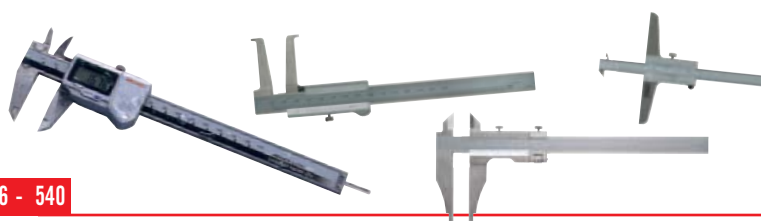


3.0 Vernier callipers Depth gauges

Page 526 - 540



3.1 Outside and inside micrometers

Page 541 - 554



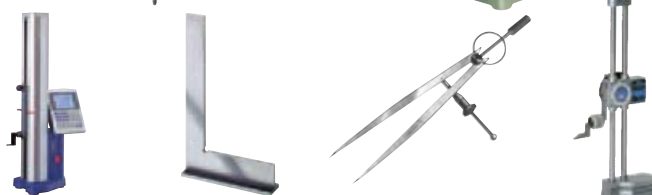
3.2 Dial gauges / callipers V-blocks, measuring tables Centring devices

Page 555 - 577



3.3 Height gauges, scribes Engineers' squares, rules & straight edges Compasses/dividers

Page 578 - 592



3.4 Measuring tapes Spirit levels Levelling and laser technology

Page 593 - 610



3.5 Gauges

Page 611 - 615



3.6 Plug gauges Gauge blocks/slip gauges Tally counters

Page 616 - 625



3.7 Magnifying glasses / measuring instruments Microscopes Projectors

Page 626 - 640



3.8 Digital readouts / position indicators Mini processors Signal cables

Page 641 - 643



3.9 Hardness testers Weighing scales

Page 644 - 650



Measuring



For Service details,
please refer to the front
under the “S” tab from page 3
onwards!



IP degrees of protection



First digit

Level of protection provided by the enclosures against contact and the intrusion of solid objects, dust or water

Level	Description	Explanation
0	No protection	No special protection measures to prevent contact and penetration of solid foreign objects.
1	Protection against large, solid foreign bodies	Protected against the penetration of solid foreign objects with a diameter of 50 mm and greater.
2	Protection against medium-sized, solid foreign bodies	Protected against the penetration of solid foreign objects with a diameter of 12.5 mm and greater.
3	Protection against small, solid foreign bodies	Protected against the penetration of solid foreign objects with a diameter of 2.5 mm and greater.
4	Protection against small, solid foreign bodies	Protected against the penetration of solid foreign objects with a diameter of 1 mm and greater.
5	Dust protected	Dust is not completely prevented from penetrating; however, does not penetrate to such an extent that the equipment's function and safety are impaired.
6	Dust tight	Complete prevention of penetration by dust, full protection against contact.

Second digit

Level of protection against water for equipment inside the enclosure

Level	Description	Explanation
0	No protection	No special protection measures to prevent the penetration of water.
1	Protection against vertically falling drops of water	Vertically falling water drops may not have any harmful effects.
2	Protection against dripping when enclosure tilted by up to 15°	Vertically falling water drops may not have any harmful effect on the equipment when the enclosure is tilted by up to 15° from the vertical.
3	Protection against spraying water	Protected against water sprayed on the equipment at any angle up to 60° from the vertical.
4	Protection against splashing water	Water splashing against the enclosure from any direction may not have any harmful effects.
5	Protection against water jets	Water jets sprayed against the enclosure from any direction may not have any harmful effects.
6	Protection against powerful water jets	Powerful water jets sprayed against the enclosure from any direction may not have any harmful effects.
7	Protection against temporary immersion in water	Protected against the penetration of a harmful quantity of water when the equipment is temporarily immersed in water up to 1 m deep, from the bottom of the equipment, under standardised time and pressure conditions.
8	Protection against continuous immersion in water	The equipment is suitable for continuous immersion in water. The conditions must be individually agreed between the manufacturer and user; however must be more severe than those specified for Level 7.



30 004 Vernier callipers

with thumb lock

- Beam and slider made of hardened, stainless steel
- Measuring faces ground and finely lap polished
- Main data scale and indicating Vernier scale matt chrome plated
- with depth gauge
- including case

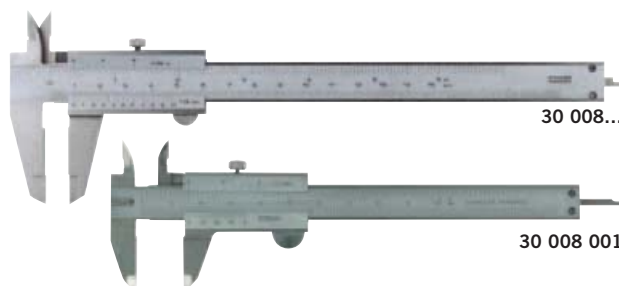
Primat

DIN
862mm
inch

30 004...

30 008 Vernier callipers

as Prod. No. 30 004...; however, with lock screw



30 008...

30 008 001

Measuring range mm	30 004... Thumb lock		30 008... Lockscrew		Length of jaws mm	Vernier mm
0 - 100	-	-	001		30	0.05
0 - 150	001		002		40	0.05
0 - 150	004		004		40	0.02
0 - 200	-	-	005		40	0.05
0 - 300	-	-	006		40	0.05

30 012 Vernier callipers

with lock screw

- Beam and slider made of hardened, stainless steel
- Main data scale and indicating Vernier scale matt chrome plated
- raised slideways
- with depth gauge
- including case

Mitutoyo

DIN
862mm
inch

30 012...

30 014 Vernier callipers

as Prod. No. 30 012...; with thumb lock



30 014...

Measuring range mm	30 012... Lockscrew		30 014... Thumb lock		Length of jaws mm	Vernier mm
0 - 150	002		002		40	0.05
0 - 200	003		003		50	0.05
0 - 300	005		005		64	0.05

30 016 Vernier callipers

- Type as No. 30 012...; however, with lock screw at the bottom
- Thread table on the back
- including case

Mitutoyo

DIN
862mm
inch

30 016...

Measuring range mm	30 016...		Length of jaws mm	Vernier mm
0 - 150	001		40	0.05

Lock screw at bottom

30 020 Vernier callipers

- with parallax-free reading
- Beam and slider made of hardened, stainless steel
- Measuring faces with extremely finely lap polished finish
- in case

30 020 011 *with double prismatic guide



Side view (much larger scale):
Double prismatic guide of 30 020 011

Primat

DIN
862

mm
inch



30 020 011

with parallax-free reading



30 020 014

Measuring range mm	30 020...		Length of jaws mm	Vernier mm	Type
0 - 150	011*		40	0.05	with lock screw
0 - 150	012		40	0.05	with lock screw
0 - 150	014		40	0.05	with thumb lock

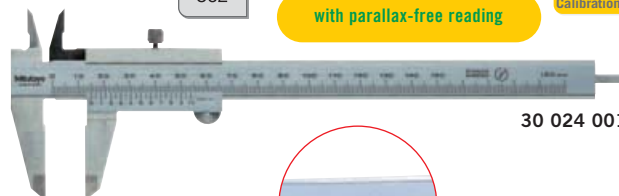
30 024 Vernier callipers

- parallax-free reading due to rounded Vernier scale
- Beam and slider made of hardened, stainless steel
- Scale and Vernier matt chrome plated, Vernier 39 mm long
- in case
- with lock screw on the top and depth gauge (round in No. ...002)

Mitutoyo

DIN
862

with parallax-free reading



30 024 001

Measuring range mm	30 024...		Length of jaws mm	Vernier mm
0 - 150	001		40	0.05
0 - 100	002		40	0.05



30 024 002
with round depth gauge

30 025 Left-handed Vernier callipers

- Stainless steel
- Read-off parts matt chrome plated
- Four way measurement and thread table
- in synthetic leather bag

DIN
862



30 025...

For left-handed persons

Measuring range mm	30 025...		Length of jaws mm	Vernier mm
0 - 150	001		40	0.05

30 028 Dial callipers

made of stainless steel, hardened, measuring faces ground and finely lap polished, matt chrome plated scale, transfer elements protected against impact, adjustable dial, toothed rack protected against dust, with lock screws, fine adjustment using drive roll
In plastic case

Primat

DIN
862



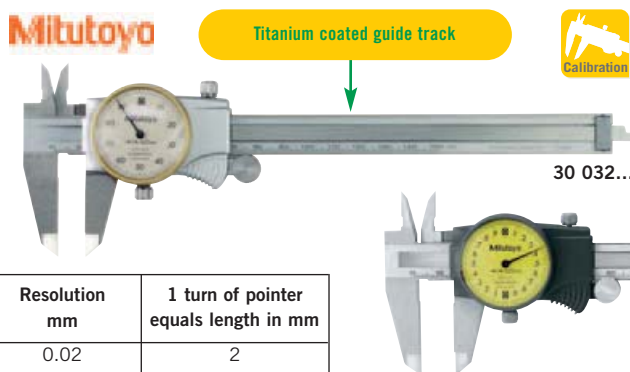
30 028...

Measuring range mm	30 028...		Length of jaws mm	Resolution mm	1 turn of pointer equals length in mm
0 - 150	001		40	0.01	1
0 - 150	002		40	0.02	2
0 - 200	022		50	0.02	2
0 - 300	032		62	0.02	2



30 032 Dial callipers

Guide track titanium coated, particularly easy to read, quick adjustment with one hand, high degree of precision, all parts made of stainless steel, with lock screw, in case with factory certificate of inspection



30 032...

Measuring range mm	30 032...		Length of jaws mm	Resolution mm	1 turn of pointer equals length in mm
0 - 150	002		40	0.02	2
0 - 150	005		40	0.01	1
0 - 200	020		50	0.01	1

30 036 Bag for Vernier callipers

made of synthetic leather, for Vernier callipers

For measuring range up to mm	30 036...		Bag length mm
160	001		250



30 036 001

30 038 Plastic Vernier callipers, digital

- Non-metallic high-tech material containing 60% fibre glass, extremely stiff.
- Extremely wear resistant calliper jaws for permanently precise measurements.
- Non-corrosive, not magnetic, very low thermal conductivity and electrically insulating.
- Chemical resistant
- Material fulfils EU Directives requirements for contact with food.
- Temperature resistance of the measuring faces: short-term up to 180 °C, continuous 100 - 120 °C
- Practical sensitive ratchet ensures uniformly applied clamping force
- Protects sensitive surfaces against damage.
- Forced discharge through special conductive material
- Tested according to IEC 61340-5-1
- Special fibre glass reinforced (60%) material
- The dialMax ESD not only protects sensitive electronic components from permanent damage due to uncontrolled discharges, but due to its plastic housing also protects surfaces from mechanical damage

Display: 5-digit digital display with 7.5 mm high digits

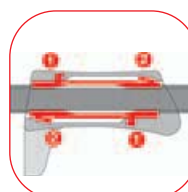
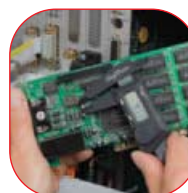
Packaging: Plastic case

Extra: Automatically switches on when used and automatically switches off again if not used for 5 minutes. Can be zeroed in any position for fast comparative measurements. Supplied including battery with life of approx. 2 years.

Range of possible uses: Electronic industry, laboratories, teaching and training in ESD rooms, measuring tasks, identification (measuring) of components



30 038 015



Zero backlash **double prismatic guide** of the slider housing for precise measurement results:

1. Rigid fixing
2. Spring-loaded hold steady device

Measuring range mm	30 038...		Weight g	Measuring accuracy mm/inch
0 - 150	015		45	0.01/0.0005

30 039 Dial callipers, ESD

Now possible: Measuring in ESD protection zones. Shock-proof dial Circular dial can be adjusted to zero and therefore enables comparative measurement.

The dialMax ESD not only protects sensitive electronic components from permanent damage due to uncontrolled discharges, but its plastic material also protects surfaces from mechanical damage

- Forced discharge through special conductive material
- Tested according to IEC 61340-5-1
- Special fibre glass reinforced (60%) material

Range of possible uses: Electronic industry, laboratories, teaching and training in ESD rooms, measuring tasks, identification (measuring) of components



30 039 001

Measuring range mm	30 039...		Resolution mm	1 turn of pointer equals length in mm
0 - 150	001		0.1	10

30 041 Vernier callipers, digital

- Electronic Vernier callipers with integrated absolute scale
- Once-off setting of the zero position, which then remains the absolute zero point until the next battery change
- Maximum measuring precision even at maximum traversing speed (no overspeed errors)
- Slider has top anti-friction properties
- Battery life 20.000 h

Functions:

On / Off, zero reset, origin, data output

Technical data:

Incremental value 0.01mm, digit height 9mm

Supplied:

in a box, including 1 battery and factory certificate of inspection

Replacement battery Prod. No. 64 866 207

Mitutoyo

DIN
862

ABSOLUTE



30 041...

all models with data output



Measuring range	30 041...		Drive wheel	Depth gauge	mm / inch switchover	Sintered carbide tipped jaws for outer measurement	Sintered carbide tipped jaws for outer measurement	Length of jaws
mm								mm
0 - 150	205			flat				40
0 - 150	210			round				40
0 - 150	215		•	round				40
0 - 150	220			flat	•			40
0 - 150	225			flat		•		40
0 - 150	230			flat		•	•	40
0 - 200	235			flat			•	50
0 - 200	240		•	flat				50
0 - 200	245			flat	•	•		50
0 - 200	250			flat		•	•	50
0 - 200	255			flat			•	50
0 - 300	260			flat				64

30 042 Vernier callipers, digital

as Prod. No. 30 041 205

however, **without data output**

Supplied in case including battery and factory calibration certificate

Mitutoyo

DIN
862

ABSOLUTE

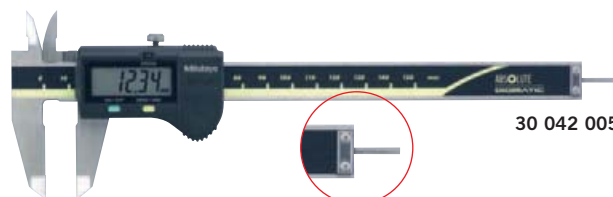


...005 with round depth gauge (Ø 1.9 mm)

Replacement battery Prod. No. 64 866 207



30 042 001



30 042 005

Measuring range mm	30 042...		Length of jaws mm	Resolution mm
0 - 150	001		40	0.01
0 - 200	002		50	0.01
0 - 150	005		40	0.01



30 044 Vernier callipers, digital

- Large high-contrast display
- with lock screw
- Very finely lap polished measuring faces
- Beam, jaws and tips hardened, matt chrome plated
- Resolution 0.01 mm / 0.0005"
- Automatically switches off

Functions: ON / ZERO
mm / inch

Supplied: In plastic box, with battery



30 044 001

Measuring range mm	30 044...		Length of jaws mm	Resolution mm/inch
0 - 150	001		40	0.01 / 0.0005

30 045 Vernier callipers, digital

- Absolute scale
 - with and without data output
 - incl. factory calibration certificate
- Incremental value: 0.01

Accessories:

- 38 452 041 Signal cable with data hold switch (1 m)
 38 452 042 Signal cable with data hold switch (2 m)
 30 053... Depth gauge base extensions
 64 866 207 Battery (SR 44)



30 045...

Measuring range mm	30 045...		Depth gauge	Data output
IP66				
0 - 150	001		flat	
0 - 200	002		flat	
0 - 300	003		flat	
0 - 150	011		flat	•
0 - 200	012		flat	•
0 - 300	013		flat	•
0 - 150	020		round	

Measuring range mm	30 045...		Depth gauge	Data output
IP67				
0 - 150	101		flat	
0 - 200	102		flat	
0 - 150	111		flat	•
0 - 200	112		flat	•
0 - 150	200		round	

30 046 Vernier callipers, digital

- with data output
- INOX hardened
- with large high-contrast LCD display
- Display housing made of aluminium
- Measuring system protected against dirt
- Repeat accuracy 0.01 mm, accuracy 0.03 mm
- Lock screw at the top
- Supplied in plastic box incl. battery

Functions: mm / inch switchover
ON / OFF button
Origin zero reset possible in any position



30 046 001

All-metal design

Measuring range mm	30 046...		Length of jaws mm	Resolution mm/inch
0 - 150	001		40	0.01 / 0.0005

30 047 Vernier callipers, digital

- with data output
- INOX hardened
- With large high-contrast LCD display
- Measuring system protected against dirt
- Repeat accuracy 0.01 mm, accuracy 0.03 mm
- Lock screw at the top
- Supplied in plastic box incl. battery

Functions: mm / inch switchover
ON / OFF button
Origin zero reset possible in any position



30 047 011

Measuring range mm	30 047...		Depth gauge mm	Length of jaws mm	Reading mm / inch
0 - 100	000		flat	30	0.01 / 0.0005
0 - 150	001		flat	40	0.01 / 0.0005
0 - 150	011		round	40	0.01 / 0.0005
0 - 200	020		flat	50	0.01 / 0.0005
0 - 300	030		flat	64	0.01 / 0.0005



30 047 000



30 049 Super Vernier callipers

- IP 67 degree of protection
 - without battery, with solar cell technology
 - with and without data output
 - protected against impact
 - Absolute system (patented worldwide)
 - incl. factory calibration certificate
- ...103 with round depth gauge (Ø 1.9 mm)

Accessories:

- 38 452 041 Signal cable with data hold switch (1 m)
 38 452 042 Signal cable with data hold switch (2 m)
 30 053... Depth gauge base extensions

Measuring range mm	30 049...		Depth gauge	Incremental value	Data output
0 - 150	101		flat	0.01	
0 - 200	102		flat	0.01	
0 - 150	103		round	0.01	
0 - 150	111		flat	0.01	•
0 - 200	112		flat	0.01	•

Mitutoyo

DIN
862IP
67

ABSOLUTE



30 049...

30 049 103
with round depth gauge

30 050 Vernier callipers, digital, SOLAR

Mitutoyo



ABSOLUTE



- digital measurement **without battery**
 - "ABSOLUTE" system for reliable, fail-safe use
- Function:** ORIGIN. Illuminance (in use): 60 lux.
 Supplied in case

- ...001 - ...003 **with** data output, depth gauge and drive wheel
- ...007 - ...011 **without** data output, with depth gauge
- incl. factory calibration certificate

Accessories:

- 38 452 031 Signal cable with data hold switch (1 m)
 38 452 032 Signal cable with data hold switch (2 m)
 30 053... Depth gauge base extensions



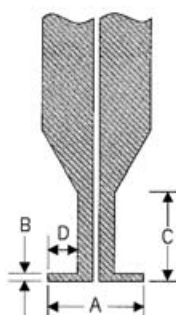
30 050...

Measuring range mm	30 050...		Length of jaws mm	Resolution mm	Data output
0 - 150	001		40	0.01	•
0 - 200	003		50	0.01	•
0 - 150	007		40	0.01	
0 - 200	011		50	0.01	

30 052 Set of groove measuring attachments

5 pairs in the set, for pocket Vernier callipers, for measuring internal and external grooves, O-ring recesses and undercuts, in conjunction with Vernier callipers with max. 3.5 mm measuring jaw width made of special steel, hard chrome plated, for fixing in pairs with clamping screws, in case

Number of groove measuring inserts	30 052...		A mm	B mm	C mm	D mm
5	001		-	0.65	-	10
			18.5	1.0	31.0	6.5
			15.0	0.65	25.0	4.8
			7.5	0.4	15.8	1.6
			5.0	0.4	10.5	1.0



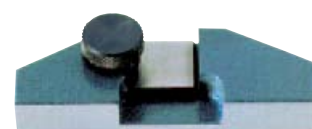
30 052...

30 053 Depth gauge base extensions

Mitutoyo

for Vernier callipers with depth gauge, for measuring drill-holes, recesses, grooves, offsets and steps

for measuring ranges	30 053...		Size of the contact area mm
100 mm. 150 mm. 200 mm	075		75 x 12
100 mm. 150 mm. 200 mm	100		100 x 12
300 mm only	125		125 x 14



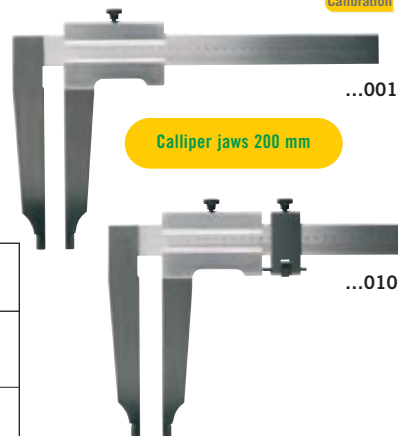
30 053...

30 100 Precision Vernier calliper, large

- with 200 mm long calliper jaws
- Polished normal steel
- Measuring faces very finely ground and hardened
- Slider with lock screw and adjustable sliding feather key
- Internal measurement jaw tips shaped for measuring holes

for matching wooden case, see next item

Primat



...001

Calliper jaws 200 mm

...010

Measuring range mm	30 100...		Fine adjustment	Vernier mm
0 - 1000	001		no	0.05
0 - 1500	003		no	0.05
0 - 2000	005		no	0.05
0 - 1000	010		yes	0.05
0 - 1500	013		yes	0.05
0 - 2000	015		yes	0.05

Other measuring ranges and jaw lengths as well as 1/50 Vernier available on request.

30 100 Wooden case for large precision Vernier callipers

- Suitable for 30 100

For measuring range up to	30 100...	
1000	100	
1500	150	
2000	200	

30 104 Workshop Vernier callipers

- with blade tips
- made of stainless steel, completely hardened
- ground and lap polished measuring faces
- with matt chrome plated scaling
- jaw ends stepped for internal measurements
- with lock screw

Primat

DIN 862

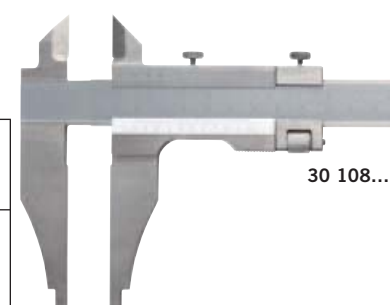


30 104...

30 108 Workshop Vernier callipers

as Prod. No. 30 104...; however, with additional fine adjustment

Measuring range mm	30 104...		30 108...		Length of jaws mm	Hole-measuring end shoulder mm	Vernier mm
0 - 200	001		001		65	10	0.05
0 - 250	002		002		80	10	0.05
0 - 300	003		003		100	10	0.05
0 - 500	007		007		150	20	0.05



30 108...

30 117 Workshop Vernier callipers

- with blade tips for internal measurement
 - **parallax-free reading up to measuring range 300 mm**
 - direct reading of the inner measured values possible, without adding the measuring jaw thickness
 - made of hardened, stainless steel
 - scale and Vernier matt chrome plated
- Supplied in case

Mitutoyo



30 117 002 - ...010
without fine adjustment

with parallax-free reading
up to 300 mm

Measuring range	30 117...		Fine adjustment	Length of jaws	Vernier mm	Error limit mm
0 - 200	002		no	60	0.05	0.05
0 - 300	003		no	90	0.05	0.08
0 - 500	005		no	150	0.05	0.10
0 - 1000	010		no	150	0.05	0.15
0 - 280	028		yes	90	0.02	0.04
0 - 500	050		yes	150	0.02	0.06
0 - 1000	100		yes	150	0.02	0.08



30 117 028 - ...100
with fine adjustment



30 113 Workshop Vernier callipers, lightweight

- Beam and slider made of aluminium
- Error limit in accordance with DIN 862
- Calliper jaws behind the guide, therefore very flat geometries can be measured
- Resolution: 0.02 mm

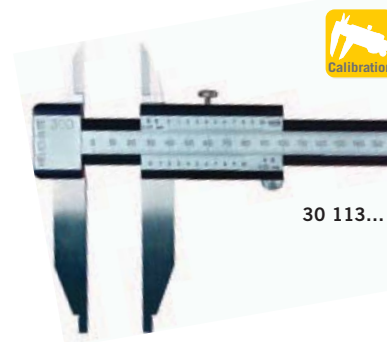
Helios

DIN
862

made of aluminium

...003 to ...010 without fine adjustment
 ...013 to ...020 with fine adjustment

Measuring range mm	30 113...		Fine adjustment	Length of jaws mm	Error limits μm External measurement
0 - 300	003		no	90	30
0 - 500	005		no	150	30
0 - 800	008		no	150	70
0 - 1000	010		no	150	80
0 - 300	013		yes	90	30
0 - 500	015		yes	150	30
0 - 800	018		yes	150	70
0 - 1000	020		yes	150	80



30 113...

30 121 Workshop Vernier callipers, digital

- with blade tips
 - Robust Vernier callipers, rustproof with hardened measuring faces, with large display for reliable measurements without reading errors.
 - with fine adjustment, lock screw and data output
 - Functions:
 Zero reset in any position
 mm / inch switchover
 Data/Hold
 On/Off
- Hole-measuring end shoulder: 0-300 mm = 10 mm, 0-400 mm = 20 mm
 Supplied in wooden case, including battery

Primat



30 121...

30 122 Workshop Vernier callipers, digital

Type as 30 121... however, without blade tips
 Function: On/Off, zero, mm/inch, data/hold

Measuring range mm	30 121...		30 122...		Resolution mm/inch	Length of jaws mm
0 - 300	003		003		0.01/0.0005	90
0 - 500	005		005		0.01/0.0005	150
0 - 800	008		008		0.01/0.0005	150
0 - 1000	010		010		0.01/0.0005	150



30 122...

30 124 Workshop Vernier callipers, digital with data output and large measuring ranges

- Maximum measuring precision even at maximum traversing speed (no overspeed errors)
 - Very good reading accuracy due to large display digits
 - Rustproof, hardened measuring faces
 - "ABSOLUTE" system (patented) with dirt wiper in the slider
 - Power input from SR-44 battery
- Functions: ON / OFF, ZERO / ABS, ORIGIN
 Precision: In-house standard
 Incremental value: 0.01 mm
 Supplied in case, including battery

Mitutoyo

ABSOLUTE

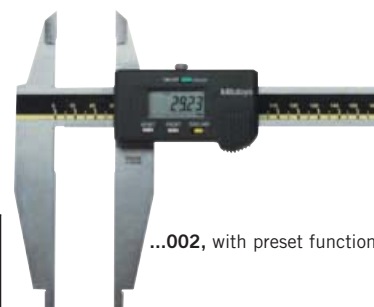


30 124...

Accessories:

- 38 452 031 Signal cable (1 m) with
 38 452 032 Signal cable (2 m) with
 64 866 207 Replacement battery

Measuring range mm	30 124...		Hole-measuring end shoulder mm	Length of jaws mm	Error limit mm
0 - 200	001		10	60	0.03
0 - 300	002*		10	90	0.04
0 - 500	003		20	150	0.06
0 - 750	004		20	150	0.06
0 - 1000	005		20	150	0.07



...002, with preset function

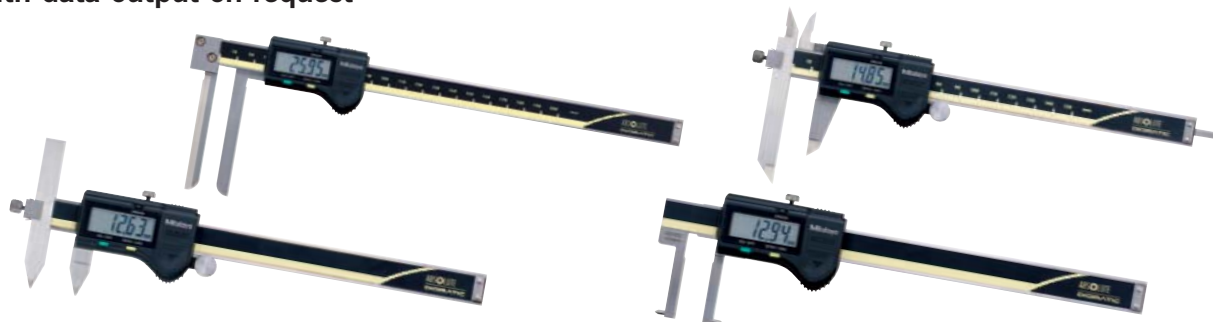
*Preset function: two values can be saved, OFFSET function: for internal measurement



Special Vernier callipers, digital with data output on request

Mitutoyo

ABSOLUTE

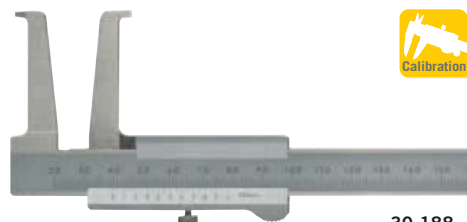


30 188 Inside groove type Vernier callipers

Primat



- Resolution 1/20 mm
- made of stainless steel, completely hardened
- Main data scales and indicating Vernier scale matt chrome plated
- with lock screw



30 188...

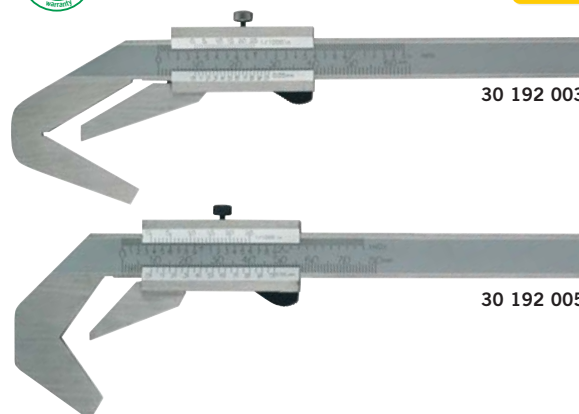
Measuring range mm	30 188...		Length of jaws mm	Bent end length mm	Bent end width mm
10-160	001		25	3.0	0.9
20-160	002		40	5.0	2.0
26-200	003		60	7.0	3.0

30 192 Vernier callipers for 3 and 5 point measurement

Primat



- In-house standardd
- Stainless steel, hardened
- Reading parts matt chrome plated
- Lock screw
- Including case



30 192 003

30 192 005

Measuring range mm	30 192...		Resolution mm	Points
4 - 40	003		0.05	3
4 - 40	005		0.05	5

30 204 Vernier depth gauge

made of stainless steel

- with hardened measuring pin
- measuring faces and base extension hardened, ground and lap polished
- double-sided graduation for changing the scale

Primat

DIN
862



30 204 008

30 204 015

Measuring range mm	30 204...		Base extension length mm	Measuring pin Ø mm	Measuring beam	Vernier mm
0 - 80	008		50	1.0	10 x 3.5	0.05
0 - 150	015		100	1.5	8 x 3	0.05
0 - 200	020		100	1.0	8 x 3	0.05
0 - 300	030		150	2.0	12 x 4	0.05

30 212 Vernier depth gauge

made of stainless steel

Measuring face and base extension hardened, ground and lap polished

Primat

DIN
862



30 212...

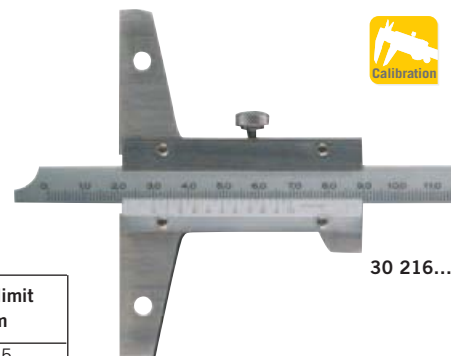
Measuring range mm	30 212...		Base extension length mm	Vernier mm
0 - 150	001		100	0.05
0 - 200	002		100	0.05
0 - 300	004		150	0.05
0 - 500	005		150	0.05

30 216 Vernier depth gauge

made of stainless steel

- for measuring the depths of drill holes
- Measuring faces and guides hardened and very finely lap polished
- including case

Mitutoyo



30 216...

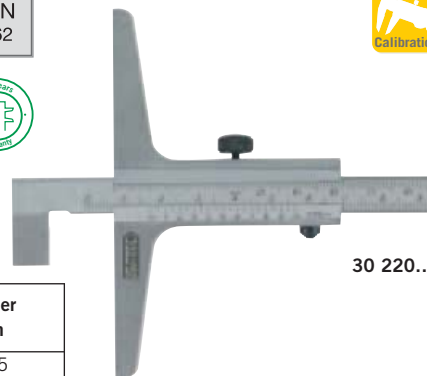
Measuring range mm	30 216...		Base extension length mm	Vernier mm	Error limit mm
0 - 150	001		100	0.05	0.05
0 - 200	002		100	0.05	0.05
0 - 300	003		100	0.05	0.08
0 - 600	004		250	0.05	0.10
0 - 1000	005		250	0.05	0.15



30 220 Vernier depth gauge

with hooked end measuring beam

- made of stainless steel
- with lock screw
- the measuring areas and base extension are hardened, ground and lap polished
- the scale can be switched over and has a double-sided graduation
- Supplied in case

PrimatDIN
862

30 220...

Measuring range mm	30 220...		Base extension length mm	Measuring beam mm	Vernier mm
0 - 200	002		100	8 x 3	0.05
0 - 300	004		125	12 x 4	0.05
0 - 500	006		160	12 x 4	0.05

30 221 Vernier depth gauge

- with offset measuring faces
- stainless type
- with lock screw
- scaling on both sides
- changeable, completely hardened measuring faces
- Vernier matt chrome plated
- supplied in case

PrimatDIN
862

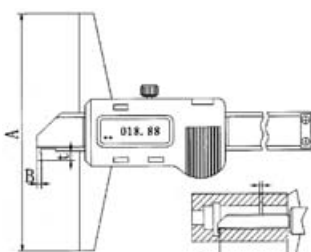
30 221...

Measuring range mm	30 221...		Base extension length mm	Vernier mm
0 - 150	015		100	0.05
0 - 200	020		100	0.05

30 222 Vernier depth gauge, digital

with hooked end measuring beam

- with data output
- Stainless steel, hardened
- with lock screw
- Including case

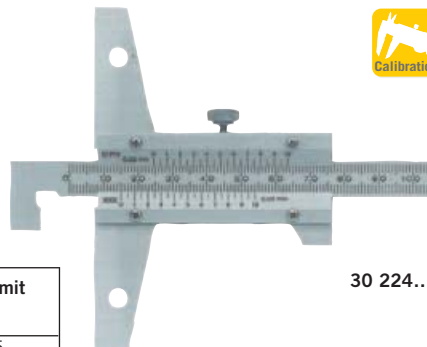
Function: On/Off, zero, mm/inch**Primat**

30 222...

