450	○	450/18"	480	3.5
0500	○	500/20"	540	3.5
0600	○	600/24"	640	3.5
0700	○	700/28"	740	3.5
0750	○	750/30"	780	3.5
0800	○	800/32"	840	3.5
0900	○	900/36"	940	3.5
1000	○	1,000/40"	1040	5.0

Digital display unit Linear Scale

Mitutoyo

Design:
- display unit for digital length measuring system
- numerical increment 0.001 mm or 0.005 mm
- display with 7 digits plus algebraic signs (-)
- operation temperature from 0° to 45 °C
- dimensions: H × W × D = 260 × 167 × 80 mm

Functions:
- PRESET
- ABS/INC mode
- zero-approach operation
- bolt circle machining
- bore treatment
- scale reference point
- tool specification
- selectable resolution
- diameter display
- reversal of counting direction
- macro function keys
- programming features
- addition of the results from 2 axes (only at type 0003)
- addition / subtraction
- linear error compensation
- masking of the last figure
- saving of the last reading
- copying of coordinate data
- data transfer from DIGIMATIC measuring devices
- ZERO/ABS (only with 393000)
- mm/inch selection
- zero-approach function

0003

393005 MITUTOYO 174, KA

Type	393005	Axes	Weight kg
0002	○	2	1.1
0003	○	3	1.2

Adding stopwatch

hanhart 1882

Design:
- **time measurement with interrupt option**
- in ABS housing
- very lightweight and secure in handling
- Start/Stop with crown
- zeroing by means of lateral button
- pin pallet, 1 jewel
- 1/5 sec. and 1/100 min. for 30 min.
- housing diameter 55 mm

394000 in ABS housing, mechanic

Type	394000	Accurate running 1/5 + 1/100	Accurate running 1/5 + 1/100	Accurate running 1/10	Accurate running 1/10	Weight g
0001	○	10 - 12 hrs.	0.04 %	5 - 6 hrs.	0.06 %	80

Adding stopwatch

hanhart 1882

Design:
- **time measurement with interrupt option**
- winding mechanism with shock-proof pin pallet movement on the back
- Start: green button
- Stop: red button
- Zero setting: white or black button
- robust ABS housing with neck strap
- standard with Flyback (Tempo)
- pin pallet, 1 jewel, 1/10 sec. 15 min.
- housing diameter 55 mm

394001 in ABS housing, mechanic

Type	394001	Accurate running 1/5 + 1/100	Accurate running 1/5 + 1/100	Accurate running 1/10	Accurate running 1/10	Weight g
0001	○	10 - 12 hrs.	0.06 %	5 - 6 hrs.	0.08 %	85

Stopwatch

hanhart 1882

Design:
- measuring range 1/100 sec.
- 7-digit LCD display
- digit height 7 mm
- display range 9 hrs / 59 min / 59.99 sec.
- battery Mignon AA 1.5 V
- battery life about 2 to 5 years
- housing made of plastic, black

Functions:
- Start/Stop: Flyback timing without interruption
- Reset: Zero setting
- Addition: Timing with possibility of interruption
- Split: Intermediate recording with continuous time measurement
- dual measurement for two briefly consecutive measurements

394002 Stopstar, digital

Type	394002	Dimensions mm	Weight g
0001	●	82 × 61 × 28	70

Design:
- measuring range 1/100 sec.
- 7-digit LCD display
- digit height 6.5 mm
- display range 9 hrs / 59 min / 59.99 sec.
- battery button cell SR54
- battery life approx. 2 years
- housing made of plastic

Functions:
- Start/Stop: Flyback timing without interruption
- Reset: Zero setting
- Addition: Timing with possibility of interruption
- Split: Intermediate recording with continuous time measurement
- dual measurement for two briefly consecutive measurements

394002 Stratos, digital

Type	394002	Dimensions mm	Weight g
0005	●	66 × 70 × 21	62

Design:
- 2-button operation
- with battery change indicator
- **waterproof**
- selectable 1/100 min or 1/100 sec.
- 2.5-line LCD display
- upper line 6-digit with battery status display, lower line 7-digit
- function window for lap or standard time
- memory display 2-digit
- digit height 7 mm or 5 mm
- display area upper line 9,999.99 min.
- display area lower line 99,999.99 min.
- battery Micron cell AAA 1.5V
- battery life about 5 to 7 years

Functions at 1/100 min .:
- Start/Stop: Flyback timing without interruption
- Reset (zero setting)
- Split: Intermediate recording with continuous time measurement
- Lap: Laps or lap times; after each stop new measurement starts automatically with 0
- Addition: Timing with possibility of interruption
- Split and Lap can be read simultaneously
- time and date
- 65 memories for Split and Lap

Functions when switching to 1/100 sec .:
- Start/Stop, Reset, Addition, Split, Lap, time and date as above
- but additionally with short-lap (shortest running time)
- Split time may be preset from clock time
- Countdown
- Countdown and stopwatch can be used at the same time
- 65 memories with evaluation and fast search

Delivery:
With protective pouch and strap

394002 Spectron, digital

Type	394002	Dimensions mm	Weight g
0010	○	82 × 61 × 28	85

Stopwatch

hanhart 1882

Design:
- 1-button operation
- **splash-proof**
- battery change indicator
- measuring range 1/100 min.
- 1.5-digit LCD display
- upper line 7-digit
- memory display (lower line) 2-digit
- digit height 6 mm
- display range 99,999.99 min.
- battery Mignon AA 1.5 V
- battery life 2 to 5 years
- split and lap times can be switched at any time
- separate system and memory reset

Functions:
- Start/Stop: Flyback timing without interruption
- RESET (zero-setting)
- Split: Intermediate recording with continuous time measurement
- Lap: Lap times or segment times
- System reset: Complete zeroing of the stopwatch functions
- Memory reset: Memory erasure
- 60 memories for split and lap

394003 Accord, digital

Type	394003	Dimensions mm	Weight g
0001	○	82 × 61 × 28	90

Table stopwatch

hanhart 1882

Design and use:
- for all sectors such as school, sports, laboratory and industry
- easy-to-read, quartz-controlled, analogue desktop/wall clock
- ergonomic design, optimal stability
- pointer noctilucent
- with battery change indicator
- two time measuring buttons
- measuring range 0 - 60 sec. and 1/100 min.
- external scale 0 - 60 sec. and 0 - 60 min.
- inner scale 0 - 100/100 min.
- temperature range -10 °C to +70 °C
- battery Mignon cell AA 1.5 V, running time approx. 1 - 2 years

