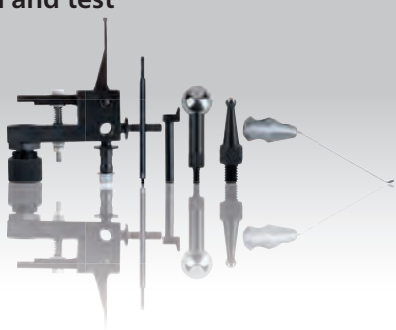


norelem measures

Measuring and testing components

33000

Standard inspection and test fixture elements



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Dial gauge collets
for Ø8 shafts

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Dial gauge holders
sliding

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Dial gauge holders
short version with thread

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Dial gauge holders
long version with thread

33016
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Dial gauge holders
short version with smooth shaft

33018
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Dial gauge holders
for measuring frame

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Probe
with flat face

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Probe
with flat point

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Probe
with reduced flat face

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Probe
with reduced domed point

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Probe knife point

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Probe knife point
offset

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Extension
for probe inserts

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Probe knife point
offset, for fixed stop

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Page 1076



Probe inserts
with domed point

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Page 1076



Probe inserts
with ball point

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Page 1077



Probe inserts
knife point

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Page 1077



Probe inserts
with flat face

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Probe inserts
with domed face

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Probe inserts
with enlarged flat face

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Extensions
for probe inserts

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Page 1079



Probe insert set
11-piece

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Page 1080



Probe inserts hardened steel
thread M2.5

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Probe inserts carbide
thread M2.5

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Protection frames
for dial gauges

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Deflection dial gauge holders 90°

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Deflection dial gauge holders 90°
probe lever with thread

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Deflection dial gauge holders 90°
probe lever with hole

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Deflection dial gauge holders 180°
probe lever with hole

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Deflection dial gauge holders 90°
probe lever with thread

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Deflection dial gauge holders 180°
probe lever with thread

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Prism attachments

+ New/Expanded Items

norelem measures

Measuring and testing components

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Spacers
for prisms attachments

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Slotted round nuts

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Pivoting columns

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Pivoting systems

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Page 1091



Measuring fixtures

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Measuring arms

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Spring mounted centre sleeves
with tension lever

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Page 1095



Precision three-jaw chuck
manual operation

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Adjustable holder
for fixed centres

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Fixed centres

33202
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Measuring element
for gear wheels

33205
Page 1099



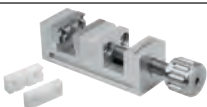
Ball holders

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Page 1101



Precision vice

33225-10
Page 1102



Precision vices
stainless steel, aluminium or brass,
mini

33225-15
Page 1103



Stainless steel jaw plates
for precision vices

33225-16
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Mounting plates aluminium
for precision vices

33226
Page 1105



Precision three-jaw chuck
manual operation

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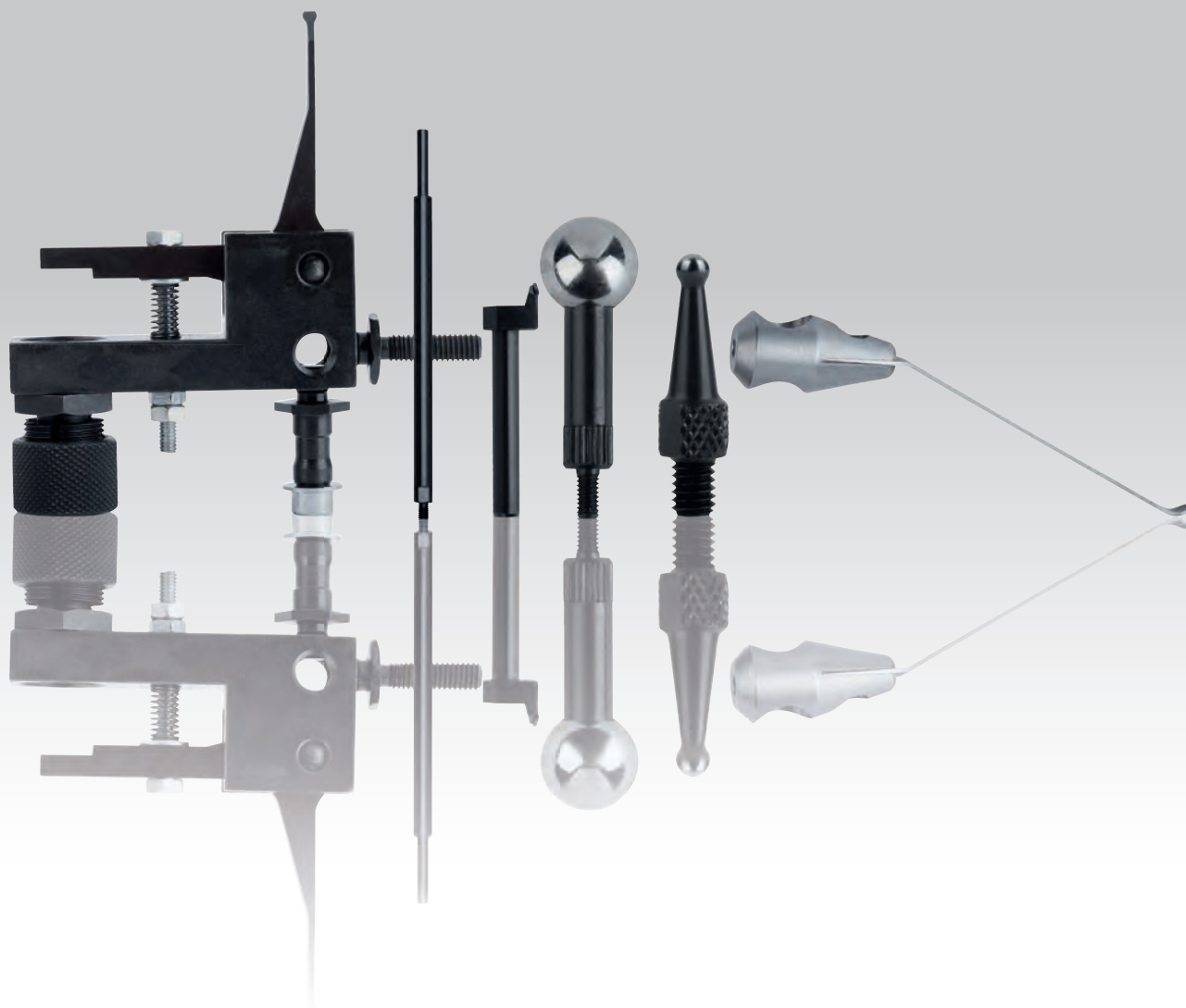


Needle support

+ New/Expanded Items

33000

Standard inspection and test fixture elements



Dial gauge collets

for Ø8 shafts

**Material:**

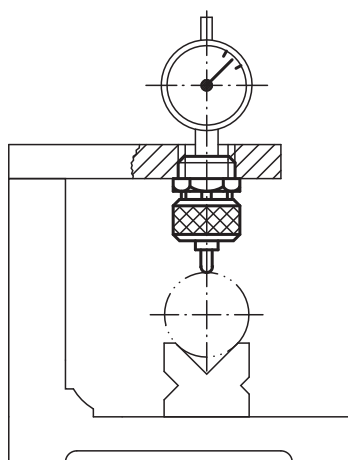
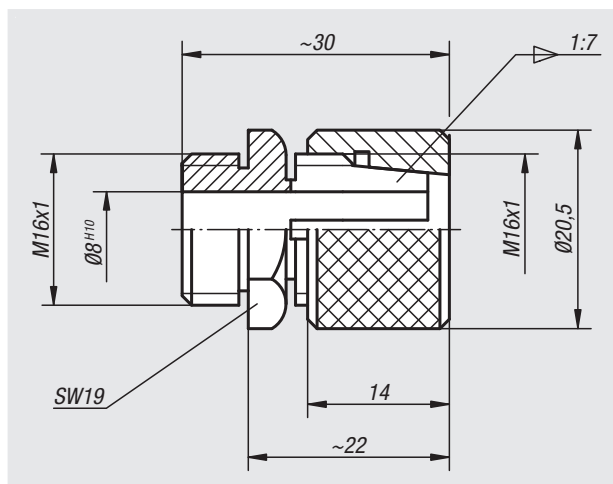
Carbon steel.

Version:

Black oxidised.
Collet tempered.

Sample order:

nIm 33000-08



Order No.

Dimensions

33000-08

see drawing

Dial gauge holders

sliding



Material:

Carbon steel.

Version:

Black oxidised.

Collet and body tempered.

Sample order:

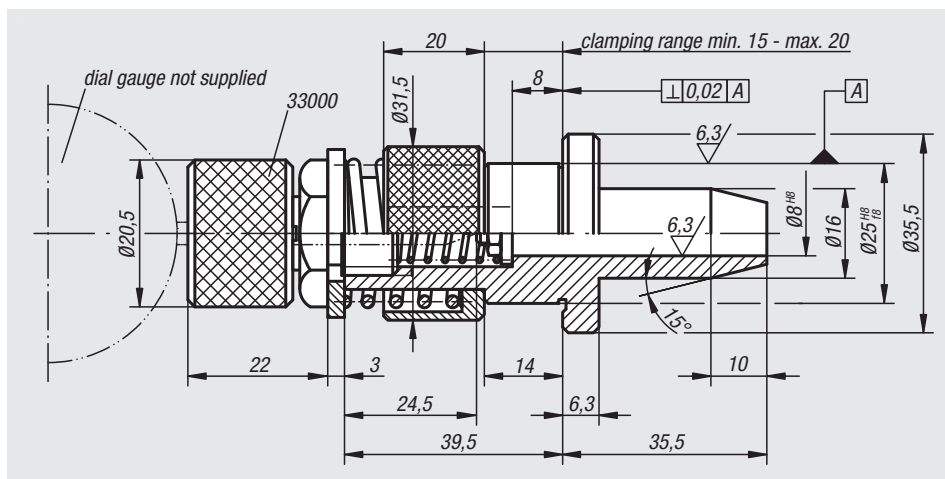
nlm 33010-08025

Note:

Dial gauge and probe are not included.

