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ATORN® Pocket vernier calipers

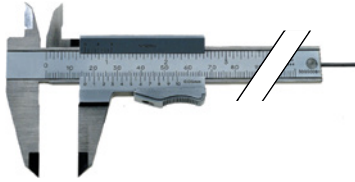


Application:
For measuring external, internal, step and depth dimensions.

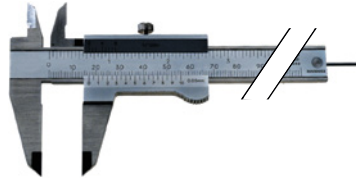
Execution:
▪ Scale and vernier scale with anti-glare, brushed chromium-plated finish

▪ Measuring and guiding surfaces hardened

scope of supply and services:
In a case



No. 31002



No. 31003 010

		Min./max. length measuring range			0-150 mm		0-100 mm		0-150 mm	
		Type of locating			With torque clamping		With locking screw		With locking screw	
Length of jaw (mm)	Vernier scale	Vernier scale (imperial)	Depth gauge rod	Depth gauge rod thickness (mm)	31002... ID no.		31003... ID no.		31003... ID no.	
40	0.05 mm	1/128 inch	Round	1.5	010	O. R.	-	-	010	O. R.
30	0.05 mm	-	Flat	-	-	-	005	O. R.	-	-
										Unit price, €

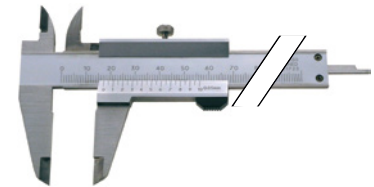
Prod. group 3AC

ATORN® Pocket vernier callipers with flat depth gauge
with high-quality finish



Application:
For measuring external, internal, step and depth dimensions.

Advantage:
▪ High quality vernier callipers with special finish
▪ Millimetre graduation with very clear digits



Ident. No. 110

Execution:
▪ Scale and vernier scale with anti-glare, brushed chromium-plated finish
▪ Hardened measuring and bearing surfaces

scope of supply and services:
In a case

		Min./max. length measuring range		0-150 mm		0-150 mm		
		Type of locating		With locking screw		With torque clamping		
Length of jaw (mm)	Vernier scale	Depth gauge rod		31065... ID no.		31065... ID no.		
40	0.05 mm	Flat		110	O. R.	120	O. R.	
								Unit price, €

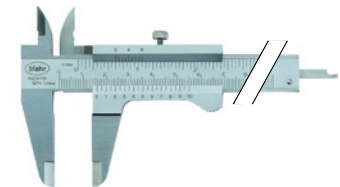
Prod. group 3AC

Mahr Pocket vernier callipers



Application:
For measuring external, internal, step and depth dimensions.

▪ Hardened measuring and bearing surfaces



Execution:
▪ Scale and vernier scale with anti-glare, brushed chromium-plated finish

scope of supply and services:
In a case

		Min./max. length measuring range			0-150 mm		0-200 mm		0-300 mm	
		Type of locating			With locking screw		With locking screw		With locking screw	
Length of jaw (mm)	Vernier scale	Vernier scale (imperial)	Depth gauge rod	31008... ID no.		31008... ID no.		31008... ID no.		
40	0.05 mm	1/128 inch	Flat	015	O. R.	-	-	-	-	
50	0.05 mm	1/128 inch	Flat	-	-	020	O. R.	-	-	
64	0.05 mm	1/128 inch	Flat	-	-	-	-	030	O. R.	
										Unit price, €

Prod. group 305

ATORN® Pocket vernier calipers
Parallax-free vernier scale reading

DIN 862



Application:

For measuring external, internal, step and depth dimensions.

Execution:

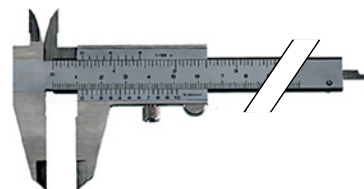
- Scale and vernier scale with anti-glare, brushed chromium-plated finish
- Measuring and guiding surfaces hardened
- With double vee block guide

Advantage:

- Vernier and scale are on the same level, making it easier to read from the side
- Minimal guide play and optimum sliding properties

scope of supply and services:

In a case



With double Vee block guide

				Min./max. length measuring range	0-150 mm
				Type of locating	With locking screw
Length of jaw (mm)	Vernier scale	Vernier scale (imperial)	Depth gauge rod		31007... ID no.
40	0.05 mm	1/128 inch	Flat		010 O. R. Unit price, €

Prod. group 3AC

ORION® Pocket vernier calipers

DIN 862



Application:

For measuring external, internal, step and depth dimensions.

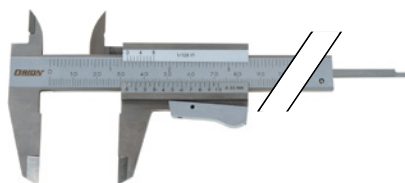
Execution:

- Scale and vernier scale with anti-glare, brushed chromium-plated finish

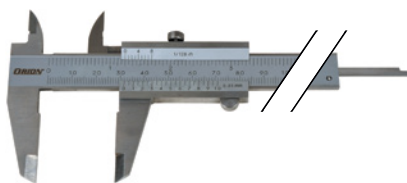
- Measuring and guiding surfaces hardened

scope of supply and services:

In a case



No. 31012



No. 31013

				Min./max. length measuring range	0-150 mm	0-150 mm
				Type of locating	With torque clamping	With locking screw
Length of jaw (mm)	Vernier scale	Vernier scale (imperial)	Depth gauge rod		31012... ID no.	31013... ID no.
40	0.05 mm	1/128 inch	Flat		010 O. R. Unit price, €	010 O. R. Unit price, €

Prod. group 3BA

Pocket vernier caliper with round scale

DIN 862



Application:

For measuring external, internal, step and depth dimensions.

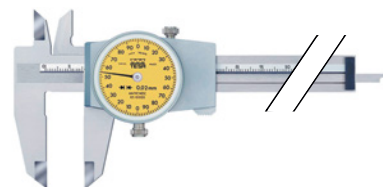
Execution:

- Shock-resistant measuring mechanism
- Depth gauge also covers the rack to protect it from chips

- Rotating dial with clamp
- No. 31167: Round scale, 32 mm diameter
- No. 31169: Round scale, diameter 32 mm
- No. 31169 025-31169 035: With drive wheel

scope of supply and services:

In a case



No. 31169 020-31169 035

			Min./max. length measuring range	0-150 mm	0-150 mm	0-200 mm
			Type of locating	With locking screw	With locking screw	With locking screw
Length of jaw (mm)	Scale value (mm)	Depth gauge rod		31167... ID no.	31169... ID no.	31169... ID no.
40	0.02	Flat		810 O. R.	020 O. R.	- - -
40	0.01	Flat		- -	010 O. R.	- - -
50	0.02	Flat		- -	- -	025 O. R.
64	0.02	Flat		- -	- -	- - 035 O. R.
Unit price, €						

Prod. group 362

ORION® Pocket vernier callipers with round scale

DIN 862



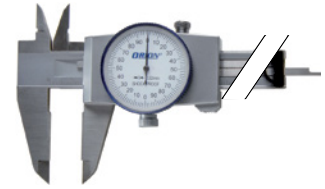
Application:
For measuring external, internal, step and depth dimensions.

Execution:

- Shock-resistant measuring mechanism
- Round scale, 32 mm diameter

- Depth gauge also covers the rack to protect it from chips
- Rotating dial with clamp

scope of supply and services:
In a case



Ident. No. 020

Min./max. length measuring range		0-150 mm	
Type of locating		With locking screw	
Length of jaw (mm)	Scale value (mm)	Depth gauge rod	
40	0.01	Flat	
40	0.02	Flat	
		31163... ID no.	
		010 O. R.	
		020 O. R.	
		Unit price, €	

Prod. group 3BH

Measuring equipment

TESA Electronic pocket vernier calipers Twin-Cal IP40

DIN 862



Application:
For measuring external, internal, step and depth dimensions.

Execution:

- ON
- Zero setting at any position
- mm/inch switch-over
- Auto off
- ABS function
- Ident. No. 120-130: With drive wheel

Advantage:

- Adaptable vernier callipers with wired or wireless connection
- Data transmission via battery cover
- 11 mm LCD display

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)

Technical Data:

- Digit increment: 0.01 mm
- Depth gauge rod: Flat



Min./max. length measuring range	0-150 mm		0-200 mm	0-300 mm
Length of jaw (mm)	40		50	65
Data transmission type				
31172...	TLC	Ident. No.	115	120
		Unit price, €	O. R.	O. R.
				130 O. R.

Prod. group 362

Mahr Electronic pocket vernier callipers
MarCal 16 ER

DIN 862



Application:
For measuring external, internal, step and depth dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over

- Auto off
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Ident. No. 005

Min./max. length measuring range	0-150 mm		0-150 mm
Digit increment (mm)	0.01		0.01
Length of jaw (mm)	40		40
Depth gauge rod	Round		Flat
Depth gauge rod thickness (mm)	1.5		-
31181...	Ident. No.	005	015
	Unit price, €	O. R.	O. R.

Prod. group 305

Mahr Electronic pocket vernier calipers IP 67 MarCal 16 EWR

DIN 862

**Application:**

For measuring external, internal, step and depth dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over

- Auto off
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	0-150 mm	0-150 mm	0-200 mm	0-300 mm		
Digit increment (mm)	0.01	0.01	0.01	0.01		
Length of jaw (mm)	40	40	50	64		
Depth gauge rod	Round	Flat	Flat	Without		
Depth gauge rod thickness (mm)	1.5	-	-	-		
	Data transmission type					
31181...	multiCOM	Ident. No. Unit price, €	105 O. R.	115 O. R.	125 O. R.	135 O. R.

Prod. group 305

Mahr Electronic pocket vernier calipers IP67 with integrated wireless transmission

DIN 862

**Application:**

For measuring external, internal, step and depth dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over

- Auto off
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	0-150 mm	0-150 mm	0-200 mm	0-300 mm		
Digit increment (mm)	0.01	0.01	0.01	0.01		
Length of jaw (mm)	40	40	50	64		
Depth gauge rod	Round	Flat	Flat	Without		
	Data transmission type					
31181...	MarConnect	Ident. No. Unit price, €	305 O. R.	315 O. R.	325 O. R.	335 O. R.

Prod. group 305

Accessories for		31181 305	31181 315	31181 325	
31181...	MarConnect i-Stick wireless receiver Compatible with MarConnect wireless transmitter	Ident. No. Unit price, €	300 O. R.	300 O. R.	300 O. R.
Accessories for		31181 335			
31181...	MarConnect i-Stick wireless receiver Compatible with MarConnect wireless transmitter	Ident. No. Unit price, €	300 O. R.		

TESA Electronic pocket vernier calipers Twin-Cal IP67

DIN 862

**Application:**

For measuring external, internal, step and depth dimensions.

Execution:

- ON
- Zero setting at any position
- mm/inch switch-over
- Auto off
- ABS function
- Digit size 11 mm for optimum readability

- Ident. No. 210–310: With drive wheel

Advantage:

- IP protection guaranteed even with data transfer connection
- Soft Touch for comfortable handling
- Long operating time of over 12,000 hours

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range		0-150 mm	0-150 mm	0-200 mm	0-300 mm
Digit increment (mm)		0.01	0.01	0.01	0.01
Length of jaw (mm)		40	40	50	65
Depth gauge rod		Flat	Round	Flat	Flat
Depth gauge rod thickness (mm)		-	1.5	-	-
Data transmission type					
31174...	TLC	Ident. No. Unit price, €	160 O. R.	165 O. R.	210 O. R.
				310 O. R.	

Prod. group 362

Mahr Electronic pocket vernier calipers IP 67
in special designs



Application:

- Ident. No. 405:** For measuring hard materials.
- Ident. No. 415:** For measuring shaft grooves.
- Ident. No. 425:** For measuring e.g. groove intervals.
- Ident. No. 440:** For measuring recesses and wall thicknesses on shafts.
- Ident. No. 445:** For measuring recesses in

boreholes.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

▪ ABS function

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range		0-150 mm	0-150 mm	10-160 mm
Digit increment (mm)		0.01	0.01	0.01
Length of jaw (mm)		40	40	40
Depth gauge rod		Round	-	-
Depth gauge rod thickness (mm)		1.5	-	-
Data transmission type				
31181...	Ceramic measuring faces	Ident. No. Unit price, €	405 O. R.	-
31181...	Keyseats	Ident. No. Unit price, €	415 O. R.	-
31181...	Groove distances	Ident. No. Unit price, €	425 O. R.	-
31181...	Wall thickness	Ident. No. Unit price, €	-	440 O. R.
31181...	Internal grooves	Ident. No. Unit price, €	-	-
				445 O. R.

Prod. group 305

HELIOS-PREISSER Electronic pocket vernier calipers
Double vee block guide

DIN 862



Application:

For measuring external, internal, step and depth dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

▪ ABS function

Advantage:

- Key lock to prevent unintentional adjustment
- Data output multiCOM (optionally USB, RS 232 or Digimatic)

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range		0-150 mm
Digit increment (mm)		0.01
Length of jaw (mm)		40
Depth gauge rod		Round
Depth gauge rod thickness (mm)		1.5
Data transmission type		
31157...	multiCOM	Ident. No. Unit price, €
		015 O. R.

Prod. group 308



Pocket vernier caliper accessory set
For electronic pocket vernier calipers up to 150 mm

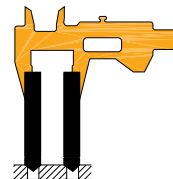
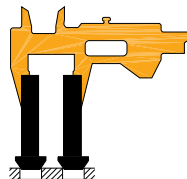
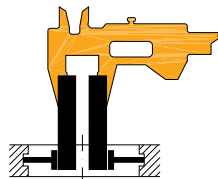
Application:
For measuring internal recesses, grooves, bore intervals etc.

- 6 gauge slide pairs
- Hexagon key

Execution:

- Steel, black burnished
- 2 gauge slide carriers

scope of supply and services:
2 gauge slide carriers, 6 pairs of gauge slides, hexagon key, in a case



Possible applications

31185...	Ident. No. Set price, €	011 O. R.
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Prod. group 303

ORION® Workshop vernier calipers

DIN 862



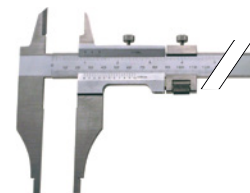
Application:
For measuring external and internal dimensions.

- 2 graduations: mm/inch
- No. 31080: With fine adjustment

Execution:

- Vernier scale and scale with anti-glare, brushed chromium-plated finish

scope of supply and services:
In a case



No. 31080

Min./max. length measuring range		0-300 mm	0-500 mm	0-800 mm	0-1000 mm
Length of jaw (mm)		90	150	150	150
Inner measurement scales (mm)		10	20	20	20
Vernier scale		0.05 mm	0.05 mm	0.05 mm	0.05 mm
31079...	Without fine adjustment	Ident. No. 003	Ident. No. 005	Ident. No. 008	Ident. No. 010
	Unit price, €	O. R.	O. R.	O. R.	O. R.
31080...	With fine adjustment	Ident. No. 003	Ident. No. 005	Ident. No. 008	Ident. No. 010
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3BA



Workshop vernier calipers with long measuring jaws

DIN 862



Application:
For measuring external and internal dimensions.

Technical Data:

- Inner measurement scales: 20 mm
- Vernier scale: 0.05 mm

Execution:

- Vernier scale and scale with anti-glare, brushed chromium-plated finish



Min./max. length measuring range		0-500 mm	0-600 mm	0-800 mm	0-1000 mm	0-1000 mm
Length of jaw (mm)		250	300	400	300	500
31119...	Ident. No.	050	060	080	100	110
	Unit price, €	O. R.	O. R.	O. R. ⁺	(O. R.) ⁺	(O. R.) ⁺

Prod. group 308

ORION® Light metal vernier calipers
up to 70% lighter than steel



Application:
For measuring external and internal dimensions.

- Measuring arms made of hardened steel
- Precise laser scale

Execution:

- Beam and scale made from anodised aluminium

Advantage:

- Up to 70% lighter than steel



Min./max. length measuring range	0-500 mm	0-1000 mm	0-1500 mm	0-2000 mm	0-2500 mm	0-3000 mm
Length of jaw (mm)	150	200	200	200	200	200
Inner measurement scales (mm)	20	20	20	20	20	20
Vernier scale	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Error limit (mm)	0.07	0.12	0.17	0.22	0.27	0.32
31115...	Ident. No. 005 Unit price, € (O. R.)	Ident. No. 010 Unit price, € (O. R.)	Ident. No. 015 Unit price, € (O. R.)*	Ident. No. 020 Unit price, € (O. R.)*	Ident. No. 025 Unit price, € (O. R.)	Ident. No. 030 Unit price, € (O. R.)

Prod. group 3BA

ORION® Electronic workshop vernier calipers
in lightweight construction



Application:
For measuring external and internal dimensions.

Advantage:

- Both measuring arms can be moved
- Internal double vee-block guide for optimum guidance and slide properties

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- With adjustable and replaceable measuring arms

scope of supply and services:

In a case, with battery (1 x type SR 44 1.55 V)



Ident. No. 103

Min./max. length measuring range	0-300 mm	0-500 mm	0-800 mm
Length of jaw (mm)	90	90	90
Digit increment (mm)	0.01	0.01	0.01
Weight (kg)	0.5	0.6	0.75
Inner measurement scales (mm)	10	10	10
Error limit (mm)	0.04	0.05	0.06
31115...	Ident. No. 103 Unit price, € O. R.	Ident. No. 105 Unit price, € O. R.	Ident. No. 108 Unit price, € O. R.

Prod. group 3BH

Mahr Electronic workshop vernier calipers IP65
MarCal 18 EWR



Application:
For measuring external and internal dimensions.

- **Ident. No. 703-710:** With blade tips
- **Ident. No. 803-810:** Without blade tips

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment
- Switched on by moving the slider

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



Ident. No. 703



Ident. No. 705-710



Ident. No. 803



Ident. No. 805-810

Min./max. length measuring range			0-300 mm	0-500 mm	0-750 mm	0-1000 mm
Length of jaw (mm)			90	150	150	150
Digit increment (mm)			0.01	0.01	0.01	0.01
Inner measurement scales (mm)			10	20	20	20
Error limit (mm)			0.03	0.04	0.05	0.06
31181...	With blade tips	Ident. No.	703	705	707	710
		Unit price, €	O. R.	O. R.	O. R.	O. R.
31181...	Without blade tips	Ident. No.	803	805	807	810
		Unit price, €	O. R.	O. R.	(O. R.)	(O. R.)

Prod. group 305



Electronic pocket vernier calipers Double vee block guide

DIN 862



Application:

For measuring external, internal, step and depth dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- ABS function
- Preset function
- Hole measuring attachment for internal measurements from 10 mm upwards

Advantage:

- Key lock to prevent unintentional adjustment
- Data output multiCOM (optionally USB, RS 232 or Digimatic)

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)

Technical Data:

- Min./max. length measuring range: 0-300 mm
- Length of jaw: 90 mm
- Digit increment: 0.01 mm



31157...	Ident. No.	030
	Unit price, €	O. R.

Prod. group 308

Accessories for		31157 030	
39855... Connection cable For measuring instruments with multiCOM interface	multiCOM data cable with RS232 interface	Ident. No. Unit price, €	010 O. R.
	multiCOM data cable with USB interface	Ident. No. Unit price, €	020 O. R.
	multiCOM data cable with DIGIMATIC interface	Ident. No. Unit price, €	030 O. R.



Electronic universal vernier calipers set Exchangeable gauge slides

DIN 862



Application:

For measuring various internal and external dimensions.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function
- ABS function

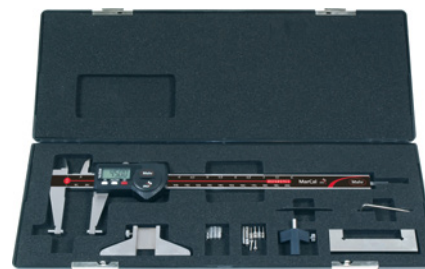
- HOLD function

Advantage:

- Key lock to prevent unintentional adjustment
- Switch on by moving the slider
- Suitable for a wide range of measuring applications due to exchangeable gauge slides

scope of supply and services:

In a case with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	Digit increment (mm)	Length of jaw (mm)	31181... ID no.
0-200 mm	0.01	48	900 O. R.
			Unit price, €

Prod. group 305



Internal groove vernier calipers

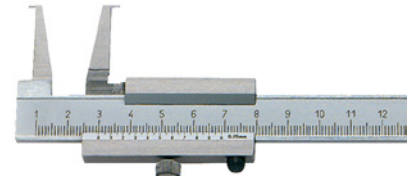


Application:
For measuring internal recesses.

- Measuring and guiding surfaces hardened

Execution:
▪ Scale and vernier scale with anti-glare, brushed chromium plated finish

scope of supply and services:
In box



Ident. No. 010

Min./max. length measuring range	10-160 mm	20-160 mm	26-200 mm	30-250 mm	35-300 mm
Vernier scale	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Length of jaw (mm)	25	40	60	80	100
Measuring surface thickness (mm)	0.9	2	3	4	5
Inner measurement scales (mm)	3	5	7	8.5	10
31191...	Ident. No. 010 Unit price, € O. R.	Ident. No. 020 Unit price, € O. R.	Ident. No. 030 Unit price, € O. R.	Ident. No. 040 Unit price, € O. R.	Ident. No. 050 Unit price, € O. R.

Prod. group 308

ATORN® Vernier depth caliper

DIN 862

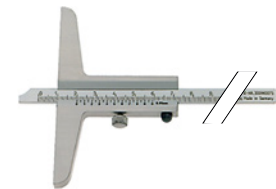


Application:
For measuring, e. g. bore depths, shoulders on workpieces etc.

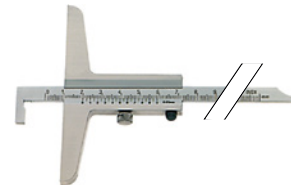
- No. 31276: Graduation on front
- No. 31278: Graduation on front and rear side for refitting

Execution:
▪ Vernier scale and scale with anti-glare, brushed chromium plated finish
▪ Rails manufactured from one piece

scope of supply and services:
In box



No. 31276



No. 31278
Rail for refitting

Min./max. length measuring range	0-150 mm	0-200 mm	0-250 mm	0-300 mm	0-500 mm	0-500 mm	0-800 mm	0-1000 mm
Vernier scale	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Bridge length x bridge width	100 x 8 mm	100 x 8 mm	130 x 9 mm	150 x 9 mm	150 x 9 mm	250 x 15 mm	250 x 15 mm	250 x 15 mm
31276...	Ident. No. 015 Unit price, € O. R.	Ident. No. 020 Unit price, € O. R.	Ident. No. 025 Unit price, € O. R.	Ident. No. 030 Unit price, € O. R.	Ident. No. 050 Unit price, € O. R.	Ident. No. 055 Unit price, € O. R.	Ident. No. 075 Unit price, € (O. R.)	Ident. No. 100 Unit price, € (O. R.) ⁺
31278...	Ident. No. 015 Unit price, € O. R.	Ident. No. 020 Unit price, € O. R.	Ident. No. 025 Unit price, € O. R.	Ident. No. 030 Unit price, € O. R.	Ident. No. 050 Unit price, € O. R.	Ident. No. 055 Unit price, € (O. R.)	Ident. No. 075 Unit price, € (O. R.)	Ident. No. 100 Unit price, € (O. R.) ⁺

Prod. group 3CB

ORION® Depth calipers

DIN 862

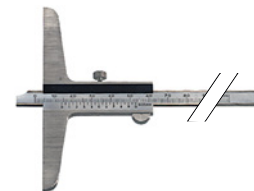


Application:
For measuring, e. g. bore depths, shoulders on workpieces etc.

- Rails manufactured from one piece
- Graduation on front

Execution:
▪ Vernier scale and scale with anti-glare, brushed chromium plated finish

scope of supply and services:
In box



Min./max. length measuring range	0-150 mm	0-200 mm	0-300 mm
Vernier scale	0.05 mm	0.05 mm	0.05 mm
Bridge length x bridge width	100 x 8.5 mm	100 x 8.5 mm	100 x 8.5 mm
31240...	Ident. No. 015 Unit price, € O. R.	Ident. No. 020 Unit price, € O. R.	Ident. No. 030 Unit price, € O. R.

Prod. group 3BB

ATORN® Depth caliper
with measuring pins

DIN 862



Application:

For measuring, e. g. bore depths, shoulders on workpieces etc.

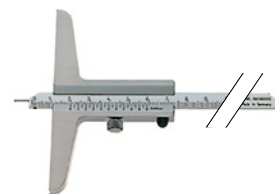
- Rails manufactured from one piece
- **Ident. No. 080:** Graduation on front
- **Ident. No. 150-300:** Graduation on front and rear side for refitting

Execution:

- Vernier scale and scale with anti-glare, brushed chromium plated finish

Min./max. length measuring range	0-80 mm	0-150 mm	0-200 mm	0-250 mm	0-300 mm
Vernier scale	0.05 mm	0.05 mm	0.05 mm	0.05 mm	0.05 mm
Bridge length x bridge width	50 x 7 mm	100 x 7 mm	100 x 7 mm	130 x 7 mm	150 x 7 mm
31216...	Ident. No. Unit price, €	080 O. R.	150 O. R.	200 O. R.	250 O. R.
				300 O. R.	

Prod. group 3CB



Rail for refitting

ATORN® Sliding measuring bridge

Application:

For extending depth calliper support surface.

Bridge length x bridge width		300 x 16 mm	400 x 16 mm
31282...	Ident. No. Unit price, €	501 O. R.	502 O. R.

Prod. group 308



Mahr Electronic depth calipers
IP67 with integrated wireless transmission



Application:

For measuring, e. g. bore depths, shoulders on workpieces etc.

- ABS function
- Preset function

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- HOLD function

Advantage:

- Key lock to prevent unintentional adjustment
- Switch on by moving the slider

scope of supply and services:

In a case with battery (1 x 3 V lithium type CR 2032)

Min./max. length measuring range	0-150 mm	0-300 mm	0-500 mm
Digit increment (mm)	0.01	0.01	0.01
Bridge length x bridge width	100 x 8 mm	150 x 8 mm	150 x 8 mm
31285...	Ident. No. Unit price, €	115 O. R.	130 O. R.
			150 O. R.

Prod. group 305

Accessories for		31285 115	31285 130	31285 150
31181...	MarConnect i-Stick wireless receiver Compatible with MarConnect wireless transmitter	Ident. No. Unit price, €	300 O. R.	300 O. R.
			300 O. R.	



Mahr Electronic depth calipers
IP67 with measuring pins



Application:

For measuring, e. g. bore depths, shoulders on workpieces etc.

- ABS function
- Preset function

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

Advantage:

- Key lock to prevent unintentional adjustment
- Switch on by moving the slider

scope of supply and services:

In a case with battery (1 x 3 V lithium type CR 2032)

Min./max. length measuring range	0-150 mm	0-300 mm	0-500 mm
Digit increment (mm)	0.01	0.01	0.01
Bridge length x bridge width	100 x 8 mm	150 x 8 mm	150 x 8 mm
31285...	Ident. No. Unit price, €	215 O. R.	230 O. R.
			250 O. R.

Prod. group 305



Ident. No. 230-250

Measuring equipment

TESA Electronic depth calipers Twin-Cal IP67

DIN 862



Application:

Ident. No. 121-131: For measuring, e. g. hole depths, distances on workpieces etc.

Ident. No. 231: For measuring, e. g. bore depths, shoulders on workpieces etc.

Ident. No. 331-426: For measuring bore depths, offsets, width and distance measurements.

Execution:

- ON
- Zero setting at any position
- mm/inch switch-over
- Auto off

- ABS function

Advantage:

- Soft Touch for comfortable handling
- **Ident. No. 121-131:** IP protection guaranteed even with data transfer connection
- **Ident. No. 231-426:** IP protection even with data transfer cable connected

scope of supply and services:

Ident. No. 121-131: In a case, with battery (1 x 3 V lithium type CR 2032)

Ident. No. 231-426: In a case with battery (1 x 3 V lithium type CR 2032)



Ident. No. 121-131



Ident. No. 231



Ident. No. 331



Ident. No. 426

Min./max. length measuring range			0-200 mm	0-250 mm	0-300 mm	0-250 mm
Digit increment (mm)			0.01	0.01	0.01	0.01
Bridge length x bridge width			100 x 8 mm	100 x 8 mm	150 x 8 mm	150 x 8.5 mm
31284...	Straight depth gauge	Ident. No. Unit price, €	121 O. R.	126 O. R.	131 O. R.	-
31284...	Angled depth gauge	Ident. No. Unit price, €	-	-	231 O. R.	-
31284...	With double hook	Ident. No. Unit price, €	-	-	331 O. R.	-
31284...	With rotating stop plate	Ident. No. Unit price, €	-	-	-	426 O. R.

Prod. group 362

ATORN® Sliding measuring bridges

Application:

For extending depth caliper support surface.

Bridge length x bridge width	31282... ID no.	31297... ID no.
400 x 16 mm	502 O. R.	-
500 x 16 mm	-	551 O. R.
	Unit price, €	

31297... = Prod. group 303
31282... = Prod. group 308



No. 31282

ORION® Electronic depth calipers
Lightweight design incl. 3 measuring bridges



Application:

For measuring, e. g. hole depths, distances on workpieces etc.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Measuring bridges 150/300/500 mm

Advantage:

- Internal double vee-block guide for optimum guidance and slide properties
- Replaceable blade tips M2.5

scope of supply and services:

In a case, with battery (1 x type SR 44 1.55 V)



Min./max. length measuring range		0-300 mm	0-500 mm	0-800 mm
Digit increment (mm)		0.01	0.01	0.01
Bridge length x bridge width		150 x 13 mm	150 x 13 mm	150 x 13 mm
Error limit (mm)		0.04	0.05	0.06
31115...	Ident. No. Unit price, €	203 O. R.	205 O. R.	208 O. R.

Prod. group 3BI

ORION® Electronic depth calipers

Lightweight design with replaceable gauge slides and movable measuring bridge



Application:

For measuring, e. g. hole depths, distances on workpieces etc.

Execution:

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- 1 measuring bridge 150 mm/1 measuring bridge 350 mm

Advantage:

- Internal double vee-block guide for optimum guidance and slide properties
- Replaceable blade tips M2.5

scope of supply and services:

In a case, with battery (1 x type SR 44 1.55 V)



Min./max. length measuring range	0-200 mm	0-300 mm	0-500 mm	0-800 mm	0-950 mm
Digit increment (mm)	0.01	0.01	0.01	0.01	0.01
Bridge length x bridge width	150 x 16 mm	150 x 16 mm	150 x 16 mm	150 x 16 mm	150 x 16 mm
Depth gauge rod width (mm)	4	6	6	6	6
Error limit (mm)	0.03	0.04	0.05	0.06	0.06
31115...	Ident. No. 302	Ident. No. 303	Ident. No. 305	Ident. No. 308	Ident. No. 310
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3BI

ATORN® Measuring instrument sets



Execution:

- **Ident. No. 120:** Pocket vernier callipers 150 mm no. 31003 010, micrometer 0-25 mm

- **Ident. No. 130:** Pocket vernier callipers 150 mm no. 31003 010, micrometer 0-25 mm, knife-edge square 100 x 70 mm no. 38126 010

- 70 mm no. 38060 010, hardened straight edge 100 mm no. 37550 010, spring dividers 125 mm no. 35010 125

- **Ident. No. 160:** Pocket vernier callipers 150 mm 31003 010, micrometer 0-25 mm no. 31342 005, scale 200 mm no. 37101 020, flat square 100 x

scope of supply and services:
In a case



Ident. No. 120



Ident. No. 130



Ident. No. 160

31320...	2-part Pocket vernier callipers, 150 mm, no. 31003 010 micrometer, 0-25 mm	Ident. No. 120	Set price, €	O. R.
31320...	3-part Pocket vernier callipers, 150 mm, no. 31003 010 micrometer, 0-25 mm, knife-edge square, 100 x 70 mm, no. 38126 010	Ident. No. 130	Set price, €	O. R.
31320...	6-part Pocket vernier callipers, 150 mm, no. 31003 010 micrometer, 0-25 mm, no. 31342 005 scale, 200 mm, no. 37101 020 flat square, 100 x 70 mm, no. 38060 010 hardened straight edge, 100 mm, no. 37550 010 spring dividers, 125 mm, no. 35010 125	Ident. No. 160	Set price, €	O. R.

Prod. group 3AC

Measuring tool set

13-piece



scope of supply and services:

- 1 Pocket vernier callipers 150 mm
- 1 Micrometer 0-25 mm
- 1 Depth callipers 150 mm
- 1 Spring dividers 175 mm
- 1 Marking gauge 200 mm
- 1 Radius gauges R 1-7.5 and R 7.5-15 mm

- 1 Scale 300 mm
- 1 Straight edge 100 mm
- 1 Try square 150 x 100 mm
- 1 Straight edge 50 x 40 mm
- 1 Protractor 120 x 150 mm
- 1 Scriber 160 mm



38170...	Ident. No. 013	Unit price, €	O. R.
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Prod. group 3AF

ATORN® Micrometers



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force
- Ident. No. 025-075:** Including setting gauges

scope of supply and services:

- Ident. No. 005:** Single device in case
- Ident. No. 025-075:** In case with setting gauges



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5
31342...	Ident. No. 005	025	050	075
	Unit price, €	O. R.	O. R.	O. R.

Prod. group 3AD

ATORN® Micrometer set
0-100 mm



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force
- Including setting gauges

scope of supply and services:

- In case with setting gauges



Min./max. length measuring range	0-100 mm
Measuring spindle increments (mm)	0.5
Measuring surface Ø (mm)	6.5
Vernier scale	0.01 mm
31342...	Ident. No. 400
	Set price, €
	O. R.

Prod. group 3AD

Mahr Micrometers
Micromar 40 A



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force
- Ident. No. 025-175:** Including setting gauges

scope of supply and services:

- Ident. No. 005:** In a case
- Ident. No. 025-175:** In case with setting gauges



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31332...	Ident. No. 005	025	050	075	100	125	150	175
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 305

Mahr Micrometer set
Micromar

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force
- Steel bracket, brushed chromium-plated
- Including setting gauges

scope of supply and services:

In case with setting gauges



Min./max. length measuring range		0-100 mm	100-200 mm
Measuring spindle increments (mm)		0.5	0.5
Measuring surface Ø (mm)		6.5	6.5
Vernier scale		0.01 mm	0.01 mm
31332...	Ident. No.	400	450
	Unit price, €	O. R.	O. R.

Prod. group 305

ORION Micrometers

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force

- Ident. No. 005-175: Steel bracket, brushed chromium-plated
- Ident. No. 025-275: Including setting gauges
- Ident. No. 200-275: Cast iron bracket, painted, with weight-reducing bores

scope of supply and services:

Ident. No. 005: Single device in case

Ident. No. 025-275: In case with setting gauges



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31330...	Ident. No.	005	025	050	075	100	125	150
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Min./max. length measuring range	200-225 mm	225-250 mm	250-275 mm	275-300 mm
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5
31330...	Ident. No.	200	225	250
	Unit price, €	O. R.	O. R.	O. R.

Prod. group 3BC

ORION Micrometer set

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force
- Steel bracket, brushed chromium-plated
- Including setting gauges

scope of supply and services:

In case with setting gauges



Ident. No. 100

Min./max. length measuring range		0-100 mm	0-150 mm
Measuring spindle increments (mm)		0.5	0.5
Measuring surface Ø (mm)		6.5	6.5
Vernier scale		0.01 mm	0.01 mm
31331...	Ident. No.	100	150
	Set price, €	O. R.	O. R.

Prod. group 3BC

ORION® Micrometers
with 6 replaceable measuring anvils with 25 mm increment

DIN 863



Application:

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force
- Ident. No. 015:** Including 25, 50, 75, 100, 125 mm setting gauges

- Ident. No. 030:** Including setting gauges 150, 175, 200, 225, 250, 275 mm

Advantage:

- Measuring spindle increment: 1 mm (direct 1/100 reading for prevention of reading errors, no need to add the 0.5 mm value)

scope of supply and services:

In case with setting gauges



Min./max. length measuring range	0-150 mm	150-300 mm
Vernier scale	0.01 mm	0.01 mm
Measuring surface Ø (mm)	8	8
Measuring spindle increments (mm)	1	1
31344...	Ident. No. 015 Set price, € O. R.	Ident. No. 030 O. R.

Prod. group 3BC

TESA Micrometer
TESAMASTER

DIN 863



Application:

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Carbide measuring faces

- Friction coupling for consistent, repeatable measuring force

Advantage:

- Parallax-free µ-range reading

scope of supply and services:

In a case



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm
Vernier scale	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5	8	8	8	8
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31405...	Ident. No. 005 Unit price, € O. R.	025 O. R.	050 O. R.	075 O. R.	100 O. R.	125 O. R.	150 (O. R.)	175 (O. R.)

Prod. group 362

ATORN® Electronic micrometer
with data output multiCOM

DIN 863



Application:

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position
- mm/inch switch-over

- Auto off
- Preset function
- ABS function
- Keeptronic System

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



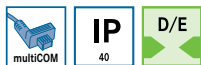
Ident. No. 005

Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31401... ID no.
0-25 mm	0.001	6.5	0.5	005 O. R.
25-50 mm	0.001	6.5	0.5	025 O. R.
50-75 mm	0.001	6.5	0.5	050 O. R.
75-100 mm	0.001	6.5	0.5	075 O. R.
				Unit price, €

Prod. group 303

ATORN® Electronic micrometer set
0-100 mm

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

- Preset function
- ABS function
- Keeptronic System
- Including setting gauges

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31401... ID no.
0-100 mm	0.001	6.5	0.5	400 O. R.
				Set price, €

Prod. group 303

ORION® Electronic micrometer

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force

- ON/OFF
- Zero setting at any position
- mm/inch switch-over

scope of supply and services:

In a case, with battery (1 x type SR 44, 1.55 V) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31406... ID no.
0-25 mm	0.001	6.5	0.5	005 O. R.
25-50 mm	0.001	6.5	0.5	025 O. R.
50-75 mm	0.001	6.5	0.5	050 O. R.
75-100 mm	0.001	6.5	0.5	075 O. R.
				Unit price, €

Prod. group 3BJ

ORION® Electronic micrometer set
0-100 mm

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF

- Zero setting at any position
- mm/inch switch-over
- Including setting gauges
- Including setting gauges

scope of supply and services:

In a case, with battery (1 x type SR 44, 1.55 V) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31406... ID no.
0-100 mm	0.001	6.5	0.5	400 O. R.
				Set price, €

Prod. group 3BJ

Mahr Electronic micrometers
Micromar



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function
- ABS function

- **No. 31402:** IP40 degree of protection
- **No. 31403 505:** Degree of protection IP65
- **No. 31403 705:**
 - multiCOM data output
 - Degree of protection IP52

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032)



No. 31403 505



No. 31403 705

Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	IP 40	IP 65	IP 52 with data output
				31402... Ident. No.	31403... Ident. No.	31403... Ident. No.
0-25 mm	0.001	6.5	0.635	025	505	705
Prod. group 305				Unit price, €		

Mahr Electronic micrometer
Micromar IP65



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

- Preset function
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



Ident. No. 005



Ident. No. 025-075

Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm
Digit increment (mm)	0.001	0.001	0.001	0.001
Measuring surface Ø (mm)	6.5	6.5	6.5	6.5
Measuring spindle increments (mm)	0.635	0.635	0.635	0.635
31403...	Ident. No. 005	025	050	075
	Unit price, € O. R.	O. R.	O. R.	O. R.

Prod. group 305

Mahr Electronic micrometer set
0-100 mm IP65



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off

- Preset function
- ABS function
- Including setting gauges

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31403... ID no.
0-100 mm	0.001	6.5	0.635	400
Prod. group 305				Unit price, € O. R.

Prod. group 305

Mahr Electronic micrometer set
0–25 mm

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function

- ABS function

Advantage:

- Key lock to prevent unintentional adjustment
- Includes 6 pairs of exchangeable gauge slides
- Non-rotating spindle

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31403... ID no.
0-25 mm	0.001	6.5	0.635	605 O. R.
				Unit price, €

Prod. group 305

sylvac Electronic micrometer
IP67 with proximity data output

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function

- ABS function

Advantage:

- IP67 protection also with data cable
- Non-rotating spindle
- Switchable measuring force 5 N/10 N
- 12 mm adjustment with a single turn

scope of supply and services:

In a case with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31412... ID no.
0-30 mm	0.001	6.5	12	030 O. R.
				Unit price, €

Prod. group 317

sylvac Electronic micrometer set
0–102 mm IP67

DIN 863

**Application:**

For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function
- ABS function

Advantage:

- IP67 protection also with data cable
- Non-rotating spindle
- Switchable measuring force 5 N/10 N at 0–30 mm
- 12 mm adjustment with a single turn

scope of supply and services:

In a case, with battery (1 x 3 V lithium type CR 2032) and setting gauges



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31412... ID no.
0-102 mm	0.001	6.5	12	400 O. R.
				Unit price, €

Prod. group 317

TESA Electronic micrometer
MICROMASTER EASY

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF

- Zero setting at any position
- mm/inch switch-over
- Auto off
- Preset function
- ABS function

scope of supply and services:
In a case with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31407... ID no.	O. R.
0-30 mm	0.001	6.5	0.5	005	O. R.
					Unit price, €

Prod. group 362

TESA Electronic micrometer
MICROMASTER IP54

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position

- mm/inch switch-over
- Auto off
- Preset function
- ABS function
- Display blocking function

scope of supply and services:
In a case with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	Without data output	
0-30 mm	0.001	6.5	0.5	31408... 005	O. R.
25-50 mm	0.001	6.5	0.5	025	O. R.
50-75 mm	0.001	6.5	0.5	050	O. R.
75-100 mm	0.001	6.5	0.5	075	O. R.
					Unit price, €

Prod. group 362

TESA Electronic micrometer
MICROMASTER IP54 with data output

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position

- mm/inch switch-over
- Auto off
- Preset function
- ABS function
- Display blocking function

scope of supply and services:
In a case with battery (1 x 3 V lithium type CR 2032)



Ident. No. 025

Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	With data output	
0-30 mm	0.001	6.5	0.5	31409... 005	O. R.
25-50 mm	0.001	6.5	0.5	025	O. R.
50-75 mm	0.001	6.5	0.5	050	O. R.
75-100 mm	0.001	6.5	0.5	075	O. R.
100-125 mm	0.001	8	0.5	100	O. R.
125-150 mm	0.001	8	0.5	125	O. R.
150-175 mm	0.001	8	0.5	150	O. R.
175-200 mm	0.001	8	0.5	175	O. R.
					Unit price, €

Prod. group 362

TESA Electronic micrometer set
0-75 mm Micromaster IP54

DIN 863



Application:
For measuring e. g. shaft diameters, external dimensions on workpieces etc.

Execution:

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position

- mm/inch switch-over
- Auto off
- Preset function
- ABS function
- Display blocking function

scope of supply and services:
In a case with battery (1 x 3 V lithium type CR 2032)



Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31414... ID no.
0-75 mm	0.001	6.5	0.5	275 O. R.
				Set price, €

Prod. group 362

TESA Measuring instrument holder

Application:
For mounting measuring instruments, e.g. micrometers, to keep both hands free while measuring.

Execution:

- Clamping element with adjustable angle

- Heavy cast iron stand for stable positioning

Technical Data:

- Max. clamping width: 16 mm

31415...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 362



ORION® Measuring instrument holder

Application:
For mounting measuring instruments, e.g. micrometers, to keep both hands free while measuring.

Execution:

- Clamping element with adjustable angle

- For micrometers with measuring ranges up to 300 mm

Technical Data:

- Max. clamping width: 16 mm

31416...	Ident. No.	020
	Unit price, €	O. R.

Prod. group 3BC



ORION® Measuring force testing system for external micrometers

Application:
For testing the measuring force between micrometer measuring faces (up to Ø 8 mm).

Execution:

- Force measuring cell for micrometers
- Extensions for micrometers up to 100 mm

- 3 screw-on extensions for micrometers up to measuring range 100 mm

scope of supply and services:

In a case

Technical Data:

- Min./max. force of measuring range: 5-10 N

31417...	Measuring force test system	Ident. No.	100
		Set price, €	O. R.

Prod. group 3BC



ORION® Plane-parallel test glasses sets
For measuring range 0-25 mm



Application:
For testing the flatness and parallelism of 0-25 mm micrometer measuring faces.

scope of supply and services:

In a case

31419...	Plane-parallel test glasses	Ident. No.	100
		Set price, €	O. R.

Prod. group 3BC



ORION® Electronic micrometer
Disc-shaped measuring faces

DIN 863



Application:

For measuring tooth span (Wk) on cogs as of module 0.5, for recesses, groove distances etc.

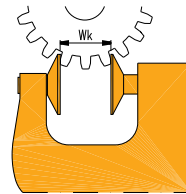
Execution:

- Measuring faces made of hardened steel
- Advanced friction coupling for consistent, repeatable measuring force

- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- ABS function

scope of supply and services:

In a case, with battery (1 x 1.5 V type SR44)



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm
Digit increment (mm)	0.001	0.001	0.001	0.001
Measuring surface Ø (mm)	20	20	20	20
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5
31610...	Ident. No. 005	025	050	075
	Unit price, € O. R.	O. R.	O. R.	O. R.

Prod. group 3BJ

ORION® Electronic universal micrometer
7 interchangeable gauge slide pairs

DIN 863



Application:

For measuring various external dimensions.

Execution:

- Measuring faces made of hardened steel
- Advanced friction coupling for consistent, repeatable measuring force
- ON/OFF

- Zero setting at any position
- mm/inch switch-over
- ABS function

scope of supply and services:

In a case, with battery (1 x 1.5 V type SR44)



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm
Digit increment (mm)	0.001	0.001	0.001	0.001
Measuring surface Ø (mm)	8	8	8	8
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5
31620...	Ident. No. 005	025	050	075
	Unit price, € O. R.	O. R.	O. R.	O. R.

Prod. group 3BC

ATORN® Thread micrometer
For measuring male threads

DIN 863



Application:

For measuring flanks and outside diameters on male threads.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Location hole, diameter 3.5 mm

Advantage:

- Direct measurement of flank diameter
- Replaceable thread inserts

scope of supply and services:

In wooden case, gauge slides and setting gauges not included



Min./max. length measuring range	0-25 mm	25-50 mm	50-75 mm	75-100 mm	100-125 mm	125-150 mm	150-200 mm
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Spindle clamping	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31579...	Ident. No. 005	025	050	075	100	125	150
	Unit price, € O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	(O. R.)

Prod. group 3AD

Accessories for			31579 025	31579 050	31579 075	31579 100	31579 125	31579 150
31580...	ISO 60° metric setting gauge	Ident. No. Unit price, €	025 O. R.	050 O. R.	075 O. R.	100 O. R.	125 (O. R.)	175 (O. R.)
31580...	Whitworth 55° setting gauge	Ident. No. Unit price, €	325 O. R.	350 (O. R.)	375 (O. R.)	-	-	-

ATORN® Thread flank gauge slides
metric 60°



Application:
For use in thread micrometer no. 31579.

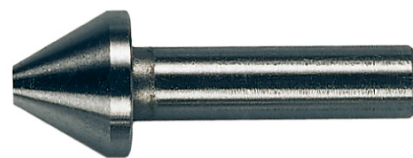
scope of supply and services:
In pairs (prism and tip)

Execution:
▪ Hardened steel, fine ground

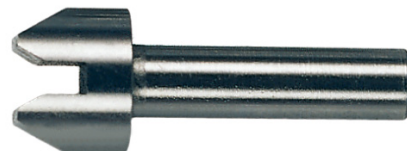
Technical Data:
▪ Adapter diameter: 3.5 mm

Min./max. thread pitch	0.35-0.5 mm	0.6-0.8 mm	0.9-1.25 mm	1.5-2 mm	2.5-3.5 mm	4-6 mm
31581...	001	002	003	004	005	006
Ident. No.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Price/pair, €						

Prod. group 3AD



Tip



Prism

Measuring equipment

TESA MICROMASTER electronic micrometers with spherical measuring surfaces



Application:
For measuring tube wall thicknesses and profile diameters.

- mm/inch switch-over
- Auto off
- Preset function
- ABS function

Execution:
▪ Carbide measuring faces
▪ ON/OFF
▪ Zero setting at any position

scope of supply and services:
In a case incl. battery (1 x 3 V lithium type CR 2032)

Min./max. length measuring range	Digit increment (mm)	Measuring surface Ø (mm)	Measuring spindle increments (mm)	31370... ID no.		31371... ID no.	
0-25 mm	0.001	6.5	0.5	005	O. R.	-	-
0-30 mm	0.001	6.5	0.5	-	-	005	(O. R.)
Unit price, €							

Prod. group 362



No. 31370



No. 31371

ETALON Micrometers head

DIN 863



Application:
For integration in measuring and pre-adjustment devices and for use as setting and control elements in machine tools

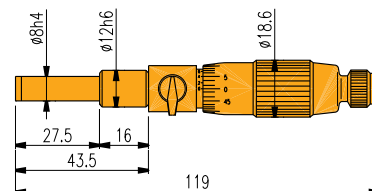
scope of supply and services:
In a case

Execution:
▪ Carbide measuring faces
▪ Friction coupling for consistent, repeatable measuring force

- Technical Data:**
- Min./max. length measuring range: 0-25 mm
 - Digit increment: 0.002 mm
 - Measuring surface diameter: 8 mm
 - Shaft diameter: 12 mm
 - Measuring spindle increments: 0.5 mm

31450...	Ident. No.	030
	Unit price, €	O. R.

Prod. group 362



TESA MICROMASTER electronic built-in micrometers

DIN 863



Application:
For integration in measuring and pre-adjustment devices and for use as setting and control elements in machine tools

- **Ident. No. 010:** Positive reading direction (extends from 0 to +30 mm)
- **Ident. No. 020:** Negative reading direction (extends from 0 to -30 mm)

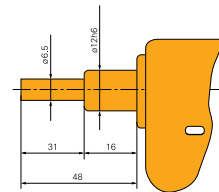


Execution:

- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force

scope of supply and services:
In a case incl. battery (1 x 3 V lithium type CR 2032)

Length measuring range (mm)	Digit increment (mm)	Measuring surface Ø (mm)	Shaft Ø (mm)	Measuring spindle increments (mm)	+ counting direction		- counting direction	
					Ident. No.	Unit price, €	Ident. No.	Unit price, €
30	0.001	6.5	12	0.5	010	O. R.	020	(O. R.)



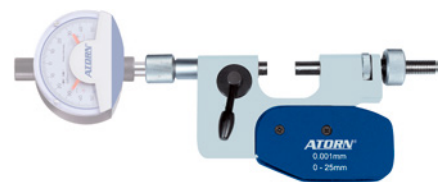
Prod. group 362

ATORN Precision pointer snap gauges



Application:
For precise testing of cylindrical parts in series.

- Spring-mounted anvil
- Consistent, repeatable measuring force



Execution:

- Carbide measuring faces

scope of supply and services:
In case, without precision pointer

Min./max. length measuring range	0-25 mm	0-50 mm	50-100 mm
Measuring sensor travel (mm)	3	3	3
Measuring surface Ø (mm)	8	8	8
Shaft Ø (mm)	8	8	8
Spindle clamping	Yes	Yes	Yes
31935...	Ident. No. 025 Unit price, € O. R.	050 O. R.	100 O. R.

Prod. group 3AD

Mahr Precision pointer snap gauges
Marameter



Application:
For precise testing of cylindrical parts in series.

- Forged steel bracket
- Measuring and counter probe made from stainless, hardened steel
- Adjustable centring stop

Execution:

- Carbide measuring faces
- Spring-mounted anvil
- Consistent, repeatable measuring force

scope of supply and services:
In wooden box, display unit not included



Min./max. length measuring range	0-25 mm	25-60 mm	50-100 mm
Measuring surface Ø (mm)	8	9	10
Measurement force (N)	7.5	7.5	7.5
Shaft Ø (mm)	8	8	8
Spindle clamping	Yes	Yes	Yes
31936...	Ident. No. 005 Unit price, € O. R.	025 O. R.	050 O. R.

Prod. group 305

Mahr Precision pointer snap gauges
Marameter FM



Application:
For precise testing of narrow shoulders, centring wheels, tooth widths etc.

Execution:

- Carbide measuring faces
- Spring-mounted anvil

- Consistent, repeatable measuring force
- Forged steel bracket
- Measuring and counter probe made from stainless, hardened steel

scope of supply and services:
In wooden box, display unit not included



Min./max. length measuring range	0-40 mm	40-80 mm	80-130 mm	130-180 mm
Measurement force (N)	7.5	7.5	9	9
Shaft Ø (mm)	8	8	8	8
Spindle clamping	Yes	Yes	Yes	Yes
31937...	Ident. No. 005	Ident. No. 040	Ident. No. 080	Ident. No. 130
	Unit price, € O. R.	Unit price, € (O. R.)	Unit price, € (O. R.)	Unit price, € (O. R.)

Prod. group 305

Mahr Precision pointer snap gauges
Marameter FS



Application:
For precise testing of cylindrical parts directly on the machine tool.