Measuring range mm	30 222...		Base extension length A mm	Resolution mm / inch	B mm	t mm
0 - 150	015		100	0.01/0.0005	2	5
0 - 200	020		100	0.01/0.0005	2	5
0 - 300	030		100	0.01/0.0005	2	5

30 224 Vernier depth gauge

with hooked end measuring beam ideal for measuring the distances between flat areas and steps, the measuring faces and guides are hardened and very finely lap polished, **rustproof**, including case

Mitutoyo

30 224...

Measuring range mm	30 224...		Base extension length mm	Vernier mm	Error limit mm
0 - 150	001		100	0.05	0.05
0 - 200	002		100	0.05	0.05
0 - 300	003		100	0.05	0.08



"TOOLS"

30 230 Vernier depth gauge, digital

- with data output
- stainless steel
- with lock screw
- including case

Function: On/Off, zero, mm/inch



Depth gauge base extensions No. 30 053...

Measuring range mm	30 230...		Base extension length mm	Resolution mm / inch
0 - 150	015		100	0.01/0.0005
0 - 200	020		100	0.01/0.0005
0 - 300	030		100	0.01/0.0005



30 230...

30 232 Vernier depth gauge, digital

with data output, with integrated absolute scale. Once-off setting of the zero position, which then remains the absolute zero point until the next battery change. Very good reading accuracy due to large display digits. Power input from SR-44 battery.

Functions: ON / OFF, zero reset, ORIGIN, supplied in case, including battery. Exchangeable base extension (not 450 mm) with 180, 260 or 320 mm length available on request.

Replacement battery: No. 64 866 207
Signal cable, 1 m: No. 38 452 031
Signal cable, 2 m: No. 38 452 032
Depth gauge base extensions No. 30 053...



30 232...

Measuring range mm	30 232...		Base extension length mm	Error limit mm	Resolution mm
0 - 150	015		100	0.03	0.01
0 - 200	020		100	0.03	0.01
0 - 300	030		100	0.04	0.01
0 - 450	045		250	0.05	0.01

30 233 Vernier depth gauge, digital

as 30 232..., however, IP 67 degree of protection

Replacement battery: No. 64 866 207
Signal cable, 1 m: No. 38 452 041
Signal cable, 2 m: No. 38 452 042
Depth gauge base extensions No. 30 053...

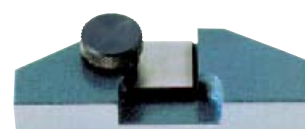


30 233...

Measuring range mm	30 233...		Incremental value mm	Error limit mm
0 - 150	015		0.01	0.03
0 - 200	020		0.01	0.03

30 053 Depth gauge base extensions

for Vernier callipers with depth gauge, for measuring drillholes, recesses, grooves, offsets and steps



30 053...

for measuring ranges	30 053...		Size of the contact area mm
100 mm. 150 mm. 200 mm	075		75 x 12
100 mm. 150 mm. 200 mm	100		100 x 12
300 mm only	125		125 x 14

30 260 Measuring kits

...003, in wooden box, 3 piece, consisting of

- External micrometer 0 - 25 mm
- Vernier callipers 150 mm
- Bevelled steel square 100 x 70 mm

Set	30 260...	
3-piece	003	

Primat



30 260 003

...007 in wooden box, 7 piece, consisting of

- External micrometer 0 - 25 mm
- Vernier callipers 150 mm
- **Straight edge 100 mm**
- Bevelled steel square 100 x 70 mm
- Spring dividers 125 mm
- Flexible steel rule 200 mm, stainless
- **Engineers' scriber with replaceable tip**

Set	30 260...	
7-piece	007	



30 260 007

Calibration service and calibration management

Wollschläger and QTR in cooperation with Trescal

Europe's leading calibration service providers offer you an extensive range of services for calibrations, measuring equipment management and individual, complete solutions from a single source!
In addition is their regional presence in the whole of Germany.

Calibration of new and used measuring equipment, irrespective of make and manufacturer.

Extensive and professional calibration service

- Accreditation of more than 20 measured variables
- Short throughput times
- DKD calibration
- DKD final dimension calibrations
- Customer-specific test equipment monitoring on the internet
- Test bench/rig/bench, etc. calibrations
- Individually tailored software and hardware solutions
- Servicing and maintenance
- Pick-up and delivery service
- Sealing
- High-quality test stickers
- Labelling

On-site calibration

- Calibration in your company or in the mobile laboratory
- Measuring equipment repairs for an additional charge

Support with all tasks required to implement DIN EN ISO 9001

- Setting up of quality management systems
- Management system support
- Performing internal audits
- Leading to certification, etc.

DKD calibration authorities

DKD-K-04201 DKD-K-04202
DKD-K-04203 DKD-K-04204

DKD-K-04205 DKD-K-04206
DKD-K-04207 DKD-K-33201

Further information available on

www.qtr.de • www.trescal.de • www.dkd.eu



31 002 External micrometers

Accuracy according to DIN 863

- Resolution 0.01 mm
- with sensitive ratchet and lever clamp
- **with finely lap polished sintered carbide measuring faces**
- hardened micrometer spindle with ground in thread, thread pitch 0.5 mm
- Spindle Ø 6.5 mm
- Insulated frame
- Thimble and sleeve matt chrome plated
- Thimble 18 mm Ø, **from 25 mm measuring range with setting standard**, in wooden case

Primat

DIN
863



31 002...

Measuring range mm	31 002...	
0 - 25	025	
25 - 50	050	
50 - 75	075	
75 - 100	100	
100 - 125	125	
125 - 150	150	

Measuring range mm	31 002...	
150 - 175	175	
175 - 200	200	
200 - 225	225	
225 - 250	250	
250 - 275	275	
275 - 300	300	

31 003 External micrometers

design as No. 31 002...; however, with interchangeable anvils, measuring range of the thimble 25 mm

Primat



31 003...

Measuring range mm	31 003...	
300 - 400	040	
400 - 500	050	
500 - 600	060	
600 - 700	070	
700 - 800	080	
800 - 900	090	
900 - 1000	100	

31 006 External micrometer sets

Type as 31 002... in wooden box with setting standards

Primat



31 006 150

Measuring range mm	31 006...		Resolution	Qty
0 - 75	075		1/100	3
0 - 100	100		1/100	4
0 - 150	150		1/100	6

31 014 External micrometers

- Very stable design
- Scaled thimble and scaled sleeve matt chrome plated, diameter 18 mm
- Micrometer spindle diameter 6.35 mm
- Spindle pitch 0.5 mm
- with clamp-type lock, **tungsten carbide tipped measuring faces**, ground, very finely lap polished, with ratchet, **from 25 mm with setting standard**, in case
- incl. factory test certificate up to 50 mm measuring range

Mitutoyo

DIN
863/1



31 014...

Measuring range mm	31 014...		Resolution mm
0 - 25	025		0.01
25 - 50	050		0.01
50 - 75	075		0.01
75 - 100	100		0.01



31 018 External micrometer set

Type as Nr. 31 014..., complete in wooden box

Mitutoyo

31 018 100

Measuring range mm	31 018...		Contents Qty
0-100	100		4

31 024 External micrometers

- Lightweight workshop model
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Spindle pitch 0.5 mm, with clamping device
- **sintered carbide tipped measuring faces**, ground, very finely lap polished
- Enamelled frame, with ratchet
- **from measuring range 25 mm with setting standard**
- including case
- incl. factory test certificate up to 50 mm measuring range

MitutoyoDIN
861/1

31 024...

Measuring range mm	31 024...		Resolution mm
0 - 25	025		0.01
25 - 50	050		0.01
50 - 75	075		0.01
75 - 100	100		0.01
100 - 125	125		0.01
125 - 150	150		0.01

Measuring range mm	31 024...		Resolution mm
150 - 175	175		0.01
175 - 200	200		0.01
200 - 225	225		0.01
225 - 250	250		0.01
250 - 275	275		0.01
275 - 300	300		0.01

31 025 External micrometer sets

Type as Nr. 31 024..., complete in wooden box

Mitutoyo

31 025 150

Measuring range mm	31 025...		Contents Qty
0 - 75	075		3
0 - 150	150		6
150 - 300	301		6

31 026 External micrometers

- with ratchet mechanism in the thimble and in the coarse adjustment
- constant measuring force due to combination ratchet
- one-hand operation
- with factory test certificate

Mitutoyo

31 026...



One-hand operation

Measuring range mm	31 026...		Error limit µm	Scale interval mm
0 - 25	025		3	0.001
25 - 50	050		3	0.001

31 033 External micrometers

- Large thimble, 1/100 graduation
- Scaled thimble and scaled sleeve matt chrome plated, diameter 30 mm
- Micrometer spindle diameter 8 mm
- Spindle pitch 1 mm, with clamping device
- **sintered carbide tipped measuring faces**, ground, very finely lap polished
- Forged frame, matt chrome plated with ratchet
- **from measuring range 25 mm with setting standard**, on the thimble with 1/100 graduation the measured values can be read off directly without adding the 1/2 mm values
- in case



31 033 025

Measuring range mm	31 033...		Resolution mm
0 - 25	025		0.01
25 - 50	050		0.01

31 040 External micrometers

with interchangeable anvils

- Scaled thimble and scaled sleeve matt chrome plated, 18 mm diameter (up to 300 mm), 21 mm diameter (over 300 mm)
- Micrometer spindle 6.35 mm diameter (up to 300 mm), 8 mm diameter (over 300 mm)
- **Spindle pitch 0.5 mm**, with clamping device
- Measuring faces hardened, ground
- Lightweight frame, enamelled
- in case



31 040...

Measuring range mm	31 040...		Resolution	Anvils Qty	Setting standards Qty
0 - 50	050		0.01	1	-
0 - 150	150		0.01	6	5
100 - 200	200		0.01	4	4
200 - 300	301		0.01	4	4
300 - 400	400		0.01	4	4
400 - 500	500		0.01	4	4
500 - 600	600		0.01	4	4
600 - 700	700		0.01	4	4

31 044 External micrometers, with counter

- with counter for fast, direct reading
- **Measuring faces sintered carbide tipped and plane-parallel lap polished**, hardened micrometer spindle, 6.5 mm Ø, with ground thread
- Spindle pitch 0.5 mm
- Clamping device and sensitive ratchet,
- Scaled thimble 17 mm, and sleeve matt chrome plated
- **from 25 mm measuring range with setting standard**, including case



31 044...

Measuring range mm	31 044...		Resolution mm
0 - 25	025		0.01
25 - 50	050		0.01

31 048 External micrometers, with counter

- for fast, direct reading
- Scaled thimble 18 mm and scaled sleeve matt chrome plated
- Micrometer spindle diameter 6.35 mm
- Spindle pitch 0.5 mm, with clamping device
- **sintered carbide tipped measuring faces**, ground, very finely lap polished
- Forged frame, enamelled, with ratchet
- **from measuring range 25 mm with setting standard**
- including case, hand guard, spanner



31 048...

Measuring range mm	31 048...		Resolution mm
0 - 25	025		0.01
25 - 50	050		0.01
50 - 75	075		0.01
75 - 100	100		0.01



31 061 External micrometers, digital

- Degree of protection IP 65
- with and without data output
- External micrometer with impact resistant design
- incl. factory calibration certificate up to 50 mm measuring range
- Incremental values: 0.001 mm

Accessories:

- 38 452 051 Signal cable with data hold switch (1 m)
 38 452 052 Signal cable with data hold switch (2 m)
 64 866 207 Battery (SR 44)

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31 061...

Measuring range mm	31 061...		Error limits μm	Ratchet	Ratchet thimble	Friction thimble	Digimatic data output
0 - 25	025		2	•			
25 - 50	050		2	•			
50 - 75	075		3	•			
75 - 100	100		3	•			
0 - 25	125		2	•			•
25 - 50	150		2	•			•
50 - 75	175		3	•			•
75 - 100	200		3	•			•
0 - 25	225		2		•		•
25 - 50	250		2		•		•
50 - 75	275		3		•		•
75 - 100	300		3		•		•
0 - 25	325		2			•	•
Sets							
0 - 50	650			•			•
0 - 75	675			•			•
0 - 100	700			•			•



31 061 675

31 063 External micrometers, digital**with data output**

- Accuracy according to DIN 863/1
- Large LCD display
- Zero reset possible in any position
- Can be switched between metric and imperial (mm/in)
- Scaled thimble 18 mm and sleeve matt chrome plated
- Micrometer spindle Ø 6.50 mm, spindle pitch 0.5 mm, with clamp
- sintered carbide tipped measuring faces, ground and very finely lap polished
- with ratchet
- max. traversing speed approx. 16 mm/s
- Power supply from 1.5 V button cell
- Setting standard from 25 mm
- in wooden box

Primat

31 063 025

with data output and sintered carbide
tipped measuring faces

Replacement battery Prod. No. 64 866 207

Measuring range mm	31 063...		Resolution mm
0 - 25	025		0.001
25 - 50	050		0.001



Militutoyo

- 

ABSOLUTE



Spindle feed 10 mm/rev
and non-rotating spindle

31 067...

Signal cable, 2 m: No. 38 452 002

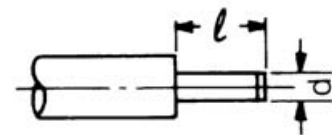
Measuring range	31 067...		Error limit	Data output
mm			µm	
0 - 30	001		2.0	
0 - 30	002		2.0	•
25 - 55	005		3.0	•
50 - 80	008		3.0	•
75 - 105	010		3.0	•

Mitutoyo

DIN
863

- 
- 31 077..

31 077...



64 866 207 Battery (SR 44)

Measuring range mm	31 077...		l/d mm	Weight g
0 - 25	025		10/3	330
25 - 50	050		10/3	470
50 - 75	075		10/3	625

Militutoyo

- 

ABSOLUTE



31 083...

with non-rotating spindle

64 866 207 Battery (SR 44)

Measuring range mm	31 083...	
0 - 30	030	



31 086 External micrometers

- for measuring the chordal distance over gear teeth, resolution 0.01 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Micrometer spindle Ø 6.35 mm, spindle pitch 0.5 mm
- with clamp
- Measuring face diameter 20 mm, disc type measuring face/anvil
- Enamelled frame
- Setting standard from 25 mm measuring range, including case

Measuring range mm	31 086...		Error limit mm
0 - 25	025		4
25 - 50	050		4
50 - 75	075		6
75 - 100	100		6

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31 086...

31 090 External micrometers

- for measuring narrow outer grooves
- non-rotating spindle
- Resolution 0.01 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Measuring face 0.75 mm x 6.5 mm
- Micrometer spindle Ø 8 mm, spindle pitch 0.5 mm
- with ratchet
- Setting standard from 25 mm measuring range, including case

Measuring range mm	31 090...	
0 - 25	025	
25 - 50	050	
50 - 75	075	
75 - 100	100	

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DIN
893/1

31 090...

with non-rotating spindle

31 092 External micrometers

- for measuring threads
- digital with data output
- Resolution 0.001 mm, graduation 0.01 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Micrometer spindle Ø 6.35 mm, with clamp
- Enamelled frame, from 25 mm with 60° setting standard, with ratchet, hand guard, adjusting spanner
- Supplied in case without anvils

For anvils, see No. 31 096...

Measuring range mm	31 092...		Data output
0 - 25	025		•
0 - 25*	030		
25 - 50	050		•
25 - 50*	055		

*with analog display

Mitutoyo

IP
65

...030 and ...055

31 096 Anvils for 60° threads

for measuring metric threads, for external micrometers

No. 31 092 ..., anvils for other types of thread available on request

metric pitch mm	31 096...	
0.4 - 0.5	001	
0.6 - 0.9	002	
1 - 1.75	003	
2 - 3	004	
3.5 - 5	005	
5.5 - 7	006	

Mitutoyo



31 096...



31 098 External micrometers

- for measuring three and five-fluted tools, e.g. drill bits, taps, milling cutters, reamers
- with V-anvil
- Resolution 0.01 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Micrometer spindle Ø 6.35 mm with clamp
- Measuring faces: 60° V-anvil angle for 3-flute workpieces
- 108° V-anvil angle for 5-flute workpieces
- enamelled frame, with ratchet spindle lock, setting standard, adjusting spanner, in case

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31 098...

Measuring range mm	31 098...		For
1 - 15	015		3-flute workpieces
10 - 25	025		3-flute workpieces
5 - 25	125		5-flute workpieces

31 099 Indicator micrometers

- for batch testing
- with dial indicator
- large scale for easy reading
- sintered carbide tipped measuring faces, ground and very finely lap polished
- zero reset
- adjustable tolerance marks for go and no go measurements (rejects)
- resetting lever in handy position
- adjustable diameter limit stop
- scaled thimble and scaled sleeve matt chrome plated, 21 mm Ø
- lever for clamping the thimble
- with hand guard

Including box, setting standard (from 25 mm), adjusting spanner

Measuring range mm	31 099...		Parallelism µm	Weight g
0 - 25	025		0.6	520
25 - 50	050		0.6	670

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31 099 025

Technical data:

Micrometer spindle: Ø 6.5 mm Micrometer error limit: 3 µm
 Spindle pitch: 0.5 mm Display error limit: 1 µm
 Display range: ± 0.045 mm Flatness: 0.3 µm
 Resolution: 0.001 mm Measuring force: 5 - 10 N

31 100 Indicator micrometers

- for batch testing
- Form D 13
- large scale for easy reading
- with zero reset and tolerance marks for go/no go measurement
- resetting lever in handy position

Technical data:

- dial indicator scale graduation: 0.001 mm
- Error limits scale graduation: 0.001
- dial indicator error limits: 1 µm
- micrometer error limits: 2 µm
- dial indicator display range: +/- 0.06 mm
- scales: scaled thimble and scaled sleeve matt chrome plated
- Measuring faces: sintered carbide tipped, ground, very finely lap polished
- Flatness: 0.3 µm
- Measuring force: 5 - 10 N

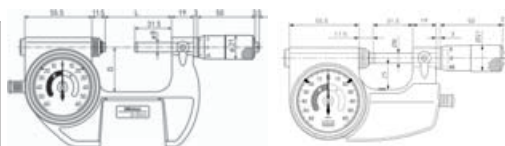
Including box, setting standard (from 25 mm), adjusting spanner

Mitutoyo

DIN
863IP
54

31 100 025

Measuring range mm	31 100...		Parallelism µm	L mm	D mm
0 - 25	025		0.6	31.5	25
25 - 50	050		0.6	38.0	56
50 - 75	075		1.0	50.0	81
75 - 100	100		1.0	63.0	106



31 101 Setting standards

for checking and setting all external micrometers from 25 mm measuring range. Very finely lap polished measuring faces with actual dimension and hand guard.



31 101...

Measuring range mm	31 101...	
25	025	
50	050	
75	075	
100	100	
125	125	
150	150	
175	175	

Measuring range mm	31 101...	
225	225	
275	275	
325	300	
425	400	



31 105 Stand for external micrometer, mobile

- stable
- small and space-saving
- secure clamping of the measuring equipment
- can be locked at any inclination
- max. jaw opening 15 mm

For external micrometers mm	31 105...	
100	001	



31 105...

31 106 External micrometer stand

for use in production and inspection departments, for batch measurements, with hinged jaws

For external micrometers	31 106...	
100 mm	001	



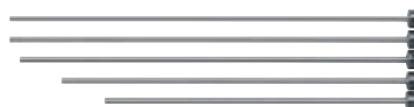
31 106...

31 120 Depth micrometers

- Resolution 0.01 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Micrometer spindle diameter 4 mm
- Spindle pitch 0.5 mm, with clamping device
- Measuring faces ground and finely lap polished
- Base made of hardened tool steel
- with ratchet
- in case
- from 31 120 050 with interchangeable measuring rods (in 25 mm steps)

Mitutoyo

DIN
863-2



Measuring range mm	31 120...		Qty of setting rods	Base size mm
0 - 25	025		1	100 x 16
0 - 50	050		2	100 x 16
0 - 100	100		4	100 x 16
0 - 150	150		6	100 x 16
0 - 300	300		12	100 x 16



31 120 025

31 121 Depth micrometer, digital

- with interchangeable measuring rods (in 25 mm steps)
- Incremental value 0.001 mm
- Scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Measuring span 25 mm
- Measuring rod diameter 4 mm
- Spindle pitch 0.5 mm, with clamping device
- Measuring faces hardened, ground and finely lap polished
- Base made of hardened tool steel
- including box, adjusting spanner, battery
- with interchangeable measuring rods (in 25 mm steps)

Mitutoyo



Accessories:

- 38 452 051 Signal cable with data hold switch (1 m)
- 38 452 052 Signal cable with data hold switch (2 m)
- 64 866 207 Battery (SR 44)



Measuring range mm	31 121...		Qty of rods	Base size mm	Micrometer error limits µm
0 - 150	150		6	100 x 16	3



31 121...

31 124 Depth gauge with analog dial indicator**Mitutoyo****Description of the dial indicator:**

- analog type
- measuring faces of the base hardened, ground and lap polished
- including box and extensions 10, 20, 30, 30, 100

Technical data:

Dial indicator scale graduation: 00.1 mm

Spherical probe tip R = 1.5



31 124 200



31 124 201

Measuring range mm	31 124...		Measuring span mm	Base size mm	Weight g
0 - 200	200		10	60 x 16	300
0 - 200	201		10	100 x 16	350

31 126 Depth gauge with digital dial indicator**Mitutoyo****Description of the dial indicator (Prod. No. 32 047 001)**

see page 563

- fast, precise measurements
- matt chrome plated
- measuring faces of the base hardened, ground and lap polished
- with interchangeable anvils
- including case

Accessories:

38 452 031 Signal cable with data hold switch (1 m)

38 452 032 Signal cable with data hold switch (2 m)

64 866 207 Battery (SR 44)



31 126...

Measuring range mm	31 126...		Measuring span mm	Base size mm	Incremental value mm
0 - 200	200		10	60 x 16	0.001
0 - 200	201		10	100 x 16	0.001

31 148 Micrometer head, digital**Mitutoyo****Accuracy: In-house standard****Measuring faces: sintered carbide tipped**

- with rotating (330°) display and function keys unit
- for installation in equipment, machines and measuring devices
- with non-rotating spindle
- direct 0.001 mm reading through easily read digital display
- reliable and error-free measuring
- including battery

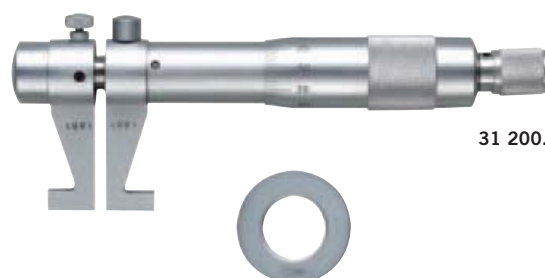


31 148...

Measuring range mm	31 148...		Incremental value mm	Error limits mm
0 - 50	001		0.001	0.003

31 200 Calliper type inside micrometers**Primat**

- In-house standard
- measuring faces hardened and lap polished
- adjustable calliper jaws
- hardened micrometer spindle with ground in thread
- micrometer thimble matt chrome plated with sharply defined graduation
- spindle pitch 0.5mm
- sensitive ratchet for uniform measuring pressure
- thimble diameter 17 mm
- in wooden box



31 200...

Measuring range mm	31 200...		Resolution mm	Setting ring
5 - 30	030		1/100	•
25 - 50	050		1/100	•
50 - 75	075		1/100	
75 - 100	100		1/100	



31 201 Calliper type inside micrometer sets

Type as Prod. No. 31 200... in wooden box



...075



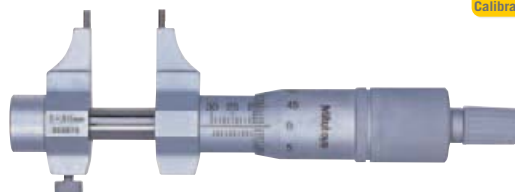
...100

Measuring range	31 201...		Number of micrometers
5 - 75	075		3
5 - 100	100		4

31 208 Inside micrometers

- In-house standard
- with **sintered carbide tips**
- **resolution 0.01 mm**
- scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- **spindle pitch 0.5 mm**, with clamping device
- **sintered carbide tipped measuring faces**, ground, very finely lap polished, with ratchet
- including case

Mitutoyo



31 208 030



31 208 050 - ...100

Measuring range mm	31 208...	
5 - 30	030	
25 - 50	050	
50 - 75	075	
75 - 100	100	

31 212 Inside micrometers, digital**Technical data:**

- Accuracy: In-house standard
- Incremental value: 0.001 mm, LCD display
- scales: scaled thimble and scaled sleeve matt chrome plated, Ø 18 mm
- Micrometer spindle: spindle pitch 0.5 mm, with clamping device
- measuring faces: sintered carbide tipped, ground, very finely lap polished
- error limits: 5 µm

Including box, face spanner, 1 battery

Mitutoyo



31 212...

Accessories:

- 38 452 051 Signal cable with data hold switch (1 m)
- 38 452 052 Signal cable with data hold switch (2 m)
- 64 866 207 Battery (SR 44)

Measuring range mm	31 212...	
5 - 30	030	



31 224 Inside micrometers

- fixed type
- lightweight construction due to tubular design
- **resolution 0.01 mm**
- scaled thimble and scaled sleeve matt chrome plated
- micrometer spindle pitch 0.5 mm, with clamping device
- **sintered carbide tipped measuring faces**, ground, ball lap polished
- from 100 mm with hand guard
- including box, adjusting spanner and lock screw

Mitutoyo



31 224...

Measuring range mm	31 224...	
50 - 75	075	
75 - 100	100	
100 - 125	125	
125 - 150	150	
150 - 175	175	

Measuring range mm	31 224...	
175 - 200	200	
200 - 225	225	
225 - 250	250	
250 - 275	275	
275 - 300	300	

31 228 Inside micrometers

- tubular inside type can be assembled as required
- resolution 0.01 mm
- scaled thimble and scaled sleeve matt chrome plated
- spindle pitch 0.5 mm, measuring span 13 mm
- hardened measuring faces
- including box

Mitutoyo



31 228...

Measuring range mm	31 228...		Extensions Qty
50 - 150	015		3
50 - 300	030		5
50 - 500	050		6
50 - 1000	100		8
50 - 1500	150		10

31 239 Three point inside micrometers

For measuring through and blind holes and centring edges

- large measuring depths due to extension
- reading parts and controls matt chrome plated
- micrometer spindle completely hardened and ground
- ratchet coupling for repeatable measuring force
- self-centring measuring head with 3 measuring probes emerging from the side
- sintered carbide tipped from measuring range 12 mm
- untoleranced dimension $a = 0.5$ mm (...008, ...010, ...012: untoleranced dimension $a = 1.4$ mm)
- scale graduation 0.005 mm

Supplied in aluminium case including setting ring and extension, over 50 mm setting ring in separate aluminium case

DIN
863-4

31 239 012

Measuring range mm	31 239... analog		Setting ring mm	Measurement depth without / with extension mm	Error limit μ m
6 - 8	008		6	60 / 160	4
8 - 10	010		8	60 / 160	4
10 - 12	012		10	60 / 160	4
12 - 16	016		16	70 / 220	4
16 - 20	020		16	70 / 220	4
20 - 25	025		25	90 / 240	4
25 - 30	030		25	90 / 240	4
30 - 40	040		40	100 / 250	4
40 - 50	050		40	100 / 250	5
50 - 63	060		62	100 / 250	5
63 - 75	070		62	100 / 250	5
75 - 88	080		87	100 / 250	5
87 - 100	100		87	100 / 250	5

31 240 Three point inside micrometer sets

- measurements are possible almost to the bottom, see untoleranced dimension
- resolution 0.001, over 12 mm 0.005 mm
- scaled thimble and scaled sleeve matt chrome plated
- spindle pitch 0.5 mm, with sintered carbide tipped measuring faces
- with ratchet
- supplied including extensions and setting rings
- in wooden case

Primat

For individual units, see Prod. No. 31 239...



31 240 140

Measuring range mm	31 240...		Micrometers Qty	Untoleranced dimension mm	Length of the extension mm	Measurement depth with extension mm
6 - 12	112		3	1.5	115	155
12 - 20	120		2	1.0	160	223
20 - 40	140		4	1.0	160	233
50 - 100	150		6	1.0	160	233



Three point type inside micrometers

Measuring faces titanium coated or made of sintered carbide. Tapered cone and contact point made of sintered carbide. Measurement almost to the bottom of the hole possible (see dimension a). Easy to handle and increased measuring accuracy compared to two point inner micrometers due to its three measuring bolts attached with an angle of 120°. Automatic centring of the device in the hole. Accuracy according to DIN 863/4, the accuracies given are subject to full contact measuring faces.

31 260 Three point type inside micrometers

- resolution: 0.001 mm, over 12 mm: 0.005 mm
- scaled thimble and sleeve matt chrome plated
- diameter 17 mm to 12 mm, 23 mm over 12 mm
- micrometer spindle pitch 0.5 mm
- supplied in case, including adjusting spanner and factory test certificate

...008 - ...012: Measuring faces made of sintered carbide

...016 - ...250: Measuring faces titanium coated

31 262 Three point type inside micrometers, digital

- Increment value: 0.001 mm
- 6-digit LCD display
- **functions:** PRESET (preselection) function, zero reset, DATA / HOLD (hold value) function
- alarm if battery too weak
- automatically switches off
- supplied in case, with adjusting spanner, battery and factory test certificate

...008 - ...012: Measuring faces made of sintered carbide

...016 - ...200: Measuring faces titanium coated

Accessories:

- 38 452 001 Signal cable with data hold switch (1 m)
 38 452 002 Signal cable with data hold switch (2 m)
 64 866 207 Battery (SR 44)

Mitutoyo

DIN
363/4

31 260...



31 262 008



31 262 040



31 262 125

Measuring range mm	31 260... analog		Measurement depth without / with extension mm	31 262... digital		Measurement depth without / with extension mm	Dimension a mm
6 - 8	008		59 / 159	008		45 / 145	2.0
8 - 10	010		59 / 159	010		45 / 145	2.0
10 - 12	012		59 / 159	012		45 / 145	2.0
12 - 16	016		80 / 230	016		76 / 226	0.3
16 - 20	020		80 / 230	020		76 / 226	0.3
20 - 25	025		90 / 240	025		88 / 238	0.3
25 - 30	030		90 / 240	030		88 / 238	0.3
30 - 40	040		98 / 248	040		102 / 252	0.3
40 - 50	050		98 / 248	050		102 / 252	0.3
50 - 63	060		105 / 255	060		105 / 255	0.3
62 - 75	070		105 / 255	070		105 / 255	0.3
75 - 87	080		105 / 255	080		105 / 255	0.3
87 - 100	100		105 / 255	100		105 / 255	0.3
100 - 125	125		158 / 308	125		151 / 301	13.0
125 - 150	150		158 / 308	150		151 / 301	13.0
150 - 175	175		158 / 308	175		151 / 301	13.0
175 - 200	200		158 / 308	200		151 / 301	13.0
200 - 225	225		158 / 308	-	-	151 / 301	13.0
225 - 250	250		158 / 308	-	-	151 / 301	13.0

31 272 Extensions for three point type inside micrometers

Mitutoyo

Measuring range mm	31 272...		Length mm	Weight g
6 - 12	012		100	13
12 - 20	020		150	100
20 - 50	050		150	238
50 - 300	300		150	264



31 272...

31 260 Three point type inside micrometer sets

Type as Prod. No. 31 260, supplied with setting rings, extension, in wooden box and factory test certificate

MitutoyoDIN
363/4**31 262 Three point type inside micrometer sets, digital**

Type as Prod. No. 31 262, supplied with setting rings, extension, in wooden box and factory test certificate

Mitutoyo

31 260...



31 262...

Measuring range mm	31 260... analog		31 262... digital		Contents Qty	Setting rings Qty
6 - 12	512		-	-	3	2
12 - 20	520		-	-	2	1
20 - 50	550		-	-	4	2
50 - 100	600		-	-	4	2
25 - 50	-	-	650		3	2
50 - 75	-	-	700		2	1

31 268 Three point type inside micrometers "BOREMATIC"

Functions: ON / OFF, ZERO / ABS switchover, PRESET (preselection), tolerance input, data output

Technical data:

- 6-digit LCD display
- can be rotated through 330° for convenient reading position
- incremental value: 0.001 mm
- accuracy: In-house standard
- error limits: 0.005 mm (measuring range 6 - 20 mm)
- 0.006 (measuring range 20 - 125 mm)
- The accuracies given are subject to full contact measuring faces
- Measuring faces: ...006 - ...010 sintered carbide
...012 - ...075 Titanium
- Power supply: 1 battery type SR-44
- Supplied incl. factory test certificate

Accessories:

- 38 452 051 Signal cable with data hold switch (1 m)
38 452 052 Signal cable with data hold switch (2 m)
64 866 207 Battery (SR 44)



31 268 106

Measuring range mm	31 268...		Weight (g)
6 - 8	006		480
8 - 10	008		485
10 - 12	010		485
12 - 16	012		475
16 - 20	016		480
20 - 25	020		540
25 - 30	025		555
30 - 40	030		565
40 - 50	040		610
50 - 63 / 62 - 75*	050		780
75 - 88 / 87 - 100*	075		850
Sets			
6 - 12	106		600
12 - 25	112		800
25 - 50	125		1300
50 - 100*	150		3500

* with interchangeable anvils

Mitutoyo

31 268 006



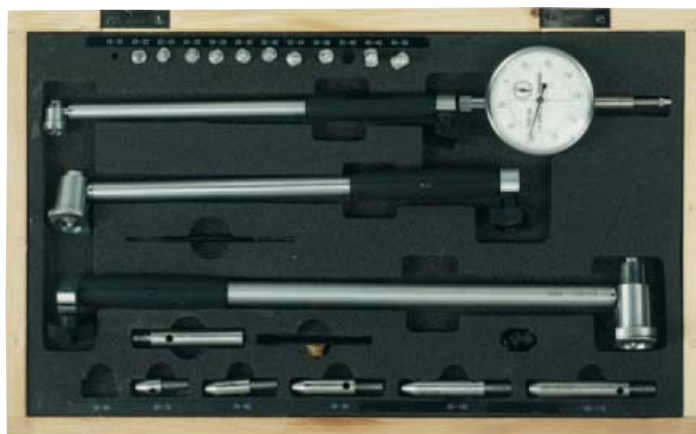
32 004 Dial bore gauges

- with automatic centring
- with fixed points made of steel
- movable feeler with sintered carbide ball
- with analog dial indicator, in case

Measuring range mm	32 004...		Resolution mm
6 - 10	003		0.01
10 - 18	004		0.01
18 - 35	005		0.01
35 - 50	006		0.01
50 - 160	007		0.01
160 - 250	008		0.01
250 - 450	009		0.01



32 004...