Dial gauges see 32540 and 32542.

Probes see 33020 up to 33026.



Order No.	Supplied for the probe pin
33010-08025	1 washer 5.3 x 14 x 1 1 hex nut M5 1 spring

33012

Dial gauge holders

short version with thread



Material:

Carbon steel.

Version:

Black oxidised.

Collet and body tempered.

Sample order:

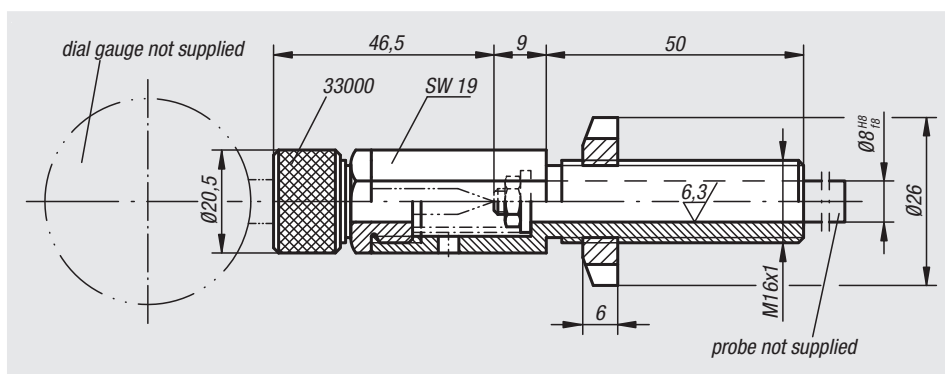
nlm 33012-08050

Note:

Dial gauge and probe are not included.

Dial gauges see 32540 and 32542.

Probes see 33020 up to 33026.



Order No.	Supplied for the probe pin
33012-08050	1 washer 5.3 x 14 x 1 1 hex nut M5 1 spring

Dial gauge holders

long version with thread



Material:

Carbon steel.

Version:

Black oxidised.

Collet and body tempered.

Sample order:

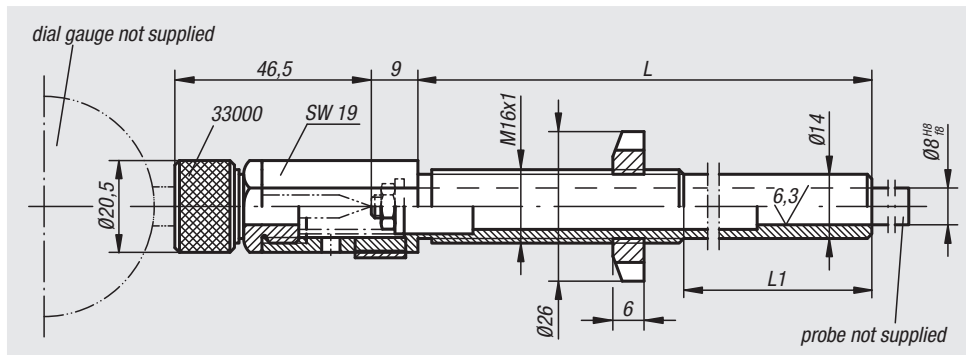
nIm 33014-08125

Note:

Dial gauge and probe are not included.

Dial gauges see 32540 and 32542.

Probes see 33020 up to 33026.



Order No.	L	L1	Supplied for the probe pin
33014-08125	125	75	1 washer 5.3 x 14 x 1 1 hex nut M5 1 spring
33014-08180	180	130	1 washer 5.3 x 14 x 1 1 hex nut M5 1 spring

Dial gauge holders

short version with smooth shaft



Material:

Carbon steel.

Version:

Black oxidised.

Collet and body tempered.

Sample order:

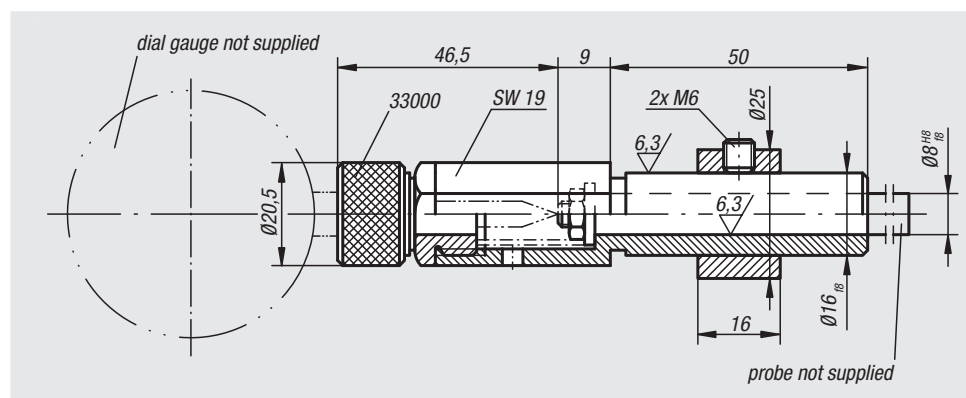
nIm 33016-08050

Note:

Dial gauge and probe are not included.

Dial gauges see 32540 and 32542.

Probes see 33020 up to 33026.



Order No.	Supplied for the probe pin
33016-08050	1 washer 5.3 x 14 x 1 1 hex nut M5 1 spring

Dial gauge holders

for measuring frame

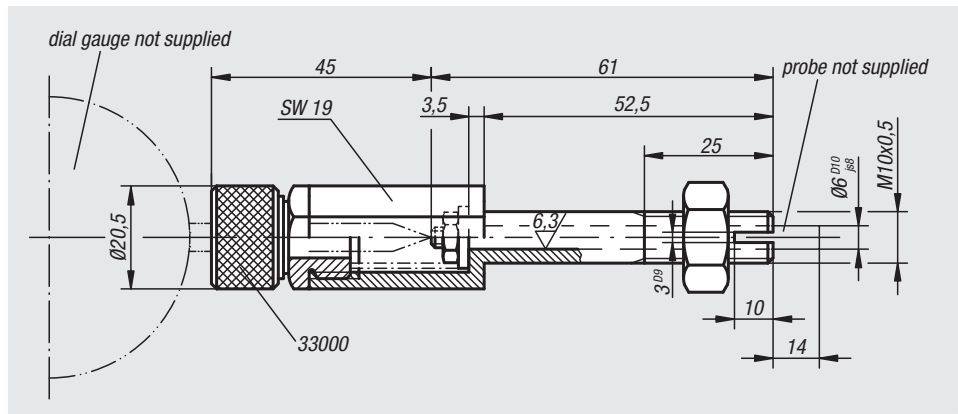


Material:
Carbon steel.

Version:
Black oxidised.
Collet and body tempered.

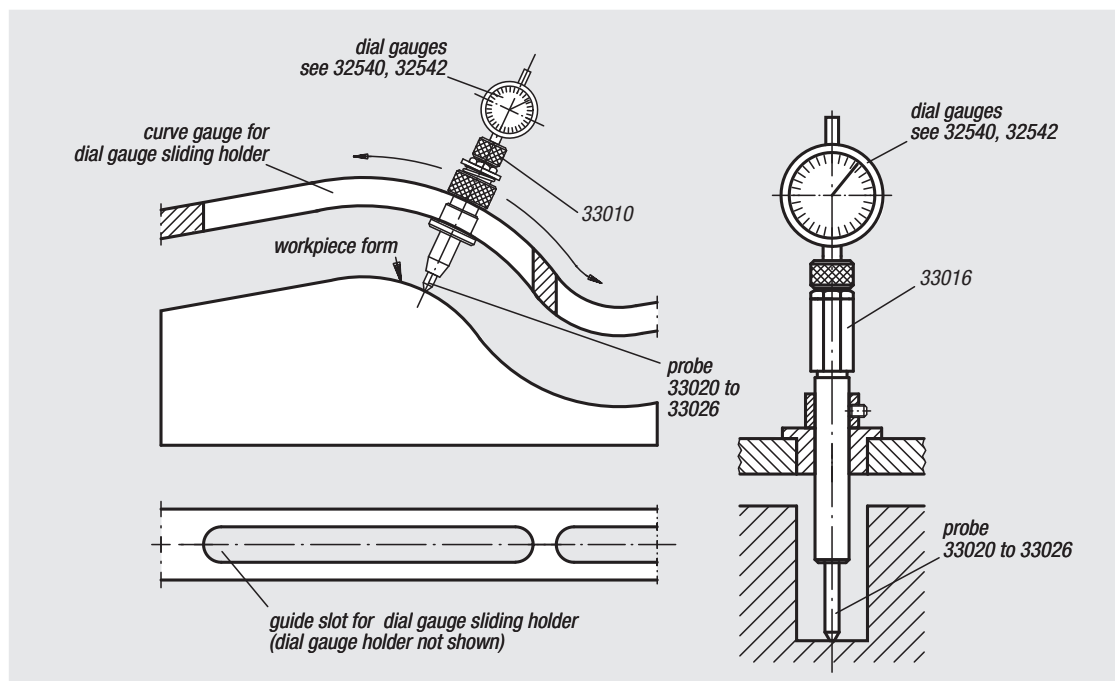
Sample order:
nlm 33018-06053

Note:
Dial gauges and probes are not included.
Dial gauges see 32540 and 32542.
Probes see 33028 up to 33032.