Functions:
- Start/Stop: Flyback timing without interruption
- Reset: zero setting
- Addition: Timing with possibility of interruption
- Flyback (pace, "floating zero") - summary of stop, reset and start to one step

394005 Mesotron, mechanic

Type	394005	Dimensions mm	Weight g
0001	○	175 × 130 × 40/95	375

Table stopwatch

hanhart 1882

Design and use:
- with two interval up-down timers
- for industry, school, laboratory, sports or private sector
- sturdy white plastic housing
- adjustable alarm sound
- two time measuring buttons
- with battery change indicator
- measuring range 1/100 sec. or 1/100 min.
- 2-digit LCD display and function window
- upper line 3-digit, lower line 5-digit
- function window 2-line with 6 positions
- digit height 22 mm or 8 mm
- display area selectable:
  a) 999 min. / 99/100 min. or
  b) 9 hrs. / 59 min. / 59 sec. / 1/10 sec.
- temperature range -10 °C to +55 °C
- battery Mignon cell AA R6, running time approx. 1 - 2 years

Functions:
- Start/Stop
- Reset (zero setting)
- Addition
- Flyback
- Count down - with adjustable beep
- 2 timers - fully programmable, alternatively with separate or common Start/Stop operation
- Repeat, manual or automatic
- Time

394006 Prisma 200, digital

Type	394006	Dimensions mm	Weight g
0001	○	175 × 130 × 40/95	390

Data logger

Wir messen es. testo

Design:
- easy reading of data and transfer to PC with USB interface
- dimensions H × W × D = 60 × 38 × 18.5 mm
- battery type 2× CR 2032 lithium
- measuring rate 1 min - 24 h
- memory 16,000 results
- software ComSoft Basic 5 / ComSoft Professional 4

Type 174-H: For temperature and humidity monitoring in living, working and storage rooms
Type 174-T: For temperature monitoring to control cold chains and sensitive goods during transportation or storage

Scope of delivery type 174-H:
2-channel temperature and humidity logger with internal sensors (NTC / capacitive humidity sensor) incl. wall mount, batteries and calibration record

Scope of delivery type 174-T:
1-channel temperature logger with internal sensor (NTC) incl. wall mount, batteries and calibration record

395002 Temperature and humidity

Type	395002	Sensor type	Ducts	Measurement unit	Measuring range	Accuracy ± 1 digit	Resolution	Battery life (at + 25°C)	Operating temperature °C	Storage temperature °C	Protection class
174-H	○	NTC / capacitive humidity sensor	2× internal	°C, °F, %rF, %RH	-20… +70 °C intern 0…100 %rF	± 0.5 °C (-20… +70 °C) ± 3 %rF (2…98 %rF) + 0,03 %rF/K	0.1 °C / 0.1 %rF	1 year at 15 min. measuring cycle	-20…+70	-40…+70	IP20
174-T	○	NTC	1× internal	°C, °F	-30…+70 °C	± 0.5 °C (-30…+70 °C)	0.1 °C	500 days at 15 min. measuring cycle	-30…+70	-40…+70	IP65

395002 USB interface

Type	395002
174-USB	○

Data logger

Wir messen es. testo

Design:
- with battery type 3× AlMn AAA or energizer
- measuring rate 10 sec to 24 h
- memory for 1 million measured values
- software ComSoft Basic 5 / ComSoft Professional 4 / ComSoft CFR 21 Part 11

IP54 IP65

Type 175-H1:
- with external humidity sensor
- professional long term monitoring of temperature and humidity in working and storage rooms
- fast response time due to external humidity sensor
- dimensions 149 × 53 × 27 mm
- **not in condensing environment**
- **for continuous high humidity applications (> 80 %RH at ≤ 30 °C for > 12 h, > 60 %RH at > 30 °C for > 12 h)**

Type 175-T3:
- with external sensor connections
- parallel monitoring and recording of two temperature measuring points
- easy checking and documentation of, say, flow and return temperature of a heating system
- dimensions H × W × D = 89 × 53 × 27 mm

Delivery:
Incl. wall mount, lock, batteries and calibration protocol

395003 Temperature and humidity

Type	395003	Sensor type	Ducts	Measurement unit	Measuring range	Accuracy ± 1 digit	Resolution	Battery life (at + 25°C)	Operating temperature °C	Storage temperature °C	Protection class
175-H1	○	NTC/capacitive humidity sensor	2× internal	°C, °F, %rF, %RH, td, g/m³	-20 to +55 °C -40 to +50 °C$_{td}$ 0 to 100 %rF	± 2 %rF (2 to 98 %rF) at +25 °C +0.03 %rF/K ± 0.4 °C (-20 to +55 °C)	0.1 °C / 0.1 %rF	3 year at 15 min. measuring cycle	-20 to +55	-20 to +55	IP54
175-T3	○	TE (Types T and K)	2× external	°C, °F	-50 to +400 °C (type T) -50 to +1000 °C (type K)	± 0.5 °C (-50 to +70 °C) ± 0.7 % from the mean (+70.1 to +1000 °C)	0.1 °C	3 year at 15 min. measuring cycle	-20 to +55	-20 to +55	IP65

Thermometer

Wir messen es. testo

Design:
- easy reading of the results due to turnable display (LCD, single-line)
- auto-OFF function
- elastic thermal element wrapper adapts to all surfaces
- very quick response time of 5 sec
- type of battery: 3 Mignon AAA
- service life 1000 h
- weight 80 g

Delivery:
Surface thermometer with x-strap sensor incl. fixing clip and battery

395004 Surface

Type	395004	Measuring range	Accuracy ± 1 digit	Resolution	Operating temperature °C	Storage temperature °C
905-T2	●	-50… +350 °C	± 1 °C (± 1 %)	0.1 °C	0… +40	-20… +70

Thermometer Infrared

Wir messen es. testo

Design and use:
- for air and infrared surface temperature measurement °C or °F
- IR measurements with 1 point laser, marking of measuring spot and 6:1 optics
- measurements of air temperature
- display of temperature difference, e.g. between window and surface and air
- Hold function and max./min. values

Delivery:
With calibration protocol, hand strap, belt bag, protective cap, batteries (alkaline 2× AAA, 50 hours service life)

395005 Infrared, for air and surface measurement

Type	395005	Surface temperature measuring range °C	Accuracy of surface temperature °C	Air temperature measuring range °C	Accuracy of air temperature °C	Resolution °C	H × W × D mm
810	●	-30 to +300	± 2 (< 100°) or 2% of measured value	-10 to +50	± 0.5	0.10	119 × 46 × 25