Execution:

- Carbide measuring faces
- Spring-mounted anvil
- Consistent, repeatable measuring force

- Forged steel bracket
- Both measuring probes made from stainless, hardened steel
- Adjustable centring stop

scope of supply and services:
In wooden box, display unit not included



Min./max. length measuring range	10-30 mm	30-60 mm	60-100 mm	100-150 mm	150-200 mm
Measuring surface Ø (mm)	17	17	20	20	20
Measurement force (N)	13.5	13.5	13.5	15	15
Shaft Ø (mm)	8	8	8	8	8
Spindle clamping	Yes	Yes	Yes	Yes	Yes
31938...	Ident. No. 010	Ident. No. 030	Ident. No. 060	Ident. No. 100	Ident. No. 150
	Unit price, € (O. R.)	Unit price, € (O. R.)	Unit price, € (O. R.)	Unit price, € (O. R.)	Unit price, € (O. R.)

Prod. group 305

ATORN® Inside micrometers
for 2-point measurement

DIN 863



Application:
For measuring e.g. bores during turning, milling and grinding processes.

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Ball bearing measuring spindle

- Carbide measuring faces
- Advanced friction coupling for consistent, repeatable measuring force
- No. 31635: Internal double-sided scale sleeve

scope of supply and services:
In a wooden case



No. 31635



No. 31636

Min./max. length measuring range	Vernier scale	Measuring spindle increments (mm)	31635... ID no.	31636... ID no.
5-55 mm	0.01 mm	0.5	010 O. R.	-
50-75 mm	0.01 mm	0.5	-	250 O. R.
75-100 mm	0.01 mm	0.5	-	275 O. R.
Unit price, €				

Prod. group 316

Measuring equipment

ORION® Inside micrometer
Dual measuring jaws

DIN 863



Application:

For measuring e.g. bores during turning, milling and grinding processes.

- Internal double-sided scale sleeve

scope of supply and services:

In case with setting ring, diameter 30 mm

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Measuring faces made of hardened steel
- Friction coupling for consistent, repeatable measuring force

Technical Data:

- Min./max. length measuring range: 5-55 mm
- Vernier scale: 0.01 mm
- Measuring spindle increments: 0.5 mm

31640...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BB

Mahr Inside micrometer
Micromar 44F

DIN 863



Application:

For measuring bore diameters, distances on workpieces etc.

- Lightweight, kink-resistant tube design
- Measuring spindle completely hardened and ground

Execution:

- Scale with anti-glare, brushed chromium plated finish

scope of supply and services:

In a case

Min./max. length measuring range	30-40 mm	40-50 mm	50-70 mm	70-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm
Error limit (µm)	4	4	5	5	6	6	7	7
Vernier scale	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31680...	Ident. No.	025	040	050	070	100	125	150
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	(O. R.)	(O. R.)

Prod. group 305

ATORN® Inside micrometers

DIN 863



Application:

Ident. No. 306-310: For measuring through-bores and short centring shoulders.

Ident. No. 312-475: For measuring through holes and blind bores (from diameter 12 mm) and short centring shoulders.

- Ident. No. 306-310:** Measuring faces made of hardened steel
- Ident. No. 312-475:**
 - Carbide measuring faces
 - Measures to the base of bore holes
- Ident. No. 340-475:** Aluminium measuring head

Execution:

- Scale with anti-glare, brushed chromium plated finish
- Friction coupling for consistent, repeatable measuring force

scope of supply and services:

In a case

Min./max. length measuring range	6-8 mm	8-10 mm	10-12 mm	12-16 mm	16-20 mm	20-25 mm	25-30 mm	30-40 mm
Error limit (µm)	4	4	4	4	4	4	4	4
Vernier scale	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.005 mm	0.005 mm	0.005 mm
Measuring depth (mm)	58	58	58	64	64	68	68	76
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31915...	Ident. No.	306	308	310	312	316	320	325
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Min./max. length measuring range	40-50 mm	50-60 mm	60-70 mm	70-85 mm	85-100 mm	100-125 mm	125-150 mm	150-175 mm
Error limit (µm)	4	5	5	5	5	6	6	7
Vernier scale	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm
Measuring depth (mm)	76	79	79	97	97	132	132	132
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31915...	Ident. No.	340	350	360	370	385	400	425
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	(O. R.)

Min./max. length measuring range	175-200 mm
Error limit (µm)	7
Vernier scale	0.005 mm
Measuring depth (mm)	132
Measuring spindle increments (mm)	0.5
31915...	Ident. No. 475 Unit price, € (O. R.)

Prod. group 303

ATORN® Inside micrometer sets

DIN 863



Application:

Ident. No. 610: For measuring through-bores and short centring shoulders.

Ident. No. 620-640: For measuring through holes, blind bores and short centring shoulders.

Execution:

- Scale with anti-glare, brushed chromium plated finish

- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force
- Measures to the base of bore holes

scope of supply and services:

In case, with setting rings



Ident. No. 610

	Min./max. length measuring range	Digit increment (mm)	Measuring depth (mm)	Error limit (µm)		
31915...	6-12 mm	0.001	58	4	Ident. No. 610 Unit price, € O. R.	
31915...	12-20 mm	0.001	64	4	Ident. No. 620 Unit price, € O. R.	
31915...	20-50 mm	0.005	68/74	4	Ident. No. 630 Unit price, € O. R.	
31915...	50-100 mm	0.005	79/97	5	Ident. No. 640 Unit price, € O. R.	

Prod. group 303

ATORN® Measurement depth extension For ATORN 3-point internal micrometers

Min./max. length of application area Length (mm)	6-12 mm	12-20 mm	20-25 mm	25-100 mm
	75	75	150	150
	31915... ID no.	31915... ID no.	31915... ID no.	31915... ID no.
	900 (O. R.)	910 O. R.	920 O. R.	930 O. R.
	Unit price, €			

Prod. group 303



TESA IMICRO inside micrometer set with analogue measured value display

DIN 863



Application:

For high-precision measurement of through-bores, even at high measuring depths.

Execution:

- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force
- Self-centring and self-aligning

- Insensitive to influence of body heat from the user's hand and fluctuations in ambient temperature
- The only 3-point internal micrometer working on the Abbe principle

scope of supply and services:

No. 31688: In case, with setting rings

No. 31694-31734: Separate devices, setting rings and measuring depth extensions in a case



Advantage:

- Ground step taper for high precision

Min./max. length measuring range	3.5-6.5 mm	6-12 mm	11-20 mm	20-40 mm	40-100 mm	100-200 mm
Digit increment (mm)	0.001	0.001	0.005	0.005	0.005	0.01
Measuring depth (mm)	20/25	100	150	150	150	150
Error limit (µm)	4	4	4	4	5	6/7
	31688... ID no.	31694... ID no.	31704... ID no.	31714... ID no.	31724... ID no.	31734... ID no.
	100 O. R.	100 O. R.	120 O. R.	120 O. R.	120 O. R.	100 (O. R.) ⁺
	Set price, €					

Prod. group 362

TESA Measuring depth extensions
for IMICRO inside micrometers



Min./max. length of application area	6-12 mm	11-20 mm	20-40 mm	40-100 mm	100-300 mm
Length (mm)	100	150	150	150	150
31692... ID no.	31702... ID no.	31712... ID no.	31722... ID no.	31732... ID no.	
	100 (O. R.)	100 (O. R.)	100 O. R.	100 O. R.	100 (O. R.)
Unit price, €					

Prod. group 362

ORION Inside micrometers

DIN 863



Application:

Ident. No. 006-010: For measuring through-bores and short centring shoulders.

Ident. No. 012-088: For measuring through holes and blind bores (from diameter 12.5 mm) and short centring shoulders.

- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force

scope of supply and services:

Single device with setting ring and measuring depth extension in a case



Execution:

- Scale with anti-glare, brushed chromium plated finish

Min./max. length measuring range	6-8 mm	8-10 mm	10-12 mm	12-16 mm	16-20 mm	20-25 mm	25-30 mm	30-40 mm
Error limit (µm)	4	4	4	4	4	4	4	4
Vernier scale	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm
Measuring depth (mm)	54	54	54	80	80	90	90	97
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
31910... Ident. No.	006	008	010	012	016	020	025	030
Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Min./max. length measuring range	40-50 mm	50-63 mm	62-75 mm	75-88 mm	87-100 mm
Error limit (µm)	5	5	5	5	5
Vernier scale	0.005 mm	0.005 mm	0.005 mm	0.005 mm	0.005 mm
Measuring depth (mm)	97	114	114	114	114
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5
31910... Ident. No.	040	050	062	075	088
Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3BB

ORION Inside micrometer sets

DIN 863



Application:

Ident. No. 500: For measuring through-bores and short centring shoulders.

Ident. No. 510-530: For measuring through holes, blind bores and short centring shoulders.

- Carbide measuring faces
- Friction coupling for consistent, repeatable measuring force

scope of supply and services:

Ident. No. 500: With setting rings and 1 extension in a case

Ident. No. 510-530: Complete sets with setting rings and 1 extension in a case



Min./max. length measuring range	6-12 mm	12-20 mm	20-50 mm	50-100 mm
Digit increment (mm)	0.005	0.005	0.005	0.005
Measuring depth (mm)	100	150	150	150
Error limit (µm)	4	4	4/5	5
31910... ID no.	31910... ID no.	31910... ID no.	31910... ID no.	31910... ID no.
	500 O. R.	510 O. R.	520 O. R.	530 O. R.
Set price, €				

Prod. group 3BB

 SYLVAC electronic inside micrometers

DIN 863

**Application:**

Ident. No. 006–010: For measuring through-bores and short centring shoulders.

Ident. No. 012–275: For measuring through holes and blind bores (from diameter 12.5 mm) and short centring shoulders.

Execution:

- Self-centring and self-aligning
- Friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position

- mm/inch switch-over
- Max./min. value memory
- HOLD function
- Preset function
- Tolerance function
- **Ident. No. 006–010:** Measuring faces made of hardened steel
- **Ident. No. 012–275:** Carbide measuring faces

scope of supply and services:

Single device with battery (1 x 3 V lithium type CR 2032) and calibration certificate in a case



Ident. No. 035

Min./max. length measuring range	6-8 mm	8-10 mm	10-12.5 mm	12.5-16 mm	16-20 mm	20-25 mm	25-35 mm	35-50 mm
Digit increment (mm)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Measuring depth (mm)	58	58	58	62	62	66	66	80
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Error limit (µm)	4	4	4	4	4	4	4	4
31917...	Ident. No. 006 Unit price, € (O. R.)	Ident. No. 008 Unit price, € (O. R.)	Ident. No. 010 Unit price, € (O. R.)	Ident. No. 012 Unit price, € (O. R.)	Ident. No. 016 Unit price, € (O. R.)	Ident. No. 020 Unit price, € (O. R.)	Ident. No. 025 Unit price, € (O. R.)	Ident. No. 035 Unit price, € (O. R.)

Min./max. length measuring range	50-65 mm	65-80 mm	80-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm	200-225 mm
Digit increment (mm)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Measuring depth (mm)	80	80	100	115	115	115	115	115
Measuring spindle increments (mm)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Error limit (µm)	5	5	5	6	6	7	7	8
31917...	Ident. No. 050 Unit price, € (O. R.)	Ident. No. 065 Unit price, € (O. R.)	Ident. No. 080 Unit price, € (O. R.)	Ident. No. 100 Unit price, € (O. R.)	Ident. No. 125 Unit price, € (O. R.)	Ident. No. 150 Unit price, € (O. R.)	Ident. No. 175 Unit price, € (O. R.)	Ident. No. 200 Unit price, € (O. R.)

Min./max. length measuring range	225-250 mm	250-275 mm	275-300 mm
Digit increment (mm)	0.001	0.001	0.001
Measuring depth (mm)	115	115	115
Measuring spindle increments (mm)	0.5	0.5	0.5
Error limit (µm)	8	9	9
31917...	Ident. No. 225 Unit price, € (O. R.)	Ident. No. 250 Unit price, € (O. R.)	Ident. No. 275 Unit price, € (O. R.)

Prod. group 317

 SYLVAC electronic inside micrometers, partial sets

DIN 863

**Application:**

Ident. No. 510: For measuring through-bores and short centring shoulders.

Ident. No. 520–560: For measuring through holes, blind bores and short centring shoulders.

Execution:

- Self-centring and self-aligning
- Measuring faces made of hardened steel
- Friction coupling for consistent, repeatable measuring force
- ON/OFF

- Zero setting at any position
- mm/inch switch-over
- Max./min. value memory
- HOLD function
- Preset function
- Tolerance function

scope of supply and services:

1 measuring element, measuring heads with setting rings, battery (1 x 3 V lithium type CR 2032)



Ident. No. 530

	Min./max. length measuring range	Digit increment (mm)	Measuring depth (mm)	Error limit (µm)		
31917...	6-10 mm	0.001	58	4	Ident. No.	510
31917...	10-20 mm	0.001	58/62	4	Set price, €	(O. R.)
31917...	20-50 mm	0.001	66/88	4	Ident. No.	520
31917...	50-100 mm	0.001	80/100	4	Set price, €	(O. R.)
31917...	100-150 mm	0.001	115	6	Ident. No.	530
31917...	150-200 mm	0.001	115	7	Set price, €	(O. R.)
31917...					Ident. No.	540
31917...					Set price, €	(O. R.)
31917...					Ident. No.	550
31917...					Set price, €	(O. R.)
31917...					Ident. No.	560
31917...					Set price, €	(O. R.)

Prod. group 317

SYLVAC SYLVAC electronic internal quick measuring instruments



Application:
Ident. No. 006-010: For measuring through-bores and short centring shoulders in series.

Ident. No. 012-275: For measuring through holes and blind bores (from Ø 12.5 mm) and short centring shoulders in series.

Execution:

- Self-centring and self-aligning
- Friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position
- mm/inch switch-over
- Max./min. value memory

- HOLD function
- Preset function
- Tolerance function
- **Ident. No. 006-010:** Measuring faces made of hardened steel
- **Ident. No. 012-275:** Carbide measuring faces

Advantage:

- Pistol grip for quick measurements using retractable lever

scope of supply and services:

Single device with setting ring and measuring depth extension in a case



Ident. No. 035

Min./max. length measuring range	6-8 mm	8-10 mm	10-12.5 mm	12.5-16 mm	16-20 mm	20-25 mm	25-35 mm	35-50 mm
Digit increment (mm)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Measuring depth (mm)	58	58	58	62	62	66	66	80
Error limit (µm)	4	4	4	4	4	4	4	4
31919... Ident. No.	006	008	010	012	016	020	025	035
Unit price, €	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Min./max. length measuring range	50-65 mm	65-80 mm	80-100 mm	100-125 mm	125-150 mm	150-175 mm	175-200 mm	200-225 mm
Digit increment (mm)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Measuring depth (mm)	80	80	100	115	115	115	115	115
Error limit (µm)	5	5	5	6	6	7	7	8
31919... Ident. No.	050	065	080	100	125	150	175	200
Unit price, €	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Min./max. length measuring range	225-250 mm	250-275 mm	275-300 mm
Digit increment (mm)	0.001	0.001	0.001
Measuring depth (mm)	115	115	115
Error limit (µm)	8	9	9
31919... Ident. No.	225	250	275
Unit price, €	(O. R.)	(O. R.)	(O. R.)

Prod. group 317

SYLVAC SYLVAC electronic internal quick measuring devices, partial sets



Application:
Ident. No. 500: For measuring through-bores and short centring shoulders in series.

Ident. No. 510-550: For measuring through holes and blind bores and short centring shoulders in series.

Execution:

- Self-centring and self-aligning
- Measuring faces made of hardened steel
- Friction coupling for consistent, repeatable measuring force
- ON/OFF
- Zero setting at any position

- mm/inch switch-over
- Max./min. value memory
- HOLD function
- Preset function
- Tolerance function

Advantage:

- Pistol grip for quick measurements using retractable lever

scope of supply and services:

1 measuring element, measuring heads with setting rings, battery (1 x 3 V lithium type CR 2032)



Ident. No. 520

	Min./max. length measuring range	Digit increment (mm)	Measuring depth (mm)	Error limit (µm)	Ident. No.	Set price, €
31919...	6-10 mm	0.001	58	3	500	(O. R.)
31919...	10-20 mm	0.001	58/62	3	510	(O. R.)
31919...	20-50 mm	0.001	55/80	3	520	(O. R.)
31919...	50-100 mm	0.001	80/100	4	530	(O. R.)
31919...	100-150 mm	0.001	115	5	540	(O. R.)
31919...	150-200 mm	0.001	115	5	550	(O. R.)

Prod. group 317

ATORN® Universal comparative measuring instrument for inside and outside measurements

Application:

Ident. No. 010: For universal measurements of diverse tasks, e.g. external and internal measurement of bores, threads, tothing, recesses, grooves etc.

Ident. No. 100–120: For increasing the measuring range of the universal comparison measuring instrument no. 31970.

Ident. No. 140: For measuring external dimensions using the universal comparison measuring instrument.

Execution:

▪ **Ident. No. 010:**

- 1 adjustable fixed measuring arm
- 1 moving measuring arm for internal and external measurements, spring-mounted for consistent, repeatable results, measuring direction reversible, measurement path 15 mm
- Measured values displayed by dial gauge, precision pointer or electronic measuring probes

- Adjusted using a setting device with gauge block combinations, master gauges, ring gauges or other material measures
- Measuring range of basic device 5-220 mm external/15-230 mm internal, can be increased up to 2000 mm with extensions.
- **Ident. No. 010–120:** Robust, torsion-free tubular structure

Advantage:

- **Ident. No. 010:**
- Measuring range extendable up to 2000 mm using extensions (see ref. no. 100–120)
- Suitable for many applications due to wide range of gauge slides

scope of supply and services:

Ident. No. 010: In a wooden case



Ident. No. 010
Basic device with measuring arms,
ref. no. 220



Ref. no. 010/130/150



Ref. no. 010/130/170



Ref. no. 010/130/180



Ref. no. 010/130/190



Ref. no. 010/130/200



Ref. no. 010/220/230/240



Ref. no. 010/220/230/240

31970...	Basic device	Ident. No.	010
		Unit price, €	O. R.
31970...	Universal measuring instrument 100 mm extension	Ident. No.	100
		Unit price, €	O. R.
31970...	Universal measuring instrument 200 mm extension	Ident. No.	110
		Unit price, €	O. R.
31970...	Universal measuring instrument 500 mm extension	Ident. No.	120
		Unit price, €	(O. R.)
31970...	Attachment piece for gauge slides	Ident. No.	130
		Price/pair, €	O. R.
31970...	Shoulder gauge slides for external measurements	Ident. No.	140
		Price/pair, €	O. R.
31970...	Shoulder gauge slides for internal measurements	Ident. No.	150
		Price/pair, €	O. R.
31970...	Gauge slides with spherical contact surface, length 23 mm	Ident. No.	160
		Price/pair, €	O. R.
31970...	Gauge slides with spherical contact surface, length 53 mm	Ident. No.	170
		Price/pair, €	(O. R.)
31970...	Cylindrical gauge slides, length 52 mm	Ident. No.	180
		Price/pair, €	(O. R.)
31970...	Gauge slides, bent	Ident. No.	190
		Price/pair, €	(O. R.)
31970...	Gauge slides with gauge disc	Ident. No.	200
		Price/pair, €	O. R.
31970...	Measuring arms for gauge slides, length 40 mm	Ident. No.	210
		Price/pair, €	O. R.
31970...	Measuring arms for gauge slides, length 80 mm	Ident. No.	220
		Price/pair, €	O. R.
31970...	Depth stop for measuring arms	Ident. No.	230
		Price/pair, €	O. R.
31970...	Adapter 5 mm for gauge slides M 2.5	Ident. No.	240
		Price/pair, €	O. R.

Prod. group 303



2-point comparison measuring instrument QUICKCHECK

Application:

For measuring internal and external diameters, recesses inside and outside, chamfers, through holes, blind bores and shape and position deviations. Ideal for series measurements.

Execution:

- Wide range of applications: from the smallest readable internal measurement of 6.5 mm (using special accessories) to the largest external measurement of 300 mm (using large base plate)
- Holder for mobile probe element in precise bearing
- Clamp holder for fixed probe tip

- Hard-coated surface

Advantage:

- Comparison measuring instrument for versatile applications

scope of supply and services:

Measuring device with standard base plate, long and short clamp probe tip holders, 2 pairs of probe tips in a case (without dial gauge).

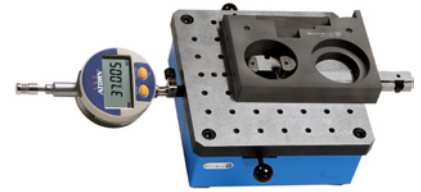
Technical Data:

- Length x width x height: 150 x 150 x 68 mm

31950...	Ident. No.	015
	Unit price, €	O. R.

Prod. group 308

Accessories for		31950 015	
31950...	Large supporting plate 269 x 150 x 68 mm	Ident. No.	020 (O. R.)
		Unit price, €	



Ref. no. 015 with large support plates ref. no. 020

Measuring equipment



Gauge blocks

Tolerance classes and their areas of application

The parallel gauge blocks according to DIN EN ISO 3650 will be produced in various tolerance

classes that are assigned to the following application groups:



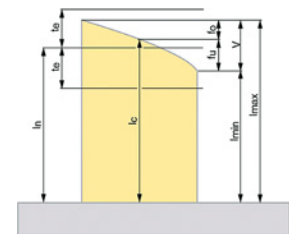
Calibration class K	Reference normal gauge blocks are predominantly used for gauge block test with gauge block testers in the calibration laboratory, together with a DKD calibration certificate.
Tolerance class 0	Workshop and normal gauge in calibration laboratory or in air conditioned measuring room for setting or calibration of gauges as well as measuring devices.
Tolerance class 1	Most often used working standard for checking gauges and adjusting measuring instruments. Uses in measuring rooms and at production test stations.
Tolerance class 2	Gauge blocks of this class are mostly used as normal gauge at test stations in production areas, for setting and calibration of measuring devices as well as for setting and testing of tools, appliances and machines.



Gauge blocks

Borderline deviation of the length from the nominal dimensions and tolerance for the deviation span

(Extract from DIN EN ISO 3650, table 4)



Nominal measuring range	Tolerance class 0		Tolerance class 1		Tolerance class 2		
	Borderline deviation of length from the nominal dimensions at any point	Tolerance for the deviation span	Borderline deviation of length from the nominal dimensions at any point	Tolerance for the deviation span	Borderline deviation of length from the nominal dimensions at any point	Tolerance for the deviation span	
	$\pm te$	tv	$\pm te$	tv	$\pm te$	tv	
mm	μm	μm	μm	μm	μm	μm	
Above	Until						
-	10	0.12	0.10	0.20	0.16	0.45	0.30
10	25	0.14	0.10	0.30	0.16	0.60	0.30
25	50	0.20	0.10	0.40	0.18	0.80	0.30
50	75	0.25	0.12	0.50	0.18	1.00	0.35

75	100	0.30	0.12	0.60	0.20	1.20	0.35
100	150	0.40	0.14	0.80	0.20	1.60	0.40
150	200	0.50	0.16	1.00	0.25	2.00	0.40
200	250	0.60	0.16	1.20	0.25	2.40	0.45
250	300	0.70	0.18	1.40	0.25	2.80	0.50
300	400	0.90	0.20	1.80	0.30	3.60	0.50
400	500	1.10	0.25	2.20	0.35	4.40	0.60
500	600	1.30	0.25	2.60	0.40	5.00	0.70
600	700	1.50	0.30	3.00	0.45	6.00	0.70
700	800	1.70	0.30	3.40	0.50	6.50	0.80
800	900	1.90	0.35	3.80	0.50	7.50	0.90
900	1000	2.00	0.40	4.20	0.60	8.00	1.00

i **Gauge blocks**
Table comparing properties of materials



Measuring equipment

Property	Ceramic	Cemented carbide	Steel
Length extension coefficient approx.	9.5 x 10 E-6/C	4.23 x 10 E-6/C	11.5 x 10 E-6/C
Thermal conductivity	Very low	Low	High
Wear resistance	Excellent	Good	Less good
Thrust qualities	Acceptable	Excellent	Excellent
Geometric accuracy	Excellent	Excellent	Acceptable if treated correctly
Corrosion resistance	Excellent	Good	Less good
Mechanical strength	Good	Good	Very good

ATORN® Steel gauge block sets

ISO 3650

Application:

For testing and calibrating measuring instruments and test equipment.

Execution:

- Made from high-quality, aged special steel
- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number

Advantage:

- **No. 32082 006, 32086 006, 32087 006:** Ideal for calibrating gauges and measuring instruments
- **No. 32082 010, 32086 010, 32087 011:** Ideal for testing gauges and measuring instruments in test rooms

scope of supply and services:

In high-quality wooden case with works calibration certificate



No. 32082

Tolerance class				0	1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material		
32082...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Gauge steel	Ident. No. Set price, €	006 O. R. 010 O. R.
32086...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Gauge steel	Ident. No. Set price, €	006 (O. R.) 010 (O. R.)
32087...	103	1.005 mm, 1.01-1.49 mm, increasing by 0.01 mm, 0.5-24.5 mm, increasing by 0.5 mm, 25-100 mm, increasing by 25 mm	Gauge steel	Ident. No. Set price, €	006 (O. R.) 011 (O. R.)

Prod. group 320

ATORN® Gauge block sets made of ceramic and cemented carbide

Application:

For testing and calibrating measuring instruments and test equipment.

Execution:

- Gauge blocks are marked with an identification number

Advantage:

- No. 32072 006, 32073 006, 32103 006, 32104 006:** Ideal for calibrating gauges and measuring instruments
- No. 32072 010, 32073 010, 32103 010, 32104 010:** Ideal for testing gauges and measuring instruments in test rooms

No. 32072-32073:

- Up to 10x longer service life than steel
- Corrosion-resistant
- Non-magnetic
- Very low maintenance

No. 32103-32104:

- Up to 20x longer service life than steel
- Very low thermal expansion

scope of supply and services:

In high-quality wooden case with works calibration certificate



No. 32072

Tolerance class					0	1
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €		
32072...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Ceramic		006 (O. R.)	010 (O. R.)
32073...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Ceramic		006 O. R.	010 (O. R.)
32103...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Tungsten Carbide		006 (O. R.)	010 O. R.
32104...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Tungsten Carbide		006 (O. R.)	010 (O. R.)

Prod. group 320

ORION® Steel gauge block sets



Application:

For testing and calibrating measuring instruments and test equipment.

Execution:

- Made from high-quality, aged special steel
- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number

Advantage:

- No. 32050 006, 32051 006, 32052 006, 32053 006:** Ideal for calibrating gauges and measuring instruments
- No. 32050 010, 32051 010, 32052 010, 32053 010:** Ideal for testing gauges and measuring instruments in test rooms
- No. 32050 020, 32051 020, 32052 020, 32053 020:** Ideal for testing gauges and measuring instruments in production

scope of supply and services:

In wooden case



No. 32052-32053

Tolerance class					0	1	2
	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material	Ident. No. Set price, €			
32050...	32	1.005 mm, 1.01-1.09 mm, increasing by 0.01 mm, 1.1-1.9 mm, increasing by 0.1 mm, 1-9 mm, increasing by 1 mm, 10-30 mm, increasing by 10 mm, 50 mm	Gauge steel		006 O. R.	010 O. R.	020 O. R.
32051...	47	1.005 mm, 1.01-1.20 mm, increasing by 0.01 mm, 1.3-1.9 mm, increasing by 0.1 mm, 10-100 mm, increasing by 10 mm, 1-9 mm, increasing by 1 mm	Gauge steel		006 O. R.	010 O. R.	020 O. R.
32052...	87	0.5-9.5 mm, increasing by 0.5 mm, 1.001-1.009 mm, increasing by 0.001 mm, 1.01-1.49 mm, increasing by 0.01 mm, 10-100 mm, increasing by 10 mm	Gauge steel		006 O. R.	010 O. R.	020 O. R.
32053...	103	1.005 mm, 1.01-1.49 mm, increasing by 0.01 mm, 0.5-24.5 mm, increasing by 0.5 mm, 25-100 mm, increasing by 25 mm	Gauge steel		006 (O. R.)	010 O. R.	020 O. R.

Prod. group 321

ORION® Steel gauge block sets
for calibration and testing of vernier callipers and scribers

ISO 3650

Application:
For the specific testing and calibration of vernier callipers and scribers.

Execution:

- Made from high-quality, aged special steel
- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number
- **No. 32122:** For vernier callipers up to 150 mm
- **No. 32123:** For vernier callipers up to 250 mm

- **No. 32124:** For vernier callipers up to 300 mm
- **No. 32125:** For vernier callipers up to 500 mm

Advantage:

- Ideal for testing gauges and measuring instruments in test rooms

scope of supply and services:

In high-quality wooden case with works calibration certificate

Technical Data:

- Tolerance class: 1



	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material		
32122...	3	30 mm, 41.3 mm, 131.4 mm	Gauge steel	Ident. No. Set price, €	010 O. R.
32123...	4	30 mm, 41.3 mm, 131.4 mm, 243.5 mm	Gauge steel	Ident. No. Set price, €	010 (O. R.)
32124...	5	30 mm, 41.3 mm, 131.4 mm, 243.5 mm, 281.2 mm	Gauge steel	Ident. No. Set price, €	010 (O. R.)
32125...	6	30 mm, 41.3 mm, 131.4 mm, 243.5 mm, 281.2 mm, 481.1 mm	Gauge steel	Ident. No. Set price, €	010 (O. R.)

Prod. group 321

Measuring equipment

MORE THAN 60,000 PRODUCTS FOR MAXIMUM INNOVATION.

WE HAVE WHAT IT TAKES.

HAHN+KOLB GROUP

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LET'S WORK TOGETHER.

ATORN® Steel gauge block sets
for calibration and testing of outside micrometers

ISO 3650

Application:
For specific testing and calibration of micrometers.

Execution:

- Made from high-quality, aged special steel
- Hardened
- Hand-lapped
- Gauge blocks are marked with an identification number
- **No. 32077:** For reliable testing of micrometers
- **No. 32079:** To meet the minimum micrometer requirements

Advantage:

- Ideal for testing gauges and measuring instruments in test rooms

scope of supply and services:

In high-quality wooden case with works calibration certificate

Technical Data:

- Tolerance class: 1



	Number of pieces in assortment/set (PCS)	Nominal dimension in assortment	Material		
32077...	10	2.5 mm, 5.1 mm, 7.7 mm, 10.3 mm, 12.9 mm, 15 mm, 17.6 mm, 20.2 mm, 22.8 mm, 25 mm	Gauge steel	Ident. No.	010
32079...	5	5.1 mm, 10.3 mm, 15 mm, 20.2 mm, 25 mm	Gauge steel	Set price, €	O. R.
				Ident. No.	010
				Set price, €	O. R.

Prod. group 320

ORION® Steel gauge block
Long version

ISO 3650

Application:
For testing and calibrating measuring instruments and test equipment.

Execution:

- Gauge blocks are marked with an identification number

Advantage:

- Ideal for testing gauges and measuring instruments

scope of supply and services:

Comes in a wooden case, with a calibration certificate from an accredited laboratory



Tolerance class		1		Tolerance class		1	
Material		Gauge steel		Material		Gauge steel	
Nominal dimension (mm)		32109... ID no.		Nominal dimension (mm)		32109... ID no.	
125	805	O. R.		500	850	O. R.	
150	815	O. R.		600	860	O. R.	
175	818	O. R.		700	870	O. R.	
200	820	O. R.		800	880	O. R.	
250	825	O. R.		900	890	O. R.	
300	830	O. R.		1000	895	O. R.	
400	840	O. R.					Unit price, €

Prod. group 321

ARE YOU LOOKING FOR PRODUCTS FROM BOSCH, MAKITA OR FEIN?

WE HAVE WHAT IT TAKES.

For a complete range of products that meet the toughest demands, visit www.hahn-kolb.com

HAHN+KOLB GROUP  LET'S WORK TOGETHER.

ORION® Gauge blocks, individual

ISO 3650



Application:
For testing and calibrating measuring instruments and test equipment.

Execution:
▪ Gauge blocks are marked with an identification number



No. 32169

No. 32178

No. 32187

Tolerance class	0		0		0	
Material	Gauge steel		Ceramic		Tungsten Carbide	
Nominal dimension (mm)	32169... ID no.		32178... ID no.		32187... ID no.	
0.5	005	O. R.	005	O. R.	005	(O. R.)
0.6	006	(O. R.)	-	-	006	(O. R.)
0.7	007	(O. R.)	-	-	007	(O. R.)
0.8	008	(O. R.)	-	-	008	(O. R.)
0.9	009	(O. R.)	-	-	009	(O. R.)
1	010	O. R.	010	(O. R.)	010	O. R.
1.0005	510	(O. R.)	510	(O. R.)	510	(O. R.)
1.001	501	(O. R.)	501	(O. R.)	501	(O. R.)
1.002	502	(O. R.)	502	(O. R.)	502	(O. R.)
1.003	503	(O. R.)	503	(O. R.)	503	(O. R.)
1.004	504	(O. R.)	504	(O. R.)	504	(O. R.)
1.005	505	(O. R.)	505	(O. R.)	505	(O. R.)
1.006	506	(O. R.)	506	(O. R.)	506	(O. R.)
1.007	507	(O. R.)	507	(O. R.)	507	(O. R.)
1.008	508	(O. R.)	508	(O. R.)	508	(O. R.)
1.009	509	(O. R.)	509	(O. R.)	509	(O. R.)
1.01	401	(O. R.)	401	(O. R.)	401	(O. R.)
1.02	402	(O. R.)	402	(O. R.)	402	(O. R.)
1.03	403	(O. R.)	403	(O. R.)	403	(O. R.)
1.04	404	(O. R.)	404	(O. R.)	404	(O. R.)
1.05	405	(O. R.)	405	(O. R.)	405	(O. R.)
1.06	406	(O. R.)	406	(O. R.)	406	(O. R.)
1.07	407	(O. R.)	407	(O. R.)	407	(O. R.)
1.08	408	(O. R.)	408	(O. R.)	408	(O. R.)
1.09	409	(O. R.)	409	(O. R.)	409	(O. R.)
1.1	410	(O. R.)	410	(O. R.)	410	(O. R.)
1.11	411	(O. R.)	411	(O. R.)	411	(O. R.)
1.12	412	(O. R.)	412	(O. R.)	412	(O. R.)
1.13	413	(O. R.)	413	(O. R.)	413	(O. R.)
1.14	414	(O. R.)	414	(O. R.)	414	(O. R.)
1.15	415	(O. R.)	415	(O. R.)	415	(O. R.)
1.16	416	(O. R.)	416	(O. R.)	416	(O. R.)
1.17	417	(O. R.)	417	(O. R.)	417	(O. R.)
1.18	418	(O. R.)	418	(O. R.)	418	(O. R.)
1.19	419	(O. R.)	419	(O. R.)	419	(O. R.)
1.2	420	(O. R.)	420	(O. R.)	420	(O. R.)
1.21	421	(O. R.)	421	(O. R.)	421	(O. R.)
1.22	422	(O. R.)	422	(O. R.)	422	(O. R.)
1.23	423	(O. R.)	423	(O. R.)	423	(O. R.)
1.24	424	(O. R.)	424	(O. R.)	424	(O. R.)
1.25	425	(O. R.)	425	(O. R.)	425	(O. R.)
1.26	426	(O. R.)	426	(O. R.)	426	(O. R.)
1.27	427	(O. R.)	427	(O. R.)	427	(O. R.)
1.28	428	(O. R.)	428	(O. R.)	428	(O. R.)
1.29	429	(O. R.)	429	(O. R.)	429	(O. R.)
1.3	430	(O. R.)	430	(O. R.)	430	(O. R.)
1.31	431	(O. R.)	431	(O. R.)	431	(O. R.)
1.32	432	(O. R.)	432	(O. R.)	432	(O. R.)
1.33	433	(O. R.)	433	(O. R.)	433	(O. R.)
1.34	434	(O. R.)	434	(O. R.)	434	(O. R.)
1.35	435	(O. R.)	435	(O. R.)	435	(O. R.)
1.36	436	(O. R.)	436	(O. R.)	436	(O. R.)
1.37	437	(O. R.)	437	(O. R.)	437	(O. R.)
1.38	438	(O. R.)	438	(O. R.)	438	(O. R.)
1.39	439	(O. R.)	439	(O. R.)	439	(O. R.)
1.4	440	(O. R.)	440	(O. R.)	440	(O. R.)
1.41	441	(O. R.)	441	(O. R.)	441	(O. R.)
1.42	442	(O. R.)	442	(O. R.)	442	(O. R.)
1.43	443	(O. R.)	443	(O. R.)	443	(O. R.)
1.44	444	(O. R.)	444	(O. R.)	444	(O. R.)
1.45	445	(O. R.)	445	(O. R.)	445	(O. R.)
1.46	446	(O. R.)	446	(O. R.)	446	(O. R.)
1.47	447	(O. R.)	447	(O. R.)	447	(O. R.)
1.48	448	(O. R.)	448	(O. R.)	448	(O. R.)

32169... = Prod. group 321; 32178... = Prod. group 322; 32187... = Prod. group 322

Tolerance class	0		0		0	
Material	Gauge steel		Ceramic		Tungsten Carbide	
Nominal dimension (mm)	32169... ID no.		32178... ID no.		32187... ID no.	
1.49	449	(O. R.)	449	(O. R.)	449	(O. R.)
1.5	450	O. R.	450	(O. R.)	450	(O. R.)
1.6	016	(O. R.)	016	(O. R.)	016	(O. R.)
1.7	017	(O. R.)	017	(O. R.)	017	(O. R.)
1.8	018	(O. R.)	018	(O. R.)	018	(O. R.)
1.9	019	(O. R.)	019	(O. R.)	019	(O. R.)
2	020	O. R.	020	O. R.	020	O. R.
2.5	025	(O. R.)	025	(O. R.)	025	(O. R.)
3	030	O. R.	030	O. R.	030	(O. R.)
3.5	035	(O. R.)	035	(O. R.)	035	(O. R.)
4	040	(O. R.)	040	(O. R.)	040	(O. R.)
4.5	045	(O. R.)	045	(O. R.)	045	(O. R.)
5	050	O. R.	050	O. R.	050	O. R.
5.5	055	(O. R.)	055	(O. R.)	055	(O. R.)
6	060	(O. R.)	060	(O. R.)	060	(O. R.)
6.5	065	(O. R.)	065	(O. R.)	065	(O. R.)
7	070	(O. R.)	070	(O. R.)	070	O. R.
7.5	075	(O. R.)	075	(O. R.)	075	(O. R.)
8	080	(O. R.)	080	(O. R.)	080	O. R.
8.5	085	(O. R.)	085	(O. R.)	085	(O. R.)
9	090	(O. R.)	090	(O. R.)	090	(O. R.)
9.5	095	(O. R.)	095	(O. R.)	095	(O. R.)
10	100	O. R.	100	O. R.	100	O. R.
10.5	105	(O. R.)	105	(O. R.)	105	(O. R.)
11	110	(O. R.)	110	(O. R.)	110	(O. R.)
11.5	115	(O. R.)	115	(O. R.)	115	(O. R.)
12	120	(O. R.)	120	(O. R.)	120	(O. R.)
12.5	125	(O. R.)	125	(O. R.)	125	(O. R.)
13	130	(O. R.)	130	(O. R.)	130	(O. R.)
13.5	135	(O. R.)	135	(O. R.)	135	(O. R.)
14	140	(O. R.)	140	(O. R.)	140	(O. R.)
14.5	145	(O. R.)	145	(O. R.)	145	(O. R.)
15	150	(O. R.)	150	(O. R.)	150	(O. R.)
15.5	155	(O. R.)	155	(O. R.)	155	(O. R.)
16	160	(O. R.)	160	(O. R.)	160	(O. R.)
16.5	165	(O. R.)	165	(O. R.)	165	(O. R.)
17	170	(O. R.)	170	(O. R.)	170	(O. R.)
17.5	175	(O. R.)	175	(O. R.)	175	(O. R.)
18	180	(O. R.)	180	(O. R.)	180	(O. R.)
18.5	185	(O. R.)	185	(O. R.)	185	(O. R.)
19	190	(O. R.)	190	(O. R.)	190	(O. R.)
19.5	195	(O. R.)	195	(O. R.)	195	(O. R.)
20	200	O. R.	200	O. R.	200	O. R.
20.5	205	(O. R.)	205	(O. R.)	205	(O. R.)
21	210	(O. R.)	210	(O. R.)	210	(O. R.)
21.5	215	(O. R.)	215	(O. R.)	215	(O. R.)
22	220	(O. R.)	220	(O. R.)	220	(O. R.)
22.5	225	(O. R.)	225	(O. R.)	225	(O. R.)
23	230	(O. R.)	230	(O. R.)	230	(O. R.)
23.5	235	(O. R.)	235	(O. R.)	235	(O. R.)
24	240	(O. R.)	240	(O. R.)	240	(O. R.)
24.5	245	(O. R.)	245	(O. R.)	245	(O. R.)
25	250	(O. R.)	250	(O. R.)	250	(O. R.)
30	300	(O. R.)	300	(O. R.)	300	(O. R.)
40	400	(O. R.)	400	(O. R.)	400	(O. R.)
50	500	O. R.	500	(O. R.)	500	O. R.
60	600	(O. R.)	600	(O. R.)	600	(O. R.)
70	700	(O. R.)	700	(O. R.)	700	(O. R.)
75	750	(O. R.)	750	(O. R.)	750	(O. R.)
80	800	(O. R.)	800	(O. R.)	800	(O. R.)
90	900	(O. R.)	900	(O. R.)	900	(O. R.)
100	910	O. R.	910	(O. R.)	910	O. R.

Unit price, €

Measuring equipment

ORION® Gauge blocks, individual

ISO 3650



Application:
For testing and calibrating measuring instruments and test equipment.

Execution:
▪ Gauge blocks are marked with an identification number



Measuring equipment

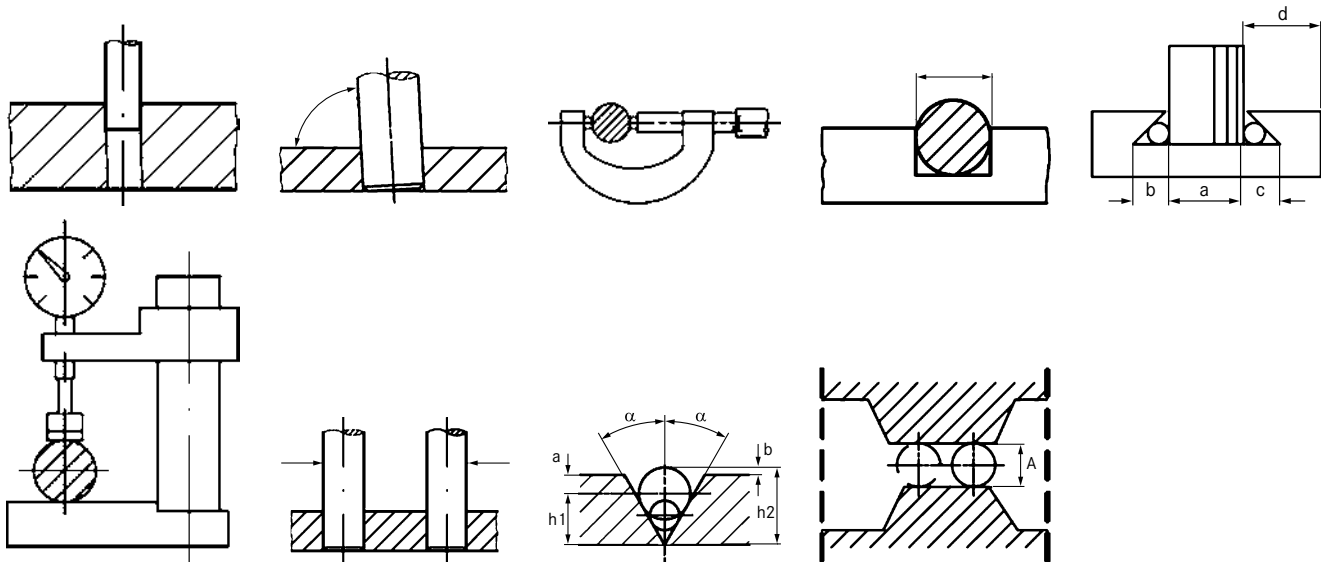
Tolerance class	1		1		1	
Material	Gauge steel		Ceramic		Tungsten Carbide	
Nominal dimension (mm)	32170... ID no.		32179... ID no.		32188... ID no.	
0.5	005	O. R.	005	(O. R.)	005	O. R.
0.6	006	(O. R.)	-	-	006	(O. R.)
0.7	007	(O. R.)	-	-	007	(O. R.)
0.8	008	(O. R.)	-	-	008	(O. R.)
0.9	009	(O. R.)	-	-	009	(O. R.)
1	010	O. R.	010	O. R.	010	O. R.
1.6	016	O. R.	016	(O. R.)	016	(O. R.)
1.7	017	O. R.	017	(O. R.)	017	(O. R.)
1.8	018	O. R.	018	(O. R.)	018	(O. R.)
1.9	019	O. R.	019	(O. R.)	019	(O. R.)
2	020	O. R.	020	(O. R.)	020	O. R.
2.5	025	O. R.	025	(O. R.)	025	(O. R.)
3	030	O. R.	030	O. R.	030	O. R.
3.5	035	O. R.	035	(O. R.)	035	(O. R.)
4	040	O. R.	040	(O. R.)	040	(O. R.)
4.5	045	O. R.	045	(O. R.)	045	(O. R.)
5	050	O. R.	050	(O. R.)	050	O. R.
5.5	055	O. R.	055	(O. R.)	055	(O. R.)
6	060	O. R.	060	(O. R.)	060	O. R.
6.5	065	O. R.	065	(O. R.)	065	(O. R.)
7	070	O. R.	070	(O. R.)	070	O. R.
7.5	075	O. R.	075	(O. R.)	075	(O. R.)
8	080	O. R.	080	(O. R.)	080	O. R.
8.5	085	O. R.	085	(O. R.)	085	(O. R.)
9	090	O. R.	090	(O. R.)	090	(O. R.)
9.5	095	(O. R.)	095	(O. R.)	095	(O. R.)
10	100	O. R.	100	(O. R.)	100	O. R.
10.5	105	(O. R.)	105	(O. R.)	105	(O. R.)
11	110	O. R.	110	(O. R.)	110	(O. R.)
11.5	115	(O. R.)	115	(O. R.)	115	(O. R.)
12	120	O. R.	120	(O. R.)	120	(O. R.)
12.5	125	(O. R.)	125	(O. R.)	125	(O. R.)
13	130	(O. R.)	130	(O. R.)	130	(O. R.)
13.5	135	(O. R.)	135	(O. R.)	135	(O. R.)
14	140	(O. R.)	140	(O. R.)	140	(O. R.)
14.5	145	(O. R.)	145	(O. R.)	145	(O. R.)
15	150	O. R.	150	(O. R.)	150	O. R.
15.5	155	(O. R.)	155	(O. R.)	155	(O. R.)
16	160	O. R.	160	(O. R.)	160	(O. R.)
16.5	165	(O. R.)	165	(O. R.)	165	(O. R.)
17	170	O. R.	170	(O. R.)	170	(O. R.)
17.5	175	(O. R.)	175	(O. R.)	175	(O. R.)
18	180	O. R.	180	(O. R.)	180	(O. R.)
18.5	185	(O. R.)	185	(O. R.)	185	(O. R.)
19	190	O. R.	190	(O. R.)	190	(O. R.)
19.5	195	(O. R.)	195	(O. R.)	195	(O. R.)
20	200	O. R.	200	(O. R.)	200	O. R.
20.5	205	(O. R.)	205	(O. R.)	205	(O. R.)
21	210	(O. R.)	210	(O. R.)	210	(O. R.)
21.5	215	(O. R.)	215	(O. R.)	215	(O. R.)
22	220	(O. R.)	220	(O. R.)	220	(O. R.)
22.5	225	(O. R.)	225	(O. R.)	225	(O. R.)
23	230	(O. R.)	230	(O. R.)	230	(O. R.)
23.5	235	(O. R.)	235	(O. R.)	235	(O. R.)
24	240	(O. R.)	240	(O. R.)	240	(O. R.)
24.5	245	(O. R.)	245	(O. R.)	245	(O. R.)
25	250	O. R.	250	(O. R.)	250	(O. R.)
30	300	O. R.	300	(O. R.)	300	O. R.
40	400	O. R.	400	(O. R.)	400	(O. R.)
1.01	401	O. R.	401	(O. R.)	401	(O. R.)
1.02	402	O. R.	402	(O. R.)	402	(O. R.)
1.03	403	O. R.	403	(O. R.)	403	(O. R.)
1.04	404	O. R.	404	(O. R.)	404	(O. R.)
1.05	405	O. R.	405	(O. R.)	405	(O. R.)

Tolerance class	1		1		1	
Material	Gauge steel		Ceramic		Tungsten Carbide	
Nominal dimension (mm)	32170... ID no.		32179... ID no.		32188... ID no.	
1.06	406	O. R.	406	(O. R.)	406	(O. R.)
1.07	407	O. R.	407	(O. R.)	407	(O. R.)
1.08	408	O. R.	408	(O. R.)	408	(O. R.)
1.09	409	O. R.	409	(O. R.)	409	(O. R.)
1.1	410	O. R.	410	(O. R.)	410	(O. R.)
1.11	411	O. R.	411	(O. R.)	411	(O. R.)
1.12	412	O. R.	412	(O. R.)	412	(O. R.)
1.13	413	O. R.	413	(O. R.)	413	(O. R.)
1.14	414	(O. R.)	414	(O. R.)	414	(O. R.)
1.15	415	O. R.	415	(O. R.)	415	(O. R.)
1.16	416	(O. R.)	416	(O. R.)	416	(O. R.)
1.17	417	(O. R.)	417	(O. R.)	417	(O. R.)
1.18	418	(O. R.)	418	(O. R.)	418	(O. R.)
1.19	419	(O. R.)	419	(O. R.)	419	(O. R.)
1.2	420	O. R.	420	(O. R.)	420	(O. R.)
1.21	421	(O. R.)	421	(O. R.)	421	(O. R.)
1.22	422	(O. R.)	422	(O. R.)	422	(O. R.)
1.23	423	(O. R.)	423	(O. R.)	423	(O. R.)
1.24	424	(O. R.)	424	(O. R.)	424	(O. R.)
1.25	425	O. R.	425	(O. R.)	425	(O. R.)
1.26	426	(O. R.)	426	(O. R.)	426	(O. R.)
1.27	427	(O. R.)	427	(O. R.)	427	(O. R.)
1.28	428	(O. R.)	428	(O. R.)	428	(O. R.)
1.29	429	(O. R.)	429	(O. R.)	429	(O. R.)
1.3	430	O. R.	430	(O. R.)	430	(O. R.)
1.31	431	(O. R.)	431	(O. R.)	431	(O. R.)
1.32	432	(O. R.)	432	(O. R.)	432	(O. R.)
1.33	433	(O. R.)	433	(O. R.)	433	(O. R.)
1.34	434	(O. R.)	434	(O. R.)	434	(O. R.)
1.35	435	O. R.	435	(O. R.)	435	(O. R.)
1.36	436	(O. R.)	436	(O. R.)	436	(O. R.)
1.37	437	(O. R.)	437	(O. R.)	437	(O. R.)
1.38	438	(O. R.)	438	(O. R.)	438	(O. R.)
1.39	439	(O. R.)	439	(O. R.)	439	(O. R.)
1.4	440	O. R.	440	(O. R.)	440	(O. R.)
1.41	441	(O. R.)	441	(O. R.)	441	(O. R.)
1.42	442	(O. R.)	442	(O. R.)	442	(O. R.)
1.43	443	(O. R.)	443	(O. R.)	443	(O. R.)
1.44	444	(O. R.)	444	(O. R.)	444	(O. R.)
1.45	445	O. R.	445	(O. R.)	445	(O. R.)
1.46	446	(O. R.)	446	(O. R.)	446	(O. R.)
1.47	447	(O. R.)	447	(O. R.)	447	(O. R.)
1.48	448	O. R.	448	(O. R.)	448	(O. R.)
1.49	449	O. R.	449	(O. R.)	449	(O. R.)
1.5	450	O. R.	450	(O. R.)	450	(O. R.)
50	500	O. R.	500	(O. R.)	500	O. R.
1.001	501	O. R.	501	(O. R.)	501	(O. R.)
1.002	502	(O. R.)	502	(O. R.)	502	(O. R.)
1.003	503	O. R.	503	(O. R.)	503	(O. R.)
1.004	504	(O. R.)	504	(O. R.)	504	(O. R.)
1.005	505	O. R.	505	(O. R.)	505	(O. R.)
1.006	506	(O. R.)	506	(O. R.)	506	(O. R.)
1.007	507	(O. R.)	507	(O. R.)	507	(O. R.)
1.008	508	(O. R.)	508	(O. R.)	508	(O. R.)
1.009	509	(O. R.)	509	(O. R.)	509	(O. R.)
1.0005	510	(O. R.)	510	(O. R.)	510	(O. R.)
60	600	O. R.	600	(O. R.)	600	(O. R.)
70	700	O. R.	700	(O. R.)	700	(O. R.)
75	750	O. R.	750	(O. R.)	750	(O. R.)
80	800	O. R.	800	(O. R.)	800	(O. R.)
90	900	O. R.	900	(O. R.)	900	(O. R.)
100	910	O. R.	910	(O. R.)	910	O. R.