Type as above in wooden box

Measuring range mm	32 004...		Resolution mm
18 - 160	160		0.01

32 004 160

32 008 Dial bore gauges

with analog dial indicator, 32 036 003 (2046SB)

- Resolution 0.01 mm
- fixed anvils made of steel
- movable feeler with sintered carbide ball
- protection for dial indicator made of plastic, including dial indicator in plastic case

Mitutoyo



32 008...

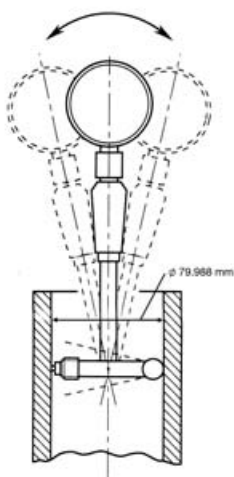
Measuring range mm	32 008...		Anvils Qty
10 - 18	002		9
18 - 35	003		9
35 - 60	004		6
50 - 150	005		11

32 012 Dial bore gauge sets

- fixed anvils made of steel
 - movable feeler with sintered carbide ball
 - protection for dial indicator made of plastic
 - including case
- ...001 resolution 0.01 with analog dial indicator (2046SB)
 ...010 Incremental value 0.001 with digital dial indicator (543-264B)

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
 38 452 012 Signal cable with data hold switch (2 m)
 38 450 002 Battery (SR 44)



Measuring range mm	32 012...		Dial indicator
18 - 150	001		analog
18 - 150	010		digital

Mitutoyo



32 012 001



32 012 010

32 020 Precision dial indicators

- Accuracy according to DIN 878/1, for ...005, ...010, ...012
- Stem 8 mm h 6
- clear, easy to read scale
- can be adjusted to zero at any point by means of the bezel
- 1 needle rotation corresponds to 1 mm
- sintered carbide feeler tip thread M 2.5 x 0.45 mm
- Metal housing matt chrome plated
- with two adjustable limit tabs
- Spindle made of stainless steel, in plastic case

Primat

DIN
878/1



For feelers and extensions, see 32 030...



32 020 010



32 020 012



32 020 030



32 020 100

Measuring range mm	32 020...		Type	Pitch mm	External Ø mm
0 - 5	005		normal	0.01	40
0 - 10	010		normal	0.01	58
0 - 10	012		shockproof	0.01	58
0 - 30	030		normal	0.01	58
0 - 50	050		normal	0.01	80
0 - 1	100		normal	0.001	58



Precision dial indicators



All dial gauges and indicators are subjected to an accuracy check using test equipment which can be traced back to national or international standards. Final inspection and testing of the complete series with respect to its mechanical function. The spindles are fitted into the stem. Allowable lateral play standardised. The scales can be rotated with the bezel so that the indicator can be easily reset to zero. The needles are put back by at least 0.1 mm at rest so that the cogwheels of the dial indicators are under normal engagement conditions when reset. The limit tabs can be used to set the respective given tolerances. Exchangeable standard feeler with steel ball, diameter 3.175 mm and thread M 2.5. The diameter of the stem is 8 mm h 6.

32 025 Precision dial indicators

various types, **metal housing chrome plated**

- Spindle ground and lap polished
- ground stem made of stainless steel
- all design characteristics conform to DIN 878 A, the dial indicator movements are smooth and easy running
- Scale value 0.01 mm, 1 needle rotation 1 mm



DIN
878/A



...002



...003



...001



...005

Measuring span mm	32 025...		External Ø mm	Special feature
10	001		58	-
10	002		58	concentric display
10	003		58	Impact protection
10	012		58	Concentric display and impact protection
10	004		58	Optimum impact protection
10	005		61	Water and oil tight
10	006		58	Magnetic back

32 026 Error free dial indicators

with high quality impact protection and overrun. To prevent reading errors the display range is limited to slightly less than one needle rotation. A sleeve precisely fitted over the spindle is arranged and cushioned (spring-loaded) so that any impact on the spindle is not transferred to the dial indicator's clockwork. The device's high degree of precision is retained virtually without limit even in rugged conditions.

- Spindle and stem made of stainless steel
- Scale graduation 0.01 mm, spindle lap polished
- Design according to DIN 878.



DIN
878



32 026 001 bis ...002



32 026 004



32 026 003

Measuring span mm	32 026...		Overrun mm	External Ø mm
0.4	001		4.5	40
0.8	002		4.0	40
0.8	003		9.0	58
1.0	004		9.0	58

No. 32 026 001 / 32 026 002 are also available on request with a watertight design. On request, No. 32 026 003 is also available with a watertight and oil tight design.

32 027 Precision dial indicators

with large measuring span, metal housing chrome plated

- rotatable bezel
- spindle ground and lap polished
- ground stem \varnothing 8 mm h 6
- interchangeable feeler with thread M 2.5
- reliable and easy reading due to concentric millimetre display
- tested reliability (100% check by supplier/manufacturer)
- accuracy according to In-house standard
- Scale value 0.01 mm, 1 needle rotation 1 mm

Measuring span mm	32 027...		External \varnothing mm	Type
20	001		58	-
30	003		58	-
30	005		58	Impact protection
50	007		58	-
80	009		58	-



32 027...

32 028 Small dial indicators according to DIN D and E

various types, metal housing chrome plated

- rotatable bezel
- lap polished spindle
- limit tabs mounted, easy to take readings due to 50 graduation scale
- scale value 0.01 mm, 1 needle rotation 0.5 mm

Measuring span mm	32 028...		External \varnothing mm	Type
3	001		32	Smallest model
3	003		40	Impact protection
5	005		40	-
5	007		40	Optimum impact protection
3	009		44.5	Oil & watertight and shockproof
3	011		40	Magnetic back

DIN
878

32 028...

32 029 High precision dial indicators

Unlike the standard dial indicators, the transmission ratio of these high precision dial indicators has been selected so that they display only 0.2 mm measured distance (No. 32 029 003 0.1 mm) for 1 revolution of the needle. Scale graduation of 0.001 mm, spindle lap polished. All the movement parts/measuring elements are supported in bearing jewels made of high quality ceramic. A screwed on protective sleeve reduces the penetration of dirt.

Measuring span mm	32 029...		External \varnothing mm	Type
1	001		58	-
1	003		58	Precision mechanism, impact protection
1	005		58	Optimum impact protection



32 029...

for all dial indicators, with connection thread M 2.5

for all dial indicators, with connection thread M 2.5

Technical drawings of various screw-on fasteners (screws, bolts, nuts) with dimensions and part numbers:

- ...101 - ...105**: Drawing of a screw with dimensions: $M2.5-6g$, 5 , 6 , $\phi 1/8"$, $\phi 4.7$.
- ...107 + ...109**: Drawing of a screw with dimensions: $M2.5-6g$, 5 , 6 , $\phi 4.8$.
- ...110 + ...113**: Drawing of a screw with dimensions: $M2.5-6g$, 5 , 2 , $\phi 10$.
- ...115**: Drawing of a screw with dimensions: $M2.5-6g$, 5 , 2 , $\phi 10$, $R15$.
- ...028**: Drawing of a screw with dimensions: $M2.5-6g$, 7 , 5.9 , 1.5 , $1/0.003A$, $1/0.003A$.
- ...030**: Drawing of a screw with dimensions: $M2.5-6g$, $\phi 7.5$, 3 , 18° , $R2$, 2.90 , $\phi 8$, $\phi 7$, 11 , 12 , 13 , 14 , 15 , 16 , 17 , 18 , 19 , 20 , 21 , 22 , 23 , 24 , 25 , 26 , 27 , 28 , 29 , 30 , 31 , 32 , 33 , 34 , 35 , 36 , 37 , 38 , 39 , 40 , 41 , 42 , 43 , 44 , 45 , 46 , 47 , 48 , 49 , 50 , 51 , 52 , 53 , 54 , 55 , 56 , 57 , 58 , 59 , 60 , 61 , 62 , 63 , 64 , 65 , 66 , 67 , 68 , 69 , 70 , 71 , 72 , 73 , 74 , 75 , 76 , 77 , 78 , 79 , 80 , 81 , 82 , 83 , 84 , 85 , 86 , 87 , 88 , 89 , 90 , 91 , 92 , 93 , 94 , 95 , 96 , 97 , 98 , 99 , 100 , 101 , 102 , 103 , 104 , 105 , 106 , 107 , 108 , 109 , 110 , 111 , 112 , 113 , 114 , 115 , 116 , 117 , 118 , 119 , 120 , 121 , 122 , 123 , 124 , 125 , 126 , 127 , 128 , 129 , 130 , 131 , 132 , 133 , 134 , 135 , 136 , 137 , 138 , 139 , 140 , 141 , 142 , 143 , 144 , 145 , 146 , 147 , 148 , 149 , 150 , 151 , 152 , 153 , 154 , 155 , 156 , 157 , 158 , 159 , 160 , 161 , 162 , 163 , 164 , 165 , 166 , 167 , 168 , 169 , 170 , 171 , 172 , 173 , 174 , 175 , 176 , 177 , 178 , 179 , 180 , 181 , 182 , 183 , 184 , 185 , 186 , 187 , 188 , 189 , 190 , 191 , 192 , 193 , 194 , 195 , 196 , 197 , 198 , 199 , 200 , 201 , 202 , 203 , 204 , 205 , 206 , 207 , 208 , 209 , 210 , 211 , 212 , 213 , 214 , 215 , 216 , 217 , 218 , 219 , 220 , 221 , 222 , 223 , 224 , 225 , 226 , 227 , 228 , 229 , 230 , 231 , 232 , 233 , 234 , 235 , 236 , 237 , 238 , 239 , 240 , 241 , 242 , 243 , 244 , 245 , 246 , 247 , 248 , 249 , 250 , 251 , 252 , 253 , 254 , 255 , 256 , 257 , 258 , 259 , 260 , 261 , 262 , 263 , 264 , 265 , 266 , 267 , 268 , 269 , 270 , 271 , 272 , 273 , 274 , 275 , 276 , 277 , 278 , 279 , 280 , 281 , 282 , 283 , 284 , 285 , 286 , 287 , 288 , 289 , 290 , 291 , 292 , 293 , 294 , 295 , 296 , 297 , 298 , 299 , 300 , 301 , 302 , 303 , 304 , 305 , 306 , 307 , 308 , 309 , 310 , 311 , 312 , 313 , 314 , 315 , 316 , 317 , 318 , 319 , 320 , 321 , 322 , 323 , 324 , 325 , 326 , 327 , 328 , 329 , 330 , 331 , 332 , 333 , 334 , 335 , 336 , 337 , 338 , 339 , 340 , 341 , 342 , 343 , 344 , 345 , 346 , 347 , 348 , 349 , 350 , 351 , 352 , 353 , 354 , 355 , 356 , 357 , 358 , 359 , 360 , 361 , 362 , 363 , 364 , 365 , 366 , 367 , 368 , 369 , 370 , 371 , 372 , 373 , 374 , 375 , 376 , 377 , 378 , 379 , 380 , 381 , 382 , 383 , 384 , 385 , 386 , 387 , 388 , 389 , 390 , 391 , 392 , 393 , 394 , 395 , 396 , 397 , 398 , 399 , 400 , 401 , 402 , 403 , 404 , 405 , 406 , 407 , 408 , 409 , 410 , 411 , 412 , 413 , 414 , 415 , 416 , 417 , 418 , 419 ,

32 036 Dial indicators

Accuracy according to DIN 878 in ...001, ...003, ...004, ...006, ...007,

- Metal housing matt chrome plated
- Stem 8 mm h 6
- Bezel with 2 adjustable limit tabs
- Supplied with factory test certificate

Mitutoyo

DIN
878



...001



...002



...004



...005



...006



...007



...008

Measuring range	32 036...		Scale value	External Ø	Type
mm			mm	mm	
5	001		0.01	41	-
1	002		0.001	55.6	shockproof
10	003		0.01	55.6	Jewelled
10	004		0.01	55.6	Watertight
20	005		0.01	78	-
30	006		0.01	78	shockproof
50	007		0.01	78	shockproof
80	008		0.01	78	-

Special feeler tips available on request



“Welding and Cutting” catalogue

- ⟨ **Autogenous engineering**
- ⟨ **Filler metals**
- ⟨ **Arch welding**
- ⟨ **Welding equipment**
- ⟨ **Welding accessories:**
- ⟨ **Extractor technology**

32 042 Dial indicators, digital**with data output**, extra large, high-contrast LCD display

- Feeler tip made of sintered carbide
- M 2.5 x 0.45, stem 8 mm
- Automatically switches off
- Bezel Ø 60 mm

Function: On/Off, zero, mm/inch**Accessories:**

64 866 207 Battery (SR 44)



32 042...

Measuring span mm	32 042...		Incremental value mm / inch	Error limits mm
0 - 12.5	001		0.01/0.0005	0.03
0 - 25.0	003		0.01/0.0005	0.03
0 - 50.0	005		0.01/0.0005	0.03

32 044 ID-S dial indicators, digital**with data output and absolute capacitive scale.**

Measuring precision even at maximum traversing speed (no overspeed errors)

Effortless reading due to large 6-digit display.

Feeler with sintered carbide ball, thread M 2.5 x 0.45 mm

Functions: On/Off, ORIGIN, switchover of the counting direction**Accessories:**

38 452 011 Signal cable with data hold switch (1 m)

38 452 012 Signal cable with data hold switch (2 m)

64 866 207 Battery (SR 44)



32 044...

Measuring span mm	32 044...		Incremental value mm	Error limits mm
12.7	001		0.01	0.02
12.7	003		0.001	0.003

32 046 ID-U dial indicators, digital**Electronic multi-function dial indicator with absolute capacitive scale, with data output**

Once-off setting of the origin, which then remains the absolute zero point until the next battery change. Measuring precision even at maximum traversing speed (no overspeed errors) Effortless reading due to large 6-digit display.

- Precision: In-house standard
- Feeler: sintered carbide ball, thread M 2.5 x 0.45 mm
- Power supply: 1 battery type SR-44
- Battery life: approx. 2000 hours

Functions: On/Off, ORIGIN, switchover of the counting direction**Accessories:**

38 452 011 Signal cable with data hold switch (1 m)

38 452 012 Signal cable with data hold switch (2 m)

64 866 207 Battery (SR 44)



32 046...

Measuring span mm	32 046...		Incremental value mm	Error limits mm
25	001		0.01	0.02

32 047 ID-C dial indicators, digital

Type as Prod. No. 32 044...

- however, with additional go/no go (reject) tolerance display
- large 7-digit display, can be rotated by up to 330°

Functions:

- ON / OFF
- ZERO / ABS switchover
- Switchover of the counting direction
- PRESET (preselection)
- Tolerance input
- with data output
- Feeler with sintered carbide ball
- Thread M 2.5 x 0.45 mm

Prod. No. 32 047 020 with low measuring force (0.4 - 0.7 N)

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
- 38 452 012 Signal cable with data hold switch (2 m)
- 64 866 207 Battery (SR 44)



...001. ...011. ...020



...003. ...013



...005. ...015

with go/no go tolerance display

Measuring span mm	32 047...		Incremental value mm	Error limits mm	Measuring force N
12	001		0.001	0.003	1.2
25	003		0.001	0.003	1.8
50	005		0.001	0.006	2.3
12	011		0.01	0.02	0.9
25	013		0.01	0.03	1.8
50	015		0.01	0.04	2.3
12	020		0.001	0.003	0.4 - 0.7

32 060 ID-C dial indicator, digital

Electronic multi-function dial indicator with absolute capacitive scale

With calculation formula $Ax + B + Cx - 1$ (x = measured value)

Multifunction dial indicator with integrated calculation function for all kinds of different uses; It is possible to enter freely selectable coefficients A, B and C.

- 7-digit LCD display
- Accuracy: factory standard
- Feeler: sintered carbide ball, thread M 2.5 x 0.45 mm
- Power supply: 1 battery type SR-44
- Battery life: approx. 3000 hours

Functions:

- ABS/INC
- PRESET
- Zero setting
- Tolerance evaluation
- DATA HOLD
- Min/Max function
- DIGIMATIC data output
- Degree of protection IP 42
- Display can be rotated through 330°
- Incremental value can be selected in 12 steps:
0.0002 (1); 0.0005 (2); 0.001 (3); 0.002 (4); 0.005 (5); 0.01 (6); 0.02 (7); 0.05 (8); 0.1 (9); 0.2 (10); 0.5 (11); 1 (12) mm,

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
- 38 452 012 Signal cable with data hold switch (2 m)
- 64 866 207 Battery (SR 44)



32 060 001

with integrated calculation function

Measuring span mm	32 060...		Error limit mm	Measuring force N
12.7	001		0.003	1.5

Mitutoyo

ABSOLUTE



32 064 ID-F dial indicator, digital

With visual tolerance monitoring and analog display:

The display automatically switches from green to red background lighting if the tolerance function is switched on and the tolerance limits are exceeded or are not reached.

- Precision: In-house standard
- Feeler: sintered carbide ball, thread M 2.5 x 0.45 mm
- Power supply: Mains adapter

Functions: ON / OFF; MODE: Hold Max. and Min. value, Max - Min mode (TIR), analog measuring range switchover, zero setting INC / ABS, PRESET (preselection), tolerance input, switchover of the counting direction, button lock function, data output

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
38 452 012 Signal cable with data hold switch (2 m)

Mitutoyo

Background lighting changes if the tolerance limits are exceeded or not achieved (go / no go)



32 064...

Measuring span mm	32 064...		Switchable incremental value / resolution	Error limits mm	Measuring force N max.
25	001		0.001/0.01	0.003	1.8
50	003		0.001/0.01	0.006	2.3

32 066 ID-H dial indicators, digital

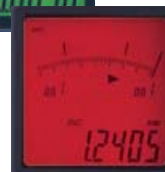
The luxury class among the dial indicators with multi-functional design.

- high accuracy and small incremental value
- DIGIMATIC and RS-232 C interface
- Can be externally controlled and data can be forwarded to an external device
- Remote control (optional)
- Cable release mechanism over 30 m with wire lifter (optional)

Functions: ON / OFF; MODE: Hold Max. and Min. value, Max - Min mode (TIR), incremental value selection, analog measuring range switchover, zero setting INC / ABS, PRESET (preselection), tolerance input, switchover of the counting direction, button lock function, RS-232 C / DIGIMATIC data output, RS-232 C data input (ASCII operations set)

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
38 452 012 Signal cable with data hold switch (2 m)

Mitutoyo

Background lighting changes if the tolerance limits are exceeded or not achieved (go / no go)



...003



...006

Measuring span mm	32 066...		Switchable incremental value / resolution	Error limits µm
30	003		0.001 / 0.0005	2.0
60	006		0.001 / 0.0005	3.0

32 067 ID-B and ID-N dial indicator, digital

- with visual tolerance monitoring
- electronic multi-function dial indicators with absolute capacitive scale. Once-off setting of the initial (origin) position, which is retained even when switched back on again. Measuring precision even at maximum traversing speed (no overspeed errors) Effortless reading due to large display digits
- Especially for installation in devices in confined spaces
- Flexible installation options due to switchable orientation of the display
- With DIGIMATIC signal input and DIGIMATIC data output
- Degree of protection IP-66 and oil resistant

Accessories:

- 38 452 011 Signal cable with data hold switch (1 m)
38 452 012 Signal cable with data hold switch (2 m)

Mitutoyo**ABSOLUTE**

...003



...030

Measuring span mm	32 067...		Switchable incremental value / resolution	Error limits mm
5.0	003		0.01	0.02
5.0	006		0.001 / 0.01	0.003/0.01
12.7	030		0.01	0.02
12.7	036		0.001 / 0.01	0.003/0.01



32 068 "Compika" comparator gauge

- With overrun and impact protection
- Accuracy according to DIN 879-1
- Spindle guided on plain bearings, lap polished, made of stainless steel
- The essential support points of the movements are supported in precise bearing jewels made of high-quality ruby
- Adjustment knob on the top of the housing for easy and reliable fine adjustment over the whole measuring span, protected against accidental adjustment by protecting sleeve
- Stem \varnothing 8h6

DIN
879-1

32 068 001



32 068 008



32 068 002

Measuring span mm	32 068...		Scale graduations mm	Numbering	Overrun mm	Characteristic	External \varnothing mm
0.1	001		0.001	50-0-50	3	Impact protection	62
0.1	002		0.001	50-0-50	3	Waterproof	62
0.5	008		0.01	25-0-25	2.5	Impact protection	62

32 082 Dial test indicators (lever type)

for concentricity tests, inside and outside or the parallelism, feelers can each be adjusted by 110° to the right and left, sensing lever movement can be switched over, dovetail guide zero setting via rotatable bezel, in case

DIN
2270

...001



...005

Measuring span mm	32 082...		Scale graduations mm	External \varnothing	Stem H8, H4 mm
0.8	008		0.01	30	2
0.2	002		0.002	30	2

32 084 Dial test indicators (lever type)

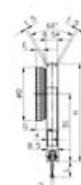
- Metric type
- Feeler can be adjusted 110° to the left and right
- The sensing lever movement can be switched over
- Stem 8h6
- For replacement feelers, see Prod. No. 32 090...



...001



...010



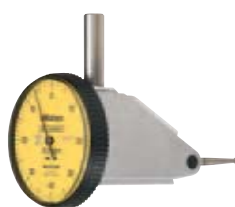
...011

Adjustable feeler

Measuring span mm	32 084...		Scale graduations mm	Numbering	Bezel \varnothing mm	Feeler length mm
0.8	001		0.01	40-0-40	28	12.3
0.8	010		0.01	0-40-0	40	12.0
0.8	011		0.01	0-40-0	40	12.0

32 088 Dial test indicators (lever type)

- with reversible measuring head
- rotatable bezel for zero setting
- precision jewel bearing
- accuracy: factory standard / DIN standard
- bezel diameter 39 mm
- supplied including stem (diameter 8 mm) and case



32 088 108

32 088 116
with revolutions counter32 088 110
with long tip32 088 104
DIN standard, non-magnetic

Measuring span mm	Special features	32 088...		Scale graduations mm	Numbering	f tot. μ m	Feeler tip length mm
0.2	non-magnetic	102		0.002	0-100-0	4	14.7
0.6	Revolutions (rpm) counter	103		0.002	0-100-0	11	14.7
0.8	DIN standard, non-magnetic	104		0.01	0- 40-0	13	21.0
0.8	non-magnetic	108		0.01	0- 40-0	13	21.0
1.0	Long feeler tip	110		0.01	0- 50-0	13	44.5
1.6	Revolutions (rpm) counter	116		0.01	0- 40-0	13	21.0



32 088 Dial test indicator (lever type) set

Set consisting of:

- Dial test indicator (lever type) Prod. No. 32 088 104,
- Feeler made of sintered carbide Ø 1 mm, 2 mm, 3 mm
- Union nut, universal holder, mounting bore 9 x 9 x 100 mm,
- Stems Ø 4 mm and 8 mm (thread M 10)

Mitutoyo



32 088 200

32 088...	
200	

32 090 Dial test indicators (lever type)

very robust design against impacts, needles rotate in clockwise direction, automatic switchover of the measurement direction, main bearing points supported in precise bearing jewels made of high-quality ceramic, bezel Ø 32 mm, rotatable, feeler with a sintered carbide ball 2 mm diameter, with stem diameter 8 mm h 6

DIN
2270

very robust design

Measuring span mm	32 090...		Scale graduations mm	Scale numbers	Feeler length mm
0.8	001		0.01	0 - 40 - 0	12
0.2	002		0.002	0 - 100 - 0	12
0.5	003		0.01	0 - 25 - 0	35



32 090...

32 092 Replacement feelers

for dial test indicators No. 32 084... and 32 090...

...001 and ...002: ruby tipped

...101 and ...102: sintered carbide tipped

Feeler ball Ø mm	32 092...		Length mm
2	001		12.8
2	002		35.7
2	101		12.8
2	102*		35.7

* suitable for 32 090 003 only



32 092 001 - ...002



32 092 101 - ...102

32 100 Centring holder

Stem Ø 8 mm h6 with -Ø 4 H 7 mounting bore and dovetail clamp.

Mounting bore for dial test indicators Ø 4 H 7. Also included:

Mounting bore Ø 8 H 7.

Supplied without dial indicator.

Stem mm	32 100...	
8	001	



32 100 001

32 098 Square holder

for dial indicators and dial test indicators, stem made of steel, with hinged and rotatable bracket, mounting bore 8 mm, fit H 7



Shank mm	32 098...		Clamped length mm
6 x 12	001		50

32 098 001

32 102 Stems

for dial test indicators with dovetail guide

Shank Ø mm	32 102...	
8	001	
4	002	



32 102 001



32 102 002

32 116 Magnetic holder

for dial indicators and gauges, with vertical and horizontal adjustment, supporting arm can be swivelled on all sides so that the dial indicator can be placed in any position required. Mounting hole 8 mm, fit H 7, 2 sintered magnets are built into the contact face to ensure flat, planar and good adhering support surface results.

Supplied without dial indicator



32 116 001

32 122 Magnetic holder

Type as 32 116...; however, with prismatic (V) base, additional attachment surfaces on both long sides, particularly high adhesive force

Supplied without dial indicator



additional adhesion
surfaces on both sides

32 122 001

Magnetic base L x B x H mm	Product number		Height with bracket mm
73 x 38 x 11	32 116 001		46
72 x 26 x 37	32 122 001		59

32 138 Magnetic measuring stand

with fine adjustment

- Magnetic base can be switched on/off
- Column Ø 16 mm
- Rod hard chromed with fine adjustment
- Mounting holes Ø 8 mm



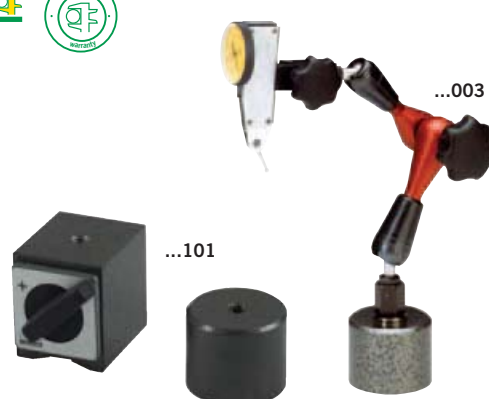
32 138...

Total height mm	32 138...		Magnetic base L x B x H mm	Adhesive force kp
280	002		60 x 50 x 55	750

32 139 Small magnetic measuring stands

- with mechanical central clamping
- with fine adjustment
- Reach 130 mm
- Magnet can be switched on / off (001 only)

Supplied without dial test indicator



...003

...101

Total height mm	32 139...		Replacement magnetic base 32 139...		Magnetic base L x B x H mm	Adhesive force kp	Thread
170	001		101		34 x 30 x 35	170	M 6
170	003		103		Ø 30 x 25	170	M 6

32 140 Magnetic measuring stands, mechanical

- with mechanical central clamping
- with fine adjustment
- Permanent magnetic base On/Off
- Mounting holes Ø 8 mm
- prismatic (V) base
- Supplied without dial indicator



Total height mm	32 140...		Replacement magnetic base 32 140...		Magnetic base L x B x H mm	Adhesive force kp	Thread
390	039		139		60 x 50 x 55	750	M 8
730	073		-	-	120 x 60 x 55	1200	M 10

32 140...

32 135 Mini magnetic stand, hydraulic

- with rotatable fine adjustment on base for uniform all-round measurement
- with strong permanent magnet and guard plate
- Central clamping with one clamping head only

Total height mm	32 135...		Magnetic base Ø x H mm
150	015		35 x 30



32 135...

32 143 Magnetic measuring stand, hydraulic

- Robust, stable construction for difficult to access measurements in any position
- 4-piece hinged rod is centrally clamped by a clamping head
- Magnetic base with prismatic (V) base can be switched on and off
- Fine adjustment device

Total height mm	32 143...		Reach mm	Magnetic base L x B x H mm	Weight kg
310	002		260	60 x 50 x 55	1.5
480	004		400	75 x 50 x 55	2.2
255	022		260	upper section of stand only	0.5
480	024		400	upper section of stand only	0.9



32 143...

32 145 "BASE LINE" measuring table

- Tabletops hardened and very finely sanded
- Columns matt chrome plated
- Controls matt chrome plated or black finished
- Mounting hole 8 H7
- Enamelling: hammer tone
- Evenness of the table surface: DIN 876/0
- Supplied without dial indicator

DIN
876/0

...005



...008



...009



...016



...032

Measuring height mm	32 145...		Measuring area mm	Cantilever mm	Column Ø mm	Total height mm	Weight kg
30	005		Ø = 60	45	-	110	2.50
85	008		Ø = 60	60	23	185	3.50
145	009		70 x 70	85	22	270	3.75
300	016		220 x 160	90	31	435	8.75
290	032		200 x 200	150	30	435	22.75



32 144 Precision Comparator stands**Benzing**

Table surfaces ground and lap polished, hardened column, can be clamped to the column in any position, column diameter 22 mm, mounting hole 8 H7. **Supplied without dial indicator**



32 144 001



32 144 004



32 144 020

...004 + ...020 with
movable measuring arm

Measuring height mm	32 144...		Measuring area mm	Cantilever mm	Total height mm
100	001		50 Ø	49	200
100	004		60 x 68	100	200
150	020		98 x 115	135	295

32 146 Ceramic measuring table**Benzing**

Tabletop made of high-quality ceramic, lap polished. Evenness $\leq 1 \mu\text{m}$, hardened column and very finely ground, mounting hole 8 H7, DIN 876/00

Supplied without dial indicator

DIN
876/00



32 146 001

Measuring height mm	32 146...		Measuring area mm	Cantilever mm	Total height mm
100	001		50 Ø	49	200

32 148 Comparator stands**Benzing**

solid cast iron base, **table top very finely ground**, column Ø 22/35 mm, with thread and setting collar, mounting hole 8 H7. **Supplied without dial indicator**



32 148 060



32 148 080

Measuring height mm	32 148...		Measuring area mm	Cantilever mm	Weight kg
160	060		98 x 180	180	13
160	080		170 x 215	180	23

Further sizes available on request



32 150 Precision measuring table

The base is made of natural stone (black granite). Due to its ageing over millions of years the stone is completely stress free, wear resistant and harder than steel.

- The measuring surface is corrosion proof, antimagnetic and does not need any special care.
- The column (35 mm) is hard chromed and ground, with thread and setting collar.
- Evenness of the measuring surface according to DIN 876/00.
- Mounting hole: 8H7

Supplied without dial indicator

Benzing

DIN
876/00



32 150...

Measuring height mm	32 150...		Measuring area mm	Cantilever mm	Base size mm	Weight kg
180	020		200 x 150	200	260 x 150	9.5

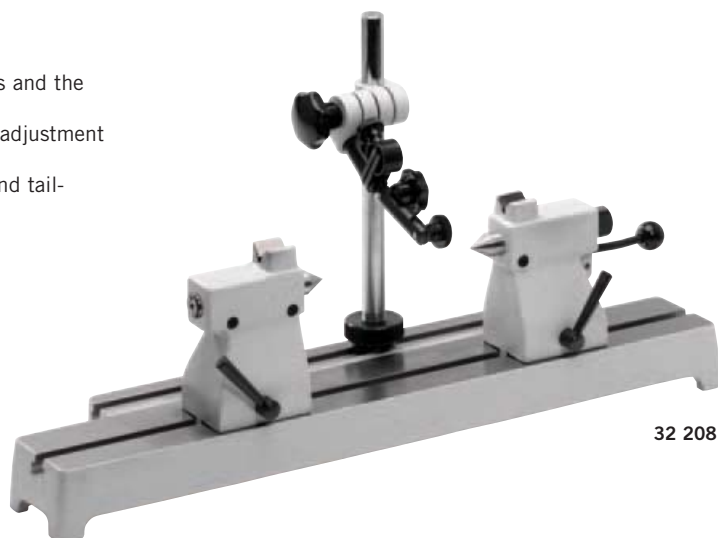
32 208 Bench centres

Made from special, dense cast iron with steel additive, and very high wear resistance, consisting of

- Measuring bench
- 1 pair tailstocks and measuring stand
- Measuring surfaces according to DIN 876/1
- Measuring bench with 2 T-slots for holding the tailstocks and the measuring stand
- Measuring stand made of stable rod with side arm, fine adjustment and mounting hole for dial indicator
- Right-hand tailstock with sliding spindle sleeve - left-hand tailstock with fixed tip

No. 32 208 001 without prisms (V-blocks)

DIN
876/1



32 208...

Pitch (height of centres) mm	Centre distance, max. mm	32 208...		Size of the measuring bench L x B mm	Weight kg
50	200	001		350 x 110	8
75	350	003		500 x 110	12
100	450	005		700 x 180	35

Other designs and special accessories as well as concentricity devices with larger centre distance available on request.

32 280 Precision centring devices CO-S, CO, CIII

High-precision, easy to use, and can be used immediately anywhere.

Unsurpassed accuracy:

- The maximum axial difference between the spindle and drill or shaft axis is 2 µm.
- when centring the main (work) spindle axis above the middle axis of drill holes, pilots, pivots, bolts and shafts
- when positioning the main spindle axis on the edge of the work-piece
- when aligning the main spindle perpendicular to the machined surface and vice versa

With the stationary dial indicator, on which the pointer is permanently within your field of vision, you avoid measuring errors and save time.



CO-S and CO precision centring devices

The compact and particularly handy CO-S and CO types are suitable for all adjustment work on diameters up to 125 mm. The off-centre probe arrangement ensures uniformly high centring accuracy within the whole work area – even where larger diameters are involved the probe is at a favourable angle to the measured surface. Fast and convenient positioning and prestressing of the probe at the press of a button.

...100 Centricator CO-S with standard accessories, metric version, with dial indicator 0.01 mm and fixed shank Ø 16 mm
1 probe insert sphere Ø 5 mm (for drill hole), 1 probe insert, curved sphere Ø 5 mm (for shaft), box (polystyrene), operating instructions

...110 Centricator CO with standard accessories, metric version, with dial indicator 0.01 mm, without clamping shaft

Alternative: ...112 Centricator CO with standard accessories, metric version, with precision dial indicator 0.002 mm, without clamping shaft

1 probe insert sphere Ø 5 mm (for drill hole), 1 probe insert curved sphere Ø 5 mm (for shaft), 1 equipment box made of wood with storage space for all accessories and one clamping shaft, hexagon screwdriver, operating instructions

CIII precision centring device

Extended working range up to 480 mm due to the radially adjustable slide and the probe extension, fast and very precise centring with the angle probe insert, even in difficult to access places. The adjustable slide also enables easy insertion and prestressing of the probe. The probe is always in a favourable angle, even where large diameters are involved: that means high centring accuracy every time.

