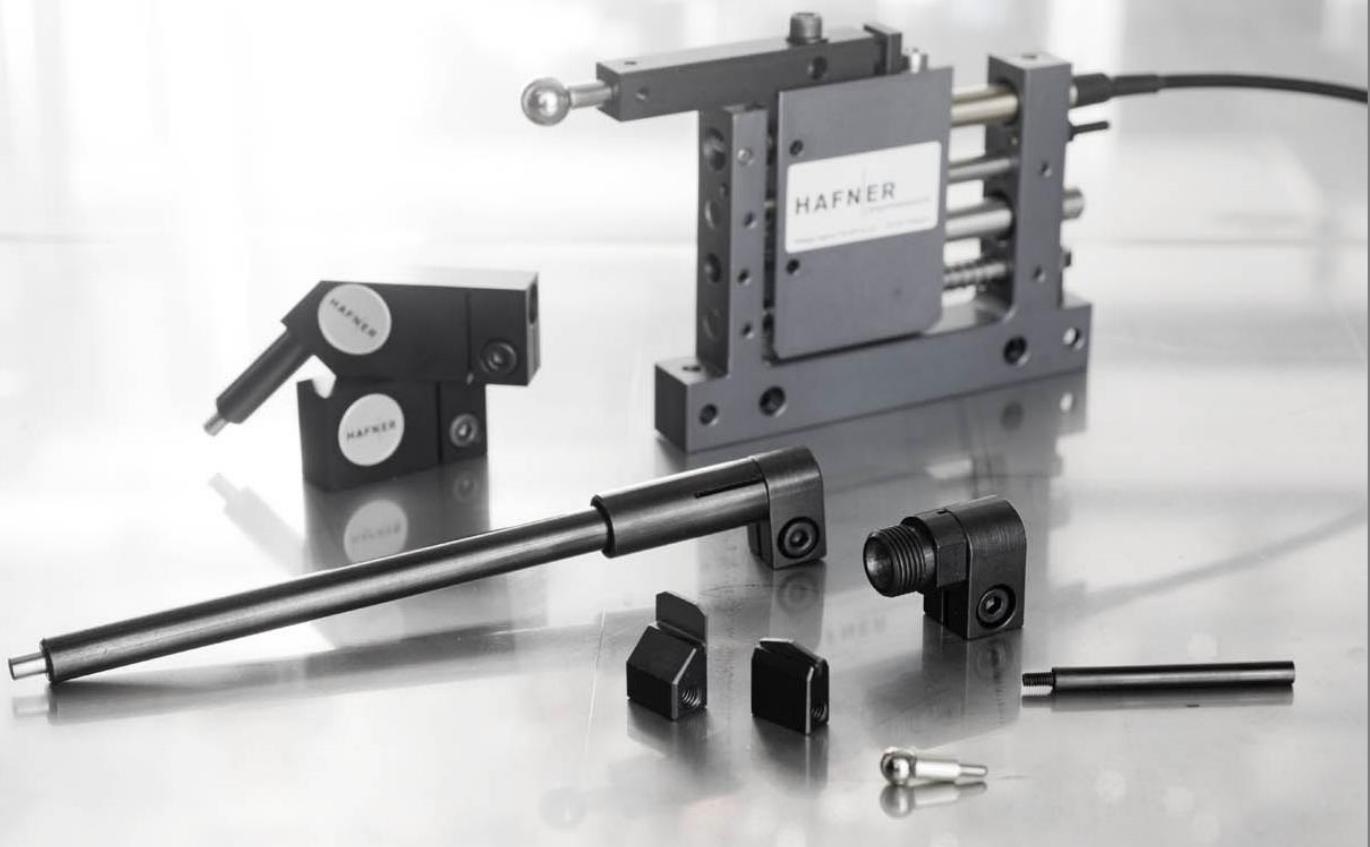


HAFNER

Standardised gauge parts



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HAFNER Profile

Our Company

The best production measuring technology for more than 90 years

We are a family-run independent company. The secure future of our company, which is based on success and growth, is the foundation of our long-term relationships with our clients. We owe our good market position to the effort and commitment of our employees.

We have worked in the field of production measuring technology since 1928. Our wealth of experience in the design and manufacture of highly precise components and equipment forms the basis for the production of highly accurate and sturdy measuring machines today. Also, we profit from the fact that we have retained our production system that is founded on craftsmanship. Short decision paths and close proximity to the production combined with a flat hierarchy allows us to react quickly and flexibly to solve complex tasks.



Standardised gauge parts

We provide:

- Measuring slides
- Angular heads and extension insertions with movement 4 mm and 10 mm
- Holders for dial indicator, gauge slides and clamping elements

as well as – after previous discussion and consultation
– according to your needs manufactured

- pneumatic measuring heads and pneumatic snap gauges
 - gauges and setting masters
- as well as
- complete measuring devices



Gauge slides, Clamping elements



Angular heads/extensions



Measuring slides with measuring levers



Extension insertions

Our standardised gauge parts:
High precision standard components for gauges, measuring devices and
measuring machines

Measuring slides series 1528, Movement 20 mm

Various variants allow either outer or inner measurements, probing with spring load or pneumatic. The standard spring load is 1 N. It can be increased or reduced correspondingly by fitting different springs. Please advise the required spring load on your order.

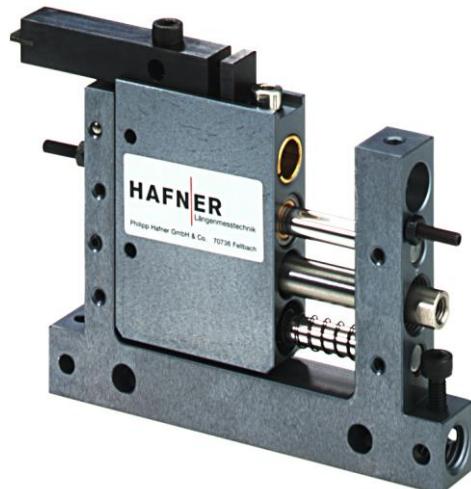
By measuring with cylinder load, the measuring load is 7 N with 4 bar. The total movement is 20 mm (measuring range depending on probe!). Adapter nipple and pneumatic hose are contained in the delivery scope. The clamp shank diameter for probes is Ø 8H7, the fitting position is optional. Adjustable headless screws limit the movement.

The free from float run is guaranteed by two precision ball guidances. According to geometry of probing, the repeatability is between 0,1 and 0,4 µm.

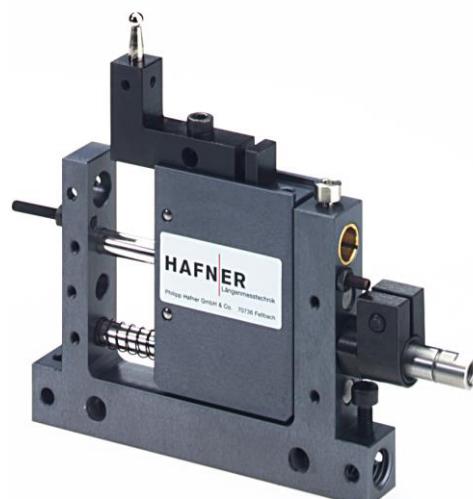
We also provide accompanying measuring levers (see page 15) and inductive probes (see page 35).

Product features

- Large index arm overhang through stable ball guidance possible
- Large lifting of index arm (up to 20 mm) without exceeding the inductive probe
- Fitting position is optional. Adjustable limit stops limit the movement
- Measuring load alternatively with cylinder load (4bar = 7N) or spring load (standard 1N)
- Clamp shank diameter for the probe is Ø 8H7
- Protection of the inductive probes
- Measuring slides may be fixed as ordinary by means of a fitted bore hole or screws
- Various mounting variants for inaccessible positions
- Feeding also with different measuring direction at the same side
- Base produced out of aluminum
- High endurance

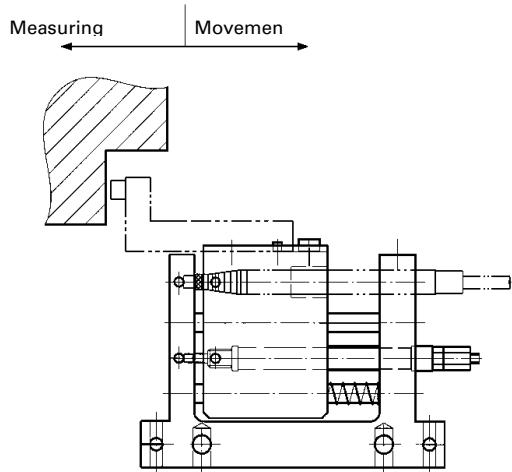


Measuring slide



Examples for field of application

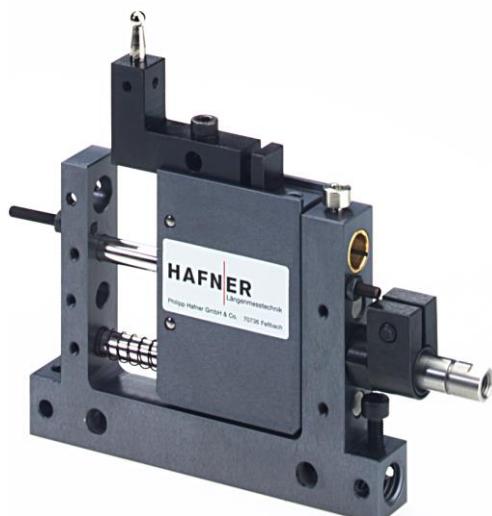
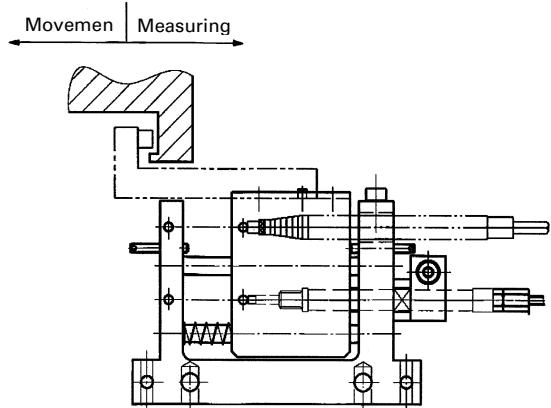
Measuring slides for outer measurement



Measuring slides for outer measurement (overview)

Type	Mode of action	Article-No.
AF 20 P	Measurement with spring load / lifting pneum.	152831.1
AP 20 F	Measurement with cylinder load / lifting by spring	152833.1
AF 20	Measurement with spring load / without lifting	152835.1

Measuring slides for inner measurement



Measuring slides for inner measurement (overview)

Type	Mode of action	Article-No.
IF 20 P	Measurement with spring load / lifting pneum.	152832.1
IP 20 F	Measurement with cylinder load / lifting by spring	152834.1
IF 20	Measurement with spring load / without lifting	152836.1

Examples for field of application (continuation)

Functioning

The probe (e.g. inductive probe) will be fixed by means of a clamp either in the movable middle part (for outer measurements) or on the frame of the u-shape outer part of the measuring slide (for inner measurements). The part to be measured will be touched by means of a measuring lever, which is fixed on the measuring slide. The probe (probe or dial gauge) is put either at the lateral pin on the frame of the u-shape outer part (for outer measurements) or at the lateral pin in the movable middle part of the measuring slide (for inner measurements).