Unit price, €

32170... = Prod. group 321; 32179... = Prod. group 322; 32188... = Prod. group 322

i Application examples for test pins



Test pin holder

Application:
For holding 2 test pins (e.g. no. 32481) within a tolerance field (e.g. can be used as a limit plug gauge).

Min./max. nominal \varnothing	1-1.99 mm	2-4.5 mm	4.51-6.99 mm	7-9.5 mm	9.51-12 mm
Length (mm)	60	68	76	84	92
32485... Ident. No.	010	020	030	040	050
Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3DA



i Test pins made of hardened steel
Tolerance class 1 (± 0.001 mm)

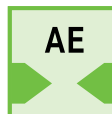
Application:
To determine bore intervals, bore diameters, bore angularity etc.

Tips for order:

5-digit item No. (32481) + test pin \varnothing = order No.

Example: Test pin \varnothing 6.87 mm = order no. 32481 687

Example: Test pin \varnothing 10.31 mm = order no. 32481 001



Version:

- Ground and lapped
- Hardened 60-64 HRC
- Sharp-edged at one end, milled to $30^\circ \times 0.3 D$ at the other end
- Dimension descriptions over $\varnothing 3$ mm



\varnothing	mm	0.30-0.49	0.50-0.99	1.00-2.99	3.00-5.99	6.00-9.99	10.00-11.99	12.00-13.99	14.00-15.99	16.00-18.99	19.00-20.00
Pitch/length	mm	0.01/40	0.01/40	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70	0.01/70
32481	ref. no.						001	002	004	006	009
Unit price	EUR	24.40	12.40	10.60	13.40	17.20	(23.60)	(28.80)	(39.20)	(48.20)	(58.00)

➔ On request: **Wooden cases** for test pins, **larger diameters** and **intermediate dimensions** in μm gradations, **cemented carbide** and **ceramic test pins** on request

Measuring equipment

ATORN® Test pin sets in wooden case

DIN 2269



Application:

For measuring bore hole clearances, bore diameters, angularity of bores etc.

- Hardened 60–64 HRC
- Sharp-edged at one end, milled to 30° x 0.3 D at the other end

Execution:

- Ground and lapped

scope of supply and services:

In wooden case



Tolerance class					1	2
	Number of pieces in assortment/set (PCS)	Nominal dimension of measuring pins	Material			
32486...	41	1.00-5.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	001 (O. R.)	002 O. R.
32486...	50	5.10-10.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	101 (O. R.)	102 (O. R.)
32486...	91	1.00-10.00 mm, increasing by 0.1 mm	Gauge steel	Ident. No. Set price, €	201 O. R.	202 O. R.
32487...	81	1.00-5.00 mm, increasing by 0.05 mm	Gauge steel	Ident. No. Set price, €	001 (O. R.)	002 O. R.
32487...	100	5.05-10.00 mm, increasing by 0.05 mm	Gauge steel	Ident. No. Set price, €	101 (O. R.)	102 O. R.
32488...	100	1.00-2.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	001 (O. R.)	002 O. R.
32488...	100	2.01-3.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	101 (O. R.)	102 O. R.
32488...	100	3.01-4.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	201 (O. R.)	202 O. R.
32488...	100	4.01-5.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	301 (O. R.)	302 (O. R.)
32488...	100	5.01-6.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	401 (O. R.)	402 O. R.
32488...	100	6.01-7.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	501 (O. R.)	502 (O. R.)
32488...	100	7.01-8.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	601 (O. R.)	602 (O. R.)
32488...	100	8.01-9.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	701 (O. R.)	702 (O. R.)
32488...	100	9.01-10.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	801 (O. R.)	802 (O. R.)
32488...	901	1.00-10.00 mm, increasing by 0.01 mm	Gauge steel	Ident. No. Set price, €	901 (O. R.)	902 (O. R.)

Prod. group 320

Measuring equipment

i Tool navigator 'Gauges' online

The gauge navigator's simple and clear menu can be used to define your requests more easily and clearly in just four steps. Firstly, determine what type of gauge is right for the required application: The selection ranges from bore gauges, snap gauges, flat gauges and ring gauges to thread gauges. Subsequently, sizes are determined in nominal dimension specifications, ISO tolerance fields or figures and details, such as coating or material. The shopping cart will then be automatically generated and sent directly to us. This enables us to process offers or requests very quickly, particularly for specialist gauges. We promptly check price and delivery options from different vendors and compile the best deal for you.



The gauge navigator can be found at www.werkzeug-navigator.com.

Its impressive advantages at a glance:

- 24/7 quick access and easy handling
- Automatic shopping cart generation and inquiry to HAHN+KOLB via Internet
- Quick submission of quotations, even for special gauges
- Menu-guided selection for unambiguous specification and definition of gauges
- Inquiry with clear and unambiguous definitions to avoid follow-up questions and wrong deliveries

ORION® Optical flat
flatness tolerance 0.125 µm



Application:

For testing the flatness of faces of measuring surfaces on metal and glass objects such as gauge blocks.

scope of supply and services:

Incl. wooden case

Technical Data:

- Diameter: 45 mm
- Flatness tolerance: 0.125 µm

Execution:

- Made from special glass



41520...	Ident. No. Unit price, €	010 O. R.
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Prod. group 454

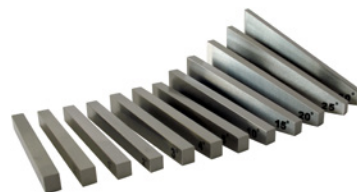
ORION® Angle standards made of hardened gauge steel

Application:
For precise setting and checking of angles.

scope of supply and services:
Set: 15', 30', 1°, 2°, 3°, 4°, 5°, 10°, 15°, 20°, 25°, 30°, supplied in case.

- Execution:**
- Smallest graduation 15' (¼°)
 - Manufacturer tolerance ± 30 inch

- Technical Data:**
- Number of pieces in assortment/set: 12
 - Length: 76.4 mm
 - Width: 6.35 mm



32155...	Ident. No. Set price, €	020 O. R.
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Prod. group 3BF

ORION® Test balls made of hardened gauge steel

Application:
For testing bore holes or internal cones.

scope of supply and services:
Set = 50 units testing balls. Set comprises: Diameter 1 ... Diameter 25 in 1 mm increments, 2 units per nominal dimension, supplied in case.

- Execution:**
- Set of 50 balls Ø 1-25 mm
 - 2 balls per diameter

- Technical Data:**
- Number of pieces in assortment/set: 50
 - Pitch: 1 mm



32155...	Ident. No. Set price, €	030 O. R.
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Prod. group 3BD

ORION® Limit plug gauge tolerance H7

DIN 2245



Application:
For checking maximum and minimum dimensions of boreholes.

- Execution:**
- Go side manufactured with wear allowance in line with DIN 7164



Illustration may be different

Nominal Ø (mm)	Tolerance class H7		Tolerance class A-ZC/6-13		Nominal Ø (mm)	Tolerance class H7		Tolerance class A-ZC/6-13	
	Go side material	Discharge side material	Go side material	Discharge side material		Go side material	Discharge side material	Go side material	Discharge side material
	32490...	32491...	32490...	32491...		32490...	32491...	32490...	32491...
	ID no.	ID no.	ID no.	ID no.		ID no.	ID no.	ID no.	ID no.
1	005	005	005	005	28	180	180	180	180
1.5	015	015	015	015	30	185	185	185	185
2	025	025	025	025	32	190	190	190	190
2.5	035	035	035	035	33	195	195	195	195
3	045	045	045	045	34	200	200	200	200
3.5	050	050	050	050	35	205	205	205	205
4	055	055	055	055	36	210	210	210	210
4.5	060	060	060	060	37	215	215	215	215
5	065	065	065	065	38	220	220	220	220
6	070	070	070	070	40	225	225	225	225
7	075	075	075	075	42	230	230	230	230
8	080	080	080	080	44	235	235	235	235
9	085	085	085	085	45	240	240	240	240
10	090	090	090	090	46	245	245	245	245
11	095	095	095	095	47	250	250	250	250
12	100	100	100	100	48	255	255	255	255
13	105	105	105	105	50	260	260	260	260
14	110	110	110	110	52	265	265	265	265
15	115	115	115	115	55	270	270	270	270
16	120	120	120	120	58	275	275	275	275
17	125	125	125	125	60	280	280	280	280
18	130	130	130	130	62	285	285	285	285
19	135	135	135	135	65	290	290	290	290
20	140	140	140	140	68	295	295	295	295
21	145	145	145	145	70	300	300	300	300
22	150	150	150	150	72	305	305	305	305
23	155	155	155	155	75	310	310	310	310
24	160	160	160	160	78	315	315	315	315
25	165	165	165	165	80	320	320	320	320
26	170	170	170	170	82	325	325	325	325
27	175	175	175	175	85	330	330	330	330

Tolerance class	H7		A-ZC/6-13		Tolerance class	H7		A-ZC/6-13	
Go side material	Gauge steel		Gauge steel		Go side material	Gauge steel		Gauge steel	
Discharge side material	Gauge steel		Gauge steel		Discharge side material	Gauge steel		Gauge steel	
Nominal Ø (mm)	32490... ID no.		32491... ID no.		Nominal Ø (mm)	32490... ID no.		32491... ID no.	
88	335	(O. R.)	335	(O. R.)	98	355	(O. R.)	355	(O. R.)
90	340	O. R.	340	(O. R.)	100	360	O. R.	360	(O. R.)
92	345	(O. R.)	345	(O. R.)	Unit price, €				
95	350	(O. R.)	350	(O. R.)					

Prod. group 3DB

ORION® Limit plug gauges in set, workpiece fit H7

DIN 2245



Application:

For checking maximum and minimum dimensions of boreholes.

Execution:

- Go side manufactured with wear allowance in line with DIN 7164

Advantage:

- Ident. No. 020: Cemented carbide has a service life approximately 20 times longer than gauge steel

scope of supply and services:

In a case

Technical Data:

- Nominal dimension in assortment: 3 mm | 4 mm | 5 mm | 6 mm | 8 mm | 10 mm | 12 mm
- Tolerance class: H7
- Discharge side material: Gauge steel
- Design: One-piece



Go side material	Ident. No.	Gauge steel	Carbide
32493...	Set price, €	010 O. R.	020 O. R.

Prod. group 3DB

ORION® Limit plug gauge

DIN 2245



Application:

For checking maximum and minimum dimensions of boreholes.

Execution:

- Go side manufactured with wear allowance in line with DIN 7164

Advantage:

- Cemented carbide has a service life approximately 20 times longer than gauge steel



Illustration may be different

Tolerance class	A-ZC/6-13		H7		Tolerance class	A-ZC/6-13		H7	
Go side material	Carbide		Carbide		Go side material	Carbide		Carbide	
Discharge side material	Carbide		Carbide		Discharge side material	Carbide		Carbide	
Nominal Ø (mm)	32496... ID no.		32496... ID no.		Nominal Ø (mm)	32496... ID no.		32496... ID no.	
1	010	(O. R.)	-	-	16	160	(O. R.)	660	O. R.
2	020	(O. R.)	520	O. R.	17	170	(O. R.)	-	-
3	030	(O. R.)	530	O. R.	18	180	(O. R.)	680	O. R.
4	040	(O. R.)	540	O. R.	19	190	(O. R.)	-	-
5	050	(O. R.)	550	O. R.	20	200	(O. R.)	700	O. R.
6	060	(O. R.)	560	O. R.	21	210	(O. R.)	-	-
7	070	(O. R.)	-	-	22	220	(O. R.)	-	-
8	080	(O. R.)	580	O. R.	23	230	(O. R.)	-	-
9	090	(O. R.)	590	O. R.	24	240	(O. R.)	-	-
10	100	(O. R.)	600	O. R.	25	250	(O. R.)	750	O. R.
11	110	(O. R.)	-	-	26	260	(O. R.)	-	-
12	120	(O. R.)	620	O. R.	27	270	(O. R.)	-	-
13	130	(O. R.)	-	-	28	280	(O. R.)	-	-
14	140	(O. R.)	640	O. R.	30	300	(O. R.)	800	(O. R.)
15	150	(O. R.)	650	O. R.	Unit price, €				

Prod. group 3DB

ORION® Setting ring made of gauge steel, hardened

DIN 2250



Application:

For adjusting and testing measuring instruments.

Execution:

- Hardened

- Marked with dimensions

Technical Data:

- Material: Gauge steel



Nominal Ø (mm)	32605... ID no.		Nominal Ø (mm)	32605... ID no.	
2	030	(O. R.)	48	260	O. R.
2.5	040	(O. R.)	50	265	O. R.
3	050	O. R.	52	270	O. R.
4	060	O. R.	55	275	O. R.
5	070	O. R.	58	280	O. R.
6	075	O. R.	60	285	O. R.
7	080	O. R.	62	290	O. R.
8	085	O. R.	65	295	O. R.
9	090	O. R.	68	300	O. R.
10	095	O. R.	70	305	O. R.
11	100	O. R.	72	310	O. R.
12	105	O. R.	75	315	O. R.
13	110	O. R.	78	320	(O. R.)
14	115	O. R.	80	325	O. R.
15	120	O. R.	82	330	O. R.
16	125	O. R.	85	335	O. R.
17	130	O. R.	88	340	O. R.
18	135	O. R.	90	345	O. R.
19	140	O. R.	92	350	(O. R.)
20	145	O. R.	95	355	O. R.
21	150	O. R.	98	360	(O. R.)
22	155	O. R.	100	365	O. R.
23	160	O. R.	105	370	O. R.
24	165	O. R.	110	375	O. R.
25	170	O. R.	115	380	O. R.
26	175	O. R.	120	385	O. R.
27	180	O. R.	125	390	O. R.
28	185	O. R.	130	395	O. R.
30	190	O. R.	135	400	(O. R.)
32	195	O. R.	140	405	O. R.
33	200	O. R.	145	410	(O. R.)
34	205	O. R.	150	415	O. R.
35	210	O. R.	155	420	(O. R.)
36	215	O. R.	160	425	O. R.
37	220	O. R.	165	430	(O. R.)
38	225	O. R.	170	435	O. R.
40	230	O. R.	175	440	O. R.
42	235	O. R.	180	445	O. R.
44	240	O. R.	190	455	O. R.
45	245	O. R.	200	465	O. R.
46	250	O. R.			
47	255	O. R.			

Unit price, €

Prod. group 3DB

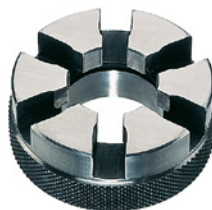
Measuring equipment

i Over and above!
We would be glad to offer you special gauges for various purposes

Examples:

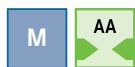
- Limit gauges for serrated hubs and serrated shafts according to DIN 5481

- Wedge hubs and shafts according to DIN 5462/5463 and DIN 5471/5472
- **Contact us.**



ORION® Thread limit plug gauge
For standard metric ISO thread

DIN 2280



Application:

For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

Technical Data:

- Material: Gauge steel



Illustration may be different!

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H 32670... Ident. No.	
M1 x 0.25	010	(O. R.)
M1.2 x 0.25	012	O. R.
M1.4 x 0.3	014	O. R.
M1.6 x 0.35	016	O. R.
M1.7 x 0.35	017	O. R.
M1.8 x 0.35	018	(O. R.)
M2 x 0.4	020	O. R.

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H 32670... Ident. No.	
M2.3 x 0.4	023	(O. R.)
M2.5 x 0.45	025	O. R.
M2.6 x 0.45	026	O. R.
M3 x 0.5	030	O. R.
M3.5 x 0.6	035	O. R.
M4 x 0.7	040	O. R.
M5 x 0.8	050	O. R.

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32670... Ident. No.	
M6 x 1	060	O. R.
M7 x 1	070	O. R.
M8 x 1.25	080	O. R.
M9 x 1.25	090	O. R.
M10 x 1.5	100	O. R.
M11 x 1.5	110	(O. R.)
M12 x 1.75	120	O. R.
M14 x 2	140	O. R.
M16 x 2	160	O. R.

Prod. group 3DB

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32670... Ident. No.	
M18 x 2.5	180	O. R.
M20 x 2.5	200	O. R.
M22 x 2.5	220	O. R.
M24 x 3	240	O. R.
M27 x 3	270	O. R.
M30 x 3.5	300	O. R.
M33 x 3.5	330	(O. R.)
M36 x 4	360	O. R.

Unit price, €

ORION® Thread gauges
for standard metric ISO thread in accordance with DIN 13



Application:
For testing the flank and core diameter of male threads.

Execution:

- No. 32675: Go ring gauge

- No. 32676: No-go ring gauge

Technical Data:

- Material: Gauge steel



No. 32675

No. 32676

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32675... Ident. No.		32676... Ident. No.	
M1 x 0.25	010	(O. R.)	010	(O. R.)
M1.2 x 0.25	012	(O. R.)	012	(O. R.)
M1.4 x 0.3	014	(O. R.)	014	(O. R.)
M1.6 x 0.35	016	(O. R.)	016	(O. R.)
M1.7 x 0.35	017	(O. R.)	017	(O. R.)
M1.8 x 0.35	018	(O. R.)	018	(O. R.)
M2 x 0.4	020	O. R.	020	O. R.
M2.3 x 0.4	023	(O. R.)	023	(O. R.)
M2.5 x 0.45	025	O. R.	025	(O. R.)
M2.6 x 0.45	026	(O. R.)	026	(O. R.)
M3 x 0.5	030	O. R.	030	O. R.
M3.5 x 0.6	035	O. R.	035	(O. R.)
M4 x 0.7	040	O. R.	040	O. R.
M5 x 0.8	050	O. R.	050	O. R.
M6 x 1	060	O. R.	060	O. R.
M7 x 1	070	O. R.	070	O. R.

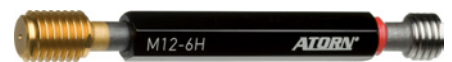
Prod. group 3DB

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32675... Ident. No.		32676... Ident. No.	
M8 x 1.25	080	O. R.	080	O. R.
M9 x 1.25	090	(O. R.)	090	(O. R.)
M10 x 1.5	100	O. R.	100	O. R.
M11 x 1.5	110	(O. R.)	110	(O. R.)
M12 x 1.75	120	O. R.	120	O. R.
M14 x 2	140	O. R.	140	O. R.
M16 x 2	160	O. R.	160	O. R.
M18 x 2.5	180	O. R.	180	(O. R.)
M20 x 2.5	200	O. R.	200	O. R.
M22 x 2.5	220	(O. R.)	220	(O. R.)
M24 x 3	240	O. R.	240	O. R.
M27 x 3	270	(O. R.)	270	(O. R.)
M30 x 3.5	300	O. R.	300	(O. R.)
M33 x 3.5	330	(O. R.)	330	(O. R.)
M36 x 4	360	O. R.	360	(O. R.)

Unit price, €

ATORN® Thread limit plug gauge
For standard metric ISO thread

DIN 2280



Application:
For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

Execution:

- Surface hardness approx. 2500 Vickers

Advantage:

- Improved corrosion resistance

- Wear resistance approx. 10 times greater than conventional gauge steel
- Extended calibration intervals
- Cost reduction

Technical Data:

- Material: TiN

Illustration may be different!

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32696... Ident. No.	
M3 x 0.5	030	O. R.
M4 x 0.7	040	O. R.
M5 x 0.8	050	O. R.
M6 x 1.0	060	O. R.
M8 x 1.25	080	O. R.
M10 x 1.5	100	O. R.

Prod. group 325

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32696... Ident. No.	
M12 x 1.75	120	O. R.
M14 x 2.0	140	O. R.
M16 x 2.0	160	O. R.
M18 x 2.5	180	(O. R.)
M20 x 2.5	200	O. R.

Unit price, €

ATORN® ORION® Thread gauge sets

for standard metric ISO thread according to DIN 13



Application:

No. 32690 010, 32696 400: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

No. 32691–32692: For testing the flank and core diameter of male threads.

Execution:

- **No. 32690 010, 32696 400:** Limit thread plug gauges
- **No. 32691:** Go ring gauge
- **No. 32692:** No-go ring gauges
- **No. 32696:**
 - Go side with TiN coating
 - Surface hardness approx. 2500 Vickers

Advantage:

- **No. 32696:**
 - Improved corrosion resistance
 - Wear resistance approx. 10 times greater than conventional gauge steel
 - Extended calibration intervals
 - Cost reduction

scope of supply and services:

In wooden case



No. 32690



No. 32691–32692



No. 32696

	ATORN®	ORION®	ORION®	ORION®
	Thread limit plug gauges	Thread limit plug gauges	Go ring gauge	No-go ring gauges
Nominal dimension in assortment	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm	3 mm, 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm
Tolerance class	6H	6H	6g	6g
Material	TiN	Gauge steel	Gauge steel	Gauge steel
	32696... Ident. No.	32690... Ident. No.	32691... Ident. No.	32692... Ident. No.
	400	010	010	010
	O. R.	O. R.	O. R.	O. R.
	Set price, €			

ORION = Prod. group 3DB
ATORN® = Prod. group 325

ORION® Thread limit plug gauge

For metric ISO fine threads

DIN 2280



Application:

For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

Execution:

- Thread limit plug gauge

Technical Data:

- Material: Gauge steel



Illustration may be different!

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H
	32700... Ident. No.
MF4 x 0.5	002 O. R.
MF5 x 0.5	004 O. R.
MF5 x 0.75	005 (O. R.)
MF6 x 0.5	006 O. R.
MF6 x 0.75	007 O. R.
MF7 x 0.75	009 O. R.
MF8 x 0.5	010 O. R.
MF8 x 0.75	011 O. R.
MF8 x 1	012 O. R.
MF9 x 0.5	013 (O. R.)
MF9 x 0.75	014 (O. R.)
MF9 x 1	015 (O. R.)
MF10 x 0.5	016 O. R.
MF10 x 0.75	017 O. R.
MF10 x 1	018 O. R.
MF10 x 1.25	019 O. R.
MF11 x 0.75	020 (O. R.)
MF11 x 1	021 (O. R.)
MF12 x 0.5	022 O. R.
MF12 x 0.75	023 (O. R.)
MF12 x 1	024 O. R.
MF12 x 1.5	025 O. R.
MF12 x 1.25	026 O. R.
MF13 x 0.75	027 (O. R.)
MF13 x 1	028 (O. R.)
MF14 x 0.75	031 (O. R.)
MF14 x 1	032 O. R.

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H
	32700... Ident. No.
MF14 x 1.5	033 O. R.
MF14 x 1.25	034 (O. R.)
MF15 x 0.75	035 (O. R.)
MF15 x 1	036 O. R.
MF15 x 1.5	037 (O. R.)
MF16 x 0.75	039 (O. R.)
MF16 x 1	040 O. R.
MF16 x 1.5	041 O. R.
MF18 x 0.75	048 (O. R.)
MF18 x 1	049 O. R.
MF18 x 1.5	050 O. R.
MF18 x 2	051 (O. R.)
MF20 x 0.75	058 (O. R.)
MF20 x 1	059 O. R.
MF20 x 1.5	060 O. R.
MF20 x 2	061 (O. R.)
MF22 x 1	069 O. R.
MF22 x 1.5	070 O. R.
MF22 x 2	071 (O. R.)
MF24 x 1	079 O. R.
MF24 x 1.5	080 O. R.
MF24 x 2	081 O. R.
MF25 x 1	084 (O. R.)
MF25 x 1.5	085 O. R.
MF26 x 1	089 (O. R.)
MF26 x 1.5	090 O. R.
MF27 x 1	094 (O. R.)

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32700... Ident. No.	O. R.
MF27 x 1.5	095	O. R.
MF27 x 2	096	O. R.
MF28 x 1	099 (O. R.)	
MF28 x 1.5	100	O. R.
MF28 x 2	101 (O. R.)	
MF30 x 1	109	O. R.
MF30 x 1.5	110	O. R.
MF30 x 2	111	O. R.
MF30 x 3	112 (O. R.)	
MF32 x 1.5	120	O. R.
MF33 x 1.5	126 (O. R.)	
MF33 x 2	127	O. R.
MF35 x 1.5	138	O. R.
MF36 x 1.5	144	O. R.
MF36 x 2	145	O. R.
MF36 x 3	146 (O. R.)	
MF38 x 1.5	154	O. R.
MF39 x 1.5	160 (O. R.)	
MF39 x 2	161 (O. R.)	
MF40 x 1.5	166	O. R.
MF40 x 2	167 (O. R.)	
MF42 x 1.5	178	O. R.
MF42 x 2	179 (O. R.)	
MF42 x 3	180 (O. R.)	

Thread type x nominal Ø x pitch	Thread limit plug gauge, 6H	
	32700... Ident. No.	O. R.
MF45 x 1.5	197	O. R.
MF45 x 2	198 (O. R.)	
MF45 x 3	199 (O. R.)	
MF48 x 1.5	217 (O. R.)	
MF48 x 2	218 (O. R.)	
MF48 x 3	219 (O. R.)	
MF50 x 1.5	230 (O. R.)	
MF50 x 2	231 (O. R.)	
MF52 x 1.5	242 (O. R.)	
MF52 x 2	243 (O. R.)	
MF56 x 1.5	269 (O. R.)	
MF56 x 2	270 (O. R.)	
MF60 x 1.5	294 (O. R.)	
MF60 x 2	295 (O. R.)	
MF62 x 1.5	307 (O. R.)	
MF62 x 2	308 (O. R.)	
MF64 x 1.5	320 (O. R.)	
MF64 x 2	321 (O. R.)	
MF68 x 1.5	347 (O. R.)	
MF68 x 2	348 (O. R.)	
MF70 x 1.5	360 (O. R.)	
MF70 x 2	361 (O. R.)	

Unit price, €

Prod. group 3DB

ORION Thread ring gauges
for metric ISO fine threads in accordance with DIN 13



Application:
For testing the flank and core diameter of male threads.

▪ No. 32706: No-go ring gauge

Technical Data:
▪ Material: Gauge steel

Execution:

▪ No. 32705: Go ring gauge



No. 32705

No. 32706

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32705... Ident. No.	O. R.	32706... Ident. No.	O. R.
MF4 x 0.5	002	O. R.	002	(O. R.)
MF5 x 0.5	004	O. R.	004	O. R.
MF5 x 0.75	005 (O. R.)		005 (O. R.)	
MF6 x 0.5	006	O. R.	006 (O. R.)	
MF6 x 0.75	007	O. R.	007 (O. R.)	
MF7 x 0.75	009 (O. R.)		009 (O. R.)	
MF8 x 0.5	010	O. R.	010	O. R.
MF8 x 0.75	011	O. R.	011	O. R.
MF8 x 1	012	O. R.	012	O. R.
MF9 x 0.5	013 (O. R.)		013 (O. R.)	
MF9 x 0.75	014 (O. R.)		014 (O. R.)	
MF9 x 1	015 (O. R.)		015 (O. R.)	
MF10 x 0.5	016	O. R.	016 (O. R.)	
MF10 x 0.75	017	O. R.	017 (O. R.)	
MF10 x 1	018	O. R.	018	O. R.
MF10 x 1.25	019	O. R.	019	O. R.
MF11 x 0.75	020 (O. R.)		020 (O. R.)	
MF11 x 1	021 (O. R.)		021 (O. R.)	
MF12 x 0.5	022	O. R.	022 (O. R.)	
MF12 x 0.75	023	O. R.	023 (O. R.)	
MF12 x 1	024	O. R.	024	O. R.
MF12 x 1.5	025	O. R.	025	O. R.
MF12 x 1.25	026	O. R.	026	O. R.
MF13 x 0.75	027 (O. R.)		027 (O. R.)	
MF13 x 1	028 (O. R.)		028 (O. R.)	
MF14 x 0.75	031 (O. R.)		031 (O. R.)	
MF14 x 1	032	O. R.	032	O. R.
MF14 x 1.5	033	O. R.	033	O. R.
MF14 x 1.25	034 (O. R.)		034 (O. R.)	
MF15 x 0.75	035 (O. R.)		035 (O. R.)	
MF15 x 1	036	O. R.	036 (O. R.)	
MF15 x 1.5	037 (O. R.)		037 (O. R.)	
MF16 x 0.75	039 (O. R.)		039 (O. R.)	
MF16 x 1	040	O. R.	040	O. R.
MF16 x 1.5	041	O. R.	041	O. R.
MF18 x 0.75	048 (O. R.)		048 (O. R.)	
MF18 x 1	049	O. R.	049	O. R.
MF18 x 1.5	050	O. R.	050	O. R.
MF18 x 2	051 (O. R.)		051 (O. R.)	
MF20 x 0.75	058 (O. R.)		058 (O. R.)	
MF20 x 1	059	O. R.	059 (O. R.)	
MF20 x 1.5	060	O. R.	060	O. R.
MF20 x 2	061 (O. R.)		061 (O. R.)	

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32705... Ident. No.	O. R.	32706... Ident. No.	O. R.
MF22 x 1	069	O. R.	069	O. R.
MF22 x 1.5	070	O. R.	070	O. R.
MF22 x 2	071 (O. R.)		071 (O. R.)	
MF24 x 1	079	O. R.	079 (O. R.)	
MF24 x 1.5	080	O. R.	080	O. R.
MF24 x 2	081	O. R.	081 (O. R.)	
MF25 x 1	084	O. R.	084 (O. R.)	
MF25 x 1.5	085	O. R.	085 (O. R.)	
MF26 x 1	089 (O. R.)		089 (O. R.)	
MF26 x 1.5	090	O. R.	090	O. R.
MF27 x 1	094 (O. R.)		094 (O. R.)	
MF27 x 1.5	095	O. R.	095 (O. R.)	
MF27 x 2	096 (O. R.)		096 (O. R.)	
MF28 x 1	099	O. R.	099 (O. R.)	
MF28 x 1.5	100	O. R.	100 (O. R.)	
MF28 x 2	101 (O. R.)		101 (O. R.)	
MF30 x 1	109	O. R.	109 (O. R.)	
MF30 x 1.5	110	O. R.	110	O. R.
MF30 x 2	111	O. R.	111 (O. R.)	
MF30 x 3	112 (O. R.)		112 (O. R.)	
MF32 x 1.5	120	O. R.	120 (O. R.)	
MF33 x 1.5	126 (O. R.)		126 (O. R.)	
MF33 x 2	127 (O. R.)		127 (O. R.)	
MF35 x 1.5	138	O. R.	138 (O. R.)	
MF36 x 1.5	144	O. R.	144	O. R.
MF36 x 2	145	O. R.	145 (O. R.)	
MF36 x 3	146 (O. R.)		146 (O. R.)	
MF38 x 1.5	154	O. R.	154 (O. R.)	
MF39 x 1.5	160 (O. R.)		160 (O. R.)	
MF39 x 2	161 (O. R.)		161 (O. R.)	
MF40 x 1.5	166	O. R.	166 (O. R.)	
MF40 x 2	167 (O. R.)		167 (O. R.)	
MF42 x 1.5	178	O. R.	178 (O. R.)	
MF42 x 2	179	O. R.	179 (O. R.)	
MF42 x 3	180 (O. R.)		180 (O. R.)	
MF45 x 1.5	197	O. R.	197	O. R.
MF45 x 2	198 (O. R.)		198 (O. R.)	
MF45 x 3	199 (O. R.)		199 (O. R.)	
MF48 x 1.5	217	O. R.	217 (O. R.)	
MF48 x 2	218	O. R.	218 (O. R.)	
MF48 x 3	219 (O. R.)		219 (O. R.)	
MF50 x 1.5	230	O. R.	230 (O. R.)	
MF50 x 2	231 (O. R.)		231 (O. R.)	

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32705... Ident. No.	(O. R.)	32706... Ident. No.	(O. R.)
MF52 x 1.5	242	(O. R.)	242	(O. R.)
MF52 x 2	243	(O. R.)	243	(O. R.)
MF56 x 1.5	269	(O. R.)	269	(O. R.)
MF56 x 2	270	(O. R.)	270	(O. R.)
MF60 x 1.5	294	O. R.	294	(O. R.)
MF60 x 2	295	O. R.	295	(O. R.)
MF62 x 1.5	307	(O. R.)	307	(O. R.)
MF62 x 2	308	(O. R.)	308	(O. R.)

Prod. group 3DB

ORION® Thread limit plug gauge
For American UNF standard threads



Application: external diameter.
For testing the flank diameter of female threads and compliance with minimum dimensions of the

Thread type Tolerance class	UNC 2B	
	32730... ID no.	(O. R.)
UNC/UNF code	32730... ID no.	
No. 4-40 UNC	020	O. R.
No. 5-40 UNC	025	(O. R.)
No. 6-32 UNC	030	(O. R.)
No. 8-32 UNC	035	O. R.
No. 12-24 UNC	045	(O. R.)
1/4"-20	080	O. R.
5/16"-18	085	O. R.
3/8"-16	090	O. R.

Prod. group 3DB

ORION® Thread limit plug gauge
For American UNF standard threads



Application: external diameter.
For testing the flank diameter of female threads and compliance with minimum dimensions of the

Thread type Tolerance class	UNF 2B	
	32730... ID no.	(O. R.)
UNC/UNF code	32730... ID no.	
No. 4-48 UNF	240	(O. R.)
No. 5-44 UNF	245	(O. R.)
No. 6-40 UNF	250	(O. R.)
No. 8-36 UNF	255	(O. R.)
No. 10-32 UNF	260	O. R.
No. 12-28 UNF	265	(O. R.)
1/4"-28	300	O. R.
5/16"-24	305	O. R.
3/8"-24	310	O. R.

Prod. group 3DB

ORION® Thread limit plug gauge
For tapered American pipe thread NPT



Application: For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

- Technical Data:**
- Material: Gauge steel
 - ANSI: ANSI B 1.20.1
 - Thread type: National pipe tapered thread

Pipe thread code	Thread limit plug gauge	
	32740... Ident. No.	(O. R.)
1/16"-27	005	(O. R.)
1/8"-27	010	O. R.
1/4"-18	020	O. R.
3/8"-18	030	O. R.
1/2"-14	040	O. R.
3/4"-14	050	O. R.
1"-11.5	060	(O. R.)
1 1/4"-11.5	070	(O. R.)

Prod. group 3DB

Thread type x nominal Ø x pitch	Go ring gauge, 6g		No-go ring gauge, 6g	
	32705... Ident. No.	(O. R.)	32706... Ident. No.	(O. R.)
MF64 x 1.5	320	(O. R.)	320	(O. R.)
MF64 x 2	321	(O. R.)	321	(O. R.)
MF68 x 1.5	347	(O. R.)	347	(O. R.)
MF68 x 2	348	(O. R.)	348	(O. R.)
MF70 x 1.5	360	(O. R.)	360	(O. R.)
MF70 x 2	361	O. R.	361	(O. R.)

Unit price, €



Illustration may be different!

Thread type Tolerance class	UNC 2B	
	32730... ID no.	(O. R.)
UNC/UNF code	32730... ID no.	
7/16"-14	095	(O. R.)
1/2"-13	100	O. R.
9/16"-12	105	(O. R.)
5/8"-11	110	O. R.
3/4"-10	115	O. R.
7/8"-9	120	O. R.
1"-8	125	(O. R.)

Unit price, €



Illustration may be different!

Thread type Tolerance class	UNF 2B	
	32730... ID no.	(O. R.)
UNC/UNF code	32730... ID no.	
7/16"-20	315	O. R.
1/2"-20	320	O. R.
9/16"-18	325	O. R.
5/8"-18	330	O. R.
3/4"-16	335	O. R.
7/8"-14	340	O. R.
1"-12	345	(O. R.)

Unit price, €



Ident. No. 005-090

Pipe thread code	Thread limit plug gauge	
	32740... Ident. No.	(O. R.)
1 1/2"-11.5	080	(O. R.)
2"-11.5	090	(O. R.)
2 1/2"-8	100	(O. R.)
3"-8	110	(O. R.)
3 1/2"-8	120	(O. R.)
4"-8	130	(O. R.)

Unit price, €

ORION® Thread limit ring gauge
For tapered American pipe thread NPT



Application:
For testing the flank and core diameter of male threads.

Technical Data:
▪ Material: Gauge steel



Pipe thread code	Thread limit ring gauge 32741... Ident. No.	
1/16"-27	005	(O. R.)
1 1/4"-11.5	070	(O. R.)
1/8"-27	010	O. R.
1 1/2"-11.5	080	(O. R.)
1/4"-18	020	O. R.
2"-11.5	090	(O. R.)
3/8"-18	030	(O. R.)
2 1/2"-8	100	(O. R.)

Pipe thread code	Thread limit ring gauge 32741... Ident. No.	
1/2"-14	040	O. R.
3"-8	110	(O. R.)
3/4"-14	050	O. R.
3 1/2"-8	120	(O. R.)
1"-11.5	060	(O. R.)
4"-8	130	(O. R.)
Unit price, €		

Prod. group 3DB

Measuring equipment

ORION® Thread limit plug gauge
For Whitworth pipe threads DIN 2999 Rp

DIN 2999



Application:
For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

Technical Data:
▪ Material: Gauge steel



Illustration may be different!

Pipe thread code	Thread limit plug gauge, Rp 32745... Ident. No.	
1/16"-28	005	(O. R.)
1/8"-28	010	O. R.
1/4"-19	020	O. R.
3/8"-19	030	O. R.
1/2"-14	040	O. R.
3/4"-14	050	O. R.
1"-11	060	O. R.

Pipe thread code	Thread limit plug gauge, Rp 32745... Ident. No.	
1 1/4"-11	070	(O. R.)
1 1/2"-11	080	(O. R.)
2"-11	090	(O. R.)
2 1/2"-11	100	(O. R.)
3"-11	110	(O. R.)
4"-11	120	(O. R.)
Unit price, €		

Prod. group 3DB

ORION® Thread limit ring gauge
For Whitworth pipe threads DIN 2999 R

DIN 2999



Application:
For testing the flank and core diameter of male threads.

Technical Data:
▪ Material: Gauge steel



Pipe thread code	Thread limit ring gauge R 32746... Ident. No.	
1/16"-28	005	(O. R.)
1/8"-28	010	O. R.
1/4"-19	020	(O. R.)
3/8"-19	030	(O. R.)
1/2"-14	040	(O. R.)
3/4"-14	050	(O. R.)
1"-11	060	O. R.

Pipe thread code	Thread limit ring gauge R 32746... Ident. No.	
1 1/4"-11	070	(O. R.)
1 1/2"-11	080	(O. R.)
2"-11	090	(O. R.)
2 1/2"-11	100	(O. R.)
3"-11	110	(O. R.)
4"-11	120	(O. R.)
Unit price, €		

Prod. group 3DB

ORION® Thread plug gauges made of gauge steel
for cylindrical pipe thread

ISO 228



Application:
For testing the flank diameter of female threads and compliance with minimum dimensions of the external diameter.

Technical Data:
▪ Material: Gauge steel

No. 32750
Illustration may be different!

Tolerance class	Thread limit plug gauge		Thread go plug gauge		Tolerance class	Thread limit plug gauge		Thread go plug gauge	
	Medium		Medium			Medium		Medium	
Pipe thread code	32750... Ident. No.		32752... Ident. No.		Pipe thread code	32750... Ident. No.		32752... Ident. No.	
1/8"-28	010	O. R.	010	(O. R.)	1"-11	045	O. R.	045	(O. R.)
1/4"-19	015	O. R.	015	(O. R.)	1 1/8"-11	050	(O. R.)	050	(O. R.)
3/8"-19	020	O. R.	020	(O. R.)	1 1/4"-11	-	-	055	O. R.
1/2"-14	025	O. R.	025	(O. R.)	1 1/2"-11	-	-	065	O. R.
5/8"-14	030	O. R.	030	(O. R.)	1 3/4"-11	-	-	075	(O. R.)
3/4"-14	035	O. R.	035	(O. R.)	2"-11	-	-	080	O. R.
7/8"-14	040	(O. R.)	040	(O. R.)	Unit price, €				

Prod. group 3DB

ORION® Thread ring gauges
for cylindrical pipe thread

ISO 228



No. 32754

No. 32755

Application:
For testing the flank and core diameter of male threads.

Technical Data:
▪ Material: Gauge steel

Tolerance class	Thread go ring gauge		Thread no-go ring gauge		Tolerance class	Thread go ring gauge		Thread no-go ring gauge	
	A		A			A		A	
Pipe thread code	32754... Ident. No.		32755... Ident. No.		Pipe thread code	32754... Ident. No.		32755... Ident. No.	
1/8"-28	010	O. R.	010	(O. R.)	1"-11	045	O. R.	045	O. R.
1/4"-19	015	O. R.	015	O. R.	1 1/8"-11	050	(O. R.)	050	(O. R.)
3/8"-19	020	O. R.	020	O. R.	1 1/4"-11	055	O. R.	055	(O. R.)
1/2"-14	025	O. R.	025	O. R.	1 1/2"-11	065	O. R.	065	(O. R.)
5/8"-14	030	(O. R.)	030	(O. R.)	1 3/4"-11	075	(O. R.)	075	(O. R.)
3/4"-14	035	O. R.	035	O. R.	2"-11	080	(O. R.)	080	(O. R.)
7/8"-14	040	(O. R.)	040	(O. R.)	Unit price, €				

Prod. group 3DB

Measuring equipment

ATORN® Dial gauges



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Measuring pin and clamping shaft made from durable stainless steel

- Convenient lifting sleeve with additional dust protection function
- Coloured tolerance labels for clear detection in the adjusted tolerance fields
- Ident. No. 010–020, 040–050:** Shock-resistant measuring mechanism
- Ident. No. 030–050:** Concentric mm display for larger, clearer digits

Advantage:

- Gauge slides with ceramic balls (low wear, not electrically conductive)

scope of supply and services:

In a case



Ident. No. 010



Ident. No. 020



Ident. No. 030



Ident. No. 040



Ident. No. 050

	Round mm display		Concentric mm display		Concentric mm display		Concentric mm display		
Length measuring range (mm)	5		10		10		25		
Outer Ø (mm)	40		58		40		58		
Scale value (mm)	0.01		0.01		0.01		0.01		
Measurement travel of one pointer revolution (mm)	0.5		1.0		1.0		1.0		
Shock protection	No		Yes		No		Yes		
Outer ring material	Metal		Metal		Metal		Metal		
	33000...		33000...		33000...		33000...		
	Ident. No.		Ident. No.		Ident. No.		Ident. No.		
	010	O. R.	020	O. R.	030	O. R.	040	O. R.	
	Unit price, €								

Prod. group 3AE

ORION® Lightweight dial gauges with plastic housing

DIN 878



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Measuring pin and clamping shaft made from durable stainless steel

- Extra light so easy to handle
- The plastic housing is highly resistant to chemical influences

scope of supply and services:

In a case



No. 33011



No. 33037

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Outer ring material	Ident. No.	Unit price, €
33011...	3	40	0.01	0.5	Plastic	Ident. No.	010
33037...	10	58	0.01	1.0	Plastic	Ident. No.	010
						Unit price, €	O. R.

Prod. group 3BD

ORION® Dial gauges with aluminium housing

DIN 878



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

▪ Housing made of aluminium, chrome-plated

▪ **Ident. No. 100:** Safety dial gauge with 7 mm free stroke

Execution:

- Measuring pin and clamping shaft made from durable stainless steel
- Particularly robust thanks to 5 mm reinforced measuring pins

scope of supply and services:

In a case



Ident. No. 010



Ident. No. 100

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Shock protection	Ident. No.	Unit price, €	O. R.
33020...	10	58	0.01	1.0	No	Ident. No.		010
33020...	10	58	0.01	1.0	Yes	Ident. No.		020
33020...	0.8	58	0.01	-	No	Ident. No.		100
						Unit price, €		O. R.

Prod. group 3BD



Small dial gauges
measurement span 1-10 mm



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

scope of supply and services:

In a case

Execution:

- Measuring pin and clamping shaft made from durable stainless steel



No. 33002



No. 33009

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Shock protection	Ident. No.	Unit price, €	O. R.
33001...	3	40	0.01	0.5	No	Ident. No.		010
33001...	5	40	0.01	1.0	No	Ident. No.		020
33002...	3	40	0.01	0.5	No	Ident. No.		010
33003...	3	40	0.01	0.5	Yes	Ident. No.		010
33004...	3	40	0.01	0.5	Yes	Ident. No.		010
33009...	1	40	0.001	0.2	Yes	Ident. No.		010
33010...	1	40	0.001	0.2	Yes	Ident. No.		010
33013...	3	32	0.01	0.5	No	Ident. No.		010
33018...	10	40	0.1	10.0	No	Ident. No.		010
						Unit price, €		O. R.

Prod. group 331

Dial gauges
measurement span 1-80 mm



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:
▪ Measuring pin and clamping shaft made from durable stainless steel

scope of supply and services:
In a case



No. 33031



No. 33032



No. 33038



No. 33040



No. 33044

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Shock protection		
33031...	10	58	0.1	10.0	No	Ident. No. Unit price, €	010 O. R.
33032...	30	58	0.1	10.0	No	Ident. No. Unit price, €	010 O. R.
33038...	10	58	0.01	1.0	No	Ident. No. Unit price, €	010 O. R.
33040...	30	58	0.01	1.0	No	Ident. No. Unit price, €	010 O. R.
33041...	50	58	0.01	1.0	No	Ident. No. Unit price, €	010 O. R.
33042...	80	58	0.01	1.0	No	Ident. No. Unit price, €	010 O. R.
33044...	1	58	0.001	0.2	No	Ident. No. Unit price, €	010 O. R.
33046...	5	58	0.001	0.2	No	Ident. No. Unit price, €	010 O. R.

Prod. group 331

Dial gauge
Impact and water-resistant



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

▪ Bolted metal ring for maximum impermeability

scope of supply and services:
In a case

Execution:
▪ Measuring pin and clamping shaft made from durable stainless steel

	Length measuring range (mm)	Outer Ø (mm)	IP protection class	Scale value (mm)	Measurement travel of one pointer revolution (mm)		
33053...	30	61	IP 67	0.01	1.0	Ident. No. Unit price, €	010 O. R.

Prod. group 331

Dial gauges with shock protection

**Application:**

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Measuring pin and clamping shaft made from durable stainless steel
- No. 33075:** Fine point adjustment by turning the knurl button

Advantage:

- Impacts against the gauge slide are not transferred to the measuring mechanism; in this way, display accuracy is maintained for a long time.

scope of supply and services:

In a case



No. 33075



No. 33077

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Shock protection		
33075...	10	58	0.01	1.0	Yes	Ident. No. Unit price, €	010 O. R.
33077...	10	58	0.01	1.0	Yes	Ident. No. Unit price, €	010 O. R.
33078...	30	58	0.01	1.0	Yes	Ident. No. Unit price, €	010 O. R.
33078...	50	58	0.01	1.0	Yes	Ident. No. Unit price, €	020 O. R.

Prod. group 331

Dial gauge Magnetic back

DIN 878

**Application:**

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Measuring pin and clamping shaft made from durable stainless steel

Advantage:

- Back wall is designed as magnetic clamp (detachable)
- Can be used without stand
- The magnet does not affect dial gauge function

scope of supply and services:

In a case



Ident. No. 010

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Outer ring material		
33100...	10	58	0.01	1.0	Plastic	Ident. No. Unit price, €	010 O. R.
33100...	3	40	0.01	0.5	Plastic	Ident. No. Unit price, €	020 O. R.

Prod. group 331

Safety dial gauges with a free stroke and shock protection

**Application:**

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Measuring pin and clamping shaft made from durable stainless steel

scope of supply and services:

In a case



No. 33113



No. 33114

	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Shock protection	Outer ring material		
33112...	0.4	58	0.005	Yes	Plastic	Ident. No. Unit price, €	010 O. R.
33113...	0.4	40	0.01	Yes	Metal	Ident. No. Unit price, €	010 O. R.
33114...	0.8	58	0.01	Yes	Metal	Ident. No. Unit price, €	010 O. R.

Prod. group 331

Precision dial gauges with shock protection



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

- Hole in housing for wire lifter

Advantage:

- Extremely high measurement accuracy

Execution:

- Measuring pin and clamping shaft made from durable stainless steel
- Special stainless steel fine measuring mechanism

scope of supply and services:
In a case



	Length measuring range (mm)	Outer Ø (mm)	Scale value (mm)	Measurement travel of one pointer revolution (mm)	Shock protection	Ident. No.	O. R.
33118...	1	40	0.001	0.1	Yes	Ident. No.	010
33119...	1	58	0.001	0.1	Yes	Ident. No.	010
						Unit price, €	O. R.

Prod. group 331

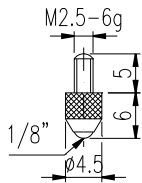
Gauge slides M2.5

Application:

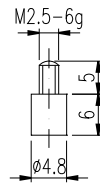
For use in measuring instruments with M 2.5 mm thread connection, e.g. dial gauges, vernier callipers etc.

Technical Data:

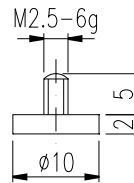
- Connection thread: M2.5



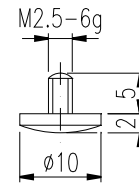
Ident. No. 090-098



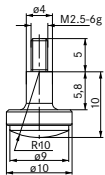
Ident. No. 100-103



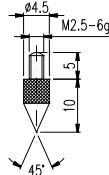
Ident. No. 110



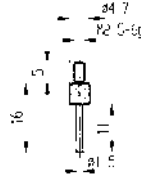
Ident. No. 120



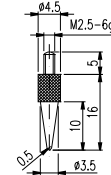
Ident. No. 125



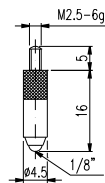
Ident. No. 130



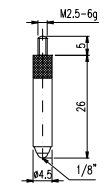
Ident. No. 140-142



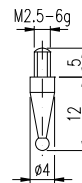
Ident. No. 150



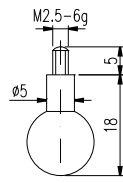
Ident. No. 160



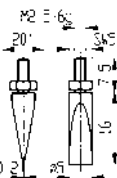
Ident. No. 170



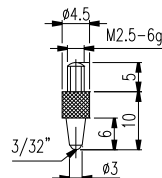
Ident. No. 178-189



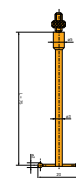
Ident. No. 194-198



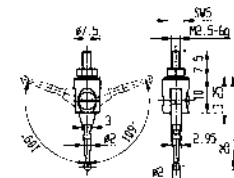
Ident. No. 201



Ident. No. 210



Ident. No. 300



Ident. No. 310

Type	Material	33149... ID no.	O. R.
9	Steel	090	O. R.
9 CC	Tungsten Carbide	093	O. R.
9 R	Rubin	096	O. R.
9K	Ceramic	098	O. R.
10	Steel	100	O. R.
10	Tungsten Carbide	103	O. R.
11	Steel	110	O. R.
12	Steel	120	O. R.

Type	Material	33149... ID no.	O. R.
12	Tungsten Carbide	125	O. R.
13	Steel	130	O. R.
14	Steel	140	O. R.
14/20	Steel	141	O. R.
14/30	Steel	142	O. R.
15	Steel	150	O. R.
16	Steel	160	O. R.
17	Steel	170	O. R.

Type	Material	33149... ID no.	
18/1	Steel	178	O. R.
18/1	Tungsten Carbide	179	O. R.
18/2	Steel	180	O. R.
18/2	Tungsten Carbide	181	O. R.
18/3	Steel	182	O. R.
18/3	Tungsten Carbide	183	O. R.
18/4	Steel	184	O. R.
18/4	Tungsten Carbide	185	O. R.
18/5	Steel	186	O. R.
18/5	Tungsten Carbide	187	O. R.
18/6	Steel	188	O. R.

Type	Material	33149... ID no.	
18/6	Tungsten Carbide	189	O. R.
19/7	Steel	194	O. R.
19/8	Steel	195	O. R.
19/9	Steel	196	O. R.
19/10	Steel	197	O. R.
19/11	Steel	198	O. R.
20	Steel	201	O. R.
21	Steel	210	O. R.
T-probe	Rubin	300	(O. R.)
33	Tungsten Carbide	310	O. R.

Unit price, €

Prod. group 331

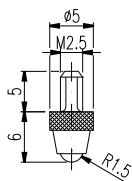
TESA Gauge slides M2.5

Application:

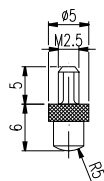
For use in measuring instruments with M 2.5 mm thread connection, e.g. dial gauges, vernier callipers etc.