Order No.	Supplied for the probe pin
33018-06053	1 washer 4.3 x 14 x 0.9 1 hex nut M4 1 spring

Example of dial gauge holders



Probe

with flat face


Material:

Steel.

Version:

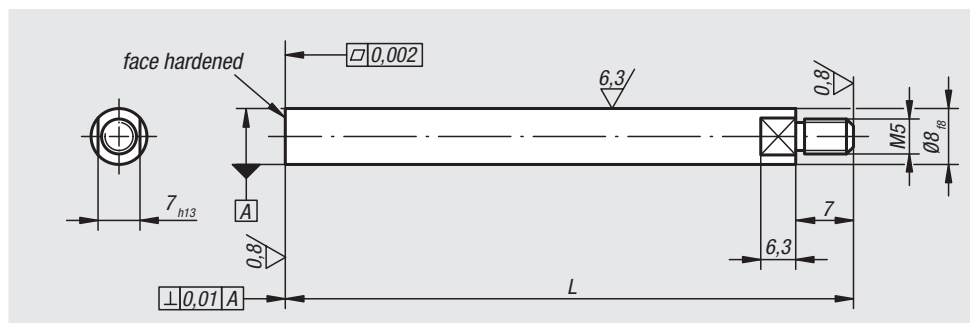
Black oxidised.

Sample order:

nIm 33020-08100

Note:

These probes are suitable for dial gauge holders 33010 to 33016.



Order No.	L
33020-08063	63
33020-08080	80
33020-08100	100
33020-08160	160
33020-08250	250

Probe

with flat point


Material:

Steel.

Version:

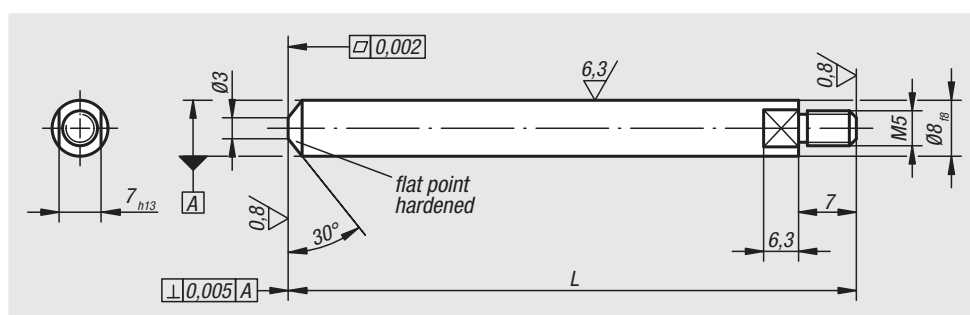
Black oxidised.

Sample order:

nIm 33022-08063

Note:

These probes are suitable for dial gauge holders 33010 to 33016.



Order No.	L
33022-08063	63
33022-08080	80
33022-08100	100

Probe

with reduced flat face


Material:

Steel.

Version:

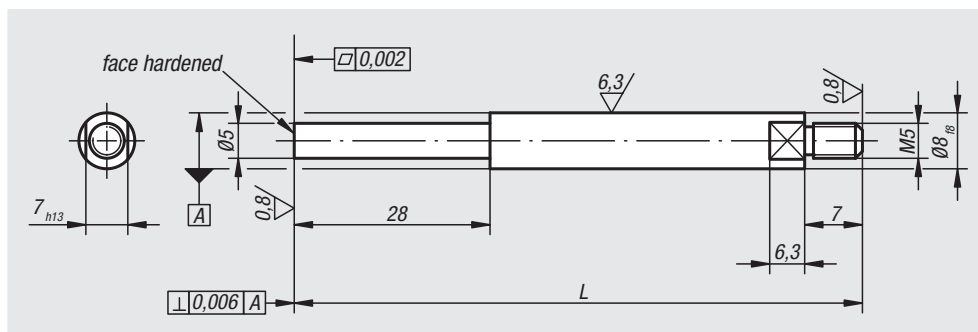
Black oxidised.

Sample order:

nIm 33024-08160

Note:

These probes are suitable for dial gauge holders 33010 to 33016.



Order No.	L
33024-08080	80
33024-08100	100
33024-08160	160
33024-08250	250

33026

Probe

with reduced domed point


Material:

Steel.

Version:

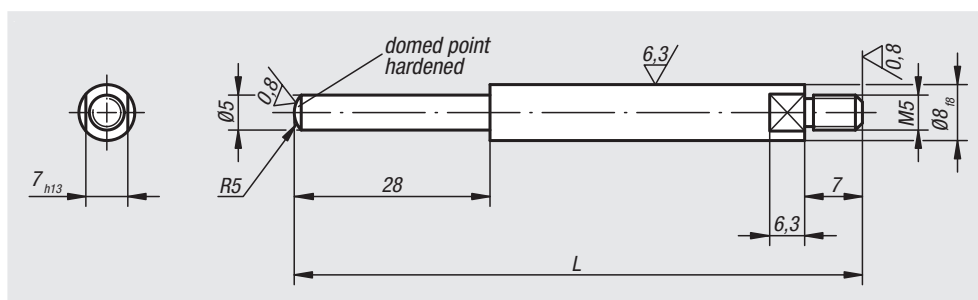
Black oxidised.

Sample order:

nIm 33026-08080

Note:

These probes are suitable for dial gauge holders 33010 to 33016.



Order No.	L
33026-08080	80
33026-08100	100
33026-08160	160

Probe knife point

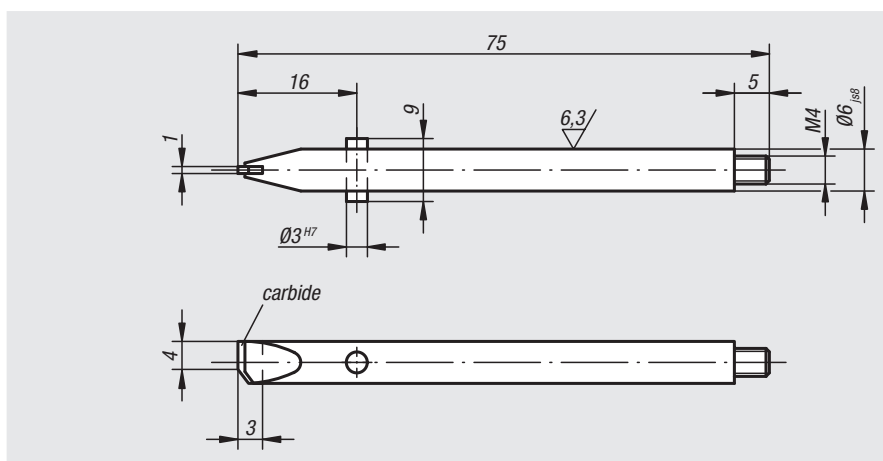


Material:
Tool steel.
Contact face carbide

Version:
Black oxidised.

Sample order:
nlm 33028-06075

Note:
These probes are suitable for dial gauge
holder 33018.



Order No.

Dimensions

33028-06075

see drawing

Probe knife point

offset

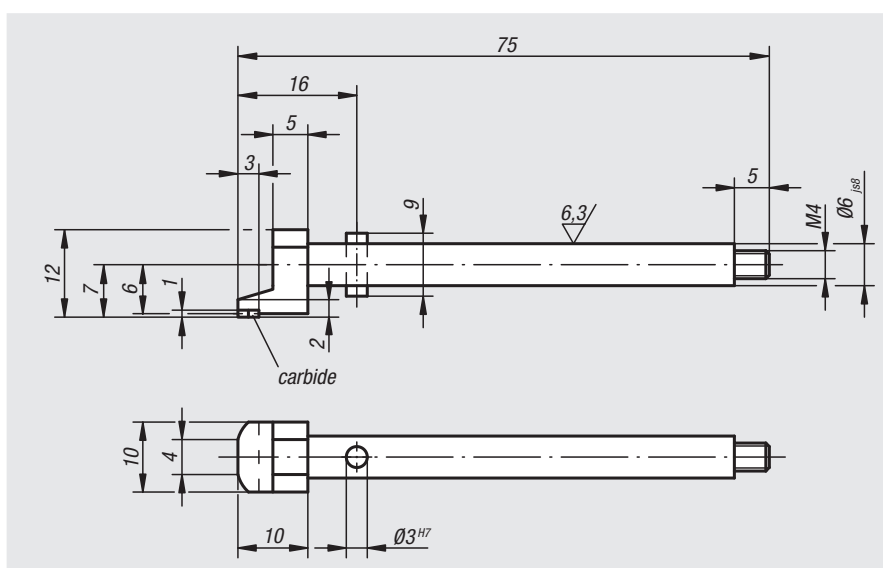


Material:
Tool steel.
Contact face carbide

Version:
Black oxidised.

Sample order:
nlm 33029-06075

Note:
These probes are suitable for dial gauge
holder 33018.



Order No.

Dimensions

33029-06075

see drawing

Extension

for probe inserts


Material:

Tool steel.

Version:

Black oxidised.

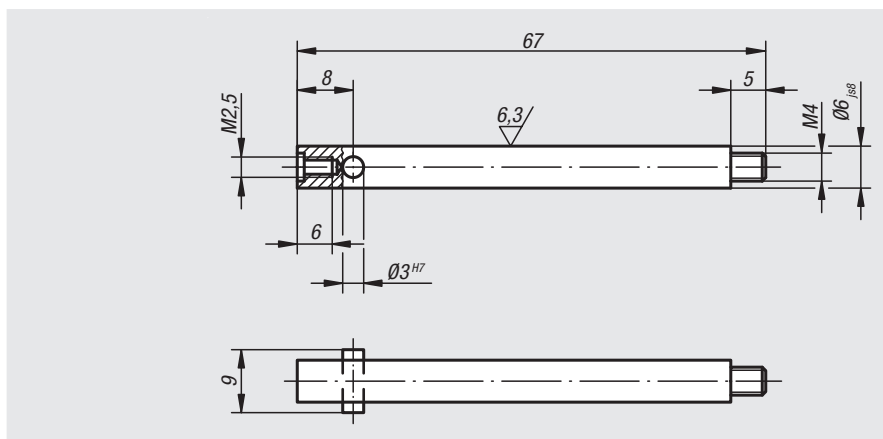
Sample order:

nIm 33032-06067

Note:

These extension are suitable for dial gauge holder 33018.