Additional information

Principle according to Abbe

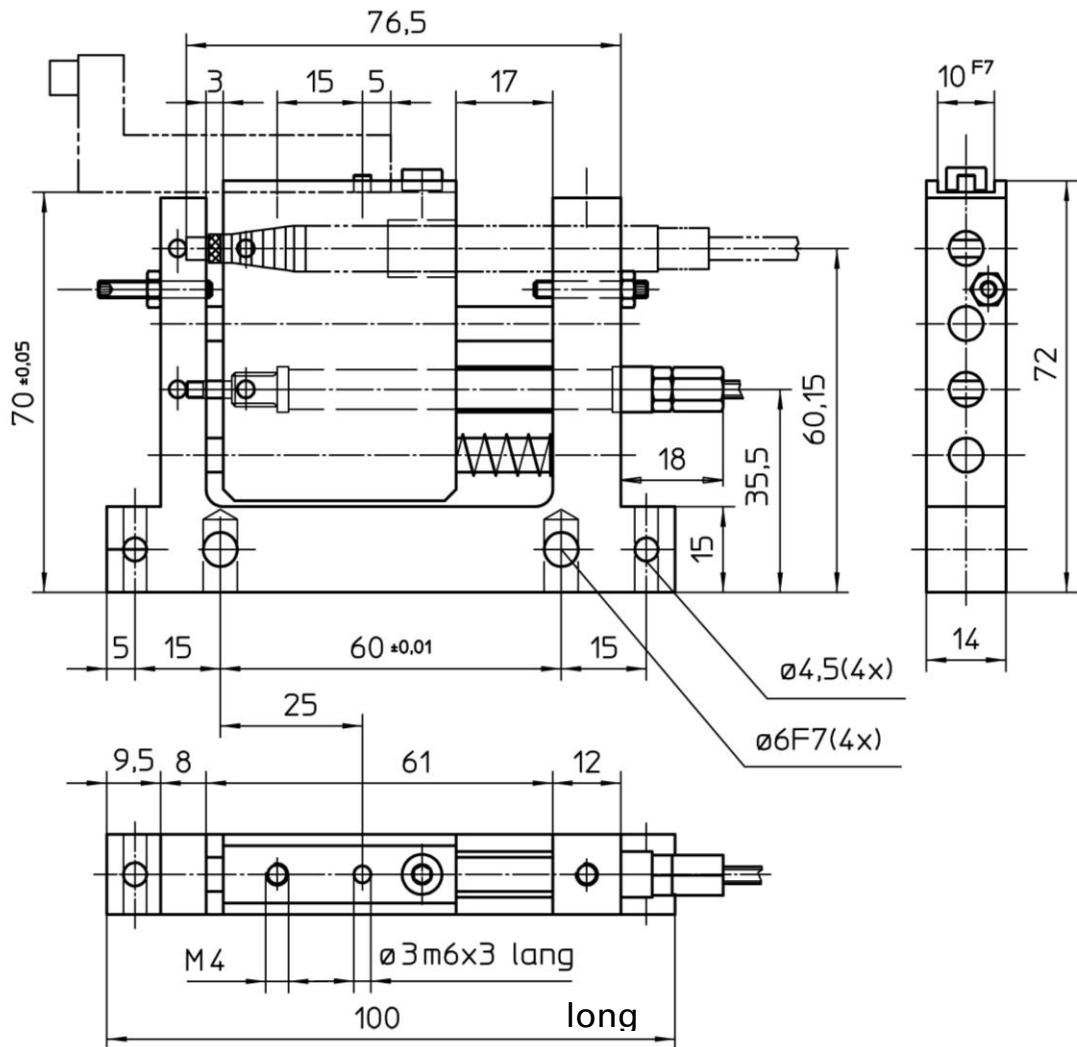
The distance to be measured at the part to be measured and the distance to be compared with at the measuring body in the measuring direction should be arranged in true alignment.

Measuring slides mov. 20 mm AF 20 P for outer measurements

Article-No. 152831.1

Product features

- Measurement with spring load ($F = 1 \text{ N}$)
- Lifting by means of a pneumatic cylinder (4 bar = 7 N) with horizontal mounting
- Supplies for pneumatic connection: 2 screwed connections M5, 1m flexo hose
- Probe will be free when lifting



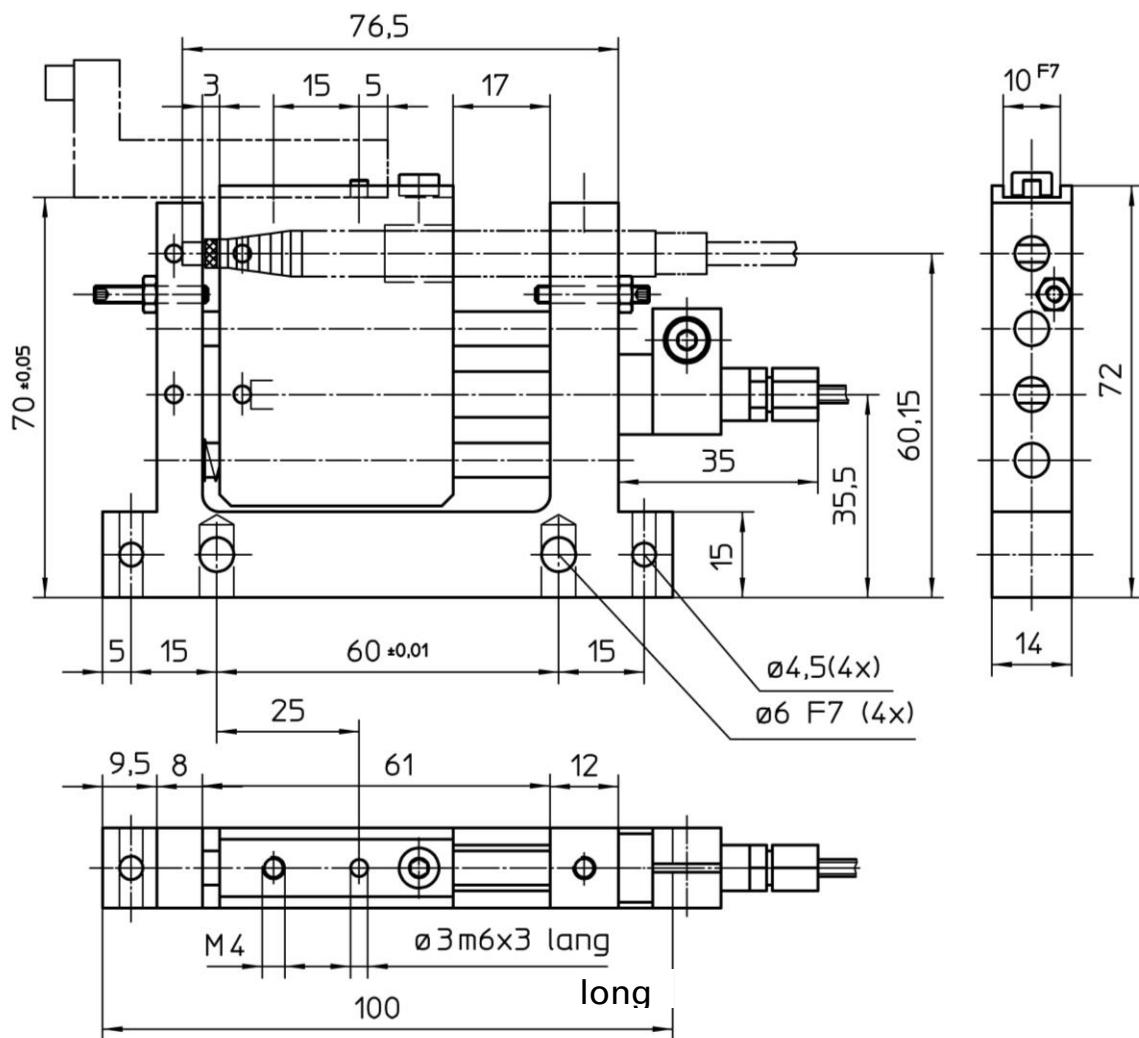
Measuring slides are represented in measuring position.

Measuring slides mov. 20 mm AP 20 F for outer measurements

Article-No. 152833.1

Product features

- Lifting with spring load ($F = 1 \text{ N}$)
- Measurement with pneumatic (4 bar = 7 N) with horizontal mounting
- Supplies for pneumatic connection: 2 screwed connections M5, 1m flexo hose
- Probe will be free when lifting



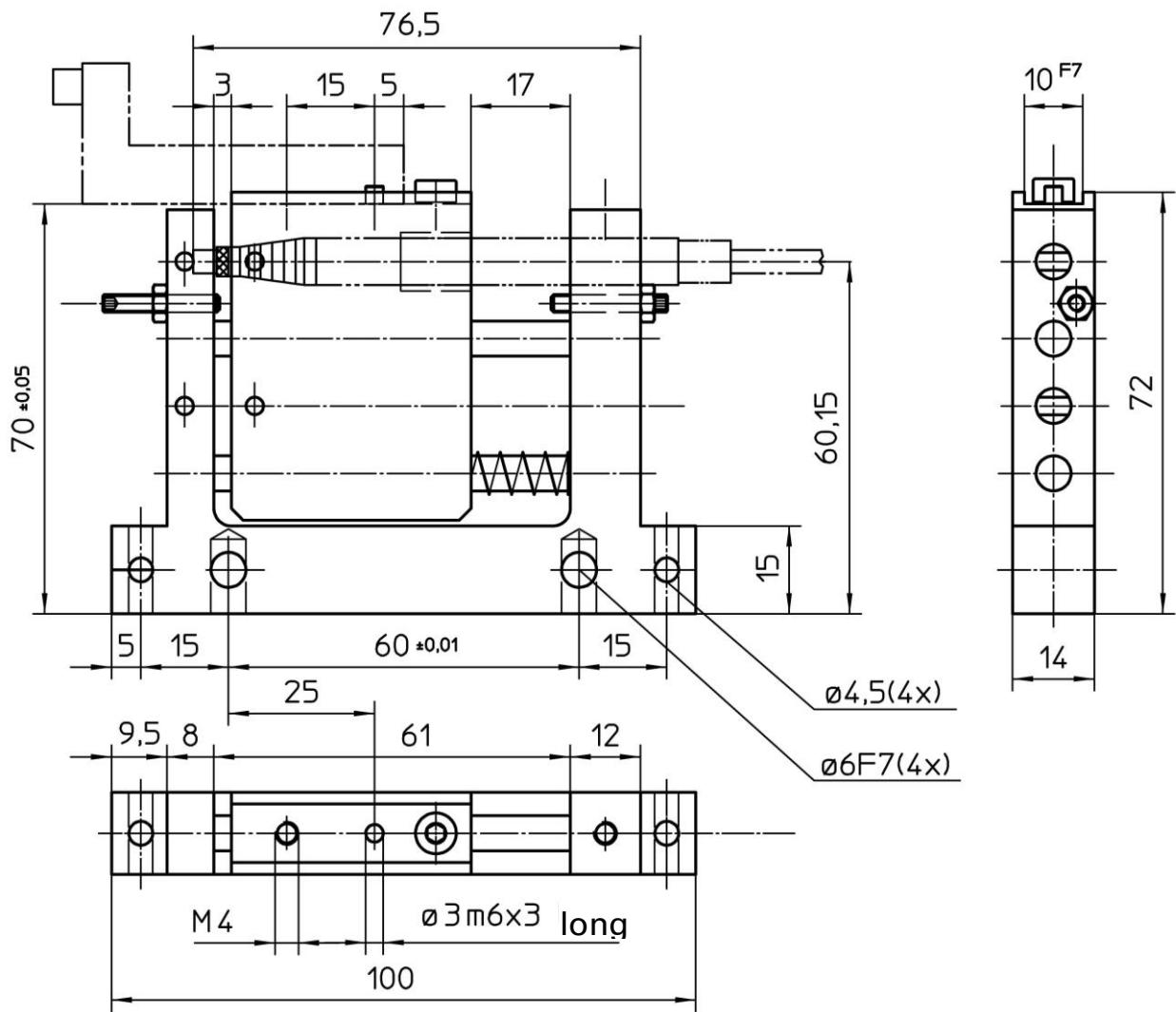
Measuring slides are represented in measuring position.