...120 Centricator CIII with standard accessories, metric version, with dial indicator 0.01 mm, without clamping shaft

Alternative: ...122 Centricator CIII with standard accessories, metric version, with precision dial indicator 0.002 mm, without clamping shaft

1 probe insert Ø 5 mm (for drillhole), 1 equipment box made of wood with storage space for all accessories and one clamping shaft, SW3 hexagon screwdriver, operating instructions

Type	Dial indicator mm	32 280...		Inner test Ø mm	Scanning range for Outer test Ø mm	Face runout test Ø mm
CO-S	0.01	100		6 - 125	0 - 125	-
CO	0.01	110		6 - 125	0 - 125	-
CO	0.002	112		6 - 125	0 - 125	-
CIII	0.01	120		2 - 400	0 - 300	0 - 480
CIII	0.002	122		2 - 400	0 - 300	0 - 180

Accessories for precision centring devices

Designation	32 282...	
Probe insert, sphere Ø 5 mm	005	
Probe insert, curved sphere Ø 5 mm	015	
Probe insert, sphere Ø 1.7 mm	020	
Setting sphere Ø 25 mm	025	
Edge finder	030	
Equipment box made of wood with storage space	050	

Clamping shafts

Shank type	Size	32 283...	
Morse taper DIN 228	MK2 x M10	010	
Morse taper DIN 228	MK3 x M12	012	
Morse taper DIN 228	MK4 x M16	016	
Short taper DIN 2080	SK40 x M16	116	
Short taper DIN 69871A	SK40 x M16	216	
Short taper DIN 69871A	SK 50 x M 24	224	
cylindrical	16 mm	316	
cylindrical	20 mm	320	

32 304 Quick thickness gauges

- with large reach
- Plastic shells for insulating against heat from the hand
- Zero reset by turning the bezel
- Feelers opened by actuating the built in lifting wheel
- Measuring face diameter 6.35 mm



32 304 002

Measuring range mm	32 304...		Resolution mm	Cantilever mm
10	002		0.01	45

32 308 Quick thickness gauges

- lightweight design, easy to handle
- Spindle and all important parts made of stainless, hardened tool steel
- including case



32 308 001



32 308 004

Measuring range mm	32 308...		Resolution mm	Cantilever mm	Type	Error limit mm
0 - 10	001		0.01	15	particularly small	0.02
0 - 20	003		0.01	30	with flat ceramic plate-like measuring faces	0.025
0 - 10	004		0.01	120	with flat ceramic plate-like measuring faces	0.02
0 - 20	005		0.01	120	with flat ceramic plate-like measuring faces	0.025

32 313 "Quick Mini" thickness gauge

- without data output
- Incremental value 0.01 mm
- max. measuring force 2 N
- error limits 0.02 mm
- repeat accuracy 0.01 mm,
- Display LCD, 5-digit with sign (-), digit height 7.5 mm, power supplied by SR-44 battery with a life of approx. 2 years, supplied in a box



...012

Measuring range mm	32 313...		Weight g
0 - 12	012		70
0 - 25	025		120



...025

32 316 Quick thickness gauges

- with large reach and measuring depth
- with spherical surfaces 10 mm diameter for measuring sheet metal, glass, plastic, etc.



32 316...

Measuring range mm	32 316...		Resolution mm	Cantilever mm
0 - 30	001		0.1	200

32 345 Quick inside callipers, analog

for measuring grooves and drillholes, protected against dirt and splashing water, tungsten carbide spherical measuring contacts, with two adjustable limit tabs, easy to read scales



32 345...

Measuring range mm	32 345...		Measurement depth mm	Resolution mm	Error limit mm
5 - 15	001		23	0.01	0.020
20 - 40	003		80	0.01	0.030
30 - 50	004		80	0.01	0.030

32 346 Quick inside callipers, digital

- Mitutoyo interface, USB interface (optional)
- Application-specific measuring programs and measuring contacts
- Absolute and relative measuring program
- Red/green display for tolerance measurements
- mm / inch switchover
- Device can be used without cables
- Stand holder as accessory
- Switchover of the incremental value
- Special measuring solutions possible
- Test certificate

Data cable with Mitutoyo interface or USB connection available on request

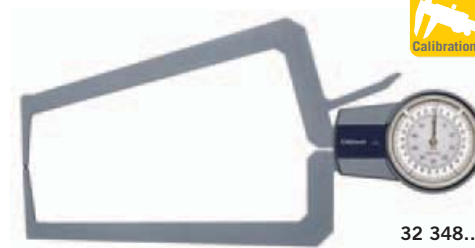


32 346 030

Measuring range mm	32 346...		Measurement depth mm	Incremental value mm	Error limit mm	Measuring force N
2.5 - 12.5	012		10	0.005	0.01	0.7 - 1.2
5.0 - 25.0	025		29	0.01	0.02	0.9 - 1.4
10.0 - 30.0	030		49	0.01	0.02	0.9 - 1.4
20.0 - 40.0	040		53	0.01	0.02	0.9 - 1.4

32 348 Quick outside callipers, analog

for measuring thickness and for outside measurements, protected against dirt and splashing water, tungsten carbide spherical measuring contacts, with two adjustable limit tabs, easy to read scales



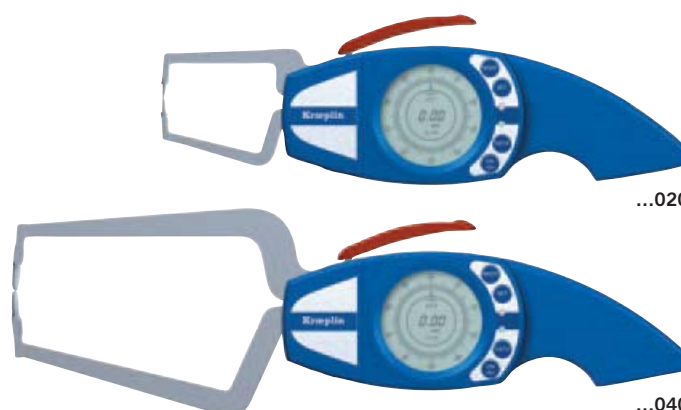
32 348...

Measuring range mm	32 348...		Measurement depth mm	Resolution mm	Error limit mm
0 - 50	003		170	0.05	0.050

32 349 Quick outside callipers, digital

- Mitutoyo interface, USB interface (optional)
- Application-specific measuring programs and measuring contacts
- Absolute and relative measuring program
- Red/green display for tolerance measurements
- mm / inch switchover
- Device can be used without cables
- Stand holder as accessory
- Switchover of the incremental value
- Special measuring solutions possible
- Test certificate

Data cable with Mitutoyo interface or USB connection available on request



...020

...040

Measuring range mm	32 349...		Measurement depth mm	Incremental value mm	Error limit mm	Measuring force N
0 - 20	020		50	0.01	0.02	0.7 - 1.3
0 - 40	040		115	0.02	0.04	1.0 - 1.5



32 402 Matched pairs of V-blocks

made of special cast iron, with V-notch, angle 90° to the base surface, machined in pairs, for marking out/scribing, aligning and testing cylindrical parts,

Quality 1: Base surfaces and V-block faces ground, **parallelism ± 0.016 mm**

Quality 3: Base surfaces and V-block faces finely planed, **parallelism ± 0.064 mm**



32 402...

Length mm	Quality 1 32 402...		Quality 3 32 402...		Width mm	Height mm	For shaft Ø mm
100	101		201		40	30	6 - 50
150	102		202		50	40	8 - 60
200	103		203		70	50	8 - 70

32 404 Toolmaker's adjustable angle block

precision made, very finely ground and hardened, **accuracy $\pm 10'$** , reading via Vernier scale, with locking device, continuous adjustment of the required angle, angle fixed by the lock screws on the under-side



32 404...

Length mm	32 404...		Width mm	Height closed mm	swivelling Grad
75	001		25	32 / 23	0 - 60
102	002		30	48 / 29	0 - 60
102	003		46	48 / 29	0 - 60

32 408 Matched pairs of V-blocks with clamps

made of hardened steel, **machined in pairs**, with 2 different size V-notches, angle 90°, brass clamping pad, notches and base surfaces ground and lap polished, outer edges ground

Quality 0: Parallelism ± 0.004



32 408...

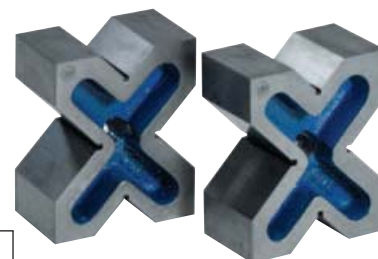
Length mm	32 408...		Width mm	Height mm	For shaft Ø mm
50	001		40	50	5 - 30
75	002		50	50	5 - 50
100	003		75	75	7 - 70

32 412 Matched pairs of parallel blocks

made of dense, special cast iron, with 4 different notches, angle 90°, machined in pairs relative to the base surfaces, for marking out/scribing, aligning and checking cylindrical parts,

Quality 1: Base surfaces and flat sides ground

Parallelism ± 0.016 mm



32 412...

Width mm	32 412...		Height mm	Length mm	For shaft Ø mm
120	101		100	60	8 - 90
150	102		130	75	8 - 110
200	103		170	90	8 - 150

32 502 Hard stone slabs

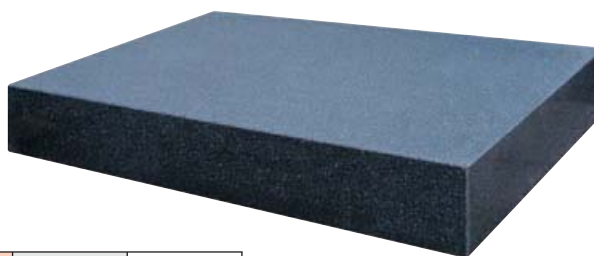
made of natural hard stone, accuracy according to DIN 876

- made of specially selected, fine grained stone
- stress-free and naturally aged
- harder than steel
- non-magnetic and not electrically conductive
- rustproof
- without baseframe

No. ...012 - ...022, accuracy according to DIN 876/0

No. ...112 - ...120, accuracy according to DIN 876/1

DIN
876



32 502...

Size mm	32 502... 0		32 502... I		Weight kg
400 x 400 x 50	012		112		55
500 x 400 x 90	015		115		55
800 x 600 x 120	018		118		175
1000 x 630 x 100	020		120		170
1200 x 800 x 120	022		122		450

Hard stone slabs with grooves or threaded bushes available on request

32 510 90° measuring angle

- triangular shape, made of hard stone
- hard and wearproof
- surface accuracy of the angle surfaces according to DIN 876/0
- accuracy according to DIN 876/00

DIN
876



32 510...

Side length mm	32 510...		Width mm	Perpendicularity mm
400 x 250	004		50	0.003
500 x 300	005		60	0.004

32 514 Steel section baseframe

for hard stone slabs No. 32 502..., stable welded construction, stoppered and enamelled, including adjustable bearings



32 514...

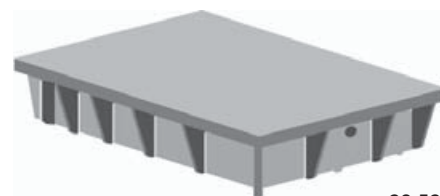
Slab size mm	32 514...	
400 x 400	100	
500 x 400	101	
800 x 600	103	
1000 x 630	105	
1200 x 800	108	

32 530 Marking out tabletops and bench plates

with **ribbed structure**, made of dense special cast iron, accuracy according to DIN 876, outer surfaces cleanly planed or mill-finished.

Quality 1: Surface closely rubbed and bedded in,

Quality 3: Surface finely planed



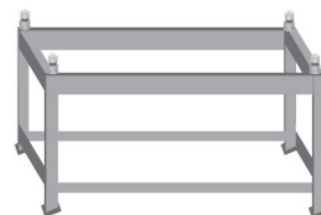
32 530...

Length mm	Width mm	Quality 1 32 530...		Quality 3 32 530...		Weight approx. kg
300	300	031		431		20
400	400	041		441		27
500	400	050		450		43
600	500	060		460		58
800	500	082		482		104
1000	750	102		502		215

Other dimensions available on request

32 532 Baseframes

for marking out tabletops and bench plates, with stable welded construction made of angle sections; the baseframes can be equipped with setscrews for an additional charge. The overall dimensions are designed for a working height of approx. 900 mm. We recommend fitting adjustable spindles to the bases for rubbed measuring slabs, as these enable precise alignment in the horizontal plane. (see from No. ...140)



32 532...

For slab size mm	32 532...		Weight approx. kg	32 532... Set of adjustable spindles	/ set
400 x 400	040		23	140	
500 x 400	050		24	150	
600 x 500	060		26	160	
800 x 500	085		30	185	
1000 x 750	107		37	190	

32 534 Lapping and inspection plate

Accuracy according to DIN 876/I

- made of dense, naturally aged special cast iron
- made with steel additive
- top and bottom surface are finely ground
- the surface is also squared and is therefore ideally suited for lapping
- including wooden case

DIN
876/1



32 534 001

L x B x H mm	32 534...		Weight approx. kg
360 x 260 x 65	001		22

32 540 Engineer's blue

for checking surfaces, the uniformity indicates the quality of the machining



32 540...

Colour	32 540...		Container	Contents mm
blue	001		Tube	80
red	002		Tube	80

32 542 Marking/layout fluid

for marking the machining points on metal surfaces, also suitable for use as line marking paint, does not reflect, good adhesion, easy to remove

Colour	32 542...		Container	Contents ml
blue	001		Spray can	300
red	002		Spray can	300
blue	003		Rigid bottle	500
red	004		Rigid bottle	500



32 542 001



32 542 003

32 544 Marking dye remover

Solvent spray for quickly removing marking dyes (marking fluid)

Container	32 544...		Contents ml
Spray can	001		300

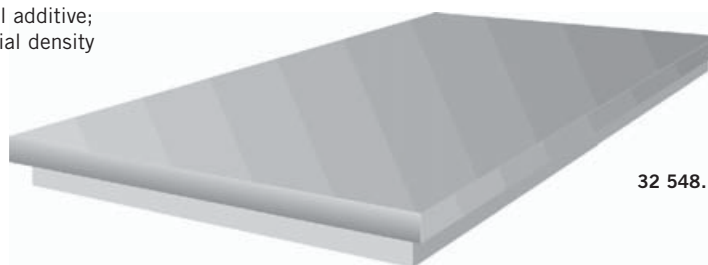


32 544 001

32 548 Levelling / aligning plates

with ribs, made from top quality special cast iron with steel additive; the tried and tested alloy achieves an unsurpassable material density and resistance,

Type: Planed surface



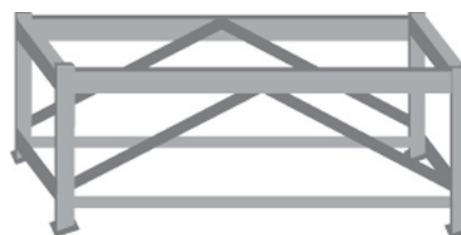
32 548...

Plate size mm	32 548...		Plate thickness mm	Rib height mm	Weight approx. kg
300 x 300	030		20	40	16
400 x 400	040		30	50	42
500 x 500	050		40	40	84
500 x 500	051		50	50	102
600 x 600	060		40	40	120
600 x 600	061		60	60	176
800 x 800	080		40	40	216
800 x 800	081		60	60	315
1000 x 1000	100		40	60	340
1000 x 1000	101		60	60	450
1200 x 800	120		60	60	470
1500 x 1000	150		60	60	735

other sizes and designs available on request

32 568 Baseframes

for levelling plates No. 32 548..., the frame is made of strong angle sections with flat bar struts, the overall dimensions are designed for a working height of 80 mm.



32 568...

Plate size mm	32 568...		Weight approx. kg
400 x 400	040		16
500 x 500	050		27
600 x 600	060		29
800 x 800	080		46
1000 x 1000	100		54
1200 x 800	120		54
1500 x 1000	150		72

33 108 Height gauges

- Special steel, chrome plated
- Main data scale and indicating Vernier scale matt chrome plated
- scriber tip bent at right-angles, sintered carbide tipped
- **with fine adjustment**
- resolution 0.02 mm
- in wooden box

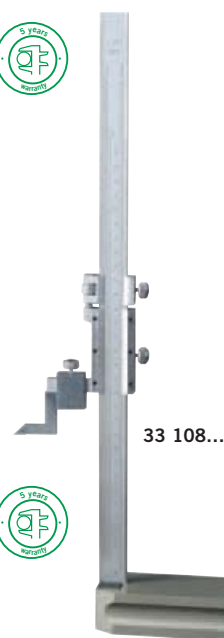
Replacement scriber, sintered carbide tipped

for measuring range 0-300 mm Prod. No. 33 108 130

for measuring range 0-500 mm Prod. No. 33 108 160

Measuring range mm	33 108...		Resolution mm
0 - 300	030		0.02
0 - 500	050		0.02

Primat



33 108...

33 110 Height gauges

- Main scale measuring column can be adjusted for zero adjustment
- Main data scale and indicating Vernier scale matt chrome plated
- **Resolution 0.02 mm / 0.001 inch**
- Scriber, sintered carbide tipped
- **with reading magnifier and fine adjustment**
- with large base area

Replacement scriber, sintered carbide tipped

for measuring range 0-300 mm Prod. No. 33 110 130

for measuring range 0-600 mm Prod. No. 33 110 160

Measuring range mm/inch	33 110...		Resolution mm/inch
0 - 300 / 12	002		0.02 / 0.001
0 - 600 / 24	005		0.02 / 0.001

Primat



in addition, with reading magnifier



33 110...

33 132 Height gauges

- **with double counter and dial indicator**
- one counter calculates positively, one counter calculates negatively so that the required dimension can be moved to from any point, both from above and from below
- the full millimetres are read from the counters, the tenths and hundredths are read from the dial indicator, simplest and most reliable reading
- Zero reset possible in any position
- **Scriber, sintered carbide tipped**
- stainless steel base
- important parts hardened

Replacement scriber, sintered carbide tipped

for measuring range 0-300 mm Prod. No. 33 132 130

for measuring range 0-600 mm Prod. No. 33 132 160

Measuring range mm	33 132...		Resolution mm	Column Ø mm
0 - 300	030		0.01	15
0 - 600	060		0.01	20

Primat



33 132...

33 140 Height gauges

- **with double counter and dial indicator**
- one counter calculates positively, one counter calculates negatively so that the required dimension can be moved to from any point, both from above and from below
- the full millimetres are read from the counters, the tenths and hundredths are read from the dial indicator, simplest and most reliable reading
- Zero reset possible in any position,
- **Scriber sintered carbide tipped**
- enamelled base, important parts hardened

Replacement scriber, sintered carbide tipped

Prod. No. 33 111 080

Measuring range mm	33 140...		Resolution mm	Column Ø mm
0 - 300	030		0.01	15
0 - 600	060		0.01	20

Mitutoyo



33 140 030

33 140 060



33 150 Height gauge, digital

With data output, with the Mitutoyo "Absolute" scale. With this scale, once the zero point has been set it is retained even if the device is switched off and on again, while other zero points can also be fixed for comparative measurements.

- Reliable, stable, practical: Effortless and purposeful handling with ergonomically shaped handle and gently moving, precisely controlled feed wheel.
- Large high-contrast six-digit LCD display for convenient reading of the measurement results.
- Multifunctional due to useful accessories, for example for installing a dial indicator

Accessories:

Replacement scribe, sintered carbide tipped	Prod. No. 33 111 080
DIGIMATIC mini processor	Prod. No. 38 410 020
Replacement battery	Prod. No. 64 866 207
Signal cable, 1 m	Prod. No. 38 452 011
Signal cable, 2 m	Prod. No. 38 452 012

Measuring range	33 150...		Incremental value	Error limits	Weight
mm			mm	mm	kg
0 - 300	003		0.01	0.04	4.6
0 - 600	006		0.01	0.06	6.4

Mitutoyo ABSOLUTE



with data output



33 150...

33 142 Height gauge, digital

without data output, zero reset possible in any position by pressing a button, **incremental value 0.01 mm**, standard type with column design, the digital figures can be set to any value with the help of the preset button preselection. Supplied including scribe, scribe holder, battery and dust cover

Functions

- ZERO (zero reset)
- Hold (hold value)
- Preset (preselection)

Technical data

Precision: In-house standard
Degree of protection: IP-40
Display: 6 digits and sign (-)

Accessories:

Replacement scribe, sintered carbide tipped	Prod. No. 33 111 080
Scribe holder	Prod. No. 33 142 103
Replacement battery	Prod. No. 64 866 207

Mitutoyo



33 142...



33 143 Height gauge, digital

Type as No. 33 142...; however, with data output and facility for connecting a signal probe

Mitutoyo



Accessories:

Replacement scribe, sintered carbide tipped	Prod. No. 33 143 101
Signal cable, 1 m	Prod. No. 38 452 011
Signal cable, 2 m	Prod. No. 38 452 012
Replacement battery	Prod. No. 64 866 207

with data output



33 143...

Measuring range	33 142...		33 143...		Column Ø
mm	without data output		with data output		mm
0 - 300	030		030		15
0 - 600	060		060		20
0 - 1000	100		100		20

33 144 Signal probe

for connecting to digital height gauges 33 143... with data output

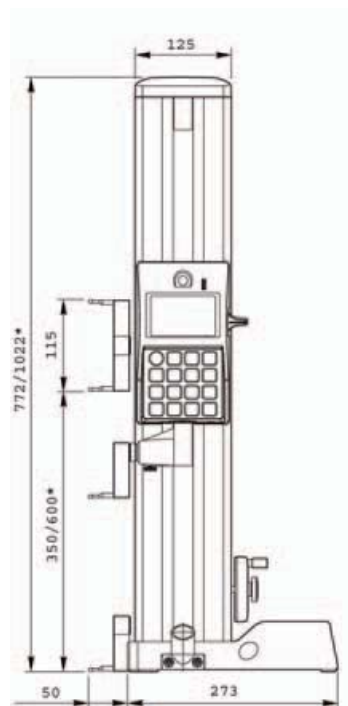
Mitutoyo

33 144...	
003	



33 160 "QM Height" linear height gauges

- The QM Height achieves maximum accuracy and offers all data processing functions required for height measurements and their analysis.
- Handling the equipment is just as convenient as for conventional height gauges
- Different size models as well as a large selection of special accessories are available for a large number of measuring tasks
- Thanks to the new ABSOLUTE scale the position data is retained, even if the device is switched off and on again. The zero point does not have to be reset after switching on
- Unlimited traversing speed
- Icons on the buttons make it easier to select the functions. Frequently required calculations of inner diameters, outer diameters and spacings are integrated in as icons in the keyboard
- Measurement of inner/outer diameters in a single measuring operation (determination of the highest point on the circle and machining with marking measurement)
- Easy to read display with large digits
- The results of the tolerance evaluation are displayed numerically visually by the red and green background lighting and with "NG", "GO" or "+NG"
- Thanks to the slider lifting device in combination with the unlimited traversing speed, even long traversing distances are quickly and effortlessly covered
- Both DIGIMATIC and RS-232 C output are standard features



Mitutoyo



33 160...

Measuring range	33 160...		Perpendicularity	Weight
mm			μm	kg
0 - 350	035		8	22
0 - 600	060		13	27

Standard accessories

No. 12 AAA 715 Calibration block
 No. 05 HZA 148
 Ball stylus Ø 5 mm
 with holder
 No. 011037 4 x LR6 batteries
 Handle

Technical data:

“QM Height” 33 160...	Measuring range	Guiding method	Incremen- tal value	Digital display	Repeat accuracy	Allowable linear deviations	Measuring force	Measuring system	Battery	Battery life	Traversing method		
	mm	mm	mm		µm	µm	N	Glass scale	LR 6 x 4 / mains adapter (optional)	hrs			
035	0-350	Roller bearing	0.001/ 0.005	LCD	1.8 (2 sigma)	2.8 + 0.5 L / 100	1.6 ± 0.5			approx. 800 hrs. (depending on measuring method)	manual		
060	0-600												



33 163 LH-600C/ CG “Linear Height” height gauge

- Excellent accuracy
- Pneumatic moving mechanism
- Self-explanatory control panel with menu control in the display
- Easy to read, bright LCD display
- Automatic running of previously “learned” sub-programs (teaching function)
- GO/NG feedback for each measurement
- Mains-independent operation using rechargeable battery
- Easy to handle due to low weight
- RS-232 C data output
- DIGIMATIC data input for digital dial indicators, e.g. for perpendicularity

Functions for 1D and 2D measurements/evaluation

- Height measurement (upper/lower surface)
- Diameter (drillhole/shaft)
- Measuring of the inside distance or thickness
- Measuring of the maximum height/minimum height
- Determination of an angle
- Spacing calculation
- 2D element calculation
- Angle calculation (element/element)
- Angle calculation (element/X-axis)
- 2D spacing calculation (element/element)
- 2D spacing calculation (element/X-axis)
- Pitch calculation
- 2D coordinate system setting
- Supports the polar coordinate system
- Recording of perpendicularity, straightness, tilt and evenness
- Arithmetical calculations
- DIGIMATIC data input
- 60,000 data readings with 50 programs

Tolerance evaluation

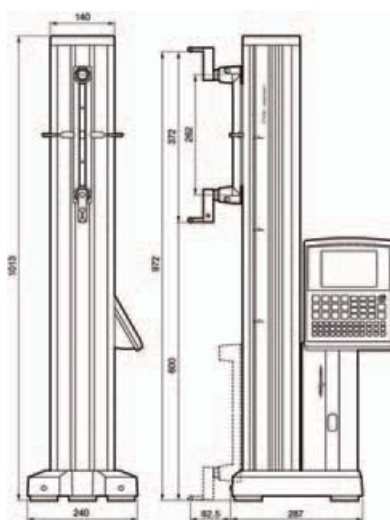
- Tolerance/nominal value input
- Output of the tolerance evaluation
- Alarm function for exceeding of tolerance

Probe insert

- Probe type setting option
- Measurement of the probe ball diameter
- Store/reuse probe data
- Change probe position

Statistical processing

- Performance of simple statistical processes
- Histogram preparation



33 163 100

Measuring range	33 163...		Stroke	Weight	Measuring force N
mm			mm	kg	
0 - 972	100		600	24	1

Standard accessories

- No. 12 AAA 715 Calibration block
- No. 12 AAA 634 Ball probe Ø 5 mm with holder
- No. 226116 Adapter for holding Ø 6 mm probes
- No. 357651 Mains adapter
- No. 226116 Dust cover

Technical data:

“Linear Height” 33 163...	Traversing range (slider travel)	Drive method	Incremental value selectable	Allowable linear deviation	Repeat precision 2 sigma	Weight balancing	Drive bearings	Straightness	Perpendicularity	Compressed air supply	Power supply	Operating period	Weight
	mm		mm	µm	µm		Floating semi-floating	µm	µm			hrs	kg
100	600	manual/motorised	0.0001/0.001/0.01/0.1	1.3 + 0.6 L/600µm	Area 0.5 Drillhole 1	Counter weights		4	6	Integrated compressor	AC adapter/rechargeable battery	approx. 5	24

33 204 Precision knife edge square

Accuracy to DIN 875/00. completely hardened, measuring surfaces lap polished, bevelled blade edge for tests using the light gap method



DIN
875/00

stainless
steel



Blade length x stock length mm	33 204...		Cross-section mm
50 x 40	005		15 x 4
75 x 50	007		16 x 4
100 x 70	010		20 x 5
150 x 100	015		28 x 5
200 x 130	020		30 x 6
300 x 200	030		40 x 8



33 204...

33 208 Precision knife edge square

Accuracy to DIN 875/00, fully hardened, inner blade edge bevelled, inner edges ground and lap polished, for jig and tool making



DIN
875/00

stainless
steel



Blade length x stock length mm	33 208...		Angle	Cross-section mm
25 x 20	002		90°	6 x 2.5 / 3 x 2.5
40 x 28	004		90°	8.5 x 3 / 4.5 x 3



33 208...

33 214 Sliding knife edge square

adjustable, the whole length of the bevelled edge blade can be moved along the stock and fixed in any position, with case



DIN
875/0



Blade length mm	33 214...		Stock length mm
60	010		40



33 214 010

33 216 Marking/Square set

5-piece, in wooden case consisting of:

- Stainless steel knife edge square DIN 875/00. size 75 x 50 mm,
- Knife edge square with stainless steel inner edge, size 40 x 28 mm,
- Knife edge square with stainless steel inner edge, size 25 x 20 mm,
- Bevelled straight edge, made of ordinary strength steel to DIN 874/00, length 100 mm,
- Block gauge scribe 60 x 8 x 8 mm



DIN
875/00



33 216...		Size of wooden case cm
001		19 x 14 x 3



33 216 001

33 230 Precision try square with wide, overlapping base

Accuracy to DIN 875/0, stainless steel, fully hardened, edges and faces precisely ground



DIN
875/0

stainless
steel



33 232 Precision flat steel square

Accuracy to DIN 875/0, stainless steel, fully hardened, edges and faces precisely ground

Blade length x stock length mm	33 230... Try square		33 232... Flat steel square		Cross-section mm
50 x 40	005		005		15 x 4
75 x 50	007		007		15 x 4
100 x 70	010		010		20 x 5
150 x 100	015		015		30 x 6
200 x 130	020		020		30 x 7

33 238 Precision try square with wide, overlapping base

Accuracy 1, according to DIN 875/1, special steel, edges and faces finely ground and machined



DIN
875/1

stainless
steel



33 240 Precision try square with wide, overlapping base

Accuracy 1, according to DIN 875/1, stainless steel, edges and faces finely ground and machined

33 246 Precision flat steel square

Accuracy 1, according to DIN 875/1, special steel, edges and faces finely ground and machined

33 248 Precision flat steel square

Accuracy 1, according to DIN 875/1, stainless steel, edges and faces finely ground and machined

Blade length x stock length mm	33 238... Try square		33 240... Try square stainless steel		33 246... Flat steel square		33 248... Flat steel square stainless steel		Cross-section mm
75 x 50	007		007		007		007		15 x 5
100 x 70	010		010		010		010		20 x 5
150 x 100	015		015		015		015		28 x 6
200 x 130	020		020		020		020		32 x 7
250 x 165	025		025		025		025		35 x 8
300 x 200	030		030		030		030		40 x 8
400 x 265	040		040		040		040		45 x 10
500 x 330	050		050		050		050		50 x 10

33 252 Precision try square with wide, overlapping base

Accuracy 2, according to DIN 875/2, special steel, edges precisely planished, faces well machined



DIN
875/2

stainless
steel



33 254 Precision flat steel square

Accuracy 2, according to DIN 875/2, special steel, edges precisely planished, faces machined

Blade length x stock length mm	33 252... Try square		33 254... Flat steel square		Cross-section mm
100 x 70	010		010		20 x 5
150 x 100	015		015		25 x 6
200 x 130	020		020		28 x 6
250 x 160	025		025		30 x 7
300 x 200	030		030		32 x 7
400 x 200	040		040		35 x 8
500 x 250	050		050		40 x 8
600 x 300	060		060		40 x 8
750 x 375	075		075		45 x 10
1000 x 500	100		100		50 x 10

33 256 Metalworker's steel square

with wide, overlapping base, made of zinc steel

Primat



33 258 Metalworker's steel square

without wide, overlapping base, made of zinc steel

made of zinc steel



Blade length x stock length mm	33 256... with wide, overlapping base		33 258... without wide, overlapping base		Cross-section mm
100 x 70	010		010		20 x 5
150 x 100	015		015		20 x 5
200 x 130	020		020		20 x 5
250 x 160	025		025		25 x 5
300 x 180	030		030		25 x 5
400 x 230	040		040		30 x 5
500 x 280	050		050		30 x 5
600 x 330	060		060		30 x 5
750 x 375	075		075		30 x 5
1000 x 500	100		100		30 x 5

33 262 Combined centre square with rule

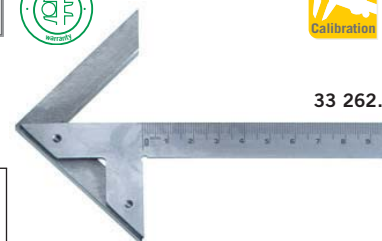
Accuracy according to DIN 875/I, special steel, for centring round-stock such as discs and shafts, with mm graduation on the rule

Primat

DIN 875/I



Rule dimension adjustment mm	33 262...		side blade length mm	Shaft Ø max. mm
100	010		70	90
150	015		130	190
200	020		150	220
250	025		160	230
300	030		180	280



33 264 135° flat octagon steel square

Accuracy according to DIN 875/2, special steel, edges precisely planished, faces well machined

Primat

DIN 875/II



Blade length x stock length mm	33 264...		Cross-section mm
50 x 50	005		15 x 4
75 x 75	007		18 x 4
100 x 100	010		20 x 5
150 x 150	015		25 x 6



33 266 120° flat hexagon steel square

Accuracy according to DIN 875/2, special steel, edges precisely planished, faces well machined

Primat

DIN 875/II



Blade length x stock length mm	33 266...		Cross-section mm
75 x 75	007		18 x 4
100 x 100	010		20 x 5



33 270 135° bevel angle with wide, overlapping base

Accuracy according to DIN 875/II, special steel, edges precisely planished, faces well machined



33 270...

Blade length x stock length mm	33 270...		Cross-section mm
120 x 80	012		20 x 5
150 x 100	015		20 x 5
200 x 130	020		25 x 6

33 274 45° mitre square

without wide, overlapping base, accuracy according to DIN 875/II, special steel, edges precisely planished, faces well machined



33 274...

33 275 45° mitre square

with wide, overlapping base, accuracy according to DIN 875/II, special steel, edges precisely planished, faces well machined

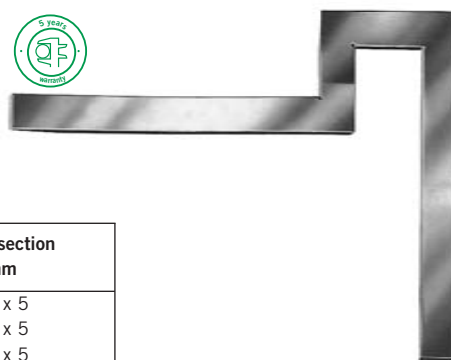


33 275...

Blade length x stock length mm	33 274...		33 275...		Cross-section mm
120 x 80	001		005		20 x 5
150 x 100	002		006		20 x 5
200 x 130	003		007		25 x 6

33 280 Flange steel

made of steel, bright on all sides



33 280...