Thermometer

Wir messen es. testo

Design:
- for application in the HVAC field
- 1-channel temperature measuring device TE type K for one sensor (not included in scope of delivery)
- permanent display of min./max. values
- acoustic alert, limit value adjustable
- hold button to record results
- large, illuminated display
- wireless data transmission
- housing made of ABS
- type of battery 9V block, 6F22
- dimensions 182 × 64 × 40 mm
- robust protection cover (TopSafe) protects against dirt and impacts

Delivery:
Incl. calibration protocol and batteries

395006 Single channel

Type	395006	Measuring range	Accuracy ± 1 digit	Resolution	Operating temperature °C	Storage temperature °C
925	○	-50 to +1000 °C	± 0.5 °C +0.3 % from the mean -40 to +900 °C ± 0.7 °C +0.5 % from the mean remaining measuring range	0.1 °C (-50 to +199.9 °C) 1.0 °C (remaining measuring range)	-20 to +50	-40 to +70

395006 Sensor

Type	395006	Length sensor tube mm	∅ sensor tube tip mm	Measuring range	Accuracy	t_{99}	Design
0004	○	115	4	-60 to +400 °C	Class 2	25 sec	robust air sensor, TE type K, fixed cable stretched 1.2 m
0012	○	145	8	0 to +300 °C	Class 2	5 sec	highly responsive paddle surface probe, for measurements at difficult to reach positions such as narrow openings and cracks, TE type K, fixed cable stretched

Thermometer

Wir messen es. testo

Design and use:
- continuous display of temperature and humidity or dewpoint, resp.
- types of sensors NTC / capacitive humidity sensor
- max./min. value display
- battery monitoring
- LED alert signals the exceed of limits
- high accuracy ± 2 %RH
- large LCD display, 2-line
- housing made of ABS
- to be placed on table top or wall mounted
- type of battery 9V block
- dimensions W × H × D = 111 × 90 × 40 mm
- suited for garden centres, storerooms, cleanroroms, museums, laboratories etc.

Delivery:
Incl. batteries

395007 for temperature, humidity, dewpoint

Type	395007	Measuring range	Accuracy ± 1 digit	Resolution	Operating temperature °C	Storage temperature °C
608-H1	●	0 to +50 °C -20 to +50 C td +10 to +95 %rF	± 0.5 °C (at +25 °C) ± 3.0 %rF (+10 to +95%rF)	0.1 °C 0.1 %rF	0 to +50	-40 to +70

Multifunctional measuring device

Wir messen es. testo

Design:
- multifunctional measuring device for air conditioning, ventilation and indoor air quality
- types of sensors NTC / type K(NiCr-Ni) / type T (Cu-CuNi) / capacitive humidity sensor
- IAQ probe to evaluate indoor air quality
- thermal probes with integrated temperature and air humidity measurement
- vane and hot wire probes
- wireless radio sensor for temperature and humidity
- easy handling with user profiles
- illuminated display
- Testo high-speed printer for documentation of the measuring data
- memory for 10,000 measured values
- PC software for analysing, archiving and documenting of the data
- dimensions H × W × D = 220 × 74 × 46 mm
- type of battery alkali-manganese, Mignon, type AA

IP54

Delivery:
Incl. memory, PC software, USB data cable, batteries and calibration protocol

395009 for indoor climate, ventilation, indoor air

Type	395009	Measuring range	Accuracy ± 1 digit	Resolution	Operating temperature °C	Storage temperature °C
435 - 2	○	-50 to +150 °C -200 to +1370 °C -200 to +400°C 0 to +100 %rF	± 0.2 °C (-25 to +74.9 °C) ± 0.4 °C (-50 to -25.1 °C) ± 0.4 °C (+75 to +99.9 °C) ± 0.5 % from the mean (remaining measuring range)	0.1 °C 0.1 %rF	-20 to +50	-30 to +70

Thermometer Infrared

Wir messen es. testo

Design and use:
- quick and universal infrared thermometer for contact or distance measurement
- 2 point laser marking with 12:1 optics for temperature measurements on large surfaces
- display of current value and hold value
- emissivity determination with external temperature sensor
- acoustic and optic alert for limit overrun
- quick data logging (2 measurements/sec.)
- display illumination

Type 830-T2 SET: Incl. surface sensor TE type K and bag with belt clip

Delivery:
Incl. 9 V block battery (service life 15 hrs.)

830-T2 SET

395010 Infrared, for surface measurements (12:1 optics)

Type	395010	Measuring range °C	Resolution °C	Accuracy infrared (-0.1....400) °C	Accuracy infrared (-30....0) °C	Emission coefficient	Operating temperature °C	H × W × D mm
830-T2	●	-30 to +400	0.5 (Infrared)	± 1.5° or 1.5 % of measured value	± 2.0° or 2.0 % of measured value	0.20 to 1.0 adjustable	-20 to +50	190 × 75 × 38
830-T2-SET	●	-50 to +500 (probe type K)	0.1 (probe type K)	± 1.5° or 1.5 % of measured value	± 2.0° or 2.0 % of measured value	0.20 to 1.0 adjustable	-20 to +50	190 × 75 × 38

Thermometer Infrared

Wir messen es. testo

Delivered in case

Design and use:
- with cross laser marking
- reversible optics for distance (75:1) and near-field measurements (focus point)
- allows measurements of surface temperatures at short and long distances
- focus point optic delivers a measuring spot diameter of only 1 mm at a distance of 70 mm
- bright cross laser marking to represent the real measuring spot
- reference accuracy ± 0,75° with extremely fast measuring technique (scanning 100 ms)
- illuminated display (3-line) with display °C
- min./max. value, alarm limit value and emissivity
- acoustic and optic alert for limit overrun
- sensor input for TE sensor to determine the emissivity
- memory for 90 measurement reports

Type 845 FM:
- with integrated humidity module to measure the room air humidity
- to determine the dewpoint gap
- additional display: %rF, °C td

Delivery:
With calibration record, PC software and USB cable, holder for stand, batteries (2 Mignon cells AA, max. 25 hrs. service life)

395015 Infrared, for surface measurements (75:1 optics)

Type	395015	Measuring range °C	Resolution °C	Accuracy infrared (-0.1....400) °C	Accuracy infrared (-30....0) °C	Emission coefficient	Operating temperature °C	H × W × D mm
845	○	-35 to +950	0.5 (Infrared)	± 1.5° or 1.5 % of measured value	± 2.0° or 2.0 % of measured value	0.20 to 1.0 adjustable	-20 to +50	190 × 75 × 38
845FM	○	-50 to +500 (probe type K)	0.1 (probe type K)	± 1.5° or 1.5 % of measured value	± 2.0° or 2.0 % of measured value	0.20 to 1.0 adjustable	-20 to +50	190 × 75 × 38