Measuring slides mov. 20 mm AF 20 for outer measurements

Artikel-Nr. 152835.1

Product features

- Measurement only with spring load ($F = 1 \text{ N}$)
- No return movement (without pneumatic cylinder)
- Part to be measured is put against measuring



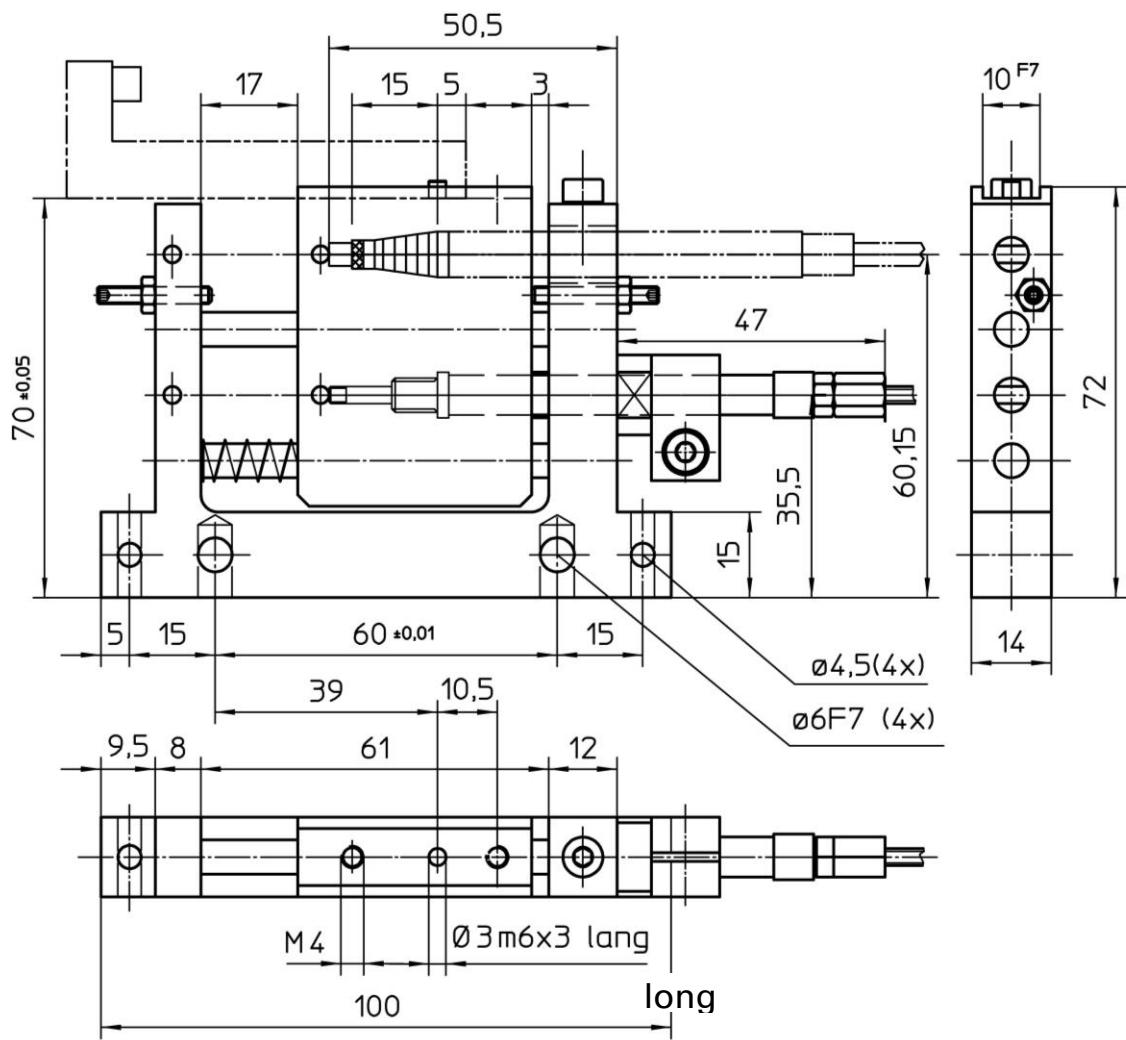
Measuring slides are represented in measuring position.

Measuring slides mov. 20 mm IF 20 P for inner measurements

Article-Nr. 152832.1

Product features

- Measurement with spring load ($F = 1 \text{ N}$)
- Lifting by means of a pneumatic cylinder (4 bar = 7 N) with horizontal mounting
- Supplies for pneumatic connection: 2 screwed connections M5, 1m flexo hose
- Probe will be free when lifting



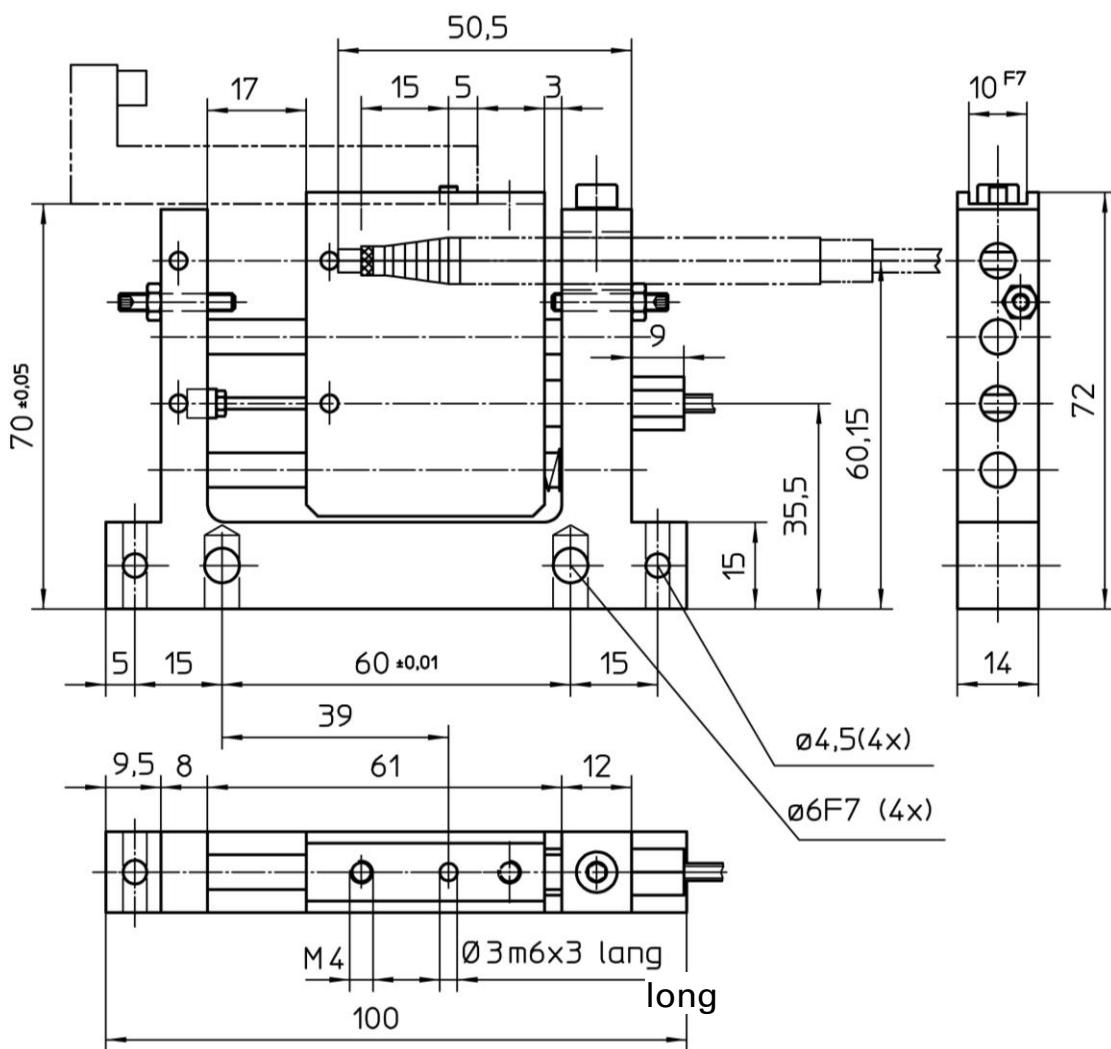
Measuring slides are represented in measuring position.