Blade length x stock length mm	33 280...		Cross-section mm
300 x 300	030		30 x 5
400 x 400	040		30 x 5
500 x 500	050		30 x 5
600 x 600	060		30 x 5
800 x 800	080		30 x 5

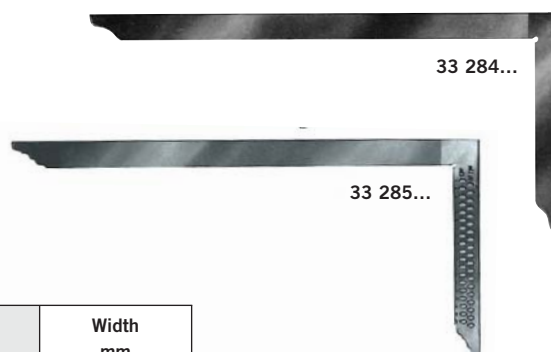
33 284 Framing square (without scale)

made of steel, bright on all sides, without marking openings



33 285 Framing square

made of steel, blank on all sides, with marking openings and cm graduation



33 284...

33 285...

Blade length x stock length mm	33 284...		33 285...		Width mm
600 x 280	060		060		35
800 x 320	080		080		35
1000 x 380	100		100		35



33 304 Carpenter's square

precision design with spring-tempered, blued steel blade, handy stock made of palisander with groove in stock, with double brass facings to protect against wear, four-fold riveting, therefore maximum accuracy and durability



33 304...

Blade length x stock length mm	33 304...	
150 x 100	015	
250 x 150	025	
350 x 190	035	

33 306 Carpenter's square

with steel blade and die cast stock, with bevel edge and mm/inch scale on the long blade arm

Length of the steel blade mm	33 306...	
200	020	
300	030	
400	040	



33 306...

33 310 Precision mitre square

with spring-tempered, blued steel blade, handy stock made of palisander with groove in stock, with strong brass facing, therefore maximum accuracy



Length of the steel blade mm	33 310...	
300	035	



33 310...

33 312 Precision sliding bevel

with spring-tempered, blued steel blade, handy stock made of palisander with groove in stock, stock with brass channel profile on end, wing nut for fixing at any point



Length of the steel blade mm	33 312...	
250	025	
300	033	



33 312...

33 316 Sliding bevel

made of steel with screwed hinge, 3-piece

Arm length mm	33 316...		Cross-section mm
200	020		22 x 5
250	025		25 x 5
300	030		25 x 5
400	040		30 x 5



33 316...

33 320 Steel protractor

for measuring angular degrees 0 - 180°, with lock screw, matt chrome plated design



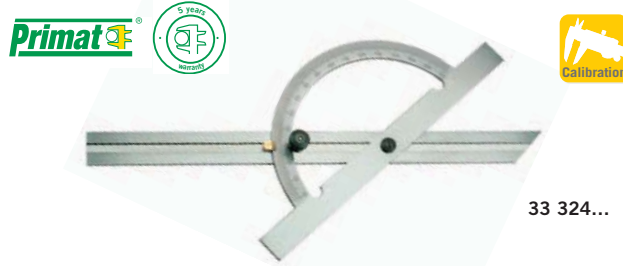
33 320...

Protractor head Ø mm	33 320...		Arm mm
80	108		120
120	112		150
150	115		200
200	120		300
300	130		500



33 324 Protractor (bevel way)

for measuring angular degrees 10 - 170°, with adjustable arm, with lock screw, matt chrome plated design



33 324...

Protractor head Ø mm	33 324...		Arm mm
100	110		150
150	115		300
200	120		400
250	125		500

33 340 Combination square set

with magnifying glass and additional try square made of stainless steel, the clear graduation on the stock with 4 x 90° enables convenient reading and setting of any angle required, due to the Vernier sub-division, 1/12° = 5' can be read off, in plastic case



with 3 interchangeable stocks

33 340 001

Stock length mm	33 340...	
150/200/300	001	

33 342 Combination square, digital

- with data output
- reliable reading due to clearly identifiable digital display
- automatically switches off after 10 minutes, easy to adjust using fixed reference points
- the stock can be slid along and clamped over its whole length
- fine adjustment for precise setting of any angular measure
- supplied in box, incl. battery



33 342 115

Accessories:

Replacement battery	Prod. No. 64 866 207
Signal cable, 1 m	Prod. No. 38 452 011
Signal cable, 2 m	Prod. No. 38 452 012

Stock length mm	33 342...		Measuring range °	Battery life hrs
150	115		-360 - +360	2000

33 402 Scribes

with knurled steel body and screwed in steel points, point diameter 4 mm



...017

...025

Overall length mm	33 402...		Point type
175	017		straight
250	025		straight / 90° bend

33 403 Scriber

double end with plastic body



Overall length mm	33 403...		Point type
220	022		straight / 90° bend

33 403 022

**33 404 Scriber**

with sintered carbide tip, for marking tiles, stone, glass, hard steel, shank 6 mm



Overall length mm	33 404...	
140	001	

33 404 001

**33 405 Scriber**

Cemented carbide, straight, with plastic body



Length mm	33 405...	
160	001	

33 405 001

**33 406 Precision scribers**

with 20 interchangeable steel scriber points, hexagonal aluminium shank, in bakelite sleeve



Overall length mm	33 406...	
135	001	
Replacement points, pack of 50.	002	

33 406 001

**33 408 Pocket scribers**

with interchangeable sintered carbide tip, with clip, the sintered carbide tip can be automatically extended and retracted and can be resharpened



Overall length mm	33 408...		Shank Ø mm
165	001		10
Replacement sintered carbide tip	002		-

...001

...002

**33 450 Dividers**

with square-cut legs, pushed through single joint (with reverse action) and hardened tips, with rivet hinge



Length mm	33 450...	
150	015	
200	020	
250	025	
300	030	

33 450...

**33 452 Wing dividers**

with square-cut legs, pushed through single joint (with reverse action) and hardened tips, with rivet hinge



Length mm	33 452...	
150	015	
200	020	
250	025	
300	030	
400	040	
500	050	

33 452...



33 456 Precision spring dividers**with fixed points**with split adjusting nut for quick setting and threaded rod made of tool steel, extra strong design, **hardened points**

33 456...

Leg length mm	33 456...	
100	010	
125	012	
150	015	
175	017	
200	020	
250	025	
300	030	

33 458 Precision spring dividers**with interchangeable, hardened scriber points made of special steel,** with split adjusting nut for quick setting, threaded rod made of tool steel, extra strong design

33 458...

with interchangeable points

Leg length mm	33 458...	
125	012	
150	015	
175	017	
200	020	
300	030	
Replacement points, special steel, per pair	101	

33 460 Inside calipers

finely polished, leg ends hardened with rivet hinge



33 460...

Length mm	33 460...	
150	015	
200	020	
250	025	
300	030	

33 462 Precision inside spring calipers

with split adjusting nut for quick setting, threaded rod made of tool steel, extra strong design, hardened contact ends



33 462...

Length mm	33 462...	
125	012	
150	015	
200	020	
250	025	
300	030	

33 464 Outside calipers

finely polished, leg ends hardened with rivet hinge

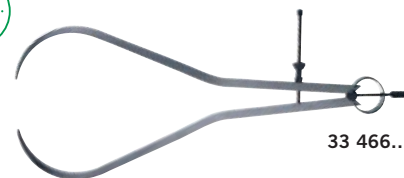


33 464...

Leg length mm	33 464...	
150	015	
200	020	
250	025	
300	030	

33 466 Precision outside spring calipers

with split adjusting nut for quick setting, threaded rod made of tool steel, extra strong design, hardened contact ends

Primat

33 466...

Arm length mm	33 466...	
150	015	
200	020	
300	030	

33 471 Compass - Vernier callipers

made of special steel, **scraper jaws and tips hardened**, finely ground and lap polished, precise marking out due to parallel position of the scriber jaws, with lock screw



33 471...

Measuring range mm	33 471...		Marking range mm	Length of jaws mm	Vernier mm
0 - 150	001		300	45	1/10
0 - 200	002		400	45	1/10
0 - 300	003		600	45	1/10

33 474 Beam compass (trammel bar)

with flat ruler beam and fine adjustment, **stainless steel**, tips made of steel, **Vernier 1/10 mm**



33 474...

Measuring range mm	33 474...		Ruler beam cross-section mm
500	001		30 x 6
1000	002		30 x 6
2000	003		40 x 8
Replacement tips, per pair	011		-
Sintered carbide tips per pair	012		-

33 477 Vernier calliper layout rule with scriber

- with roller
- stainless steel, reading parts matt chrome plated
- Hardened scriber point
- with lock screw
- resolution 0.05 mm

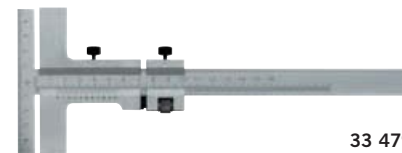
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33 477...

Measuring range mm	33 477...		Resolution mm
0 - 200	020		0.05
0 - 400	040		0.05
Replacement scriber point	100		-

33 479 Precision layout rule with Vernier

- with fine adjustment, open slider, scale rule beam and marking ruler made from one piece
- measuring faces very finely ground, made of alloyed steel, hard chrome plated, scale and Vernier lead free matted



33 479...

Measuring range mm	33 479...		Base length mm	Resolution mm
0 - 160	001		100	0.05
0 - 250	002		135	0.05
0 - 300	003		160	0.05

33 481 Steel layout squares

flat design, hardened marking edge, **with mm graduation**, layout edge 40 mm wide

Primat

33 481...

Measuring length mm	33 481...	
200	020	
250	025	
300	030	



33 504 Stainless steel straight edge with mitred end

Accuracy according to DIN 874/00. stainless steel, hardened, with insulated body, measuring face of the bevelled cutting edge lap polished, otherwise finely ground, in case



33 504...

Overall length mm	33 504...		Cross-section mm
75	007		22 x 6
100	010		22 x 6
125	012		22 x 6
150	015		22 x 6
200	020		30 x 6
300	030		30 x 6
500	050		40 x 7

33 510 Flexible stainless steel scale rules

with engraved, wearproof graduation at the top 1/2 and bottom 1/1 mm, made of spring steel strip, hardened, cross-section up to 300 mm 13 x 0.5 mm, otherwise 18 x 0.5 mm



33 510...

33 512 Flexible polyamide coated scale rules

yellow coating, very easy to read, graduation at top and bottom 1/1 mm, made of spring steel strip, hardened, cross-section 13 x 0.45 mm



33 512...

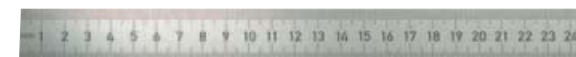
Measuring length mm	33 510...		33 512...	
150	015		015	
200	020		-	-
250	025		-	-
300	030		030	
500	050		050	
1000	100		-	-
2000	200		-	-

33 514 Wide stainless steel scale rules

with engraved wearproof graduation at the top and bottom 1/1 mm, made of spring steel strip, hardened



Measuring length mm	33 514...		Cross-section mm
300	030		28 x 0.8
500	050		30 x 1
1000	100		30 x 1
1500	150		40 x 2
2000	200		40 x 2



33 514...

particularly thick
cross-section

33 516 Heavy duty scale rules

Accuracy according to DIN 866/A, with protected ends and precise edges, made of special steel



33 516...

33 517 Stainless steel heavy duty scale rules

Accuracy according to DIN 866/A, with protected ends and precise edges, made of special steel



33 517...

Measuring length mm	33 516...		33 517... stainless steel		Cross-section mm
500	050		050		30 x 6
1000	100		100		40 x 8
1500	150		150		40 x 8
2000	200		200		50 x 10
3000	300		-	-	50 x 10



33 518 Heavy duty scale rules

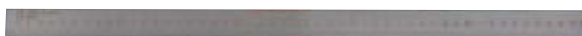
Accuracy according to DIN 866/B, made of special steel



33 518...

33 519 Stainless steel heavy duty scale rules

Accuracy according to DIN 866/B, without faceted bevelled edge, made of stainless steel



33 519...

Measuring length mm	33 518...		33 519... stainless steel		Cross-section mm
500	050		050		25 x 5
1000	100		100		30 x 6
2000	200		200		40 x 8
3000	300		300		40 x 8

33 520 Workshop straight edges

without scale graduation, with facet bevel edge, made of ordinary strength steel, finely polished



33 520...

33 524 Workshop straight edges

with scale graduation, with facet bevel edge, made of ordinary strength steel, finely polished



33 524...

Measuring length mm	33 520...		33 524... Scale graduation		Cross-section mm
500	050		050		40 x 5
1000	100		100		40 x 5
1500	150		150		40 x 6
2000	200		200		40 x 6

33 530 Precision straight edges

made of steel, accuracy according to DIN 874/I, edges and faces precisely machined and finely ground



33 530...

33 531 Workshop straight edges

made of steel, accuracy according to DIN 874/II, edges and faces precisely machined and finely ground



33 531...

Length mm	33 530...		Cross-section mm	33 531...		Cross-section mm
500	005		40 x 8	005		30 x 6
1000	010		50 x 10	010		40 x 8
2000	020		70 x 14	020		60 x 12



34 020 Folding rules, wood

- made of seasoned beechwood
- waterproof varnish
- black graduation marks
- red decimal figures
- with mm graduation on both sides
- steel springs, brass plated



34 020 001



34 020 002



34 020 004



34 020 005

Length m	34 020...		Width mm	Number of folds	Type
1	001		16	6	Varnished yellow
2	002		16	10	Varnished yellow
2	004		16	10	Varnished white/yellow,
2	005		16	10	Concealed rivets Varnished white

Folding rules with your own individual imprint available on request

34 024 Folding rules, lightweight metal

- natural colours
- spring-tempered special alloy
- numbers and graduation etched in deep black
- exactly latching, brass plated steel springs
- Sections 1.4 mm thick



34 024...

Length m	34 024...		Width mm	Number of folds
2	001		14	10
1	002		14	6

34 028 Folding rules, plastic

- glass fibre reinforced
- with embossed double scaling and red decimal figures
- stable
- precise-measuring
- with concealed rivets (rivets visible at 1 m length)
- non-conducting
- maintenance free
- washable
- long life



34 028...

Length m	34 028...		Width mm	Number of folds
2	001		15	10
1	002		13	10

34 036 Telescopic rule

- with measuring tape
- the built in measuring tape with mm graduation enables the respective extended length to be precisely read off in the window
- rule made of lightweight metal with robust measuring tape winder
- in storage bag



34 036 001

Extendable length m	34 036...		Closed length m
5	001		1.07

34 038 “Top Conve” pocket measuring tape**Tajima**

Case made of black ABS, yellow tape, permanent stop, black belt clip, measuring accuracy to EC Class II

Measuring length m	34 038...		Tape width mm	Case size mm
2	002		13	70 x 60 x 22
3	003		13	70 x 60 x 22
5	005		13	70 x 60 x 22



34 038...

**34 040 “G Lock” pocket measuring tape****Tajima**

Case made of yellow ABS, with black protective cover, yellow tape, slide button lock and belt clip. Measuring accuracy EC Class II

Measuring length m	34 040...		Tape width mm	Case size mm
3	003		15	68 x 68 x 33
5	005		25	68 x 68 x 33
10	010		25	72 x 75 x 40



34 040...

**34 042 Pocket measuring tape****BMI**

Case made of highly shockproof ABS plastic, automatic tape return and rewind, tape made of best quality spring steel, white stove enamelled, **black & red mm graduation**, coated to protect against premature wear

Measuring length m	34 042...		Tape width mm	Case size mm
2	002		13	50 x 50 x 20
3	003		13	55 x 55 x 20



34 042...

**34 054 Pocket measuring tape****Primat**

Case made of highly shockproof ABS plastic, automatic tape return and rewind, with slide button lock, tape made of best quality spring steel, white stove enamelled, **black & red mm graduation**, coated to protect against premature wear

Measuring length m	34 054...		Tape width mm	Case size mm
2	002		13	60 x 58 x 19
3	003		13	60 x 58 x 19
5	005		16	75 x 70 x 26



34 054...

**34 059 Pocket measuring tape****Primat**

impact-resistant plastic housing, black, automatic tape rewind, tape made of hardened and tempered spring steel, yellow stove enamelled, red & black marking, tape protected by coating, with tape sliding button lock and belt clip

Measuring length m	34 059...		Tape width mm	Case size mm
2	002		13	65 x 60 x 23
3	003		13	65 x 60 x 23
5	005		16	73 x 70 x 25



34 059...

34 066 Pocket measuring tape**STANLEY**

with metal case (Prod. No. 34 066 003 only) or with extra stable plastic case, chrome plated. Sliding tape lock and automatic belt rewind. The tape is yellow enamelled, printed in 2 colours and has a MYLAR topcoat for low wear.

Measuring length m	34 066...		Tape width mm	Case size mm	34 066... Replace- ment tapes	
3	003		12.7	56 x 56 x 19	-	-
5	005		19	65 x 65 x 19	050	
8	008		25	73 x 73 x 25	080	



34 066...



34 068 Pocket measuring tape with window

Case made of polyamide with stainless steel base. Inner measuring tape without locking device, window with magnifying glass effect. The graduation in the window are not upside down (no reading errors), free-running tape with so-called pull-push design.

BMI

with stainless steel base



34 068...

Measuring length m	34 068...		Tape width mm	Case size mm
2	002		13	65 x 65 x 21
3	003		13	65 x 65 x 21

34 070 Pocket measuring tape

mm/inch graduation, case made of impact-resistant ABS plastic, automatic tape rewind with stop button.

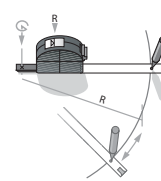
BMI

34 070...

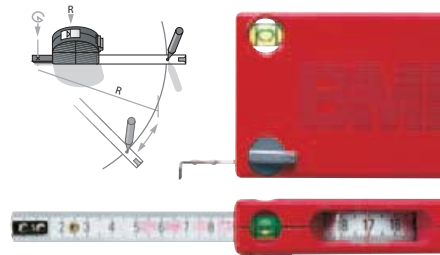
Measuring length m	34 070...		Tape width mm	Case size mm
2	002		13	65 x 55 x 25
3	003		13	65 x 55 x 25
5	005		16	85 x 70 x 25

34 072 Pocket measuring tape

the measuring tape with 4 functions in one case, linear measure, internal measure, radius, horizontal positions, window for internal measurements, tape locking device, fold out compass mandrel and horizontal spirit level, case made of polyamide, free-running tape made of top quality spring steel, white stove enamelled, black & red mm graduation, with coating to protect against premature wear.

BMI

with many additional functions



34 072...

Measuring length m	34 072...		Tape width mm	Case size mm
3	003		13	60 x 80 x 20

34 080 Measuring tape/marketing gauges TALMETER

for external, internal, depth, circumference measurements and marking, white, stable measuring tape with automatic measurement (3 point fixing) blocks the scale against tension and pressure, measuring and marking, in practice often done immediately after each other, become purely mechanical processes in which the accuracy is determined by the tool and not the eye.



34 080 002

34 080 003

Measuring length m	34 080...		Tape width mm	Case size mm
2.1	002		16	56 x 51 x 23
3.1	003		16	71 x 56 x 24

34 102 Surveyor's tape

Handy measuring tape made of ABS plastic, with folding crank handle and carry loop. Tape made of spring steel **10 mm wide**, white stove enamelled, black & red mm graduation, synthetic resin enamel as wear protection.

BMI

34 102...

Measuring length m	34 102...		Tape width mm	Case size mm
10	010		10	80 x 80 x 20
20	020		10	100 x 100 x 20
30	030		10	110 x 110 x 20

Surveyor's tape

Case made of highly shockproof plastic. Good handling due to large folding crank handle with parked position.

In indestructible case. The following measuring tapes **34 111...** to **34 133...** are supplied with measuring starting as described in AF, except glass fibre measuring tapes.


BMI measuring tapes are equipped with the patented FLEXTOP fitting. This fitting at the start reliably prevents the beginning of the tape from breaking!

Measurement starting positions:

AF: Normal design, measuring scale begins after approx. 10 cm with FLEXTOP fitting at the start made of transparent, highly flexible plastic

A: 

B: 

C: 

available on request:

BN: Measurement begins at front edge of fitting
Normal type for 13 mm wide tapes

CH: Measurement begins at the front edge of the ring
Hook ring for hooking in the start of the tape

F: 

M: 

H: 



34 111 Surveyor's tape

Tape made of stainless steel

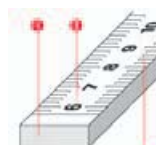
Measuring tape rustproof and heat resistant, high-resolution etching, mm graduation, EC Gen. II, can be calibrated

Length m	34 111...	
10	010	
20	020	
25	025	
30	030	
50	050	



34 111...

- 1 Tempered spring steel strip made of chromium steel, stainless
- 2 Etched, deeper surface
- 3 Raised, polished graduation



34 119 Surveyor's tape

Tape made of steel, white enamelled

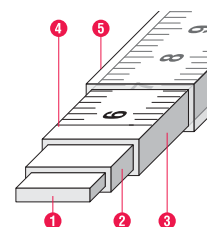
Measuring tape, enamelled, mm graduation, EC Gen. II, can be calibrated

Length m	34 119...	
10	010	
20	020	
25	025	
30	030	
50	050	



34 119...

- 1 tempered spring steel tape made of C75 carbon steel
- 2 Phosphate coat as anti-corrosion protection
- 3 White synthetic resin enamel, baked
- 4 Printed graduation with red metre figures
- 5 Transparent enamel as wear protection, baked



34 121 Surveyor's tape

Tape made of steel, polyamide coated

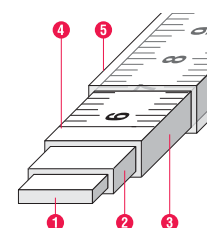
Measuring tape, polyamide coated, mm graduation, EC Gen. II, can be calibrated

Length m	34 121...	
10	010	
15	015	
20	020	
25	025	
30	030	
50	050	



34 121...

- 1 Tempered spring steel tape made of C75 carbon steel
- 2 Phosphate coat as anti-corrosion protection
- 3 Yellow synthetic resin enamel, baked
- 4 Printed graduation with red metre figures
- 5 Polyamide coating as wear protection



34 123 Surveyor's tape

Tape made of glass fibre

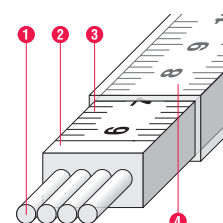
Measuring tape made of glass fibre, cm graduation, EC Gen. II, can be calibrated

Length m	34 123...	
10	010	
15	015	
20	020	
25	025	
30	030	

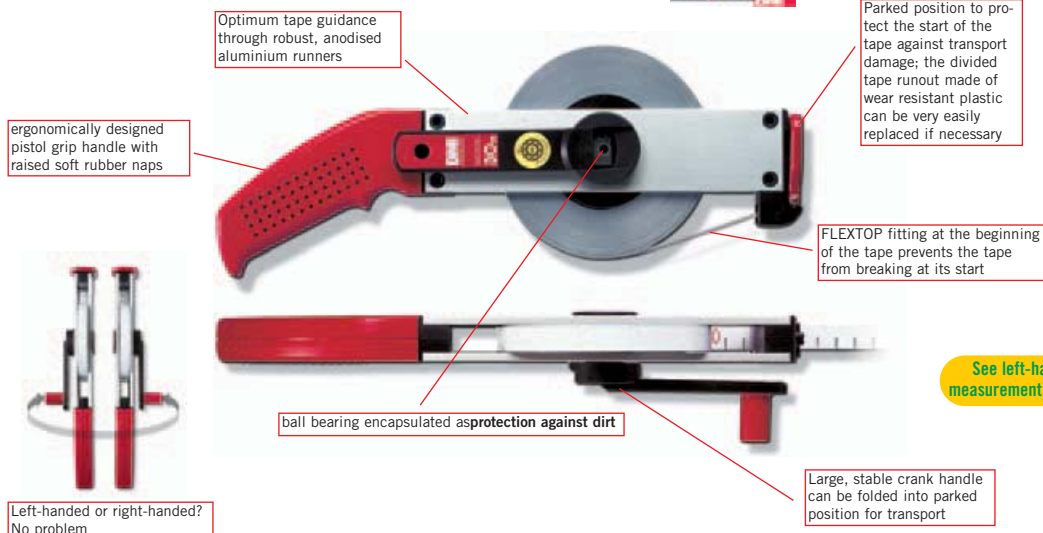


34 123...

- 1 Glass fibre threads
- 2 Extruded plastic sheath
- 3 Printed graduation with red metre figures
- 4 Transparent enamel as wear protection



ERGOLINE open reel measuring tape



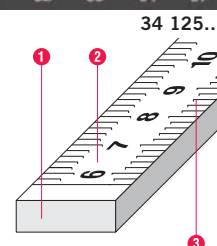
34 125 Open reel measuring tapes Tape made of stainless steel

in ERGOLINE frame, measuring tape rustproof, heat resistant, mm graduation, EC Gen. II, can be calibrated

Length m	34 125...	
20	020	
25	025	
30	030	
50	050	



- 1 Tempered spring steel strip made of chromium steel, stainless
- 2 Etched, deeper surface
- 3 Raised, polished graduation



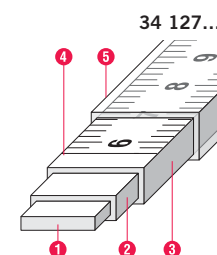
34 127 Open reel measuring tapes Tape made of steel, white enamelled

in ERGOLINE frame, measuring tape white enamelled, mm graduation, EC Gen. II, can be calibrated

Length m	34 127...	
20	020	
25	025	
30	030	
50	050	



- 1 tempered spring steel tape made of C75 carbon steel
- 2 Phosphate coat as anti-corrosion protection
- 3 White synthetic resin enamel, baked
- 4 Printed graduation with red metre figures
- 5 Transparent enamel as wear protection, baked



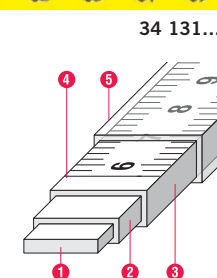
34 131 Open reel measuring tapes Tape made of steel, polyamide coated

in ERGOLINE frame, measuring tape polyamide coated, mm graduation, EC Gen. II, can be calibrated

Length m	34 131...	
20	020	
25	025	
30	030	
50	050	



- 1 Tempered spring steel tape made of C75 carbon steel
- 2 Phosphate coat as anti-corrosion protection
- 3 Yellow synthetic resin enamel, baked
- 4 Printed graduation with red metre figures
- 5 Polyamide coating as wear protection



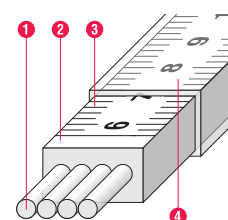
34 133 Open reel measuring tapes Tape made of glass fibre

in ERGOLINE frame, measuring tape made of glass fibre, cm graduation, EC Gen. II, can be calibrated

Length m	34 133...	
20	020	
25	025	
30	030	
50	050	



- 1 Glass fibre threads
- 2 Extruded plastic sheath
- 3 Printed graduation with red metre figures
- 4 Transparent enamel as wear protection



34 144 Circumference - diameter measuring tapes

for measuring the circumference while simultaneously reading off the diameter, rotationally symmetric parts, with Vernier scale, allowable deviation according to DIN 866/II, the integration of circumference measuring tapes in devices cuts the checking times for testing larger quantities of pieces

Circumference measuring range mm	34 144...		Ø measuring range mm	Resolution mm
60 - 950	001		20 - 300	0.1
940 - 2200	002		300 - 700	0.1
2190 - 3460	003		700 - 1100	0.1
3450 - 4720	004		1100 - 1500	0.1
4710 - 5980	005		1500 - 1900	0.1

Types made of stainless steel available on request



34 144...

34 210 Plumb bob

pear shape, bright lathed, with unscrewable brass knob

Weight g	34 210...	
300	001	



34 210 001

34 212 Plumb lines

on 50 m reels

Colour	34 212...		Line thickness mm	Material
white	001		1.2	Perlon
red	002		1.7	Polyamide



34 212...

34 214 Chalk line

Aluminium case, plumb shape

Type	34 214...	
Chalk line, complete with line and blue powdered chalk	001	
Replacement bag of chalk powder, blue, 34g	010	
Replacement bag of chalk powder, red, 34g	012	
Replacement line, 15 m reel	020	



34 214...

34 220 Straightedge levels

made of aluminium section with one horizontal and one vertical vials, centre ridge, cross-section approx. 100 x 18 mm, No. 025 - 030 with through hand grips for easier handling



34 220 015 + ...020



34 220 025 + ...030

Length cm	34 220...		Through hand grip
150	015		
200	020		
250	025		•
300	030		•

34 302 Teak spirit levels

selected quality, oiled, artificially dried, unbreakable, barrel-shaped Plexiglas vials, cross-section 50 x 22 mm



34 302...

Length mm	34 302...	
300	030	
400	040	
500	050	
600	060	
800	080	
1000	100	

34 306 Lightweight metal spirit levels

Hollow section, powder coated surface, unbreakable, barrel-shaped Plexiglas vials, measuring accuracy 1 mm per 1000 mm, cross-section 50 x 22 mm



34 306...

Length mm	34 306...	
400	040	
500	050	
600	060	
800	080	
1000	100	

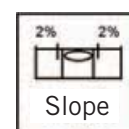
34 309 Lightweight metal spirit levels

Accuracy 0.5 mm/m, unbreakable vials with magnifying glass effect, horizontal vial with "normal position" marking and "2% slope"



34 309...

Length mm	34 309...	
300	030	
400	040	
500	050	
600	060	
800	080	
1000	100	

**34 320 Die cast aluminium spirit levels**

Measuring surfaces, ends and sides mill finished, shockproof, orange coloured surface with electrostatic powder coating, unbreakable, barrel-shaped Plexiglas vials, measuring accuracy 1 mm per 1000 mm, cross-section 50 x 22 mm

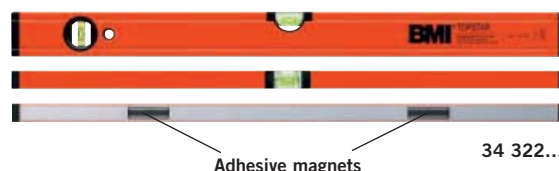


34 320...

Length mm	34 320...	
400	040	
600	060	
800	080	

34 322 Lightweight magnetic spirit levels**BMI**

Hollow section, milled measuring surface, **strong adhesive magnet system**, shockproof orange coloured surface with electrostatic powder coating, unbreakable, barrel-shaped Plexiglasvials, measuring accuracy 0.5 mm per 1000 mm in normal position and for measurements in inverted or vertical position, Cross-section 50 x 22 mm



Length mm	34 322...	
400	040	
600	060	
1000	100	

34 325 Electronic spirit level**BMI**

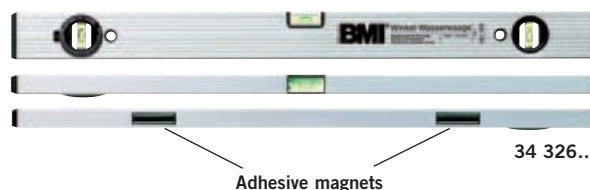
with electronic inclinometer, torsionally rigid four-chamber system, 2 milled measuring surfaces, conventional vials. The measured value is displayed in 0.1% or 0.1 degrees, in addition, an acoustic signal can be switched on at 0° or 90° position, large tilted display, hold function, recalibration function, arrows help to find the 0° and 90° position, accuracy of the inclinometer: 0° and 90°: +/- 0.1°, 1° to 89°: +/- 0.3°



Length mm	34 325...	
600	060	
800	080	
1200	120	

**34 326 Lightweight metal multi-purpose spirit levels****BMI**

with **angle measurement and strong adhesive magnets**, hollow section, silver anodised, with shockproof plastic caps, barrel-shaped vials, both vials for normal measurements, rotatable vial for measurement of angles, angle scale 90° - 0° - 90° & tile 0 - 50 %, tolerance of the angle measuring device $\pm 3\%$



Length mm	34 326...	
400	040	
600	060	

34 328 Universal spirit level**BMI**

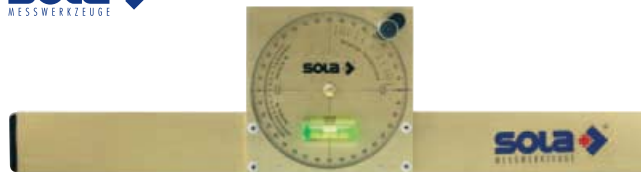
made of plastic, orange coloured, handy pocket size, the tilt angle vial can be locked in any required position, the ends of the body are used for measurement and as a drawing aid for 45°, 60° and 120° angles, cross-section 54 x 15 mm



Length mm	34 328...	
250	025	

34 330 Inclinator and angle finder spirit levels

Rectangular aluminium section 50 x 23 mm, gold anodised, with two magnets and inclinometer



34 330...