For probe inserts see 33040 to 33052.



Order No.

Dimensions

33032-06067

see drawing

33035

Probe knife point

offset, for fixed stop


Material:

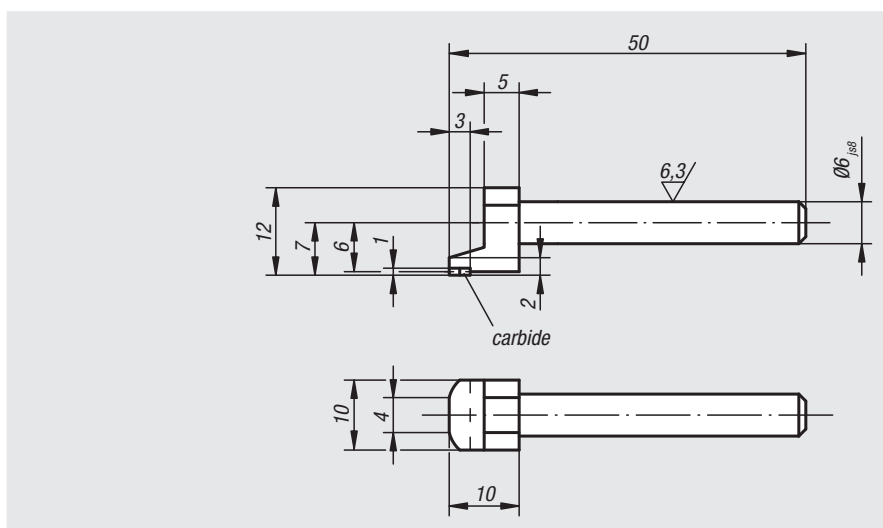
Tool steel.
Contact face carbide

Version:

Black oxidised.

Sample order:

nIm 33035-06050



Order No.

Dimensions

33035-06050

see drawing

Probe inserts

with domed point


Material:

Steel or carbide point

Version:

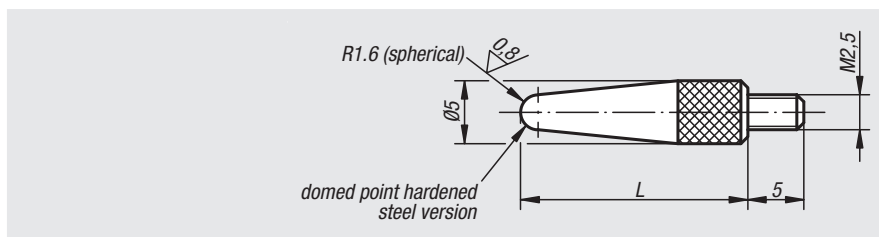
Black oxidised.

Sample order:

nIm 33040-1025250

Note:

Dial gauges see 32540 and 32542.



Order No. steel	Order No. carbide	L
33040-1025080	33040-2025080	8
33040-1025125	33040-2025125	12,5
33040-1025160	33040-2025160	16
33040-1025200	33040-2025200	20
33040-1025250	33040-2025250	25
33040-1025280	33040-2025280	28
33040-1025355	33040-2025355	35,5

Probe inserts

with ball point


Material:

Tool steel.

Version:

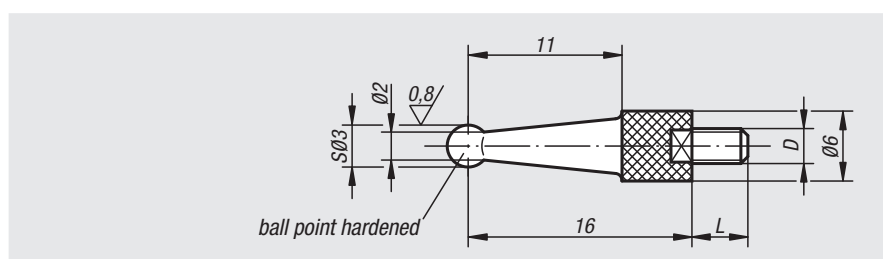
Hardened, black oxidised.

Sample order:

nIm 33042-040016

Note:

Dial gauges see 32540 and 32542.



Order No.	D	L
33042-025016	M2,5	5
33042-040016	M4	5

Probe inserts

knife point

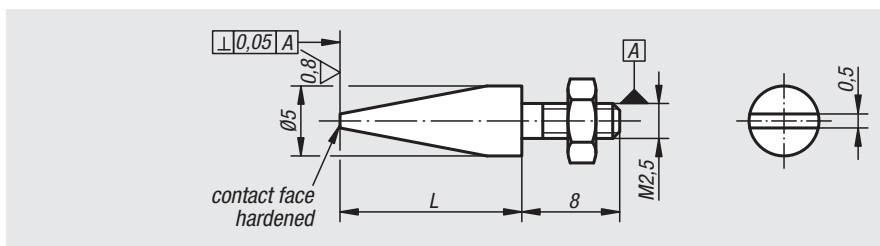


Material:
Steel.

Version:
Black oxidised.
Contact faces hardened.

Sample order:
nlm 33044-025080

Note:
Dial gauges see 32540 and 32542.



Order No.	L
33044-025080	8
33044-025125	12,5
33044-025160	16
33044-025200	20
33044-025280	28

Probe inserts

with flat face

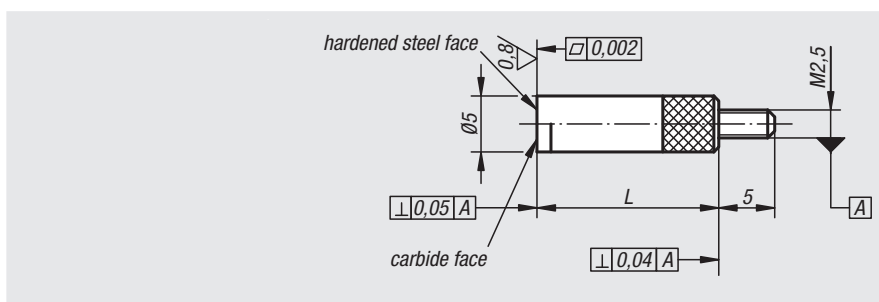


Material:
Steel or carbide contact face

Version:
Black oxidised.

Sample order:
nlm 33046-2025160

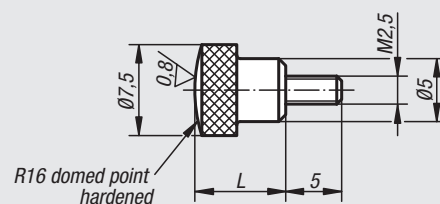
Note:
Dial gauges see 32540 and 32542.



Order No. steel	Order No. carbide	L
33046-1025080	33046-2025080	8
33046-1025125	33046-2025125	12,5
33046-1025160	33046-2025160	16

Probe inserts

with domed face


Material:

Steel.

Version:

Hardened, black oxidised.

Sample order:

nIm 33048-025080

Note:

Dial gauges see 32540 and 32542.

Order No.

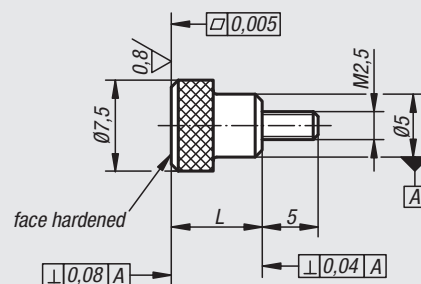
L

33048-025080

8

Probe inserts

with enlarged flat face


Material:

Steel.

Version:

Hardened, black oxidised.

Sample order:

nIm 33050-025080

Note:

Dial gauges see 32540 and 32542.

Order No.

L

33050-025080

8

Extensions

for probe inserts


Material:

Steel.

Version:

Black oxidised.

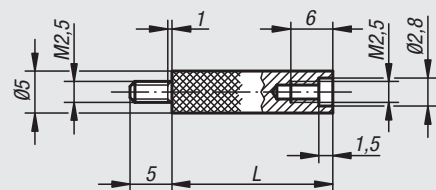
Sample order:

nln 33052-025120

Note:

Suitable for probe inserts 33040 to 33050 and probe insert set 33058.

Dial gauges see 32540 and 32542.



Order No.	L
33052-025080	8
33052-025100	10
33052-025120	12
33052-025160	16
33052-025200	20
33052-025240	24
33052-025300	30
33052-025320	32
33052-025400	40
33052-025500	50
33052-025600	60
33052-025700	70
33052-025800	80
33052-025900	90

33058

Probe insert set

11-piece

Material:

Probe inserts hardened steel.
Box plastic.

Version:

Black oxidised.

Sample order:

nln 33058-01

Threaded version:

Thread M2.5

Contents:

9 inserts

1 extension (length 30 mm)

1 storage box



Order No.	Item	Version 1	Material
33058-01	Probe	11 piece	steel

Probe inserts hardened steel

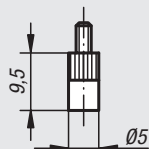
thread M2.5



Steel, hardened
flat Ø5

Order No.

33058-015



Steel, hardened
flat Ø7.5

Order No.

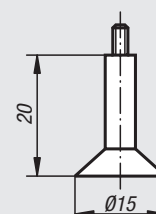
33058-020



Steel, hardened
flat Ø15

Order No.