Technical Data:

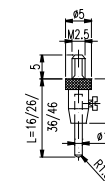
- Connection thread: M2.5



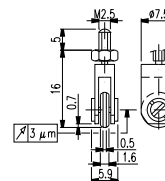
Ident. No. 010-020



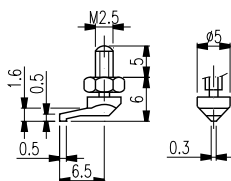
Ident. No. 030-040



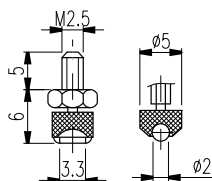
Ident. No. 050



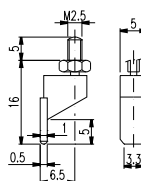
Ident. No. 060



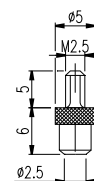
Ident. No. 070



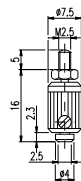
Ident. No. 080



Ident. No. 090



Ident. No. 120



Ident. No. 130

Type	Material	33150... ID no.	
TN 10	Steel	010	O. R.
TN 10 W	Tungsten Carbide	020	O. R.
TN 11	Steel	030	O. R.
TN 11 W	Tungsten Carbide	040	O. R.
TN 12	Steel	050	O. R.
TN 13	Steel	060	O. R.

Prod. group 362

Type	Material	33150... ID no.	
TN 20	Steel	070	O. R.
TN 30 W	Tungsten Carbide	080	O. R.
TN 40 W	Tungsten Carbide	090	O. R.
TN 70 W	Tungsten Carbide	120	O. R.
TN 80 W	Tungsten Carbide	130	(O. R.)

Unit price, €

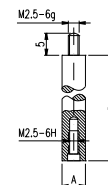
Extension piece

Application:

For bolting to gauge slides with M2.5 mm threads.

Technical Data:

- Diameter: 4 mm
- Connection thread: M2.5



Length (mm)	33154... ID no.	
10	010	O. R.
20	020	O. R.
30	030	O. R.
40	040	O. R.
50	050	O. R.
60	060	O. R.

Prod. group 331

Length (mm)	33154... ID no.	
70	070	O. R.
80	080	O. R.
90	090	O. R.
100	100	O. R.

Unit price, €

ATORN® Electronic dial gauge
with large high-contrast display, designed for production as well as for laboratory



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Zero setting at any position
- Large LCD display (12 mm)
- Keeptronic System
- mm/inch switch-over

Advantage:

- Key lock to prevent unintentional adjustment
- Switched on by the ON button or automatically switched on by calliper movement

- Particularly energy-saving electronics (battery lifetime up to 3 years)

scope of supply and services:

Battery (1 x 3 V lithium type CR 2032)

Technical Data:

- Data transmission type: multiCOM
- Min./max. measurement force: 0.5-1.0 N
- Absolute function: Yes
- Automatic switch-off: Yes
- Preset function: Yes
- IP protection class: IP 52
- Reversible counting direction: Yes



Ident. No. 210

Length measuring range (mm)		12.5	12.5
Digit increment (mm)		0.01	0.001
Error limit (µm)		20	5
Repeat accuracy (µm)		10	2
33 167...	Ident. No.	110	210
	Unit price, €	O. R.	O. R.

Prod. group 303

ATORN® Small electronic dial gauge
Degree of protection IP65



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Inductive measuring system
- LCD digital display (height 6 mm)
- Plastic housing diameter 44 mm

- mm/inch switch-over

scope of supply and services:

Battery (1 x 3 V lithium type CR 2032), in a case

Technical Data:

- Data transmission type: Power RS
- Automatic switch-off: Yes
- IP protection class: IP 65



Length measuring range (mm)		12.5	12.5	12.5	12.5	5.0	5.0
Digit increment (mm)		0.01	0.001	0.01	0.001	0.001	0.001
Error limit (µm)		20	5	20	5	4	4
Repeat accuracy (µm)		5	2	5	2	2	2
Min./max. measurement force		0.5-0.9 N	0.5-0.9 N	0.6-1.3 N	0.6-1.3 N	0.5-0.65 N	0.6-1.2 N
Absolute function		Yes	Yes	Yes	Yes	No	No
Dynamic measurement		No	No	No	No	Yes	Yes
Combined indicator for figure/scale reading		No	No	No	No	Yes	Yes
Preset function		Yes	Yes	Yes	Yes	No	No
33 174...	Ident. No.	010	020	030	040	050	060
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 303

ATORN® Electronic dial gauge



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Large LCD display (11 mm)
- Read display value
- Factor adjustable
- mm/inch switch-over

Advantage:

- Measured value classification: Display uses coloured LEDs to indicate when tolerance limits are exceeded
- IP67 protection also with data cable

scope of supply and services:

Battery (1 x 3 V lithium type CR 2032)

Technical Data:

- Data transmission type: Proximity
- Absolute function: Yes
- Automatic switch-off: Yes
- Dynamic measurement: Yes
- Colour reading classification: Yes
- Rotating housing: Yes
- Preset function: Yes
- IP protection class: IP 54
- Tolerance value entry: Yes
- Reversible counting direction: Yes



Length measuring range (mm)		12.5	25	50	100	12.5	25	50	100
Digit increment (mm)		0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001
Error limit (µm)		10	10	20	20	3	4	5	6
Repeat accuracy (µm)		2	2	2	2	2	2	2	3
Min./max. measurement force		0.65-0.9 N	0.65-1.15 N	1.4-2.9 N	1.8-3.8 N	0.65-0.9 N	0.65-1.15 N	1.4-2.9 N	1.8-3.8 N
33172...	Ident. No.	001	011	021	031	101	111	121	131
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 303

ORION® Electronic dial gauge



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- Aluminium housing with sturdy plastic cover
- Large LCD display (12 mm)
- mm/inch switch-over

scope of supply and services:

Calibration certificate, additional back of dial with clamping lug, battery type SR44, in case

- Digit increment: 0.01 mm
- Data transmission type: No
- Error limit: 30 µm
- Repeat accuracy: 10 µm
- Absolute function: Yes
- Dynamic measurement: No
- Colour reading classification: No
- Rotating housing: No
- Combined indicator for figure/scale reading: No
- Manual tolerance markers: No
- Preset function: No
- IP protection class: IP 40
- Tolerance value entry: Yes
- Reversible counting direction: No



Technical Data:

Length measuring range (mm)		12.5
33168...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BK

ORION® Electronic dial gauge Combined scale and digital display



Application:

For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Execution:

- mm/inch switch-over

scope of supply and services:

In a case

Technical Data:

- Data transmission type: No
- Absolute function: Yes
- Automatic switch-off: Yes
- Dynamic measurement: Yes
- Combined indicator for figure/scale reading: Yes
- Preset function: Yes
- IP protection class: IP 52
- Tolerance value entry: Yes



Ident. No. 013



Ident. No. 023

Length measuring range (mm)		12.5	12.5
Digit increment (mm)		0.01	0.001
Error limit (µm)		30	10
Repeat accuracy (µm)		10	4
33168...	Ident. No.	013	023
	Unit price, €	O. R.	O. R.

Prod. group 3BK

Mahr Electronic dial gauges
MarCator 1086



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

- Execution:**
- Factor adjustable
 - Large LCD display (11 mm)
 - mm/inch switch-over

- Advantage:**
- Key lock to prevent unintentional adjustment

scope of supply and services:
In case with CR 2450 battery

- Technical Data:**
- Data transmission type: multiCOM
 - Absolute function: Yes
 - Automatic switch-off: Yes
 - Rotating housing: Yes
 - Preset function: Yes
 - IP protection class: IP 42
 - Tolerance value entry: Yes
 - Reversible counting direction: Yes



Ident. No. 110



Ident. No. 130

Length measuring range (mm)	12.5	25	50	100	12.5	25	50	100
Digit increment (mm)	0.01	0.01	0.01	0.01	0.0005	0.0005	0.0005	0.0005
Error limit (µm)	20	20	20	20	4	4	8	8
Repeat accuracy (µm)	10	10	10	10	2	2	2	2
Min./max. measurement force	0.65-0.9 N	0.65-1.15 N	1.25-2.7 N	1.6-3.5 N	0.65-0.9 N	0.65-1.15 N	1.25-2.7 N	1.6-3.5 N
33 166...	Ident. No. 110	120	130	140	810	820	822	825
	Unit price, €	O. R.	O. R.	O. R.	O. R.	(O. R.)	(O. R.)	(O. R.)

Prod. group 305

Mahr Electronic dial gauges
MarCator 1086 with integrated radio transmission



Application:
For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

- Execution:**
- Factor adjustable
 - Large LCD display (11 mm)
 - mm/inch switch-over

- Advantage:**
- Key lock to prevent unintentional adjustment

scope of supply and services:
In case with CR 2450 battery

- Technical Data:**
- Data transmission type: multiCOM/MarConnect
 - Absolute function: Yes
 - Automatic switch-off: Yes
 - Rotating housing: Yes
 - Preset function: Yes
 - IP protection class: IP 42
 - Tolerance value entry: Yes
 - Reversible counting direction: Yes

Length measuring range (mm)	12.5	25	50	100	12.5	25	50	100
Digit increment (mm)	0.01	0.01	0.01	0.01	0.0005	0.0005	0.0005	0.0005
Error limit (µm)	20	20	20	20	4	4	8	8
Repeat accuracy (µm)	10	10	10	10	2	2	2	2
Min./max. measurement force	0.65-0.9 N	0.65-1.15 N	1.25-2.7 N	1.6-3.5 N	0.65-0.9 N	0.65-1.15 N	1.25-2.7 N	1.6-3.5 N
33 166...	Ident. No. 510	520	530	540	830	840	850	860
	Unit price, €	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Prod. group 305

Mahr Electronic dial gauges
MarCator 1087



Application:
Ident. No. 630-640: For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Ident. No. 660: For measuring using a 2-point measuring gauge.

- Execution:**
- Factor adjustable
 - mm/inch switch-over

- Advantage:**
- Key lock to prevent unintentional adjustment

- Technical Data:**
- Digit increment: 0.0005 mm
 - Data transmission type: multiCOM
 - Error limit: 4 µm
 - Repeat accuracy: 2 µm
 - Absolute function: Yes
 - Automatic switch-off: Yes
 - Dynamic measurement: Yes
 - Rotating housing: Yes
 - Combined indicator for figure/scale reading: Yes
 - Preset function: Yes
 - IP protection class: IP 42
 - Tolerance value entry: Yes
 - Reversible counting direction: Yes



Ident. No. 630



Ident. No. 660

scope of supply and services:
In case with CR 2450 battery

Length measuring range (mm)		12.5	25
Min./max. measurement force		0.65-0.9 N	0.65-1.15 N
33 166...	-	Ident. No. 630	640
		Unit price, €	O. R.
33 166...	Suitable for internal precision measuring instruments	Ident. No. 660	-
		Unit price, €	(O. R.)

Prod. group 305

Mahr Electronic dial gauges
MarCator 1086 with integrated radio transmission



Application:
Ident. No. 670, 690: For measuring lengths and length differences, e.g. concentricity, flatness, positional measurements.

Ident. No. 680: For measuring using a 2-point measuring gauge.

Execution:

- Factor adjustable
- mm/inch switch-over
- Ident. No. 690:** Large LCD display

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:

In case with CR 2450 battery

Technical Data:

- Digit increment: 0.0005 mm
- Data transmission type: multiCOM/MarConnect
- Error limit: 4 µm
- Repeat accuracy: 2 µm
- Absolute function: Yes
- Automatic switch-off: Yes
- Dynamic measurement: Yes
- Rotating housing: Yes
- Combined indicator for figure/scale reading: Yes
- Preset function: Yes
- IP protection class: IP 42
- Tolerance value entry: Yes
- Reversible counting direction: Yes

Length measuring range (mm)		12.5	12.5	25
Min./max. measurement force		0.65-1.1 N	0.65-1.15 N	0.65-1.1 N
33166...	-	Ident. No. 670 Unit price, € O. R.	-	Ident. No. 690 (O. R.)
33166...	Suitable for internal precision measuring instruments	-	Ident. No. 680 (O. R.)	-

Prod. group 305

Accessories for		33166 670	33166 680	33166 690
31181...	MarConnect i-Stick wireless receiver Compatible with MarConnect wireless transmitter	Ident. No. 300 Unit price, € O. R.	Ident. No. 300 Unit price, € O. R.	Ident. No. 300 Unit price, € O. R.

Mahr Electronic dial gauges
MarCator 1088



Application:
For monitoring tolerances using colour change.

Execution:

- Factor adjustable
- mm/inch switch-over

Advantage:

- Key lock to prevent unintentional adjustment

scope of supply and services:
In case with plug-in power supply

Technical Data:

- Digit increment: 0.001 mm
- Repeat accuracy: 2 µm
- Absolute function: Yes
- Automatic switch-off: Yes

- Dynamic measurement: Yes
- Colour reading classification: Yes
- Rotating housing: Yes
- Combined indicator for figure/scale reading: Yes
- Preset function: Yes
- Tolerance value entry: Yes
- Reversible counting direction: Yes



Ident. No. 900



Ident. No. 910



Ident. No. 920

Length measuring range (mm)		12.5	25	50
Error limit (µm)		5	5	8
Min./max. measurement force		0.65-0.9 N	0.65-1.15 N	1.25-2.7 N
IP protection class		IP 54	IP 54	IP 42
33166...	Ident. No. 900 Unit price, € O. R.	Ident. No. 910 Unit price, € O. R.	Ident. No. 920 (O. R.)	

Prod. group 305

Measuring equipment

ATORN® Precision indicator

DIN 879



Application:

For measuring lengths. Ideal for comparison measuring instruments thanks to small measuring range and very high accuracy.

- Adjustable tolerance marks
- Measuring mechanism on ruby bearings

scope of supply and services:
In a case

Execution:

- Shock resistant
- Precision-guided measuring pin
- Connection for wire lifter
- Pointer fine adjustment

Technical Data:

- Free stroke: Yes
- Measurement force: 1 N
- Shaft diameter: 8 mm



Ident. No. 010

Length measuring range (mm)		0.1	0.5	0.1	0.5
Scale value (mm)		0.001	0.01	0.001	0.01
IP protection class		IP 40	IP 40	IP 53	IP 53
	Ident. No.	010	015	020	025
33163...	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3AE

Measuring equipment

Mahr Precision indicator
Millimess

DIN 879



Application:

For measuring lengths. Ideal for comparison measuring instruments thanks to small measuring range and very high accuracy.

- Adjustable tolerance marks
- Measuring mechanism on ruby bearings

scope of supply and services:
In a case

Execution:

- Shock resistant
- Ball-guided measuring pin
- Connection for wire lifter
- Pointer fine adjustment

Technical Data:

- Free stroke: Yes



Ident. No. 130



Ident. No. 140



Ident. No. 150



Ident. No. 200

Length measuring range (mm)		0.1	0.26	0.05	0.24
Scale value (mm)		0.001	0.002	0.0005	0.001
Measurement force (N)		1	1	1	3.5
Shaft Ø (mm)		8	8	8	28
	Ident. No.	130	140	150	200
33163...	Unit price, €	O. R.	O. R.	O. R.	(O. R.)

Prod. group 305

Schwenk Precision indicator
MYTAST

DIN 879

Application:

For measuring lengths. Ideal for comparison measuring instruments thanks to small measuring range and very high accuracy.

- Adjustable tolerance marks

scope of supply and services:
In a case

Execution:

- Shock resistant
- Ball-guided measuring pin
- Connection for wire lifter
- Pointer fine adjustment

Technical Data:

- Free stroke: Yes
- Measurement force: 1 N
- IP protection class: IP 40
- Shaft diameter: 8 mm



No. 33160

Length measuring range (mm)		0.1	0.5
Scale value (mm)		0.001	0.01
	Ident. No.	010	-
33160...	Unit price, €	O. R.	-
	Ident. No.	-	010
33161...	Unit price, €	-	O. R.

Prod. group 336

Mahr Inductive precision indicators



Application:
Ident. No. 500: For measuring static values.
Ident. No. 550: For measuring static and dynamic values.

- Execution:**
- ON/OFF
 - Preset function
 - Zero setting at any position
 - mm/inch switch-over
 - Display rotates by 280°
 - Replaceable measuring force spring
 - MAX/MIN function
 - Counting direction reversal

- Advantage:**
- Linearised inductive absolute measuring system
 - Multipoint measuring device via USB hubs

scope of supply and services:
 Operating instructions, rubber sleeve, key for pre-stroke adjustment, mains adapter, case

- Technical Data:**
- Digit increment: 0.001 mm
 - Free stroke: Yes
 - Min./max. measurement force: 0.7-0.9 N
 - Shaft diameter: 8 mm
 - Shaft length: 28 mm



Ident. No. 500



Ident. No. 550

Length measuring range (mm)		1.80	1.8
Error limit (µm)		0.6	0.61
33 163...	Ident. No.	500	550
	Unit price, €	O. R.	O. R.

Prod. group 305

ATORN® Lever gauge indicators

DIN 2270



Application:
 For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

- Execution:**
- Metallic outer ring
 - Anti-magnetic components
 - Automatic switching of callipers direction
 - Measuring mechanism on ruby bearings
 - Measuring probe with cemented carbide ball

- Advantage:**
- 3 dovetail mounting surfaces

scope of supply and services:
 Lever gauge probe, measuring probe with 2 mm diameter cemented carbide ball, 8 mm diameter clamping shaft for mounting on measuring stands, measuring probe wrench with case

- Technical Data:**
- Connection thread: M1.6
 - Ball diameter: 2 mm
 - Pivot range of measuring sensor: 240 Degree



Ident. No. 010



Ident. No. 030



Ident. No. 080

	Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
333 10...	1	32	0.01	16.6	0.15	Ident. No.	010
						Unit price, €	O. R.
333 10...	1	40	0.01	16.6	0.15	Ident. No.	020
						Unit price, €	O. R.
333 10...	0.5	32	0.01	35.7	0.15	Ident. No.	030
						Unit price, €	O. R.
333 10...	0.5	40	0.01	35.7	0.15	Ident. No.	040
						Unit price, €	O. R.
333 10...	0.2	32	0.002	12.8	0.15	Ident. No.	050
						Unit price, €	O. R.
333 10...	0.2	40	0.002	12.8	0.15	Ident. No.	060
						Unit price, €	O. R.
333 10...	0.2	40	0.001	12.8	0.15	Ident. No.	070
						Unit price, €	O. R.
333 10...	0.2	58	0.001	12.8	0.15	Ident. No.	080
						Unit price, €	O. R.

Prod. group 3AE

Measuring equipment

ATORN® Accessories for lever gauges, no. 33310

Application:

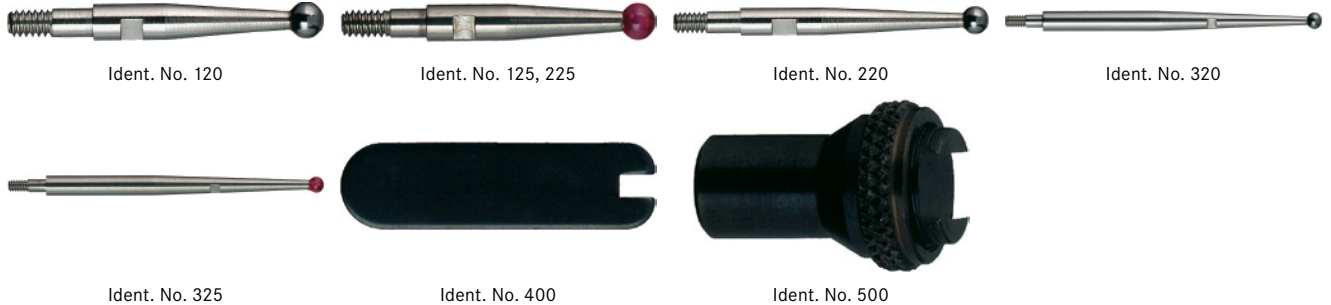
Ident. No. 120–325: Measuring probe for lever gauge probe no. 33310

Ident. No. 400: For changing measuring probes.

Ident. No. 500: For clamping in a measuring stand or other holders with 8 mm diameter.

Notes:

Ident. No. 120–325: Only use replacement measuring probes of the length for which the lever gauge probe is designed.



		Connection thread	Ball Ø (mm)	Length of measuring sensor from centre of ball (mm)	Material	Ident. No.	Unit price, €	
33311...	-	M1.6	2	12.8	Tungsten Carbide	120	O. R.	120
33311...	-	M1.6	2	12.8	Rubin	125	O. R.	125
33311...	-	M1.6	2	16.6	Tungsten Carbide	220	O. R.	220
33311...	-	M1.6	2	16.6	Rubin	225	O. R.	225
33311...	-	M1.6	2	35.7	Tungsten Carbide	320	O. R.	320
33311...	-	M1.6	2	35.7	Rubin	325	O. R.	325
33311...	Gauge slide wrench	-	-	-	-	400	O. R.	400
33311...	Clamping shaft Ø 8 mm h6	-	-	-	-	500	O. R.	500

Prod. group 3AE

Mahr Lever gauge
MarTest

DIN 2270



Application:

For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

Execution:

- Impact-resistant movement
- Dial sealed with O-ring
- Anti-magnetic components
- Automatic switching of callipers direction

- Measuring mechanism on ruby bearings
- Measuring probe with cemented carbide ball

Advantage:

- 3 dovetail mounting surfaces

Technical Data:

- Connection thread: M2
- Ball diameter: 2 mm
- Pivot range of measuring sensor: 220 Degree



Ident. No. 010



Ident. No. 020



Ident. No. 050



Ident. No. 070



Ident. No. 080



Ident. No. 100



Ident. No. 110



Ident. No. 310

	Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
33303...	0.8	28	0.01	14.5	0.15	Ident. No. Unit price, €	010 O. R.
33303...	0.8	38	0.01	14.5	0.15	Ident. No. Unit price, €	020 O. R.
33303...	0.5	38	0.01	14.5	0.1	Ident. No. Unit price, €	050 (O. R.)
33303...	1	38	0.01	32.3	0.07	Ident. No. Unit price, €	060 O. R.
33303...	0.5	28	0.01	41.3	0.07	Ident. No. Unit price, €	070 O. R.
33303...	0.5	38	0.01	41.3	0.07	Ident. No. Unit price, €	080 O. R.
33303...	0.2	28	0.002	14.5	0.15	Ident. No. Unit price, €	090 O. R.
33303...	0.2	38	0.002	14.5	0.15	Ident. No. Unit price, €	100 O. R.
33303...	0.4	38	0.002	14.5	0.15	Ident. No. Unit price, €	110 O. R.
33303...	0.14	38	0.001	9.15	0.2	Ident. No. Unit price, €	120 O. R.
33303...	0.2	38	0.002	14.5	0.25	Ident. No. Unit price, €	310 O. R.
33303...	0.8	28	0.01	14.5	0.25	Ident. No. Unit price, €	320 O. R.

Prod. group 305


TESA TESATAST/SWISSTAST lever gauges

DIN 2270

**Application:**

For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

Execution:

- Rotating dial
- Anti-magnetic components
- Automatic switching of callipers direction
- Measuring mechanism on ruby bearings
- Housing made from one piece, brushed chromium-plated
- No. 33340 010, 33341 010–33345 010, 33345 110: Chromium-plated measuring probe

- No. 33340 100, 33345 100: Measuring probe with ruby ball

Advantage:

- 3 dovetail mounting surfaces

scope of supply and services:

TESATAST measuring probe with 2 mm ball diameter, clamping shaft diameter 8 mm, key disc, in plastic case

Technical Data:

- Connection thread: M1.4
- Ball diameter: 2 mm
- Pivot range of measuring sensor: 240 Degree

No. 33340 100, 33345 100
With ruby ball

No. 33341

		Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
33340...	Chrome-plated ball	0.8	28	0.01	12.5	0.15	Ident. No. Unit price, €	010 O. R.
33340...	Ruby ball	0.8	28	0.01	12.5	0.15	Ident. No. Unit price, €	100 O. R.
33341...	Chrome-plated ball	0.8	38	0.01	12.5	0.15	Ident. No. Unit price, €	010 O. R.
33342...	Chrome-plated ball	0.5	28	0.01	36.5	0.15	Ident. No. Unit price, €	010 O. R.
33343...	Chrome-plated ball	0.5	38	0.01	36.5	0.15	Ident. No. Unit price, €	010 O. R.
33344...	Chrome-plated ball	0.2	28	0.002	12.5	0.15	Ident. No. Unit price, €	010 O. R.
33345...	Chrome-plated ball	0.2	38	0.002	12.5	0.15	Ident. No. Unit price, €	010 O. R.
33345...	Ruby ball	0.2	38	0.002	12.5	0.15	Ident. No. Unit price, €	100 O. R.
33345...	Chrome-plated ball	0.2	38	0.001	12.5	0.15	Ident. No. Unit price, €	110 O. R.

Prod. group 362

Accessories for			33341 010
33350...	Measuring probes for lever gauge probes	Ident. No. Unit price, €	040 O. R.

TESA TESATAST lever gauges

DIN 2270



Application:

For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

Execution:

- Rotating dial
- Anti-magnetic components
- Automatic switching of callipers direction
- Measuring mechanism on ruby bearings
- Housing made from one piece, brushed chromium-plated

- Chromium-plated measuring probe
- **No. 33346:** Lateral
- **No. 33347–33348:** Perpendicular

Advantage:

- 3 dovetail mounting surfaces

Technical Data:

- Connection thread: M1.4
- Ball diameter: 2 mm
- Pivot range of measuring sensor: 240 Degree



No. 33346
Lateral



No. 33347 010
Perpendicular with
centring holder

		Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
33346...	Chrome-plated ball	0.8	28	0.01	12.5	0.15	Ident. No.	010
							Unit price, €	O. R.
33346...	Chrome-plated ball	0.2	28	0.002	12.5	0.15	Ident. No.	020
							Unit price, €	O. R.
33346...	Chrome-plated ball	2	38	0.02	36.5	0.15	Ident. No.	050
							Unit price, €	O. R.
33347...	Chrome-plated ball	0.8	28	0.01	12.5	0.15	Ident. No.	010
							Unit price, €	O. R.
33347...	Chrome-plated ball	0.5	28	0.01	36.5	0.15	Ident. No.	050
							Unit price, €	O. R.
33348...	Chrome-plated ball	0.2	38	0.002	12.5	0.15	Ident. No.	010
							Unit price, €	O. R.

Prod. group 362

TESA Measuring probe
for TESA TESATAST/SWISSTAST lever gauges

Application:

Measuring probes for lever gauge probe TESATAST and no. 33296.

Notes:

Only use replacement measuring probes of the length for which the lever gauge probe is designed.



Measuring probe

	Connection thread	Ball Ø (mm)	Length of measuring sensor from centre of ball (mm)	Material		
33350...	M1.4	1	12.5	Tungsten Carbide	Ident. No.	040
					Unit price, €	O. R.
33350...	M1.4	2	12.5	Tungsten Carbide	Ident. No.	050
					Unit price, €	O. R.
33350...	M1.4	3	12.5	Tungsten Carbide	Ident. No.	060
					Unit price, €	O. R.
33350...	M1.4	2	12.5	Rubin	Ident. No.	100
					Unit price, €	O. R.
33355...	M1.4	1	36.5	Tungsten Carbide	Ident. No.	040
					Unit price, €	O. R.
33355...	M1.4	2	36.5	Tungsten Carbide	Ident. No.	050
					Unit price, €	O. R.
33355...	M1.4	3	36.5	Tungsten Carbide	Ident. No.	060
					Unit price, €	O. R.
33355...	M1.4	2	36.5	Rubin	Ident. No.	100
					Unit price, €	O. R.

Prod. group 362

TESA Accessories
for TESA TESATAST/SWISSTAST lever gauges

Cylindrical clamping shaft Ø 4 mm	Cylindrical clamping shaft Ø 8 mm	Plexiglas containers for probes	Key disc
33351... ID no.	33351... ID no.	33352... ID no.	33353... ID no.
010	020	010	010
O. R.	O. R.	O. R.	O. R.
Unit price, €			

Prod. group 362



No. 33351
Clamping shafts

TESA Accessories
for lever gauges

Execution:

- No. 33366: Cylindrical clamping shaft, length 25 mm

- No. 33367: Cylindrical clamping shaft, length 90 mm



No. 33363



No. 33364



No. 33365



No. 33366



No. 33367



No. 33368

Clamp holder		Cylindrical clamping shaft		Rectangular clamping shaft		Holder, small, swivelling, with cyl. clamping shaft, length 25 mm		Holder, large, swivelling, with cyl. clamping shaft, length 90 mm		Angle bracket with cyl. shaft, length 25 mm	
33363... ID no.		33364... ID no.		33365... ID no.		33366... ID no.		33367... ID no.		33368... ID no.	
010	O. R.	010	(O. R.)	010	(O. R.)	010	O. R.	010	O. R.	010	O. R.

Unit price, €

Prod. group 362

ORION® Centring holders
For TESATAST lever gauge probes no. 33347 and 33348

Application:

For holding lever gauges in a stand with Ø 8 mm mount.

Execution:

- Clamping shaft diameter 8 mm
- Clamp for dovetail
- Cylindrical holder Ø 4 mm



33349...	Centring bracket for lever gauge probe	Ident. No.	010
		Unit price, €	O. R.

Prod. group 3BK

Interapid Lever gauges
SWITZERLAND



Application:

For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

- Automatic switching of callipers direction
- Measuring mechanism on ruby bearings
- Measuring probe with hardened steel ball

scope of supply and services:

With measuring probe made from hardened steel ball diameter 2 mm, in a case.

Execution:

- Housing with hardened, bolted-on dovetail fixtures
- High sensitivity, low measuring force

Advantage:

- Mounted using dovetail or shaft Ø 4 mm
- No. 33300: Angled dial face, simplified reading

Technical Data:

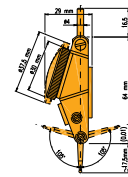
- Connection thread: M1.7
- Ball diameter: 2 mm
- Pivot range of measuring sensor: 210 Degree



No. 33300 020
Standard model



No. 33301 020
Vertical model



No. 33300 020

	Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)	Ident. No.	010
33300...	1.6	37.5	0.01	16.5	0.12	Unit price, €	O. R.

	Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
33300...	1.6	30	0.01	16.5	0.12	Ident. No.	020
						Unit price, €	O. R.
33300...	0.4	37.5	0.002	15.2	0.25	Ident. No.	030
						Unit price, €	O. R.
33300...	0.4	30	0.002	15.2	0.25	Ident. No.	040
						Unit price, €	(O. R.)
33301...	1.6	37.5	0.01	16.5	0.12	Ident. No.	010
						Unit price, €	(O. R.)
33301...	1.6	30	0.01	16.5	0.12	Ident. No.	020
						Unit price, €	(O. R.)

Prod. group 362

ATORN® Electronic lever gauge



Application:

For measuring deviations in concentricity, axial run-out, parallelism and flatness. For centring shafts of boreholes and aligning workpieces.

Execution:

- Combined scale and digital display
- Degree of protection IP65
- Rotating display unit
- Data output RS232

- Auto off
- Compatible with all TESATAST accessories
- Zero setting at any position
- mm/inch switch-over
- Measuring probe with golbal change carbide ball
- Digit increment reversible (0.001/0.01 mm)

Advantage:

- 3 dovetail mounting surfaces

scope of supply and services:

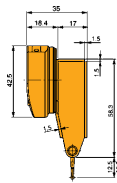
Clamping shank 8 mm diameter and key disc for measuring probe, in plastic case.

Technical Data:

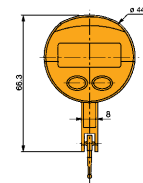
- Ball diameter: 2 mm
- Pivot range of measuring sensor: 270 Degree



Ident. No. 010



Ident. No. 010



Ident. No. 010

	Length measuring range (mm)	Ø (mm)	Scale value (mm)	Length of measuring sensor from centre of ball (mm)	Measurement force (N)		
33296...	0.8	44	0.001	12.5	0.13	Ident. No.	010
						Unit price, €	O. R.
33296...	0.5	44	0.001	36.5	0.07	Ident. No.	020
						Unit price, €	O. R.

Prod. group 303

Internal callipers and angle calipers



Application:

For checking and aligning bores on machine tools and measuring instruments.

Execution:

- Can be clamped in a measuring stand

scope of supply and services:

Without dial gauge

Measuring depth (mm)	Ident. No.	60	30
33233...	Unit price, €	010	020
		O. R.	O. R.

Prod. group 331

Technical Data:

- Length measuring range: 8 mm
- Shaft diameter: 8 mm
- Shaft length: 15 mm
- Scale value: 0.01 mm



Ident. No. 010



Ident. No. 020

Depth measuring instruments

with special dial gauge


Application:

For measuring hole depths, clearances etc.

Execution:

- Brushed chromium-plated measuring bridge
- Hardened and lapped support surface
- Flatness tolerance 0.004 mm
- Replaceable gauge slide with collet chuck for perfect clamping of special dial gauge

scope of supply and services:

In a case

Technical Data:

- Scale value: 0.01 mm
- Outer diameter: 58 mm
- Bridge length: 80 mm
- Bridge width: 16 mm
- Measurement force: 1 N



No. 33601

Length measuring range (mm)		10	30
33601...	Ident. No. Unit price, €	015 O. R.	-
33602...	Ident. No. Unit price, €	-	015 O. R.

Prod. group 331

Accessories for			33601 015	33602 015
33601...	Special dial gauge For depth gauge no. 33601	Ident. No. Unit price, €	111 O. R.	-
33602...	Special dial gauge For depth gauge no. 33602	Ident. No. Unit price, €	-	111 O. R.

Depth measuring instrument


Application:

For measuring hole depths, clearances etc.

Execution:

- Brushed chromium-plated measuring bridge
- Hardened and lapped support surface
- Flatness tolerance 0.004 mm
- Bored measuring pin and gauge slide
- Movable measuring spindle

scope of supply and services:

In a case

Technical Data:

- Length measuring range: 30 mm
- Scale value: 0.01 mm
- Outer diameter: 58 mm
- Bridge length: 80 mm
- Bridge width: 16 mm
- Measuring depth: 200 mm
- Measurement force: 1.4 N



33604...	Ident. No. Unit price, €	100 O. R.
----------	-----------------------------	--------------

Prod. group 331

Accessories for			33604 100
33605...	Special dial gauge For depth gauge no. 33604	Ident. No. Unit price, €	100 O. R.

Depth measuring bridge

For dial gauges with diameter 8 h6

Application:

For placing on the workpiece being measured as a base for a dial gauge.

Execution:

- Brushed chromium-plated
- Support surface hardened, ground and lapped
- For dial gauges with shaft diameter 8 h6



Ident. No. 150

Length (mm)	50	80	100	150
Width (mm)	16	16	16	20
Flatness tolerance (mm)	0.004	0.004	0.004	0.006
33600...	Ident. No. Unit price, €	050 O. R.	080 O. R.	100 O. R.
			150 O. R.	

Prod. group 331

Depth measuring bridge

With prismatic 120° support for diameter 8 h6

Application:

For measuring the depths of keyways in cylindrical shafts, for determining roundness deviations using dial gauges.

Execution:

- Brushed chromium-plated

- For shaft diameters 10–100 mm

- Support surface hardened, ground and lapped
- For dial gauges with shaft diameter 8 h6

Technical Data:

- Length: 66 mm

33607...	Ident. No. Unit price, €	020 O. R.
----------	-----------------------------	--------------

Prod. group 331



Crankshaft tester



Application:
For detecting bends in crankshafts

scope of supply and services:
In a wooden case



Execution:

- Dial gauge scale interval: 0.01 mm
- Pendulum weight for positioning dial gauge horizontally

Technical Data:

- Scale value: 0.01 mm

Min./max. length of application area		60-300 mm	60-500 mm
33590...	Ident. No. Unit price, €	310 O. R.	510 O. R.

Prod. group 308



Film thickness gauge

With lifting device:



Application:
For measuring the thickness of films.

- Insulated handles

scope of supply and services:
In a case

Execution:

- Glass and external ring made from one piece



Ident. No. 020

	Min./max. length measuring range	Scale value (mm)	Bracket depth (mm)	Contact pressing force (N)	Ident. No. Unit price, €	O. R.
33212...	0-1 mm	0.001	30	1.3	Ident. No. Unit price, €	010 O. R.
33212...	0-1 mm	0.001	30	1.5	Ident. No. Unit price, €	020 O. R.

Prod. group 331



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Thickness measuring devices



Application:

No. 33185 110, 33197 050: For measuring the thickness of leather, card, paper, films.

No. 33185 135: For measuring the thickness of hard materials.

No. 33195 050-33196 090, 33206 010: For

measuring the thickness of rubber blankets, rubber sheets, felt and soft materials.

No. 33199: For measuring the thickness of sheet metal and hard materials.

Execution:

- Precision measuring element

- Replaceable gauge slides

- **No. 33185:** Pocket thickness measuring device in compact design

- **No. 33195 070-33195 090, 33196 090, 33199 070-33199 090:** Stand attachment for stability

- **No. 33195-33206:** Robust throat



No. 33185
Pocket thickness gauge



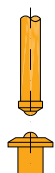
No. 33195 050, 33195 090-33196 090, 33199 050,
33199 090
30 mm measurement range, 400 mm bow depth,
with mounting fixture



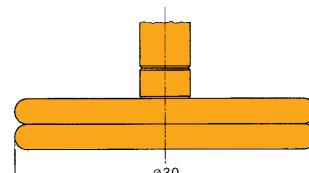
No. 33206
Measuring range 10 mm, bow depth 50 mm



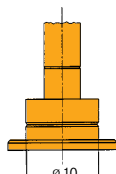
No. 33185 110
Flat Ø 10 mm



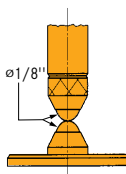
No. 33185 135
Spherical



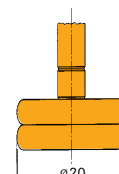
No. 33195
Type A



No. 33197
Type C



No. 33199 050-33199 070
Type E



No. 33206
Type B

	Min./max. length measuring range	Form	Scale value (mm)	Bracket depth (mm)	Ident. No. Unit price, €	
33185...	0-10 mm	-	0.01	18	Ident. No. Unit price, €	110 O. R.
33185...	0-10 mm	-	0.01	45	Ident. No. Unit price, €	135 O. R.
33206...	0-10 mm	B	0.01	50	Ident. No. Unit price, €	010 O. R.
33195...	0-30 mm	A	0.1	50	Ident. No. Unit price, €	050 O. R.
33196...	0-30 mm	B	0.1	50	Ident. No. Unit price, €	050 (O. R.)
33197...	0-30 mm	C	0.1	50	Ident. No. Unit price, €	050 (O. R.)
33199...	0-30 mm	E	0.1	50	Ident. No. Unit price, €	050 (O. R.)
33195...	0-30 mm	A	0.1	200	Ident. No. Unit price, €	070 O. R.
33199...	0-30 mm	E	0.1	200	Ident. No. Unit price, €	070 (O. R.)
33195...	0-30 mm	A	0.1	400	Ident. No. Unit price, €	090 O. R.
33196...	0-30 mm	B	0.1	400	Ident. No. Unit price, €	090 (O. R.)
33199...	0-30 mm	E	0.1	400	Ident. No. Unit price, €	090 O. R.

Prod. group 331

Electronic thickness measuring device



Application:

For measuring the thickness of rubber blankets, rubber sheets, felt and soft materials.

- Replaceable gauge slides
- Preset function

Execution:

- Zero setting at any position
- mm/inch switch-over

scope of supply and services:

3 V lithium battery (type RS 2032) in a case



	Min./max. length measuring range	Scale value (mm)	Bracket depth (mm)	Data transmission type	Ident. No. Unit price, €	011 O. R.
33211...	0-12.5 mm	0.01	50	multiCOM		

Prod. group 331



Quick calipers for external measurement of grooves and thicknesses



Application:

For measuring thicknesses, wall thicknesses and external grooves.

- Combined digit and scale display
- mm/inch switch-over
- Measuring mode ABSOLUTE
- Measured value classification (red/green display)

Execution:

- 1 fixed and 1 movable measuring arm
- **Ident. No. 010-020, 040-050, 075:**
 - Adjustable tolerance marks
 - Easy adjustment with rotating housing
- **Ident. No. 030, 065, 085:**
 - Large, high-contrast LCD display (digit size 8.5 mm)

Advantage:

- Measured result can be read directly

scope of supply and services:

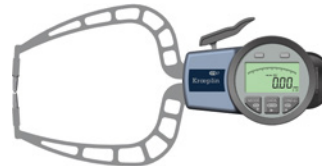
With traceable test certificate



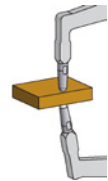
Ident. No. 020
Model D110



Ident. No. 030
Model C220



Ident. No. 065
Model C330



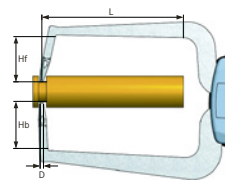
Measuring contact 1



Measuring contact 2



Measuring contact 6



Min./max. length measuring range	0-10 mm	0-10 mm	0-20 mm	0-20 mm	0-20 mm	0-30 mm	0-50 mm	0-50 mm
Scale value (mm)	0.1	0.005	0.01	0.01	0.01	0.02	0.05	0.02
Display	Analogue	Analogue	Digital	Analogue	Analogue	Digital	Analogue	Digital
Measuring depth (mm)	36	35	85	85	85	115	167	167
Type	POCO 2K	D110	C220	D220	D220S	C330	D450	C450
Measuring arrangement	6	1	1	1	2	1	1	1
Hb (mm)	5	19.1	24.7	24.7	24.7	30	30	30
Hf (mm)	5	18.6	24.6	24.6	24.6	30	30	30
33241...	Ident. No. 010	020	030	040	050	065	075	085
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 332

Kroepelin **Electronic quick caliper for internal measurements**
Längenmesstechnik **3-point measurement**



Application:

For measuring bore holes and internal grooves.

Execution:

- Large, high-contrast LCD display (digit size 8.5 mm)
- Combined digit and scale display
- mm/inch switch-over
- Measuring mode ABSOLUTE
- Measured value classification (red/green display)

- 1 fixed and 1 movable measuring arm

Advantage:

- Measured result can be read directly

scope of supply and services:

With traceable test certificate

Technical Data:

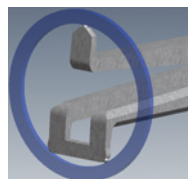
- Display: Digital



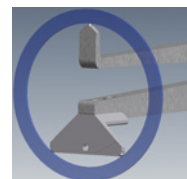
Ident. No. 430
Model G225P3



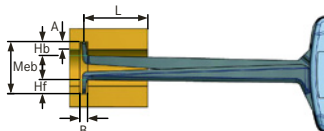
Measuring contact 1



Measuring contact 2



Measuring contact 3



Min./max. length measuring range	7-14 mm	10-20 mm	15-30 mm	25-45 mm	40-60 mm	55-75 mm	70-90 mm	85-105 mm
Scale value (mm)	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Measuring depth (mm)	34	75	77	85	84	84	84	84
Type	G107P3	G210P3	G215P3	G225P3	G240P3	G255P3	G270P3	G285P3
Measuring arrangement	1	2	2	3	3	3	3	3
Hb (mm)	2.5	4.6	5.8	7.3	12.2	12.2	12.2	12.2
33261...	Ident. No. 400	410	420	430	440	450	460	470
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 332

Kroepelin **Quick calipers for pipe wall measurements**
Längenmesstechnik



Application:

For measuring wall thicknesses of pipes and hollow parts.

Execution:

- 1 fixed and 1 movable measuring arm
- **Ident. No. 010-030, 050-065:**
 - Adjustable tolerance marks
 - Easy adjustment with rotating housing
- **Ident. No. 040, 075:**
 - Large, high-contrast LCD display (digit size 8.5 mm)

- Combined digit and scale display
- mm/inch switch-over
- Measuring mode ABSOLUTE
- Measured value classification (red/green display)

Advantage:

- Measured result can be read directly

scope of supply and services:

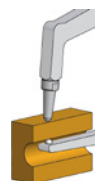
With traceable test certificate



Ident. No. 040
Model C2R20



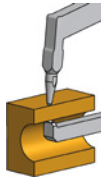
Ident. No. 065
Model D4R50



Measuring contact 3



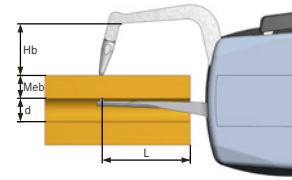
Measuring contact 4



Measuring contact 5



Measuring contact 7



Min./max. length measuring range	1-10 mm	0-10 mm	0-10 mm	0-20 mm	0-20 mm	0-50 mm	0-50 mm
Scale value (mm)	0.1	0.005	0.005	0.01	0.01	0.05	0.02
Display	Analogue	Analogue	Analogue	Digital	Analogue	Analogue	Digital
Measuring depth (mm)	33	35	35	85	85	169	169
Type	POCO 2R	D1R10	D1R10S	C2R20	D2R20	D4R50	C4R50
Measuring arrangement	7	3	4	5	5	5	5
Hb (mm)	5	19.1	18.8	24.7	24.7	30	30
Hf (mm)	0.8	0.9	0.9	2.5	2.5	4.3	4.3
33243...	Ident. No. 010	020	030	040	050	065	075
	Unit price, €	O. R.	O. R.	(O. R.)	O. R.	O. R.	(O. R.)

Prod. group 332

Measuring equipment

Kroepmlin
Längenmesstechnik

Quick calipers for internal measurements of bores, recesses and internal grooves



Application:

For measuring bores, recesses and internal grooves.

Execution:

- 1 fixed and 1 movable measuring arm
- Ident. No. **010, 030, 050, 070, 090, 110, 130, 150, 170, 190, 215-225, 245, 265:**

- Large, high-contrast LCD display (digit size 8.5 mm)
- Combined digit and scale display
- mm/inch switch-over
- Measuring mode ABSOLUTE
- Measured value classification (red/green display)
- Ident. No. **020, 040, 060, 080, 100, 120, 140, 160, 180, 200, 235, 255, 275-285:**

- Adjustable tolerance marks
- Easy adjustment with rotating housing

Advantage:

- Measured result can be read directly

scope of supply and services:

With traceable test certificate



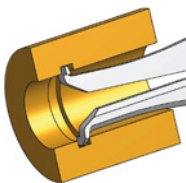
Ident. No. 010
Model G102



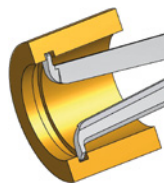
Ident. No. 060
Model H210



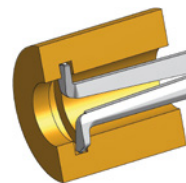
Ident. No. 215
Model G313



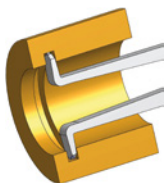
Measuring contact 1



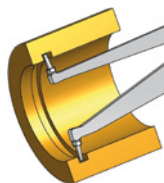
Measuring contact 2



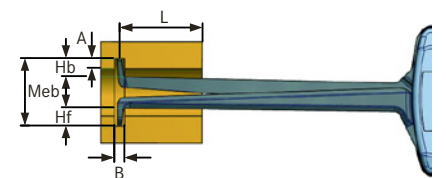
Measuring contact 3



Measuring contact 4



Measuring contact 5



Min./max. length measuring range	Scale value (mm)	Display	Measuring depth (mm)	Type	Measuring arrangement	Hb (mm)	Hf (mm)	33261... ID no.
2.5-12.5 mm	0.005	Digital	35	G102	1	0.9	0.9	010 O. R.
2.5-12.5 mm	0.005	Analogue	35	H102	1	0.9	0.9	020 O. R.
5-15 mm	0.005	Digital	35	G105	3	2.5	2.5	030 O. R.
5-15 mm	0.005	Analogue	35	H105	3	2.5	2.5	040 O. R.
10-30 mm	0.01	Digital	85	G210	3	5.3	5.3	050 O. R.
10-30 mm	0.01	Analogue	85	H210	3	5.3	5.3	060 O. R.
20-40 mm	0.01	Digital	85	G220	4	7.3	7.3	070 O. R.

Min./max. length measuring range	Scale value (mm)	Display	Measuring depth (mm)	Type	Measuring arrangement	Hb (mm)	Hf (mm)	33261... ID no.	
20-40 mm	0.01	Analogue	85	H220	4	7.3	7.3	080	O. R.
30-50 mm	0.01	Digital	85	G230	4	7.3	7.3	090	O. R.
30-50 mm	0.01	Analogue	85	H230	4	7.3	7.3	100	O. R.
40-60 mm	0.01	Digital	85	G240	5	8.5	8.5	110	(O. R.)
40-60 mm	0.01	Analogue	85	H240	5	8.5	8.5	120	O. R.
50-70 mm	0.01	Digital	85	G250	5	8.5	8.5	130	(O. R.)
50-70 mm	0.01	Analogue	85	H250	5	8.5	8.5	140	O. R.
60-80 mm	0.01	Digital	85	G260	5	8.5	8.5	150	(O. R.)
60-80 mm	0.01	Analogue	85	H260	5	8.5	8.5	160	O. R.
70-90 mm	0.01	Digital	85	G270	5	8.5	8.5	170	(O. R.)
70-90 mm	0.01	Analogue	85	H270	5	8.5	8.5	180	O. R.
80-100 mm	0.01	Digital	85	G280	5	8.5	8.5	190	(O. R.)
80-100 mm	0.01	Analogue	85	H280	5	8.5	8.5	200	O. R.
13-43 mm	0.02	Digital	127	G313	2	5.7	5.7	215	O. R.
30-60 mm	0.02	Digital	127	G330	5	6.5	6.5	225	(O. R.)
15-65 mm	0.05	Analogue	188	H415	2	6	6	235	O. R.
15-65 mm	0.02	Digital	188	G415	2	6.0	6.0	245	O. R.
40-90 mm	0.05	Analogue	192	H440	5	8.5	8.5	255	(O. R.)
40-90 mm	0.02	Digital	192	G440	5	8.5	8.5	265	O. R.
70-120 mm	0.05	Analogue	192	H470	5	8.5	8.5	275	O. R.
100-150 mm	0.05	Analogue	192	H4100	5	8.5	8.5	285	O. R.
									Unit price, €

Prod. group 332

Measuring equipment

DIATEST Internal precision measuring instruments with probe heads



Application:

For measuring bore holes using comparison measuring instruments.

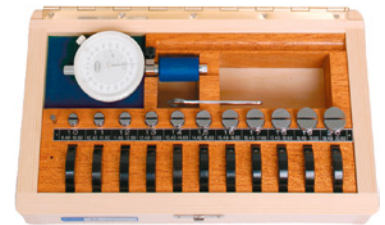
- Zero using setting master
- **No. 33453:** Suitable for measuring bore hole bases

Execution:

- Repeatability < 1 µm
- One holder for all measuring ranges
- Hardened and chromium-plated probe heads

scope of supply and services:

Holder with probe heads and drive needles in wooden case, dial gauge and setting rings not included.



Min./max. length of application area	0.47-0.97 mm	0.95-1.55 mm	1.50-3.95 mm	1.50-9.80 mm	3.70-9.80 mm	9.40-20.60 mm	20.40-30.60 mm	28.90-41.10 mm
Number of probe heads (PCS)	6	5	9	21	12	11	10	6
Number of measurement needles (PCS)	2	1	2	3	1	1	1	1
33450... Ident. No.	010	025	030	080	040	050	065	075
Set price, €	(O. R.)	(O. R.)	(O. R.)	O. R.	O. R.	O. R.	(O. R.)	(O. R.)
33453... Ident. No.	-	-	-	082	045	055	065	075
Set price, €	-	-	-	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Prod. group 337

Accessories for		33450 010	33450 025	33450 030	33450 040	33450 050	33450 065
33455... Set of setting rings For Diatest internal measuring instruments	Ident. No. Set price, €	010 (O. R.)	020 (O. R.)	030 (O. R.)	040 O. R.	050 O. R.	060 (O. R.)

Accessories for		33450 075	33450 080
33455... Set of setting rings For Diatest internal measuring instruments	Ident. No. Set price, €	070 (O. R.)	080 (O. R.)

DIATEST Individual and add-on parts for internal precision measuring instruments

Application:

No. 33460: For holding the dial gauge, drive needle and probe head.

No. 33462: For measuring to a precisely defined depth.

No. 33463: For measuring in confined and hard-to-reach spaces.

No. 33468: For measuring deep bore holes from Ø 8.2 mm.



No. 33460
Standard holder 51 mm long



No. 33462
Depth stop with standard extension



No. 33463
Angled piece



No. 33468
Standard extension Ø 8 mm, 64 mm long

33460... ID no.	010	33462... ID no.	010	33463... ID no.	010	33468... ID no.	010
	O. R.		(O. R.)		(O. R.)		O. R.
Unit price, €							

Prod. group 337



Probe head
For Diatest internal precision measuring instruments

Application:
For measuring in combination with additional parts of the internal measuring instrument.

Technical Data:
▪ Connection thread: M6 x 0.75
▪ Surface: Chrome-plated



Notes:
Additional components are required for performing measurements.