Sound level meter

Wir messen es. testo

Design and use:
- frequency weighting following characteristic curves A and C
- characteristic A weighting corresponds to the sound pressure felt by the human ear
- characteristic C can weight low frequency proportions of a sound

Type 815:
- for evaluating the noise level in everyday working life
- for check measurements in the air-conditioning and heating sector or at incinerators
- for evaluating the noise of machines or discotheques

Type 816-1:
- illuminated display
- microphone 1/2"
- AC/DC output to connect additional devices
- software for data management and long-term measurement
- sound level measurement according to IEC 61672-1 class 2 and ANSI S1.4 type 2
- for measurements at workplaces, in industrial and production halls as well as in public places

Delivery:
Type 815: Incl. screwdriver for calibration, draft shield and batteries
Type 816-1: In system case including microphone, windscreen, PC software, connection cable, manual on CD-ROM and batteries

Functions:
Type 815:
- ON/OFF
- Maximum/Minimum value memory
- switchable time evaluation Fast/Slow
- frequency weighting
- level (sub range)

Type 816-1:
- ON/OFF
- Maximum/Minimum value memory
- switchable time evaluation Fast/Slow
- frequency weighting
- bar graph display
- data memory for approx. 31,000 measurements

395017 Sound level meter

Type	395017	Measuring range	Frequency range	Accuracy ± 1 digit	Resolution	Measuring rate sec.	Operating temperature °C	Storage temperature °C	Battery type	Dimensions mm	Weight kg
815	○	+32 to +130 dB	31.5 Hz to 8 kHz	± 1.0 dB	0.1 dB	—	0 to +40 °C	-10 to +60 °C	9 V block battery	255 × 55 × 43	0.195
816-1	○	+30 to +130 dB	20.0 Hz to 8 kHz	± 1.4 dB	0.1 dB	0.5	0 to +40 °C	-10 to +60 °C	4× Mignon cells type AA	272 × 83 × 42	0.390

rpm counter Pocket-Line

Wir messen es. testo

Design and use:
- optical measurement of speed
- max./min.values, units rpm/rps

Delivery:
With calibration certificate, wrist strap, belt bag, protection cap, reflective labels, batteries (alkaline 2× AAA 20 hrs. battery life)

395020 optical

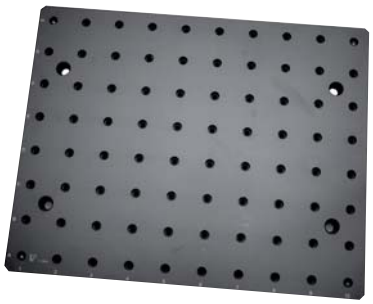
Type	395020	Measuring range rpm	Accuracy %	Resolution rpm	Operating temperature °C	H × W × D mm
460	●	100 - 29,999	+/- 0.02 of measured value 1 digit	0.1 (100 - 1,000 rpm) 1.0 (1,000 - 29,999 rpm)	0 - 50	119 × 46 × 25

395022 Set of reflective markers (1 pack = 5 pieces, á 150 mm length)

Type	395022
460	●

Design:
- base plate for the construction of small (type 0001) or medium size (type 0002) fixtures
- mark out bores help to reproduce the reconstruction of modular fixtures in combination with exchangeable plates
- material: Aluminium
- surface: hard coated
- thread: M6
- marking bores ∅ 12.5 mm
- grid spacing 50 mm

0001



0002

396000 Base plate

Type	396000	Dimensions mm	Weight kg
0001	○	250 × 250 × 20	3.1
0002	○	500 × 400 × 20	10.2

Design:
- plate for reproducible construction of fixtures in modular design
- only the individual modules are stored, which saves base plate and storage place
- material: Aluminium
- surface: hard coated
- thread: M6
- marking bores ∅ 12.5 mm
- grid spacing 25 mm

396001 Subplate

Type	396001	Dimensions mm	Weight kg
0001	○	50 × 75 × 20	0.165

Design and use:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm
- to receive components with 8 mm pin ∅

396003 Strap with bore

Type	396003	Dimensions mm	Bore ∅ mm
0001	○	20 × 10 × 100	8

Design and use:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm
- to bridge the grid spacings of the base elements and for simultaneous mounting of components for continuous height adjustment via thread M12 × 1

396005 Strap M12 × 1

Type	396005	Dimensions mm	Thread
0001	○	20 × 10 × 100	M12 × 1

Design and use:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm
- mainly used in combination with exchangeable plate 396001 0001 to create very solid and extremely torsionproof modules

396007 Strap M6

Type	396007	Dimensions mm	Thread
0001	○	20 × 20 × 58	M6

Design:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm

Use:
To bridge grid spacings of base elements and for direct mounting of further components

396002 Strap M6

Type	396002	Dimensions mm	Thread
0001	○	20 × 10 × 100	M6

Design and use:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm
- to bridge the grid spacings of the base elements

396004 Strap with slot

Type	396004	Dimensions mm
0001	○	20 × 10 × 100

Design and use:
- material: Aluminium
- surface: hard coated
- groove width 6.3 mm
- for continuous attachment of components in 3 axial directions
- the strap is positioned over the bolts with ∅ 20 mm and secured by means of a screw

396006 Strap slotted

Type	396006	Dimensions mm	Bore ∅ mm
0001	○	25 × 15 × 125	20

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical base element to construct fixtures on top of base elements

396008 Bolt, centre hole Ø 12.5 mm

Type	396008	∅ mm	Length mm	Thread
0001	○	20	100	M6

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical base element to construct fixtures on top of base elements
- short version without centre bores

396009 Bolt

Type	396009	∅ mm	Length mm
0001	○	20	50

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical base element to construct fixtures on top of base elements
- comparatively short bolt without centre bores at both ends

396010 Bolt

Type	396010	∅ mm	Length mm	Thread
0001	○	20	30	M6

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical base element to construct fixtures on top of base elements
- short version without thread

396011 Bolt, bore Ø 6 mm

Type	396011	∅ mm	Length mm
0001	○	20	10

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical element to receive components with 8 mm pin ∅

396012 Bolt with bore Ø 8 mm, centre bore Ø 12.5 mm

Type	396012	∅ mm	Length mm	Thread
0001	○	20	35	M6

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical element for continuous height adjustment via thread M12 × 1 to receive components with 8 mm pin ∅.