Measuring slides mov. 20 mm IP 20 F for inner measurements

Article-Nr. 152834.1

Product features

- Lifting with spring load ($F = 1 \text{ N}$)
- Measurement with pneumatic (4 bar = 7 N) with horizontal mounting
- Supplies for pneumatic connection: 2 screwed connections M5, 1m flexo hose
- Probe will be free when lifting



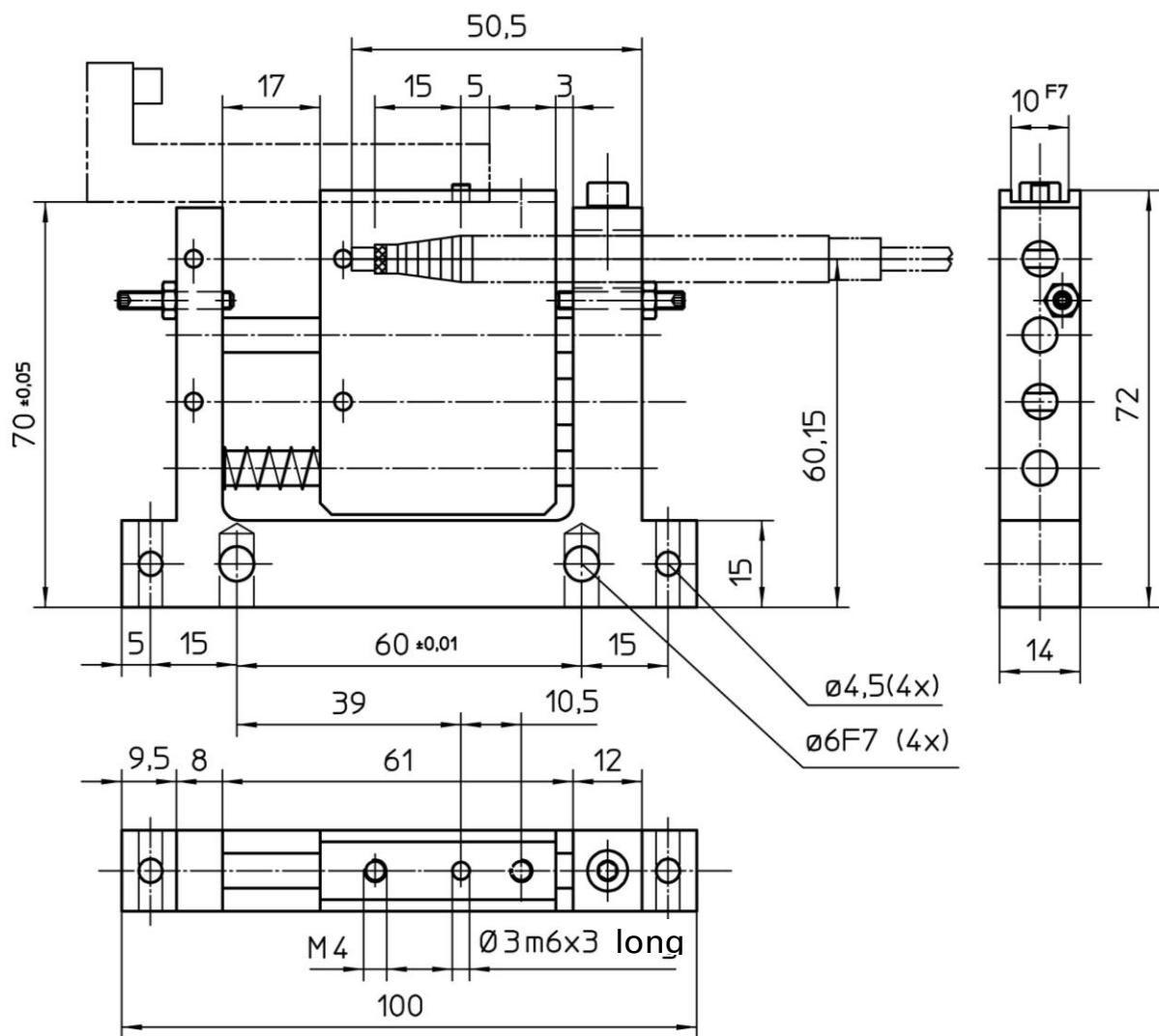
Measuring slides are represented in measuring position.

Measuring slides mov. 20 mm IF 20 for inner measurements

Article-Nr. 152836.1

Product features

- Measurement only with spring load ($F = 1 \text{ N}$)
- No return movement (without pneumatic cylinder)
- Part to be measured is put against measuring slide

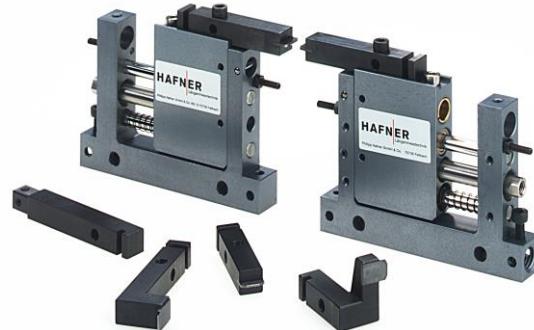


Measuring slides are represented in measuring position.

Measuring lever with M2,5-thread or cutter

Product features

- Matching Hafner measuring slides series 1528
- With hard metal cutter or M2,5-thread for standard inserts
- Due to resistant to bending design also tangent bending possible
- Due to symmetrical mounting of the fixing at the measuring slides, tangent bending can be mounted in 4 directions



Measuring slides with measuring levers

Field of application

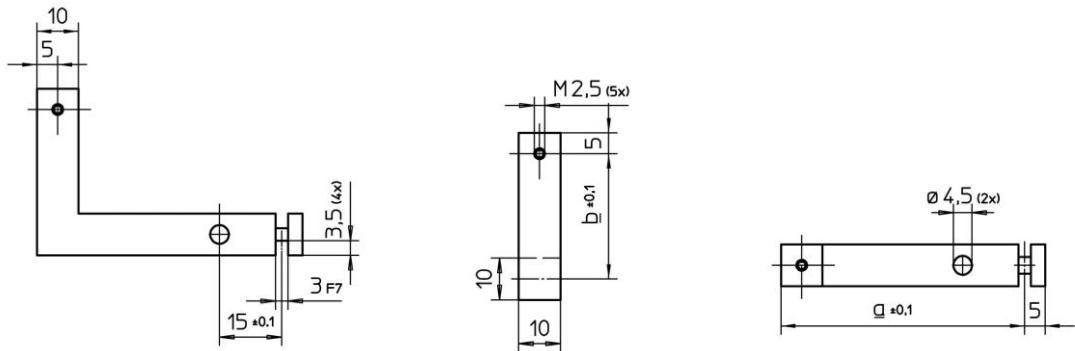
The measuring levers match Hafner measuring slide series 1528 regarding the fixing measures. They are positioned by means of a guidance fit and a fitting pin. The fixing is done by means of a M4 screw. The length graduation is 10 mm. The movement of the measuring slide is about 20 mm. This means that every measure in between may be set up. The measuring levers are available either straight or 15 or 30 mm bent. This allows a minimum distance of about 1,5 mm between two measuring levels. Workpiece depending special probes may be produced short-term to favourable conditions.



Measuring levers

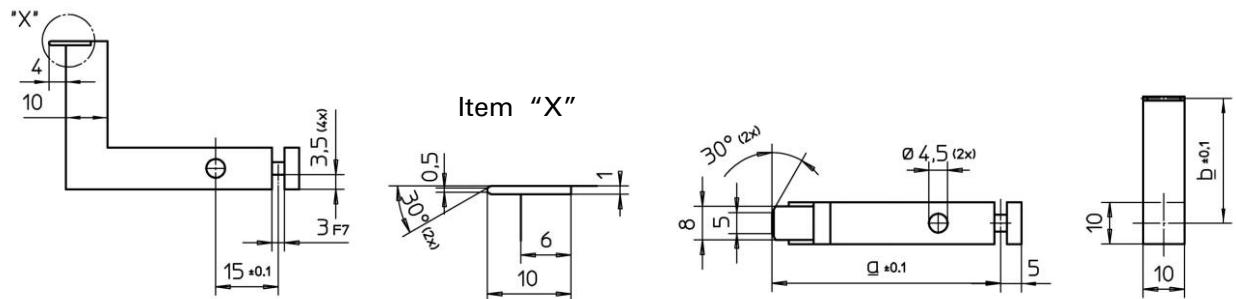
Measuring levers for measuring slides

Measuring levers for threaded inserts



	Length (a)			
mm	39	49	59	69
Height (b)	162 001.2	162 002.2	162 003.2	162 004.2
0	162 201.2	162 202.2	162 203.2	162 204.2
15	162 301.2	162 302.2	162 303.2	162 304.2
30				

Measuring levers with cutter

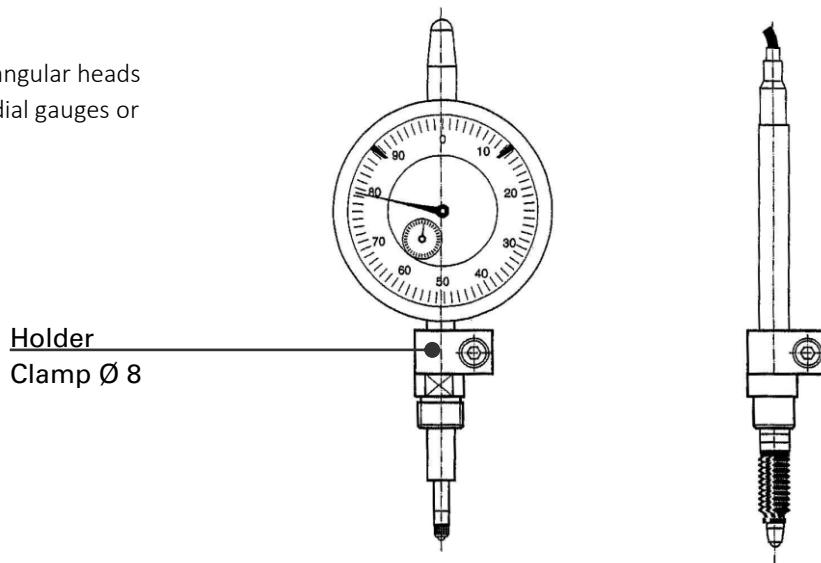


	Length (a)				
mm	45	55	65	75	85
Height (b)	162 031.2	162 032.2	162 033.2	162 034.2	162 035.2
0	162 131.2	162 132.2	162 133.2	162 134.2	162 135.2
4,5	162 231.2	162 232.2	162 233.2	162 234.2	
15	162 331.2	162 332.2	162 333.2	162 334.2	
30					

Examples for field of application for holders for dial indicator

Information

Holders for dial indicator and angular heads may alternatively be used for dial gauges or inductive measuring probes.

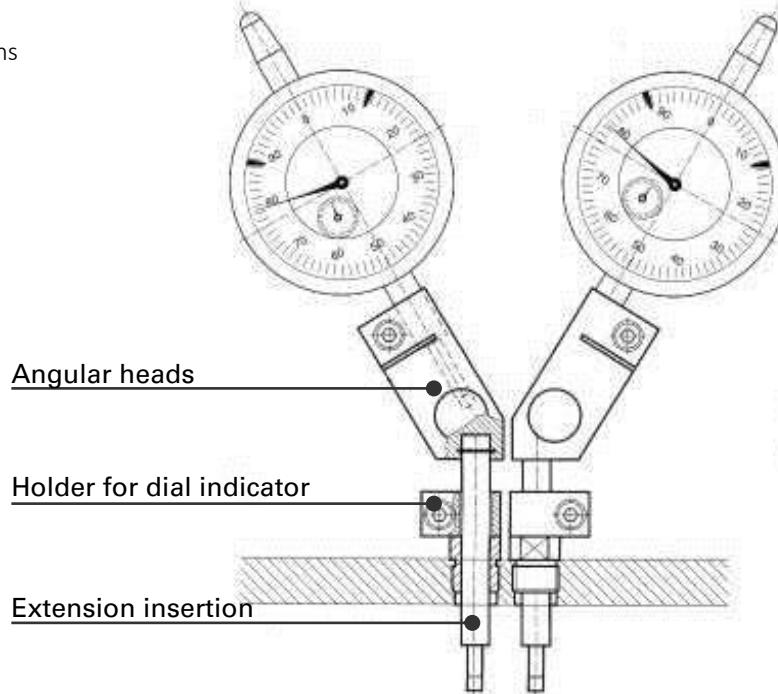


Examples for field of application for angular heads

Information

Solution for close measuring positions

Angular heads from 0° up to 90°



Extensions and angular heads

(with movement 4 or 10 mm)

For solving various measuring tasks it is necessary to extend, bypass or deviate the range between measuring position and the fixing of the probe (e.g. dial gauge, inductive probe).