Min./max. length measuring range	Measuring depth (mm)	33464... ID no.	Min./max. length measuring range	Measuring depth (mm)	33464... ID no.
0.47-0.53 mm	1.5	005 (O. R.)	8.7-9.3 mm	50	155 O. R.
0.52-0.58 mm	1.8	010 (O. R.)	9.2-9.8 mm	50	160 O. R.
0.57-0.67 mm	2	015 (O. R.)	9.4-10.6 mm	50	165 O. R.
0.65-0.77 mm	2.5	020 (O. R.)	10.4-11.6 mm	50	170 O. R.
0.75-0.87 mm	2.8	025 (O. R.)	11.4-12.6 mm	50	175 O. R.
0.85-0.97 mm	3	030 (O. R.)	12.4-13.6 mm	50	180 O. R.
0.95-1.15 mm	11	035 O. R.	13.4-14.6 mm	50	185 O. R.
1.07-1.35 mm	11	040 (O. R.)	14.4-15.6 mm	50	190 (O. R.)
1.17-1.35 mm	11	045 O. R.	15.4-16.6 mm	90	195 O. R.
1.27-1.45 mm	11	050 (O. R.)	16.4-17.6 mm	90	200 (O. R.)
1.37-1.55 mm	11	055 O. R.	14.4-18.6 mm	90	205 (O. R.)
1.5-1.9 mm	17	060 O. R.	18.4-19.6 mm	90	210 (O. R.)
1.8-2.2 mm	17	065 O. R.	19.4-20.6 mm	90	215 O. R.
2.05-2.45 mm	17	070 O. R.	20.4-21.6 mm	90	220 (O. R.)
2.3-2.7 mm	22	075 O. R.	21.4-22.6 mm	90	225 (O. R.)
2.55-2.95 mm	22	080 O. R.	22.4-23.6 mm	90	230 (O. R.)
2.8-3.2 mm	22	085 O. R.	23.4-24.6 mm	90	235 (O. R.)
3.05-3.45 mm	22	090 O. R.	24.4-25.6 mm	90	240 (O. R.)
3.3-3.7 mm	22	095 O. R.	25.4-26.6 mm	90	245 (O. R.)
3.55-3.95 mm	22	100 (O. R.)	26.4-27.6 mm	90	250 (O. R.)
3.7-4.3 mm	40	105 O. R.	27.4-28.6 mm	90	255 (O. R.)
4.2-4.8 mm	40	110 O. R.	28.4-29.6 mm	90	260 (O. R.)
4.7-5.3 mm	40	115 O. R.	29.4-30.6 mm	90	265 (O. R.)
5.2-5.8 mm	40	120 O. R.	28.9-31.1 mm	100	270 (O. R.)
5.7-6.3 mm	40	125 O. R.	30.9-33.1 mm	100	275 (O. R.)
6.2-6.8 mm	40	130 O. R.	32.9-35.1 mm	100	280 (O. R.)
6.7-7.3 mm	40	135 O. R.	34.9-37.1 mm	100	285 (O. R.)
7.2-7.8 mm	40	140 O. R.	36.9-39.1 mm	100	290 (O. R.)
7.7-8.3 mm	40	145 O. R.	38.9-41.1 mm	100	295 (O. R.)
8.2-8.8 mm	50	150 O. R.			Unit price, €

Prod. group 337



Drive needle
For Diatest internal precision measuring instruments

Application:
For measuring in combination with additional parts of the internal precision measuring instrument

Execution:
▪ Steel



Min./max. area of application for probe head	33465... ID no.	Min./max. area of application for probe head	33465... ID no.
0.47-0.58 mm	010 (O. R.)	3.70-9.8 mm	060 O. R.
0.57-0.97 mm	020 (O. R.)	9.40-30.6 mm	070 O. R.
0.95-1.55 mm	030 O. R.	28.90-41.1 mm	090 O. R.
1.50-2.45 mm	040 O. R.		Unit price, €
2.30-3.95 mm	050 O. R.		

Prod. group 337



Measuring table
For internal precision measuring instruments

Application:
For quick measurement using internal measuring instruments up to depths of 125 mm.

scope of supply and services:
Quick measuring stand. Does not include dial gauge, floating holder, probe head and drive needle

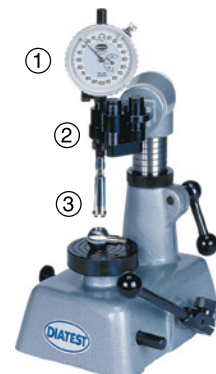
Execution:
▪ Measuring table can be lifted using a lever
▪ Table fixed with clamping screw
▪ Ground and hardened measuring table

Technical Data:
▪ Measuring table diameter: 58 mm
▪ Stroke length: 40 mm
▪ Max. diameter of workpiece: 100 mm
▪ Max. workpiece height: 100 mm

Advantage:
▪ Quick series monitoring

33475...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 337



Supplied without ① dial gauge, ② floating holder and ③ probe head with driving needle



Measuring table

For OSIMESS internal precision measuring instruments

Application:

For convenient and fast measurement of series components.

Execution:

- Hand lever for operation
- Depth stop

Advantage:

- Quick series monitoring
- Maximum protection of measuring instrument

Technical Data:

- Measuring table diameter: 120 mm
- Stroke length: 90 mm
- Max. diameter of workpiece: 200 mm
- Max. workpiece height: 200 mm

335 15...	Ident. No.	050
	Unit price, €	(O. R.)

Prod. group 339



OSM 5 measuring table supplied without precision pointer

ATORN® Internal precision measuring instrument



Application:

For measuring bore diameters using the 2-point comparison measuring method.

Execution:

- Repeat limit 1 µm
- Fixed measuring pins and moving probe bolts made of hardened steel

scope of supply and services:

In wooden case (without precision pointer)

Technical Data:

- Spindle material: Steel

Min./max. length measuring range	18-35 mm	35-60 mm	50-150 mm
Measuring depth (mm)	176	178	178
335 18...	Ident. No.	018	035
	Set price, €	O. R.	O. R.

Prod. group 303



ATORN® Internal precision measuring instrument set 18-150 mm



Application:

For measuring bore diameters using the 2-point comparison measuring method.

Execution:

- Repeat limit 1 µm
- Fixed measuring pins and moving probe bolts made of hardened steel
- Set contains 2 basic instruments

Advantage:

- Very large measuring ranges are possible

scope of supply and services:

In wooden case (without precision pointer)

Technical Data:

- Min./max. length measuring range: 18-150 mm
- Measuring depth: 176/178 mm
- Spindle material: Steel

335 18...	Ident. No.	400
	Set price, €	O. R.

Prod. group 303





Internal precision measuring instruments, SUBITO
Series SU

Application:

For precise measuring of bores using the 2-point method. Turning and/or moving the device in the hole makes it possible to detect deviations from roundness or cylindricity.

Execution:

- Movable carbide-tipped measuring pin
- **No. 33520:** Fixed measuring pin made of hardened steel
- **No. 33521:** Fixed carbide-tipped measuring pin

Advantage:

- High repeatability 0.5–1.5 µm
- Self-centring in the bore hole
- INVAR pipe (special nickel alloy) guarantees minimum thermal expansion caused by body heat from hands or high ambient temperatures

scope of supply and services:

Without precision pointer, with calibration certificate, in wooden case



Determine the reversal point

Min./max. length measuring range	Measuring depth (mm)	Number of measuring pins (PCS)	Nominal dimension of spindle	Number of measurement discs (PCS)	Spindle material Measurement disc thickness	Carbide		Steel	
						33521... ID no.	O. R.	33520... ID no.	O. R.
4.5-6 mm	80	9	4.5 mm 4.6 mm 4.8 mm 5.0 mm 5.2 mm 5.4 mm 5.6 mm 5.8 mm 6.0 mm	-	-	010	O. R.	-	-
6-8 mm	100	7	6.0 mm 6.4 mm 6.8 mm 7.0 mm 7.2 mm 7.6 mm 8.0 mm	-	-	020	O. R.	-	-
8-12 mm	100	9	8-12 mm increasing every 0.5 mm	-	-	030	O. R.	-	-
12-20 mm	110	9	12-20 mm increasing every 1 mm	1	0.5 mm	040	O. R.	-	-
18-35 mm	110	9	18-34 mm increasing every 2 mm	2	0.5 mm 1 mm	050	O. R.	050	O. R.
35-60 mm	140	6	35-59 mm increasing every 5 mm	2	1 mm 2 mm	060	O. R.	060	O. R.
50-100 mm	180	11	50-100 mm increasing every 5 mm	3	1 mm 2 mm 3 mm	070	O. R.	070	O. R.
100-160 mm	230	7	100-160 mm increasing every 10 mm	4	1 mm 2 mm 3 mm 6 mm	090	O. R.	090	O. R.
160-290 mm	230	7	160-220 mm increasing every 10 mm 1 extension up to 70 mm	4	1 mm 2 mm 3 mm 6 mm	110	O. R.	110	O. R.
280-510 mm	400	7	280-340 mm increasing every 10 mm 1 extension 70 and 100 mm	4	1 mm 2 mm 3 mm 6 mm	120	O. R.	120	(O. R.)

Unit price, €

Prod. group 338



SUBITO internal precision measuring instrument sets
Series SU

Application:

For precise measuring of bores using the 2-point method. Turning and/or moving the device in the hole makes it possible to detect deviations from roundness or cylindricity.

Execution:

- Movable carbide-tipped measuring pin
- **No. 33520:** Fixed measuring pin made of hardened steel
- **No. 33521:** Fixed carbide-tipped measuring pin

Advantage:

- High repeatability 0.5–1.5 µm
- Self-centring in the bore hole
- INVAR pipe (special nickel alloy) guarantees minimum thermal expansion caused by body heat from hands or high ambient temperatures

scope of supply and services:

Without precision pointer, with calibration certificate, in wooden case,

Technical Data:

- Number of measurement discs: 7



Min./max. length measuring range	Measuring depth (mm)	Number of measuring pins (PCS)	Nominal dimension of spindle	Spindle material Measurement disc thickness	Steel		Carbide	
					33520... ID no.	(O. R.)	33521... ID no.	O. R.
18-100 mm	180	27	18-34 mm increasing every 2 mm 35-59 mm increasing every 5 mm 50-100 mm increasing every 5 mm	0.5 mm 1 mm 2 mm 3 mm	080	(O. R.)	080	O. R.
50-160 mm	230	18	50-100 mm increasing every 5 mm 100-160 mm increasing every 10 mm	1 mm 2 mm 3 mm 6 mm	100	O. R.	100	O. R.
					Unit price, €			

Prod. group 338

Echwenk **Measuring depth extension**
For SUBITO SU internal precision measuring instruments

Application:

For extending the measuring depth of SUBITO internal precision measuring instruments

Execution:

- Suitable for SUBITO from application ranges 35-60 mm

Technical Data:

- Pipe diameter: 12 mm

Length (mm)	Ident. No.	250	500	750	1000
33523...	Unit price, €	025 (O. R.)	050 O. R.	075 (O. R.)	100 O. R.

Prod. group 338

Echwenk **Measuring range extension**
For SUBITO internal precision measuring instruments

Application:

For increasing the measuring range of SUBITO

internal precision measuring instruments.

Min./max. area of application for SUBITO	50-100 mm	100-290 mm
Length (mm)	50	70
33527...	010 O. R.	020 O. R.
Ident. No.		
Unit price, €		

Prod. group 338



Ident. No. 010

Echwenk **SUBITO internal precision measuring instruments for basic holes**
Series SS/SSV



Application:

For measuring blind holes, centring shoulders etc.

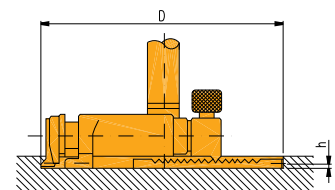
Execution:

- Carbide-tipped vernier callipers and moving probe bolt
- High measurement reliability, repeat limit 0.001 mm
- Measurements close to the base

- Setting via ring or ESU setting device 33580 .../33582...
- Dial gauges or precision pointers can be used as display units
- **Ident. No. 140:** Based on Subito SS for larger measuring ranges

Advantage:

- Modular system for large measuring ranges



Type	SS	SS	SS	SS	SSV
Min./max. length measuring range	20-50 mm	50-110 mm	110-300 mm	300-600 mm	20-140 mm
Measuring depth (mm)	80	60	90	90	60
Number of measurement heads (PCS)	1	1	1	1	2
Number of sliding callipers (PCS)	3	2	4	6	6
Measuring range of sliding calliper	20-30 mm 30-40 mm 40-50 mm	50-80 mm 80-110 mm	110-150 mm 150-200 mm 200-250 mm 250-300 mm	300-350 mm 350-400 mm 400-450 mm 450-500 mm 500-550 mm 550-600 mm	20-30 mm 30-40 mm 40-50 mm 50-80 mm 80-110 mm 110-140 mm
Distance from base of hole (mm)	1.5	1.5	2	2	1.5
33560...	020 O. R.	050 O. R.	110 O. R.	300 (O. R.)	140 (O. R.)
Ident. No.					
Unit price, €					

Prod. group 338

Schwenk Plug gauges OD for series control

Application:

For measuring bores in series monitoring.

Execution:

- Cemented carbide measuring contacts and measuring needles (wear-resistant)
- Dial gauges or precision pointers can be used as display units
- **Ident. No. 630-690:** Plug gauge can be supplied as cross sleeve with runners

Advantage:

- Easy to use

- Minimum measuring times
- Maximum measuring accuracy
- Robust and reliable
- Matched to the respective bore diameter

Notes:

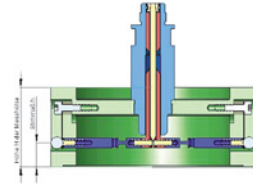
A device holder no. 33561 and display unit (dial gauge or precision pointer) are also required for measuring.

Technical Data:

- Connection thread: M11 x 0.75



Plug gauge OD with holder and precision pointer



Ident. No. 003-620

Min./max. length measuring range	Measurement travel (mm)	Front size (mm)	Repeat accuracy (µm)	Sleeve length (mm)	33562... ID no.	
2.5-6 mm	0.15	1.5	1	10	003	(O. R.)
6.1-12 mm	0.2	2.5	1	15	005	(O. R.)
12.1-20 mm	0.2	2.5	1	15	010	(O. R.)
20.1-30 mm	0.2	3.5	1	20	520	(O. R.)
30.1-40 mm	0.2	3.5	1	20	530	(O. R.)
40.1-60 mm	0.2	3.5	1	28	540	(O. R.)
60.1-80 mm	0.2	4	1	33	560	(O. R.)
80.1-100 mm	0.2	4	1	33	580	(O. R.)
100.1-110 mm	0.2	4	1	33	600	(O. R.)
110.1-120 mm	0.2	4	1	33	610	(O. R.)
120.1-130 mm	0.2	4	1	33	620	(O. R.)
130.1-140 mm	0.2	7	2	55	630	(O. R.)
140.1-150 mm	0.2	7	2	55	640	(O. R.)
150.1-160 mm	0.2	7	2	55	650	(O. R.)
160.1-170 mm	0.2	7	2	55	660	(O. R.)
170.1-180 mm	0.2	7	2	55	670	(O. R.)
180.1-190 mm	0.2	7	2	55	680	(O. R.)
190.1-200 mm	0.2	7	2	55	690	(O. R.)
						Unit price, €

Prod. group 334

Schwenk Plug gauges OD with front dimension h for blind holes
For blind bore holes

Application:

For measuring bores in series monitoring.

Execution:

- Cemented carbide measuring contacts and measuring needles (wear-resistant)
- Dial gauges or precision pointers can be used as display units

Advantage:

- Easy to use
- Minimum measuring times

- Maximum measuring accuracy
- Robust and reliable
- Matched to the respective bore diameter

Notes:

A device holder no. 33561 and display unit (dial gauge or precision pointer) are also required for measuring.

Technical Data:

- Connection thread: M11 x 0.75

Min./max. length measuring range	Measurement travel (mm)	Front size (mm)	Repeat accuracy (µm)	Sleeve length (mm)	33566... ID no.	
2.5-6 mm	0.15	1	1	10	006	(O. R.)
6.1-12 mm	0.2	1	1	15	012	(O. R.)
12.1-20 mm	0.2	1	1	15	020	(O. R.)
20.1-30 mm	0.2	1.2	1	20	030	(O. R.)
30.1-40 mm	0.2	1.2	1	20	040	(O. R.)
40.1-60 mm	0.2	1.2	1	28	060	(O. R.)
60.1-80 mm	0.2	1.2	1	33	080	(O. R.)
80.1-100 mm	0.2	1.2	1	33	100	(O. R.)
100.1-110 mm	0.2	1.2	1	33	110	(O. R.)
110.1-120 mm	0.2	1.2	1	33	120	(O. R.)
120.1-130 mm	0.2	1.2	1	33	130	(O. R.)
130.1-140 mm	0.2	6	2	55	140	(O. R.)
140.1-150 mm	0.2	6	2	55	150	(O. R.)
150.1-160 mm	0.2	6	2	55	160	(O. R.)
160.1-170 mm	0.2	6	2	55	170	(O. R.)
170.1-180 mm	0.2	6	2	55	180	(O. R.)
180.1-190 mm	0.2	6	2	55	190	(O. R.)
190.1-200 mm	0.2	6	2	55	200	(O. R.)
						Unit price, €

Prod. group 334



Accessories for SUBITO plug gauge OD

Device holder for mounting OD plug gauges

Application:

For connecting an OD bore plug gauge and display unit.

Execution:

▪ Ident. No. 025, 031: For plug gauges Ø 60 mm

▪ Ident. No. 050: Special holder for electronic measuring probes

▪ Ident. No. 060: With retractor for blind hole plug gauges or easily-scratched parts



Length (mm)		50	105	145	235	235	110	70
Pipe Ø (mm)		12	12	18	12	18	12	12
33561...	Ident. No.	010	020	025	030	031	050	060
	Unit price, €	O. R.	O. R.	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Prod. group 334



Holder

For ON/ONM internal precision measuring instruments

Application:

For use with ON/ONM expansion probes.

scope of supply and services:

Without dial gauge

Execution:

▪ Dial gauge holder ± 8 mm

33576...	Holder (without dial gauge) ON/ONM	Ident. No.	010
		Unit price, €	(O. R.)

Prod. group 338



ESU setting devices

for SUBITO internal precision measuring instruments SU, SK, SW, SMT, SP

Application:

For precise adjustment of internal precision measuring instruments to the required dimensions.

▪ Clamping element fixes the gauge block unit with reproducible force

Advantage:

▪ Horizontal and vertical setting options

Execution:

- Adjustment jaws made of hardened steel
- Fixed and loose measuring jaws made from cemented carbide lapped to gauge block quality

scope of supply and services:

Includes accessories, without SUBITO and precision pointer

Min./max. length of application area	4.5-160 mm	18-160 mm	18-290 mm	160-510 mm	20-300 mm
	33580...	33580...	33580...	33582...	33582...
	ID no.	ID no.	ID no.	ID no.	ID no.
	010 O. R.	015 (O. R.)	020 O. R.	010 O. R.	020 (O. R.)
	Unit price, €				

Prod. group 338



Illustration shows vertical application (supplied without SUBITO and precision pointer)

ATORN® 3-D articulated measuring stands

Model series with high-quality light metal arm components

Application:

For clamping dial gauges, precision pointers, lever gauge probes etc.

▪ Ident. No. 015: Cylindrical mounting spigot, diameter 10 mm, for clamping in collet chucks or drill chucks

Execution:

- Mechanical, maintenance-free central clamping
- Dovetail mount and holder Ø 8 mm
- Ident. No. 003-010: Strong adhesive magnet with prismatic base

Advantage:

- Simple, quick operation
- Highly flexible, exact positioning

scope of supply and services:

Without dial gauge and lever gauge probe



Ident. No. 003-010

Height (mm)		200	220	300	380
Operation radius (mm)		130	130	200	280
Adherence strength (N)		-	300	750	750
Base size		-	34 x 30 x 35 mm	60 x 50 x 55 mm	60 x 50 x 55 mm
Base Ø (mm)		10	-	-	-
34060...	Ident. No.	015	003	005	010
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3AB



ATORN® 3D articulated measuring stands

Model series with chrome-plated arm components

Application:

For clamping dial gauges, precision pointers, lever gauge probes etc.

Execution:

- Mechanical, maintenance-free central clamping
- Dovetail mount and holder Ø 8 mm
- Strong adhesive magnet with prismatic base

Advantage:

- Simple, quick operation
- Highly flexible, exact positioning

scope of supply and services:
Without dial gauge

Height (mm)		310	390	568	740
Operation radius (mm)		200	280	450	630
Adherence strength (N)		800	800	1000	1500
Base size		60 x 50 x 55 mm	60 x 50 x 55 mm	75 x 50 x 55 mm	120 x 60 x 55 mm
34060...	Ident. No.	027	021	023	025
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3AB



Ident. No. 025

ATORN® 3D articulated measuring stands

With fine adjustment and high-quality light metal arms

Application:

For clamping dial gauges, precision pointers, lever gauge probes etc.

Execution:

- Mechanical, maintenance-free central clamping
- Dovetail mount and holder Ø 8 mm
- Strong adhesive magnet with prismatic base

Advantage:

- Simple, quick operation
- Highly flexible, exact positioning
- Fine adjustment specifically for precision pointer

scope of supply and services:
Without precision pointer

Height (mm)		200	310	390	435
Operation radius (mm)		130	200	287	330
Adherence strength (N)		600	600	600	900
Base size		40 x 40 x 40 mm	60 x 50 x 55 mm	60 x 50 x 55 mm	75 x 50 x 55 mm
34060...	Ident. No.	070	080	090	100
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3AB



Ident. No. 100

ATORN® 3D articulated measuring stand set

Holding system for small parts in the workshop

Application:

For holding objects such as light sources, circuit boards etc.

scope of supply and services:

Articulated stand, steel base, clamp base, clamp holder with plastic jaws, extension, adapter, topping

thread and open end spanner

Technical Data:

- Operation radius: 200 mm
- Diameter of the base: 100 mm
- Max. extension: 200 mm

34060...	Ident. No.	150
	Unit price, €	O. R.

Prod. group 3AB



ATORN® 3-D articulated arms

Application:

Suitable for installation in any holder with a suitable thread

Advantage:

- Simple, quick operation
- Highly flexible, exact positioning

Execution:

- Mechanical, maintenance-free central clamping

Operation radius (mm)		130	200	280	330	450	630
Connection thread		M6	M6	M6	M8	M8	M8
Connection thread 2		M6	M8	M8	M8	M8	M10 x 1.25
34075...	Ident. No.	100	110	120	125	131	141
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3AB



Ident. No. 100-125

ATORN® Micro fine adjustment

Application:

For use with a 3D articulated arm.

- **Ident. No. 220:** For μ -line articulated measuring stands

Execution:

- Steel
- Combined holder for shaft diameter 8 mm and lever gauge probe with dovetail mount

Technical Data:

- Bore diameter: 8 mm

Connection thread			M6	M8
34075...	Standard	Ident. No.	200	210
		Unit price, €	O. R.	O. R.
34075...	μ -line	Ident. No.	-	220
		Unit price, €	-	O. R.

Prod. group 3AB



Ident. No. 200



Ident. No. 220

ATORN® Adhesive magnets/granite feet/vacuum bases

Application:

Ident. No. 300-330: For use with 3D articulated arms for optimum hold.

Ident. No. 340: For use with 3D articulated arms with the option of moving.

Ident. No. 350: For use with 3D articulated arms on hard stone bases.



Ident. No. 320



Ident. No. 330



Ident. No. 340



Ident. No. 350

Connection thread		M6	M8	M8	M10 x 1.25	M8	M8
Adherence strength (N)		300	750	1000	1500	-	400
Length x width x height		34 x 30 x 35 mm	60 x 50 x 55 mm	75 x 50 x 55 mm	120 x 60 x 55 mm	150 x 120 x 50 mm	-
Ø (mm)		-	-	-	-	-	88
34075...	Ident. No.	300	310	320	330	340	350
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3AB

Measuring equipment

Measuring stand

With guide rails

Application:

For measuring the concentricity or parallelism of workpieces. Side surfaces can be used as a stop.

Execution:

- Cast iron foot with prismatic base (fine-ground support surface and lateral faces)
- Transverse arm with fine adjustment and 8 mm diameter hole for dial gauges, precision pointers or electronic length measuring probes

- Measuring column can be moved in T-groove

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 335 mm
- Measuring arm diameter: 16 mm
- Measuring arm length: 180 mm
- Base size: 250 x 60 x 35 mm

34001...	Ident. No. Unit price, €	010 O. R.
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Prod. group 345



Supplied without dial gauge

Measuring equipment

ORION® Small measuring stand

Application:

Ideal for use with lever gauge probes and small dial gauges.

Execution:

- Round permanent magnetic base
- Chrome-plated joint system
- Holder for 8 mm shaft diameters and dovetail mount

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 155 mm
- Measuring arm diameter: 8 mm
- Measuring arm length: 60 mm
- Diameter of contact surface: 35 mm
- Adherence strength: 220 N

34130...	Ident. No. Unit price, €	021 O. R.
----------	-----------------------------	--------------

Prod. group 3BE



ORION® Measuring stand With magnet

Application:

Ideal for use with lever gauge probes and small dial gauges.

Execution:

- Switching magnet with prismatic base
- Holder for 8 mm shaft diameters and dovetail mount

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 240 mm
- Measuring arm diameter: 12 mm
- Measuring arm length: 180 mm
- Base size: 58 x 50 x 65 mm
- Adherence strength: 650 N

34160...	Ident. No. Unit price, €	011 O. R.
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Prod. group 3BE



ATORN® Measuring stand With magnet

Application:

Ideal for use with lever gauge probes and small dial gauges.

Execution:

- Cross joint can be rotated and swivelled through 360°
- Extremely high clamping force in the joints
- Holder for 8 mm shaft diameters and dovetail mount
- Switching magnet with prismatic base

- Micro-fine adjustment

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 290 mm
- Measuring arm diameter: 16 mm
- Measuring arm length: 190 mm
- Base size: 70 x 46 x 65 mm
- Adherence strength: 650 N

34165...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3AB



Measuring stand With magnet

Application:

Ideal for use with lever gauge probes and small dial gauges.

Execution:

- Switching magnet with prismatic base
- Holder for 8 mm shaft diameters and dovetail mount

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 285 mm
- Measuring arm diameter: 16 mm
- Measuring arm length: 180 mm
- Base size: 70 x 45 x 65 mm
- Adherence strength: 600 N

34170...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 345



Supplied without dial gauge

Accessories and spare parts for measuring stand 34170010

34172...	Magnetic base 70 x 45 x 65 mm with M10 thread	Ident. No.	010
		Unit price, €	O. R.
34173...	Complete transverse holder with cross piece	Ident. No.	010
		Unit price, €	O. R.

Prod. group 345

ATORN® Measuring stand Flexible column

Application:

For measuring in hard-to-reach places.

Execution:

- Switching magnet with prismatic base
- Holder for 8 mm shaft diameters and dovetail mount
- Central clamping using eccentric clamping lever
- Fine adjustment

scope of supply and services:

Without dial gauge

Technical Data:

- Height: 380 mm
- Measuring arm diameter: 17 mm
- Measuring arm length: 300 mm
- Base size: 70 x 46 x 65 mm
- Adherence strength: 500 N

34185...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3AB



ORION® Small measuring stands

Execution:

- Hardened, ground and lapped table
- Hardened and ground column
- Mount for dial gauges and precision pointers diameter 8 mm
- **No. 34250:** Round table permanently mounted on cast iron base, with rigid arm, without fine adjustment

- **No. 34270:** Table surface with dust grooves, cross arm horizontally adjustable, without fine adjustment

Technical Data:

- Suitable for shaft diameter: 8 mm



No. 34250



No. 34270 100

Measuring table size	Measuring table Ø (mm)	Max. measurement height (mm)	Height (mm)	Pillar Ø (mm)	Overhang (mm)	Flatness tolerance (µm)	34250... ID no.	O. R.	34270... ID no.	O. R.
-	50	100	210	22	49	2	100	-	-	-
68 x 60 x 150	-	150	260	22	90	2	-	-	100	O. R.
115 x 98 x 150	-	150	290	28	130	4	-	-	200	O. R.
										Unit price, €

Prod. group 3BE

ORION® Small measuring table Threaded spindle

Execution:

- Table adjustably mounted on 3 points, flatness tolerance of table surface 3 µm
- Hardened and ground column with thread and setting ring for exact height positioning of measuring arm
- Mount for dial gauges and precision pointers diameter 8 mm

Technical Data:

- Height: 300 mm
- Pillar diameter: 35 mm
- Suitable for shaft diameter: 8 mm
- Overhang: 85 mm
- Flatness tolerance: 3 µm

Measuring table size		100 x 100 x 140	95 x 95 x 150
Max. measurement height (mm)		140	150
34272... Ident. No.		011	021
Unit price, €		O. R.	O. R.

Prod. group 3BE



Ident. No. 011

ORION® Measuring tables made of hard stone

Application:

For positioning components requiring a high-precision base.

Execution:

- Hard chrome-plated column with adjusting thread and adjusting ring for precise height setting
- Holder for 8 mm shaft diameters and dovetail mount

- **No. 34310:** Rigid arm
- **No. 34312:** Parallel fine adjustment
- **No. 34314:** Movable transverse arm



No. 34310



No. 34312



No. 34314

	Measuring table size	Max. measurement height (mm)	Height (mm)	Adapter Ø (mm)	Overhang (mm)	Ident. No.	Unit price, €	O. R.
34310...	240 x 140 x 50	130	280	8	70	010	O. R.	
34310...	300 x 210 x 60	200	360	8	100	020	(O. R.)	
34310...	400 x 300 x 70	260	450	8	120	030	(O. R.) ⁺	
34312...	240 x 140 x 50	135	280	8	70	010	O. R.	
34312...	300 x 210 x 60	235	360	8	100	020	O. R.	
34312...	400 x 300 x 70	265	450	8	120	030	(O. R.) ⁺	
34314...	240 x 140 x 50	165	280	8	160	010	O. R.	
34314...	300 x 210 x 60	260	360	8	225	020	O. R.	
34314...	400 x 300 x 70	300	450	8	270	030	O. R.	

Prod. group 3BE

JFA **Measuring table**
Made from natural hard stone

Application:
For positioning components requiring a high-precision base.

- Holder for 8 mm shaft diameters and dovetail mount
- Movable transverse arm

Execution:
▪ Transverse arm with fine adjustment

scope of supply and services:
Without precision pointer, with test report



Supplied without precision pointer

	Measuring table size	Max. measurement height (mm)	Height (mm)	Adapter Ø (mm)	Overhang (mm)	Ident. No.	Unit price, €
34295...	300 x 200 x 50	400	350	8	230		011 O. R. +

Prod. group 341

ORION® Dividers

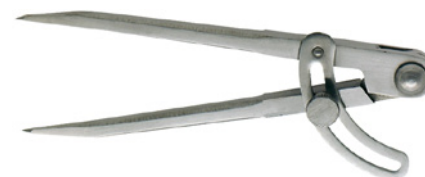
Application:
For marking dimension lines, e.g. for hole circles.

- Three-part milled joint
- Finely ground, hardened tips
- With wing

Execution:
▪ Rivet hinge, forged

Length (mm)	Ident. No.	150	200	250	300	500
35003...	Unit price, €	015 O. R.	020 O. R.	025 O. R.	030 O. R.	050 O. R.

Prod. group 3BG



ORION® Spring dividers

Application:
For marking dimension lines, e.g. for hole circles.

- Strong annular spring and hardened pivot pins for firm control of legs
- Hardened tips

Execution:
▪ Quick-action clamping nut and particularly strong legs

Length (mm)	Ident. No.	125	175	225	300
35010...	Unit price, €	125 O. R.	175 O. R.	225 O. R.	300 O. R.

Prod. group 3BG



ORION® Compass caliper for marking off



Application:
For marking off on workpieces by directly setting the required dimensions.

- **No. 35026:** Carbide-tipped marking-off arms

Execution:
▪ **No. 35025:** Hardened steel marking-off arms

- Technical Data:**
- Vernier scale: 0.1 mm
 - Limb length: 40 mm

Max. length of application area (mm)	150	200	300
Max. Ø (mm)	300	400	600
35025...	Ident. No. 150 Unit price, € O. R.	Ident. No. 200 Unit price, € O. R.	Ident. No. 300 Unit price, € O. R.
35026...	Ident. No. 150 Unit price, € (O. R.)	Ident. No. 200 Unit price, € O. R.	Ident. No. 300 Unit price, € O. R.

Prod. group 3BG



ATORN® Marking-off vernier calipers
With fine adjustment



Application:

For marking off on workpieces by directly setting the required dimensions

- Scale and vernier scale with anti-glare, brushed chromium-plated finish

Execution:

- Gauge bar and marking ruler made from one piece
- Measuring faces very finely ground, made of alloyed steel, hard-chrome plated

Technical Data:

- Max. length of application area: 300 mm
- Vernier scale: 0.05 mm



35036...	Ident. No.	030
	Unit price, €	O. R.

Prod. group 3AF

ATORN® Beam compasses
With fine adjustment



Application:

For scribing by directly setting required dimensions at intervals of 1 mm.

- Anodised aluminium slide
- Hardened tips
- Replaceable tips
- Two movable trammels

Execution:

- Steel pipe beam with guide groove
- With fine adjustment
- Graduation with 1 mm scale interval

Technical Data:

- Vernier scale: 0.1 mm



Max. length of application area (mm)	500	1000	1500	2000	3000	
Pipe Ø (mm)	20	20	20	20	28	
Weight (kg)	0.7	1	1.6	2.8	4	
35042...	Ident. No.	050	100	150	200	300
	Unit price, €	O. R.	O. R.	(O. R.)	(O. R.) ⁺	(O. R.) ⁺

Prod. group 3AF

Accessories for		35042 050	35042 100	35042 150	35042 200	35042 300
35044...	Replacement scribing tips For beam compasses	Ident. No.	050	050	050	050
		Price/pair, €	O. R.	O. R.	O. R.	O. R.

ORION® Marking gauge
With fine adjustment



Application:

For precise marking off parallel to the workpiece edge.

- Exchangeable, hardened scribing tip
- Cast iron slide with rectangular stop plate
- With fine adjustment

Execution:

- INOX steel round beam with guide groove
- Graduation with 1 mm scale interval

Technical Data:

- Scale value: 0.1 mm



Max. working length (mm)	200	300	
35051...	Ident. No.	020	030
	Unit price, €	O. R.	O. R.

Prod. group 3BG

ORION® Marking gauge
With runner



Application:

For precise marking off parallel to the workpiece edge.

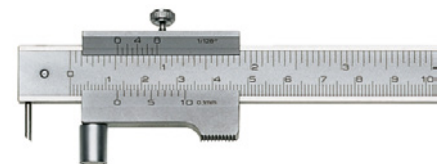
- Exchangeable cemented carbide marking-off needle
- Locking screw

Execution:

- INOX steel beam

Technical Data:

- Max. working length: 200 mm
- Scale value: 0.1 mm



35052...	Ident. No.	011
	Unit price, €	O. R.

Prod. group 3BG

Accessories for		35052 011
35052...	Spare scribing tips For marking gauges with runners	Ident. No.
		Set price, €
		501
		O. R.

ORION® Marking gauge
With flat slide



Application:
For precise marking off parallel to the workpiece edge

- Anti-glare, brushed chromium-plated
- Hardened, wide marking-off edge

Execution:

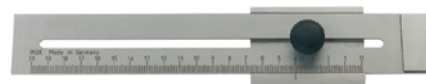
- Flat, with millimetre pitch

Technical Data:

- Scale value: 1 mm

Max. working length (mm)		200	250	300
35053...	Ident. No.	020	025	030
	Unit price, €	O. R.	O. R.	O. R.

Prod. group 3BG



ORION® Scriber
Sturdy cast iron base



Application:
For marking scale lines on workpiece surfaces.

- Carbide-tipped marking-off needle
- Ergonomically designed cast iron base

Execution:

- Fine adjustment

Technical Data:

- Vernier scale: 0.05 mm

Max. length measuring range (mm)		300	600
Base length x base width		136 x 91 mm	180 x 120 mm
35060...	Ident. No.	030	060
	Unit price, €	O. R.	O. R.

Prod. group 3BE

Accessories for			35060 030	35060 060
35125...	Spare scribing tip For scribers	Ident. No. Unit price, €	130 O. R.	-
35060...	Spare scribing tip For scribers	Ident. No. Unit price, €	-	560 O. R.



ORION® Height measurement and marking-off device
Round scale and double guide



Application:
For marking scale lines on workpiece surfaces and for measuring heights and clearances.

- Double counter, one positive counter, one negative counter

Execution:

- Adjusted using hand wheel
- Carbide-tipped marking-off needle
- Ergonomically designed cast iron base
- Rotating scale dial

scope of supply and services:

Basic device, 1 carbide-tipped measuring and marking-off blade, 1 clamping element for marking-off blade and gauge slides

Technical Data:

- Scale value: 0.01 mm

Max. length measuring range (mm)		300	600
Base length x base width		125 x 85 mm	180 x 120 mm
35140...	Ident. No.	030	060
	Unit price, €	O. R.	O. R.

Prod. group 3BE

Accessories for			35140 030	35140 060
35140...	Spare measuring and marking-off blade For height measuring and marking-off devices	Ident. No. Unit price, €	100 O. R.	100 O. R.
35140...	Spare clamping element For marking-off blades and gauge slides	Ident. No. Unit price, €	110 O. R.	110 O. R.



 **Height measurement and marking-off device**
 Digimar 814 SR



Application:

For marking scale lines on workpiece surfaces and for measuring heights and clearances.

Execution:

- Data output
- Fine adjustment
- Carbide-tipped marking-off needle
- Easy-grip, secure base
- Reset function
- Zero setting at any position
- mm/inch switch-over

- Auto off
- Preset function
- ABS function

Advantage:

- Key lock to prevent unintentional adjustment
- Switch on by moving the slider
- Large hand wheel for positioning and measuring

Technical Data:

- Digit increment: 0.01 mm
- Base length x base width: 180 x 80 mm
- Data transmission type: multiCOM



Ident. No. 035

Max. length measuring range (mm)		350	600
35132...	Ident. No.	035	060
	Unit price, €	O. R.	O. R.

Prod. group 306

Measuring equipment



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Quality test at max. level

Each TESA height measuring device with SCS calibration certificate

TESA is the leading manufacturer of height measuring devices with decades of experience. To meet the highest expectations, TESA has invested in state-of-the-art air conditioning technology for the production lines of height measuring device series TESA-HITE and MICRO-HITE. The assembly cell and final inspection area for these precision instruments meet the highest climatic laboratory specifications. The ambient temperature of 20°C (reference temperature) is maintained with a tolerance of 0.1 K. This is unique and outstanding within the entire industry. This investment was a further milestone towards meeting requirements for the latest generation of TESA height measuring devices. It enables the smallest error limits to be produced, reproduced and controlled with the lowest possible measurement uncertainty.

SCS calibration certificate:

The precision of each TESA height measuring device is generally certified by the accredited TESA laboratory by awarding an SCS calibration certificate (SCS = Swiss Calibration Service). This corresponds to the same level as DAkkS (DAKKS = German accreditation body). For each measured test feature, the SCS calibration certificate comprehensively certifies the adherence to specification limits; the measured values are based directly on the national standards.



Measuring equipment

TESA Height measuring devices TESA HITE magna and TESA-HITE

Application:

Ident. No. 004-007: For measuring external, internal, height, depth and distance dimensions, as well as diameters using automatic recording of the reversal point in bores and shafts (TESA patented measuring system). Parallelism deviations can also be measured.

Ident. No. 040-070: For measuring external, internal, height, depth and distance dimensions, as well as diameters using automatic recording of the reversal point in bores and shafts (TESA patented measuring system). Parallelism deviations can also be measured. Optional accessories also enable testing of perpendicularity deviations.

Execution:

- Scans with consistent, repeatable measuring force (with acoustic signal)

- Reset to zero at any position
- Large, clear LCD display
- Ident. No. 040-070:** Air cushion system for easy movement on the measuring plate (at the push of a button)

Advantage:

- Large measuring ranges
- Degrees of protection up to IP65 for optimum workshop compatibility

scope of supply and services:

Basic device includes control panel, standard gauge slide carrier, standard gauge slide with carbide ball (diameter 5 mm), reference piece, adapter plug 110-240 V and SCS calibration certificate (DAkkS standard)



Ident. No. 004



Ident. No. 040

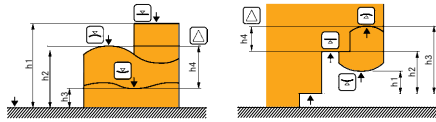
Length measuring range (mm)			415	715	415	715
Min./max. application area with standard gauge slide carrier			0-570 mm	0-870 mm	0-570 mm	0-870 mm
Digit increment (can be pre-selected)			0.001 mm 0.005 mm 0.01 mm	0.001 mm 0.005 mm 0.01 mm	0.0001 mm 0.001 mm 0.01 mm	0.0001 mm 0.001 mm 0.01 mm
Height gauge error limit			< 8 µm	< 8 µm	(2.5 + 4 x L) µm (L in m)	(2.5 + 4 x L) µm (L in m)
Repeat accuracy of drill hole (µm)			5	5	3	3
Repetition accuracy, level (µm)			3	3	2	2
Perpendicularity tolerance (front) (µm)			-	-	10	15
Min./max. measurement force			1.0-2.0 N	1.0-2.0 N	1.0-2.0 N	1.0-2.0 N
Max. battery operating time (h)			60	60	60	60
Data transmission type			RS232	RS232	RS232	RS232
With air cushion equipment			No	No	Yes	Yes
Weight (kg)			14	16	27	32
35 147...	TESA-HITE magna	Ident. No. Unit price, €	004 O. R.	007 O. R.	-	-
35 147...	TESA-HITE	Ident. No. Unit price, €	-	-	040 O. R.†	070 O. R.†

Prod. group 362

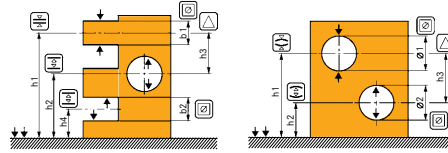


TESA-Hite plus M, MICRO-Hite and MICRO-Hite plus M
Overview of the measuring options

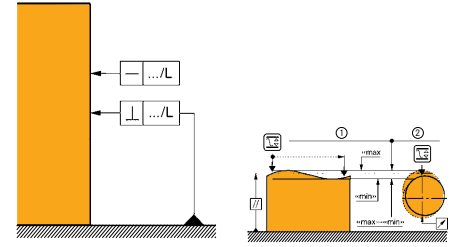
Measure without changing measuring direction and without measuring sensor constant



Measure with change of measuring direction and measuring sensor constant

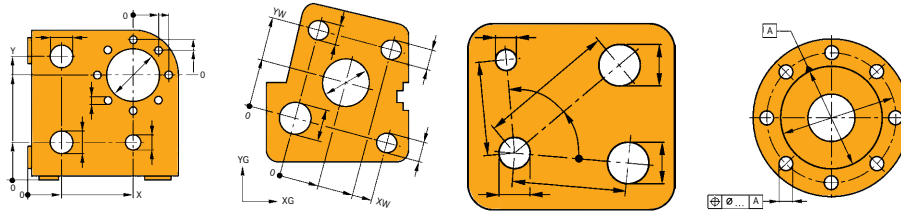


Record shape and position deviations



Measuring equipment

Measure in two coordinate directions (the 2nd dimension is obtained by turning the workpiece)



TESA Height measuring devices TESA-HITE plus M 400/700
with motorised drive

Application:

For measuring external, internal, height, depth and distance dimensions, as well as diameters using automatic recording of the reversal point in bores and shafts (TESA patented measuring system). It is also possible to measure in two coordinate directions and to measure deviations in parallelism. Optional accessories also enable angle measurement and perpendicularity testing.

- Automatic programming and implementation of measuring sequences
- Large, clear LCD display
- Air cushion system for easy movement on the measuring plate (at the push of a button)
- Statistical data processing
- **Ident. No. 042, 072:** Integrated matrix printer

Execution:

- 1D/2D control panel with geometric functions for measurements in 1 and 2 coordinate directions
- Reset to zero at any position
- Scans with consistent, repeatable measuring force (with acoustic signal)

scope of supply and services:

TESA-HITE plus M basic device with 1D/2D control panel, standard gauge slide carrier, standard gauge slide with carbide ball (diameter 5 mm), reference piece, mains power adapter 110-240 V and SCS calibration certificate (DAkkS standard)



Ident. No. 040



Control panel with integrated matrix printer 042 and 072

Length measuring range (mm)		405	705
Min./max. application area with standard gauge slide carrier		0-560 mm	0-870 mm
Digit increment (can be pre-selected)		0.0001 mm 0.001 mm 0.01 mm	0.0001 mm 0.001 mm 0.01 mm
Height gauge error limit		$(2.5 + 3 \times L) \mu\text{m}$ (L in m)	$(2.5 + 3 \times L) \mu\text{m}$ (L in m)
Repeat accuracy of drill hole (μm)		2	2
Repetition accuracy, level (μm)		1	1
Perpendicularity tolerance (front) (μm)		8	12
Min./max. measurement force		0.5-1.5 N	0.5-1.5 N
Max. battery operating time (h)		60	60
Data transmission type		RS232	RS232
With air cushion equipment		Yes	Yes
Weight (kg)		30	32
35 160...	Without printer	Ident. No. 040 Unit price, € O. R.*	Ident. No. 070 Unit price, € O. R.*
35 160...	With printer	Ident. No. 042 Unit price, € O. R.*	Ident. No. 072 Unit price, € O. R.*

Prod. group 365

TESA MICRO-HITE height measuring devices
models 350/600/900

Application:

For measuring external, internal, height, depth, step and distance dimensions on geometric elements with flat, plane-parallel and circular cylindrical surfaces. Measurement of diameters using automatic recording of the reversal point of bores and shafts (TESA patented measuring system). It is also possible to measure in two coordinate directions. Dynamic measuring processes are possible using max., min. and max.-min. memory functions. The TESA IG-13 measuring probe can be used alternatively. It can be used to additionally measure and display perpendicularity, straightness, parallelism and axial and radial runout in line with ISO 1101

Execution:

- Basic device without control panel
- Quick, easy and reliable measurements, especially for bores.
- Reset to zero at any position

- The TESA IG-13 measuring probe can be used alternatively (not included in scope of delivery). It can be used to additionally measure and display perpendicularity, straightness, parallelism and axial and radial runout in line with ISO 1101
- Air cushion system for easy movement on the measuring plate (at the push of a button)

Advantage:

- Automatic correction for very high accuracy
- Suitable for measuring directly in the production environment

scope of supply and services:

Battery cartridge, charger (mains power supply adapter), standard gauge slide carrier, standard gauge slide with carbide ball \varnothing 5 mm, reference piece, dust cover, SCS calibration certificate (DAkkS standard).



Length measuring range (mm)	365	615	920
Min./max. application area with standard gauge slide carrier	0-520 mm	0-770 mm	0-1075 mm
Digit increment (can be pre-selected)	0.0005 mm 0.001 mm 0.01 mm 0.1 mm	0.0005 mm 0.001 mm 0.01 mm 0.1 mm	0.0005 mm 0.001 mm 0.01 mm 0.1 mm
Height gauge error limit	(2 + 3 x L) μ m (L in m)	(2 + 3 x L) μ m (L in m)	(2 + 3 x L) μ m (L in m)
Repeat accuracy of drill hole (μ m)	1	1	1
Repetition accuracy, level (μ m)	1	1	1
Perpendicularity tolerance (front) (μ m)	9	9	11
Max. battery operating time (h)	12	12	12
Data transmission type	RS232	RS232	RS232
With air cushion equipment	Yes	Yes	Yes
Weight (kg)	37	42.5	49
35 170...	Ident. No. 003 (O. R.) ⁺	Ident. No. 006 (O. R.) ⁺	Ident. No. 009 (O. R.) ⁺
	Unit price, €		

Prod. group 365

TESA Multi-function control panel for TESA MICRO-HITE

Application:

For operating TESA MICRO-HITE height measuring device.

- Memory functions min./max./min.-max.
- RS 232 interface for connecting additional measuring instruments

Execution:

- Integrated printer for logging

35 170...	Ident. No. Unit price, €	112 (O. R.)
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Prod. group 365



TESA MICRO-HITE plus M 350 height measuring devices
Motorised measuring carriage

Application:

For measuring external, internal, height, depth, step and distance dimensions on geometric elements with flat, plane-parallel and circular cylindrical surfaces. Measurement of diameters using automatic recording of the reversal point of bores and shafts (TESA patented measuring system). It is also possible to measure in two coordinate directions. The TESA IG-13 measuring probe can be used alternatively. It can be used to additionally measure and display perpendicularity, straightness, parallelism and axial and radial runout in line with ISO 1101

- can be used to additionally measure and display perpendicularity, straightness, parallelism and axial and radial runout in line with ISO 1101
- Air cushion system for easy movement on the measuring plate (at the push of a button)
- Storage capacity for 25,000 measurement values

Advantage:

- Automatic correction for very high accuracy
- Suitable for measuring directly in the production environment

scope of supply and services:

Battery cartridge, charger (mains power supply adapter), standard gauge slide carrier, standard gauge slide with carbide ball \varnothing 5 mm, reference piece, dust cover, SCS calibration certificate (DAkkS standard).



Execution:

- Basic device without control panel
- Quick, easy and reliable measurements, especially for bores.
- Reset to zero at any position
- The TESA IG-13 measuring probe can be used alternatively (not included in scope of delivery). It

Length measuring range (mm)	365	615	920
Min./max. application area with standard gauge slide carrier	0-520 mm	0-770 mm	0-1075 mm
Digit increment (can be pre-selected)	0.0001 mm 0.001 mm 0.01 mm	0.0001 mm 0.001 mm 0.01 mm	0.0001 mm 0.001 mm 0.01 mm
Height gauge error limit	(1.9 + 1.5 x L) µm (L in m)	(1.9 + 1.5 x L) µm (L in m)	(1.9 + 1.5 x L) µm (L in m)
Repeat accuracy of drill hole (µm)	0.5	0.5	0.5
Repetition accuracy, level (µm)	1	1	1
Perpendicularity tolerance (front) (µm)	5	7	9
Max. battery operating time (h)	12	12	12
Data transmission type	RS232	RS232	RS232
With air cushion equipment	Yes	Yes	Yes
Weight (kg)	33	38	45
35171...	Ident. No. Unit price, €	003 (O. R.) ⁺	006 (O. R.) ⁺

Prod. group 365

TESA Control panel for TESA Micro-Hite plus M

Application:

For operating the TESA MICRO-HITE plus M height measuring device.

Execution:

- Enter alphanumerical values (header) and numerical values (measured value) using the keypad
- Programmable for automatic measurement cycles using the TEACH-IN procedure
- RS 232 interface for connecting additional measuring instruments
- Storage capacity for 25,000 measurement values

- External printing of measurement protocols in A4 format with tables and graphs and editing of individual log headers
- Digit increments: 0.0001/0.001/0.01 mm
0.00001/0.0001/0.001 Inch
- Statistical data processing (SPC) with output e. g. of mean values, clamping widths, standard deviations, histograms, nominal/actual comparisons, number of values outside limits, control limits and control cards
- Ident. No. 110:** Integrated matrix printer for output of measuring results

35171...	Control panel with printer	Ident. No. Unit price, €	110 (O. R.)
35171...	Control panel without printer	Ident. No. Unit price, €	120 (O. R.)

Prod. group 365



Ident. No. 110



Ident. No. 120

Mahr Height measuring device Digimar 817 CLM Motorised measuring carriage

Application:

For measuring external, internal, height, depth and distance dimensions, as well as diameters and reversal points in bores and shafts. It is also possible to measure in two coordinate directions and to measure deviations in straightness and rectangular tolerance.

Execution:

- 1D/2D control panel with geometric functions for measurements in 1 and 2 coordinate directions
- Reset to zero at any position

- Large function keys
- Language-neutral navigation using self-explanatory symbols
- Automatic stand-by function and adjustable auto-off function with no loss of measurement values
- Clear display with LCD display and backlighting
- Air cushion system for easy movement on the measuring plate
- Optical incremental measuring system with double reading head for outstanding precision
- Update-capable



Ident. No. 035

Length measuring range (mm)	350	600	1000
Min./max. application area with standard gauge slide carrier	0-520 mm	0-770 mm	0-1170 mm
Digit increment (can be pre-selected)	0.0001 mm 0.0005 mm 0.001 mm 0.01 mm 0.1 mm	0.0001 mm 0.0005 mm 0.001 mm 0.01 mm 0.1 mm	0.0001 mm 0.0005 mm 0.001 mm 0.01 mm 0.1 mm
Height gauge error limit	1.8 + L/600 (L in mm)	1.8 + L/600 (L in mm)	1.8 + L/600 (L in mm)
Repeat accuracy of drill hole (µm)	1	1	1
Repetition accuracy, level (µm)	0.5	0.5	0.5
Perpendicularity tolerance (front) (µm)	5	6	10
Min./max. measurement force	0.8-1.2 N	0.8-1.2 N	0.8-1.2 N
Max. battery operating time (h)	16	16	16
Data transmission type	RS232	RS232	RS232
With air cushion equipment	Yes	Yes	Yes
Weight (kg)	25	30	35
35130...	Ident. No. Unit price, €	035 (O. R.) ⁺	060 (O. R.) ⁺

Prod. group 306

Mahr Digimar height measuring device 816 CL
Motorised measuring carriage

Application:

For measuring external, internal, height, depth and distance dimensions, as well as diameters and reversal points in bores and shafts. Also allows dynamic measurements.