Length mm	34 330...	
500	005	

34 331 Inclinator/spirit level, digital

- Measures angles in ° or inclination in %
- Acoustic signal emitted at 0° or 90°
- Directional arrows indicate deviation from horizontal or vertical
- Automatic rotation of the measured values when working overhead
- Hold function for fixing the reading at the press of a button
- Inclined, easy to read display
- Robust and handy
- 2 vials enable it to be used as a spirit level



...001



...004

5.3 °

12.4 %

Display in degrees or percent

Length mm	34 331...		Type
600	001		DNM 60 L
1200	004		DNM 120 L

34 333 Angle finders

- handy angle measuring device for trade and industry
- angles can be precisely measured and immediately read
- with integrated spirit level vials, horizontal and vertical,
- size 600 mm with compass points, one tip can be replaced with a drawing pencil
- resolution 0.5°
- Measuring range 180°
- Accuracy 0.25°
- with analog display
- angular degrees can be easily read off a scale



Angular degrees can be easily read



34 333 060 with compass points



34 333 043



34 333 060

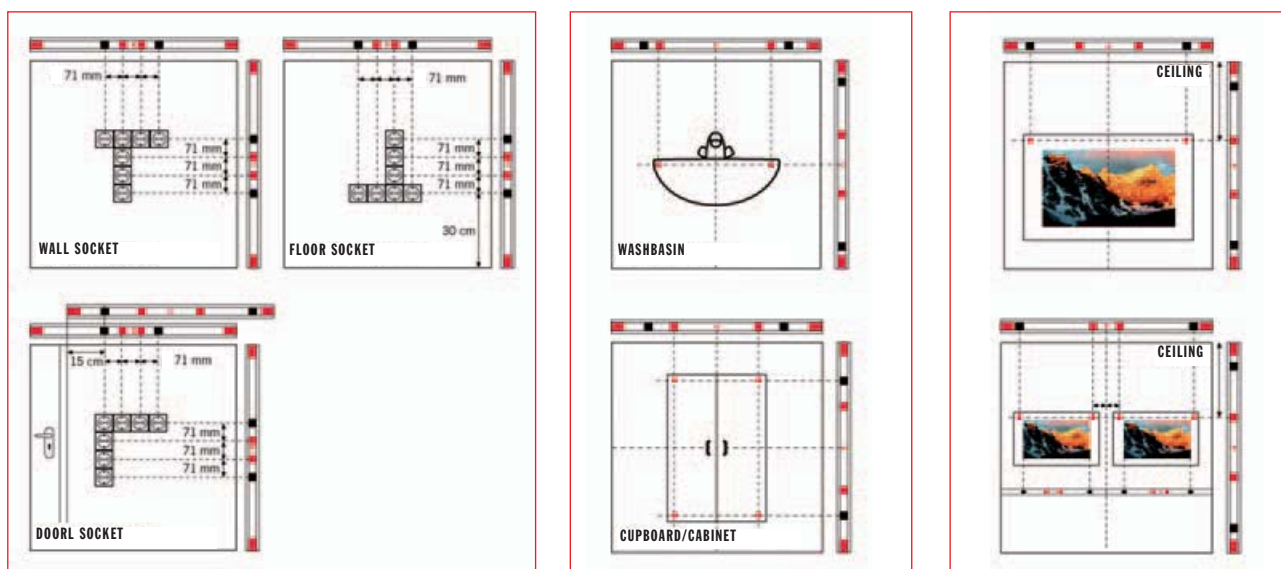
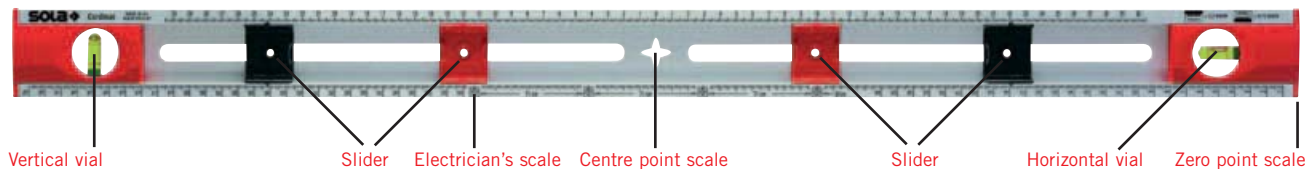
Blade length x stock length mm	34 333...	
430	043	
600	060	
Bag for Prod. No. 34 333 043...	243	
Bag for Prod. No. 34 333 060...	260	



34 334 “Cordinat” multi-functional spirit level

- fast and precise measuring, aligning and marking
- the special electrician's scale enables up to 4 marks to be made simultaneously at standard spacings of 71 mm
- the centre point scale makes symmetrical marking effortless
- distance, horizontal and vertical measurement in one go
- 4 adjustable sliding measuring points
- unbreakable acrylic glass block vials
- vials electronically controlled

34 334 005



Complete scale	max. measuring tolerance	max. measuring tolerance	34 334...		Accuracy in normal position	Accuracy when turned over	Section weight
cm	in standard position	for inverted or vertical measurement			mm/m	mm/m	g/m
80	0.5 mm/m (0.029°)	0.75 mm/m (0.043°)	005		0.5	1	590

34 336 Water level

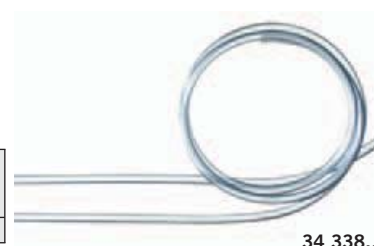
for simple transfer of levels to distances (depending on the length of hose) Plexiglas tubes with cm graduation, robust plastic fittings

Reading height	34 336...		Ø	Height
mm			mm	mm
200	001		20	330

**34 338 Hose**

suitable for water level No. 34 336...

Length	34 338...	
m		
25	012	



34 344 Precision engineer's spirit levels

- Stable type made of high-quality special cast iron, textured paint finish.
- With prismatic V-base (150°) for aligning horizontal surfaces and shafts.
- The measuring surfaces are finely ground.
- With ground and divided lengthwise vial, transverse vial and full thermal insulation.
- The scale value of the lengthwise vial is given on the nameplate.

Special features

- Consistent accuracy due to stress free installation of the vial. Therefore no need for time-consuming readjustments before measuring.
- The existing full thermal insulation around the whole casing reduces effects of heat from hands and breath.
- Casing recesses enable the vial to be read from the side, therefore advantage at higher measuring points.
- Supplied in robust wooden box.

Length mm	34 344...		Accuracy mm/m	Width x Height mm
160	016		0.3	42 x 42
200	020		0.3	42 x 42
250	025		0.3	42 x 42
300	030		0.3	42 x 42
160	116		0.1	42 x 42
200	120		0.1	42 x 42
250	125		0.1	42 x 42
300	130		0.1	42 x 42
160	216		0.02	42 x 42
200	220		0.02	42 x 42
250	225		0.02	42 x 42
300	230		0.02	42 x 42

DIN
877

34 344...

34 348 Crank pin spirit levels

- Stable type made of high-quality special cast iron, textured paint finish.
- With prismatic V shaped longitudinal and transverse prism 150° for aligning on crank shafts and pins on motors, engines, machines, etc. or on short, horizontal surfaces
- The measuring surfaces are finely ground. With ground and divided lengthwise vial, transverse vial and fully thermally insulated.
- The scale value of the lengthwise vial is given on the nameplate.

Special features

- Consistent accuracy due to stress free installation of the vial. Therefore no need for time-consuming readjustments before measuring.
- The existing full thermal insulation around the whole casing reduces effects of heat from hands and breath.
- Supplied in robust wooden box

Length mm	34 348...		Accuracy mm/m	Width x Height mm
60	060		0.2	42 x 42
90	090		0.1	42 x 42

DIN
877

34 348...

34 350 Precision frame spirit levels

- Stable type made of high-quality special cast iron, textured paint finish.
- With 3 V-shaped (prismatic) (150°) and 1 flat, vertical side, for aligning horizontal and vertical surfaces and shafts.
- The measuring surfaces are finely ground
- with ground and divided lengthwise vial, transverse vial and full thermal insulation
- The scale value of the lengthwise vial is given on the nameplate.

Special features

- Consistent accuracy due to stress free installation of the vial. Therefore no need for time-consuming readjustments before measuring.
- The existing full thermal insulation around the whole casing reduces effects of heat from hands and breath.
- Casing recesses enable the vial to be read from the side, therefore advantage at higher measuring points.
- Supplied in robust wooden box

Length mm	34 350...		Accuracy mm/m	Width mm
100	010		0.3	34
150	015		0.3	42
200	020		0.3	42
100	110		0.1	34
150	115		0.1	42
200	120		0.1	42
150	215		0.02	42
200	220		0.02	42

DIN
877

34 350...

34 390 DS 20 level

robust, automatic construction level with watertight full metal housing, bright optics and well dampened, insensitive compensator, adjustable horizontal circle, fine lateral movement can be endlessly operated from both sides, a target sight makes targeting easier.

For suitable tripod, see Prod. No. 34 392 010

Magnification	Shortest target distance m	Levelling accuracy mm/km	Horizontal circle	Weight kg	39 390...	
20 x	0.5	+/- 2.5	360°/400 g	1.7	020	



39 390 020

34 390 DS 28 level

watertight, automatic engineer's level, with high-quality, high-intensity quality optics, precisely machined mechanics fitted on the metal housing, insensitive, well damped and very precise compensator, adjustable horizontal circle, fine lateral movement can be endlessly operated from both sides, a target sight makes it targeting easier.

For suitable tripod, see Prod. No. 34 392 010

Magnification	Shortest target distance m	Levelling accuracy mm/km	Horizontal circle	Weight kg	39 390...	
28 x	0.5	+/- 1.5	360°/400 g	1.7	028	



39 390 028

34 392 G 1 metal tripod

Universal centring tripod made of high-quality, anodised aluminium, with eccentric clamp for levels 34 390...

Length m	34 392...		Weight kg
1.10 - 1.85	010		5.3



34 392 010

34 398 BL 21 Construction laser

- self-levelling
- suitable for all levelling work
- long working range due to large splay angle (horizontal 120°, vertical 140°)
- horizontal and vertical lines can be individually switched on
- clear, bright laser lines for precise transfer of the vertical and horizontal lines
- levelling control with flashing lines
- can also be used for manual tilt operation
- automatically switches off
- easy to use as all functions are controlled using one button
- with aligning disc for simple diagonal laying and plumb transfer
- for stationary operation fits on all standard commercial tripods with 1/4" threaded mounting
- working range up to max. 10m (depending on the light conditions)
- levelling accuracy 0.3 mm/m
- levelling range $\pm 4^\circ$
- levelling time < 4 sec
- power supply 3 x 1.5 V LR6 (AA batteries)
- operating period approx. 12h (with cross line mode)
- weight 450 g

Scope of supply:

with aligning disc, bag and batteries



34 398 002

with automatic levelling



Housing mm	34 398...	
118 x 57 x 89	002	

34 400 Laser levelling set, compact

Complete set with laser spirit level and laser module 670 nm for distances up to approx. 30 m, incl. 90° reflecting prism with an accuracy of at least 0.15 mm/m, with ball bearing supported levelling base with locking device, highly sensitive circular spirit level on levelling base enables quick checking that the settings are correct = substantial time savings, suitable for construction, video or photo tripods, in plastic case



34 400 001

For suitable tripod, see Prod. No. 34 405 001

Length mm	34 400...	
400	001	



Vernier depth gauges

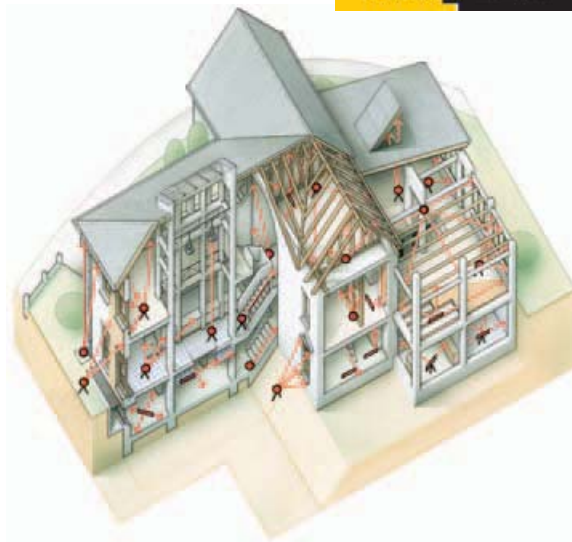
from Page 536

Laser functions, range of uses and types of laser measuring instruments

There are five different laser functions. As a result, you can use this modern measuring technology in extremely diverse ways. And there are different types of laser measuring instruments with different functional combinations.

Laser measuring instruments increase the measuring accuracy, save time and cut costs

Nowadays, new construction and working techniques require more precise and more frequent measurement, e.g. planning and fitting in prefabricated components. With high wage costs and accuracy requirements the measuring has to be carried out faster and more cost effectively. Procurement of a laser quickly pays if you can reduce making good work and adjustments on site. Lasers have a range which is difficult to achieve with conventional technology.



Laser function	Point function	Point function with 90°	Line function	Plumb function	Rotating function
Measuring process	Laser beam is visible on the sighted surface as a point	Laser beam emerges at an angle of 90° to the horizontal	Lens projects the laser beam as a line on the floor, wall and ceiling	Transfers a defined point from the floor onto the ceiling	Laser beam rotates horizontally through 360° about its vertical axis
Range of uses	Horizontal levelling: e.g. align pipes, rails...	Vertical levelling: e.g. install shelf systems, panelling, stairs, railings...	Vertical projection: e.g. working without markings, drilling holes in a line, aligning components...	Transfer measuring point: e.g. set up lighting design, align steel columns...	Horizontal levelling: e.g. check precast elements, brackets, foundations, install support systems
Laser measuring instrument type	1. Laser spirit level 2. Manual point laser 3. Automatic point laser	1. Laser spirit level with 90° penta-prism deflection for all point functions 2. Manual point laser 3. Automatic point laser	1. Laser spirit level with line functions 2. Manual line laser 3. Automatic line laser	1. Manual point laser with line functions 2. Automatic point laser with line functions	1. Laser spirit level on level base 2. Manual rotating laser 3. Automatic rotating laser

34 405 Construction tripod

robust lightweight metal design, extendable, with ground spikes, ideal accessory for No. 34 400... and 34 403...
5/8" mounting



34 405 001

Height cm	34 405...		Weight kg
105 - 160	001		5.0

34 403 LAPR 100 rotating laser

Automatic pendulum rotating laser works at a high speed with maximum accuracy and reliability. The pendulum levelling system of the self-levelling means there is no waiting until the motor has aligned the laser, you can turn and changeover the laser without losing the levelled laser beam. The multi-functional housing can be tilted, which then enables unevenness up to 12° slope to be balanced out. The complete laser housing is mounted on the stainless steel U-brackets with sliding sleeves. This design enables the laser beam to be vertically repositioned directly at the unit by approx. 12 cm. The rotating laser beam together with the receiver also enable easy working over long distances outdoors.

Scope of supply: LAPR 100 rotating laser, receiver with holder, laser goggles, target plate with scale, in plastic case

Function	34 403...	
Levelling accuracy: +/- 0.3 mm/m Laser wavelength: 635 nm Range (radius): 80 m Battery life: approx. 40 hrs. Batteries (included): 3 x AAA	010	

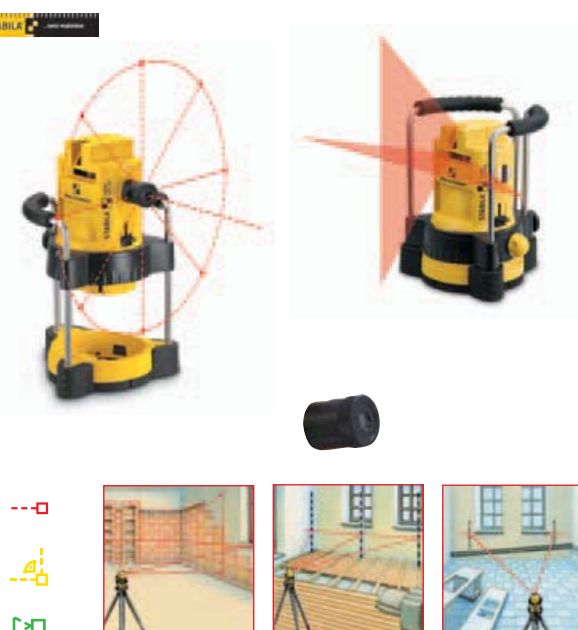


34 403 LAX 100 cross line laser

The LAX 100 was specially developed for all building interior finishing work. With cross line function. Individually controllable vertical and horizontal line projection. The side reference laser point, which is arranged precisely at right angles to the laser line, can be switched on individually. A beam splitter prism can be attached to its aperture and be used for vertical all-round levelling. The 5° tolerance of the self-levelling pendulum can compensate for extremely slanting surfaces of up to 12° slope by manual adjustment of the housing. The two stainless steel U-brackets are transport and grip handles as well as sliding rails for height adjustment (approx. 12 cm) of the laser body.

Scope of supply: LAX 100 cross line laser, beam splitter prism, laser goggles and target plate with scale, in plastic case

Function	34 403...	
Levelling accuracy: +/- 0.3 mm/m Laser wavelength: 635 nm Range (radius): Line 10 m Point 40 m Battery life: approx. 40 hrs. Batteries (included): 3 x AAA	020	



34 403 LAR 100 automatic rotating laser

Optimum solution for all discriminating craftsmen. The automatic self-levelling of the LAR 100 allows fast and precise working. The laser can be mounted both vertically and horizontally on a tripod, levelling bracket or on the floor. The motor-controlled automatic levelling ensures high accuracy. The effects of vibrations are compensated for by permanent re-levelling. Laser line can be adjusted in an axis of +/- 5° to a tilted plane. Simple marking of right angles using the built in beam splitter prism. Scanning function improves the visibility of the laser.

Scope of supply: LAR 100 self-levelling rotating laser, remote control, receiver, laser goggles and target plate with scale, in plastic case

Function	34 403...	
Levelling accuracy: +/- 0.1 mm/m Laser wavelength: 635 nm Range (radius) with receiver: 150 m Battery life: approx. 120 hrs. Batteries (included): 3 x AA	030	



Laser rangefinder

Measuring with laser precision, compact dimensions, handy, powerful receiving optics, 1 mm display, measuring range from 0.2 up to 200 m, results in fractions of a second, non-contact, without anyone to help. "At the press of a button you can see **WHERE** you are measuring to".

Supplied in practical bag, incl. battery.

34 500 004: "A5"

The standard model Leica DISTO A5 has a convincing ergonomic shape and non-slip soft grip. With its unique endpiece, the numerous additional functions and built in telescope finder you are ideally prepared for all measuring situations. The most frequent measuring situations can be quickly and easily opened using direct buttons.

Product features:

- Ergonomic design with soft grip
- Integrated telescope finder with double magnification
- Fold out endpiece with automatic detection
- Volume calculations
- Indirect height / distance measurement
- Direct buttons



34 500 004

34 500 007: "A3"

the new Leica DISTO A3 is the smallest basic model which measures from 0.05 m up to 100 m and enables up to 10,000 measurements with one set of batteries.

- handy size
- Direct buttons
- continuous measurement
- integrated spirit level function
- illuminated display
- membrane keypad
- target aid

Product features:

- different measuring levels
- different units can be selected
- adjustable continuous laser
- area calculation
- light
- distance measuring time of 0.5 up to approx. 4 sec.



34 500 007

Measuring range m	Type	34 500...		Measuring accuracy ± mm
0.05 - 200	A5	004		2
0.05 - 100	A3	007		3

34 522 DLE 50 laser rangefinder

- The smallest laser rangefinder in the world
- Size: 100 x 58 x 32 mm
- Fits in a shirt pocket
- Precise measurement results for fast and precise working
- Measuring range indoors can be achieved without aids
- Tripod mounting
- Integrated measuring pin for corner and groove measurements
- Pythagoras calculations
- Switchover button for volume or indirect measurement

Scope of supply:

- Protective bag
- Holding strap
- 4 x 1.5 V (AAA) batteries



100 mm

Illustrated with actual size

34 522 001



Measure button

Switchover button for area, volume or indirect measurement

Memory addition

Memory subtraction

Delete button



On - Off button

Switchover button for continuous and length measurement

Reference location selection: whether to measure from the front edge, tripod connection, rear edge of measuring pin

Memory recall

Continuous pointer mode



Feeler mandrel: For corner measurements and small voids and intermediate spaces (roller shutter guide tracks, drill holes)

Measuring range	34 522...		Measuring accuracy typ. / max. mm	Measuring time min. / max. s	Weight g
m					
0.05 - 50	001		1.5 / 5	0.5 / 4	170

34 524 Laser rangefinder

- Simple and precise measuring of lengths, areas and volumes
- Range up to 150 m
- Precise to within a few millimetres
- Large number of practical functions
- Easy, self-explanatory use with clear display
- The universal endpiece can be used to take measurements from surfaces, from edges and out of corners
- Clamp on vial for easy, horizontal alignment
- 1/4" tripod mounting

...060:

- Bluetooth technology
- Easy installation of the included data transfer software

Scope of supply for all models:

- Protective bag
- Universal endpiece
- Compact endpiece
- Vial?
- 4 x 1.5 V batteries

...060:

- Software CD



34 524 006



34 524 060

with data transfer option

Measuring range m	34 524...		Measuring accuracy mm
0.3 - 150	006		+/- 2 (0.3 - 30m) +/- 3
0.3 - 150	060		+/- 2 (0.3 - 30m) +/- 3

34 601 DMF 10 Zoom metal detector

- **Maximum safety when drilling**
- Zoom function for even more precise localisation, therefore minimum incorrect drilling
- Not only detects metal but also wooden substructures as well as live and disconnected cables
- Size: 204 x 83 x 30 mm
- Shows voltage via a high-resolution 5 segment display
- Clear drilling recommendation by way of a red/green LED
- Power supply: 1 x 9-V-6LR61
- Easy marking of the drilling point using integrated marker pen
- Really easy to use with automatic calibration



34 601 001

Scope of supply:

- Protective bag
- 2 marker pens
- Batteries
- Instructions for use

Steel measuring depth max. mm	34 601...		Copper detection depth max. mm	Size mm	Weight g
100	001		80	204 x 83 x 30	240

34 602 D-tect 100 universal detector

- D-tect 100 wall scanner
- Maximum safety when drilling
- localises all iron and non-ferrous metals, electric cables, wood and even plastic
- Thanks to its unique technology, operates with maximum reliability
- Up to a maximum depth of 100 mm, e.g. reinforcement bars, copper pipes and plastic water pipes are precisely shown on the display with their respective allowable drilling depth
- identical results for repeat measurements
- Information on the allowable drilling depth of all localised objects
- Clear and easy to understand display
- Easy use due to logical assistance via the display
- Robust and stable design for use on the construction site

Also localises
wood and plastic

34 602 100

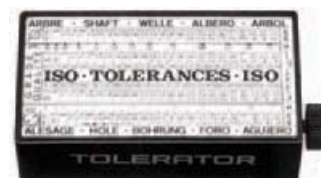
Scope of supply:

- Protective bag
- 4 x 1.5 V batteries

Measured depth, max. mm	34 602...		Size mm	Weight g
100	100		277 x 98 x 98	800

35 102 Tolerator tolerance indicator

for direct reading of all tolerance values according to the ISO recommendations, contains the complete list of all ISO tolerances used at home and abroad up to nominal size 500 mm = 6400 tolerance pairs, in dustproof plastic housing



35 102 001

35 102...		Size mm
001		60 x 30 x 110

35 104 Converter

for converting from inches into millimetres and vice versa.
In dustproof plastic housing



35 104 001

35 104...		Size mm
001		60 x 30 x 110

35 106 Filetor thread indicator

for direct reading of all details required to determine a thread with terminology in line with the standards - including tap hole diameter, in dustproof plastic housing

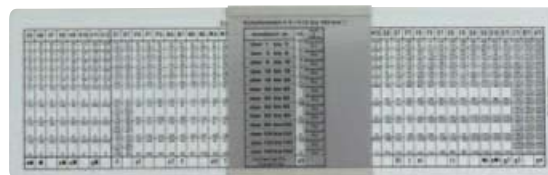


35 106 001

35 106...		Size mm
001		60 x 30 x 110

35 110 ISO Fit slider type hole gauge

for uniform drillholes and uniform shafts for diameters from 1 - 160 mm, tolerances H 6 - H 13 and h 5 - h 12



35 110 001

35 110...		Size mm
001		280 x 90

35 114 ISO slider type thread gauge

for metric thread, Whitworth thread, Whitworth pipe thread (BS pipe thread) and keyed joints, after setting the thread side the corresponding data can be read off in the window, the details of wrench sizes, key height and width, shaft diameter can be seen in the window



35 114 001

35 114...		Size mm
001		265 x 55

35 116 ISO slider type fine thread gauge

for metric ISO fine thread according to DIN 13, from M 1 - M 420, after setting the relevant data can be read off from the window

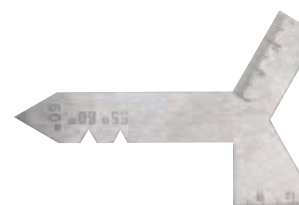


35 116 001

35 116...		Size mm
001		255 x 50

35 120 Universal grinding gauge

combines a twist drill grinding gauge 118°, screw cutting gauge, square and hexagon angles 55° and 60°, drill bit diameter up to 60 mm



35 120 001

35 120...		Size mm
001		

35 122 Twist drill grinding gauge

for twist drill bits with a point angle of 118°, up to 50 mm diameter

35 122...		Size mm
001		110 x 45



35 122 001

35 126 Twist drill grinding gauge

with pointer locking device, measuring range 30 - 160°, plate size 80 x 45 mm

35 126...		Size mm
001		80 x 45



35 126 001

35 130 Universal screw cutting gauge

for all flat and V-threads

35 130...		Size mm
001	2.93	60 x 25

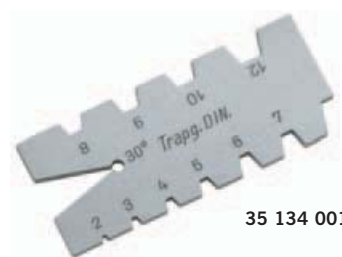


35 130 001

35 134 Trapezoidal (ACME) screw cutting gauge

for trapezoidal (ACME) thread to DIN 103 and pitches 2-12 mm, included angle of thread 30°

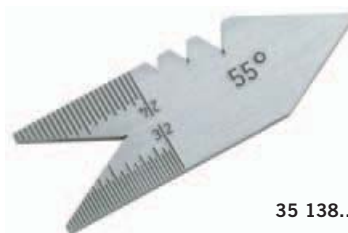
35 134...		Size mm
001		60 x 25



35 134 001

35 138 V-thread screw cutting gauge

Thread	35 138...		Size mm
Metric 60°	001		75 x 20
Whitworth 55°	002		75 x 25



35 138...

35 142 Screwpitch gauge sets

for outer and inner measurements

For thread type	35 142...		Number of blades	Pitch mm	Threads inch	Size mm
Metr. 60° / Whtw. 55°	001		52	0.25 - 6.0	62 - 4	65 / 20
Metr. 60°	002		24	0.25 - 6.0	-	65 / 10
Whtw. 55°	003		28	-	62 - 4	65 / 10
Whtw. - Pipe (BS) 55°	004		6	-	28 - 8	65 / 10
US thread 60° (UNC + UNF)	005		30	-	42 - 4	65 / 10



35 142...

35 148 Lathe tool and screw cutting gauges

with relief angle stop, an indispensable measuring device for correct grinding of the lathe tools and screw cutters, especially the relief angle which can be set or measured between 0 - 30° with the help of the limit stop

Relief angle	35 148...		Size mm
0 - 30°	001		85 x 40



35 148 001

35 152 Radius gauges

Concave and convex gauges with lock nut
...001 to ...003 made of ordinary strength steel
...101 to ...103 made of stainless steel

Radius measuring range mm	Standard strength steel 35 152...		Stainless steel 35 152...		Number of blades
1 - 7	001		101		17
7.5 - 15	002		102		16
15.5 - 25	003		103		15



35 152...

35 158 Feeler gauge set

Tapered blades, in plastic sheath
...001 to ...004 standard strength steel
...101 to ...103 stainless steel

Measuring range mm	Standard strength steel 35 158...		Stainless steel 35 158...		Number of blades	Size mm
0.05 - 0.5	001		101		8	100 x 14
0.05 - 1	002		102		13	105 x 15
0.05 - 1	003		103		20	105 x 15
0.1 - 2	004		-	-	20	105 x 25



35 158...

35 159 Feeler gauge set

made of ordinary strength steel, cylindrical, on a ring



...002

Measuring range mm	35 159...		Number of blades	Blade length mm
0.05 - 1	002		13	200
0.05 - 1	003		20	200

35 162 Feeler stock rolls

in dispenser cases with 5 m roll, stock width 13.0 mm, steel strip, spring tempered, highly polished, also for checking the clearance between shaft and bearing



35 162...

Thickness mm	35 162...	
0.01	001	
0.02	002	
0.03	003	
0.04	004	
0.05	005	
0.06	006	
0.07	007	
0.08	008	
0.09	009	
0.1	010	
0.15	015	

Thickness mm	35 162...	
0.2	020	
0.25	025	
0.3	030	
0.4	040	
0.5	050	
0.6	060	
0.7	070	
0.8	080	
0.9	090	
1	100	

35 164 Holder

for feeler stock Prod. No. 35 162... in separate pieces



35 164 001

For stock width mm	35 164...		Size mm
13.0	001		120 x 15

35 165 Set of feeler stock rolls

- 15 feeler stock rolls in wall-mounted holder with remover handle
- 13 mm wide x 5 m long
- 0.01 / 0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.10 / 0.12 / 0.15 / 0.18 / 0.20 / 0.25 mm thick



35 165 017

Wall-mounted holder L x B x H	35 165...	
340 x 95 x 110	017	

35 168 Metal foil rolls

in stackable plastic boxes, **contents 150 x 2500 mm**, for setting up tools, adjusting apparatus, balancing out tolerances, placing under jigs, aligning machines, setting up moulds/tools, adjusting bearing clearance, aligning workpieces, adjusting units, re-adjusting shearing blades



35 168...

Foil thickness mm	35 168... Brass MS 63		35 168... Steel, unalloyed		35 168... Steel, stainless	
0.025	001		101		201	
0.05	002		102		202	
0.075	003		103		203	
0.1	004		104		204	
0.15	005		105		205	
0.2	006		106		206	
0.25	007		107		207	
0.3	-	-	-	-	208	
0.5	010	-	-	-	210	

35 172 Precision nozzle gauges (hole gauges)

with hardened and ground, round measuring point, housing and protective sleeve nickel plated, taper of the measuring point 1 : 10, resolution 0.1 mm, resolution with Vernier scale 0.01 mm, in plastic sheath

Measuring range mm	35 172...		Length mm
0 - 3	001		170
0 - 5	002		170

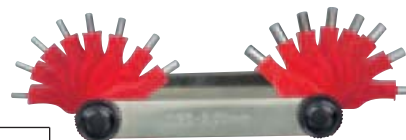


35 172...

35 176 Nozzle gauges

for checking all types of nozzles, the sizes are given on the narrow side of the plastic body

Measuring range mm	35 176...		Number of pins	Size mm
0.45 - 1.50	001		20	65 / 30
1.50 - 3.00	002		16	65 / 20



35 176...

35 180 Millimetre hole gauge

hardened and polished, with 100 holes

Measuring range mm	35 180...		Pitch mm	Size mm
0.1 - 10	001		0.1	190 x 75



35 180 001

35 182 Weld gauge

for measuring the flat welds and welds in corners, with 60°, 70°, 80° and 90° angles

Resolution mm	35 182...		Size mm
0.01	001		100 x 60



35 182 001

35 186 DBP weld gauge

made of stainless steel, for fast and easy checking of weld dimensions, easy to handle, measuring edges due to angle shrinkage are to a large extent excluded by one-sided support of the gauge

Resolution mm	35 186...		Size mm
0.01	001		110 x 80



35 186 001

35 188 Weld gauge

fan-type, with 12 blades for measuring the weld at right-angled welded corners

Weld thickness mm	35 188...		Size mm
3 - 12	001		80 x 45



35 188 001

36 101 Reversible plain plug gauges

the gauge bodies are hardened, stress-relieved, the go and no-go sides are made of hardened gauge steel

tolerance
H7

DIN
2245



36 101...

Nominal Ø mm	36 101...	
2	003	
2.5	006	
3	009	
3.5	012	
4	015	
5	018	
6	021	
6.5	024	
7	027	
8	030	
9	033	
10	036	
11	039	
12	042	
13	045	
14	048	
15	051	
16	054	
17	057	
18	060	
19	063	
20	066	
21	069	
22	072	
23	075	
24	078	
25	081	
26	084	

Nominal Ø mm	36 101...	
27	087	
28	090	
30	093	
32	096	
34	099	
35	102	
36	105	
38	108	
40	111	
42	114	
44	117	
45	120	
46	123	
48	126	
50	129	
52	132	
55	135	
60	138	
62	141	
65	144	
70	147	
72	150	
75	153	
80	156	
85	159	
90	162	
95	165	
100	168	

36 108 Precision pin gauge sets

- for toolmaking and jig & fixture construction
- Test gauges, wear-resistant hardened, tempered and finely ground to maximum shape accuracy
- **Accuracy grade d 2 = ± 0.002 mm**
- clearly stored in wooden box, with inscribed drill hole sizes
- Pin gauges are tested at a reference temperature of 20° and from 1.5 mm diameter are inscribed with the diameter size on the shank, from 3 mm diameter on the end face
- Overall length up to Ø0.99 mm 40 mm
> Ø1.00 mm 70 mm
- Other set compositions or greater accuracy available on request



36 108...

Measuring range Ø mm	36 108...		Increments of mm	Number of test gauges	Accuracy grade
1 - 5	001		0.1	41	2
0.5 - 5	003		0.05	91	2
1 - 10	005		0.1	91	2



36 109 Precision pin gauges, individual

Accuracy 2

from Ø 0.30 to 0.99 mm without facet

from Ø 1.00 to 10.00 with one facet

from Ø 10.01 to 10.00 with facet on both sides

When ordering:

Please quote product number + 4-digit diameter

e.g. Ø 6.05 mm = Order number 36109**0605**

e.g. Ø 11.22 mm = Order number 36109**1122**



36 109...

Ø mm	Pitch mm	Length mm
0.30 - 0.50	0.01	40
0.51 - 0.99	0.01	40
1.00 - 3.00	0.01	70
3.01 - 6.00	0.01	70
6.01 - 10.00	0.01	70
10.01 - 12.00	0.01	70
12.01 - 14.00	0.01	70
14.01 - 16.00	0.01	70
16.01 - 19.00	0.01	70
19.01 - 20.00	0.01	70

36 110 Pin gauge holder

Holds two test gauges within a tolerance zone (e.g. go and no-go size), better handling of the pin gauges, especially with small diameters

for pin gauges mm Ø	36 110...
1 to 2	002
2 to 4	004
4 to 6	006
6 to 8	008
8 to 10	010



36 110...

36 112 Setting rings

Ring gauges to DIN 2250 C. For general setting and test work on measuring instruments.

DIN
2250 C



36 112...



Nominal size mm	36 112...
4	004
5	005
6	006
7	007
8	008
9	009
10	010
11	011
12	012
13	013
14	014
15	015
16	016
17	017
18	018
19	019
20	020
22	022

Nominal size mm	36 112...
24	024
25	025
26	026
28	028
30	030
32	032
34	034
35	035
36	036
38	038
40	040
42	042
44	044
46	046
48	048
50	050
55	055
60	060

Nominal size mm	36 112...
65	065
70	070
75	075
80	080
85	085
90	090
95	095
100	100
125	125
175	175
225	225

Note:

Tolerance class 0:

As reference standard for checking work end measures and for setting length measuring equipment, as well as for exact test work in the test room.

Tolerance class 1:

For checking reference gauges, check gauges and setting length measuring equipment, as well as for precise test work in the test room.

Tolerance class 2:

especially as working gauges and setting gauges or for testing dead weight instruments, dial gauges and fixed gap gauges.



36 124 Screw plug gauges

Fit 6 H, for metric ISO coarse thread DIN 13, right-hand thread, with go and no-go sides

M

tolerance
6 H

36 124...



36 127...

36 126...