396013 Bolt with bore Ø 8 mm

Type	396013	∅ mm	Length mm	Thread
0001	○	20	65	M12 × 1

Design and use:
- material: Aluminium
- surface: hard coated
- cylindrical element for continuous height adjustment via thread M12 × 1
- by means of the thread M6 other components may be attached

396014 Bolt with thread

Type	396014	∅ mm	Length mm	Thread
0001	○	20	65	M6 and M12 × 1

Design and use:
- material: Aluminium
- surface: hard coated
- to install further components at any angle in the room

396015 Joint

Type	396015	Thread	∅ mm	Length mm
0001	○	M6	20	60

Design and use:
- material: Aluminium
- surface: hard coated
- to fasten toggle clamps M8

396016 Retaining block M6

Type	396016	Dimensions mm	Thread
0001	○	48 × 25 × 15	M6

Design and use:
- material: Aluminium
- surface: hard coated
- to fasten toggle clamps M4

396017 Retaining block M4

Type	396017	Dimensions mm	Thread
0001	○	37 × 15 × 15	M4

Design and use:
- material: Aluminium
- surface: hard coated
- to attach components at an angle of 90° or for continuous twisting

396018 Cube M6

Type	396018	Dimensions mm	Thread	Bore ∅ mm
0001	○	20 × 20 × 20	M6	6

Design and use:
- material stainless steel
- female thread M8
- to centre squares, removable disks, connection plates, bolts etc.
- the female thread serves as extractable threaded sleeve, in case the bush should get stuck

396019 Positioning bush

Type	396019	∅ mm	Length mm
0001	○	12.5	12

Design and use:
- material stainless steel
- push-in bush ∅ 8 mm
- to support and centre components

396020 Support cone

Type	396020	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in stud ∅ 8 mm
- to support components

396021 Support face

Type	396021	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in stud ∅ 8 mm
- to support components and for fastening in one further direction

396022 Support angle

Type	396022	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in stud ∅ 8 mm
- to support components and for fastening in two further directions

396023 Support corner

Type	396023	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in stud ∅ 8 mm
- to support and centre components

396024 Support cylinder 6.5 mm

Type	396024	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in bolt ∅ 8 mm
- to support and centre components

396025 Support cylinder 8.5 mm

Type	396025	∅ mm
0001	○	20

Design and use:
- material stainless steel
- push-in stud ∅ 8 mm
- for punctiform support of components

396026 Support ball 10 mm

Type	396026	∅ mm
0001	○	20

Design and use:
- material: aluminium/steel
- bore ∅ 8 mm
- for easy and rapid clamping of components
- the spring leaf is exchangeable and adaptable to the actual requirements

0001

0003

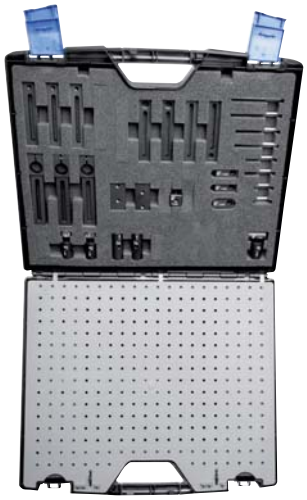
396027 Spring clip

Type	396027	Length mm
0001	○	40
0003	○	60

Design type 0001:
- kit in case
- kit for small components
- starter kit clamping technology for coordinate metrology
- user can easily and quickly clamp simple components
- set compilation very practice-oriented and reduced to the essentials

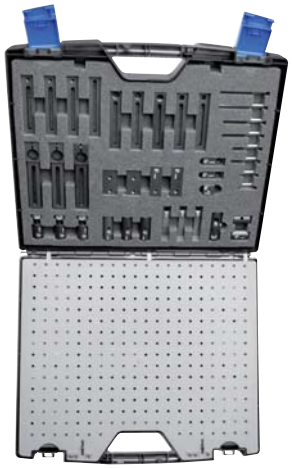
Design type 0003:
- extension kit in case
- with commonly employed components
- with 3 mounting plates as entry to modular construction

0001 Bottom side



0001 Upper side

0003 Bottom side



0003 Upper side

396040 Base kit

Type	396040	parts	Contents
0001	○	405	1 base plate 250 × 250 mm 3 straps M6 2 bolts each ∅ 20 mm, length 10 mm | 30 mm | 50 mm | 100 mm 1 strap with bore 20 × 10 × 100 mm 1 strap 20 × 10 × 100 mm 2 straps M12 × 1 3 straps slotted 2 bolts ∅ 20 mm, length 35 mm, with bore ∅ 8 mm 2 bolts M12 × 1, with bore ∅ 8 mm 2 pins each ∅ 8 mm, length 32 mm | 50 mm | 70 mm | 80 mm 114 cylinder screws with hexagon socket: 10 pieces M4 × 12 ZN | 10 pieces M6 × 16 ZN | 20 pieces M6 × 20 ZN | 20 pieces M6 × 25 ZN | 20 pieces M6 × 30 ZN | 4 pieces M6 × 30 ZN flat | 10 pieces M6 × 35 ZN | 4 pieces M6 × 35 ZN flat | 4 pieces M6 × 40 ZN | 4 pieces M6 × 45 ZN | 4 pieces M6 × 50 ZN | 4 pieces M12 × 25 ZN 60 washers: 50 pieces ∅ 6.4 ZN | 10 pieces ∅ 4.3 ZN 25 washers ∅ 6.4 / ∅ 17.3 ZN 60 spring washers: 50 pieces ∅ 6.4 ZN | 10 pieces ∅ 4.3 ZN 25 hexagonal nuts M6 ZN 6 single open end wrenches, chromatised: 2 pieces SW 7 | 1 piece SW10 | 2 pieces SW13 | 1 piece SW19 1 Allen key each, long, with spherical head, chrome-plated, SW 3 | SW 5 2 pin wrenches ∅ 5 mm 35 grub screws: 15 pieces M6 × 25 ZN | 15 pieces M6 × 30 ZN | 5 pieces M6 × 40 ZN 2 supporting blocks each M4 | M6 1 cube M6 1 Allen key SW 5 with pin, nickel-plated 20 positioning bushes ∅ 12.5 mm 2 support cones ∅ 8 mm 2 supporting faces ∅ 8 mm 1 support angle ∅ 8 mm 1 support corner ∅ 8 mm 1 support cylinder each ∅ 8/6.5 mm | ∅ 8/8.5 mm 3 support balls ∅ 8/10 mm 2 toggle clamps each M4 | M8 1 pressure spindle each, long, M4 | M8 1 storage box each 365 × 295 mm, for connecting devices or modular components
0003	●	423	like type 001, but with: 1 base plate 500 × 400 mm 3 bolts each, ∅ 20 mm, length 10 mm | 30 mm | 50 mm | 100 mm 2 straps with bore 3 straps M12 × 1 4 bolts ∅ 20 mm, length 35 mm, with bore ∅ 8 mm 1× bolt M12 × 1 with thread M6 3 spring clips: 1 piece 40 mm | 2 pieces 60 mm 1 joint ∅ 20 mm 3 exchangeable plates 2 straps M6, 20 × 20 mm