Execution:

- Reset to zero at any position
- Large function keys

- Language-neutral navigation using self-explanatory symbols
- Measured value storage of up to 99 values
- Clear display with LCD display and backlighting
- Air cushion system for easy movement on the measuring plate
- Optical incremental measuring system with double reading head for outstanding precision



Ident. No. 035

Length measuring range (mm)		350	600
Min./max. application area with standard gauge slide carrier		0-520 mm	0-770 mm
Digit increment (can be pre-selected)		0.001 mm 0.01 mm	0.001 mm 0.01 mm
Height gauge error limit		2.8 + L/300 (L in mm)	2.8 + L/300 (L in mm)
Repeat accuracy of drill hole (µm)		3	3
Repetition accuracy, level (µm)		2	2
Perpendicularity tolerance (front) (µm)		15	20
Min./max. measurement force		0.8-1.2 N	0.8-1.2 N
Max. battery operating time (h)		14	14
Data transmission type		RS232	RS232
With air cushion equipment		Yes	Yes
Weight (kg)		25	30
35131...	Ident. No.	035	060
	Unit price, €	O. R.*	O. R.*

Prod. group 306

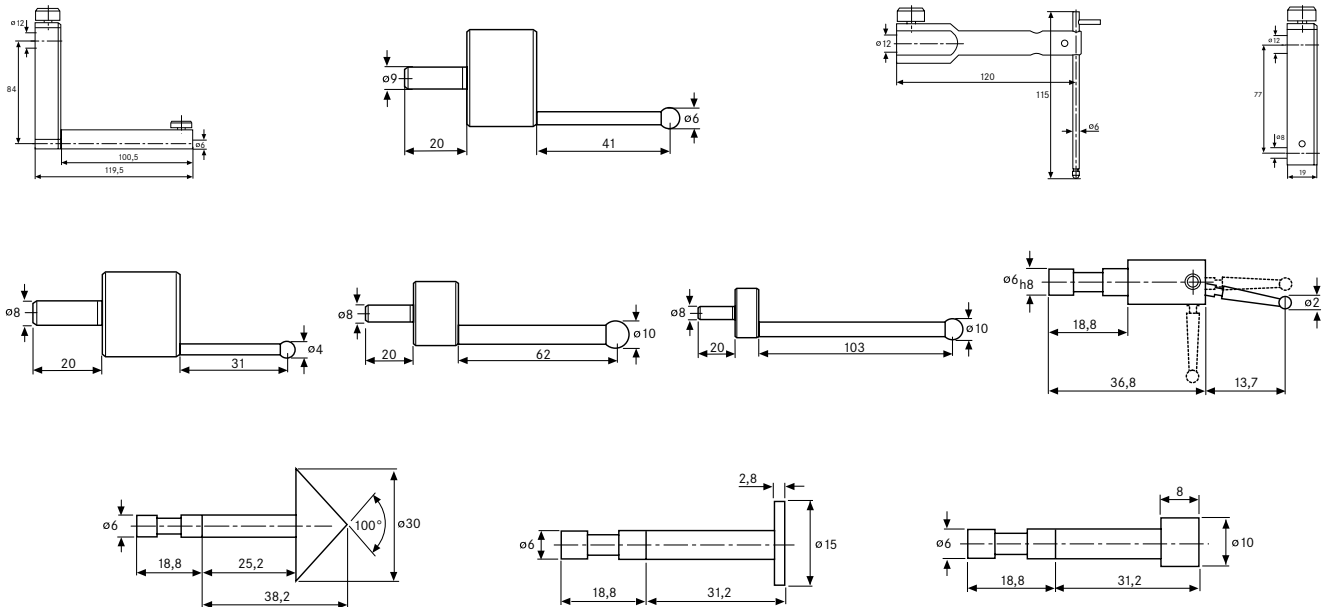
Mahr Measuring probe set, 11 pieces
For MAHR height measuring devices

Application:

For use in MAHR height measuring devices.

scope of supply and services:

In plastic case



Number of pieces in assortment/set (PCS)	Composition of set	35133... ID no.
11	Carrier for gauge slides disc gauge slide $\phi 15$ mm cylinder gauge slide $\phi 10$ mm conical gauge slide depth gauge carrier incl. gauge slide 800 ts $\phi 2.0$ mm carrier for gauge slides with location hole 8 mm ball gauge slide $\phi 4.0$ mm ball gauge slide $\phi 6.0$ mm ball gauge slide $\phi 10.0$ mm ball gauge slide $\phi 10.0$ mm	020 O. R.
		Unit price, €

Prod. group 306

Measuring equipment

Accessories

for TESA height measuring devices

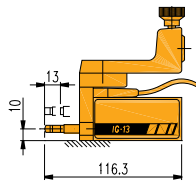


Ident. No. 020

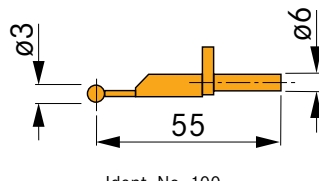
		TESA	ORION
Number of pieces in assortment/set (PCS)	Composition of set	35172... ID no.	35172... ID no.
8	Gauge slide with carbide ball $\varnothing 3$ and $\varnothing 10$ solid carbide gauge slides $\varnothing 1$ $\varnothing 2$ and $\varnothing 3$ gauge slide with cemented carbide disc $\varnothing 14$ gauge slide with cylindrical measuring surface $\varnothing 10$ gauge slide with probe rod	010	O. R.
17	Gauge slide with carbide ball $\varnothing 3$ and $\varnothing 10$ solid carbide gauge slides $\varnothing 1$ $\varnothing 2$ and $\varnothing 3$ gauge slide with barrel-shaped measuring surfaces $\varnothing 2.2$ $\varnothing 4.5$ $\varnothing 9.7$ gauge slide with solid carbide disc $\varnothing 4.5$ $\varnothing 14$ $\varnothing 19$ gauge slide with small cylindr. cemented carbide measuring surface gauge slide with cylindrical measuring surface $\varnothing 10$ gauge slide carrier for large depths gauge slide holder for extending the measuring range gauge slide with probe rod	020	(O. R.)
9	Gauge slide holder probe rod for depth measurements gauge slides with steel ball 0.9 and 1.9 and 2.9 mm gauge slide with conical measuring surface extension 20 mm adapter M3 to M2.5	-	-
		-	050
		Set price, €	

ORION = Prod. group 3BE
TESA = Prod. group 362

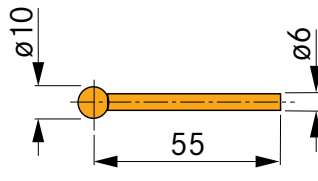
TESA Accessories
for height measuring devices MICRO-HITE/TESA-HITE



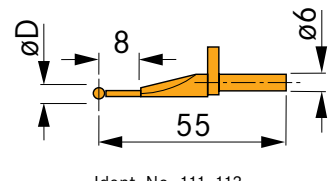
Ident. No. 090



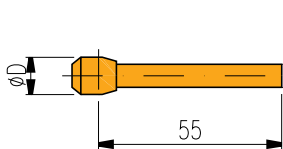
Ident. No. 100



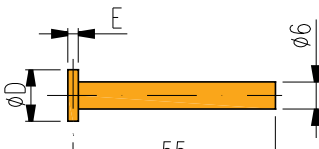
Ident. No. 110



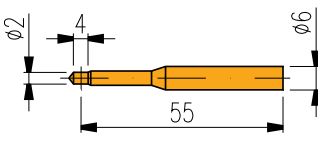
Ident. No. 111-113



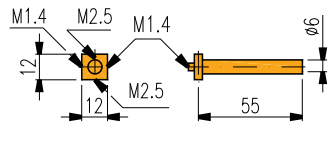
Ident. No. 120-140



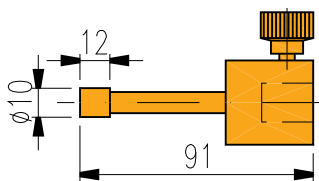
Ident. No. 150-170



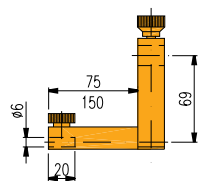
Ident. No. 180



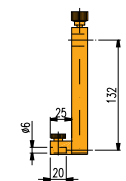
Ident. No. 190



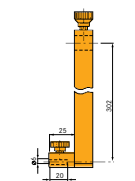
Ident. No. 200



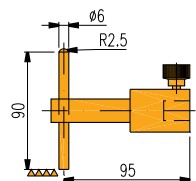
Ident. No. 210-220



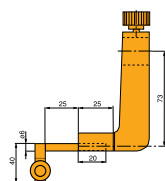
Ident. No. 230



Ident. No. 235



Ident. No. 240

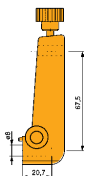


Ident. No. 400

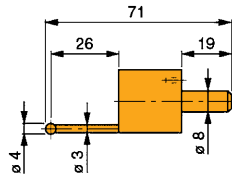
35 172...	Digital measuring probe IG 13 Cable 098 is required for use in MICRO-HITE plus M	Ident. No. Set price, €	090 O. R.
35 172...	Extension cable for IG 13 length 1 m	Ident. No. Unit price, €	098 O. R.
35 172...	Spherical measuring probe with carbide ball, diameter 3 mm	Ident. No. Unit price, €	100 O. R.
35 172...	Spherical measuring probe with carbide ball, diameter 5 mm	Ident. No. Unit price, €	105 O. R.
35 172...	Spherical measuring probe with carbide ball, diameter 10 mm	Ident. No. Unit price, €	110 O. R.
35 172...	Spherical measuring probe, solid carbide, diameter 1 mm	Ident. No. Unit price, €	111 O. R.
35 172...	Spherical measuring probe, solid carbide, diameter 2 mm	Ident. No. Unit price, €	112 O. R.
35 172...	Spherical measuring probe, solid carbide, diameter 3 mm	Ident. No. Unit price, €	113 (O. R.)
35 172...	Measuring probe, barrel-shaped, diameter 2.2 mm (for M3-M16)	Ident. No. Unit price, €	120 O. R.
35 172...	Measuring probe, barrel-shaped, diameter 4.5 mm (for M6-M48)	Ident. No. Unit price, €	130 (O. R.)
35 172...	Measuring probe, barrel-shaped, diameter 9.7 mm (for M12-M150)	Ident. No. Unit price, €	140 (O. R.)
35 172...	Measuring probe, plate shape, diameter D 4.5 mm, E = 1 mm	Ident. No. Unit price, €	150 O. R.
35 172...	Measuring probe, plate shape, diameter D 14 mm, E = 2 mm	Ident. No. Unit price, €	160 O. R.
35 172...	Measuring probe, plate shape, diameter D 19 mm, E = 3 mm	Ident. No. Unit price, €	170 (O. R.)
35 172...	Cylindrical measuring probe, diameter 2 mm	Ident. No. Unit price, €	180 O. R.
35 172...	Universal probe insert holder	Ident. No. Unit price, €	190 O. R.
35 172...	Cylindrical measuring probe, 12 mm long, measuring surface diameter 10 mm	Ident. No. Unit price, €	200 O. R.
35 172...	Gauge slide carrier for larger measuring depths up to 110 mm	Ident. No. Unit price, €	210 O. R.
35 172...	Gauge slide carrier for larger measuring depths up to 185 mm	Ident. No. Unit price, €	220 O. R.
35 172...	Gauge slide carrier for extending the application range, length 132 mm	Ident. No. Unit price, €	230 (O. R.)
35 172...	Gauge slide carrier for extending the application range, length 302 mm	Ident. No. Unit price, €	235 (O. R.)
35 172...	Measuring probe with ball-shaped and flat measuring surface	Ident. No. Unit price, €	240 O. R.
35 172...	Gauge slide carrier for lever gauge probes	Ident. No. Unit price, €	400 O. R.
35 172...	Charger for Micro-Hite/TESATRONIC	Ident. No. Unit price, €	515 O. R.
35 172...	Spare battery for model 350/600/900	Ident. No. Unit price, €	530 O. R.
35 172...	Paper roll for MICRO-HITE printer and memo printer	Ident. No. Unit price, €	610 O. R.
35 172...	Battery cartridge for models 350/600/900	Ident. No. Unit price, €	650 (O. R.)
35 172...	Practice piece	Ident. No. Unit price, €	800 (O. R.)

Prod. group 362

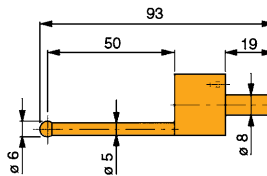
TESA Special accessories for MICRO-HITE
8 mm adapter with gauge slide carrier no. 35172 410



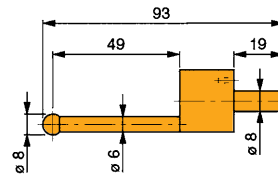
Ident. No. 410



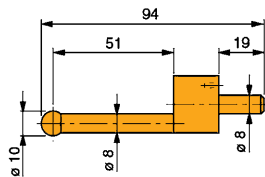
Ident. No. 424



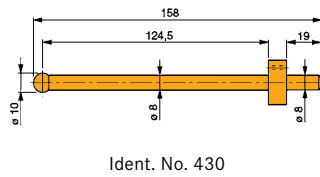
Ident. No. 426



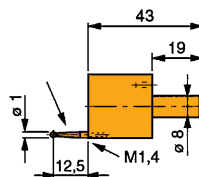
Ident. No. 428



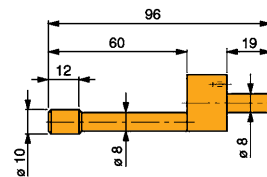
Ident. No. 429



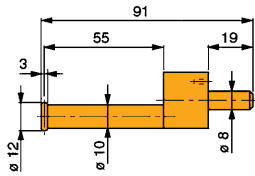
Ident. No. 430



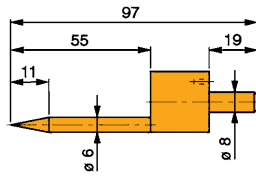
Ident. No. 435



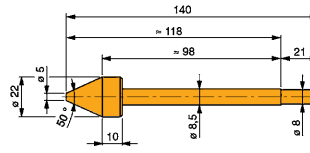
Ident. No. 440



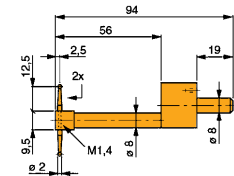
Ident. No. 444



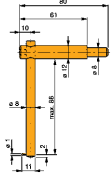
Ident. No. 446



Ident. No. 448



Ident. No. 450



Ident. No. 460

35 172...	Gauge slide carrier with 8 mm mount	Ident. No.	410
		Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 4 mm	Ident. No.	424
		Unit price, €	(O. R.)
35 172...	Spherical measuring probe, diameter 6 mm	Ident. No.	426
		Unit price, €	(O. R.)
35 172...	Spherical measuring probe, diameter 8 mm	Ident. No.	428
		Unit price, €	(O. R.)
35 172...	Spherical measuring probe, diameter 10 mm	Ident. No.	429
		Unit price, €	(O. R.)
35 172...	Spherical measuring probe, extra long, diameter 10 mm	Ident. No.	430
		Unit price, €	(O. R.)
35 172...	Mount for exchangeable gauge slides with thread M1.4 gauge slide diameter 1	Ident. No.	435
		Unit price, €	(O. R.)
35 172...	Cylindrical measuring probe, diameter 10 mm	Ident. No.	440
		Unit price, €	(O. R.)
35 172...	Measuring probe with measuring disc diameter 12 mm	Ident. No.	444
		Unit price, €	(O. R.)
35 172...	Conical measuring probe for diameters 0.5-5.5 mm	Ident. No.	446
		Unit price, €	(O. R.)
35 172...	Conical measuring probe for diameters 5-20 mm	Ident. No.	448
		Unit price, €	(O. R.)
35 172...	Mount for exchangeable gauge slides with thread M1.4 gauge slide diameter 2	Ident. No.	450
		Unit price, €	(O. R.)
35 172...	Adjustable depth gauge diameter 1 mm	Ident. No.	460
		Unit price, €	(O. R.)

Prod. group 362

ORION® 3-piece probe set with ruby balls For height measuring devices

Application:

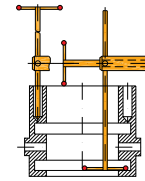
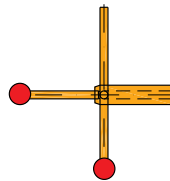
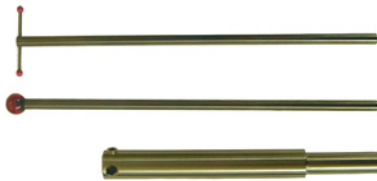
For measuring grooves, recesses, offsets, cross holes etc.

Execution:

- Probes can be clamped axially and radially

scope of supply and services:

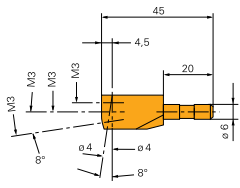
With hexagonal screwdriver in a case



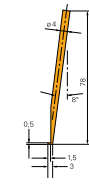
Number of pieces in assortment/set (PCS)	Composition of set	35 172... ID no.	
3	T-probe: Length 100 mm 2 ruby balls diameter 2 mm ball distance 18 mm straight gauge slide: Length 100 mm ruby ball diameter 6 mm measuring probe holder: Overall length 63 mm	080	O. R.
			Set price, €

Prod. group 3BE

ORION® Universal measuring probe assortment
for height measuring devices TESA MICRO-HITE/TESA-HITE made of hardened steel



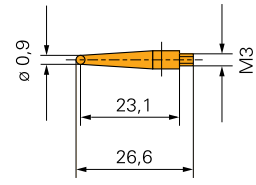
Ident. No. 300



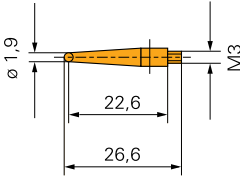
Ident. No. 310



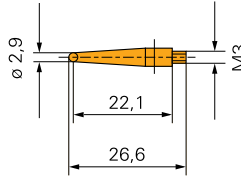
Ident. No. 320



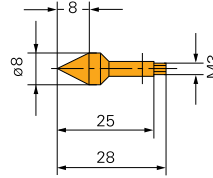
Ident. No. 330



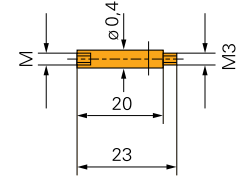
Ident. No. 340



Ident. No. 350



Ident. No. 360



Ident. No. 370-380

35 172...	Gauge slide holder M3	Ident. No.	300
35 172...	Probe rod angled 8°	Unit price, €	O. R.
35 172...	Probe rod, cylindrical, offset	Ident. No.	310
35 172...	Spherical measuring probe, diameter 0.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 1.9 mm	Ident. No.	320
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	330
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	340
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	350
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	360
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	(O. R.)
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	370
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	O. R.
35 172...	Spherical measuring probe, diameter 2.9 mm	Ident. No.	380
35 172...	Spherical measuring probe, diameter 2.9 mm	Unit price, €	(O. R.)

Prod. group 3BE

TESA μ-HITE vertical length measuring device

Application:

For measuring external, internal, height, depth, step and distance dimensions. Also for automatic detection of reversal points in bores and shafts. It is also possible to measure deviations in parallelism, axial and radial run-out.

Execution:

- Ideal for measuring small workpieces directly in the production environment
- Motorised measuring head for reliable and rapid sensing of measuring points
- Reset to zero at any position

- The integrated temperature sensor gives the measuring instrument a coefficient of linear thermal expansion comparable to steel
- Selectable, consistent measuring force applied by motor
- Memory functions max., min., max.-min. (for dynamic measurements)
- Storage of 99 measurement values

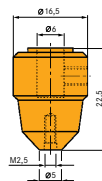
scope of supply and services:

TESA my-HITE basic device, measuring stand: Hard stone table 200 x 300 x 50 mm, column diameter 50 mm, overall height 350 mm, 1D control panel with connection cable, axial gauge slide holder with gauge slide carbide ball (diameter 3 mm), radial measuring probe carbide ball (diameter 5 mm),

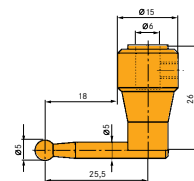
reference piece, mains power supply adapter 110–240 V, SCS calibration certificate (DAKKS standard), plastic case

Technical Data:

- Length measuring range: 100 mm
- Min./max. application area with standard gauge slide carrier: 0-160 mm
- Digit increment (can be pre-selected): 0.0001 mm | 0.001 mm
- Height gauge error limit: 1 μm axial/2 μm radial
- Min./max. measurement force: 0.63-1.0 N
- Data transmission type: RS232
- With air cushion equipment: No
- Weight: 21 kg



Axial gauge slide holder



Radial measuring probe

35 175...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 365

ATORN® Video measuring microscope with motorised zoom

Application:

For optical measurement of components that cannot or not easily be measured using tactile (contact) methods.

Execution:

- 23" touch screen PC with MS Windows 8
- 4-segment LED ring light and LED transmitted light for individual lighting scenarios
- USB camera with 1.3 Mpix resolution
- Integrated laser pointer for positioning assistance
- Cross table with quick adjustment and fine adjustment

- Data export in CSV or TXT format
- Data output: USB and RS232 interface
- Optional: Z-axis measuring system for measuring along Z axis
- Option: dxf module for measuring with reference to CAD data

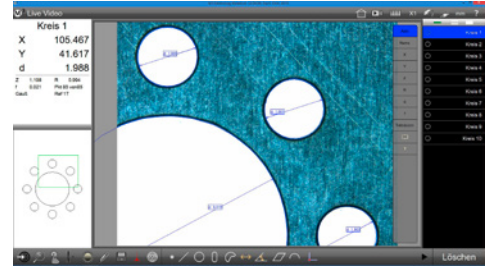
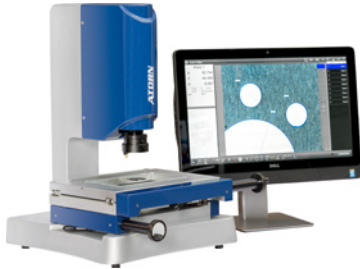
Advantage:

- Intelligent image processing for measuring 2D control geometries
- Clear geometric functions without hidden submenus

- Individual illuminance control for direct and transmitted light
- Free axis alignment of the workpiece being measured
- M3 software: automatic edge detection, tolerance test in line with DIN/ISO, element view with tolerance input, component view with dimensioning, live image display during measuring, additional storage of images for your documentation

scope of supply and services:

Video microscope with 23" touchscreen PC, keyboard, mouse, calibration certificate and operating instructions



Lens type		Fixed lens 40x	Fixed lens 40x	Motorised zoom lens 34 to 225x	Motorised zoom lens 34 to 225x
Cross table		Manual	Manual	Manual	Manual
Measuring range of X/Y/Z axis		100/100/100 mm	200/100/100 mm	100/100/100 mm	200/100/100 mm
Length measurement tolerance MPE E1 (EX, EY)		1.5 µm + L/100 (L in mm)	1.5 µm + L/100 (L in mm)	1.5 µm + L/100 (L in mm)	1.5 µm + L/100 (L in mm)
Length measurement tolerance MPE E2 (EXY)		2.9 µm + L/100 (L in mm)	2.9 µm + L/100 (L in mm)	2.9 µm + L/100 (L in mm)	2.9 µm + L/100 (L in mm)
Max. table load (kg)		20	20	20	20
39960...	Ident. No. Unit price, €	100 (O. R.)*	110 (O. R.)*	120 (O. R.)*	130 (O. R.)*

Prod. group 370

Accessories for			39960 100	39960 110	39960 120	39960 130
39960...	Z axis measuring system For ATORN video measuring microscope	Z axis measuring system	Ident. No. Unit price, €	140 (O. R.)*	140 (O. R.)*	140 (O. R.)*
39960...	dxf software module For ATORN video measuring microscope	dxf module	Ident. No. Unit price, €	150 (O. R.)*	150 (O. R.)*	150 (O. R.)*

ATORN® Double vee blocks made of hardened steel/INOX steel



Application:

For checking, marking off and aligning cylindrical parts.

Execution:

- With clamping bracket
- Vee block faces and base machined level and parallel
- Finely ground
- No. 35185 030-35185 070, 35188 030-35188 070: Machined in pairs

scope of supply and services:

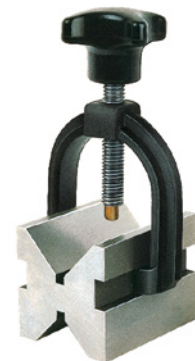
No. 35185 030-35185 070, 35188 030-35188

070: In pairs

No. 35186: Single

Technical Data:

- Flatness tolerance: 0.004 mm
- Angle: 90 Degree



Length x width x height			50 x 40 x 40 mm	75 x 55 x 55 mm	100 x 75 x 75 mm
Min./max. workpiece Ø			5-30 mm	5-50 mm	7-70 mm
35185...	In pairs	Ident. No. Set price, €	030 O. R.	050 O. R.	070 O. R.
35186...	Single	Ident. No. Unit price, €	030 O. R.	050 O. R.	070 O. R.
35188...	In pairs	Ident. No. Set price, €	030 O. R.	050 O. R.	070 O. R.

Prod. group 3AB

ATORN® Double vee block pair

Made from hardened special steel

**Application:**

For checking, marking off and aligning cylindrical parts.

Execution:

- With clamping bracket
- Vee block faces and base machined level and parallel
- Side, front and standing surfaces at right angles
- Finely ground

- Machined in pairs

Advantage:

- The vee blocks can be adjusted to any position thanks to the flush countersunk clamp.

Technical Data:

- Flatness tolerance: 0.004 mm
- Angle: 90 Degree

Length x width x height	60 x 58 x 40 mm	75 x 70 x 54 mm	100 x 96 x 75 mm
Min./max. workpiece Ø	5-30 mm	5-30 mm	7-70 mm
35189...	Ident. No. 060	Ident. No. 070	Ident. No. 100
	Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.

Prod. group 3AB

Accessories for		35189 060	35189 070	35189 100
35190...	Clamping bracket for double vee blocks	Ident. No. 060	Ident. No. 070	Ident. No. 100
		Unit price, € O. R.	Unit price, € O. R.	Unit price, € (O. R.)



ATORN® Magnetic measuring and clamping vee blocks

**Application:**

For checking, marking off and aligning cylindrical parts.

Execution:

- Level and parallel and rectangular machined
- Magnetic force can be turned on/off
- The side opposite the switch is designed as a magnetic surface

- Ident. No. 105–120: Measuring and standing surfaces hardened

scope of supply and services:

In a wooden case

Technical Data:

- Flatness tolerance: 0.004 mm
- Angle: 90 Degree

Version		Standard	Standard	Hardened	Hardened	Hardened
Length x width x height		80 x 67 x 96 mm	100 x 70 x 96 mm	70 x 45 x 70 mm	80 x 67 x 96 mm	100 x 70 x 96 mm
Min./max. workpiece Ø		6-66 mm	6-70 mm	2-40 mm	6-66 mm	6-70 mm
35209...	Single	Ident. No. 010	Ident. No. 020	Ident. No. 105	Ident. No. 110	Ident. No. 120
		Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.

Prod. group 3AB



ATORN® Magnetic measuring and clamping vee blocks

Vee block pairs

**Application:**

For checking, marking off and aligning cylindrical parts.

Execution:

- Level and parallel and rectangular machined
- Magnetic force can be turned on/off
- The side opposite the switch is designed as a magnetic surface

- Ident. No. 106–121: Measuring and standing surfaces hardened

scope of supply and services:

In a wooden case

Technical Data:

- Flatness tolerance: 0.004 mm
- Angle: 90 Degree

Version		Standard	Standard	Hardened	Hardened	Hardened
Length x width x height		80 x 67 x 96 mm	100 x 70 x 96 mm	70 x 45 x 70 mm	80 x 67 x 96 mm	100 x 70 x 96 mm
Min./max. workpiece Ø		6-66 mm	6-70 mm	2-40 mm	6-66 mm	6-70 mm
35209...	In pairs	Ident. No. 011	Ident. No. 021	Ident. No. 106	Ident. No. 111	Ident. No. 121
		Price/pair, € O. R.	Price/pair, € O. R.	Price/pair, € O. R.	Price/pair, € O. R.	Price/pair, € O. R.

Prod. group 3AB



ORION® Parallels with v-shaped recesses
Special cast iron



Application:
For checking, marking off and aligning cylindrical parts.

- Finely ground

Execution:

- Machined in pairs

Technical Data:

- Flatness tolerance: 0.016 mm
- Angle: 90 Degree



Length x width x height		75 x 150 x 130 mm	90 x 200 x 170 mm
Min./max. workpiece Ø		8-120 mm	10-180 mm
35213...	Ident. No.	011	021
	Price/pair, €	O. R.	O. R.

Prod. group 3BE

Miniature precision vice
For clamping small components

Application:

Clamping and aligning options for rotationally symmetrical components using vertical and horizontal prisms. Slots on long sides provide short clamping option.

- Prism plane parallelism 0.02 mm
- Replaceable clamping jaw pairs made from toughened steel or plastic

Execution:

- Threaded spindle

Technical Data:

- Plane parallelism of prisms: 0.02 mm



Span (mm)		14	23
Clamping depth (mm)		8	15
Material		Brass	Aluminium
Surface		Chrome-plated	Anodised
Length x width x height		50 x 15 x 15 mm	75 x 25 x 25 mm
47000...	Ident. No.	500	505
	Unit price, €	O. R.	O. R.

Prod. group 445



Marking-off and surface plate

Application:

For use as a base for control, spot-grinding and assembly tools

- The 4 outer faces are finely machined

Execution:

- Made from special cast iron in ribbed structure

Advantage:

- Suitable for use in a wide range of workshop processes



Length x width x height		300 x 300 x 70 mm	400 x 300 x 80 mm	500 x 400 x 70 mm	600 x 500 x 95 mm	800 x 500 x 95 mm	1000 x 600 x 120 mm
Flatness tolerance (µm)		13	14	15	16	18	20
Weight (kg)		18	25	40	66	88	136
35350...	Accuracy class	I					
	Ident. No.	130	140	150	160	180	200
	Unit price, €	O. R.	O. R.	(O. R.) ⁺	O. R. ⁺	(O. R.) ⁺	(O. R.) ⁺

Prod. group 308

Accessories for			35350 150	35350 160	35350 180	35350 200
35350...	Open base frame For marking-off and surface plates	For 500 x 400 plate	Ident. No. 555 Unit price, € (O. R.)	-	-	-
35350...	Base frame in cabinet form For marking-off and surface plates	For 500 x 400 plate	Ident. No. 655 Unit price, € (O. R.) ⁺	-	-	-
35350...	Open base frame For marking-off and surface plates	For 600 x 500 plate	Ident. No. - Unit price, €	565 (O. R.)	-	-
35350...	Base frame in cabinet form For marking-off and surface plates	For 600 x 500 plate	Ident. No. - Unit price, €	665 (O. R.)	-	-
35350...	Open base frame For marking-off and surface plates	For 800 x 500 plate	Ident. No. - Unit price, €	-	585 (O. R.)	-
35350...	Base frame in cabinet form For marking-off and surface plates	For 800 x 500 plate	Ident. No. - Unit price, €	-	685 (O. R.) ⁺	-
35350...	Open base frame For marking-off and surface plates	For 1000 x 600 plate	Ident. No. - Unit price, €	-	-	605 (O. R.)
35350...	Base frame in cabinet form For marking-off and surface plates	For 1000 x 600 plate	Ident. No. - Unit price, €	-	-	705 (O. R.) ⁺

ATORN® Measuring and control plates

Application:

For use in production and measuring as a basis for precise measuring tasks, e.g. height measuring devices

Execution:

- High-strength hard stone with dense structure, fine pores and high level of homogeneity
- Measuring surface with finest diamond-lapped finish
- Outside edges finely ground
- Edges chamfered for protection against damage
- Processing and positioning is performed at specific points

- Ident. No. 040–063:** For direct mounting on table/workbench
- Ident. No. 100, 120:** Section tube base frame
- Ident. No. 105, 125:**
 - Floor unit with 3 fully extending drawers
 - Load-bearing capacity per drawer approx. 100 kg
 - Drawer height 120, 150 and 240 mm

Advantage:

- Distortion-proof
- Low thermal conductivity

scope of supply and services:

Traceable works calibration certificate. DKD calibration certificate available on request.



Ident. No. 100, 120



Ident. No. 105, 125

Length x width x thickness		400 x 400 x 50 mm	630 x 400 x 70 mm	1000 x 630 x 100 mm	1000 x 630 x 100 mm	1200 x 800 x 160 mm	1200 x 800 x 160 mm
Weight (kg)		25	53	203	330	495	640
35370...	Accuracy class 0	Ident. No. 040 O. R. +	Ident. No. 063 (O. R.) +	Ident. No. 100 (O. R.) +	Ident. No. 105 O. R. +	Ident. No. 120 (O. R.) +	Ident. No. 125 O. R. +

Prod. group 340

JFA Measuring and control plates, more precise than DIN 876 made of South African hard stone, black

Application:

For use in production and measuring as a basis for precise measuring tasks, e.g. height measuring devices

Execution:

- Non-magnetic
- Antistatic
- Defect-free structure and even colouring
- Outer edges finely machined
- Ball inserts on underside to ensure the correct static position
- Edges chamfered for protection against damage
- No. 35444:** Surface finely ground and lapped to maximum fineness
- No. 35461 050–35461 200, 35466 050–35466 200:** Surface finely ground and lapped
- No. 35462:** Surface particularly finely ground and lapped

Advantage:

- Advantages of South African hard stone
- Particularly hard and wear-resistant (considerably more wear resistance than natural stone, e.g. from China)
- High dimensional stability (naturally aged)
- Excellent vibration damping
- Rust and acid-resistant

scope of supply and services:

Calibration certificate.

Notes:

Optional: Precision-machined longitudinal and transverse outside edges. T-slots, thread inserts, bores, guide grooves and longitudinal and transverse T-slots available on request



No. 35462 120
Includes table bearing and base frame in cabinet form



Measuring plate including open base frame

Length x width x thickness	Accuracy class	LAB		I		0		00	
		Weight (kg)	35444... ID no.	(O. R.) +	35461... ID no.	(O. R.) +	35462... ID no.	(O. R.) +	35466... ID no.
500 x 400 x 100 mm	60	050	(O. R.) +	050	(O. R.) +	050	(O. R.) +	050	(O. R.) +
600 x 500 x 120 mm	110	060	(O. R.) +	060	O. R. +	060	(O. R.) +	060	(O. R.) +
800 x 600 x 140 mm	205	080	(O. R.) +	080	O. R. +	080	(O. R.) +	080	(O. R.) +
1000 x 800 x 160 mm	385	120	(O. R.) +	108	(O. R.) +	108	(O. R.) +	108	(O. R.) +
1200 x 800 x 190 mm	550	150	(O. R.) +	120	(O. R.) +	120	(O. R.) +	120	(O. R.) +
1500 x 1000 x 220 mm	990	180	(O. R.) +	150	O. R. +	150	(O. R.) +	150	(O. R.) +
2000 x 1000 x 250 mm	1500	210	(O. R.) +	200	(O. R.) +	200	(O. R.) +	200	(O. R.) +

Unit price, €

Prod. group 341

JFA Base frame In cabinet form

Application:

For use in connection with a hard stone plate

Execution:

- With steel support and bearing fittings

- For working height approx. 850 mm
- Locking doors
- With drawers

Weight (kg)	For plate length 600 mm		For plate length 800 mm		For plate length 1000 mm		For plate length 1200 mm		For plate length 1500 mm		For plate length 2000 mm	
	35	45	60	70	110	150	35456... ID no.	35456... ID no.	35456... ID no.	35456... ID no.	35456... ID no.	35456... ID no.
060	(O. R.) +	080	(O. R.) +	120	(O. R.) +	150	(O. R.) +	180	(O. R.) +	210	(O. R.) +	(O. R.) +

Unit price, €

Prod. group 341

JFA Base frame
Open design

Application:
For use in connection with a hard stone plate

- For working height approx. 850 mm
- Made from section tubes

Execution:

- With steel support and bearing fittings

	For plate length 600 mm		For plate length 800 mm		For plate length 1000 mm		For plate length 1200 mm		For plate length 1500 mm		For plate length 2000 mm	
Weight (kg)	25		30		40		50		70		100	
	35463... ID no.		35463... ID no.		35463... ID no.		35463... ID no.		35463... ID no.		35463... ID no.	
	060	O. R.*	080	(O. R.)*	108	(O. R.)*	120	(O. R.)*	150	O. R.*	200	(O. R.)*
Unit price, €												

Prod. group 341

ATORN® Angle standards 90°, triangular

Application:
For testing 90° angles and straightness.

- Surface finely ground and lapped to maximum fineness
- Ident. No. 030-040:** With weight-reducing holes

Execution:

- Made from natural hard stone
- Horizontally and vertically adjustable
- The two narrow surfaces are finely machined to a high-quality finish at an angle of 90°. The remaining surfaces are finely machined

scope of supply and services:
In box

Technical Data:

- Accuracy class: 00



		250	300	400	500
Limb length (mm)		250	300	400	500
Limb length 2 (mm)		400	500	600	800
Width (mm)		50	60	70	80
Perpendicularity deviation (µm)		3	4	5	6
Number of drill holes (PCS)		0	0	2	2
Weight (kg)		10	17	30	55
35278...	Ident. No. Unit price, €	010 O. R.	020 O. R.	030 (O. R.)*	040 (O. R.)*

Prod. group 340

JFA Angle standards 90°, triangular

Application:
For testing 90° angles and straightness.

- No. 35281:** Surface finely ground and lapped
- No. 35283:** Surface finely ground and lapped to maximum fineness

Execution:

- Made of extremely wear-resistant, South-African natural, black, hard stone, with weight-reducing hole
- Horizontally and vertically adjustable
- The two narrow surfaces are finely machined to a high-quality finish at an angle of 90°. The remaining surfaces are finely machined

scope of supply and services:
Calibration certificate. Measurement results are based on national standards from the German National Metrology Institute in Brunswick, Germany.

Technical Data:

- Number of drill holes: 1



		200	250	300	400	500	200	250	300	400	500	
Limb length (mm)		200	250	300	400	500	200	250	300	400	500	
Limb length 2 (mm)		300	400	500	600	800	300	400	500	600	800	
Width (mm)		50	60	60	70	80	50	60	60	70	80	
Perpendicularity deviation (µm)		2	2	2	2	4	1	1	1	1	2	
Flatness tolerance (µm)		2	2	2	2	4	1	1	1	1	2	
Weight (kg)		6	11	16	30	55	6	11	16	30	55	
35281...	Precision according to DIN 875-2 accuracy level 000	Ident. No. Unit price, €	031 (O. R.)	041 (O. R.)	051 (O. R.)	061 (O. R.)*	081 (O. R.)*	-	-	-	-	
35283...	Accuracy level LAB	Ident. No. Unit price, €	-	-	-	-	-	030 (O. R.)	040 (O. R.)	050 (O. R.)*	060 (O. R.)*	081 (O. R.)*

Prod. group 341

Accessories for			35281 031	35281 041	35281 051	35281 061	35281 081	35283 030
35280...	Storage box Wooden	Ident. No. Unit price, €	030 (O. R.)	040 (O. R.)	050 (O. R.)	060 (O. R.)*	081 (O. R.)*	030 (O. R.)

Accessories for			35283 040	35283 050	35283 060	35283 081
35280...	Storage box Wooden	Ident. No. Unit price, €	040 (O. R.)	050 (O. R.)	060 (O. R.)*	081 (O. R.)*

ORION® Concentricity gauge Lightweight design

Application:
For measuring the axial and radial run-out precision of shafts.

Execution:

- Clamping table made of hard anodised aluminium profile with guide groove
- 2 movable tailstocks with hardened, ground 60° tip/diameter 16 mm, 1 tailstock with movable clamping tip (hub approx. 10 mm)

- The measuring stand can be moved and locked on the rear slotted beam

Technical Data:

- Point height: 75 mm
- Max. point width: 340 mm
- Base plate length: 500 mm
- Base plate width: 60 mm
- Groove width: 10 mm
- Weight: 6.4 kg



35471...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BE



Small concentricity test devices

Application:
For measuring the axial and radial run-out precision of shafts.

Execution:

- 2 movable tailstocks and 1 measuring stand for holding a dial gauge or precision pointer
- 1 tailstock with fixed tip and 1 tailstock with movable tip, adjustable using hand lever (sleeve and centre point made from one piece)

- Evenness tolerance of measuring surfaces in line with DIN 876-2. Tailstocks with 75 mm tip height have vee block surfaces
- Location hole for a dial gauge or precision pointer 8 H 7
- Ident. No. 010:** With vee block support on tailstock

Point height (mm)	50	75	100	150	
Max. point width (mm)	200	350	450	450	
Base plate length (mm)	350	500	700	700	
Base plate width (mm)	110	110	180	180	
Groove width (mm)	10	10	12	12	
Weight (kg)	8	12	35	38	
35480...	Ident. No.	005	010	020	030
	Unit price, €	O. R.	O. R.	O. R.†	(O. R.)†

Prod. group 308



Accessories

for small concentricity test devices, no. 35480

Application:
Ident. No. 032-035: For use in HP small concentricity testing devices. The points replace standard tailstocks for testing non-centred and long

components.

Ident. No. 042-045: For use in HP small concentricity testing devices. Vee blocks are placed on the base plate instead of the tailstocks.

Ident. No. 052-055: For use in HP small concentricity devices. Roller blocks with ball bearings are placed on the base plate instead of the tailstocks.



Ident. No. 032-035



Ident. No. 042-045



Ident. No. 052-055

Height (mm)	Max. Ø (mm)	Groove width (mm)	35482... ID no.
-	15	-	032 (O. R.)
-	45	-	035 (O. R.)
70	20	10	042 (O. R.)
			052 O. R.
120	40	12	045 (O. R.)
			055 O. R.
			Price/pair, €

Prod. group 308

Measuring equipment



Concentricity gauge

Application:

For measuring the axial and radial run-out precision of shafts.

Execution:

- Clamping table made from natural hard stone, flatness tolerance in line with DIN 876, precision 1. Adjustable 3-point table bearing rest with steel ball inserts.
- Tailstocks in high-quality, aged cast iron, right tailstock with movable sleeve (stroke 20 mm), adjusted using hand lever. Left tailstock with fixed sleeve. Finely ground surfaces.

- Centring points replaceable thanks to MT 2 socket with standard pressure fixture

scope of supply and services:

1 clamping table, 1 measuring stand, 1 pair of tailstocks with a 60° MT 2 centring point

Technical Data:

- Point height: 200 mm
- Max. point width: 650 mm
- Base plate length: 1100 mm
- Base plate width: 180 mm
- Groove width: 14 mm
- Weight: 135 kg



35485...	Ident. No.	100
	Unit price, €	(O. R.)*

Prod. group 308

Accessories for		35485 100	
35485...	Roller blocks with ball bearings For T-groove 14 mm H7	Ident. No.	400
		Price/pair, €	(O. R.)
35485...	Measuring stand For HP concentricity testing devices	Ident. No.	450
		Unit price, €	(O. R.)

ORION® Twist drill grinding gauges

Application:

For inspecting the tip angle (118°) of twist drills

- Grinding gauge angle 121° (produces tip angle 118°)

Execution:

- Suitable for drills up to 50 mm

36001...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BF



ORION® Chamfer vernier callipers

Application:

For inspecting chamfer angles and dimensional accuracy

scope of supply and services:

In a case

Execution:

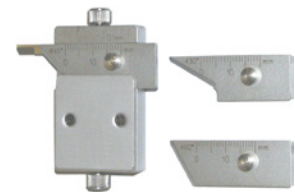
- With interchangeable inspection straight edges for 30°, 45° and 60° chamfers

Technical Data:

- Min./max. length measuring range: 0-10 mm
- Vernier scale: 0.1 mm

36030...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BF



ORION® Radius gauges concave and convex

Application:

For testing inner and outer radii

Execution:

- Blades fixed with clamping screws



No. 36130

Material	Number of sheets (PCS)	Radius sizes in assortment	Cutting edge length (mm)		Steel	Stainless steel
36130...	17	1-3 mm, increasing by 0.25 mm, 3.5-7 mm, increasing by 0.5 mm	70	Ident. No.	010	020
				Set price, €	O. R.	O. R.
36131...	16	7.5-15 mm, increasing by 0.5 mm	85	Ident. No.	010	020
				Set price, €	O. R.	O. R.
36132...	15	15.5-20 mm, increasing by 0.5 mm, 21-25 mm, increasing by 1 mm	85	Ident. No.	010	020
				Set price, €	O. R.	O. R.

Prod. group 3BF

ORION® Screw pitch gauges milled

Application:
For testing thread pitch using the light gap method

▪ **No. 36054:** For metric threads, Whitworth threads and Whitworth pipe threads

Execution:

▪ **No. 36053:** For metric threads, Whitworth threads

Number of sheets (PCS)	36053... ID no.		36054... ID no.	
52	010	O. R.	-	-
58	-	-	010	O. R.
Set price, €				

Prod. group 3BF



ORION® Thread lathe tool gauges

Application:
For testing flank angles of thread cutting tools.

Execution:
▪ **No. 36060:** For 55° Whitworth threads
▪ **No. 36061:** For 60° metric threads

36060...	Ident. No.	010
	Unit price, €	O. R.
36061...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BF



No. 36060

ORION® Thread cutting gauge

Application:
For inspecting thread cutting tools

▪ Trapezoidal thread in line with DIN 103, pitch 2-12 mm
▪ Flank angle 30°
▪ Sharp V thread 55° and 60°

Execution:
▪ With recesses for square threads, 2-8 starts per 1"

36075...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 3BF



TOLERATOR/FILETOR display unit for tolerance values and thread data

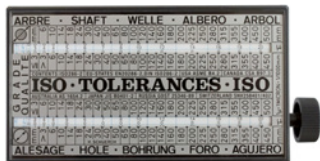
Application:
Ident. No. 011: For direct reading of all ISO tolerances up to a nominal dimension of 500 mm

Ident. No. 020: For direct reading of all standard specifications for determining

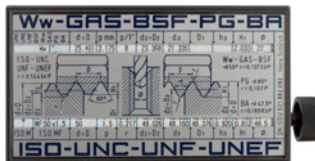
threads and core hole diameters.

Execution:

▪ **Ident. No. 011:** Printed in multiple languages



Ident. No. 011



Ident. No. 020

36095...	TOLERATOR	Ident. No.	011
		Unit price, €	O. R.
36095...	FILETOR	Ident. No.	020
		Unit price, €	O. R.

Prod. group 361

Welding seam gauges

Application:

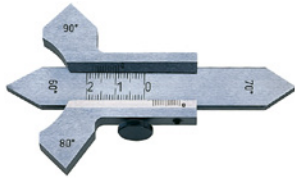
No. 36155 010, 36165 010: For measuring flat welded seams in corners and seam angles 60°, 80° and 90°

No. 36160: For rapid inspection of welded seam dimensions

Execution:

- Made of hardened stainless steel
- **No. 36155:**
 - Vernier scale and scale with brushed chromium-plated finish

- Locking screw
- **No. 36165:**
 - ON/OFF
 - mm/inch switch-over
 - Reading precision +/- 0.01 mm



No. 36155



No. 36160



No. 36165

Min./max. length measuring range	0-20 mm	-	0-20 mm
Vernier scale	0.01 mm	-	-
Scale value (mm)	-	0.01	-
Digit increment (mm)	-	-	0.01
	36155...	36160...	36165...
ID no.	ID no.	ID no.	ID no.
	010	O. R.	010
	O. R.	010	O. R.
	Unit price, €		

Prod. group 361

ORION® Feeler gauges

Application:

Suitable for inspecting gap dimensions and setting clearances.

Execution:

- Gauge blades made from hardened spring steel
- Conical
- Can be fixed in sheath



	Min./max. length of application area	Nominal dimension in assortment	Number of sheets (PCS)	Length (mm)	Width (mm)		
36180...	0.04-0.15 mm	0.04-0.10 mm, increasing by 0.01 mm, 0.15 mm	8	100	13	Ident. No.	010
						Set price, €	O. R.
36181...	0.05-0.5 mm	0.05-0.3 mm, increasing by 0.05 mm, 0.4 mm, 0.5 mm	8	100	13	Ident. No.	010
						Set price, €	O. R.
36182...	0.05-1 mm	0.05-0.3 mm, increasing by 0.05 mm, 0.4-1.0 mm, increasing by 0.1 mm	13	100	13	Ident. No.	010
						Set price, €	O. R.
36183...	0.05-1 mm	0.05-1.0 mm, increasing by 0.05 mm	20	100	13	Ident. No.	010
						Set price, €	O. R.
36184...	0.1-2 mm	0.1-2.0 mm, increasing by 0.1 mm	20	100	13	Ident. No.	010
						Set price, €	O. R.

Prod. group 3BF

ORION® Feeler gauges Precision design

DIN 2275



Application:

Suitable for inspecting gap dimensions and setting clearances.

Execution:

- Gauge blades made from hardened spring steel
- Conical
- Can be fixed in nickel-plated sheath



	Min./max. length of application area	Nominal dimension in assortment	Number of sheets (PCS)	Length (mm)	Width (mm)		
36189...	0.05-0.5 mm	0.05-0.3 mm, increasing by 0.05 mm, 0.4 mm, 0.5 mm	8	100	13	Ident. No.	008
						Set price, €	O. R.
36189...	0.05-1 mm	0.05-0.3 mm, increasing by 0.05 mm, 0.4-1.0 mm, increasing by 0.1 mm	13	100	13	Ident. No.	013
						Set price, €	O. R.
36189...	0.05-1 mm	0.05-1.0 mm, increasing by 0.05 mm	20	100	13	Ident. No.	020
						Set price, €	O. R.

Prod. group 3BF

Feeler gauges**Antimagnetic****Application:**

Suitable for inspecting gap dimensions and setting clearances.

Execution:

- Brass gauge blades
- Conical
- Can be fixed in nickel-plated sheath



	Min./max. length of application area	Nominal dimension in assortment	Number of sheets (PCS)	Length (mm)	Width (mm)	Ident. No.	
36196...	0.1-0.8 mm	0.1-0.4 mm, increasing by 0.05 mm, 0.5 mm, 0.6 mm, 0.7 mm, 0.75 mm, 0.8 mm	12	100	13	Ident. No. Set price, €	010 O. R.

Prod. group 361

Feeler gauges**extra long version****Application:**

Suitable for inspecting gap dimensions and setting clearances.

Execution:

- Gauge blades made from hardened spring steel
- Blades held in ring



	Min./max. length of application area	Nominal dimension in assortment	Number of sheets (PCS)	Length (mm)	Width (mm)	Ident. No.	
36201...	0.05-1 mm	0.05-0.3 mm, increasing by 0.05 mm, 0.4-1.0 mm, increasing by 0.1 mm	13	300	13	Ident. No. Set price, €	010 O. R.
36202...	0.1-2 mm	0.1-2.0 mm, increasing by 0.1 mm	20	300	13	Ident. No. Set price, €	010 O. R.

Prod. group 361

ORION® Feeler gauge strips, dimensions 13 mm x 5 m**Application:**

For use in various areas of mechanical engineering, e.g. measuring dimensional tolerance between 2 components, as alignment references etc.

- **Ident. No. 008-100:** Gauge strip marked with dimensions

scope of supply and services:

In can

Execution:

- Made from high carbon steel, hardened
- Suitable for feeler gauge assortment in wall-mounted holder

Technical Data:

- Length: 5 m
- Width: 13 mm



Nominal thickness (mm)	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08
36225...	Ident. No. 001	002	003	004	005	006	007	008
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Nominal thickness (mm)	0.09	0.1	0.12	0.15	0.18	0.2	0.25	0.3
36225...	Ident. No. 009	010	012	015	018	020	025	030
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Nominal thickness (mm)	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7
36225...	Ident. No. 035	040	045	050	055	060	065	070
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Nominal thickness (mm)	0.75	0.8	0.85	0.9	0.95	1		
36225...	Ident. No. 075	080	085	090	095	100		
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.		

Prod. group 3BF

ORION® Feeler gauge strip assortment in wall-mounted holder

The organisation system for your workshop

Application:

For use in various areas of mechanical engineering, e.g. measuring dimensional tolerance between 2 components, as alignment references etc.

Execution:

- Practical holder for clamping sections of feeler gauge strip
- 15 feeler gauge cans 13 mm x 5 mm
- Wall-mounted holder made of sheet steel, paint: RAL 7035, light grey



Min./max. length of application area		0.01-0.25 mm		0.30-1.00 mm	
Nominal dimension in assortment		0.01-0.1 mm increasing by 0.01 mm 0.12 mm 0.15 mm 0.18 mm 0.2 mm 0.25 mm		0.3-1.0 mm increasing by 0.05 mm	
Length x width x height		340 x 95 x 110 mm		320 x 210 x 225 mm	
36225...	Ident. No.	400		410	
	Set price, €	O. R.		O. R.	

Prod. group 3BF

Bore plug gauge

Application:

For measuring bores

Execution:

- Knurled handle
- Hardened and ground bolt

Technical Data:

- Scale value: 0.1 mm
- Material: Stainless steel
- Taper ratio: 01:10



Ident. No. 010

Min./max. length measuring range	1-6 mm	4-15 mm	15-30 mm	30-45 mm
36360...	Ident. No. 010	040	150	300
	Unit price, €	O. R.	O. R.	(O. R.)