Our extension or angular heads with movement 4 mm or alternatively 10 mm fix the necessary probe in a fixing boring of Ø 8 mm. Our extension insertions with movement 4 mm or alternatively 10 mm are screwed by means of a M 8 x 0,75-thread with extension (0°) or angular head (30°, 45°, 60° or 90°). The movable rod Ø 4 mm in the extension insertion is put against the part to be measured. The movement of the rod (movement 4 mm or 10 mm) will be transferred from a deviating element in the angular head to the probe.

Please mind on your order angular head and extension as well as the extension insertion having the same movement (4 mm or 10 mm).

Clamp shank Ø 8H7 for probe. The clamping screw to fix the probe in the extension respectively in the angular head is to be fixed from both sides. The plain insert is delivered with the angular heads. The spherical insert which is mounted usually in the probe has to be replaced by this plain insert to avoid transfer errors at the deviating element.



Angular heads and extensions

The following types are available:

Series 1123: Angular heads mov. 4 mm, insert. depth 33mm up to middle mov. (long version)

Series 1124: Angular heads mov. 4 mm, insert. depth 23mm up to middle mov. (short version)

Series 1125: Angular heads mov. 10 mm, insert. depth 33mm up to middle mov.

Series 1127: Extension insertion movement 4mm (matching series 1123 and 1124)

Series 1128: Extension insertion movement 10mm (matching series 1125)

Extensions and angular heads

The rod of the extension insertion is available alternatively

- **with thread M 2,5 (type G)**

or

- **plain (type P)**

Using type G, inserts with various touching geometries may be screwed in. Using type P, the part to be measured may be advanced directly or a probe may be mounted. The rod of the extension insertions (slip-in guide) is secured against turning.

The extension insertions are available with addition spring load on request, either

- **for pressure (type D, reinforcement of the measuring load)**
- **for traction (type Z, lifting load)**

When horizontal fitted the spring load is about 1 N.

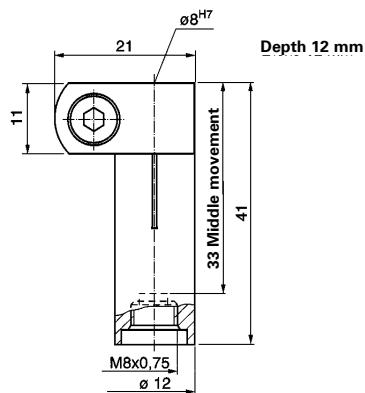
Error with movement 4 mm: max. 5µm

Error with movement 10 mm: max. 8µm

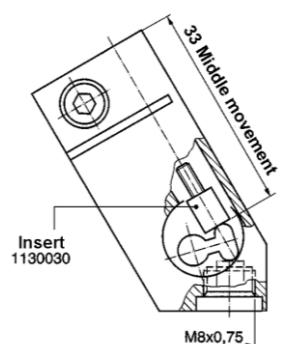
To avoid dirt accumulation, the extension insertions are available with expansion bellows (not for extension length 15 mm).

Extensions and angular heads series 1123 – mov. 4 mm

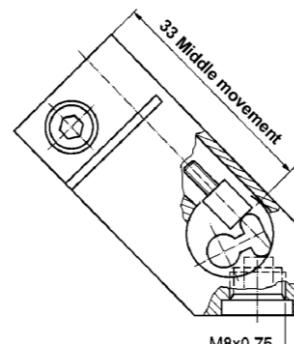
Extension and angular heads with insertion depth up to middle movement 33 mm



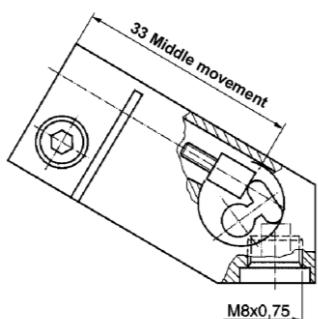
Article-No. 1123 01 (0°)



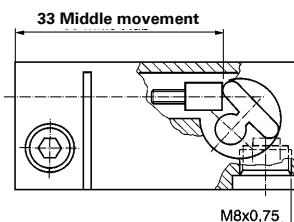
Article-No. 1123 02 (30°)



Article-No. 1123 03 (45°)



Article-No. 1123 04 (60°)



Article-No. 1123 05 (90°)

Art.-no. for angular heads series 1123 complete with ext. insertions

Angle	Type	Length L	Article-No.	Angle	Type	Length L	Article-No.
0°	G	15	1123 01 G 015	0°	P	15	1123 01 P 015
0°	G	25	1123 01 G 025	0°	P	25	1123 01 P 025
0°	G	50	1123 01 G 050	0°	P	50	1123 01 P 050
0°	G	75	1123 01 G 075	0°	P	75	1123 01 P 075
0°	G	100	1123 01 G 100	0°	P	100	1123 01 P 100
0°	G	125	1123 01 G 125	0°	P	125	1123 01 P 125
0°	G	150	1123 01 G 150	0°	P	150	1123 01 P 150
0°	G	175	1123 01 G 175	0°	P	175	1123 01 P 175
0°	G	200	1123 01 G 200	0°	P	200	1123 01 P 200
30°	G	15	1123 02 G 015	30°	P	15	1123 02 P 015
30°	G	25	1123 02 G 025	30°	P	25	1123 02 P 025
30°	G	50	1123 02 G 050	30°	P	50	1123 02 P 050
30°	G	75	1123 02 G 075	30°	P	75	1123 02 P 075
30°	G	100	1123 02 G 100	30°	P	100	1123 02 P 100
30°	G	125	1123 02 G 125	30°	P	125	1123 02 P 125
30°	G	150	1123 02 G 150	30°	P	150	1123 02 P 150
30°	G	175	1123 02 G 175	30°	P	175	1123 02 P 175
30°	G	200	1123 02 G 200	30°	P	200	1123 02 P 200
45°	G	15	1123 03 G 015	45°	P	15	1123 03 P 015
45°	G	25	1123 03 G 025	45°	P	25	1123 03 P 025
45°	G	50	1123 03 G 050	45°	P	50	1123 03 P 050
45°	G	75	1123 03 G 075	45°	P	75	1123 03 P 075
45°	G	100	1123 03 G 100	45°	P	100	1123 03 P 100
45°	G	125	1123 03 G 125	45°	P	125	1123 03 P 125
45°	G	150	1123 03 G 150	45°	P	150	1123 03 P 150
45°	G	175	1123 03 G 175	45°	P	175	1123 03 P 175
45°	G	200	1123 03 G 200	45°	P	200	1123 03 P 200
60°	G	15	1123 04 G 015	60°	P	15	1123 04 P 015
60°	G	25	1123 04 G 025	60°	P	25	1123 04 P 025
60°	G	50	1123 04 G 050	60°	P	50	1123 04 P 050
60°	G	75	1123 04 G 075	60°	P	75	1123 04 P 075
60°	G	100	1123 04 G 100	60°	P	100	1123 04 P 100
60°	G	125	1123 04 G 125	60°	P	125	1123 04 P 125
60°	G	150	1123 04 G 150	60°	P	150	1123 04 P 150
60°	G	175	1123 04 G 175	60°	P	175	1123 04 P 175
60°	G	200	1123 04 G 200	60°	P	200	1123 04 P 200
90°	G	15	1123 05 G 015	90°	P	15	1123 05 P 015
90°	G	25	1123 05 G 025	90°	P	25	1123 05 P 025
90°	G	50	1123 05 G 050	90°	P	50	1123 05 P 050
90°	G	75	1123 05 G 075	90°	P	75	1123 05 P 075
90°	G	100	1123 05 G 100	90°	P	100	1123 05 P 100
90°	G	125	1123 05 G 125	90°	P	125	1123 05 P 125
90°	G	150	1123 05 G 150	90°	P	150	1123 05 P 150
90°	G	175	1123 05 G 175	90°	P	175	1123 05 P 175
90°	G	200	1123 05 G 200	90°	P	200	1123 05 P 200

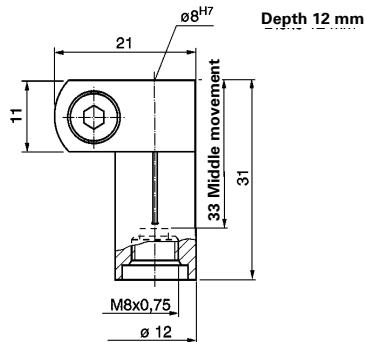
Information

We provide also matching holders for dial indicator (see page 33) and extension insertions of series 1127 (see page 27).

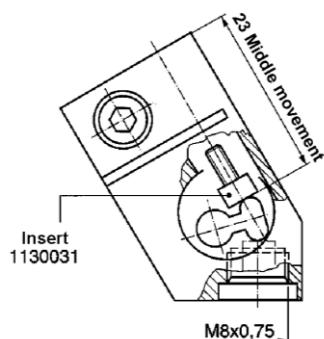
Type with expansion bellows: Additional remark "F". Example: 1123 05 P 025 F
(Not for extension length 15 mm.)

Extensions and angular heads series 1124 – mov. 4 mm (short version)

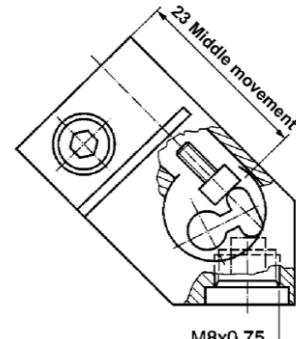
Extension and angular heads with insertion depth up to middle movement 23 mm



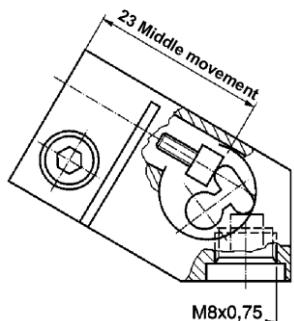
Article-No. 1124 01 (0°)



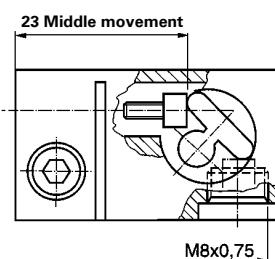
Article-No. 1124 02 (30°)



Article-No. 1124 03 (45°)



Article-No. 1124 04 (60°)



Article-No. 1124 05 (90°)