Nominal thread size	36 124... Plug gauges		36 126... Go ring		36 127... No-go ring	
M 3	030		030		030	
M 4	040		040		040	
M 5	050		050		050	
M 6	060		060		060	
M 8	080		080		080	
M 10	100		100		100	
M 12	120		120		120	
M 14	140		140		140	
M 16	160		160		160	
M 18	180		180		180	
M 20	200		200		200	
M 24	240		240		240	
M 27	270		270		270	
M 30	300		300		300	
M 33	330		-	-	-	-
M 36	360		360		360	
M 39	390		-	-	-	-
M 42	420		420		420	

36 132 Screw plug gauges

Fit 6 H, for metric fine thread DIN 13, right-hand thread, with go and no-go sides

MF

tolerance
6 H

36 132...

36 138 Go screw rings

Fit 6 g, for metric fine thread to DIN 13, right-hand thread



36 138...

Nominal thread size	36 132... Plug gauge		36 138... Go rings	
M 6 x 0.75	060		060	
M 8 x 0.5	080		080	
M 8 x 0.75	081		081	
M 8 x 1	082		082	
M 10 x 0.75	100		100	
M 10 x 1	101		101	
M 10 x 1.25	102		102	
M 12 x 1	120		120	
M 12 x 1.25	121		121	
M 12 x 1.5	122		122	
M 14 x 1	140		140	
M 14 x 1.25	141		141	
M 14 x 1.5	142		142	
M 16 x 1.5	161		160	
M 18 x 1.5	181		180	
M 20 x 1	200		200	
M 20 x 1.5	201		201	
M 22 x 1.5	220		220	
M 24 x 1.5	240		240	
M 24 x 2	241		241	
M 26 x 1.5	260		260	
M 27 x 1.5	270		270	
M 27 x 2	271		271	
M 28 x 1.5	280		280	
M 30 x 1	300		300	
M 30 x 1.5	301		301	
M 30 x 2	302		302	



36 202 Parallel gauge block sets made of steel



DIN EN
3650



Accuracy according to **DIN EN ISO 3650**

- made of high-quality, alloyed and wear-resistant special steel
- carefully hardened and stress-relieved with high age resistance
- the measuring surfaces are finely lap polished and are tested to state of the art, optical methods of measurement
- all gauge blocks are marked with their nominal size and accuracy grade
- the intended use determines the choice of tolerance class - see page 561
- Supplied in wooden box with labelling and test certificate from the manufacturer



36 202...

Number / set	36 202...		Tolerance class	Qty	Size / range mm	Increment mm
32	001 002 003		0	1	1.005	
			1	9	1.01 - 1.09	0.01
			2	9	1.1 - 1.9	0.1
				9	1 - 9	1
				3	10 - 30	10
47	004 005 006			1	50	
			0	1	1.005	
			1	19	1.01 - 1.19	0.01
			2	8	1.2 - 1.9	0.1
				10	1 - 10	1
87	007 008 009			9	20 - 100	10
			0	1	0.5	
			1	9	1.001 - 1.009	0.001
			2	50	1 - 1.49	0.01
				17	1.5 - 9.5	0.5
103	014 015 016			10	10 - 100	10
			0	1	1.005	
			1	49	1.010 - 1.490	0.010
			2	49	0.500 - 24.50	0.500
				4	25.000 - 100.00	25.00

36 210 Parallel gauge block sets made of steel



DIN EN
3650



Made of high-quality, special alloyed and stress-relieved special steel, highly stable and with a good wringability. Carefully heat treated and lap polished. Edges slightly bevelled. Each individual gauge block bears an identification number. Hardness of 800 HV (64 HRC), therefore extraordinarily wear resistant.

All gauge block sets are supplied with a factory test calibration certificate which documents traceability to national standards. In high-quality wooden box.



36 210...

Number / set	36 210...		Tolerance class	Qty	Size / range mm	Increment mm
32	001 002 003		0	1	1.005	
			1	9	1.01 - 1.09	0.01
			2	9	1.1 - 1.9	0.1
				9	1 - 9	1
				3	10 - 30	10
47	004 005 006			1	60	
			0	1	1.005	
			1	19	1.01 - 1.19	0.01
			2	8	1.2 - 1.9	0.1
				9	1 - 9	1
87	007 008 009			10	10 - 100	10
			0	1		
			1	1		
			2	9	1.001 - 1.009	0.001
				49	1.01 - 1.49	0.01
103	010 011 012			19	0.5 - 9.5	0.5
				10	10 - 100	10
			0	1	1.005	
			1	49	1.01 - 1.49	0.01
			2	49	0.5 - 24.5	0.5
				4	25 - 100	25



36 214 Angle gauge block set made of steel

for fast and reliable **checking of mitre and combination squares**
Accuracy according to **DIN EN ISO 3650**

- made of high-quality, alloyed and wear-resistant special steel
- carefully hardened and stress-relieved with high age resistance
- the measuring surfaces are finely lap polished and are tested to state of the art, optical methods of measurement
- all gauge blocks are marked with their nominal size and accuracy grade
- the intended use determines the choice of tolerance class - see page 561
- Tolerance class 1
- Supplied in wooden box



36 214 003

Nominal size	36 214...		Number in set
15°10'/30°20' 45°30'/50°00' 60°40'/75°50' 90°00'	003		7

36 215 Parallel gauge block set, long

- for settling larger measuring equipment
- Made of high-quality, special alloyed and stress-relieved special steel, highly stable and with good adhesive power.
- Carefully hardened and lap polished by hand.
- Tolerance class 1 - see page 561
- Supplied in wooden box



36 215...

Size mm	36 215...		Number in set
125 / 150 / 175 / 200 / 250 / 300 / 400 / 500	003		8

36 217 Individual parallel gauge blocks, steel

- high quality, special alloyed special steel.
- stress relieved, carefully hardened and with high stability

Accuracy grade 1: for checking gauges and setting measuring equipment

Cross-section of the individual parallel gauge blocks made of steel with
Nominal size of 0.5 to 10.0 mm = 30 x 9 mm
Nominal size of 10.5 to 100 mm = 35 x 9 mm



36 217...

36 220 Individual parallel gauge blocks, ceramic

- high-purity material
- considerably more wear resistant and lighter than steel
- 10 times longer durability
- anti-magnetic
- resistant against liquids such as oil, acids, alkaline solutions

Accuracy grade 0: for checking and setting measuring equipment with very high accuracy

Cross-section of the individual parallel gauge blocks made of ceramic with
Nominal size of 0.5 to 10.0 mm = 30 x 9 mm
Nominal size of 10.5 to 100 mm = 35 x 9 mm



36 220...

36 217 Individual parallel gauge blocks, steel

For details see left-hand page

36 220 Individual parallel gauge blocks, ceramic

For details see left-hand page

Nominal size mm	36 217... Steel		36 220... Ceramic	
0.5	001		001	
1	003		003	
1.001	005		005	
1.002	007		007	
1.003	009		009	
1.004	011		011	
1.005	013		013	
1.006	015		015	
1.007	017		017	
1.008	019		019	
1.009	021		021	
1.01	023		023	
1.02	025		025	
1.03	027		027	
1.04	029		029	
1.05	031		031	
1.06	033		033	
1.07	035		035	
1.08	037		037	
1.09	039		039	
1.1	041		041	
1.11	043		043	
1.12	045		045	
1.13	047		047	
1.14	049		049	
1.15	051		051	
1.16	053		053	
1.17	055		055	
1.18	057		057	
1.19	059		059	
1.2	061		061	
1.21	063		063	
1.22	065		065	
1.23	067		067	
1.24	069		069	
1.25	071		071	
1.26	073		073	
1.27	075		075	
1.28	077		077	
1.29	079		079	
1.3	081		081	
1.31	083		083	
1.32	085		085	
1.33	087		087	
1.34	089		089	
1.35	091		091	
1.36	093		093	
1.37	095		095	
1.38	097		097	
1.39	099		099	
1.4	101		101	
1.41	103		103	
1.42	105		105	
1.43	107		107	
1.44	109		109	
1.45	111		111	
1.46	113		113	
1.47	115		115	
1.48	117		117	
1.49	119		119	
1.5	121		121	
1.6	123		123	
1.7	125		125	
1.8	127		127	
1.9	129		129	
2	131		131	
2.5	133		133	
3	135		135	
3.5	137		137	

Nominal size mm	36 217... Steel		36 220... Ceramic	
4	139		139	
4.5	141		141	
5	143		143	
5.5	145		145	
6	147		147	
6.5	149		149	
7	151		151	
7.5	153		153	
8	155		155	
8.5	157		157	
9	159		159	
9.5	161		161	
10	163		163	
10.5	165		165	
11	167		167	
11.5	169		169	
12	171		171	
12.5	173		173	
13	175		175	
13.5	177		177	
14	179		179	
14.5	181		181	
15	183		183	
15.5	185		185	
16	187		187	
16.5	189		189	
17	191		191	
17.5	193		193	
18	195		195	
18.5	197		197	
19	199		199	
19.5	201		201	
20	203		203	
20.5	205		205	
21	207		207	
21.5	209		209	
22	211		211	
22.5	213		213	
23	215		215	
23.5	217		217	
24	219		219	
24.5	221		221	
25	223		223	
30	225		225	
40	227		227	
41.3	229		-	-
50	231		231	
60	233		233	
70	235		235	
75	237		237	
80	239		239	
90	241		241	
100	243		-	-
125	245		-	-
131.4	247		-	-
150	249		-	-
175	251		-	-
200	253		-	-
243.5	255		-	-
250	257		-	-
281.2	259		-	-
300	261		-	-
400	263		-	-
500	265		-	-
600	267		-	-
700	269		-	-
800	271		-	-
900	273		-	-
1000	275		-	-

36 221 Combined parallel gauge block sets

Steel and ceramic set composition, replaces frequently used steel gauge blocks with ceramic gauge blocks,
Set contents - gauge blocks made of ceramic:
1/1.5/2/3/4/5/10/20
Supplied in wooden box with factory calibration certificate

Mitutoyo

Steel and ceramic



Number/set	36 221...		Calibration/tolerance class
32	010		0
32	011		1
32	012		2
47	020		0
47	021		1
47	022		2



36 221 020

36 223 Ceramic parallel gauge block sets

Accuracy according to DIN EN ISO 3650 (replaces DIN 861)

- made of high-purity ceramic material
- considerably harder and durable for longer than steel
- anti-magnetic
- each gauge block has an identification (serial) number etched on it
- Supplied in wooden box

PrimatDIN EN
3650

36 223...

Number/set	36 223...		Tolerance class	Qty	Size / range mm	Increment mm
32	001 002		0 I	1	1.005	-
				9	1.01 - 1.09	0.01
				9	1.1 - 1.9	0.1
				9	1 - 9	1
				3	10 - 30	10
				1	50	-
47	004 005		0 I	1	1.005	-
				19	1.01 - 1.19	0.01
				8	1.2 - 1.9	0.1
				10	1 - 10	1
				9	20 - 100	10
87	007 008		0 I	1	0.5	-
				9	1.001 - 1.009	0.001
				50	1 - 1.49	0.01
				17	1.5 - 9.5	0.5
				10	10 - 100	10
103	014		0	1	1.005	-
				49	1.010 - 1.490	0.010
				49	0.500 - 24.50	0.500
				4	25.000 - 100.00	25.00

36 226 Parallel gauge block accessories set

for displaying cylindrical fit gauge blocks and direct transfer of measurements onto workpieces, etc., the accessories offer additional possible uses for the gauge blocks

Mitutoyo

36 226...

Contents Qty	36 226...	
14	140	
22	220	

36 228 Parallel gauge block accessories

Further gauge block accessories available on request

Mitutoyo



36 228...

Size mm	Designation	36 228...		36 226 140 consisting of qty	36 226 220 consisting of qty
15 - 60	Holder	001		1	-
5 - 100	Holder	002		1	1
15 - 160	Holder	003		1	1
50 - 250	Holder	004		1	1
35	Holder base	005		1	1
Radius 5	Half-round jaw	007		2	2
Radius 12	Half-round jaw	009		-	2
Radius 20	Half-round jaw	010		-	2

36 230 Inspection sets for callipers

for checking callipers up to 300 mm

- Test equipment guidelines VDI/VDE/DGQ/ 2618, Sheet 9.1
- Steel gauge blocks outer measurement
- Setting rings for inner measurement
- Supplied in wooden box with labelling

Gauge blocks mm	Setting rings Ø mm	36 230...		for callipers up to mm
30.0/41.3/131.4	4 / 25	001		200
41.3/131.4/243.5	4 / 25	002		300

36 233 Inspection set for external micrometers

Mitutoyo

Parallel gauge block sets with optical glass parallels, nominal size 12 mm, Ø 30 mm, for setting and calibrating callipers according to DIN 863, tolerance class 1

Precision: DIN EN ISO 3650, supplied in wooden box

DIN
863

36 233 001



Number per set	36 233...	
10	011	

36 240 Inspection sets for external micrometers

Primat

Parallel gauge block sets, nominal size 12 mm, Ø 30 mm, for setting and calibrating callipers according to DIN 863, tolerance class 1

Test equipment guidelines VDI/VDE/DGQ/ 2618, Sheet 10.1

Precision: DIN EN ISO 3650, supplied in wooden box with cover and lettering

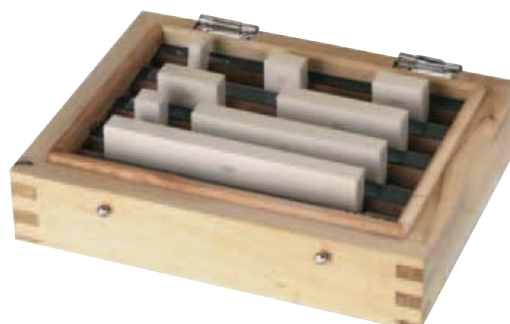
...001 to ...003 made of special steel

...011 made of ceramic with plane-parallel glass block Ø 30 mm x 12 mm

DIN EN
3650



36 240 003



36 240 011

Measuring range mm	36 240... Special steel		36 240... Ceramic		Length mm
5.1-25	001		011		5.1/10.3/15.0/20.2/25.0
5.1-100	003		-	-	5.1/10.3/15.0/20.2/25.0/50.0/75.0/100.0



36 300 Hand-held tally counter

with zero reset, each press of the button increases the counter by one, housing diameter 47 mm

Digit height mm	36 300...		Counting range
4.5	001		4-digit



36 300 001

36 303 Stroke counter

adds in a stroke direction to be specified (1 stroke = 1 number), the stroke lever can be adjusted on the shaft in any way required and automatically returns to the initial position, stroke movement: min. 38°, max. 60°, zero reset on both sides using removable cylindrical lock and key, base area 70 x 60 mm

Digit height mm	Stroke direction	36 303...		Counting range
4.5	away from viewer	001		6-digit
4.5	towards viewer	002		6-digit



36 303 001



36 303 002

36 306 Hand held rev counter

for measuring revolutions, with only one drive spindle for both rotational directions, zero reset by turning the knurled knob, including a rubber push-on sleeve, pointed

Digit height mm	36 306...		Counting range	Rotations per min. max.
4.5	001		4-digit	6000



36 306 001

36 313 Revolution measuring kit, digital

rotaro

for easy recording of rotational speeds and surface speeds in all types of machines, measurements can be taken either with no contact (optical with reflex mark) or directly (mechanical with adapter)

Technical data:

Measuring range: 0 - 99999 RPM optical, 0 - 19999 RPM mechanical
 Speed: 0.1 - 1.999 m/min, 0.0 - 33.3 m/s, 0.3 - 6.500 ft/min,
 0.0 - 108.3 ft/s, 4.00 - 78,000 in/min
 Lengths: 0.02 - 99,999 m, 0.01 - 99,999 ft, 1 - 99,999 in
 Precision: ± 1 dig. $\pm 0.02\%$ of the measured value
 Supply: 2 x type AA batteries - (rechargeable or disposable)
 Memory function: 4-fold max, min, current and \emptyset

Scope of supply:

Measuring device, adapter, prod, hollow cone, metering wheel, reflex marks, batteries, transport case, instructions for use, calibration certificate



Measuring range	36 313...		Dimensions mm
0 - 99999 RPM optical 0 - 19999 RPM mechanical	001		175 x 60 x 28

36 313 001

36 316 Summation stopwatch

ABS case, with attached hanging cord, the wind up mechanism of the shockproof pin anchor mechanism is located on the back



Graduation	36 316...		Display time	Case Ø
sec			min	mm
0.2	001		30	55



36 316 001

36 318 Crown button stopwatch

shockproof with diamond polished metal case with bow ring, single button operation, for all simple time measurements without interruption of the measuring processes, start, stop and reset



Graduation	36 318...		Display time	Housing Ø
sec			min	mm
0.1	001		15	55



36 318 001

36 320 Electronic stopwatch

with digital display, tried and tested industrial type with case made of ABS plastic, battery operated, LCD display, digit height 5.5 mm, direct stop using 1 button, with 3 individual time memories, total time memory of all individual times,

3 continuous time memories with end time,

Functions:

- Start, stop, reset,
- Addition with memory, continuous time with memory and end time,
- Individual time with memory and total time, target/allowed time
- "set": a time can be entered, started and stopped (counting upwards), the time visibly continues running after stopping individual or continuous times,
- including hanging cord
- protective bag and 1.5 V AA battery



36 320 001

Resolution min	36 320...		Display time min
0.01	001		99999.99

37 004 Jeweller's loupe eyeglass

With silicate lens, frame made of black plastic, with venting hole



Magnification	37 004...		Lens type	Lens Ø mm
5 - fold	005		biconvex	25
7 - fold	007		biconvex	25
10 - fold	010		biconvex	25
10 - fold	100		aplanatic	22.8



...005 bis ...010



37 004 100

37 006 Jeweller's precision oval folding loupe eyeglass

Precision folding loupe series with aplanatic optics, consisting of two plano-convex silicate lenses. Frame made of black plastic, casing made of highly polished stainless steel.

For suitable eyeglass pouches, see **Prod. No. 37 005...**



Magnification	37 006...		Lens type	Lens Ø mm	Pouch 37 005...	
8 - fold	008		plano-convex	22.8	023	
10 - fold	010		plano-convex	22.8	023	
12 - fold	012		plano-convex	22.8	023	
10 - fold	018		plano-convex	16.3	016	
20 - fold	020		plano-convex	16.3	016	
Optics as above; however, frame and casing made of robust, black plastic						
10 - fold	110		plano-convex	22.8	023	

Achromatic lenses available on request



...008 bis ...020



37 006 110

37 007 Jeweller's oval folding loupe eyeglass

with biconvex silicate lenses. Casing made of highly polished stainless steel.



Magnification	37 007...		Lens type	Lens Ø mm
3 - 6 - 9 - fold	009		biconvex	30
4 - 6 - 10 - fold	010		biconvex	30



37 007 009

37 008 Jeweller's oval folding loupe eyeglass

with 2 aplanatic lens systems of different strengths. Frame made of black plastic, casing made of highly polished and nickel plated brass with anti-tarnish protection.



Magnification	37 008...		Lens type	Lens Ø mm
6 - / 10 - fold	010		aplanatic	22.8



37 008 010

37 009 Jeweller's oval folding loupe eyeglass

with 2 plano-convex silicate lenses. The lenses can be used individually or combined as an aplanatic lens. Frame and casing made of robust, black plastic.

For suitable eyeglass pouches, see **Prod. No. 37 005...**



Magnification	37 009...		Lens type	Lens Ø mm	Pouch 37 005...	
3 - / 3 - fold	003		plano-convex	22.8	023	2.99
4 - / 6 - fold	004		plano-convex	22.8	023	2.99
10 - / 10 - fold	010		plano-convex	16.3	016	2.99



37 009...

37 010 Reading magnifying glasses

with biconvex (**Prod. No. 37 010 025** only) or aplanatic glass lenses. Highly polished nickel plated brass frame with anti-tarnish protection and black plastic shaped handle.



37 010 040

37 010 080

37 010 100

Magnification	37 010...		Lens type	Lens Ø mm
2.5 - fold	025		biconvex	65
as above; however, with 2 aplanatic lenses each				
4 - fold	040		aplanatic	65
2.5 - fold	080		aplanatic	90
2.5 - 5 - fold	100		bifocal	75/20

37 012 Hand-held magnifying glasses

Aplanatic silicate glass lenses for distortion-free images. Solvent resistant, all-metal frame and handle. Enables steady holding for precise viewing



All-metal design

37 012...

Magnification	37 012...		Lens type	Lens Ø mm
8 - fold	008		aplanatic	28
10 - fold	010		aplanatic	28
20 - fold	020		aplanatic	18

37 018 Engineer's magnifying glasses

Hand-held magnifying glasses with aplanatic silicate optics. Frame and handle made of robust, black plastic.



37 018...

Magnification	37 018...		Lens Ø mm
4 - fold	004		50
8 - fold	008		30
10 - fold	010		22.8
15 - fold	015		22.8

37 020 Stand and measuring magnifiers, loupe type

with lightweight lens. Round frame made of black plastic, transparent, round stand section. Diameter 70 mm, height 60 mm.



37 020 004

37 020 008

37 020 100

Magnification	37 020...		Lens type	Lens Ø mm
4 - fold	004		aspheric	60
as above; however, diameter 45 mm, height 50 mm, with exchangeable scales				
8 - fold	008			
as 37 020 008; however, measuring magnifier with removable measuring scale, graduation 0.1 mm, scale length 15 mm with 150 graduation marks.				
10 - fold	100		aplanatic	30

37 024 Peak head loupe magnifiers

- Binoculars with silicate optics
- White painted metal housing and lens holder lifts up.
- Fixed by a steel strap coated in plastic
- With easy to replace interchangeable optics
- Working distance of approx. 30 cm (1x) up to approx. 11 cm (3x)
- Also suitable for persons wearing spectacles
- Supplied complete with optics



37 024...

...120 to ...130

Magnification	37 024...	
2 -fold	020	
2.5-fold	025	
3 -fold	030	
Replacement silicate lenses for peak head loupe magnifiers 37 024...		
2 -fold	120	
2.5-fold	125	
3 -fold	130	

37 028 Illuminated loupe magnifiers

Glass optics, glass casing made of white polyethylene, with torch for 2 x 1.5 V batteries



Magnification	37 028...		Lens Ø mm
3,5 - fold	035		60
5 - fold	050		60
10 - fold	100		30



37 028...

37 030 Illuminated magnifier with LED

- with LED lighting and various glass lenses
- Lighting with high-performance LED luminous colour appearance approx. 6000 K
- Power supplied by 3 batteries type LR3-AAA 1.5 V included in the scope of delivery
- aspheric, aplanatic or bi-plane optics
- top imaging properties
- made of silicate glass (100% Made in Germany!)
- very good optical properties
- very high scratch resistance (especially when compared to plastic lenses!)

Lenses with very high scratch
resistance, made of silicate glass
100% Made in Germany

The illuminated magnifiers are coated with a special 2-component paint with the following outstanding properties:

- Resistant against perspiration on the hand
- Resistant against almost all chemicals
- very hard and smooth surface, therefore scratch-proof and easy to clean

Magnification	37 030...		Lens type	Lens Ø mm
4-fold	040		Glass / as	55
6-fold	060		Glass / ap	30
8-fold	080		Glass / ap	30
10-fold	100		Glass / ap	22.8
12-fold	120		Glass/bi-pl	16.3
15-fold	150		Glass/bi-pl	16.3



...040



...060



...120

37 038 Thread counter magnifier

precision magnifier, brass, matt chrome plated for suitable leather pouches, see **Prod. No. 37 039...**



37 038 060 - 37 038 120

37 038 008

Magnification	37 038...		Lens type	Lens Ø mm	Pouch 37 039...	
6-fold	060		biconvex	22.5	060	
8-fold	080		biconvex	17.5	080	
10-fold	100		biconvex	14.5	100	
12-fold	120		biconvex	12.5	120	
Type as above; however, with aplanatic precision silicate optics.						
Round cutout with measuring scale, graduation 0.1 mm, scale length 10 mm with 100 graduation marks.						
8-fold	008		aplanatic	16.3	080	



37 042 Micro-magnifier

with achromatic optics, matt black casing, fine adjustment using rotating ring, for detecting material defects

...006 Lighting unit = Stand with integrated pencil-type lamp, without micro-magnifier



37 042 002



37 042 006

Magnification	37 042...		Overall length mm
40 - 50 - 60 - fold	002		150
Lighting unit	006		-

37 048 Desk top magnifiers, unlit

- Nickel-plated brass frame, with ant-tarnish protection
- Base: black coated cast iron base, diameter 130 mm
- chrome-plated, flexible metal shaft, 300 mm



37 048 130



37 048 025 - ...040

Magnification	37 048...		Lens type	Lenses mm
2.5-fold	025		biconvex	Ø 100
3 -fold	030		biconvex	Ø 75
4 -fold	040		aplanatic	Ø 65
as above; however, with square lightweight lens				
3 -fold	130		aspheric	100 x 75

37 055 Desk top magnifiers, illuminated

- with biconvex silicate lenses
- Robust frame made of polyamide,
- 2 m connection cable, connected load 230 V
- with cover cap to protect against burning glass effect and heavy metal base, diameter 18 cm
- Shaft length 35 cm, lens Ø from 120 mm

Illumination types:

- 7 W cold light or
- 50 W halogen light - continuously adjustable using dimmer or
- incandescent lamp 60 W



37 055...

Magnification	37 055...		Lens type	Illumination type yes
2 - fold	002		biconvex	Energy-saving lamp 7 W
2 - fold	003		biconvex	Halogen lamp 50 W / 12 W
2 - fold	004		biconvex	incandescent lamp 60 W
Energy-saving lamp 7 W	008		suitable for Product No.: 37 055 002	

37 056 Desk top magnifiers, articulated, illuminated

High-intensity lighting with 13 W energy-saving lamp or 50 W halogen lighting with additional dimmer - thereby preventing glare. Tilttable magnifier head for oblique illumination which, due to the resulting shadow thrown, is very helpful e.g. for checking for cracks. Magnifier light with scratchproof glass lens open at the front enables a very comfortable working position. The field of vision is not confined by an edge on the magnifier field. This makes viewing "past the lens" (environment orientation) considerably easier.

- with biconvex silicate lens, 2-fold, Ø 120 mm
- Spring-balanced articulated arm 900 mm arm's length

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37 056...

Magnification	37 056...		Lens type	Illumination type with	Arm's length mm
2 - fold	012		biconvex	12 W energy-saving lamp	900
2 - fold	013		biconvex	50 W Halogen lamp	900

37 090 Cold light source

- high intensity cold light source, electronically controlled, therefore 30% increased luminous efficacy
- absolutely uniform illumination due to patented light guide
- stable, ergonomic casing with side filter insert
- Power consumption: 50 VA/240 V

Supplied without gooseneck light guide

Power W	37 090...		Illuminance Mlx
30	010		8



37 092 030 + ...050

37 092 Gooseneck light guide

for connecting to cold light sources

Active Ø mm	37 092...		Length mm
3.0	030		500
5.4	050		500

37 090 010



37 097 Stereomicroscope

Stand with column and fine adjustment on both sides, robust and stable

- Magnification 20x and 40x
- Display field D = 10 mm and 5 mm
- Prism head with 45° eyepiece tube, 360° rotatable
- Interocular distance can be adjusted between 51 and 75 mm
- Ocular tube with diopter compensation
- WF 10x eyepieces with eyecups
- Objective revolver with 2x and 4x objectives
- Reflected and transmitted light illumination 12 V/10W
- Working distance 55 mm
- max. object height 45 mm
- Glass and plastic plate black/white

	37 097...	
Microscope	010	
Eyepiece 15 x	015	
Eyepiece 20 x	020	
Eyepiece WF 10x (1 No.)	030	
with graticule, scale interval 0.05 / 0.025 mm		



37 097...

37 100 Stereo zoom microscope

Stereomicroscopes give a spatial image of an object and can be used with reflected or transmittent light illumination. The large field of vision together with favourable magnification at a large working distance and large depth of focus make this stereomicroscope a versatile instrument.

- Binocular prism head with 45° inclined eyepiece tube, 360° rotatable
- Ocular tube with diopter compensation
- controllable halogen reflected and transmittent light illumination 12 V / 15 W
- Glass plate and plastic plate black/white, stand 26 x 20 x 6 cm with Ø= 30 mm column and fine adjustment on both sides
- + electric lamps



37 100 010

Working distance mm	37 100...		Binocular	Inclined tube	Interocular distance max. mm	Object height mm	Eyepieces	Magnification
105	010		45°	360° rotation	51 - 75 adjustable	75	WF 10x with eyecups	7x to 45x

37 120 Stereo microscope

- Bright, sharp three-dimensional images are produced with high resolution and excellent colour fidelity. This minimises tiredness of the eyes and therefore increases effectiveness and productivity.
- Depending on the unit type, the magnification can be adjusted to the respective requirements using a user-friendly magnification changer.
- Focussing by means of ergonomically shaped handwheels. These are positioned on both sides of the microscope, making it easy to use for both left-handed and right-handed persons
- Digital cameras or CCD video cameras can be attached to document or archive images. They also enable simultaneous examination of the object using various media.
- Optional: with separate camera output
- Objective revolver for 6x, 12x, 25x and 50x magnification
- The microscope is ideally suited for reflected light examination within the named magnification ranges.
- + electric lamps

Mitutoyo



37 120 010

Working distance mm	37 120...		Binocular	Height-adjustable range	Interocular distance max. mm	Weight kg	Eyepieces	Magnification
89	010		45°	50 mm	54 - 76 adjustable	6.3	WF 10x with eyecups	6x to 50x

37 125 Ring light for stereo microscope

adjustable, the LED ring light provides additional, intensive light illumination. This type of light source prevents chromatic aberrations in the display caused by the luminous colour. Through annular arrangement of the light source around the objective, uniform illumination of the object is achieved without casting spurious shadows



37 125 009

Designation	37 125...	
Ring light*	009	

37 130 “TM-505” measuring microscope

Robust microscope designed for use in workshops. Thanks to its compact design it is especially suitable for use in workshop conditions. Due to the ability to upgrade with DIGIMATIC micrometers, a digital microscope camera and a QM-Data 200 data process the instrument offers powerful analysis and documentation options. Clamping features provided by T-slots in the stage

Scope of supply:

Reflected and transmitted light illumination
Total magnification 30x (2x objective and 15x eyepiece)
X-Y coordinate stage 50 x 50 mm

For suitable micrometers, see **Prod. No. 31 148...**

Fig. shows TM-505 microscope equipped with two micrometers (164 - 161). These are not included in the scope of supply.



37 130...

Total magnification	37 130...		X-y coordinate stage mm
30x (2x objective and 15x eyepiece)	010		50 x 50

37 260 “PJ-A3000” measuring projectors

Space-saving and user-friendly table-top projector with integrated digital X-Y display, as well as digital angle display in degrees or decimal. Ergonomically perfected fast and fine adjustment of the stage

- Dimensions (HxLxB) 1080 x 760 x 550 mm
- Rotating screen diameter 315 mm
- 10-fold precision projection lens
- Digital display for the x and y axis
- Adjustable digital readout protractor displays: degrees and decimal
- Incremental value 0.001 mm

Optional accessories:

(see table of accessories 37 260...)



37 260...

Model	37 260...		Measuring range x/y axis
PJ-A3005	015		150 x 50 mm
PJ-A3010	020		200 x 100 mm

37 260 Accessories for "PJ-A3000" measuring projectors

	37 260...	
Projection lenses		
10 x	100	
20 x	102	
50 x	105	
100 x	110	
Holder with clamp		
Max. workpiece height 35 mm, T-slot length 152 mm, hole spacing 84 mm and 120 mm	140	
Centre support, swivelling/tiltable		
for checking centred workpieces. Max. workpiece size 80 Ø x 140 mm Angle adjustment $\pm 10^\circ$ Scale graduation 1°	150	
Adapter plates		
for fixing the rotary table, holder with clamp and centre support (PJ-A3010 F-200)	160	
Horizontal V-block with clamp		
for clamping workpieces up to 25 mm Ø Dimensions 90 x 65 x 100 mm	170	

Mitutoyo



37 270 QM-Data 200 data processor

The QM-Data 200 data processor is used to process the data of a measuring instrument, e.g. a profile projector or a measuring microscope and linking them to form geometric elements

- Graphic display
- Clear and easy to understand
- Measured results can be output on a document printer, thermal printer, page printer or a continuous printer
- Multilingual user prompting
- For measuring geometric elements

Mitutoyo



Type	37 270...	
Table-top version	010	
Built-on version	011	

Please request further documents

37 272 "OPTOEYE 200" edge sensor

- for measuring projectors, only in conjunction with the QM-Data 200 data processor (37 270...)
- reduces human influence during a measurement by way of automatic edge detection
- Angle characteristics: without detection directivity
- Minimum Ø of the image: 2 mm on the screen
- Minimum width of the image: 1 mm on the screen

Mitutoyo



Repeatability	37 272...		Brightness Lux	max. edgespeed on the screen
s = 1 µm	010		30 to 500	1000 mm/s



37 302 Humidity / temperature measuring device (625)

incl. plug-in humidity sensor head, battery and calibration record

Compact device with integrated humidity sensor head for measuring air humidity and temperature. The large two line display shows humidity, wet-bulb temperature or dew point as well as temperature. The humidity sensor head can easily be removed and plugged onto the handpiece with sensor cable (accessories) for measurements in difficult to access places. Alternatively the measured values can be transmitted wirelessly over large distances from the sensor to the measuring device. To this end the humidity sensor head is plugged into the radio handpiece (accessories) and the testo 625 is supplemented with the radio module (accessories).