Prod. group 361

Wedge gauge

Application:

For measuring gaps and clearances

Execution:

- Made from hardened steel, hard-chrome plated

Advantage:

- Fast and reliable reading of measured values

Technical Data:

- Scale value: 0.1 mm
- Material: Steel



Min./max. length measuring range	0.5-7 mm	0.5-11 mm
36370...	Ident. No. 010	020
	Unit price, €	O. R.

Prod. group 361

Metric drill gauge

Application:

For quickly determining drill and mill diameters.

Execution:

- Made of hardened steel

Technical Data:

- Min. length measuring range: 0.1 mm
- Max. length measuring range: 10 mm
- Pitch: 0.1 mm
- Number of holes: 100



36380...	Ident. No.	020
	Unit price, €	O. R.

Prod. group 361

ATORN® Folding rule Wooden

Execution:

- Angle scale
- Decimal numbers in white/black
- Brass end caps
- Sturdy joints

Advantage:

- First segment with identical graduation on both sides



	Length (m)	Width (mm)	Number of chain links (PCS)	Material	Accuracy class	Ident. No.	010
37331...	2	16	10	Wood	III	Unit price, €	O. R.

Prod. group 3AA

BMI Folding rules

Execution:

- **No. 37315:**
 - Black anodised
 - Graduation embedded in anodised layer
 - Decimal numbers in white
- **No. 37330:** Decimal numbers in black
- **No. 37330–37340:** Brass end caps
- **No. 37332–37340:**
 - Durable, sturdy joints
 - Decimal numbers in black/red



No. 37315

No. 37330

No. 37332

No. 37340

	Length (m)	Width (mm)	Number of chain links (PCS)	Material	Accuracy class	Ident. No.	
37315...	2	14	10	Light metal	II	Ident. No.	010
37330...	2	16	10	Wood	III	Unit price, €	O. R.
37332...	2	16	10	Wood	III	Ident. No.	010
37340...	2	16	10	Wood	III	Unit price, €	O. R.
						Ident. No.	005
						Unit price, €	O. R.

Prod. group 373

PICO Tape measure



Application:

For measuring distances with mm precision

Execution:

- Convex curved stainless steel
- Abrasion-resistant stoved enamel coating
- Highly flexible
- Stopper function

Advantage:

- Rolls out to a full-length, non-kinking, non-breakable 2 meter rule
- Instantly to hand
- Unrolls automatically
- Automatic stop
- Belt clip



	Length (m)	Width (mm)	Ident. No.	
37305...	2	16	Ident. No.	011
			Unit price, €	O. R.

Prod. group 3BL

BMI Pocket spirit level
With PICO tape measure



Application:

For accurate vertical and horizontal marking

Execution:

- Magnet on base and side
- Stainless steel tape measure

- Waterproof
- Tape measure can be locked in an extended position

Technical Data:

- Length: 1 m

	Measuring accuracy (per length) (mm/m)	Ident. No.	
37030...	1	Ident. No.	010
		Unit price, €	O. R.

Prod. group 371



ATORN® Tape measure



Application:
For measuring distances with mm precision

Execution:

- Robust, ergonomic housing with anti-slip, rippled rubber cover

- Self-lock system (automatic tape lock): when one of the two buttons is actuated, the measuring tape is automatically retracted by spring force
- Matt, acrylic-coated tape
- End hook with practical magnet
- Detachable belt clip on rear



	Length (m)	3	5	8
	Width (mm)	16	19	25
		37003...	37003...	37003...
		ID no.	ID no.	ID no.
		031 O. R.	051 O. R.	081 O. R.
		Unit price, €		

Prod. group 3AA

BMI Pocket tape measures with chrome plated housing



Application:
For measuring distances with mm precision

Execution:

- Sturdy, ergonomic housing

- Automatic tape retract, tape lock mechanism
- Wide, deeply curved tape for high stability
- Housing with clip



No. 37019

	Length (m)	3	5	8
	Width (mm)	13	19	25
		37017...	37018...	37019...
		ID no.	ID no.	ID no.
		015 O. R.	015 O. R.	015 O. R.
		Unit price, €		

Prod. group 371

ORION® Tape measure



Application:
For measuring distances with mm precision

Execution:

- Sturdy, ergonomic housing
- Soft grip surface

- Automatic tape retract
- With tape locking lever and additional quick stop button on bottom
- Matt, acrylic-coated tape
- Detachable belt clip on rear



	Length (m)	2	3	5
	Width (mm)	13	16	19
		37005...	37005...	37005...
		ID no.	ID no.	ID no.
		021 O. R.	031 O. R.	051 O. R.
		Unit price, €		

Prod. group 3BL

BMI Pocket tape measures
with viewing window



Application:
For measuring distances with mm precision

Execution:
▪ Direct reading of internal and external dimensions

- **No. 37025:**
 - Robust polyamide housing
 - Fold-out compass point for marking-off and drawing arcs
 - Tape lock

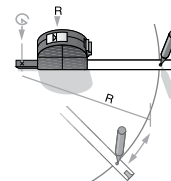
- **No. 37027:**
 - Impact-resistance plastic housing
 - Automatic tape retract



No. 37025
With fold-out compass tip



No. 37027



	Length (m)	3	2	3
	Width (mm)	16	13	13
		37025...	37027...	37027...
		ID no.	ID no.	ID no.
		030	020	030
		O. R.	O. R.	O. R.
		Unit price, €		

Prod. group 371

Schwenk Circumference tape measure
for circumference and diameter



Application:
For measuring circumferences and outer diameters

Execution:
▪ With 2 graduations on the front for reading circumferences and average diameters simultaneously

- Made of INOX spring steel

Technical Data:
▪ Scale value: 0.1 mm
▪ Width of band: 16 mm



Min./max. circumference of measuring range	60-950 mm	940-2200 mm	2190-3460 mm	3450-4720 mm	4710-5980 mm	5970-7230 mm
Min./max. Ø of measuring range	20-300 mm	300-700 mm	700-1100 mm	1100-1500 mm	1500-1900 mm	1900-2300 mm
	37086...					
	Ident. No.	010	020	030	040	050
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 371

BMI Tape rules
on a reel



Application:
No. 37038-37047: For measuring distances with mm precision

No. 37048: For measuring distances with cm precision

Execution:
▪ On aluminium reel
▪ Impact-resistant plastic grip
▪ Crank arm can be easily and quickly remounted from the right side to the left
▪ For right-handed and left-handed use

- Two ball bearings guarantee smooth unwinding and winding
- Scale starts after approx. 10 cm
- Flextop tape end prevents tape breaking
- **No. 37038:** Steel tape rule, painted white
- **No. 37038-37047:** Continuous mm graduation
- **No. 37047:** Plastic-coated steel tape rule, yellow
- **No. 37048:**
 - Fibre glass tape rule, yellow
 - Continuous centimetre graduation

Technical Data:
▪ Width: 13 mm



No. 37038



No. 37047

	Length (m)	37038...	37047...	37048...
		ID no.	ID no.	ID no.
	20	020	020	021 (O. R.)
	30	030	030	031 (O. R.)
	50	050	050	051 (O. R.)
		Unit price, €		

Prod. group 371

BMI Tape rules
in case



Application:

- **No. 37051:** For measuring distances with cm precision
- **No. 37052–37054:** For measuring distances with mm precision

Execution:

- Highly impact-resistant plastic capsule
- SoftFinish surface (similar to sprayed rubber coating)
- Flextop tape end prevents tape breaking

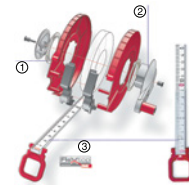
- Scale starts after approx. 10 cm
- **No. 37051:**
 - Fibre glass tape rule, yellow
 - Continuous centimetre graduation
- **No. 37052:** Steel tape rule, painted white
- **No. 37052–37054:** Continuous mm graduation
- **No. 37054:** Stainless steel

Technical Data:

- Width: 13 mm



No. 37052–37054



No. 37052

The crank is very easy to reassemble on the other side e. g. for left-handed people

Length (m)	37051... ID no.		37052... ID no.		37054... ID no.	
	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
10	011	010	010	010	010	010
20	021	020	020	020	020	020
30	031	030	030	030	030	030
50	-	-	050	050	050	050
Unit price, €						

Prod. group 371

Multi-purpose line laser set
GLL 3-80 P

Application:

For simultaneous marking, alignment and levelling in interior applications

Execution:

- Compact, robust design, easy to use
- Up to 80 m diameter range
- Set includes basic unit, universal holder, target plate
- Optional applications: Stand-alone or with universal holder BM 1

Technical Data:

- Coverage distance: 50 m
- Levelling measuring accuracy (+/- per length): 0.2 mm/m
- Self-levelling range (+/-): 4 Degree
- Levelling time: 4 s
- Laser category: 2
- IP protection class: IP 54
- Length: 159 mm
- Width: 75 mm
- Height: 141 mm



Basic unit

38382...	Ident. No.	030
	Unit price, €	O. R.

Prod. group 731

RIDGID Cross-line laser
micro CL-100

Application:

For simultaneous alignment and levelling in interior applications

Execution:

- Single button operation
- Immediate projection of extremely bright vertical and horizontal lines
- Integrated 360° turntable
- Adjustable tripod and laser enhancing glasses

scope of supply and services:

In plastic case, 3x AAA batteries, laser enhancing glasses, tripod

Technical Data:

- Coverage distance: 30 m
- Levelling measuring accuracy (+/- per length): 0.2 mm/m
- Self-levelling range (+/-): 6 Degree
- Laser category: 2
- IP protection class: IP 54
- Width: 45 mm
- Height: 60 mm



38382...	Ident. No.	100
	Unit price, €	O. R.

Prod. group 412

BOSCH Laser distance measuring instruments

Application:

Ident. No. 030: For non-contact measurement of lengths in indoor and outdoor applications.

Ident. No. 100-150: For non-contact measurement of lengths, areas and volumes in indoor and outdoor applications.

Execution:

▪ Dust-resistant, spray-resistant and impact-resistant, therefore suitable for use on construction sites

▪ **Ident. No. 030:** Measuring functions: Length measurement, add 2 measured values

▪ **Ident. No. 100-150:**

▪ Measuring functions: Length measurement, area measurement, volume measurement, continuous measurement/minimum/maximum measurement, indirect height measurement (2-point and 3-point Pythagorean measurement), wall area measurement, timer function,

incline measurement, view/add/subtract/delete measured values

▪ Optional: high-precision digital incline measurements in combination with measuring rail R 60 Professional (not included)

▪ **Ident. No. 150:** Data transfer via Bluetooth, USB and using app

Advantage:

▪ Enormous savings of time and money

▪ Fast and accurate measurement thanks to the visible laser target point

▪ **Ident. No. 030:** Very easy to operate with a single function key

▪ **Ident. No. 100:** Integrated rechargeable lithium-ion battery for high battery life: up to 25,000 measurements per battery charge

▪ **Ident. No. 100-150:** Automatically rotating display for better reading of measured values regardless of the device position

▪ **Ident. No. 150:** Time-saving measuring for indirect and double indirect height measurements and for length measurements using integrated 2-axis inclinometer

scope of supply and services:

Ident. No. 030: 2 x 1.5 V LR03 (AAA) batteries, manufacturer's certificate, protective case

Ident. No. 100: With 1x 3.7 V li-ion battery, protective case, charger (GLM 80 only) and manufacturer's certificate, measurement rail R 60, levels: Spirit level function.

Ident. No. 150: Charger, micro USB cable, protective cover

Technical Data:

- IP protection class: IP 54
- Laser category: 2
- With addition/subtraction: Yes
- Automatic switch-off: Yes



Ident. No. 030



Ident. No. 100



Ident. No. 150

Model	GLM 30	GLM 80	GLM 100 C
Coverage distance (m)	30	80	100
Measuring accuracy	+/- 2 mm	+/- 1.5 mm	+/- 1.5 mm
Measuring functions	Length measurement	Volume measurement Area measurement Length measurement Continuous measurement Timer function	Volume measurement Area measurement Length measurement Continuous measurement Timer function
Tilt sensor (Degree)	-	360	360
Space calculation	No	Yes	Yes
Indirect measurement	No	Yes	Yes
With tripod socket	No	Yes	Yes
Measured value memory	No	Yes	Yes
Length x width x height	105 x 41 x 24 mm	111 x 51 x 30 mm	111 x 51 x 30 mm
Display rotate automatically	-	Yes	Yes
Weight (g)	100	140	140
37065...	Ident. No. 030 Unit price, € O. R.	Ident. No. 100 Unit price, € O. R.	Ident. No. 150 Unit price, € O. R.

Prod. group 731

Accessories for			37065 100
37065...	Measuring rail R 60 Professional For laser distance meters	Measuring rail	Ident. No. 415 Unit price, € O. R.

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Measuring equipment

Leica DISTO™ Laser distance measuring instruments

Application:

Ident. No. 003: For non-contact measurement of lengths, areas and volumes in interior applications.

Ident. No. 014–035: For non-contact measurement of lengths, areas and volumes in indoor and outdoor applications.

Execution:

- Dust-resistant, spray-resistant and impact-resistant, therefore suitable for use on construction sites
- **Ident. No. 003:** Measuring functions: Length measurement, area measurement, volume measurement, continuous measurement/minimum/maximum measurement, indirect height measurement (2-point and 3-point Pythagorean measurement), add/subtract/save measured values
- **Ident. No. 014:** Measuring functions: Length measurement, area measurement (including triangles), volume measurement, continuous measurement/minimum/maximum measurement, indirect height measurement (2-point and 3-point Pythagorean measurement), add/subtract/save measured values, angle and distance measurement
- **Ident. No. 023:** Measuring functions: Length measurement, area measurement (including triangles), volume measurement, continuous measurement/minimum/maximum measurement, indirect height measurement (2-point and 3-point Pythagorean measurement), add/subtract/save measured values, angle and distance measurement, elevation measurement, trapezium measurement, timer function
- **Ident. No. 023–035:** Data transmission via Bluetooth or USB
- **Ident. No. 035:**
 - Measuring functions: Length measurement, area measurement (including triangles), volume measurement, continuous measurement/minimum/maximum measurement, indirect height measurement (2-point and 3-point Pythagorean measurement), add/subtract/save measured values, angle and

distance measurement, elevation profile measurement, measurement based on photos, compass, trapezium measurement, timer function

- Integrated camera for length measurement using photos
- App Leica DISTO™ sketch creates floor plans based on measured data

Advantage:

- Enormous savings of time and money
- Fast and accurate measurement thanks to the visible laser target point
- **Ident. No. 023–035:** Direct transmission of measurement data to mobile devices via Bluetooth

scope of supply and services:

Ident. No. 003: Leica DISTO(TM) D210, bag, batteries, wrist strap, operating instructions

Ident. No. 014: Leica DISTO(TM) X310, bag, batteries, wrist strap, operating instructions

Ident. No. 023: Leica DISTO(TM) D510, bag, wrist strap, batteries and operating instructions

Ident. No. 035: Leica DISTO(TM) sketch software, bag, wrist strap, batteries, operating instructions

Technical Data:

- Measuring accuracy: +/- 1 mm
- Laser category: 2
- With addition/subtraction: Yes
- Space calculation: Yes
- Automatic switch-off: Yes
- Indirect measurement: Yes
- Measured value memory: Yes

Measuring equipment



Ident. No. 003



Ident. No. 014



Ident. No. 023



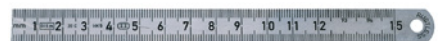
Ident. No. 035

Model	D210	X310	D510	D810
Coverage distance (m)	80	80	200	200
IP protection class	IP 54	IP 65	IP 65	IP 54
Measuring functions	Volume measurement Area measurement Length measurement Continuous measurement	Volume measurement Area measurement Length measurement Continuous measurement Angle and distance measurement	Volume measurement Area measurement Length measurement Continuous measurement Angle and distance measurement Trapezoid measurement Timer function Height profile measurement	Volume measurement Area measurement Length measurement Continuous measurement Angle and distance measurement Trapezoid measurement Timer function Height profile measurement
With homing device	No	No	Yes	Yes
Tilt sensor (Degree)	-	360	360	360
With tripod socket	No	Yes	Yes	Yes
Length x width x height	114 x 50 x 27 mm	122 x 55 x 31 mm	134.5 x 55 x 30 mm	164 x 61 x 31 mm
Weight (g)	126	155	198	238
37060...	Ident. No. 003 Unit price, € O. R.	014 O. R.	023 O. R.	035 (O. R.)

Prod. group 376

Accessories for			37060 003	37060 014	37060 023	37060 035
37060...	Target plate For Leica distance measuring instruments	Target plate	Ident. No. 400 Unit price, € O. R.	400 O. R.	400 O. R.	400 O. R.

ORION® Rules



Execution:

- Made of INOX spring steel
- Small cross-section for flexible design
- All edges ground and burr-free
- Anti-glare, matt surface
- Graduations insensitive to many chemicals, greases and oils

- **No. 37101:** 2 scale graduations: Scale graduation 1 mm top and bottom
- **No. 37102:** 2 scale graduations: Scale graduations top 0.5 mm/bottom 1 mm

Technical Data:

- Accuracy class: II

Length (mm)		150	200	300	500	1000	2000
Cross-section length x cross-section width		13 x 0.5 mm	13 x 0.5 mm	13 x 0.5 mm	18 x 0.5 mm	18 x 0.5 mm	18 x 0.5 mm
37101...	Ident. No.	015	020	030	050	100	200
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
37102...	Ident. No.	015	020	030	050	100	200
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3BG

Rules

**Execution:**

- Made of INOX spring steel
- Wide cross-section for rigid design
- 2 scale graduations: Scale graduation 1 mm top and bottom
- **No. 37151:** Anti-glare, matt surface

- **No. 37152:** Highly anti-glare, brushed chromium-plated surface

Technical Data:

- Accuracy class: II

Length (mm)		300	500	1000	1500	2000	1500	2000
Cross-section length x cross-section width		30 x 1 mm	30 x 1 mm	30 x 1 mm	30 x 1 mm	30 x 1 mm	35 x 1.3 mm	35 x 1.3 mm
37151...	Ident. No.	030	050	100	150	200	-	-
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.		
37152...	Ident. No.	030	050	100	-	-	150	200
	Unit price, €	O. R.	O. R.	O. R.			O. R.	O. R.

Prod. group 373

ATORN® Light metal scale**Execution:**

- Made of anti-glare, anodised aluminium alloy
- Graduation with scale interval 1 mm
- Boldly coloured decimal numbers
- Suspension hole
- Lightweight and corrosion-resistant

- Inking edge to avoid smearing when drawing
- Contrasting print is particularly easy to read and anti-glare

Technical Data:

- Cross-section length x cross-section width: 50 x 5 mm
- Accuracy class: II

Advantage:

- With convenient recessed handle for improved handling

Length (mm)		300	400	600	1000
37170...	Ident. No.	030	040	060	100
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 3AA

Rules

DIN 866

**Execution:**

- Graduation with scale interval 1 mm
- Ground and aligned top edge for use as a ruler

- **No. 37200:** Steel
- **No. 37201:** Made of INOX steel

Length (mm)		500	1000	1500	2000	3000	4000
Cross-section length x cross-section width		25 x 5 mm	30 x 6 mm	30 x 6 mm	40 x 8 mm	40 x 8 mm	50 x 10 mm
Weight (kg)		0.5	1.4	2.1	5	7.5	15.7
37200...	Ident. No.	050	100	150	200	300	400
	Unit price, €	O. R.	O. R.	O. R.	(O. R.) ⁺	(O. R.) ⁺	(O. R.) ⁺
37201...	Ident. No.	050	100	150	200	300	400
	Unit price, €	O. R.	O. R.	O. R.	(O. R.) ⁺	(O. R.) ⁺	(O. R.) ⁺

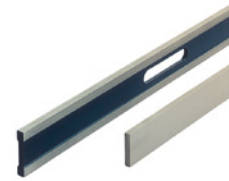
Prod. group 373

Steel rules
with test report

Execution:

- Rectangular section
- **No. 37420:** Top edges finely ground, flat sides cleanly ground
- **No. 37425:** Top edges finely ground, flat sides cleanly ground. With rectangular section, from 4000 mm with double-T-shaped cross-section and 2 hand slots

- **No. 37435–37436:** Top edges finely ground and calibrated, flat side precision-ground. Rulers up to 1500 mm have rectangular section, rulers above 2000 mm have a double-T section and 2 hand slots
- **No. 37450–37451:** Precision design: top edges and flat sides precisely machined, ground and calibrated. Rulers up to 1500 mm have rectangular section, rulers above 2000 mm have a double-T section and 2 hand slots



Accuracy class			II		II		I		I		0		0		II	
Material			Steel		Special stainless steel		Steel		Stainless steel		Steel		Stainless steel		Stainless steel	
Length (mm)	Cross-section length x cross-section width	Weight (kg)	37420... ID no.		37425... ID no.		37435... ID no.		37436... ID no.		37450... ID no.		37451... ID no.		37425... ID no.	
500	30 x 6 mm	0.7	050	O. R.	050	O. R.	-	-	-	-	-	-	-	-	-	-
500	40 x 8 mm	1.3	-	-	-	-	050	O. R.	050	O. R.	-	-	-	-	-	-
500	50 x 10 mm	2	-	-	-	-	-	-	-	-	050	O. R.	050	O. R.	-	-
750	40 x 8 mm	2	-	-	-	-	-	-	-	-	-	-	-	-	075	O. R.
750	50 x 10 mm	3	-	-	-	-	-	-	075	O. R.	-	-	075	O. R.	-	-
1000	40 x 8 mm	2.5	100	O. R.	-	-	-	-	-	-	-	-	-	-	100	O. R.
1000	50 x 10 mm	4	-	-	-	-	100	O. R.	100	O. R.	-	-	-	-	-	-
1000	60 x 12 mm	5.7	-	-	-	-	-	-	-	-	100	O. R.	100	O. R.	-	-
1500	50 x 10 mm	5.8	150	O. R.	-	-	-	-	-	-	-	-	-	-	150	(O. R.) ⁺
1500	60 x 12 mm	8.4	-	-	-	-	150	(O. R.) ⁺	150	(O. R.) ⁺	-	-	-	-	-	-
1500	70 x 14 mm	12.4	-	-	-	-	-	-	-	-	150	(O. R.) ⁺	150	(O. R.) ⁺	-	-
2000	60 x 12 mm	11.2	200	O. R. ⁺	-	-	-	-	-	-	-	-	-	-	200	(O. R.) ⁺
2000	70 x 14 mm	12	-	-	-	-	200	(O. R.) ⁺	200	(O. R.) ⁺	-	-	-	-	-	-
2000	80 x 15 mm	13	-	-	-	-	-	-	-	-	200	(O. R.) ⁺	-	-	-	-
Unit price, €																

Prod. group 375

ATORN® Straight edges



Application:

For inspecting the flatness and straightness of surfaces

Execution:

- Hardened measuring edge, ground and finely lapped
- Hand warmth insulation
- **No. 37550:** Made from special steel, both inclines with anti-glare burnished finish

- **No. 37551:** Made from INOX steel, both incline surfaces with anti-glare matt finish

scope of supply and services:

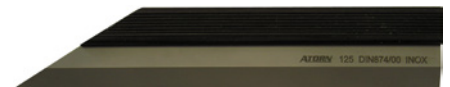
In synthetic leather case

Technical Data:

- Material: Hardened steel



No. 37550 012



No. 37551 012

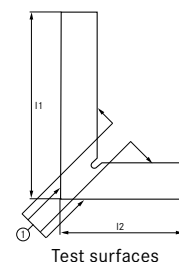
Length (mm)		75	100	125	150	200	300	400	500
37550...	Ident. No.	007	010	012	015	020	030	040	050
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
37551...	Ident. No.	007	010	012	015	020	030	040	050
	Unit price, €	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3AF



Steel square 90°, right-angle tolerances
Excerpt from DIN 875

L1 (mm)	Right-angle tolerances t in µm with accuracy level			
	00	0	1	2
50	3	-	-	-
75	3	7	14	28
100	3	7	15	30
150	4	8	18	35
200	4	9	20	40
250	5	10	23	45
300	5	11	25	50
500	7	15	35	70
750	10	20	43	85
1000	12	25	60	120



Test surfaces

ATORN® Flat and try square
Accuracy 2

DIN 875



Application:
For testing angles and marking offs workpieces

- **No. 38062:** Flat square
- **No. 38063:** Try square

Execution:

- Made from special steel, unhardened
- Test and side surfaces finely ground

Technical Data:

- Accuracy class: II



No. 38062

No. 38063

Limb length x limb length 2	Cross-section length x cross-section width	Flat square		Try square	
		38062... Ident. No.	O. R.	38063... Ident. No.	O. R.
75 x 50 mm	15 x 5 mm	007	O. R.	007	O. R.
100 x 70 mm	20 x 5 mm	010	O. R.	010	O. R.
150 x 100 mm	25 x 5 mm	015	O. R.	015	O. R.
200 x 130 mm	30 x 6 mm	020	O. R.	020	O. R.
250 x 165 mm	35 x 7 mm	025	O. R.	025	O. R.
300 x 175 mm	35 x 7 mm	030	O. R.	030	O. R.
500 x 250 mm	40 x 8 mm	050	O. R.	050	O. R.
600 x 300 mm	40 x 8 mm	060	O. R.	060	O. R.
750 x 375 mm	45 x 10 mm	075	(O. R.)	075	(O. R.)
1000 x 500 mm	50 x 10 mm	100	(O. R.) [†]	100	(O. R.) [†]
					Unit price, €

Prod. group 3AF

ATORN® Try square
Accuracy 1

DIN 875



Application:
For testing angles and marking offs workpieces

- Made from special steel, unhardened
- Try square

Execution:

- Test and side surfaces finely ground

Technical Data:

- Accuracy class: I



Limb length x limb length 2	Cross-section length x cross-section width	Try square	
		38061... Ident. No.	O. R.
75 x 50 mm	15 x 5 mm	007	O. R.
100 x 70 mm	20 x 5 mm	010	O. R.
150 x 100 mm	25 x 5 mm	015	O. R.
200 x 130 mm	30 x 6 mm	020	O. R.
250 x 165 mm	35 x 7 mm	025	O. R.
300 x 200 mm	40 x 8 mm	030	O. R.
500 x 330 mm	50 x 10 mm	050	O. R.
1000 x 660 mm	70 x 15 mm	100	(O. R.) [†]
			Unit price, €

Prod. group 3AF

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Measuring equipment

ATORN® Flat and try square
Accuracy 1, made from INOX

DIN 875



Application:
For testing angles and marking offs workpieces

- No. 38058: Flat square
- No. 38059: Try square

Execution:

- Test and side surfaces finely ground
- Made from INOX steel, unhardened

Technical Data:

- Accuracy class: I



No. 38058

No. 38059

Limb length x limb length 2	Cross-section length x cross-section width	Flat square		Try square	
		38058... Ident. No.	O. R.	38059... Ident. No.	O. R.
75 x 50 mm	15 x 5 mm	007	O. R.	007	O. R.
100 x 70 mm	20 x 5 mm	010	O. R.	010	O. R.
150 x 100 mm	25 x 5 mm	015	O. R.	015	O. R.
200 x 130 mm	30 x 6 mm	020	O. R.	020	O. R.
250 x 165 mm	35 x 7 mm	025	O. R.	025	O. R.
300 x 200 mm	40 x 8 mm	030	O. R.	030	O. R.
500 x 330 mm	50 x 10 mm	050	O. R.	050	O. R.
1000 x 660 mm	70 x 15 mm	100	(O. R.)*	100	(O. R.)*
					Unit price, €

Prod. group 3AF

ATORN® Flat and try square
Accuracy 0

DIN 875



Application:
For testing angles and marking offs workpieces

- Lapped test surfaces
- No. 38051: Flat square
- No. 38052: Try square

Execution:

- Made from special steel, unhardened
- Side faces finely ground

Technical Data:

- Accuracy class: 0



No. 38051

No. 38052

Limb length x limb length 2	Cross-section length x cross-section width	Flat square		Try square	
		38051... Ident. No.	O. R.	38052... Ident. No.	O. R.
150 x 100 mm	25 x 5 mm	015	O. R.	015	O. R.
200 x 130 mm	30 x 6 mm	020	O. R.	020	O. R.
250 x 165 mm	35 x 7 mm	025	O. R.	025	O. R.
300 x 200 mm	40 x 8 mm	030	O. R.	030	O. R.
500 x 330 mm	50 x 10 mm	050	O. R.	050	O. R.
100 x 70 mm	20 x 5 mm	-	-	010	O. R.
					Unit price, €

Prod. group 3AF

ATORN® Flat and try square
Accuracy 0, made from INOX

DIN 875



Application:
For testing angles and marking offs workpieces

- No. 38051–38073: Flat square
- No. 38073–38074: Made from hardened INOX steel
- No. 38074: Try square

Execution:

- Side faces finely ground
- Lapped test surfaces
- No. 38051: Made from special steel, unhardened

Technical Data:

- Accuracy class: 0



No. 38051–38073

No. 38074

Limb length x limb length 2	Cross-section length x cross-section width	Flat square		Flat square		Try square	
		38073... Ident. No.	O. R.	38051... Ident. No.	O. R.	38074... Ident. No.	O. R.
50 x 40 mm	12 x 5 mm	005	O. R.	-	-	005	O. R.
75 x 50 mm	15 x 5 mm	007	O. R.	-	-	007	O. R.
100 x 70 mm	20 x 5 mm	-	-	010	O. R.	-	-
100 x 70 mm	25 x 5 mm	010	O. R.	-	-	010	O. R.
150 x 100 mm	25 x 5 mm	015	O. R.	-	-	015	O. R.
200 x 130 mm	30 x 6 mm	020	O. R.	-	-	020	O. R.
					Unit price, €		

Prod. group 3AF

ATORN® Try square
Thick stock and thin blade

DIN 875

**Application:**

For testing angles and marking offs workpieces

Execution:

- Made from special steel, hardened

- Test surfaces and side surfaces finely ground and precise
- Lapped test surfaces

Technical Data:

- Accuracy class: 0



Limb length x limb length 2		75 x 50 mm	100 x 70 mm	150 x 100 mm	200 x 130 mm
Cross-section length x cross-section width		16 x 2 mm	20 x 3 mm	26 x 3 mm	30 x 4 mm
Cross-section length 2 x cross-section width 2		14 x 10 mm	18 x 12 mm	24 x 14 mm	28 x 16 mm
38111...	Ident. No. Unit price, €	007 O. R.	010 O. R.	015 O. R.	020 O. R.

Prod. group 3AF

ATORN® Knife-edge square, hardened

DIN 875

**Application:**

For testing planar surfaces using the light gap method

Execution:

- Test and side surfaces finely ground
- Test edges lapped

- With 2 lapped, graduated knife edges
- Hardened
- **No. 38125:** Made from special steel
- **No. 38126:** Made of INOX steel

Technical Data:

- Accuracy class: 00



Limb length x limb length 2		50 x 40 mm	75 x 50 mm	100 x 70 mm	150 x 100 mm	200 x 130 mm	300 x 200 mm
Cross-section length x cross-section width		13 x 4 mm	15 x 4.5 mm	19 x 6 mm	25 x 7 mm	32 x 7 mm	40 x 8 mm
38125...	Ident. No. Unit price, €	005 O. R.	007 O. R.	010 O. R.	015 O. R.	020 O. R.	030 O. R.
38126...	Ident. No. Unit price, €	005 O. R.	007 O. R.	010 O. R.	015 O. R.	020 O. R.	030 O. R.

Prod. group 3AF

ATORN® Knife-edge square
Thick stock and thin blade

DIN 875

**Application:**

For testing planar surfaces using the light gap method

Execution:

- Test and side surfaces finely ground
- Test edges lapped

- With 2 lapped, graduated knife edges
- Made from special steel
- Hardened

Technical Data:

- Accuracy class: 00



Limb length x limb length 2		50 x 40 mm	75 x 50 mm	100 x 70 mm	150 x 100 mm	200 x 130 mm	300 x 200 mm
Cross-section length x cross-section width		15 x 2 mm	16 x 2 mm	18 x 3 mm	26 x 3 mm	30 x 4 mm	40 x 7 mm
Cross-section length 2 x cross-section width 2		14 x 10 mm	14 x 10 mm	18 x 12 mm	24 x 14 mm	28 x 16 mm	39 x 20 mm
38136...	Ident. No. Unit price, €	005 O. R.	007 O. R.	010 O. R.	015 O. R.	020 O. R.	030 O. R.

Prod. group 3AF

ATORN® Incision squares**Application:**

For inspection during toolmaking and manufacturing

Execution:

- Made from hardened INOX steel
- Test and side surfaces finely ground
- Graduated knife edge on inner side

- Inspection edges hardened and lapped

Technical Data:

- Cross-section length 2 x cross-section width 2: 5 x 3.8 mm
- Accuracy class: 00



Ident. No. 025

Limb length x limb length 2	25 x 20 mm	40 x 28 mm
Cross-section length x cross-section width	6 x 3.8 mm	8 x 3.8 mm
38154... Ident. No.	025	040
Unit price, €	O. R.	O. R.

Prod. group 3AF

ORION® Adjustable knife-edge square



Application:

For testing planar surfaces using the light gap method

Execution:

- Continuously sliding straight edge
- Clamp spindle lock mechanism
- Hardened
- Lapped test surfaces on basic body and lapped straight test edge

Advantage:

- Very good accessibility in recesses etc.

Technical Data:

- Length: 60 mm
- Cross-section length x cross-section width: 4 x 4 mm
- Base body dimension: 40 x 9 x 23 mm



38160...	Ident. No.	012
	Unit price, €	O. R.

Prod. group 3BG

ATORN® Measuring tool set 5-piece



Execution:

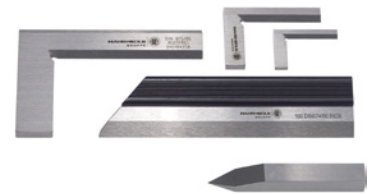
- Straight edge 100 mm, straight edge 75 x 50 mm, 1 incision square each 40 x 28 mm and 25 x 20 mm, gauge block scriber 60 x 9 x 9 mm

scope of supply and services:

In a case

38170...	Ident. No.	005
	Set price, €	O. R.

Prod. group 3AF



ATORN® Mitre try square



Application:

For precise 45° mark-off and inspection for 90° corner joints

Execution:

- Test and side surfaces finely ground

- Made from special steel

Technical Data:

- Angle: 135 Degree

Limb length x limb length 2	120 x 80 mm	150 x 100 mm	200 x 130 mm
Cross-section length x cross-section width	20 x 6 mm	20 x 6 mm	25 x 6 mm
38175... Ident. No.	120	150	200
Unit price, €	O. R.	O. R.	O. R.

Prod. group 3AF



ATORN® Acute mitre square 45°



Application:

For marking off and inspecting 45° angles

Execution:

- With stop

- Test surfaces precisely ground and lapped, side surfaces ground

Limb length x limb length 2	120 x 80 mm	150 x 100 mm	200 x 130 mm
Cross-section length x cross-section width	20 x 5.5 mm	20 x 6 mm	25 x 6 mm
38176... Ident. No.	120	150	200
Unit price, €	O. R.	O. R.	O. R.

Prod. group 3AF



ORION® Universal centring square**Application:**

For centring and marking off centre points of round discs and shafts.

Execution:

- Function faces finely ground
- mm graduation on rail



Limb length x limb length 2	100 x 70 mm	150 x 130 mm	200 x 150 mm	250 x 160 mm	300 x 180 mm	400 x 250 mm	500 x 330 mm
Suitable for max. Ø (mm)	90	190	220	230	280	380	530
38191...	Ident. No. 010	015	020	025	030	040	050
	Unit price, € O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	(O. R.)

Prod. group 3BG

ATORN® Protractor**Application:**

For measuring 10–170° angles

- Made of chromium-plated special steel
- Anti-glare, brushed chromium-plated scale

**Execution:**

- Locking screw

Limb length (mm)	150	300	400	600
Degree arc Ø (mm)	100	150	200	300
38230...	Ident. No. 010	015	020	030
	Unit price, € O. R.	O. R.	O. R.	O. R.

Prod. group 382

ORION® Protractor**Application:**

For measuring 0–180° angles

- Made of chromium-plated special steel
- Anti-glare, brushed chromium-plated scale

**Execution:**

- Locking screw

Limb length (mm)	120	150	200	300	500
Degree arc Ø (mm)	80	120	150	200	300
38217...	Ident. No. 008	012	015	020	030
	Unit price, € O. R.	O. R.	O. R.	O. R.	O. R.

Prod. group 3BG

ORION® Electronic protractor**Application:**

For measuring 0–180° angles

- Adjust or set to zero on any flat surface
- 0.05° digit increment
- Made of stainless steel
- Error limit ±0.3°
- Overhead display

**Execution:**

- Mobile measuring arm fixed using knurled thumb screw

Limb length (mm)	150	200	300
Degree arc Ø (mm)	120	150	200
38235...	Ident. No. 010	015	020
	Unit price, € O. R.	O. R.	O. R.

Prod. group 3BM

ATORN® Universal goniometer
With magnifying glass



Application:
For measuring 0-360° angles

Execution:

- Precision adjustment
- Parallax-free reading
- Made from hardened INOX steel

- Vernier scale 1/12° = 5'
- Scale and vernier scale with brushed chromium-plated finish
- Error limit 5'

scope of supply and services:
With panoramic magnifying glass, in wooden case



Rail length (mm)	Ident. No.	150	200	300	500
38240...	Unit price, €	015	020	030	050
		O. R.	O. R.	O. R.	O. R.

Prod. group 382

TESA Goniometer
Dial reading



Application:
For measuring 0-360° angles

Execution:

- Body and rule made of INOX steel, hardened and ground
- The measuring rule can be moved to any position
- A second clamping system holds the mobile part in the measuring position

- Spindle compensation in the measuring mechanism prevents any tooth flank play
- Dial diameter 35 mm
- Error limit 5'

scope of supply and services:
In a case

Technical Data:
▪ Rail length: 200 mm



38271...	Ident. No.	020
	Unit price, €	O. R.

Prod. group 362

ATORN® Electronic universal goniometer



Application:
For measuring 0-360° angles

Execution:

- Adjust or set to zero on any flat surface
- LCD display with very large digits (size 8.5 mm)
- Measuring surfaces, hardened and fine ground
- Switchable measuring range: 1 x 360° 2 x 180°
- Zero setting (RESET) possible at any position

- Digit increment 0.01° or 1'
- Error limit 2'

scope of supply and services:
Includes battery and sturdy wooden case

Technical Data:
▪ Data transmission type: RS232 opto coupled



Rail length (mm)	Ident. No.	150	200	300
38265...	Unit price, €	150	200	300
		O. R.	O. R.	O. R.

Prod. group 382

Universal goniometer
Magnetic base



Application:
For setting angles directly on the workpiece being machined

Execution:

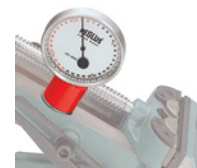
- Swivelling dial gauge

- 2 x 180° setting
- Error limit 30'

scope of supply and services:
In a wooden case

Meter Ø (mm)	Base Ø (mm)	Stand height (mm)	38277...
82	35	30	ID no. 040 O. R.
			Unit price, €

Prod. group 378



Example application

ATORN® Spirit levels and spirit levels with magnetic base
made of light metal



Application:

For horizontal and vertical alignment of objects

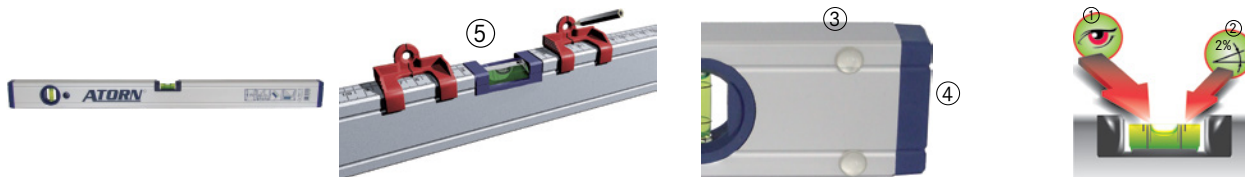
Execution:

- Laser-divided horizontal round bubble
- Read off 2% inclines
- Magnifying effect for improved reading
- 270° view of bubble from all positions without any interfering edges
- Made from high-strength non-breakable polycarbonate
- Strong aluminium rectangular profile
- Scratch-proof thanks to special anodising treatment

- Rubber end caps for impact protection
- **No. 38291:** Magnetic base

Advantage:

- Silicone pads on rear side surface for non-slip positioning on walls
- Additional divisions for exact 0-position of bubble in the horizontal vial for precise reading (zero-point deviation in normal position: 0.5 mm/m)
- **No. 38290 080-38290 120:**
 - Scale printed on upper measuring surface
 - 2 sliding measuring and marking-off tabs



38290080-120

Length (mm)	Measuring accuracy (per length) (mm/m)		200	300	400	500	600	800	1000
38290...	0.5	Ident. No. Unit price, €	020 O. R.	030 O. R.	040 O. R.	050 O. R.	060 O. R.	080 O. R.	100 O. R.
38291...	0.5	Ident. No. Unit price, €	-	-	040 O. R.	-	060 O. R.	080 O. R.	100 O. R.

Length (mm)	Measuring accuracy (per length) (mm/m)		1200	1500	1800	2000
38290...	0.5	Ident. No. Unit price, €	120 O. R.	150 O. R.	180 O. R.	200 O. R.
38291...	0.5	Ident. No. Unit price, €	-	-	-	-

Prod. group 3AG

BMI Spirit levels
with unbreakable, barrel-shaped Plexiglas vials



Application:

For horizontal and vertical alignment of objects

Execution:

- **No. 38304:**
 - Made from reinforced square profile
 - Non-reflective round bubble vials with magnifying effect
 - Read off 2% inclines
- **No. 38304 030-38307 100, 38312 040-38312 100:** Unbreakable, barrel-shaped plexiglas bubble vials
- **No. 38307:**

- Made of powder-coated, aluminium hollow profile
- 1 milled measuring surface with magnet system
- **No. 38310:**
 - With 3 unbreakable, barrel-shaped plexiglas bubble vials
 - With impact-resistant, plastic protective end caps
 - 2 milled measuring surfaces for normal and reverse measurement
 - Rigid 4-chamber aluminium profile
- **No. 38312:**
 - Made of strong, rectangular aluminium profile
 - Scratch-proof thanks to special anodising treatment
 - 1 additional rotating level for reading the angle in degrees and %



No. 38304

No. 38307

No. 38310

No. 38312

Length (mm)	Measuring accuracy (per length) (mm/m)		300	400	500	600	800	1000
38304...	0.5	Ident. No. Unit price, €	030 O. R.	040 O. R.	050 O. R.	060 O. R.	080 O. R.	100 O. R.
38307...	0.5	Ident. No. Unit price, €	-	040 O. R.	-	060 O. R.	080 O. R.	100 O. R.
38310...	0.5	Ident. No. Unit price, €	-	040 O. R.	-	060 O. R.	080 O. R.	100 O. R.
38312...	0.5	Ident. No. Unit price, €	-	040 O. R.	-	060 O. R.	080 O. R.	100 O. R.

Prod. group 384

Measuring equipment

BMI Spirit levels with magnet



Application:
For horizontal and vertical alignment of objects

Execution:

- **Ident. No. 010:**
 - Made of highly impact-resistant plastic with magnetic tape on the underside
 - 3 unbreakable plexiglas bubble vials for 0°, 45° and 90°
- **Ident. No. 020:**

- Round horizontal bubble vial with magnifying effect
- Edgeless horizontal spirit level for undistorted view of bubble even during reverse measuring
- Reverse measuring possible (0.5 mm/m)
- Solid body and impact-resistant rubber end flap maintain high measuring precision

Technical Data:
▪ Length: 200 mm



Ident. No. 010



Ident. No. 020

	Measuring accuracy (per length) (mm/m)		
38325...	-	Ident. No.	010
		Unit price, €	O. R.
38325...	0.5	Ident. No.	020
		Unit price, €	O. R.

Prod. group 384

BMI Electronic inclinometer
With integrated laser point



Application:
For measuring in the horizontal (as with a spirit level) or in any other direction (as with an inclinometer)

Execution:

- Length of test face: 400 mm
- Zero point deviation of horizontal bubble vial in normal position: 0.25 mm/m
- Parallelism deviation of laser beam to test face: 0.25 mm/m
- Laser class 2
- Laser wavelength 635 nm

- Laser power < 1 mW
- Range approx. 50 m
- Digit increments 0.1° or 0.1%
- Error limit 0° and 90° = 0.1° intermediate dimensions = 0.3°
- 8 h continuous light

scope of supply and services:
With batteries (1x E-Block 9 V type 6LR61) in sturdy plastic tubes

Technical Data:
▪ Length x width x height: 443 x 40 x 70 mm



38446...	Ident. No.	015
	Unit price, €	O. R.

Prod. group 383

RÖCKLE Light metal spirit level



Application:
For adjusting horizontal surfaces and shafts

Execution:

- With prismatic base
- Silver-anodised surface
- Milled longitudinal bubble vial

scope of supply and services:
In plastic protective sleeve

Technical Data:
▪ Width: 22 mm
▪ Other standard: Company standard



Length (mm)	Scale value, longitudinal spirit level (mm/m)		150	200	250	300
38330...	0.6	Ident. No.	015	020	025	030
		Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 384



Crankpin spirit levels

DIN 877



Application:

For aligning very short, horizontal surfaces, crank shafts and pins in engines or machines

- Robust design in high-quality special cast iron, structural paint finish

Execution:

- Precision design
- With longitudinal and transverse bubble vials
- With longitudinal and transverse v-shaped recesses
- Finely ground measuring surfaces

scope of supply and services:
In wooden box

Technical Data:

- Scale value | lateral spirit level: 0.8 mm/m
- Width: 42 mm



Length (mm)		60	90	120
Scale value, longitudinal spirit level (mm/m)		0.2	0.1	0.1
Spirit level error limit (mm/m)		0.2	0.1	0.1
38402...	Ident. No.	060	090	120
	Unit price, €	O. R.	O. R.	O. R.

Prod. group 385



Precision spirit levels

DIN 877



Application:

For precise alignment of faces, shafts etc.

- Finely ground test surfaces

Execution:

- Prismatic base 150°
- With longitudinal and transverse bubble vials
- Full insulation against hand and breath warmth
- Vial can be viewed from the side

scope of supply and services:
In a wooden case

Technical Data:
▪ Width: 42 mm



Length (mm)	Scale value, longitudinal spirit level (mm/m)		
	0.1	0.04	0.02
	38421... ID no.	38422... ID no.	38423... ID no.
160	016 O. R.	016 O. R.	016 O. R.
200	020 O. R.	020 O. R.	020 O. R.
250	025 O. R.	025 O. R.	025 O. R.
300	030 O. R.	030 (O. R.)	030 O. R.
500	050 (O. R.)	050 (O. R.)	050 O. R.
	Unit price, €		

Prod. group 385



Precision frame spirit levels

DIN 877



Application:

For aligning horizontal and vertical faces and shafts

- Vial can also be viewed from the side
- Finely ground test surfaces

Execution:

- 3 prismatic measuring faces 150°, 1 vertical, flat face
- With longitudinal and transverse bubble vials
- Full insulation against hand and breath warmth

scope of supply and services:
In a wooden case

Technical Data:
▪ Width: 34 mm



Length (mm)	Scale value, longitudinal spirit level (mm/m)		
	0.3	0.1	0.02
	38440... ID no.	38441... ID no.	38443... ID no.
100	010 O. R.	010 O. R.	-
150	015 O. R.	015 O. R.	015 O. R.
200	020 O. R.	020 O. R.	020 O. R.
300	030 (O. R.)	030 (O. R.)	030 O. R.
	Unit price, €		

Prod. group 385

Measuring equipment

ATORN® Electronic inclinometer



Application:

For easy and rapid measurement of inclinations

Execution:

- Display in degrees or percentages
- Arrow in display shows direction of inclination
- Simple adjustment in normal position (reset)
- Switchable acoustic signal for the 0° or 90° position
- Hold function

- Digit increments 0.1° or 0.1%
- Error limit 0° and 90° = 0.05 intermediate dimensions = 0.1°

scope of supply and services:

Battery (1x E-Block 9 V type 6LR61) in sturdy plastic tube

Technical Data:

- Length x width x height: 256 x 50 x 60 mm



38445...	Ident. No.	100
	Unit price, €	O. R.

Prod. group 383

ORION® Electronic inclinometer



Application:

For easy and rapid measurement of inclinations

Execution:

- Display in degrees or percentages
- Arrow in display shows direction of inclination
- Simple adjustment in normal position (reset)
- Hold function
- Made from hard-anodised light metal
- Base with narrow V-shaped recess for attachment to shafts
- 1 base with adhesive magnets
- Digit increments 0.1° or 0.1%

- Error limit 0° and 90° = 0.1° intermediate dimensions = 0.2°

Advantage:

- Short and compact shape
- Rotating display for overhead measurements

scope of supply and services:

With battery (1 x 3 V lithium type CR2032) and holster

Technical Data:

- Length x width x height: 151 x 35 x 60 mm



38600...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 383

TESA® Electronic inclinometer Clino Bevel 1 USB



Application:

For fast and easy measurement of inclines using absolute and comparative measuring procedures

Execution:

- 4 precisely machined measuring bases
- Splash-proof housing (IP65)
- Data output
- Selectable units of measure: Degrees (2 dec.), degrees/min., mm/m (2 dec.), inch/10 or 12 inch

(4 dec.), mm or inch/rel. basis (optional), milliradians and others

- Battery operation
- Error limit: 2' + 1 digit increment

scope of supply and services:

With battery (1x1.5 V type AA), USB data cable, Clinsoft software, in a case.

Technical Data:

- Length x width x height: 100 x 30 x 75 mm



38448...	Ident. No.	011
	Unit price, €	O. R.

Prod. group 366

TESA Electronic levels NIVELTRONIC



Application:

For adjustment of horizontal machine beds and for checking the planarity of machine tables and guide surfaces.

Execution:

- Cast steel housing
- Battery operation (4x 1.5 V micro type AA)
- Displays in mm/m and angular seconds
- Inductive measuring system
- **No. 38450:**
 - With prismatic base
 - With 2 level and prismatic measuring surfaces

▪ **No. 38455:**

- Flat base and recesses for mounting hard stone bases no. 38460
- With 1 level measuring surface

scope of supply and services:

In wooden box

Technical Data:

- Measuring range 1 | level (+/-): 0.75 mm/m
- Measuring range 2 | level (+/-): 0.15 mm/m
- Spirit level error limit: 0.005 mm/m
- Repetition accuracy | spirit level: 0.001 mm/m

Length (mm)		200	150
Height (mm)		200	210
Scale value (mm)		0.01	0.05
38450...	Ident. No.	010	-
	Unit price, €	O. R.	
38455...	Ident. No.	-	010
	Unit price, €		O. R.

Prod. group 366



No. 38450



No. 38455
With 38460

TESA Hard stone base
For NIVELTRONIC level, horizontal model



Application:

For use as a base for Niveltronic electronic level

Technical Data:

- Width: 50 mm

Length (mm)		200	250	500
38460...	Ident. No.	020	025	050
	Unit price, €	O. R.	(O. R.)	(O. R.)

Prod. group 366



With 38460

Easy-Laser® alignment system D90 BTA

Application:

For displaying parallelism (offset) and angle errors. Can be used in assembly, maintenance and servicing work on machine tools, in the automotive and ship-building sectors, power stations, electric motor manufacturing etc.

Execution:

- Combined scale and digital display (6 digits)
- 2 measuring probe inputs A and B (functions: ± A ± B)
- Display set using separate zero positions for each measuring channel
- Metric and imperial measuring ranges, directly convertible
- Power supply via 7.3 V mains power supply adaptor
- Degree of protection (DIN EN 60529), IP 54 (front panel)

Advantage:

- Reduces wear on belt and tooth pulleys and on bearings and seals. This prevents any possible vibration

- Alignment can be performed by a single worker
- Aligning belt/tooth pulleys of varying widths
- Can also be used for non-magnetic belt/tooth pulleys (attached using strong double-sided adhesive tape)

scope of supply and services:

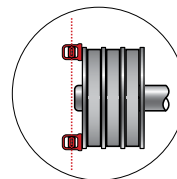
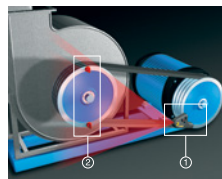
D90 BTA basic unit , 2 magnetic target markers , battery, case

Technical Data:

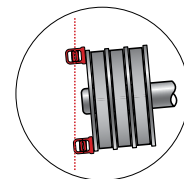
- Max. measurement distance: 5 m
- Washer diameter: 60 mm
- Laser beam angle: 60 Degree
- Laser category: 2
- Material of the housing: ABS



Easy-Laser D90 BTA



Alignment OK



Alignment not OK

48600...	Ident. No.	035
	Unit price, €	O. R.

Prod. group 478

TESA Electronic display units TESATRONIC TT20, TT60 and TT80
Stationary display unit for TESA electronic half-bridge length measuring probe

Application:

Ident. No. 020: For displaying measurements from max. two connected electronic half-bridge length measuring probes. Displays measured values from individual measurements A or B, difference measurements A-B and total measurements A + B.