Art.-no. for angular heads series 1124 complete with ext. insertions

Angle	Type	Length L	Article-No.	Angle	Type	Length L	Article-No.
0°	G	15	1124 01 G 015	0°	P	15	1124 01 P 015
0°	G	25	1124 01 G 025	0°	P	25	1124 01 P 025
0°	G	50	1124 01 G 050	0°	P	50	1124 01 P 050
0°	G	75	1124 01 G 075	0°	P	75	1124 01 P 075
0°	G	100	1124 01 G 100	0°	P	100	1124 01 P 100
0°	G	125	1124 01 G 125	0°	P	125	1124 01 P 125
0°	G	150	1124 01 G 150	0°	P	150	1124 01 P 150
0°	G	175	1124 01 G 175	0°	P	175	1124 01 P 175
0°	G	200	1124 01 G 200	0°	P	200	1124 01 P 200
30°	G	15	1124 02 G 015	30°	P	15	1124 02 P 015
30°	G	25	1124 02 G 025	30°	P	25	1124 02 P 025
30°	G	50	1124 02 G 050	30°	P	50	1124 02 P 050
30°	G	75	1124 02 G 075	30°	P	75	1124 02 P 075
30°	G	100	1124 02 G 100	30°	P	100	1124 02 P 100
30°	G	125	1124 02 G 125	30°	P	125	1124 02 P 125
30°	G	150	1124 02 G 150	30°	P	150	1124 02 P 150
30°	G	175	1124 02 G 175	30°	P	175	1124 02 P 175
30°	G	200	1124 02 G 200	30°	P	200	1124 02 P 200
45°	G	15	1124 03 G 015	45°	P	15	1124 03 P 015
45°	G	25	1124 03 G 025	45°	P	25	1124 03 P 025
45°	G	50	1124 03 G 050	45°	P	50	1124 03 P 050
45°	G	75	1124 03 G 075	45°	P	75	1124 03 P 075
45°	G	100	1124 03 G 100	45°	P	100	1124 03 P 100
45°	G	125	1124 03 G 125	45°	P	125	1124 03 P 125
45°	G	150	1124 03 G 150	45°	P	150	1124 03 P 150
45°	G	175	1124 03 G 175	45°	P	175	1124 03 P 175
45°	G	200	1124 03 G 200	45°	P	200	1124 03 P 200
60°	G	15	1124 04 G 015	60°	P	15	1124 04 P 015
60°	G	25	1124 04 G 025	60°	P	25	1124 04 P 025
60°	G	50	1124 04 G 050	60°	P	50	1124 04 P 050
60°	G	75	1124 04 G 075	60°	P	75	1124 04 P 075
60°	G	100	1124 04 G 100	60°	P	100	1124 04 P 100
60°	G	125	1124 04 G 125	60°	P	125	1124 04 P 125
60°	G	150	1124 04 G 150	60°	P	150	1124 04 P 150
60°	G	175	1124 04 G 175	60°	P	175	1124 04 P 175
60°	G	200	1124 04 G 200	60°	P	200	1124 04 P 200
90°	G	15	1124 05 G 015	90°	P	15	1124 05 P 015
90°	G	25	1124 05 G 025	90°	P	25	1124 05 P 025
90°	G	50	1124 05 G 050	90°	P	50	1124 05 P 050
90°	G	75	1124 05 G 075	90°	P	75	1124 05 P 075
90°	G	100	1124 05 G 100	90°	P	100	1124 05 P 100
90°	G	125	1124 05 G 125	90°	P	125	1124 05 P 125
90°	G	150	1124 05 G 150	90°	P	150	1124 05 P 150
90°	G	175	1124 05 G 175	90°	P	175	1124 05 P 175
90°	G	200	1124 05 G 200	90°	P	200	1124 05 P 200

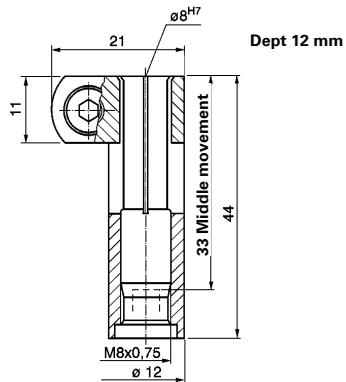
Information

We provide also matching holders for dial indicator (see page 33) and extension insertions of series 1127 (see page 27).

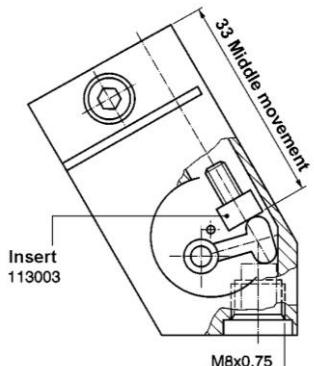
Type with expansion bellows: Additional remark "F". Example: 1124 05 P 025 F
(Not for extension length 15 mm.)

Extension and angular heads of series 1125 – mov. 10 mm

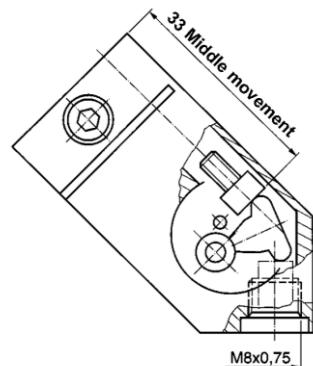
Extension and angular heads with insertion depth up to middle movement 33 mm



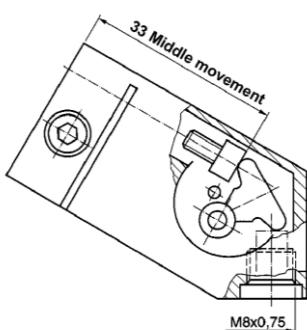
Article-No. 1125 01 (0°)



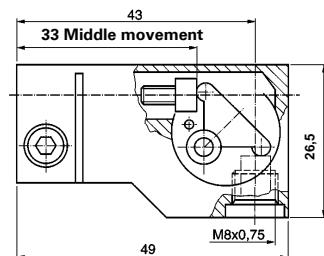
Article-No. 1125 02 (30°)



Article-No. 1125 03 (45°)



Article-No. 1125 04 (60°)



Article-No. 1125 05 (90°)

Art.-no. for angular heads series 1125 complete with ext. insertions

Angle	Type	Length L	Article-No.	Angle	Type	Length L	Article-No.
0°	G	25	1125 01 G 025	0°	P	25	1125 01 P 025
0°	G	50	1125 01 G 050	0°	P	50	1125 01 P 050
0°	G	75	1125 01 G 075	0°	P	75	1125 01 P 075
0°	G	100	1125 01 G 100	0°	P	100	1125 01 P 100
0°	G	125	1125 01 G 125	0°	P	125	1125 01 P 125
0°	G	150	1125 01 G 150	0°	P	150	1125 01 P 150
0°	G	175	1125 01 G 175	0°	P	175	1125 01 P 175
0°	G	200	1125 01 G 200	0°	P	200	1125 01 P 200
30°	G	25	1125 02 G 025	30°	P	25	1125 02 P 025
30°	G	50	1125 02 G 050	30°	P	50	1125 02 P 050
30°	G	75	1125 02 G 075	30°	P	75	1125 02 P 075
30°	G	100	1125 02 G 100	30°	P	100	1125 02 P 100
30°	G	125	1125 02 G 125	30°	P	125	1125 02 P 125
30°	G	150	1125 02 G 150	30°	P	150	1125 02 P 150
30°	G	175	1125 02 G 175	30°	P	175	1125 02 P 175
30°	G	200	1125 02 G 200	30°	P	200	1125 02 P 200
45°	G	25	1125 03 G 025	45°	P	25	1125 03 P 025
45°	G	50	1125 03 G 050	45°	P	50	1125 03 P 050
45°	G	75	1125 03 G 075	45°	P	75	1125 03 P 075
45°	G	100	1125 03 G 100	45°	P	100	1125 03 P 100
45°	G	125	1125 03 G 125	45°	P	125	1125 03 P 125
45°	G	150	1125 03 G 150	45°	P	150	1125 03 P 150
45°	G	175	1125 03 G 175	45°	P	175	1125 03 P 175
45°	G	200	1125 03 G 200	45°	P	200	1125 03 P 200
60°	G	25	1125 04 G 025	60°	P	25	1125 04 P 025
60°	G	50	1125 04 G 050	60°	P	50	1125 04 P 050
60°	G	75	1125 04 G 075	60°	P	75	1125 04 P 075
60°	G	100	1125 04 G 100	60°	P	100	1125 04 P 100
60°	G	125	1125 04 G 125	60°	P	125	1125 04 P 125
60°	G	150	1125 04 G 150	60°	P	150	1125 04 P 150
60°	G	175	1125 04 G 175	60°	P	175	1125 04 P 175
60°	G	200	1125 04 G 200	60°	P	200	1125 04 P 200
90°	G	25	1125 05 G 025	90°	P	25	1125 05 P 025
90°	G	50	1125 05 G 050	90°	P	50	1125 05 P 050
90°	G	75	1125 05 G 075	90°	P	75	1125 05 P 075
90°	G	100	1125 05 G 100	90°	P	100	1125 05 P 100
90°	G	125	1125 05 G 125	90°	P	125	1125 05 P 125
90°	G	150	1125 05 G 150	90°	P	150	1125 05 P 150
90°	G	175	1125 05 G 175	90°	P	175	1125 05 P 175
90°	G	200	1125 05 G 200	90°	P	200	1125 05 P 200

Information

We provide also matching holders for dial indicator (see page 33) and extension insertions of series 1128 (see page 28).

Type with expansion bellows: Additional remark "F". Example: 1125 05 P 025 F

Extension insertions

Product features

- Available optional with tread M2,5 (type G) or plain (type P)
- Using type G, inserts with various advancing geometries may be screwed in
- Using type P, the part to be measured may be advanced directly or a probe may be mounted
- Rod of the extension insertions (slip-in guide) is secured against turning



Extension insertions



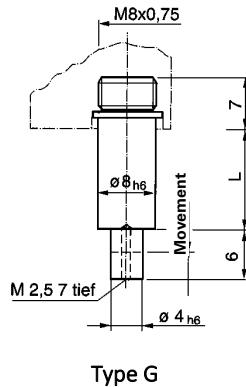
Example for field of application

Measuring task: Prolongation or bridging between measuring position and probe.