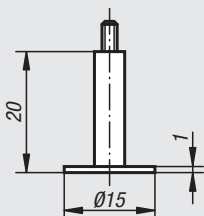
33058-025



Steel, hardened
disc Ø15

Order No.

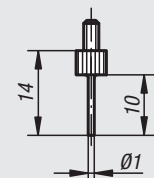
33058-030



Steel, hardened
pin Ø1

Order No.

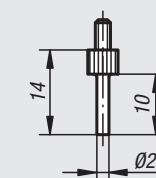
33058-035



Steel, hardened
pin Ø2

Order No.

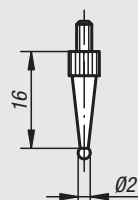
33058-040



Steel, hardened
ball Ø2

Order No.

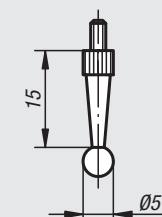
33058-045



Steel, hardened
ball Ø5

Order No.

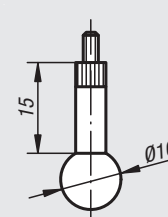
33058-050



Steel, hardened
ball Ø10

Order No.

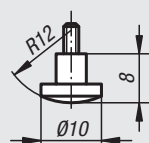
33058-055



Steel, hardened
domed R12

Order No.

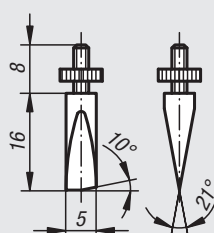
33058-060



Steel, hardened
knife angled 10°

Order No.

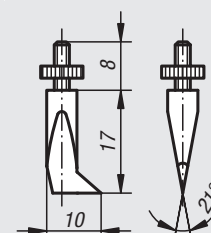
33058-065



Steel, hardened
knife laterally off-set

Order No.

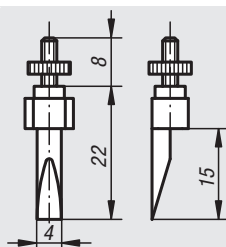
33058-070



Steel, hardened
knife one-sided

Order No.

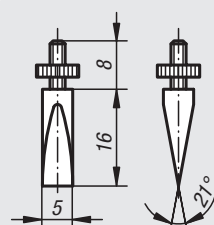
33058-075



Steel, hardened
knife

Order No.

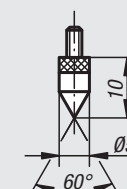
33058-080



Steel, hardened
point 60°

Order No.

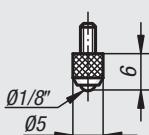
33058-085



Steel, hardened
standard inch
ball Ø 1/8"

Order No.

33058-090



Probe inserts carbide

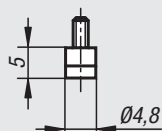
thread M2.5



Carbide
flat Ø5

Order No.

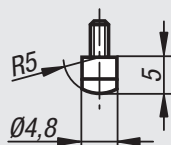
33058-515



Carbide
domed R5

Order No.

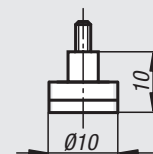
33058-520



Carbide
flat Ø10

Order No.

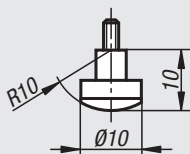
33058-525



Carbide
domed R10

Order No.

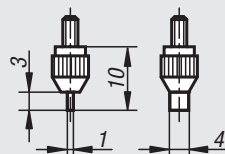
33058-530



Carbide
blade 1x4

Order No.

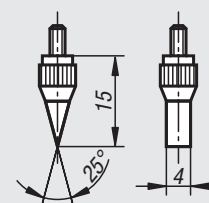
33058-540



Carbide
knife 25°x4

Order No.

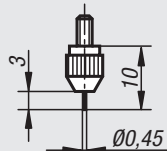
33058-545



Carbide
pin Ø0,45

Order No.

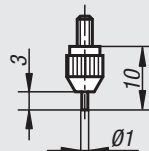
33058-550



Carbide
pin Ø1.0

Order No.

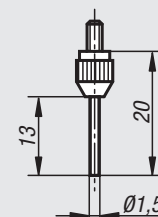
33058-555



Carbide
pin Ø1.5

Order No.

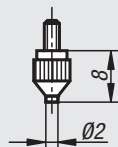
33058-560



Carbide
flat Ø2

Order No.

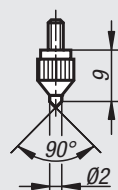
33058-565



Carbide
point 90°x2

Order No.

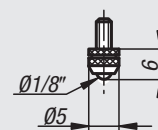
33058-570



Carbide
standard inch
ball Ø1/8"

Order No.

33058-575



Protection frames

for dial gauges


Material:

Steel.

Version:

Painted yellow

Sample order:

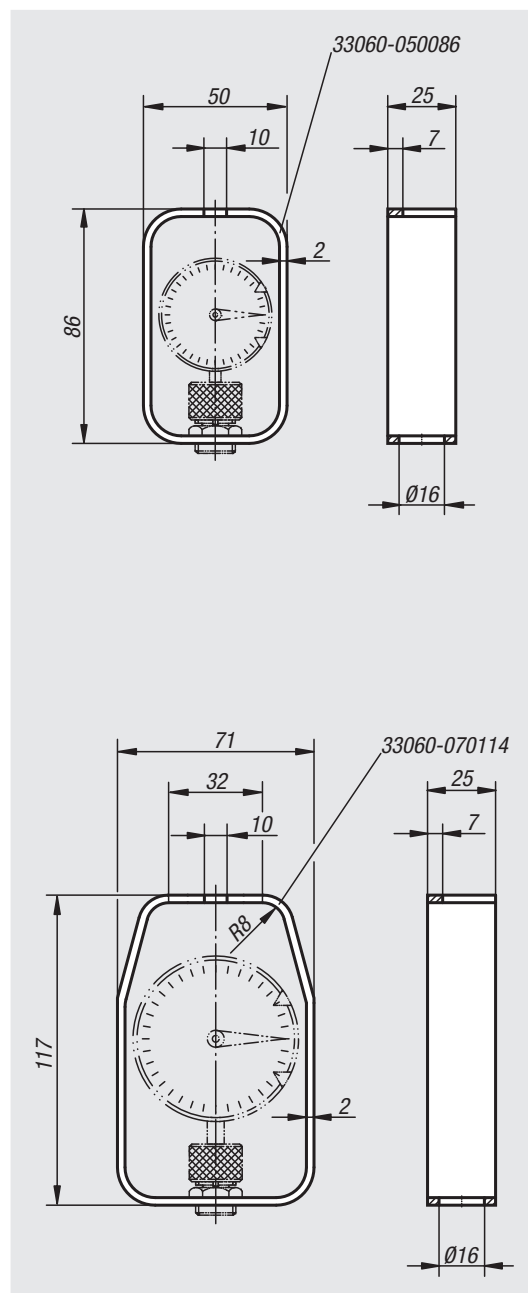
nIm 33060-050086

Note:

Dial gauges see 32540 and 32542.

Dial gauge collets see 33000.

Dial gauge holders see 33010 to 33018.



Order No.	Dimensions
33060-050086	see drawing
33060-070114	see drawing

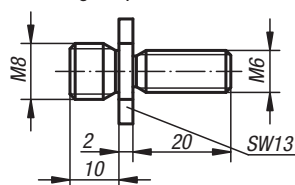
Technical information for deflection dial gauge holders

For alternative mounting for the deflection dial gauge holder:

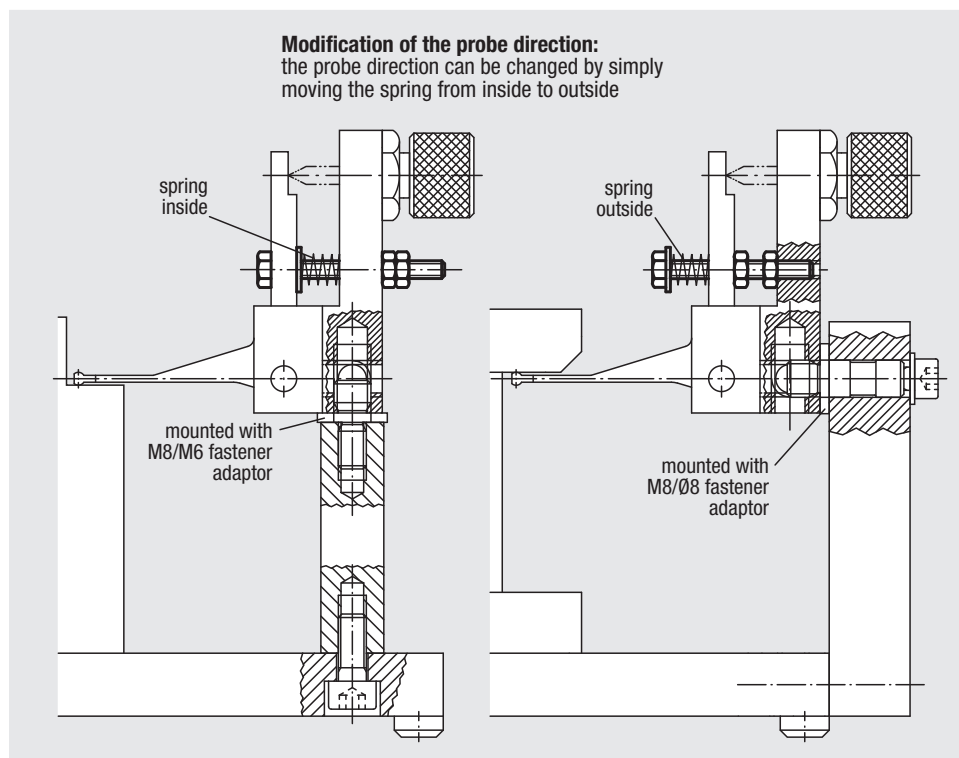
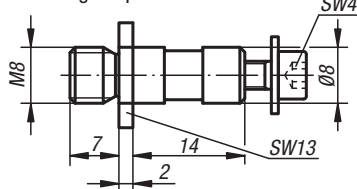
- mounting adaptor M8/M6 (double thread)
- mounting adaptor M8/Ø8 (thread and smooth pin)

Both adapters are supplied with each deflection dial gauge holder.