Data cable

Mitutoyo

Note:
For all Mitutoyo callipers, micrometers, measuring devices or dial gauges with data output

DIGIMATIC: For connecting a multitude of devices with DIGIMATIC interface
USB: System for direct connection as keyboard format without software driver (HID) or as virtual COM port (VCP)
U-Wave: Wireless data transmission system, transmission range 20 m
RS232C: Plug, 9-pole D-Sub

Digimatic | USB | U-WAVE®

Digimatic straight

398000 single

Type	398000	Cable length m	Design
0002	●	2	DIGIMATIC, straight
0004	○	2	DIGIMATIC, back side
0006	●	2	USB, straight
0008	○	—	U-Wave, straight

Digimatic | RS232C | USB | U-WAVE®

398001

398002

398003

398001 with data button
398002 6-pole, round
398003 10-pole, single
398004 with data button, IP protected
398005 with data button, IP protected
398006 IP protected

398004

398006

Type	398001	398002	398003	398004	398005	398006	Cable length m	Design
0002	●	●	●	●	●	—	2	DIGIMATIC
0006	●	○	○	○	○	○	2	USB
0008	○	○	○	○	○	○	—	U-Wave
0010	—	—	—	—	—	○	2	RS232C

Data connection cable

Mahr

Note:
398010: For all Mahr callipers and dial callipers with data output MarConnect
398011: For inductive dial comparators and digital dial gauges MARCATOR

Digimatic | RS232C | USB | USB 2000

Type 0002 (DIGIMATIC):
Blade terminal, 10-pole (16 EXd)

Type 0006 (16 EXu / 2000USB):
USB, incl. MarCom standard software

Type 0010 (Opto RS232C):
SUB-D socket 9-pole (16 EXr)

Digimatic

RS232C

2000USB

398010 Data connection cable
398011 Data connection cable

Type	398010	398011	398010 Design	398011 Design	Cable length m
0002	●	●	DIGIMATIC	DIGIMATIC	2
0006	●	○	16EXu	2000USB	2
0010	●	○	Opto RS232C	Opto RS232C	2

Connection cable

Mahr

Adapter cable: RS232-USB for DIGIMAR 817
Data cable: Measuring device with RS232C interface at PC

398012 Adapter cable/data cable

Type	398012	Design
0001	○	Adapter cable
0005	○	Data cable

USB-ITPAK

Mitutoyo

Design:
- USB-ITPAK is a configuration and data collection software
- data collection of measuring devices with DIGIMATIC output in a Microsoft® Excel® worksheet
- USB Input Tool Direct connection cable, U-Wave and USB foot switch adapter can be used for data transfer into a Microsoft® Excel® worksheet

USB RS232C

Functions:
- settings for the storage in Microsoft® Excel® (Workbook, worksheet, cell area, etc.)
- data collection USB Input Tool Direct cable or cordless data transmission system U-Wave
- selection of the data collection (sequential, simultaneous individually)
- triggering of data collection (mouse, foot switch, keyboard)
- text input for foot switch function
- time control

Delivery:
License key, software CD

Supported operating systems:
- Windows® 2000 Professional (> SP4)
- Windows® XP Professional (> SP2)
- Windows® XP Home Edition (> SP2)
- Windows Vista® (32bit/64bit)
- Windows® 7, 8 and 8.1 (32bit/64bit)

Supported Microsoft® Excel® versions:
- Excel® 2000/2002/2003/2007/2010

398019 Series 06AEN

Type	398019	Design
ITPAK	○	Software USB-ITPAK with license key

Mini processor

Mitutoyo

Design:
- compact construction
- for all devices with DIGIMATIC data output
- for printing the recorded figures or for statistic calculations
- incl. thermal printer, quick and quiet
- with RS232C interface cable recorded data can be send to a PC
- easy print function, in clear and legible large characters
- clock function - time-dependant entering of the measuring data
- up to 9,999 data can be registered
- power supply via mains adapter 6 V or via battery LR6 or Ni-MH
- dimensions: L × W × H = 201 × 94 × 43.9/75.2 mm

Digimatic RS232C

398020 MITUTOYO 264

Type	398020
0002	○

Interface box

Mitutoyo

Design:
- interface for connection of measuring devices with DIGIMATIC interface to PCs with RS232C or USB interface
- the device works without extra power supply

398021 0001 and 0002: Handshake lines RTS and DTR are needed for power supply
398021 0008: Power supply 230 - 240 V, 50 Hz

0001

0002

0008

398021 for PC with RS232C interface

Type	398021	Data input	Data output	Cable connection at interface	Transmission rate	Data bits	Stop bits	Parity
0001	○	1× DIGIMATIC	RS232C serial signal	for serial cable D-SUB 9	9600 baud	8	1	none
0002	○	2× DIGIMATIC	RS232C	for serial cable D-SUB 25	9600 baud	8	1	none
0008	○	8× DIGIMATIC	RS232C	for serial cable D-SUB 9	9600 baud	8	1	none

Design:
The devices log on to the host as virtual RS232C interface

Delivery:
USB cable, driver software and mains adapter (type 0003 only)

0001

0003

398022 for PC with USB interface

Type	398022	Data input	Data output	Cable connection at interface	Transmission rate	Data bits	Stop bits	Parity
0001	○	1× DIGIMATIC	USB	for USB cable mini, 5-pole, standard	9600 baud	8	1	none
0003	○	3× DIGIMATIC	USB, RS232C	for serial cable D-SUB 9 or for USB cable type B	1200/9600 baud (adjustable via jumper)	8	1	none