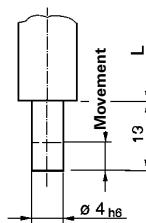
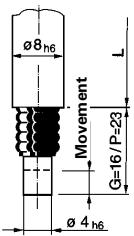
Extension insertions of series 1127 – movement 4 mm

Information

Matching the extension and angular heads of series 1123 (see page 20) and 1124 (see page 22)



Type	Length L	Article-No.
G	15	1127 G 015
G	25	1127 G 025
G	50	1127 G 050
G	75	1127 G 075
G	100	1127 G 100
G	125	1127 G 125
G	150	1127 G 150
G	175	1127 G 175
G	200	1127 G 200

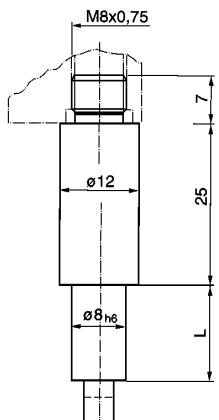


Type with expansion bellows carries additional remark "F"
(length = 15 mm not available)

Type P

Type	Length L	Article-No.
P	15	1127 P 015
P	25	1127 P 025
P	50	1127 P 050
P	75	1127 P 075
P	100	1127 P 100
P	125	1127 P 125
P	150	1127 P 150
P	175	1127 P 175
P	200	1127 P 200

Extension insertions with spring load for pressure (1127 D) or traction (1127 Z), spring load when horizontally mounted about 1N



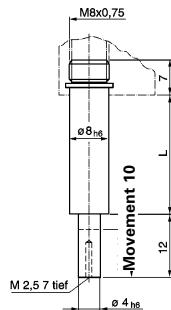
Type P + G

Type	Length L	Article-No.	Type	Length L	Article-No.
G	15	1127 G 015 D	G	15	1127 G 015 Z
G	25	1127 G 025 D	G	25	1127 G 025 Z
G	50	1127 G 050 D	G	50	1127 G 050 Z
G	75	1127 G 075 D	G	75	1127 G 075 Z
G	100	1127 G 100 D	G	100	1127 G 100 Z
G	125	1127 G 125 D	G	125	1127 G 125 Z
G	150	1127 G 150 D	G	150	1127 G 150 Z
G	175	1127 G 175 D	G	175	1127 G 175 Z
G	200	1127 G 200 D	G	200	1127 G 200 Z
P	15	1127 P 015 D	P	15	1127 P 015 Z
P	25	1127 P 025 D	P	25	1127 P 025 Z
P	50	1127 P 050 D	P	50	1127 P 050 Z
P	75	1127 P 075 D	P	75	1127 P 075 Z
P	100	1127 P 100 D	P	100	1127 P 100 Z
P	125	1127 P 125 D	P	125	1127 P 125 Z
P	150	1127 P 150 D	P	150	1127 P 150 Z
P	175	1127 P 175 D	P	175	1127 P 175 Z
P	200	1127 P 200 D	P	200	1127 P 200 Z

Extension insertions of series 1128 – movement 10 mm

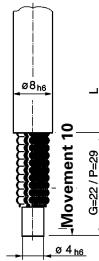
Information

Matching extension and angular heads
of series 1125 (see page 24)

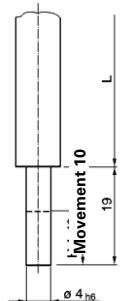


Type G

Type	Length L	Article-No.
G	25	1128 G 025
G	50	1128 G 050
G	75	1128 G 075
G	100	1128 G 100
G	125	1128 G 125
G	150	1128 G 150
G	175	1128 G 175
G	200	1128 G 200



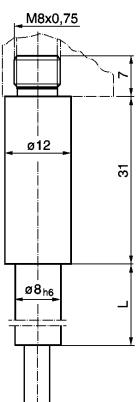
Type with expansion bellows with
additional remark "F" (not
available for length L=15)



Type P

Type	Length L	Article-No.
P	25	1128 P 025
P	50	1128 P 050
P	75	1128 P 075
P	100	1128 P 100
P	125	1128 P 125
P	150	1128 P 150
P	175	1128 P 175
P	200	1128 P 200

Extension insertion with spring load for
pressure (1128 D) or traction (1128 Z),
spring load when horizontally mounted
about 1N



Type P + G

Type	Length L	Article-No.	Type	Length L	Article-No.
G	25	1128 G 025 D	G	25	1128 G 025 Z
G	50	1128 G 050 D	G	50	1128 G 050 Z
G	75	1128 G 075 D	G	75	1128 G 075 Z
G	100	1128 G 100 D	G	100	1128 G 100 Z
G	125	1128 G 125 D	G	125	1128 G 125 Z
G	150	1128 G 150 D	G	150	1128 G 150 Z
G	175	1128 G 175 D	G	175	1128 G 175 Z
G	200	1128 G 200 D	G	200	1128 G 200 Z
P	25	1128 P 025 D	P	25	1128 P 025 Z
P	50	1128 P 050 D	P	50	1128 P 050 Z
P	75	1128 P 075 D	P	75	1128 P 075 Z
P	100	1128 P 100 D	P	100	1128 P 100 Z
P	125	1128 P 125 D	P	125	1128 P 125 Z
P	150	1128 P 150 D	P	150	1128 P 150 Z
P	175	1128 P 175 D	P	175	1128 P 175 Z
P	200	1128 P 200 D	P	200	1128 P 200 Z

Inserts, Clamping elements, Holders for dial indicator

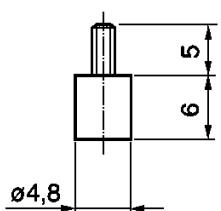
Inserts M2,5

Product features

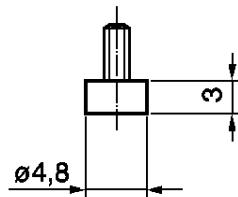
Suitable to screw in dial gauges, precision measuring indicators or inductive probes
with „H“ marked art.-no. is an advancing element out of hard alloy



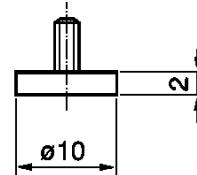
Touch geometry – Surface



Article-No. 113 00 30
Article-No. 113 00 30 H

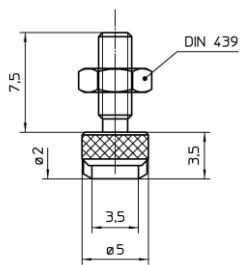


Article-No. 113 00 31
Article-No. 113 00 31 H

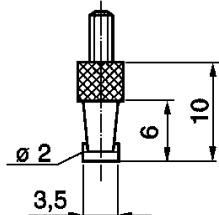


Article-No. 113 00 32
Article-No. 113 00 32 H

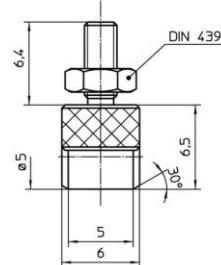
Touch geometry – Line



Article-No. 113 00 40 H

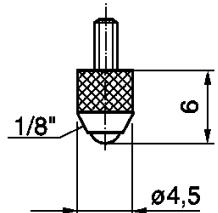


Article-No. 113 00 41
Article-No. 113 00 41 H



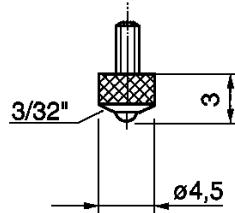
Article-No. 113 00 42 H

Touch geometry – Point

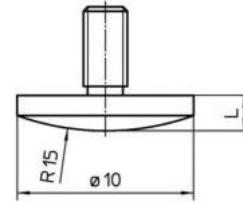


Article-No. 113 00 50

Article-No. 113 00 50 H

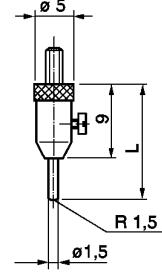
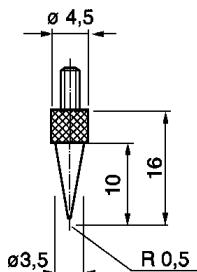
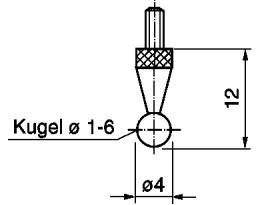


Article-No. 113 00 51



Article-No. 113 00 52 L=2

Article-No. 113 00 52 H L=2,5

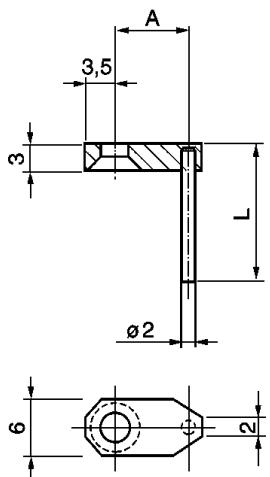


Article-No. 113 00 56

\varnothing	Article-No.	Add on
1	1130 055 1	H
2	1130 055 2	H
3	1130 055 3	H
4	1130 055 4	H
5	1130 055 5	H
6	1130 055 6	H

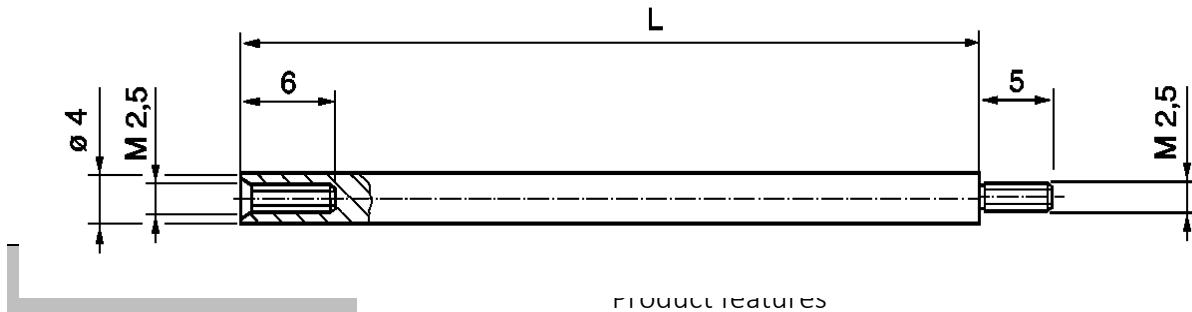
Further \varnothing on request

L	Article-No.
16	1130 057 16
26	1130 057 26
36	1130 057 36
46	1130 057 46



A	L	Article-No.
5	4	1131 100 04
5	8	1131 100 08
5	12	1131 100 12
5	16	1131 100 16
10	8	1131 110 08
10	12	1131 110 12
10	16	1131 110 16
15	8	1131 120 08
15	12	1131 120 12
15	16	1131 120 16

Rod extensions



PRODUCT FEATURES

10 **1131 001 10**

15 **1131 001 15**

20 **1131 001 20**

30 **1131 001 30**

40 **1131 001 40**

50 **1131 001 50**

60 **1131 001 60**

70 **1131 001 70**

80 **1131 001 80**

90 **1131 001 90**

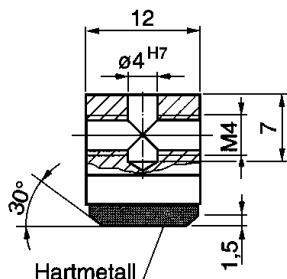
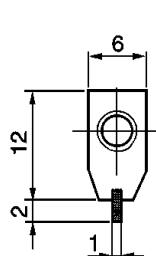
100 **1131 001 100**

Suitable to prolongate the rods from dial gauges,
precision measuring indicators and probes

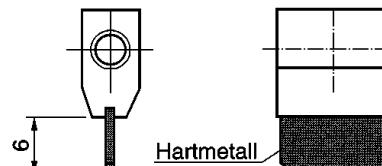
Inserts with hard alloy (HM)

Product features

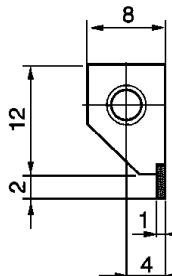
Suitable to clamp on rod extensions or extension insertions with \varnothing 4 mm – type P