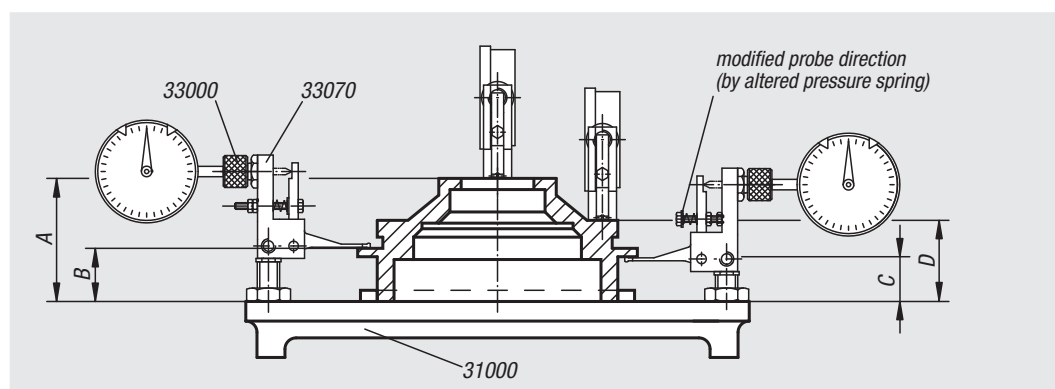
mounting adaptor M8/M6



mounting adaptor M8/Ø8



Example of simultaneous control of 4 height dimensions using deflection dial gauge holders



Deflection dial gauge holders 90°



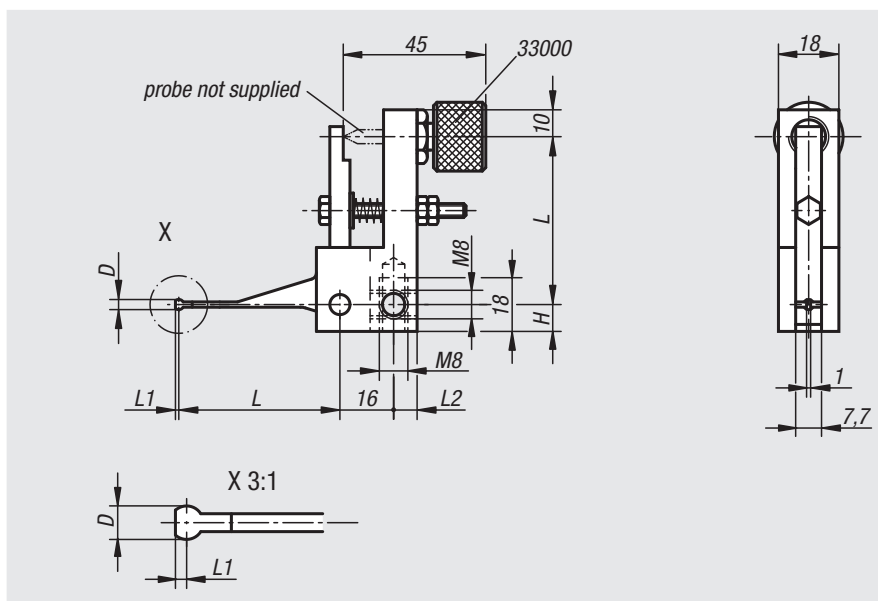
Material:
Steel.

Version:
Black oxidised.

Sample order:
nlm 33070-04803

Note:
To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

Accessories:
Dial gauges see 32540 and 32542.



Order No.	L	D	L1	L2	H
33070-04803	48	3	1	7	8
33070-07008	70	8	1,5	6	10

33072

Deflection dial gauge holders 90°

probe lever with thread



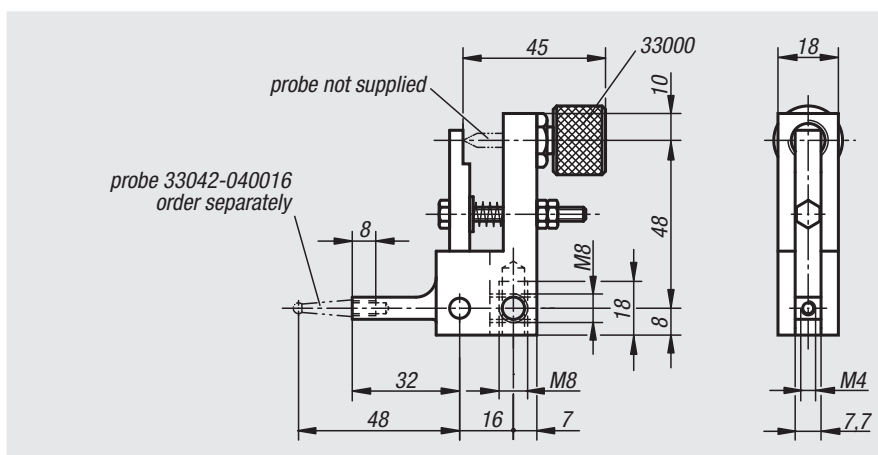
Material:
Steel.

Version:
Black oxidised.

Sample order:
nlm 33072-048

Note:
To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

Accessories:
Dial gauges see 32540 and 32542.
Probe inserts see 33042-040016.



Order No.	Dimensions
33072-048	see drawing

Deflection dial gauge holders 90°

probe lever with hole



Material:

Body aluminium.
Probe lever investment cast steel.

Version:

Body black anodised.
Probe lever black oxidised.

Sample order:

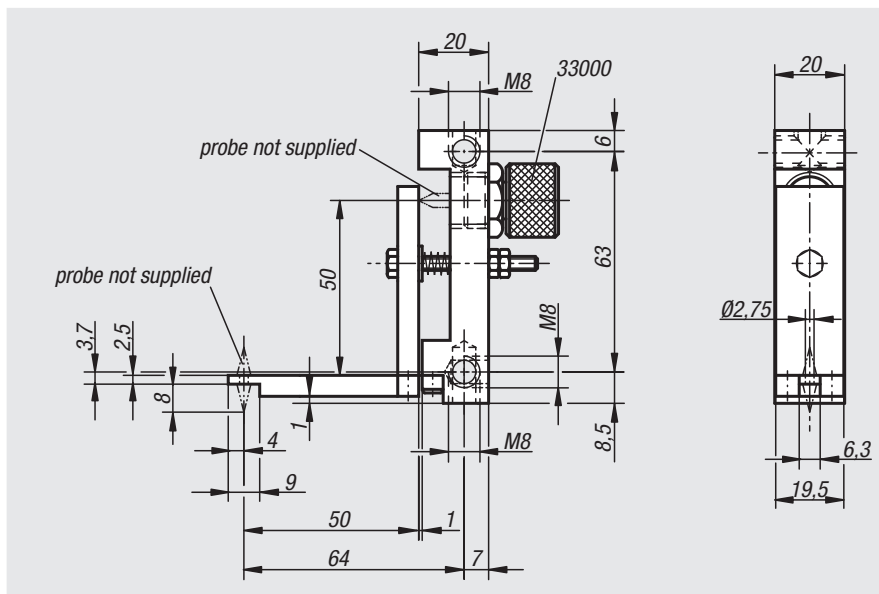
nlm 33074-050

Note:

To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

Accessories:

Dial gauges see 32540 and 32542.
Probe inserts see 33040 to 33052.



Order No.	Dimensions
33074-050	see drawing

Deflection dial gauge holders 180°

probe lever with hole



Material:

Body aluminium.
Probe lever investment cast steel.

Version:

Body black anodised.
Probe lever black oxidised.

Sample order:

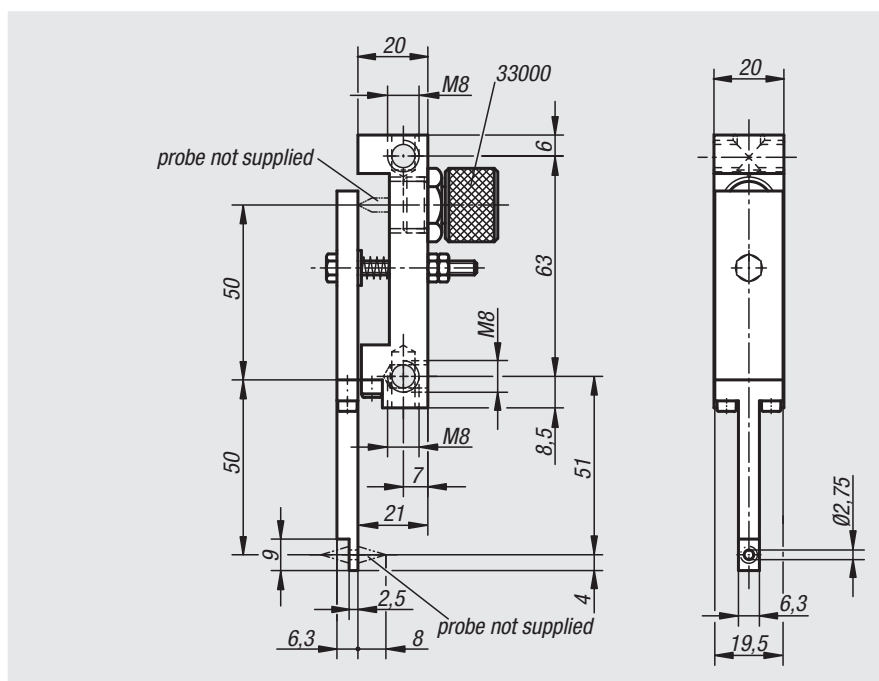
nlm 33076-050

Note:

To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

Accessories:

Dial gauges see 32540 and 32542.
Probe inserts see 33040 to 33052.