USB-DIGIMATIC-Interface Series 264

Mitutoyo

Design:
- USB Input Tool
- for connecting a DIGIMATIC measuring device to a PC-USB interface for direct reading of the data without additional software
- with foot switch connection, only 56 g light
- measured values are converted into keyboard codes, allowing interaction with any programs working with keyboard input (HID)
- with the software USB-ITPAK easy editing of Microsoft® Excel® spreadsheets
- fixed COM assignment (VCP) using driver (USB-ITPAK required)
- USB cable cascadable via USB hub)
- power supply 5 V via USB, cable length 1 m

Type 0001

398023 USB Input Tool

Type	398023	Data input	Data output	Display Decimal separator	Dimensions W × D × H mm
0001	○	1× DIGIMATIC	USB virtual COM port (VCP) with USB IT PAK USB keyboard signal (HID)	Emulates the local country settings	38 × 21 × 38

Data transfer system

Mitutoyo

Design:
- wireless data transmission system from measuring device direct to PC via DIGIMATIC data protocol
- U-Wave-T (transmitter) sends measured data to U-Wave-R (receiver)

Type 0005: Dust and water protected (IP67)

J-Wave-T (Transmitter) U-Wave-R (Receiver)

398025 U-Wave

Type	398025	Design
0001	○	Receiver U-Wave-R and software
0003	○	Transmitter U-Wave-T, standard version, confirmation data receipt through LED and acoustic signal
0005	○	Transmitter U-Wave-T, IP67, confirmation data receipt through LED

iStick radio receiver

Mahr

Design:
- incl. MarCom software standard 5.0
- up to 8 measuring devices can be connected per a single iStick receiver
- for digital vernier callipers 301843 or digital gauges 320628

398026 MAHR iStick radio receiver

Type	398026
I-STICK	●

Calibration

...of measuring tools

Security and confidence

the bedrock for lasting and prolific cooperation!

The measuring instruments used in the production process have to provide undeniable correct measured values for technical as well as legal reasons. To ensure this, the devices have to be regularly calibrated and traced to national standards.

In section 7.6 of the quality standards from the norm family DIN, EN, ISO 9001: 2000, is defined:
"*If necessary to ensure valid results, the measuring equipment must be calibrated or verified at fixed intervals or before use. This, in turn, is based on measurement standards that are attributed to international or national measurement standards.* "

The Mahr measuring equipment management assures this for the measuring parameter length, among others, by operating the calibration laboratories DKD-K-05401 and DKD-K06401, which are accredited by the Physikalisch-Technische Bundesanstalt PTB Braunschweig.

The calibration for an order takes about 2 days, for external brands approx. 5 days; a later calibration approx. 8 days.

Delivery ex works plus packing costs. To calibrate a new ordered tool initially, please attach "-KAL" to the size.

Example: Digital outside micrometer measuring range 0-25 mm inclusive calibration
= cat. no. **310294 0-25-KAL**

Recalibration

Indicating length measuring devices

Workshop calliper with digital or analogue display

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 9.1

Size = measuring range value mm		1 pc./price
up to	200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +
>	1000 - 2000	○ +

Height gauge with digital or analogue display

Calibration:
- for devices of all brands
- the calibration is carried out according to VDI / VDE / DGQ 2618

Size = measuring range value mm		1 pc./price
up to	300	○ +
>	300 - 600	○ +
>	600 - 1000	○ +

Depth micrometer with digital or analogue display

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 9.2

Size = measuring range value mm		one-sided 1 pc./price
up to	200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Special purpose callipers with scale and digital or analogue display

Calibration:
- for devices of all brands
- following* DKD-R 4-3 or VDI / VDE / DGQ 2618 page 9.1

Size = measuring range value mm		1 pc./price
up to	200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Recalibration

Indicating length measuring devices

Outside micrometer with digital or analogue display and flat or spheric measuring faces

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 10.1

Size = measuring range value mm		1 pc./price
up to	100	○ +
>	100 - 200	○ +
>	200 - 300	○ +
>	300 - 500	○ +
>	500 - 750	○ +
>	750 - 1000	○ +

Thread micrometer with digital or analogue display

Calibration:
- for devices of all brands
- following* DKD-R 4-3 or VDI / VDE / DGQ 2618 page 10.1

*Currently there is no published directive for the calibration of thread micrometers

Size = measuring range value mm		1 pc./price
up to	100	○ +
>	100 - 200	○ +
>	200 - 300	○ +
>	300 - 500	○ +

Micrometer with integrated dial comparator

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 10.3

Size = measuring range value mm		1 pc./price
up to	100	○ +
up to	200	○ +

Recalibration

Indicating length measuring devices

Inside micrometers with 3-line contact

Instrument without exchangeable measuring jaws

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 10.8

Size = measuring range value mm			1 pc./price
	up to	50	○ +
	>	50 - 100	○ +
	>	100 - 150	○ +
	>	150 - 200	○ +

Inside micrometers with 2-point or 2-line contact

Calibration:
- for devices of all brands
- to VDI / VDE / DGQ 2618

Size = measuring range value mm			1 pc./price
	up to	200	○ +
	>	200 - 500	○ +
	>	500 - 1000	○ +

Micrometer heads

Calibration:
- for devices of all brands
- following* VDI / VDE / DGQ 2618

*Currently there is no published directive for the calibration of micrometer heads

Size = measuring range mm	1 pc./price
25	○ +
50	○ +

Depth micrometers

Calibration:
- for devices of all brands
- calibration to VDI / VDE / DGQ 2618

Size = measuring range mm	1 pc./price
25	○ +
Extension up to 200	○ +

Recalibration

Indicating length measuring devices

Indicators with digital or analogue display and resolution ≥ 1µm

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 11.1 or to DIN 878

Size = measuring range value mm		1 pc./price
up to	0 - 10	○ +
>	10 - 50	○ +
>	50 -100	○ +

Lever gauge

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 11.3 or to DIN 2270

Size = measuring range value mm	1 pc./price
with scaling 0.01, 0.001 or 0.002	○ +
non-standard equipment, all sectors	○ +

Comparator with numeric display

Calibration:
- for devices of all brands
- according to Mahr standard*

*Currently there is no published directive for the calibration of comparators with numeric display

Size = type	1 pc./price
Mahr Extramess or Millimess	○ +

Comparator with scale display mechanic

Calibration:
- for devices of all brands
- the calibration is carried out according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 11.2 or to DIN 879

Size = type	1 pc./price
all types	○ +

Recalibration

Indicating length measuring devices

Protractors/indicators

Calibration:
- for devices of all brands
- to VDI / VDE / DGQ 2618

Size = measuring range		1 pc./price
Indicator	180°	○ +
Protractor, analogue/digital	360°	○ +