- Two measuring probe inputs
- Seven measuring ranges (TT 60/TT 80 nine measuring ranges), adjustable
- Analogue output +/- 2 V and +/-10 V (TT60 and TT80)

- Automatic detection of connected half-bridge length measuring probe
- Switch between internal and external measurement
- Enter limit values easily using membrane keypad on display unit
- Relay-controlled output signals via integrated 15-pin connector

Execution:

- Ident. No. 020:**
 - Large, high-contrast LCD display 126 x 62 mm
 - Combined scale and digital display (6 digit)

Advantage:

- Ident. No. 020:**
 - Measured values classified by coloured LED lights

scope of supply and services:

Ident. No. 020: Mains power supply adapter with EU mains cable



Ident. No. 020



Ident. No. 060



Ident. No. 080

Model	Measuring range of electronic length measuring technology	Scale value, electronic display unit	Digit increment, electronic display unit	Measured value memory	Data transmission type	Energy supply	39640... ID no.		
TT 20	+/- 5000 µm +/- 2000 µm +/- 500 µm +/- 200 µm +/- 50 µm +/- 20 µm +/- 5 µm	0.2 µm 1 µm 2 µm 10 µm 20 µm 100 µm 200 µm	0.1 µm	No	RS232	Mains operation	020	O. R.	
TT 60	+/- 5000 µm +/- 2000 µm +/- 500 µm +/- 200 µm +/- 50 µm +/- 20 µm +/- 5 µm	0.2 µm 1 µm 2 µm 10 µm 20 µm 100 µm 200 µm	0.1 µm	Yes	RS232	Mains operation	060	O. R.	
TT 80	+/- 5000 µm +/- 2000 µm +/- 500 µm +/- 200 µm +/- 50 µm +/- 20 µm +/- 5 µm +/- 2 µm +/- 0.5 µm	0.02 µm 0.1 µm 0.2 µm 1 µm 2 µm 10 µm 20 µm 100 µm 200 µm	0.01 µm	Yes	RS232	Mains operation	080	(O. R.)	
								Unit price, €	

Prod. group 362

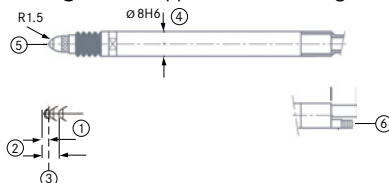
Measuring equipment

i Electronic length measuring probes – basic terms

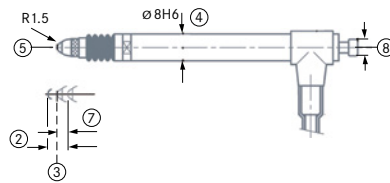
Nitrile gaiter for standard applications

Viton gaiter for applications involving coolants and lubricants

Connection nipple fixed or adaptable for vacuum measuring pin retraction or compressed air measuring pin adjustment



Measuring probe without/with micrometer bolt lift-off using vacuum



Measuring probes with micrometer bolts operated using compressed air

- Front end position of measuring pin
- Max measuring pin travel
- Electr. zero point
- Clamping shank (sensor housing)
- Gauge slide
- Connection for pneum. measuring pin retraction
- Adjust to electr. zero point
- Connection for compressed air measuring pin retraction

TESA Electronic length measuring probe with half bridge
Universal length measuring probe for a variety of standard applications

Application:

For a wide variety of standard applications in multi-point measuring technology. Can also be used as an alternative to dial gauges or precision pointers in manual measuring instruments such as internal precision measuring instruments, precision pointer snap gauges, etc.

Execution:

- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm can be clamped along entire length

- Cemented carbide gauge slide M2.5 with ball diameter 3 mm
- 5-pin plug in line with DIN 45322, cable length 2 m
- Mechanical or vacuum lifting of measuring pins, depending on version

Advantage:

- Insensitive to lateral forces and temperature fluctuations
- Excellent electromagnetic shielding

scope of supply and services:

Measuring probe, test report with declaration of conformity

Technical Data:

- Measuring span of electronic length measuring technology: 4 mm
- Measuring range of electronic length measuring technology: +/- 2 mm
- Measurement force: 0.63 N



Ident. No. 021
GT21



GT22



Ident. No. 027
GT27



GT28



Ident. No. 028
GT271

Ident. No. 028

Model	GT 21	GTL 21	GTL 211	GT 22	GTL 22	GT 27	GT 271	GT 28
Max. spindle travel (mm)	4.3	4.3	4.3	4.3	4.3	10.3	10.3	10.3
Cable output direction	Axial	Axial	Axial	Radial	Radial	Axial	Axial	Radial
Bellow material	Nitrile	Viton	Viton	Nitrile	Viton	Viton	Viton	Viton
Spindle lift	Mechanical	Mechanical	Vacuum	Vacuum	Vacuum	Mechanical	Vacuum	Vacuum
Max. linearity error (L in mm, measured from electric zero point)	0.2 µm + (3 x L ³) µm	0.2 µm + (2.4 x L ³) µm	0.2 µm + (2.4 x L ³) µm	0.2 µm + (3 x L ³) µm	0.2 µm + (2.4 x L ³) µm	0.2 µm + (3 x L ³) µm	0.2 µm + (3 x L ³) µm	0.2 µm + (3 x L ³) µm
Repetition standard deviation acc. to DIN 1319 (µm)	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.05
Front end position of spindle	-2.2 mm	-2.2 mm	-2.2 mm	-2.2 mm	-2.2 mm	-2.2 mm	-5.1 mm	-2.2 mm
39655...	Ident. No. 021 Unit price, € O. R.	321 O. R.	324 (O. R.)	022 O. R.	322 O. R.	027 O. R.	325 O. R.	028 O. R.

Prod. group 362

TESA Electronic length measuring probe with half bridge
Large measuring range 10 mm (± 5 mm)

Application:

Ideal for applications in in multi-point measuring technology that require large measuring ranges.

Execution:

- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm can be clamped along entire length
- Cemented carbide gauge slide M2.5 with ball diameter 3 mm
- 5-pin plug in line with DIN 45322, cable length 2 m
- Mechanical or vacuum lifting of measuring pins, depending on version

- Especially resistant to coolants and lubricants due to Viton bellows

scope of supply and services:

Measuring probe, test report with declaration of conformity

Technical Data:

- Max. spindle travel: 10.3 mm
- Bellow material: Viton
- Measuring span of electronic length measuring technology: 10 mm
- Measuring range of electronic length measuring technology: +/- 5 mm
- Measurement force: 0.9 N
- Max. linearity error (L in mm | measured from electric zero point): 1 µm + (4 x L) µm
- Repetition standard deviation acc. to DIN 1319: 0.05 µm



Ident. No. 061



Ident. No. 062

Model	GT 61	GT 61 S	GT 611	GT 62	GT 62 S
Cable output direction	Axial	Axial	Axial	Radial	Radial
Spindle lift	Mechanical	Mechanical	Vacuum	Vacuum	Vacuum
Front end position of spindle	-5.1 mm	-5.1 mm	-5.1 mm	-5.1 mm	-2.2 mm
Correction factor to GT 21/22	2.5	10	2.5	2.5	10
39655...	Ident. No. 061 Unit price, € O. R.	161 O. R.	326 (O. R.)	062 O. R.	162 O. R.

Prod. group 362

Measuring equipment

TESA Electronic length measuring probe with half bridge
Compressed air measuring pin actuation

Application:

Suitable for applications in multipoint measuring technology. Length measuring probes are pressurized with compressed air and extended forwards to record values.

Execution:

- Straight, rear compressed air connection
- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm, can be clamped along entire length
- Cemented carbide gauge slide M2.5 with ball diameter 3 mm

- 5-pin plug in line with DIN 45322, cable 2 m

Advantage:

- Insensitive to lateral forces and temperature fluctuations
- Excellent electromagnetic shielding
- Version with Viton bellows especially resistant to coolants and lubricants

scope of supply and services:

Measuring probe, test report with conformity declaration



Model	GTL 212	GTL 212A	GTL 222	GTL 222A	GT 272	GT 272A	GT 282	GT 282A
Max. spindle travel (mm)	3.2	3.2	3.2	3.2	10.3	10.3	10.3	10.3
Cable output direction	Axial	Axial	Radial	Radial	Axial	Axial	Radial	Radial
Bellow material	Viton	-	Viton	-	Viton	-	Viton	-
Measuring span of electronic length measuring technology (mm)	3	3	3	3	4	4	4	4
Measuring range of electronic length measuring technology	+/- 1.5 mm	+/- 1.5 mm	+/- 1.5 mm	+/- 1.5 mm	+/- 2 mm	+/- 2 mm	+/- 2 mm	+/- 2 mm
Measurement force (N)	1.2	0.2	1.2	0.2	1	0.85	1	0.85
Max. linearity error (L in mm, measured from electric zero point)	0.2 μm + (2.4 x L ²) μm	0.2 μm + (2.4 x L ²) μm	0.2 μm + (2.4 x L ²) μm	0.2 μm + (2.4 x L ²) μm	0.2 μm + (3 x L ³) μm	0.2 μm + (3 x L ³) μm	0.2 μm + (3 x L ³) μm	0.2 μm + (3 x L ³) μm
Repetition standard deviation acc. to DIN 1319 (μm)	0.015	0.015	0.015	0.015	0.05	0.05	0.05	0.05
Supply up to electronic zero point (mm)	1.6	1.6	1.6	1.6	8.1	8.1	8.1	8.1
39655...	Ident. No. 360 Unit price, € O. R.	Ident. No. 372 (O. R.)	Ident. No. 340 O. R.	Ident. No. 380 O. R.	Ident. No. 365 O. R.	Ident. No. 373 (O. R.)	Ident. No. 345 O. R.	Ident. No. 381 O. R.

Prod. group 362

TESA Electronic length measuring probe with half bridge
Short form

Application:

Suitable for applications in multipoint measuring technology. Particularly useful for multipoint measuring applications with small space requirements.

Execution:

- Short form
- Clamping shaft diameter 8 mm can be clamped along entire length

- Cemented carbide gauge slide M2.5 with ball diameter 3 mm
- 5-pin plug in line with DIN 45322, cable length 2 m

Advantage:

- Insensitive to temperature fluctuations
- Excellent electromagnetic shielding
- Version with Viton bellows, especially resistant to coolants and lubricants

scope of supply and services:

Measuring probe, test report with declaration of conformity

Technical Data:

- Max. linearity error (L in mm | measured from electric zero point): 0.2 μm + (5 x L²) μm



Ident. No. 041, 043



Ident. No. 042



Ident. No. 044

Model	GT 41	GT 42	GT 43	GT 44
Max. spindle travel (mm)	0.7	0.7	2.1	2.1
Cable output direction	Axial	Radial	Axial	Radial
Bellow material	Nitrile	Nitrile	Viton	Viton
Spindle lift	Without	Vacuum	Mechanical	Vacuum
Measuring span of electronic length measuring technology (mm)	0.6	0.6	2	2
Measuring range of electronic length measuring technology	+/- 0.3 mm	+/- 0.3 mm	+/- 1 mm	+/- 1 mm
Measurement force (N)	0.63	0.63	0.4	0.4
Repetition standard deviation acc. to DIN 1319 (μm)	0.01	0.01	0.1	0.1
39657...	Ident. No. 041 Unit price, € O. R.	Ident. No. 042 O. R.	Ident. No. 043 O. R.	Ident. No. 044 O. R.

Prod. group 362

TESA Electronic length measuring probe with half bridge in DC version
DC analogue output

Application:

Suitable for applications in multipoint measuring technology. For direction connection to an SPC measuring computer, interface with an analogue input or to a computer with an analogue card.

Execution:

- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm, can be clamped along entire length
- Cemented carbide gauge slide M2.5 with 3 mm ball diameter
- 5-pin connector in line with DIN 45322, 2.9 m cable
- Supply voltage ± 10 to ± 15 V DC

scope of supply and services:

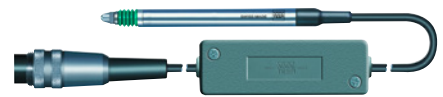
Measuring probe, test report with conformity declaration

Notes:

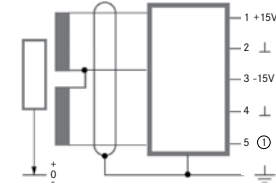
Length measuring probe with ± 2 V/mm, ± 5 V/mm and ± 10 V/mm sensitivity on request

Technical Data:

- Max. spindle travel: 4.3 mm
- Bellows material: Viton
- Measuring span of electronic length measuring technology: 4 mm
- Measuring range of electronic length measuring technology: ± 2 mm
- Measurement force: 0.63 N
- Max. linearity error (L in mm | measured from electric zero point): $0.2 \mu\text{m} + (3.5 \times L^2) \mu\text{m}$
- Repetition standard deviation acc. to DIN 1319: 0.1 μm
- Sensitivity: 1 V/mm
- Output voltage (+/-): 2 V/DC



Ident. No. 421



Model		GTL 21 DC	GTL 22 DC
Cable output direction		Axial	Radial
Spindle lift		Mechanical	Vacuum
39828...	Ident. No.	421	422
	Unit price, €	O. R.	O. R.

Prod. group 362

TESA Electronic length measuring probes
USB interface

Application:

For numerous standard applications in multi-point measuring technology. Can also be used as an alternative to dial gauges or precision pointers in manual measuring instruments such as internal precision measuring instruments, precision pointer snap gauges etc.

Execution:

- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm, can be clamped along entire length
- Cemented carbide gauge slide M2.5 with ball diameter 3 mm
- USB connector with 2.9 m cable
- Includes TSIP interface software (display limited to four USB probes)

Advantage:

- USB interface connection eliminates need for additional interfaces

- Length measuring probe already linearised for high precision across the entire measuring range
- Multiple USB length measuring probes can be connected via USB hub
- Simple RS232 communication protocol for further processing of measured data

scope of supply and services:

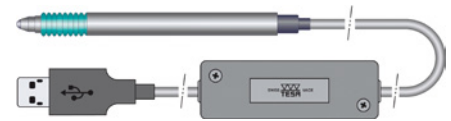
Measuring probe, mini CD with RS232 communication protocol and test report with conformity declaration

Notes:

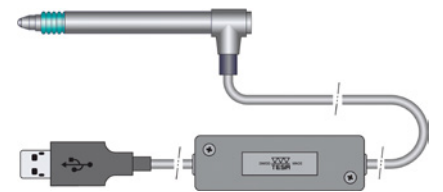
Suitable for some dynamic measuring tasks requiring high measuring rates.

Technical Data:

- Bellows material: Viton



Ident. No. 321
GTL21 USB measuring probe



Ident. No. 322
GTL22 USB measuring probe

Model		GTL 21USB	GTL 22 USB	GT61 USB	GT 62 USB
Max. spindle travel (mm)		4.3	4.3	10.3	10.3
Cable output direction		Axial	Radial	Axial	Radial
Spindle lift		Mechanical	Vacuum	Mechanical	Vacuum
Measuring span of electronic length measuring technology (mm)		4	4	10	10
Measuring range of electronic length measuring technology		± 2 mm	± 2 mm	± 5 mm	± 5 mm
Measurement force (N)		0.63	0.63	0.9	0.9
Max. linearity error (L in mm, measured from electric zero point)		$0.4 \mu\text{m} + (0.6 \times L) \mu\text{m}$	$0.4 \mu\text{m} + (0.6 \times L) \mu\text{m}$	$0.8 \mu\text{m} + (0.6 \times L) \mu\text{m}$	$0.8 \mu\text{m} + (0.6 \times L) \mu\text{m}$
Repetition standard deviation acc. to DIN 1319 (μm)		0.1	0.1	0.24	0.24
Length measurement tolerance MPE (μm)		1.2	1.2	3	3
39662...	Ident. No.	321	322	061	062
	Unit price, €	O. R.	O. R.	O. R.	O. R.

Prod. group 362

Measuring equipment

TESA Electronic length measuring probe with wireless interface
Wireless measured data transmission

Application:

Suitable for applications in multipoint measuring technology. Ideal for use in multipoint measuring devices for which cables would be bothersome. Simplifies maintenance and overcomes mobility barriers. Can also be used as an alternative to dial gauges or precision pointers in manual measuring instruments such as internal precision measuring instruments, precision pointer snap gauges etc.

Execution:

- Rechargeable length measuring probes with wireless interface
- Mini jack plug connector for charger
- Range approx. 8 m depending on environment
- Precise, ball-guided measuring pin
- Clamping shaft diameter 8 mm, can be clamped along entire length
- Cemented carbide gauge slide M2.5 with ball diameter 3 mm

Advantage:

- No bothersome cables required for rapid attachment to multipoint measuring devices
- Time-saving and rapid exchange of defective length measuring probes
- Static and dynamic measuring possible with up to 64 measuring probes
- Length measuring probe already linearised for high precision across the entire measuring range
- Simple RS232 communication protocol for further processing of measured data

scope of supply and services:

Measuring probe, test report with conformity declaration

Technical Data:

- Bellow material: Viton
- Battery voltage: 3.7 V/DC



Ident. No. 021
GTL21W

Model	GTL 21W	GTL 212W	GT61W	GT612W
Spindle lift	Mechanical	Compressed air	Mechanical	Compressed air
Measuring span of electronic length measuring technology (mm)	4	3	10	10
Measuring range of electronic length measuring technology	+/- 2 mm	+/- 1.5 mm	+/- 5 mm	+/- 5 mm
Measurement force (N)	0.63	1.2	0.9	2
Max. spindle travel (mm)	4.3	4.3	10.3	10.3
Max. linearity error (L in mm, measured from electric zero point)	0.4 µm + (0.8 x L) µm	0.4 µm + (0.8 x L) µm	0.8 µm + (0.8 x L) µm	0.8 µm + (0.8 x L) µm
Repetition standard deviation acc. to DIN 1319 (µm)	0.1	0.1	0.24	0.24
39664...	Ident. No. 021 Unit price, € (O. R.)	061 (O. R.)	212 (O. R.)	612 (O. R.)

Prod. group 362

Accessories for				39664 021	39664 061	39664 212	39664 612
39828...	Interface TESA-TWIN For wireless measurement data transmission	TESA Twin interface box	Ident. No. Unit price, €	410 O. R.	410 O. R.	410 O. R.	410 O. R.

TESA Interface TESA-TWIN
For wireless measurement data transmission

Application:

For wireless transmission of measuring data in combination with TESA wireless length measuring probe or TESA manual measuring instruments equipped with TESA-TWIN wireless modules.

Execution:

- Number of measurement instrument inputs: 8
- Can be extended to up to 64 measuring instrument inputs using a USB serial port
- Synchronisation time max. 2 ms

- Max. recording time 20 ms
- TESA-TIS measuring and evaluation software
- Housing dimensions (L x W x H) 172 mm x 155 mm x 55 mm

Advantage:

- Secure data transmission using synchronised, bidirectional communication

scope of supply and services:

TESA interface boxes TESA Twin, TIS software



TESA Twin

39828...	TESA Twin interface box	Ident. No. Unit price, €	410 O. R.
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Prod. group 366

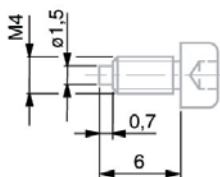
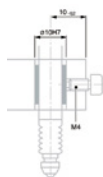
TESA Clamping system TESANORM
for electronic length measuring probe, dial gauges and precision pointer with 8h6 shaft diameter

Application:
For mounting electronic length measuring probes, dial gauges, and precision pointers with a shaft diameter of 8 mm h6 in measuring devices.

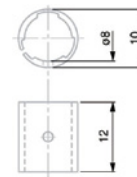
- Execution:**
- Tension using VKD clamping screw and VKE clamping sleeve
 - VKD clamping screw M4 x 6 with offset diameter 1.5 mm and length 0.7 mm
 - VKE clamping sleeve diameter I = 8 mm and A = 10 mm and length 12 mm

- Bore diameter 10H7 for holding the VKE clamping sleeve

- Advantage:**
- Slotted clamping sleeve for uniform surface tension over the sleeve surface
 - No deformation of the micrometer bolt guide



No. 39536



No. 39537

TESA clamping screw type VKD		TESA clamping sleeve type VKE	
39536...		39537...	
ID no.		ID no.	
010	O. R.	010	O. R.
Unit price, €		Unit price, €	

Prod. group 362

Clamp for TRUE-LINE length measuring probe system

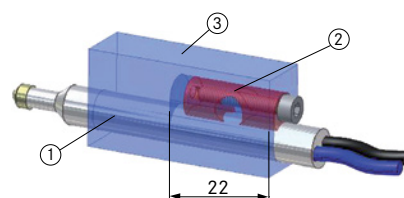
For measuring instruments with shaft diameter 8 h6

Application:
For mounting electronic length measuring probes, dial gauges, and precision pointers with a shaft diameter 8h6 in measuring devices.

- Distance between bores 8.04 ± 0.02 mm (chuck cone to measuring probe)

- Execution:**
- Clamping body with hexagonal socket bolt
 - Chuck cone with 8 mm diameter and 22 mm hole depth
 - Bore diameter 8H7 to hold the chuck cone

- Advantage:**
- Narrow tensioning, for example of multiple length measuring probes - minimum clearance 10 mm
 - Angled probe tips are no longer required
 - No deformation of the micrometer bolt guide



① Measuring probe ② Chuck cone ③ Probe holder
Installation arrangement: Measuring probe and chuck cone in probe holder

39545...	Ident. No.	010
	Unit price, €	O. R.

Prod. group 362

TESA Accessories for measuring pin lift
for electronic length measuring probes with compressed air or vacuum measuring pin lift

scope of supply and services:

Ident. No. 010: Hand vacuum pump, 1 m air hose diameter 4.7 mm

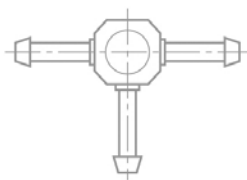
Ident. No. 065: Please note: Price applies to one meter of pneumatic hose. Specify the required length when ordering!

Notes:

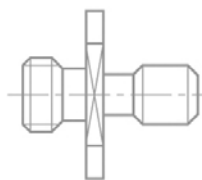
Ident. No. 010: Suitable for GT22, GT28, GT42, GT44, GT62, GTL211, GT271 and GT611



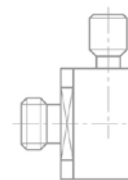
Ident. No. 010



Ident. No. 030



Ident. No. 070



Ident. No. 080

39665...	TESA pneumatic bolt lift-off, manually operated	Ident. No.	010
		Unit price, €	(O. R.)
39665...	TESA T distribution piece for air hose 4.7 x 2 mm	Ident. No.	030
		Unit price, €	O. R.
39665...	Air hose 4.7/2 mm, product by meter	Ident. No.	065
		Unit price, €	O. R.
39665...	TESA hose connecting piece, straight	Ident. No.	070
		Unit price, €	O. R.
39665...	TESA hose connecting piece, angled	Ident. No.	080
		Unit price, €	O. R.

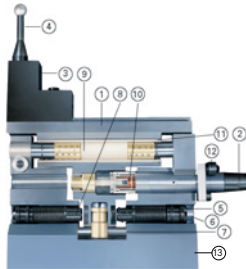
Prod. group 362

Measuring equipment

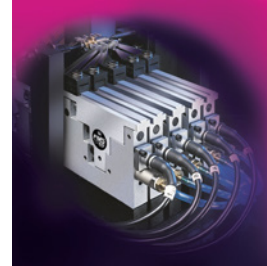


Multi-point measuring technology

Multi-point measurement technology is a quick and effective solution for evaluating samples. In addition to static characteristics such as length, diameter, etc. deviations of form and position also be detected. Suitable CAQ systems enable measured values to be graphically displayed, evaluated and analysed. Control information that is activated by the respective situation can also be stored for reasons of process reliability. This guarantees high production quality. Correct documentation is required in many sectors. It also protects manufacturers against possible compensation claims from customers and clients.



- ① Movable sensor body
- ② Sensor cable with induction coil
- ③ Gauge slide holder
- ④ Interchangeable
- ⑤ Interchangeable measuring force spring
- ⑥ Measuring force spring stop
- ⑦ Anti-twist guide
- ⑧ Adjustable stop
- ⑨ Ball cage
- ⑩ Ferromagnetic core
- ⑪ Guide sleeve for high-precision axial movement
- ⑫ Zero setting, mechanical
- ⑬ Fixed sensor body



Measuring equipment

TESA Electronic length measuring probe FMS Parallel guide

Application:

Suitable for applications in multipoint measuring technology. The compact design permits close alignment of multiple FMS length measuring probes.

Execution:

- Precise, ball-guided measuring movement
- Compact design, designed for continuous use
- Effective direction of measuring force and lifting based on selected accessories

- 5-pin plug in line with DIN 45322, cable length 2 m
- IP54 degree of protection, splash-proof
- Radial cable outlet can be swivelled by 45° in both directions

Advantage:

- Parallel-guided length measuring probe for tight spaces, e.g. inside devices
- Design saves many mechanical structural elements

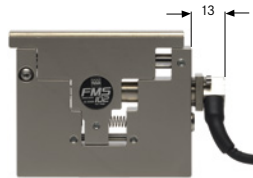
- Extensive range of accessories for a wide range of individual measuring tasks

scope of supply and services:

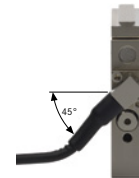
Measuring probe, test report with declaration of conformity



Ident. No. 100, 240
FMS100 and FMS130*



Ident. No. 101, 242
FMS102



Ident. No. 101, 242

Model	FMS100	FMS102	FMS100/IP 54	FMS102/IP 54
IP protection class	IP 50	IP 50	IP 54	IP 54
Cable output direction	Axial	Radial	Axial	Radial
Spindle lift	Compressed air	Compressed air	Compressed air	Compressed air
Measuring span of electronic length measuring technology (mm)	4	4	4	4
Measuring range of electronic length measuring technology	+/- 2 mm	+/- 2 mm	+/- 2 mm	+/- 2 mm
Measurement force (N)	2	2	2	2
Max. scanning path (mm)	5.8	5.8	5.8	5.8
Max. linearity error (L in mm, measured from electric zero point)	0.2 μm + (3 x L³) μm	0.2 μm + (3 x L³) μm	0.2 μm + (3 x L³) μm	0.2 μm + (3 x L³) μm
Repetition standard deviation acc. to DIN 1319 (μm)	0.5	0.5	0.5	0.5
Front end position of spindle	-2.9 mm	-2.9 mm	-2.9 mm	-2.9 mm
39658...	Ident. No. 100	Ident. No. 101	Ident. No. 240	Ident. No. 242
	Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.	Unit price, € O. R.

Prod. group 362

TESA Gauge slide holders for FMS electronic length measuring probes
fixed type

Application:

Ident. No. 030-040: For gauge slides with 4 mm shaft diameter.

Ident. No. 110-120: For gauge slides with a 6 mm shaft diameter

Technical Data:

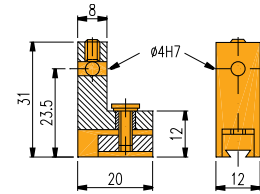
- Version: With clamping shoe
- Max. adjustment travel: 0 mm
- Fine adjustment: No
- Gauge slide holder: Solid

Gauge slide holder type	VBH	VBK	VBJ	VBL
Bore Ø (mm)	4	6	4	6
Position of holes	Horizontally	Horizontally	Vertical	Vertical
Number of drill holes (PCS)	2	2	1	1
39658...	Ident. No. 030	Ident. No. 110	Ident. No. 040	Ident. No. 120
Unit price, €	O. R.	O. R.	O. R.	O. R.

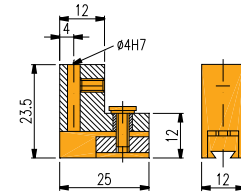
Prod. group 362

Accessories for			39658 030	39658 040
39658...	Clamp holder For gauge slide holder, fixed type	Replacement clamp holder for gauge slide holder	Ident. No. 200 Unit price, € O. R.	200 O. R.
39658...	Clamping screw For gauge slide holder, fixed type	Replacement screw for gauge slide holder	Ident. No. 201 Unit price, € O. R.	201 O. R.

Accessories for			39658 110	39658 120
39658...	Clamp holder For gauge slide holder, fixed type	Ident. No. 200 Unit price, € O. R.	200 O. R.	200 O. R.
39658...	Clamping screw For gauge slide holder, fixed type	Ident. No. 201 Unit price, € O. R.	201 O. R.	201 O. R.



Ident. No. 030
VBH



Ident. No. 040
VBK

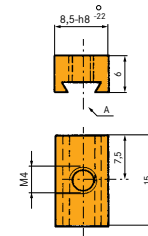
TESA Clamping shoe and clamping screw
spare parts for gauge slide holders VBH, VBK, VBJ and VBL

Technical Data:

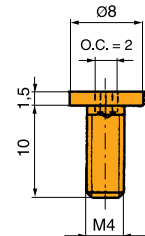
- Suitable for gauge slide holder type: VBH | VBJ | VBK | VBL

39658...	Replacement clamp holder for gauge slide holder	Ident. No. 200 Unit price, € O. R.	200 O. R.
39658...	Replacement screw for gauge slide holder	Ident. No. 201 Unit price, € O. R.	201 O. R.

Prod. group 363



Ident. No. 200



Ident. No. 201

TESA Gauge slide holder for electronic length measuring probe FMS
Movable version

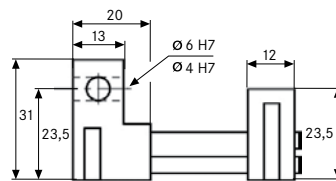
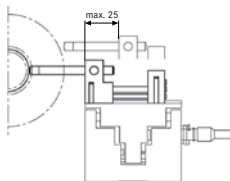
Application:

Suitable for applications that require a movable gauge slide holder.

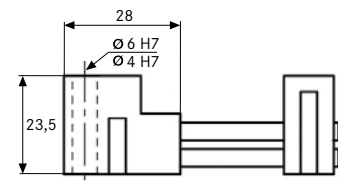
Technical Data:

- Version: With precision adjustment
- Max. adjustment travel: 25 mm

- Fine adjustment: Yes
- Gauge slide holder: Movable



Ident. No. 052-053



Ident. No. 054-055

Gauge slide holder type	VBS	VBR	VBU	VBT
Bore Ø (mm)	4	6	4	6
Position of holes	Horizontally	Horizontally	Vertical	Vertical
Number of drill holes (PCS)	2	2	1	1
39658...	Ident. No. 053	Ident. No. 052	Ident. No. 055	Ident. No. 054
Unit price, €	(O. R.)	(O. R.)	(O. R.)	(O. R.)

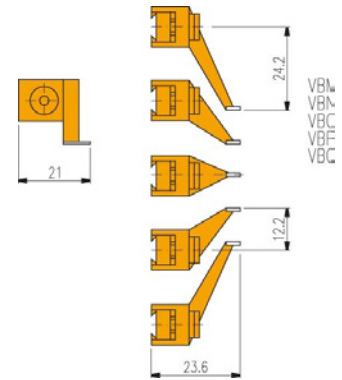
Prod. group 362

TESA Gauge slide for electronic length measuring probes FMS
Straight and offset measuring faces

Technical Data: Probe surface height: 2.2 mm
Probe surface width: 0.7 mm

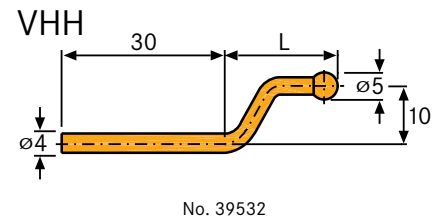
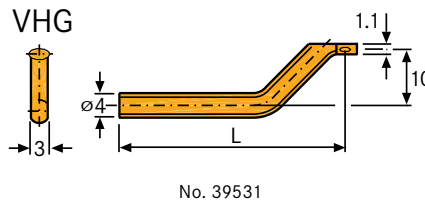
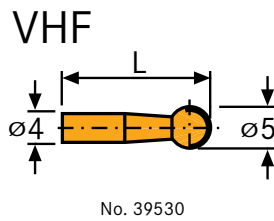
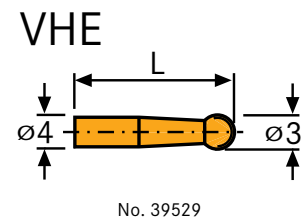
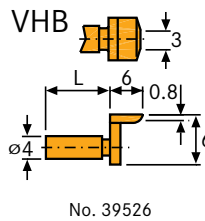
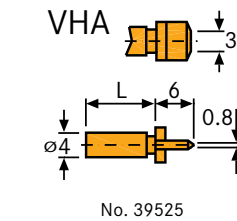
Gauge slide type	VBM	VBN	VBO	VBP	VBQ
Scanning offset to centre axis (mm)	24.2	12.2	0	12.2	24.2
Scanning offset	Right	Right	Straight	Left	Left
39658...	Ident. No. 130 Unit price, € (O. R.)	Ident. No. 131 Unit price, € (O. R.)	Ident. No. 132 Unit price, € (O. R.)	Ident. No. 133 Unit price, € (O. R.)	Ident. No. 134 Unit price, € (O. R.)

Prod. group 362



TESA Gauge slides for FMS electronic length measuring probes
with 4mm shaft diameter

Application: Gauge slides for electronic length measuring probes FMS



	Gauge slide type	Design of gauge slide	Length (mm)	Ident. No.	Unit price, €
39525...	VHA	Central probe surface	25	Ident. No. 025	O. R.
39526...	VHB	Rectangular, offset	12	Ident. No. 012	O. R.
39526...	VHB	Rectangular, offset	25	Ident. No. 025	O. R.
39529...	VHE	With 3-mm ball diameter	20	Ident. No. 020	O. R.
39529...	VHE	With 3-mm ball diameter	40	Ident. No. 040	O. R.
39529...	VHE	With 3-mm ball diameter	60	Ident. No. 060	(O. R.)
39530...	VHF	With 5-mm ball diameter	40	Ident. No. 040	O. R.
39530...	VHF	With 5-mm ball diameter	60	Ident. No. 060	O. R.
39531...	VHG	Cranked, Oval cross-section	40	Ident. No. 040	(O. R.)
39531...	VHG	Cranked, Oval cross-section	60	Ident. No. 060	(O. R.)
39532...	VHH	Cranked, With 5-mm ball diameter	20	Ident. No. 020	O. R.
39532...	VHH	Cranked, With 5-mm ball diameter	35	Ident. No. 035	O. R.
39532...	VHH	Cranked, With 5-mm ball diameter	50	Ident. No. 050	(O. R.)

Prod. group 362

i Electronic length measuring probe FMS – it's all down to correct configuration!

Application example I:

Gauge slide works continuously in the direction of the test specimen via a compression spring

Not possible to retract the gauge slide by applying compressed air!

- 1 Fixed sensor body
- 2 Movable sensor body
- 3 Gauge element with precision adjustment
- 4 Adjustable stop as 39658 187–39658 192, but without spring
- 5 Measuring force spring element 39658 187–39658 192
- 6 Location hole
- 7 Gauge slide holder

a compression spring

Gauge slide retracted by applying compressed air!

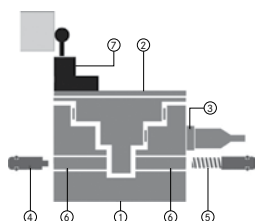
- 5 Measuring force spring element 39658 187–39658 192
- 8 Compressed air cylinder 39658 170
- 9 Compressed air straight connection 39658 160 or angled 39658 165

Application example III:

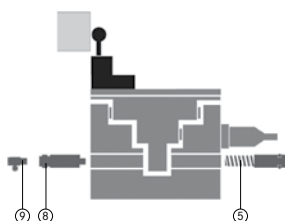
Gauge slide is pressurised and moved towards test specimen by compression spring element

Gauge slide retracted by deactivating compressed air application!

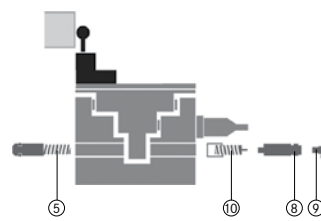
- 5 Measuring force spring element 39658 187–39658 192
- 8 Compressed air cylinder 39658 170
- 9 Compressed air connection straight 39658 160 or angled 39658 165
- 10 Additional spring element 39658 180–39658 186



Example application I



Example application II

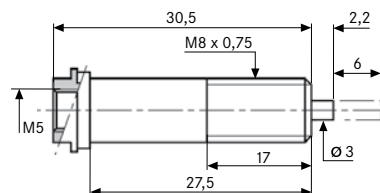


Example application III

TESA Further accessories for length measuring probes FMS
see information block - It's all about the right configuration!

39658...	Compressed air cylinder no. 8	Ident. No.	170
		Unit price, €	O. R.

Prod. group 362

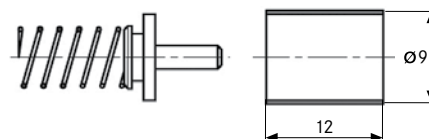


TESA Further accessories for length measuring probes FMS
see information block - It's all about the right configuration!

39658...	Compressed air connection straight no. 9	Ident. No.	160
		Unit price, €	O. R.
39658...	Compressed air connection angled no. 9	Ident. No.	165
		Unit price, €	O. R.

Prod. group 362

TESA Additional spring element with intermediate ring no. 10
For FMS length measuring probe

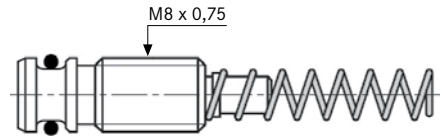


Measurement force (N)		0.4	0.63	1	1.6	2	2.5	4
Colour		Red	Yellow	Green	Blue	Nickel coloured	Brown	Black
39658...	Additional spring element with intermediate ring no. 10	Ident. No.	180	181	182	183	184	185
		Unit price, €	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)	(O. R.)

Prod. group 362

Measuring equipment

TESA Further accessories for length measuring probes FMS
see information block - It's all about the right configuration!



Colour	Red	Yellow	Green	Blue	Brown	Black
Measurement force (N)	0.4	0.63	1	1.6	2.5	4
39658...	187	188	189	190	191	192
Measuring force spring element no. 4+5	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Ident. No.						
Unit price, €						

Prod. group 362

TESA Air hose
For electronic length measuring probes with compressed air or vacuum bolt lift-off

Notes: ordering!

Please note: Price applies to one meter of pneumatic hose. Specify the required length when

39665...	Air hose 4.7/2 mm, product by meter	Ident. No.	065
		Unit price, €	O. R.

Prod. group 362

TESA Electronic lever gauge probes
For GT 31 series

Application:

Adjustable angle lever gauge probes, suitable for measurements in two directions. Ideal for parallel and straightness measurements as well as for measuring tasks on both sides

Execution:

- Lever system mounted on cones and counter-balanced
- Removable gauge slide with cemented carbide probe ball
- Probe can be swivelled by 180°
- Housing with two dovetail strips
- 8 mm clamping shaft diameter
- 5-pin plug in line with DIN 45322, cable length 2 m

Advantage:

- Two slip couplings for collision protection

Measurement force (N)	0.02	0.1	0.2
39659...	002	010	020
Ident. No.			
Unit price, €	O. R.	O. R.	O. R.

Prod. group 362

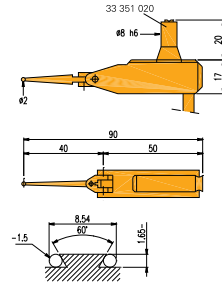
- Automatic probe direction reversal with constant display reading

scope of supply and services:

Measuring probe, declaration of conformity

Technical Data:

- Measuring span of electronic length measuring technology: 0.6 mm
- Measuring range of electronic length measuring technology: +/- 0.3 mm
- Max. scanning path: 0.7 mm
- Sensor arm length: 40 mm
- Ball diameter: 2 mm
- Max. linearity error (L in mm | measured from electric zero point): 0.2 µm + (50 x L²) µm
- Repetition standard deviation acc. to DIN 1319: 0.1 µm



TESA Extension cable for electronic length measuring probes and lever gauge probes
For 5-pin plug in line with DIN 45322

Application:

For extending the distance between probe and

display unit.

Cable length (m)	1	2	3	5	7	10
39675...	001	002	003	005	007	010
Ident. No.	(O. R.)	O. R.	O. R.	O. R.	(O. R.)	O. R.
Unit price, €						

Prod. group 362



TESA USB interface for electronic length measuring and lever gauge probes
with 5-pin connector in accordance with DIN 45322

Application:
To connect an electronic length measuring device or lever gauge probe with 5-pin plug in line with DIN 45322, for example, to a computer with USB interface.

Execution:

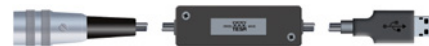
- **Ident. No. 400:** For length measuring probe versions GT2x, GT3x, GT4x and FMS100/102
- **Ident. No. 410:** For length measuring probe version GT6x with measuring range +/- 5 mm

Notes:
Ident. No. 400: Excludes length measuring probes in DC version

Ident. No. 410: Excludes length measuring probes GT61S and GT62S, and length measuring probes in DC version

Technical Data:

- Measuring input signal: Analogue (half bridge)
- Measuring output signal: Digital
- Limit value of deviation range: 0.3% ± 0.1 µm



39665...	Ident. No.	400
	Unit price, €	(O. R.)
		410
		(O. R.)

Prod. group 362

TESA Interface BPX44
For wired measurement data transmission

Application:
For transmission of measurement data in combination with TESA 5-pin plug in line with DIN 45322.

Execution:

- Number of measurement instrument inputs: 4
- Can be extended to up to 64 measuring instrument inputs using a USB serial port
- Measuring ranges +/-: 200 µm, 500 µm, 2000 µm and 5000 µm
- Synchronisation time max. 1 ms

- Max. recording time 10 ms
- Housing dimensions (L x W x H) 172 mm x 155 mm x 55 mm

Advantage:

- Can be integrated in existing CAQ systems
- Compatible with interface TESA TWIN

scope of supply and services:

TESA interface boxes TESA BPX44, TIS software



BPX44

39828...	TESA interface box TESA BPX44	Ident. No.	400
		Unit price, €	(O. R.)

Prod. group 366

TESA Interface TESA-TWIN
For wireless measurement data transmission

Application:
For wireless transmission of measuring data in combination with TESA wireless length measuring probe or TESA manual measuring instruments equipped with TESA-TWIN wireless modules.

Execution:

- Number of measurement instrument inputs: 8
- Can be extended to up to 64 measuring instrument inputs using a USB serial port
- Synchronisation time max. 2 ms

- Max. recording time 20 ms
- TESA-TIS measuring and evaluation software
- Housing dimensions (L x W x H) 172 mm x 155 mm x 55 mm

Advantage:

- Secure data transmission using synchronised, bidirectional communication

scope of supply and services:

TESA interface boxes TESA Twin, TIS software



TESA Twin

39828...	TESA Twin interface box	Ident. No.	410
		Unit price, €	O. R.

Prod. group 366

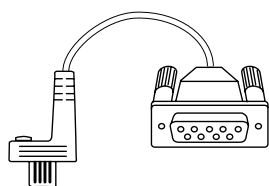
ATORN® Connection cable
For measuring instruments with multiCOM interface

Application:
For wired data transfer from measuring instruments with multiCOM interfaces to e.g. PCs or interfaces

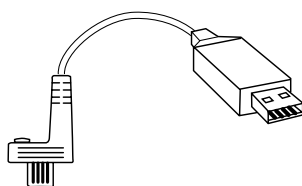
with USB, RS232 or Digimatic interfaces

Technical Data:

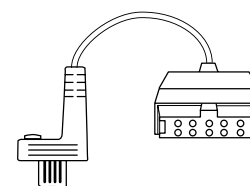
- Data communication: Unidirectional
- Cable length: 2 m
- Data button on cable: Yes



Ident. No. 010



Ident. No. 020



Ident. No. 030

39855...	multiCOM data cable with RS232 interface	Ident. No.	010
		Unit price, €	O. R.
39855...	multiCOM data cable with USB interface	Ident. No.	020
		Unit price, €	O. R.
39855...	multiCOM data cable with DIGIMATIC interface	Ident. No.	030
		Unit price, €	O. R.

Prod. group 303



MarConnect i-Stick wireless receiver
 Compatible with MarConnect wireless transmitter

Application:
 For wireless transfer of measurement data in connection with MarConnect measuring instruments.

- Execution:**
- Bidirectional communication
 - Range max. 6 m

Advantage:

- Each i-Stick can connect up to eight measuring instruments to MarConnect

- Secure data transfer via reverse channel

scope of supply and services:
 MarCom Standard software, driver CD

Notes:
 Compatible with digital vernier callipers MarCal 16 EWri, digital depth callipers 30 EWri, digital dial gauges MarCator 1086 Ri, 1087 Ri and 1087 BRi



31181...	Ident. No.	300
	Unit price, €	O. R.

Prod. group 305

 **TESA Connection cable**
 For measuring instruments with TESA TLC interfaces

Application:
 For wired data transfer from measuring instruments with TLC interfaces to e.g. PCs or interfaces with USB or Digimatic interfaces

- Technical Data:**
- Data communication: Unidirectional
 - Cable length: 2 m



Ident. No. 210



Ident. No. 220

39852...	TESA TWIN data cable with USB interface	Ident. No.	210
		Unit price, €	O. R.
39852...	TESA TWIN data cable with DIGIMATIC interface	Ident. No.	220
		Unit price, €	O. R.

Prod. group 366

 **TESA TLC wireless transmitter**
 Compatible with TESA-TWIN wireless receiver

Application:
 For wireless transfer of measurement data in connection with a TESA-TWIN interface.

- Execution:**
- Bidirectional communication
 - Range max. 12 m
 - Degree of protection IP67

- Advantage:**
- Small, compact design can be integrated in battery compartment
 - Secure data transfer via reverse channel

Notes:
 Compatible interface TESA-TWIN (receiver), see 39828410



39852...	Ident. No.	230
	Unit price, €	O. R.

Prod. group 366

 **TESA Connection cable**
 For measuring instruments with opto RS232 interface

Application: with USB or RS232 interfaces
 For wired data transfer from measuring instruments with opto RS interfaces to e.g. PCs or interfaces

Data communication			Unidirectional	Bidirectional
39852...	Opto RS data cable with RS232 uni interface	Ident. No. Unit price, €	090 O. R.	-
39852...	Opto RS data cable with RS232 bi interface	Ident. No. Unit price, €	-	091 O. R.
39852...	Opto RS data cable with USB interface	Ident. No. Unit price, €	-	101 O. R.

Prod. group 362



TESA Connection cable
 For measuring instruments with PowerRS interface

Application:
 For wired data transfer from measuring instruments with PowerRS interfaces to e.g. PCs or interfaces with RS232 interfaces

Technical Data:
 ■ Data communication: Bidirectional
 ■ Cable length: 2 m

Notes:
 Power supply via the RS232 interface

39852...	Power RS data cable with RS232 interface	Ident. No. Unit price, €	200 O. R.
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Prod. group 362



sylvac Connection cable
 For measuring instruments with proximity interfaces

Application:
 For wired data transfer from measuring instruments with proximity interfaces to e.g. PCs or interfaces with USB or RS232 interfaces

Technical Data:
 ■ Data communication: Bidirectional
 ■ Cable length: 3 m

39852...	Proximity data cable with USB interface	Ident. No. Unit price, €	105 (O. R.)
39852...	Proximity data cable with RS232 interface	Ident. No. Unit price, €	190 (O. R.)

Prod. group 362



TESA Connection cable
 for measuring instruments with RS232 interface

Application:
No. 35176: For wired data transfer from measuring instruments with RS232 interfaces to e.g. PCs or interfaces with RS232 interfaces

No. 39852: For wired data transfer from measuring instruments with RS232 interfaces to e.g. PCs or hubs with USB interfaces

Notes:
No. 35176: Serial data cable, straight through
No. 39852: Driver is provided on the supplied demo CD

Technical Data:
 ■ Cable length: 2 m

Data communication			Unidirectional	Bidirectional
39852...	RS232 data cable with USB interface	Ident. No. Unit price, €	102 O. R.	-
35176...	RS232 data cable with RS232 interface	Ident. No. Unit price, €	-	150 (O. R.)

Prod. group 362



No. 35176



No. 39852

TESA Connection cable
 For measuring instruments with 8-pin mini-DIN interfaces

Application:
 For wired data transfer from measuring instruments with 8-pin Mini-DIN interfaces to e.g. PCs or interfaces with RS232 interfaces

and 900 manual in versions 10, 11 and 12.

Technical Data:
 ■ Data communication: Bidirectional
 ■ Cable length: 2 m

Notes:
 Compatible with TESATRONIC TT10 display unit and height measuring devices TESA Micro-Hite 350, 600

39828...	Mini-DIN data cable with RS232 interface	Ident. No. Unit price, €	170 O. R.
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Prod. group 362



Measuring equipment

TESA Connection cable
 For measuring instruments with 25-pin Sub-D interfaces

Application:

For wired data transfer from measuring instruments with 8-pin Mini-DIN interfaces to e.g. PCs or interfaces with 25-pin Sub-D interfaces

Technical Data:

- Data communication: Bidirectional
- Cable length: 2 m

Notes:

Compatible with electronic dial gauges TESA DIGICO 1 and 2, see product number 33175 010 and 020

39828...	TESA special data cable with RS232 interface	Ident. No. Unit price, €	870 (O. R.)
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Prod. group 362



Measuring equipment

Mahr MarCom Professional software
 Enables measured data to be recorded in MS Excel from measuring instruments connected with USB data cables

Application:

For transmitting measurement data from measuring instruments with multiCom or MarConnect data output and for measuring instruments with USB data cables. Imported measuring data can be freely assigned to cells of an Excel file according to your requirements.

- Multiple foot-operated switches can be connected via USB. Assignment to measuring instruments can be freely defined depending on the measuring task. Configurable measuring cycles (e.g. transmission of all measured values or after operating the foot-operated switch)
- Cyclic measured value request via timer
- Transmission of measured values in separate columns, lines or tables according to the measuring instrument



Execution:

- Over 100 measuring instruments with multiCOM interface and USB connection cable can be connected
- Additional connection of 2 measuring instruments with RS232C connection cable
- Measurement triggered via data button on measuring instrument or connection cable, using the PC keyboard or via one/multiple foot-operated switch(es)

scope of supply and services:

CD with detailed operating instructions in PDF file

Notes:

System requirements: Operating system Windows 7, Windows 8, USB interface version 1.1 or higher, min. 10 MB free hard drive space, MS Excel version 97 or higher

39855...	MarCom Professional software	Ident. No. Unit price, €	600 O. R.
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Prod. group 305

BOBE USB keyboard interfaces Opto-USB-0 and RS232-USB-1
 for transmission of measurement data by means of keyboard interface

Application:

For transferring measured values via keyboard interface, e.g. to Microsoft® Office applications such as EXCEL, WORD etc. For measuring instruments with serial interfaces connected to USB ports via keyboard interfaces.

Advantage:

- Cost-effective solution for transferring measured data
- No driver file needed for the USB interface

scope of supply and services:

Ident. No. 210: USB interface with operating instructions

Ident. No. 220: USB interface, USB cable to PC, adapter for foot-operated switch, operating instructions

Notes:

Ident. No. 220: Bidirectional data cable required

Technical Data:

- Data transmission type: USB



Interface Opto-USB-0 with TESA CAL IP67 vernier calipers and MS Excel application



Interface RS232-USB-1

Interface input	-	1 x RS232
Suitable for	Measuring instruments with Opto-RS232 interface. No additional data cable is required.	One measuring instrument with serial interface. Bidirectional data cable is also required.
39870...	Interface opto USB 0	Ident. No. Unit price, €
39870...	Interface RS232 USB 1	Ident. No. Unit price, €
		210 O. R.
		220 O. R.

Prod. group 395

Accessories for		39870 220	
39870...	Foot-operated switch with connection cable for BOBE keyboard interface	Foot-operated switch and cable (2 m)	Ident. No. Unit price, €
			050 O. R.

BOBE Keyboard interfaces

For transferring measured values via keyboard interface

Application:

For transferring measured values via keyboard interface, e.g. to Microsoft® Office applications such as EXCEL, WORD etc. For measuring instruments with serial interfaces connected to USB ports via keyboard interfaces.

Execution:

- Power supply via USB interface
- USB interface is detected as a keyboard
- Closing characters such as Enter or Tab can be set on the USB interface. These are automatically sent together with the data.
- Language, separator settings etc.
- Data transfer via data button on the measuring instrument or using a timer
- Timer function can be set from 0-99 seconds for the transmission of measured values within a specified time interval

- Cascadable, allowing the measuring station to be extended at any time with additional T-boxes from the 30X USB series
- Measurements triggered via optionally available foot-operated switch

Advantage:

- Cost-effective solution for transferring measured data
- No driver file needed for the USB interface

scope of supply and services:

T-Box 305 USB: includes connection cable, operating instructions

Technical Data:

- Interface input: 2 x RS232 | 3 x DIGIMATIC
- Data transmission type: USB
- Suitable for: Multiple measuring instruments with serial or DIGIMATIC interface. Bidirectional data cables are also required.



T-Box 305-USB with examples of measuring devices that can be connected (max. 2x RS232)

39870...	Interface T-Box 305 USB	Ident. No. Unit price, €	305 O. R.
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Prod. group 395

Accessories for				39870 305
39870...	Foot-operated switch with connection cable For BOBE keyboard interface	Foot-operated switch and cable (2 m)	Ident. No. Unit price, €	050 O. R.

Measuring equipment

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