Order No.	Dimensions
33076-050	see drawing

Deflection dial gauge holders 90°

probe lever with thread



Material:

Body aluminium.
Probe lever investment cast steel.

Version:

Body black anodised.
Probe lever black oxidised.

Sample order:

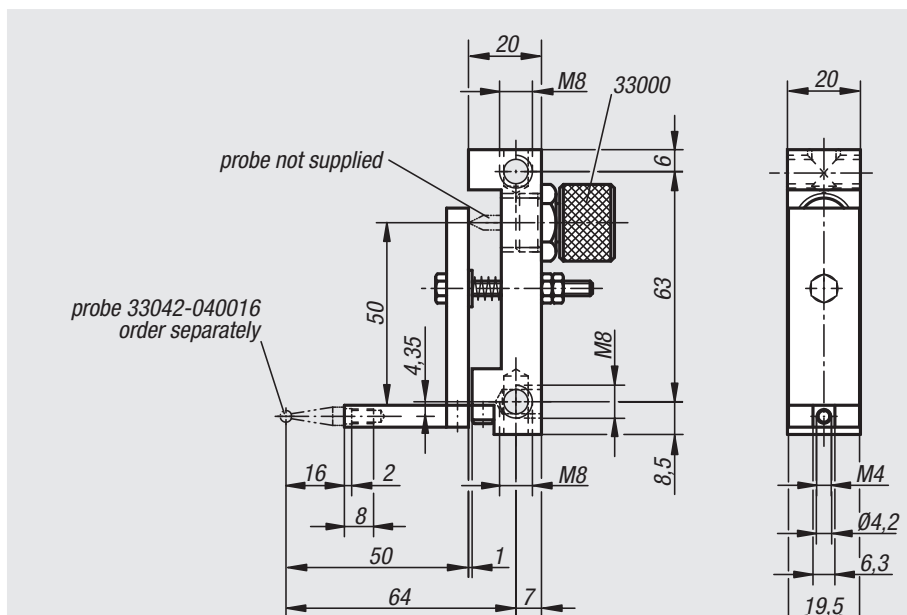
nln 33078-050

Note:

To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

Accessories:

Dial gauges see 32540 and 32542.
Probe inserts see 33042-040016.



Order No.	Dimensions
33078-050	see drawing

Deflection dial gauge holders 180°

probe lever with thread



Material:

Body aluminium.
Probe lever investment cast steel.

Version:

Body black anodised.
Probe lever black oxidised.

Sample order:

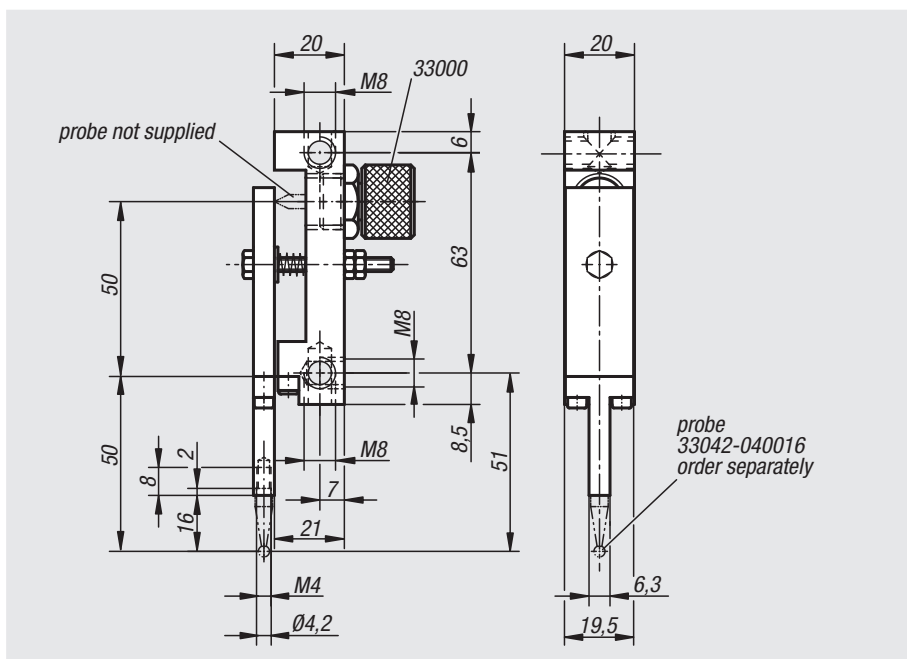
nln 33080-050

Note:

To alter the probe direction and mounting of the deflection dial gauge holder with the fastening adaptors (supplied) see technical information.

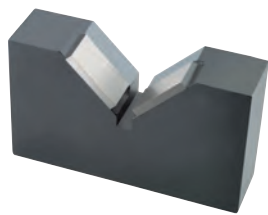
Accessories:

Dial gauges see 32540 and 32542.
Probe inserts see 33042-040016.



Order No.	Dimensions
33080-050	see drawing

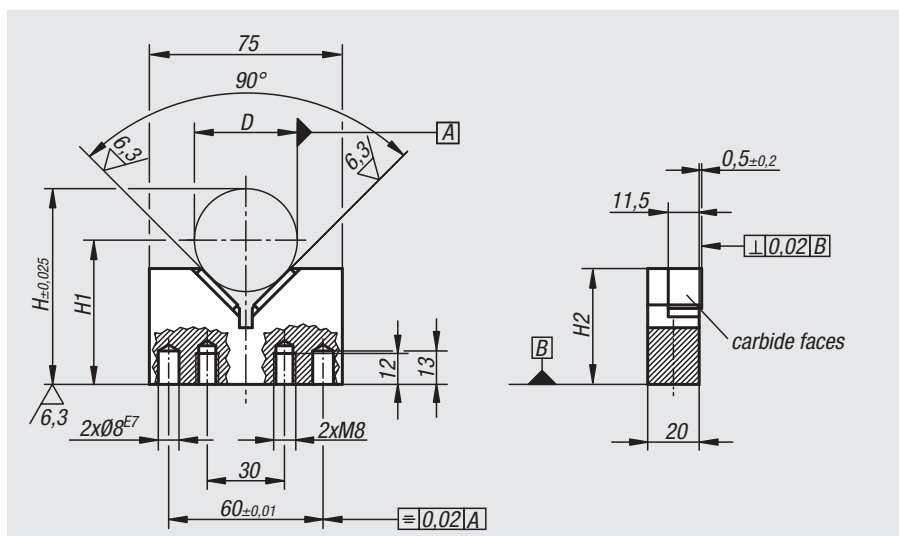
Prism attachments



Material:
Carbon steel.
Contact face carbide.

Version:
Black oxidised.
Contact faces ground, bright.

Sample order:
nlm 33090-010020



Order No.	D min.	D max.	D Test-Ø	H	H1	H2
33090-010020	10	20	20	66	$D/2 \times \sqrt{2} + 41,857$	53
33090-020040	20	40	40	76	$D/2 \times \sqrt{2} + 27,716$	45

33092

Spacers

for prisms attachments

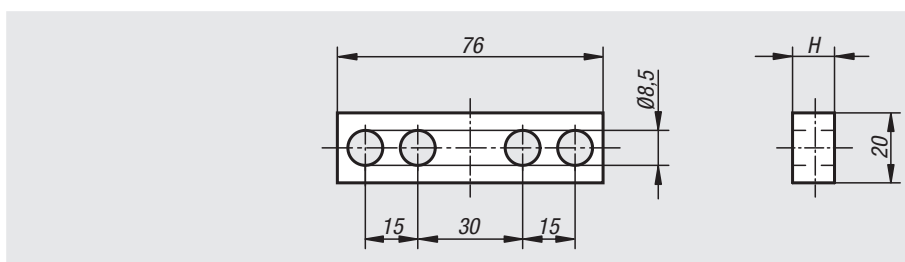


Material:
Carbon steel.

Version:
Black oxidised.

Sample order:
nlm 33092-012

Note:
These spacers are used as riser elements
for prisms attachments 33090.



Order No.	H
33092-005	5
33092-008	8
33092-012	12
33092-015	15
33092-020	20

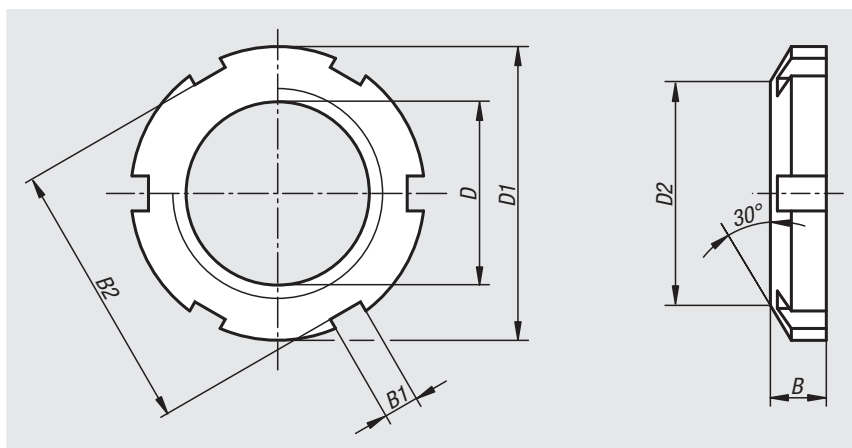
Slotted round nuts



Material:
Carbon steel.