Self-centring bore gauges with 2-point contact at workpiece

Calibration:
- for devices of all brands
- to VDI / VDE / DGQ 2618

Size = measuring range mm		1 pc./price
up to	0 - 100	○ +
>	100 - 250	○ +
>	250 - 400	○ +
>	400 - 800	○ +

Quick calliper thickness gauges (internal/external measurement)

Calibration:
- for devices of all brands
- according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 12.1 or 13.1
- for thickness gauges deflection from evenness and and parallelism plus deflection f_e is determined

Size = type	1 pc./price
Thickness gauges	○ +
Quick calliper	○ +

Gauge blocks steel, ceramics, carbide

Calibration:
- to VDI / VDE / DGQ 2618 page 3.1

Size = measuring range mm		1 pc./price
up to	100	○ +
>	100 - 200	○ +
>	200 - 300	○ +
>	300 - 500	○ +
>	500 - 750	○ +
>	750 - 1000	○ +

Gauges and reference standards

Go/no-go snap gauges

Calibration:
- for gauges of all brands - to VDI / VDE / DGQ 2618 page 4.7

Size = measuring range mm			one-sided 1 pc./price
≥	2 -	10	○ +
>	10 -	50	○ +
>	50 -	100	○ +
>	100 -	150	○ +

double-ended limit gap gauge

Size = measuring range mm			double-ended 1 pc./price
≥	2 -	10	○ +
>	10 -	50	○ +
>	50 -	100	○ +
>	100 -	150	○ +

Setting rings, ring gauges

Calibration:
- for devices of all brands - to VDI / VDE / DGQ 2618 page 4.1 - circumference 2: like circumference 1, additional measurement rotated by 90 °

Size = diameter mm			1 pc./price
>	0.5 -	100	○ +
>	100 -	200	○ +
>	200 -	300	○ +

Double-sided limit plug gauges, limit thread plug gauges, feeler gauges

Calibration:
- for devices of all brands - to VDI / VDE / DGQ 2618 page 4.1 - circumference 2: like circumference 1, additional measurement rotated by 90 °

Size = diameter mm			1 pc./price
>		100	○ +
>	100 -	200	○ +
>	200 -	300	○ +

Single-sided limit plug gauges, limit thread plug gauges, feeler gauges

Calibration:
- for devices of all brands - to VDI / VDE / DGQ 2618 page 4.1 - circumference 2: like circumference 1, additional measurement rotated by 90 °

Size = diameter mm			1 pc./price
>		100	○ +
>	100 -	200	○ +
>	200 -	250	○ +

Gauge pins, thread plug gauges

Calibration:
- for gauges of all brands - to VDI / VDE / DGQ 2618 page 4.1, circumference 1

Size = diameter mm			1 pc./price
Single pins	up to	20.0	○ +
in holders (3 pins)	up to	3,2	○ +

Gauges and reference standards

Thread ring gauges, thread setting rings cylindrical

Calibration:
- for gauges of all brands
- according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 4.8 option 1

Size = diameter mm		1 pc./price
>	1 - 5	○ +
>	5 - 100	○ +
>	100 - 200	○ +

Single-sided thread plug gauges, thread setting gauges cylindrical

Calibration:
- for gauges of all brands
- according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 4.8 option 1

Size = diameter mm		1 pc./price
>	1 - 5	○ +
>	5 - 100	○ +
>	100 - 200	○ +

Double-sided thread plug gauges, thread setting gauges cylindrical

Calibration:
- for gauges of all brands
- according to DKD-R 4-3 or VDI / VDE / DGQ 2618 page 4.8 option 1

Size = diameter mm		1 pc./price
>	1 - 5	○ +
>	5 - 100	○ +
>	100 - 200	○ +

Flat squares, try squares and knife-edge squares

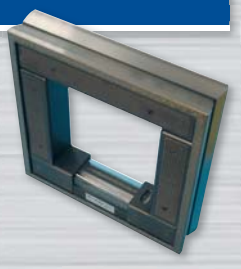
Calibration:
- for gauges of all brands
- to DKD-R 4-3 or VDI / VDE / DGQ 2618

Size = longer leg mm		1 pc./price
>	0 - 200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Machine and frame spirit levels Inclinometers

Calibration:
- for gauges of all brands, following DIN 877

Size = type	1 pc./price
Machine spirit level	○ +
Frame spirit level	○ +



Gauges and reference standards

Straightedges, marking gauges and line scales

Calibration:
- for gauges of all brands
- to DKD-R 4-3 or VDI / VDE / DGQ 2618

Size = length mm		1 pc./price
>	0 - 200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Straightedges DIN 874

Calibration:
- for gauges of all brands
- to VDI / VDE / DGQ 2618 page 18

Size = length mm		1 pc./price
>	0 - 300	○ +
>	300 - 500	○ +
>	500 - 1000	○ +
>	1000 - 1500	○ +
>	1500 - 2000	○ +

Accessories for length test devices

Setting gauges for outside micrometers extensions

for inside micrometers with 2-point contact and extensions for depth gauges

Calibration:
- for gauges of all brands
- to VDI / VDE / DGQ 2618 or Mahr standard

Size = length mm		1 pc./price
up to	0 - 200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Setting gauges for thread micrometers

Calibration:
- for gauges of all brands
- to VDI / VDE / DGQ 2618

Size = length mm		1 pc./price
up to	0 - 200	○ +
>	200 - 500	○ +
>	500 - 1000	○ +

Recalibration

Torque and speed meters

Torque wrench

Calibration:
- follows DIN ISO 6789

Size = measuring range Nm / directions of rotation		1 pc./price
	0 - 1/1	○ +
	0 - 1/2	○ +
>	1 - 400/1	○ +
>	1 - 400/2	○ +
>	400 - 700/1	○ +
>	400 - 700/2	○ +
>	700 - 1000/1	○ +
>	700 - 1000/2	○ +
>	1000 - 2000/1	○ +
>	1000 - 2000/2	○ +

Revmeters-manual tachometers digital or analogue

Calibration:
- According to the specification or DAKKS / DKD guidelines

Size = U/min.	1 pc./price
20,000 (mechanic) 99,999 (optical)	○ +

Weights and measures

Scales

Calibration:
- according to or following DKD-R 7-1

Size = measuring range		1 pc./price
<	100	○ +

Hardness testers

Shore hardness testers

Calibration:
- follows DIN 53 505

Size = Shore	1 pc./price
Shore A/D	○ +