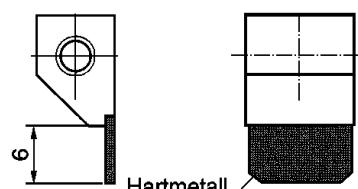
Article-No. 1131 500



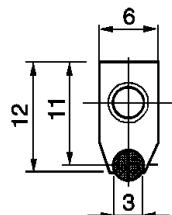
Article-No. 1131 501



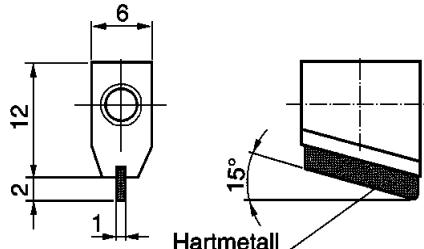
Article-No. 1131 510



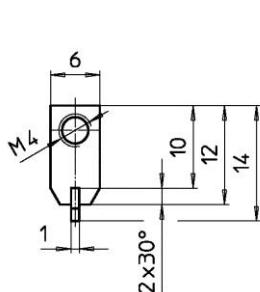
Article-No. 1131 511



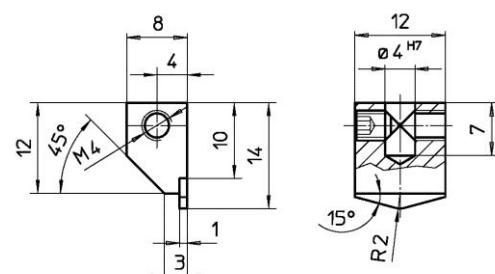
Article-No. 1131 520



Article-No. 1131 530



Article-No. 1131 540



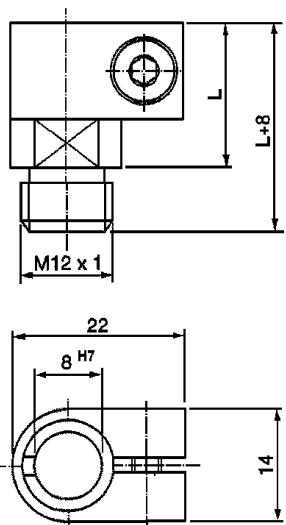
Article-No. 1131 543

Holders for dial indicator series 1155

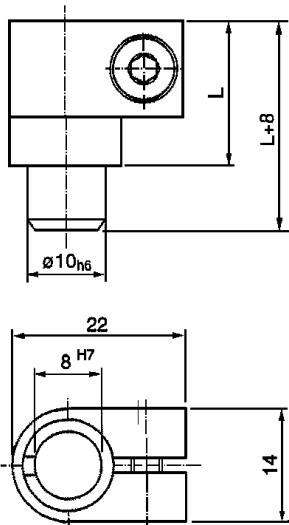


Holders for dial indicator, inserts, clamping elements

Version to screw in



Version to paste



Product features

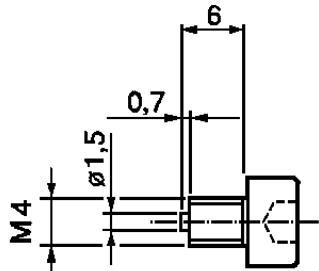
These holders for dial indicator are suitable for precision measuring indicators, extensions, angular heads and inductive probes with extension diameter 8 mm (special lengths on request).

Length L	Article-No.
18	1155 01
25	1155 02
50	1155 10
75	1155 11
100	1155 12

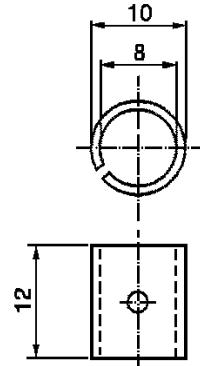
Length L	Article-No.
18	1155 06
25	1155 07

Clamping elements

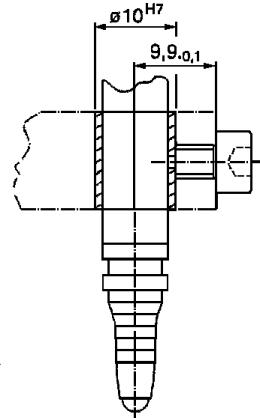
Clamping elements for probes with extension diameter 8 mm (other lengths on request)



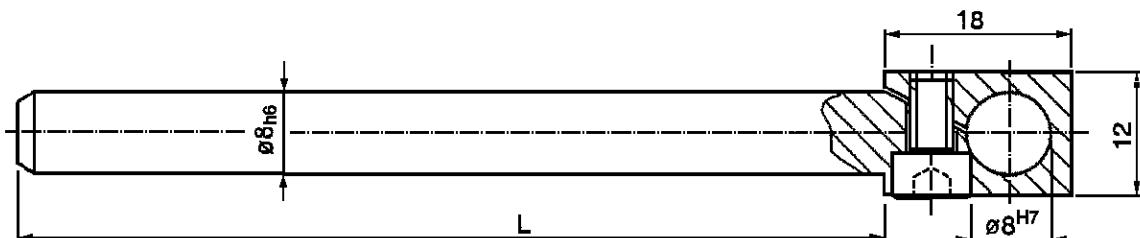
Clamping bolt
Article-No. 1155 31



Sleeve
Article-No. 1155 30



Screw-in regulation



Clamping element

(depth 10 mm)

Length L	Article-No.
25	1155 35 025
50	1155 35 050
60	1155 35 060
75	1155 35 075
85	1155 35 085
100	1155 35 100
110	1155 35 110
150	1155 35 150
200	1155 35 200

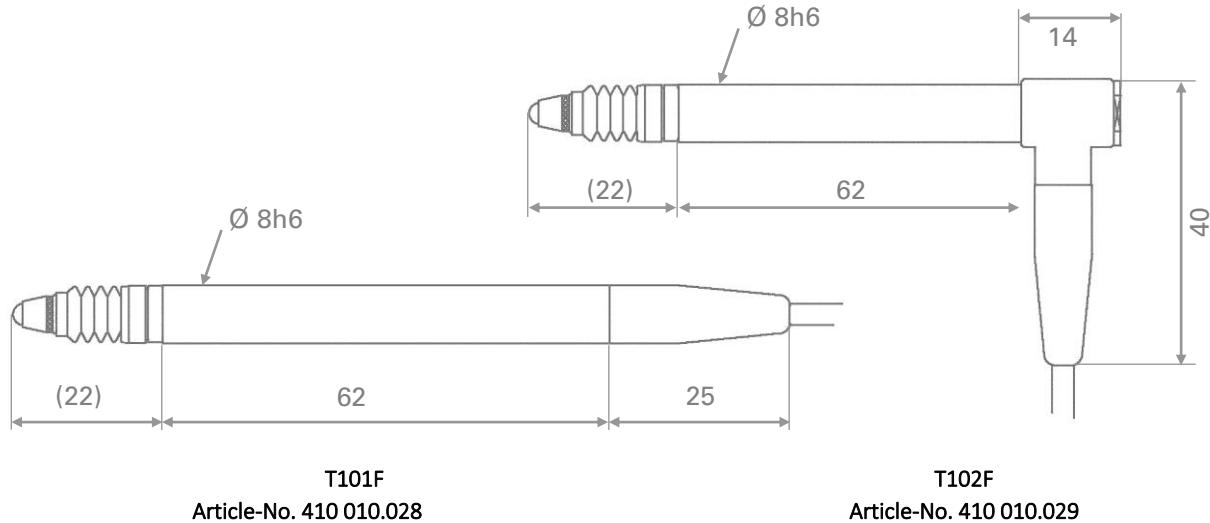
Product features

- More flexibility when fixing the probes
- For probes with extension diameter 8 mm

Inductive probes – range ± 2 mm

Inductive probes T101F, T102F

± 2 mm movement, compression spring impinged



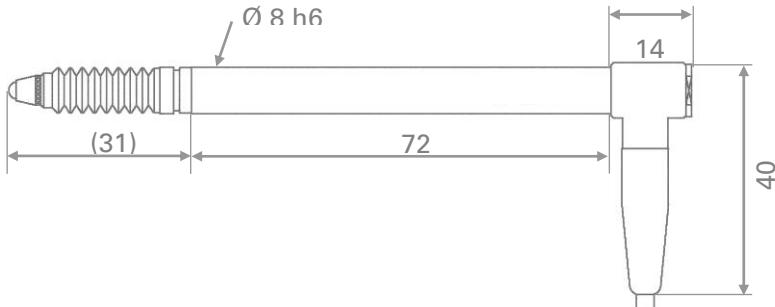
Product features

Types	T101F axial cable outlet T102F radial cable outlet
Total movement	4,6 mm
Movement	± 2 mm
Work clearance stroke	adjustable
Bedding	ball bearing
Life cycle, mech.	> 10 Mio. cycles
Circumferential backlash	1° over total movement
Temperature	-10 up to + 65°C bedding & operation
Mounting position	optional
Insert	ball 3 mm hard alloy, thread M2,5, interchangeable
Expansion bellows	Viton
Clamping shank	8h6 (DIN No. 7182)
Cable	in PUR, length 2 m
Plug	5 Pol 240° (DIN No. 453220)
Lifting	none
Measuring load	0,63 N \pm 20 % at the electric zero point Values from 0,25 N up to 4 N optional
Repeated dispersion	0,01 μ m
Linearity error	0,3 % in the range \pm 1000 μ m ($20^\circ\text{C} \pm 1^\circ\text{C}$)
Sensitivity	$7,3 \pm 0,15$ mV/(V*mm) at $R = 2$ kOhm ($\pm 0,1$ %)
Standard frequency	13 kHz \pm 5 %
Feeding	3V \pm 0,5 % RMS
Mounting	half bridge
Capability to be repaired	given, may be dismounted

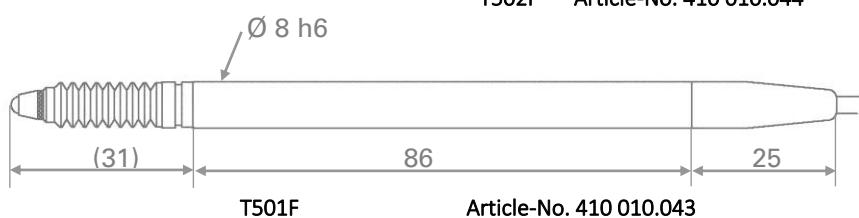
Inductive probes – range ± 5 mm

Inductive probes T501F, T502F

± 5 mm movement, compression spring impinged



T502F Article-No. 410 010.044



T501F Article-No. 410 010.043

Product features

Types	T501F axial cable outlet T502F radial cable outlet
Total movement	10,6 mm
Movement	± 5 mm
Work clearance stroke	adjustable
Bedding	ball bearing
Life cycle, mech.	> 10 Mio. cycles
Circumferential backlash	1° over total movement
Temperature	-10 up to + 65°C bedding & operation
Mounting position	optional
Insert	ball 3 mm hard alloy, thread M2,5, interchangeable
Expansion bellows	Viton
Clamping shank	8h6 (DIN No. 7182)
Cable	in PUR, length 2 m
Plug	5 Pol 240° (DIN No. 453220)
Lifting	none
Measuring load	1 N ± 15 % at the electric zero point 1,6 N as option
Repeated dispersion	0,05 μ m
Linearity error	0,9 % in the range ± 5000 μ m ($20^\circ\text{C} \pm 1^\circ\text{C}$)
Sensitivity	$7,3 \pm 0,15$ mV/(V*mm) at $R = 2$ kOhm ($\pm 0,1$ %)
Standard frequency	13 kHz ± 5 %
Feeding	3V $\pm 0,5$ % RMS
Mounting	half bridge
Capability to be repaired	given, may be dismounted

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