- Display of temperature and relative humidity / wet-bulb temperature / dew point
- Max/Min value
- Hold button to freeze the measured value
- Display illumination
- Auto-Off function
- TopSafe, the indestructible protective case, optional
- Patented humidity sensor
- 2 year guaranteed long-term stability



37 302 001

Measuring range	37 302...		Accuracy	Resolution	Operating life	Size
°C				°C	h	mm
-200 ... +1370	001		±2.5 %rF	0.1	70	182 x 64 x 40

37 306 Single channel temperature measuring device (925)



- Optimum radio sensor
- an acoustic alarm is emitted if the limit value is exceeded
- In-situ printout with Testo log printer (optional)
- Continuous display of the max/min values
- Hold button to freeze the measured value
- TopSafe, indestructible case, protects against dirt and impact (optional) 37 309 082
- Display illumination



37 306 002

Measuring range	37 306...		Accuracy	Resolution	Operating life	Size
°C					h	mm
-50 to +1000	002		± (0.5 °C +0.3% of rdg.) (-40 to +900 °C) ± (0.7 °C +0.5% of rdg.)	0.1 °C (-50 to +199.9 °C)	200	182 x 64 x 40



37 309 Accessories

for temperature measuring devices and endoscopes

Note: Most accessories are also compatible with older temperature measuring devices



Accessories	37 309...		suitable for (Testo)					Type
			37 302... (625)*	37 306... (925)	37 310 002 (830)	37 314... (845)	37 320... (913)	
Top-Save	082		•	•				protects against dirt and impact
Radio module	085		•	•				for measuring device, radio frequency 869.85 MHz FSK
Radio handpiece	087		•	•				for plug-in sensor heads, incl. TE adapter
Surface sensor	089		•	•				for surface measurement, can be plugged into the radio handpiece, TE Type K 38 309 087
Air, immersion, penetration sensor	091		•	•				for air/immersion, penetration measurement, can be plugged into the radio handpiece, TE Type K 38 309 087
Surface sensor	022		•	•	•	•		with handpiece and cable with spring thermal element, also for uneven surfaces
Surface sensor	113		•	•	•	•		angular, with handpiece and cable with spring thermal element, also for uneven surfaces
Immersion, penetration sensor	032		•	•	•	•		with handpiece and cable, watertight, TE Type K
Air sensor	119		•	•	•	•		with handpiece and cable, robust design, TE Type K
Surface sensor bent by 90°	122		•	•	•	•		with handpiece and cable, watertight, widened sensor tip for flat surface
Humidity module	125					•		can be retrofitted to testo 845
Plug-in power supply unit	128					•		5 VDC 500 mA with Euro plug
Log printer	134			•		•		with cordless IRDA. and infrared interface, 1 roll thermal paper and 4 mignon (AA) batteries
Gooseneck tube	150						•	push-on and flexible
Magnetic attachment	153						•	push-on
Reflector attachment	156						•	45° angle
Decabon tube	159						•	
Case	161						•	for endoscope, gooseneck tube, reflector and magnetic attachment, protects against impact and dirt

* 37 302... (625), accessories can only be used in conjunction with radio handpiece ...087.



Fig. shows radio handpiece incl. thermal element (TE)

37 310 Infrared thermometer (830)

- for non-contact measurements
- Fast recording of readings
- Measuring dot marking with laser beam
- Adjustable alarm limit values
- Acoustic and optical alarm if limit value exceeded
- Good handling due to "handgun design"
- Illuminated display
- Adjustable emission factor (0.2 ... 1.0)

...001:

with 1-point laser measuring dot marking

...002:

with 2-point measuring dot marking and option to connect external sensors

Further accessories are given under 37 309...



37 310 001



37 310 002

External sensors can also be connected see 37 309...

Measuring range °C	37 310...		Accuracy	Resolution °C	Operating life h	Size mm
-30 bis +400	001		± 1.5 °C or 1.5% of rdg (0.1 - 400 °C) ± 2 °C or 2% of rdg (-30 - 0 °C)	0.5	15	190 x 75 x 38
-30 bis +400	002		± 1.5 °C or 1.5% of rdg (0.1 - 400 °C) ± 2 °C or 2% of rdg (-30 - 0 °C)	0.5	15	190 x 75 x 38

37 314 Infrared thermometer (845)

combines unit 37 310... with cross laser marking (incl. humidity module only ...002), optics can be switched for far field and sharp point measurement, contact temperature sensor can be connected, optical/acoustic alarm, measured value memory, PC software incl. USB data transfer cable, aluminium case, battery and calibration record

- Optics can be switched between measurements in far field (75:1) and in sharp point (1 mm, distance 70 mm)
- Particularly bright cross laser marking for displaying the real measuring dot
- (Integrated humidity module ...002 only) for measurement of the air humidity and for determining the dew point difference
- Reference accuracy ±0.75 °C with extra fast measuring technology (scanning 100 ms)
- Illuminated display (3-lines) with display of °C, %rF, °C td, min/max values, alarm limit values and emissivity
- Optical and acoustic alarm if limit value exceeded
- Sensor input for TE sensor for determination of emissivity
- Unit memory for 90 measurement logs
- PC software for archiving and documenting the measured data (included in the scope of delivery)
- Bracket for stand for online measurement via USB cable (included in the scope of delivery)
- In-situ measured data documentation with Testo log printer (accessories)



37 314...

Further accessories are given under 37 309...

...002:

incl. humidity module

Measuring range °C	37 314...		Accuracy	Resolution °C	Operating life h	Size mm
-35 to +950	001		±2.5 °C (-35 ... -20.1 °C), ±1.5 °C (-20 ... +19.9 °C), ±0.75 °C (+20 ... +99.9 °C), ±0.75% of rdg (+100 ... +950 °C),	0.1	25	155 x 58 x 195
-35 to +950	002		±2.5 °C (-35 ... -20.1 °C), ±1.5 °C (-20 ... +19.9 °C), ±0.75 °C (+20 ... +99.9 °C), ±0.75% of rdg (+100 ... +950 °C),	0.1	25	155 x 58 x 195



37 320 Flexible endoscope (319)

made of glass fibre, enables simple visual inspections in hard to access places, e.g. in air conditioning ducts, ventilation and heating systems. Diagnoses such as corrosion, attrition, condition of welds, loose parts and many more can therefore be easily made without time-consuming or expensive dismantling. This saves time and high repair costs!

Light source: LED two-point lighting

Probe resistance: Probe tip watertight up to handpiece handle, short-term resistance to silicone oils, benzene and kerosene. Oils and benzene must be wiped off immediately after immersion!

...001:

Endoscope set consisting of testo endoscope 319, gooseneck tube, magnetic and reflector attachment, case

...002:

Endoscope

Further accessories are given under 37 309...



...002



...001

Field of vision angle	37 320...		Working temperature Probe	Probe Ø mm	Probe length mm	max. bending radius mm	Battery type
45° +/- 5°	001		-20° to + 80 °C	6.5	1247 +/- 6	50	3 AA mignon 1.5 V
45° +/- 5°	002		-20° to + 80 °C	6.5	1247 +/- 6	50	3 AA mignon 1.5 V

37 400 Coating thickness gauges

KARL DEUTSCH

quickly and reliably measures coats of paint, varnish, enamel, plastic, rubber, ceramic, insulations as well as electroplating on iron, steel or non-magnetic metals

- Large digits for easy to read measured values
- With the click of a button the large display can be rotated for overhead measurements
- Large language selection: German, English, French, Spanish, Italian, Swedish, Polish, Portuguese, Czech, Rumanian. Other languages on request.
- Large comfortable illuminated display
- Clear understandable operating instructions via the display, just like a mobile phone
- Easy menu design with 4 keys (membrane keyboard)
- 100 hours operation, battery state display in 4 levels
- Units of measurement can be switched between µm, mm, mils, inch
- Convenient one-hand operation
- The integrated, spring-mounted measuring probe generates a constant setting pressure
- switching on and measuring: calibrated ex factory
- Zero and foil/film calibration with formation of mean is possible
- Reliable values in less than one second
- Weight: 70g / Dimensions: 46 mm x 95 mm x 16 mm
- Power supply: 1 x 1.5 V (Type Micro, AAA, LR03)
- Measuring uncertainty:
 - for coats < 100 µm: 1% ± 1.5 µm
 - for coats < 100 µm: 1-3% ± 1 µm
- Software extension "Statistics & Data Storage" available on request

Supplied: Device with integrated NFe and/or Fe probe, battery, calibration foils, calibration blocks, instructions for use, quality test certificate, transport case

...017: Type NFe - For non electrically conductive coats on conductive substrate (aluminium, copper, brass)

...020: Type Fe - For non-magnetic coats on ferromagnetic substrate (iron, steel)

...025: Type Fe/NFe - combination probe automatically detects the substrate



37 400...



Measuring principle	37 400...	
Eddy current	018	
magneto-inductive	021	
Magneto-inductive/Eddy current	026	



Leptoscopes

are tried and tested coating thickness measuring devices for non-destructive measurement of coatings on metals based on the magnetic (magneto-inductive) method (DIN EN ISO 2178) and the Eddy current method (DIN EN ISO 2360).

Application of the measuring methods:

For all non-magnetic coatings on (ferro-) magnetic substrate

(Fe): magneto-inductive method

Example: Varnish, paint, powder paint, enamel, plastic, zinc, chrome, copper on iron and steel

For all non-conductive coatings on (electrically) conductive substrate (Fe): Eddy current method

Example: Varnish, paint, powder paint, eloxal, plastic on all NE- (non-ferrous) metals such as aluminium, copper, brass

37 405 Coating thickness gauges KARL DEUTSCH "Leptoscope Set"

The convenient coating thickness measuring device with large data storage and large illuminated reading display.

- Large choice of plug-in probes
- Automatic identification of each probe
- Statistical evaluation of the measurement results
- In-situ coating thickness / arithmetic mean (DIN EN ISO 2064)
- immediately ready for measurements even without calibration
- Two-point calibration possible
- Limit value monitoring
- Energy saving function (standby)
- Measured value memory - can be freely grouped together - for 7700 readings
- Online statistics in the display
- Menu-prompted easy use
- Adjustment to coatings of unknown thickness also possible
- Data interface with PC or printer
- Instructions for use
- CE mark

Technical data:

Power supply: 2 x 1.5 V, 2 x 1.2 V rechargeable LR6 Mignon AA

Battery life: 26 h

Measuring range (selectable): 0 - 20 mm / 800 mil probe spec.

Measuring uncertainty:

for coats < 100 µm: +/- 1 µm

for coats > 100 µm: 1 - 3% +/- 1 µm

Two-terminal probe and single terminal probe 20 mm:

for coats > 500 µm: 1.3% +/- 10 µm

for coats > 1000 µm: 1.3% +/- 10 µm

Dimensions L x B x D: 151 x 83 x 35 mm

Measuring principle probe specific	37 405...	
Magneto-inductive/Eddy current	041	



37 405...

37 410 Wall thickness gauges KARL DEUTSCH "Echometer"

- For measuring wall thicknesses
- Batteries (for over 200 hours' continuous operation)
- Transport case with moulded foam part
- Instructions for use
- 100 ml ECHOTRACE coupling agent
- Integrated calibration standard
- CE mark
- Measuring range 0.7 - 400 mm steel (depending on the probe selected, microstructure, shape and surface of the measured object)
- Selectable units mm / inch
- Selectable resolution (0.1 or 0.01)
- Adjustment even if sound velocity unknown (Range 300 - 19999 m/s)
- Limit value display with alarm mode
- Automatic switching off with storage of all parameters
- Automatic probe identification
- Supplied without probe

37 410...	
073	



37 410...

37 414 Standard probe

incl. 1 m cable, Lemo 00 plug DSE 10.4/6 PB 4 for Echometer 37 410...

Measuring range mm	37 414...	
1.2 - 250	004	



37 414...

Other probes for other measuring ranges available on request!

37 700 Surface roughness testers "Surftest SJ-201 P and SJ-301"

Mitutoyo

Portable, therefore suitable for measurements even on hard to access workpieces. The drive unit can be removed from the display unit for this purpose. Easy to read display with large digits.

Measuring range:	Z axis: 350 μ m X axis: 12.5 mm
Drive unit:	
Speed	Measurement: 0.25 mm/s; 0.5 mm/s Return: 0.8 mm/s
Cable length	1 m
Weight	190 g

Standard detector (178-395):

Detection method	Induction method
Measuring range	350 μ m
Stylus material	Diamond tip
Tip radius	2 μ m
Measuring skid radius	40 mm
Measuring / touch force	0.75 mN
Weight	18 g

Display unit:

Profiles:	Primary profile (P), roughness profile (R), DIN 4776
Parameters:	Ra, Ry, Rz, Rt, Rp, Sm, S, Pc, R3z, mr, A1, A2, Rq, Rk, Rpk, Rvk, Mr 1, Mr 2, Vo
Roughness standards:	DIN, ISO, ANSI,
Sampling lengths (L):	0.25 mm, 0.8 mm, 2.5 mm
Cut-off length:	Lc: 0.25 mm, 0.8 mm, 2.5 mm Ls: 2.5 μ m, 8 μ m
Number of individual lengths (samples):	x 1, x 3, x 5, x L
Filters:	2CR-75%, 2CR-75% (phase corrected), Gaussian
Display range:	Ra, Rq: 0.01 μ m ~ 100 μ m Ry, Rz, Rt, R3z, Rvk, Rpk, Rk, Rp: 0.02 μ m ~ 350 μ m Vo: 0.000 ~ 10.00 (mm Δ /cm ²) S, Sm: 2 μ m ~ 4000 μ m Pc: 2.5/cm ~ 5000/cm Mr 1, Mr 2: 0 ~ 100% mr: 1 ~ 100 %

Printer:	Optional
Go / no-go judgement:	lower / upper Tolerance
Auto sleep (auto shutting off):	Automatically after 30 seconds
Calibration:	Automatic calibration by entering the values and measurement of the surface texture standard included in the scope of delivery
Power supply:	Via mains adapter or integrated rechargeable batteries
Rechargeable battery:	Charging time: 12 hours (sufficient for 500 measurements)
Data output / input:	RS-232 C interface for output/input, DIGIMATIC data output
Weight:	approx. 290 g

Additional features (37 700 030)

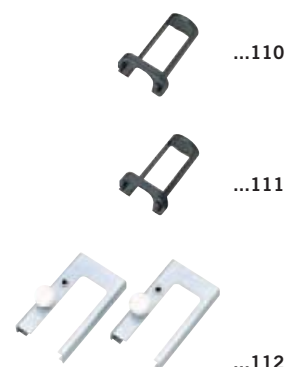
Drive unit speed:	Return 1.0 mm/s
Profile:	MOTIF
Parameters:	Rq, Rv Lo, Ppi, R, Ar, Ax
Analysis method:	BAC 1, BAC 2, ADC, profile curves
Cut-off length:	Lc: 0.08 mm, 8 mm, Ls: 25 μ m Thermal printer with a printing width of 48 mm 15 hrs. rechargeable battery charging time for approx. 600 measurements without use of the printer Data output Compact-Flash card,
Weight:	approx. 1200 g



37 700 020



37 700 030



...110

...111

...112

Type	37 700...	
SJ-201 P	020	
Sj-301	030	
Skid for cylindrical workpieces	110	
Skid for flat workpieces	111	
Feet (pair) for height adjustment	112	



37 720 Surface comparators (replica plates)

for use in visual and tactile comparison with the fingernail for machining (cutting, chip removal) production methods, including artificial leather case and table. The visual-tactile comparators are rustproof and wearproof.



37 720 001

Number of comparative values	37 720...		Comparison range	Comparator plate size
			Ra μm	mm
27	001		0.05 - 12.5	120 x 90

38 070 ND 780 digital readout / position indicators

Numerical position indicator for milling, lathing and general applications

Axes: Configurable for 2 and 3 axes

Measuring device inputs: 1Vss and 11 μ Ass

Connections 15 pin Sub - D

Display: Graphic LCD display 5.7" (monochrome)

Functions:

Milling:

Tool radius correction

Hole circle, circle segment, row of hole with graphic display

setting up functions "edge", "centre line" and "circle centre" with the edge probe

Lathing:

Radius/ diameter display

Freezing of the tool position during tool recovery

Setting up function for determination of reference point with the tool

General:

10 reference points

16 tools

Distance to go display

Size factor

Data interface RS-232/V.24

Linear and non-linear machine error compensation

tion

Network interconnection

Accessories included in scope of supply:



38 070...

Type	38 070...		Version for
ND 780	078		Milling machines, drills, Lathes and universal use

To equip your machine tool with a complete digital display you will require:

- 1 counter
- one scale per axis
- one scale - counter connection cable per axis
- Add-on kit suitable for machine

We will be pleased to provide you with an appropriate quotation. Please contact our specialist consultant in the machines department.

38 010 Digital readouts / position indicators

for measuring traversed distances in machine tools. With many additional functions, e.g. zeroing the axes, switchover between mm / inch, data storage, hold function, and many more.

Technical properties:

Resolution up to 0.005 mm possible

Preselection of traversed distances

Correction of the tool radius

Measurement in absolute and incremental dimension

Type	38 010...		Version for
NV 300 T	011		Lathes
NV 300 M	012		Milling machines

To equip your machine tool with a complete digital display you will require:

- 1 counter
- one scale per axis
- one scale - counter connection cable per axis
- Add-on kit suitable for machine

We will be pleased to provide you with an appropriate quotation. Please contact our specialist consultant in the machines department.



38 010...

38 040 Digital readouts / position indicators



for retrofitting machine tools

- Number of axis displays 1, 2 or 3
- Adjustable axis designation
- Can be switched between lathe and milling machine
- Hole circle, circle segment, rectangular hole pattern
- Reference point function (quasi-absolute)
- Actual value memory for axis displays
- Absolute/Incremental value display
- Centring
- Can set either "round" or "linear axis"

Type	Number of axis displays	38 040...
Z 710	1	010
Z 720	2	020
Z 730	3	030



38 040 030

38 041 Digital readouts / position indicators

as 38 040...; however, in addition with

- 99 tool correction memory
- 99 reference points
- Linear correction programmable for all axes
- Non-linear axis error correction (100 correction points)
- Remaining distance display
- Feed display
- Taper calculator
- Display of the spindle speed

Type	Number of axis displays	38 041...
Z 715	1	015
Z 725	2	025
Z 735	3	035
can be used for		
Z 735S	Grinders	060
Z 735E	Erosion machines/EDMs	070
Option1 RS 232 interface, 8 relay outputs, edge tracer input		
Option 2 Option 1 + analog output for CCS function (not for Z715)		100
		102



38 041 035

To equip your machine tool with a complete digital display you will require:

- 1 counter
- one scale per axis
- one scale - counter connection cable per axis
- Add-on kit suitable for machine

We will be pleased to provide you with an appropriate quotation. Please contact our specialist consultant in the machines department.

38 410 DIGIMATIC mini processor

The DP-1 VR is a statistical printer for all Mitutoyo handheld measuring instruments with data output. For example, it can be used to print out the recorded values of Vernier callipers, external micrometers and other small measuring instruments which have a DIGIMATIC data output and to perform statistical calculations. The thermal printer, conveniently started at the press of a button, works fast and quietly and the good paper quality is suitable for long-term storage. If necessary, the recorded data can be transferred to a computer via an RS-232 C interface cable.

- Easy print function
- Clear, legible large characters
- Time-dependent reading in of the measured data (clock function)
- Up to 9999 data records can be recorded.

Model	DP-1 VR
Printing method	Thermal document printer
Print resolution	384 dots (8 dots per mm)
Printing speed	6.5 mm/s (if the mains adapter is used)
Paper supply	48 m per roll
Printing capacity	approx. 6,500 lines of printout if large characters, approx. 12,000 lines of small characters
Editing capacity	Mode 1 / 2 / 3: 9,999 data entries Mode 0: 100,000 data entries
Printable data	Measured values; go / no-go values, number of data entries, maximum / minimum value, range; mean value, standard deviation, number of rejects; percentage rejects, process capability index, histogram, Xd control card, action limits; date and time
Output functions	Measured values via RS-232 C interface or go / no-go evaluation
Input intervals	0.25 s; 1 s; 5 s; 30 s; 1min; 30 min; 60 min
Power supply	6 V mains adapter (not compatible with predecessor model (DP-1 HS)) Battery operation: LR6 or NI-MH batteries (rechargeable, 4 AA batteries)
Battery life	10 years for clock cell; 10,000 printed lines if NI-MH batteries used (rechargeable)

Printer paper (1 roll) Prod. No. 38 410 120

38 410...	
020	
Printer paper	
120	

Mitutoyo



38 410 020

**38 420 DIGIMATIC transmitter DMX 1-3**

The DIGIMATIC DMX transmitters (interfaces) are automatic measuring point switches (measurement converters) which convert the DIGIMATIC signals into RS-232 C format. These units are used as an interface between the Mitutoyo DIGIMATIC measuring instruments and PC and therefore enable comprehensive analysis of the measured data.

- high processing speed
- low power demand
- RS-232 C interface
- Transfer rate: 9600 baud
- Data bits: 8
- Stop bits: 1
- Parity: none

DMX 1 for connecting one measuring device
DMX 2 for connecting two measuring devices
DMX 3 for connecting three measuring devices

Mitutoyo



...013



...011

Type	Data output	Number of inputs	38 420...	
DMX-1	(D-SUB 9) RS-232 C	1	011	
DMX-2	(D-SUB 25) RS-232 C	2	012	
DMX-3	(D-SUB 9) RS-232 C	3	013	



38 420 DMX-3T/FS USB keyboard interface

The measurement converter enables three "DIGIMATIC" measuring devices to be connected to the keyboard interface of an IBM compatible PC. This provides an interface for applications which merely enable manual input of measured values (e.g. spreadsheets, text programs). The user then only has to start transfer of the measured values. In the DMX-3T/FS USB the measured values are triggered by a foot-operated switch.

The foot operated switch is available as an optional accessory
Prod. No. 38 420 050



38 420 022

Type		Data output	Number of inputs	38 420...	
DMX-3T/FS USB	Keyboard interface	USB keyboard/PS2 keyboard	3	022	
	Foot-operated switch	-	-	050	

64 866 Batteries

for digital measuring devices. The number of the battery required must be stated for the digital measuring equipment.

Model	64 866...	
SR 44	207	



64 866 207

38 452 Signal cable

for digital measuring devices

The number of the signal cable required must be stated for the digital measuring equipment.

Mitutoyo

Length m	38 452...		Type	
1 2	001 002		6 Pins, without data key	
1 2	011 012		straight, without data key	
1 2	021 022		same connector at both ends	
1 2	031 032		with data key without connection screws	
1 2	041 042		IP 66/67 Vernier callipers with data key and connection screws	
1 2	051 052		IP 65 External micro- meters and depth micro- meters with data key and connection screws	



39 110 001



39 110 002

	39 110...	
Poldi hardness tester	001	
Replacement comparator rod	002	

39 115 Rebound hardness tester SCLEROGRAPH

Use for workpieces > 1kg only.

For determining the Rockwell, Brinell or Shore hardness.

Instructions for use The tester is positioned vertically on the test piece. The rod is drawn up above the locking device. After pressing the release lever the rod falls, hits the workpiece and rebounds. An arresting device holds the rod in the highest position after rebound so that the rebound height can be read off the scale. The comparison chart shows the value in Rockwell, Brinell or Shore.

Scope of supply: Case and comparison chart.



39 115 001

Test weight of the workpiece	39 115...	
from 1 kg	001	

39 120 Portable Shore hardness testers (durometers)

- For testing natural rubber, elastomers and plastics
- Long and compact design
- Shore hardness "A" and "D"

Shore A

Hardness scale range: 0 - 100 Shore A
Measuring range: 10 - 90 Shore A

Shore D

Hardness scale range: 0 - 100 Shore D
Measuring range: 20 - 90 Shore D

Mitutoyo



...001



...002



...005



...006

Materials to be tested	39 120...		39 120...		Shore hardness	Tip geometry	Blunt (indenter) taper area mm	Location area mm
	analog		digital					
Long leg type								
Natural rubber, soft plastic	001		002		A	Blunt taper	Ø 0.79	Ø 18
Hard rubber, hard plastic	003		004		D	Sharp point	-	Ø 18
Compact type								
Natural rubber, soft plastic	005		006		A	Blunt taper	Ø 0.79	Ø 18
Hard rubber, hard plastic	007		008		D	Sharp point	-	Ø 18

39 128 Hardness tester, portable "HARDMATIC" HH-411

Mitutoyo

Very light, portable hardness tester for testing metallic workpieces.

- It operates based on the "rebound hardness" principle (standardised according to ASTM 7956)
- Measures hardness value L (Leeb value), although it can also be converted into and displayed in the required Vickers, Brinell, Rockwell B, Rockwell C, Shore HS and tensile strength scale.
- The display automatically indicates go / no-go for the set tolerance function if the tolerances are not met or exceeded.
- Stores 1800 readings.
- Automatic compensation of the measuring direction angle.

Surface roughness and minimum thickness/weight of the workpiece

1. Surface

The surface of the workpiece should have Ra 10 µm or less.

2. Minimum thickness/ weight

The minimum thickness of the material must be 5 mm, the minimum weight is 5 kg.

Functions: Auto-compensation of the impact or test direction, tolerance evaluation (go/no-go judgement), offset values, storage of 1800 readings, statistical analyses (mean, max. value, min. value, standard deviation), internal counter for measurements taken

Data output: RS-232 C / DIGIMATIC

Power supply: AC adapter or LR6 battery (2 No.)

Dimensions: Ø 28 x 175 mm (test unit = detector) / 70 x 110 x 35 mm (display unit)



39 128 003

Striking body (detector)	39 128...	
sintered carbide	003	

39 135 Rockwell hardness tester

Mitutoyo

- robust and easy to use manual, superficial Rockwell hardness tester

max. workpiece height: 105 mm (with spindle cover), 170 mm (without spindle cover)

max. workpiece depth: 150 mm from the centre of the indenter

Weight: 44 kg

Scope of supply:

Diamond indenter; 1/16" steel ball indenter; 1/16" steel balls (5 balls); Ø 64 mm plain anvil; V anvil Ø 41 mm, opening 25 mm; dust cover, 60-65 HRC reference block; 60-64 HR30N reference block; level

	Rockwell	Superficial Rockwell
Preload test force (N)	98.07	29.42
Test force	588.4; 980.7; 1471	147.1; 294.2; 441.3
Scale graduation	0.5 HR	1 HR
Display	Analog	
Max. workpiece height	105 mm (with spindle cover) 170 mm (without spindle cover)	
Max. workpiece depth	150 mm from the centre of the indenter	
Weight	44 kg	
39 135...	003	



39 135 003



Extract from the "Plant & Equipment" catalogue

76 638 Spring scales CH

- Adjusting (calibration) program (CAL): Ensures the scales are very accurate at all times. Test weight available for an additional charge.
- The weight display can be frozen by pressing the HOLD button for 5 sec. (Data Hold function)
- Pull-out measuring tape, (measurement length 100 cm)
- Hook made of stainless steel
- Ready to use
- Monobloc battery (9 V) included. AUTO-OFF function after 3 min without load change to spare the battery, can be switched off
- Housing B x D x H 90 x 30 x 175 mm (with hook 270 mm). Net weight approx. 250 g

Capacity	76 638...		Readability
kg			g
15	001		20
50	002		50
50	003		100



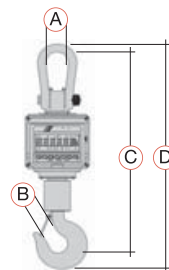
76 638...

76 640 HTS crane scales, trade approval possible

- Adjusting (calibration) program (CAL): Ensures the scales are very accurate at all times. Test weight available for an additional charge.
- Can be switched over at the touch of a button, e.g. to non-metric units. See scales model.
- Other functions:
 - 10 tare memory
 - 10 free memory locations (e.g. for weight values or ID numbers)
 - Peak load display
 - Cumulative memory, adds all individual weighing
- Charge indicator for rechargeable battery, visual through LED
- Gross/Tare/Net display through LEDs
- Data Hold function: The weight display is frozen by pressing a key twice and held until the C key is pressed.
- Infrared remote control supplied as a standard accessory. Range approx. 15 m.
- Battery size AA (2x1.5V) included
- Hook with safety lock, rotatable
- Metal housing
- Standby function: Display automatically switched off after 5 min. without load change
- Powered by rechargeable batteries
- Internal supplied as a standard, battery life approx. 150 h, charging time approx. 15 h.
- Trade approval and certified calibration costs available on request.



76 640...



Capacity	76 640...		Readability	Min load	Net weight	Casing size B x D x H mm	A	B	C	D
kg			g	kg	kg		mm	mm	mm	mm
300	001		100	2	14	200 x 204 x 160	45	30	435	480
1500	002		500	10	14	200 x 204 x 160	60	28	443	505
3000	003		1000	20	40	279 x 254 x 381	90	45	735	815
6000	004		2000	40	44	279 x 254 x 381	100	67	900	1040
10000	005		5000	100	44	279 x 254 x 381	100	67	900	1040

**76 606 Compact counting scales**

- Stainless steel weighing platform
- Data interface: RS 232 C, bidirectional, for connecting a printer or PC
- Battery operation possible
Monobloc battery (9 V). AUTO-OFF function after 3 min without load change to spare the battery, can be switched off
- Piece weights/piece counter: Reference piece weight/number of pieces selectable. Display switchover from piece to weight
- Separate memory for the weight of the tare vessel and the recipe ingredients (net total)
- Adjusting (calibration) program (CAL): For adjusting the accuracy.
- GLP/ISO logging of weighing data with date, time and ID number
- Can be switched over at the touch of a button, e.g. to non-metric units. See scales model.
- Mains adapter: 230 V/50Hz. Standard
Standard D, GB, AUS or USA standard can also be ordered.



Capacity	76 606...		Readability	Reproducibility	Linearity	Smallest piece weight Piece counter	Weighing platform
g			g	g	g	g / piece	mm
400	001		0.1	0.1	± 0.2	0.2	130 x 130
1000	004		0.1	0.1	± 0.2	0.2	130 x 130
2000	007		0.1	0.1	± 0.2	0.2	130 x 130
4000	010		0.1	0.1	± 0.3	0.2	150 x 170
4000	013		1.0	1.0	± 2	2.0	150 x 170

76 642 DE multi-functional scales

- Stainless steel weighing platform available in different sizes
- Adjusting (calibration) program (CAL) for adjusting the accuracy.
External adjusting weight required.
- Piece counting with different references
- RS 232 C data interface
- Recipe: Separate memory for the weight of the tare vessel and the recipe ingredients (net total).
- Percentage difference
- Can be switched to non-metric units. See scales model.
- Mains adapter: 230 V/50Hz. Standard.
Standard D, GB, AUS or USA standard can also be ordered.
- Working cover guard above the display unit as a standard.
- Battery operation possible.
- Display unit with diverse optional positions. 1.5 m cable length.
- Optional rechargeable battery: KS-A01 for 135.00 1
(life approx. 150 hrs)
- Optional stand: DE-A01 for 35.00 1



76 642...

Capacity	76 642...		Readability	Smallest piece weight Piece counter	Net weight	Weighing platform
kg			g	g / piece	kg	mm
6	001		2	4	5	315 x 305
15	002		5	10	5	315 x 305
36	003		10	20	5	315 x 305
60	004		20	40	5	315 x 305
60	005		20	40	16	525 x 400
150	006		50	100	5	315 x 305
150	007		50	100	16	325 x 400
150	008		50	100	30	650 x 500
300	009		100	200	16	525 x 400
300	010		100	200	30	650 x 500



Extract from the "Plant & Equipment" catalogue

76 634 "Basic" compact scales

- Connection socket for mains adapter included as standard
- Ready to use
Batteries included. 1 x 9 V monobloc battery, or 2 x 1.5 V size AA, AUTO-OFF function after 3 min without load change to spare batteries, can be switched off
- Optional mains adapter
- Underside weighing: Feature for mounting weight on the underside of the scales.
- Adjusting (calibration) program (CAL)
Test weight available for an additional charge

Capacity g	76 634...		Readability g	Weighing platform mm	Battery
220	001		0.1	150	2 x 1.5 V. Size AA
2200	002		1	150	2 x 1.5 V. Size AA
5200	003		5	150	2 x 1.5 V. Size AA



76 634...

76 612 Electronic compact scales

Universal scales for non-trade weighing not requiring official certified calibration

Switch On and Off, tare, weigh, accumulative weighing, portioning and order picking at the touch of only one button.

- Platform BxD 310 x 275 mm
- LCD display 20 mm high
- Weight 6.7 kg
- Power supply via plug-in charger/mains adapter with integrated rechargeable battery (approx. 24 hrs.)

Capacity kg	76 612...		Increment g
up to 5	001		2
up to 10	004		5
up to 20	007		10
up to 50	010		20



76 612...

76 614 Fully electronic bench platform scales

For non-trade weighing not requiring official certified calibration

Weighing platform made of stainless steel

Base made of steel, anthracite painted.

Mobile display unit with 1.5 m cable.

- Display units H x B x D 100 x 250 x 50 mm including wall-mounting bracket
- One button operation
- Quattro-Tronic technology (4 load cells)
- Display unit with LCD display, digit height 20 mm
- Taring subtractive up to 100% of the capacity
- Power supply through plug-in charger mains adapter (included in scope of supply)
- Battery operation possible



76 614...

Capacity kg	76 614...		Increment g	Model	Weighing platform dim. B x H x D mm
0 - 15	001		5	1	310 x 275 x 35
0 - 60	004		20	2	310 x 275 x 35
0 - 60	007		20	3	520 x 400 x 70
0 - 150	010		50	4	520 x 400 x 70
0 - 150	013		50	5	660 x 545 x 85
0 - 200	013		100	6	660 x 545 x 85

Accessories: Stand for display unit

Model	76 614...	
3 + 4	081	
5 + 6	084	





76 620 Compact counting scales 9220

Mobile compact scales for professional counting, weighing, taring and totalling. Three backlit LCD displays with 20 mm high digits for weight display, no. of pieces and reference weight. Numeric keypad for entering number of pieces, piece weights or tare weight. Target value input for switching function with acoustic signaller. Second scales connection for batch scales for counting larger quantities. Shockproof ABS housing with adjustable levelling screws and level vial for precise levelling of the scales.

Degree of protection IP 54. Power supply: Plug-in mains adapter 230V AC / 9V DC, standard integrated rechargeable battery for 150 hours and RS 232 interface, e.g. for printer connection.

Platform made of stainless steel, calibration weight (500 g) for adjusting or checking the scales' accuracy included in the scope of supply.



76 620...

Capacity	76 620...		Increment	For counting pieces from g	Platform size
kg			g		mm
3	001		0.1	0.1	265 x 205
6	004		0.2	0.2	265 x 205
30	007		1.0	1.0	265 x 205

76 600 Solar letter scales

- Capacity 2000 g, graduation 1 g
- Weighs using solar technology
- Particularly handy, modern design
- Solar technology to the latest technological standards:
Charging time following complete discharge (lengthy storage in the dark) depends on the illuminance
- Housing made of breakproof plastic
- Automatic off feature, automatic zero reset
- Hold function for saving the displayed value
- One button operation
- On-Off-Tare-Hold
- Size: 175 x 165 x 40 mm
- CE mark
- 3 year guarantee



76 600...

76 600...	
001	

76 604 Parcel scales

- Capacity 50 kg
- Graduation 50 g
- Separate control panel for improved legibility
- Removable support plate made of 1 mm thick stainless steel, robust and protective, easy to clean
- Stable construction
- Patented technology
- Free positioning of the platform on the table or in two angle positions on the wall
- Energy saving battery operation
- Housing made of breakproof plastic, closed design to protect against dust
- Automatic off feature, automatic zero reset
- Hold function for saving the displayed value
- One button operation: On-Off-Tare-Hold
- Large support plate: 30 x 30 cm
- Size of platform 21.3 x 10.1 x 5.2 cm
- CE mark
- 3 year guarantee



76 604...

76 604...	
001	



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be found in the**



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