Version:
Black oxidised.

Sample order:
nlm 33105-16



Order No.	D	D1	D2	B	B1	B2	No. of slots
33105-16	M16x1	26	21	6	4	22	4
33105-36	M36x1,5	52	44	9	6	46	6

Pivoting columns



Material:
Steel.

Version:
Black oxidised.

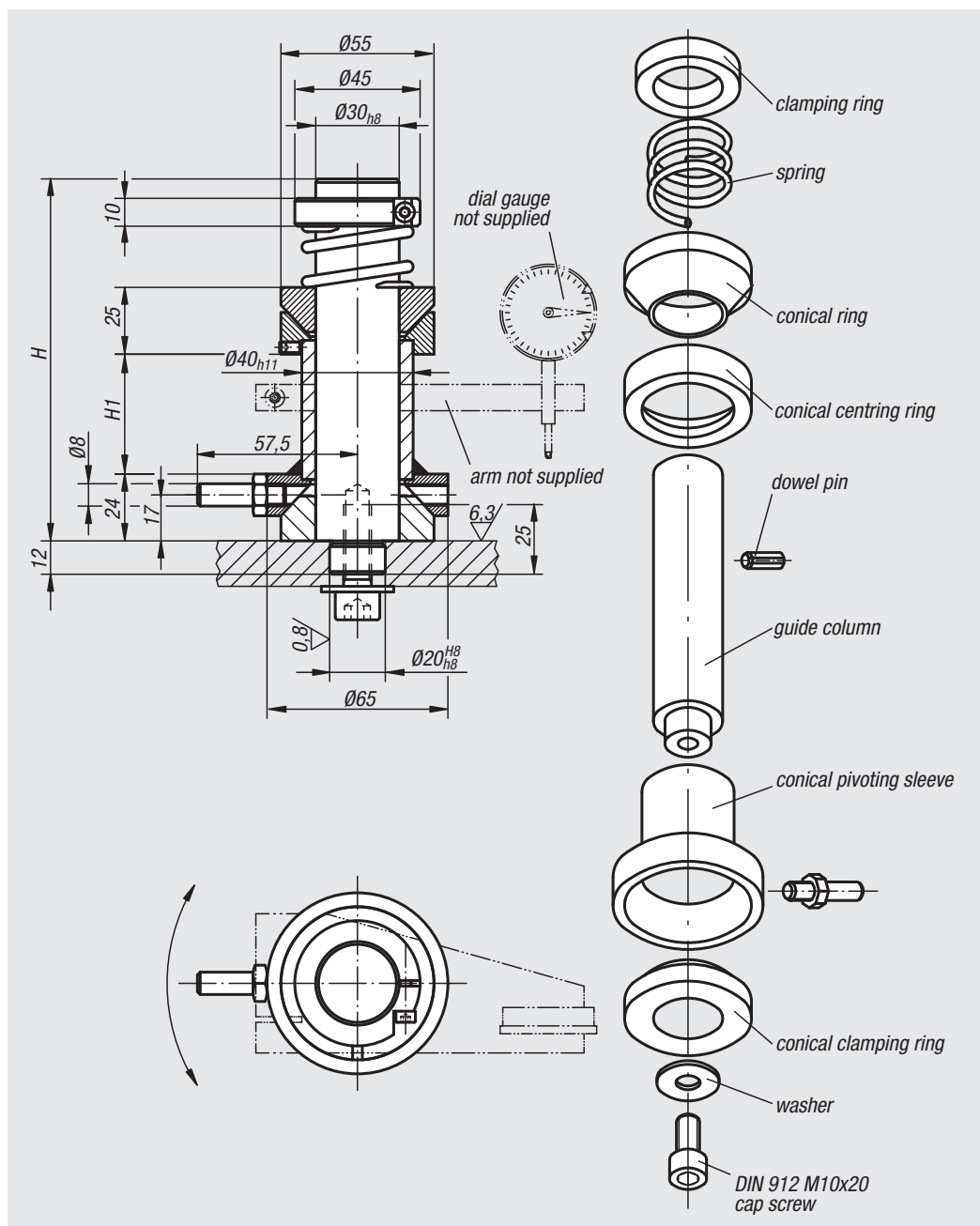
Sample order:
nlm 33110-200

Note:
Dial gauges see 32540 and 32542.
Measuring arms see 33150.

Application:
For height measurements.

Assembly:

- Fully dismantle the pivoting column.
- Fasten guide column to the table with washer and cap screw.
- Slide the conical clamping ring on the column and press down while tightening the screw.
- Slide the conical pivoting sleeve on.
- Fasten the measuring arm onto the conical pivoting sleeve.
- Fasten the conical centring ring onto the conical pivoting sleeve with two grub screws.
- Insert the dowel pin into the guide column.
- Slide the conical ring onto the guide column so that the dowel pin engages in the slot. Ensure the conical ring has no play.
- Mount the spring on the top with the clamping ring to prevent axial play.
- Lubricate all moving parts.



Order No.	H	H1
33110-130	130	43
33110-160	160	73
33110-200	200	113
33110-250	250	163

Pivoting systems



Material:
Steel.

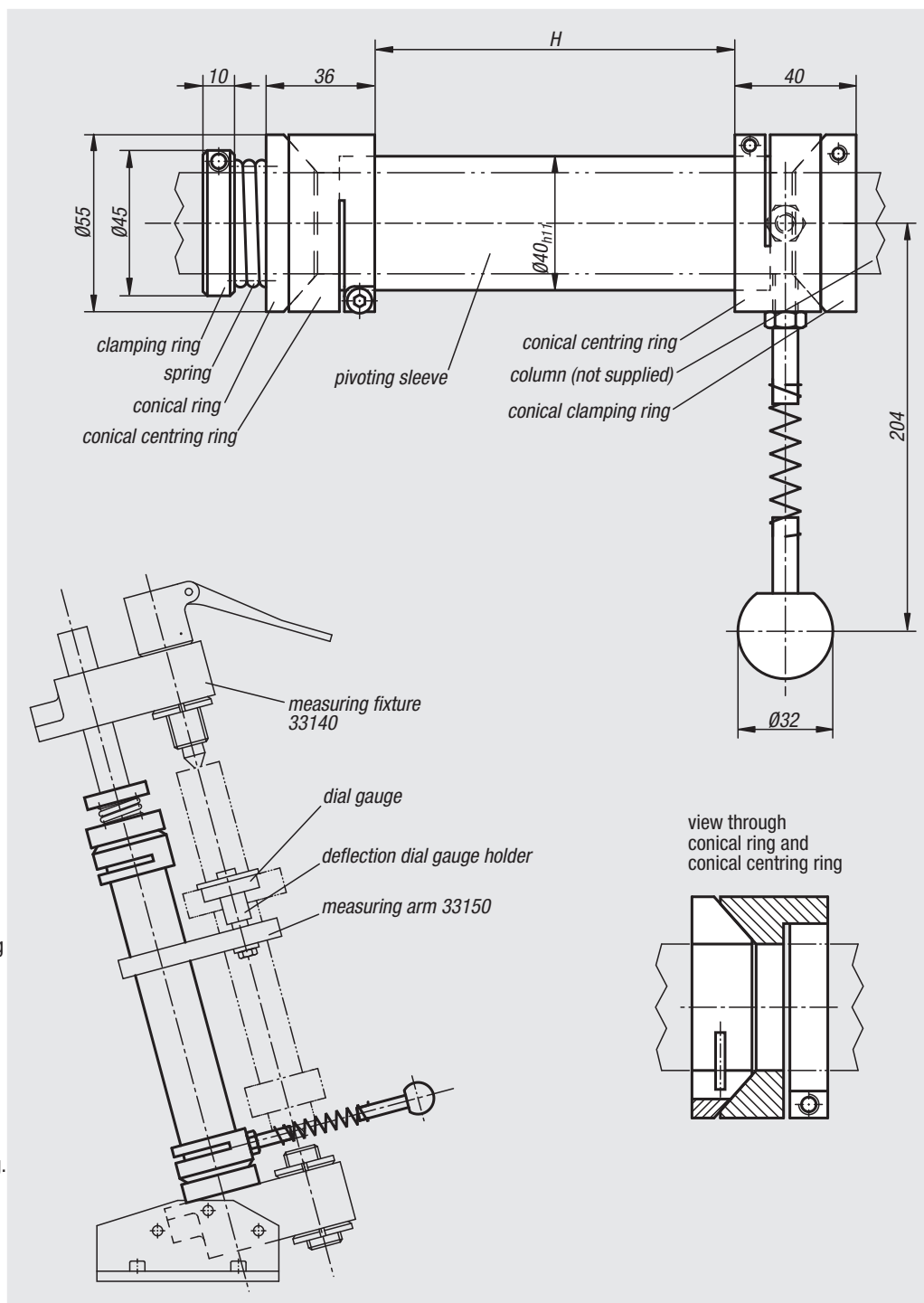
Version:
Black oxidised.

Sample order:
nlm 33115-426

Note:
The pivoting systems are adapted to measuring fixtures 33140.
Measuring arms see 33150.

Assembly:

- Place the conical clamping ring on the guide column and clamp in the desired position.
- Fix the conical centring ring to the pivoting sleeve and insert it such that the conical centring ring lies on top of the conical clamping ring.
- Fix the measuring arm onto the pivoting sleeve.
- Fix the second conical centring ring onto the pivoting sleeve.
- Insert the conical ring and pressure spring.
- Mount the pressure spring on the block with the clamping ring to prevent axial play.
- Lubricate all moving parts.



Order No.	H
33115-200	200
33115-276	276
33115-426	426
33115-536	536

Measuring fixtures

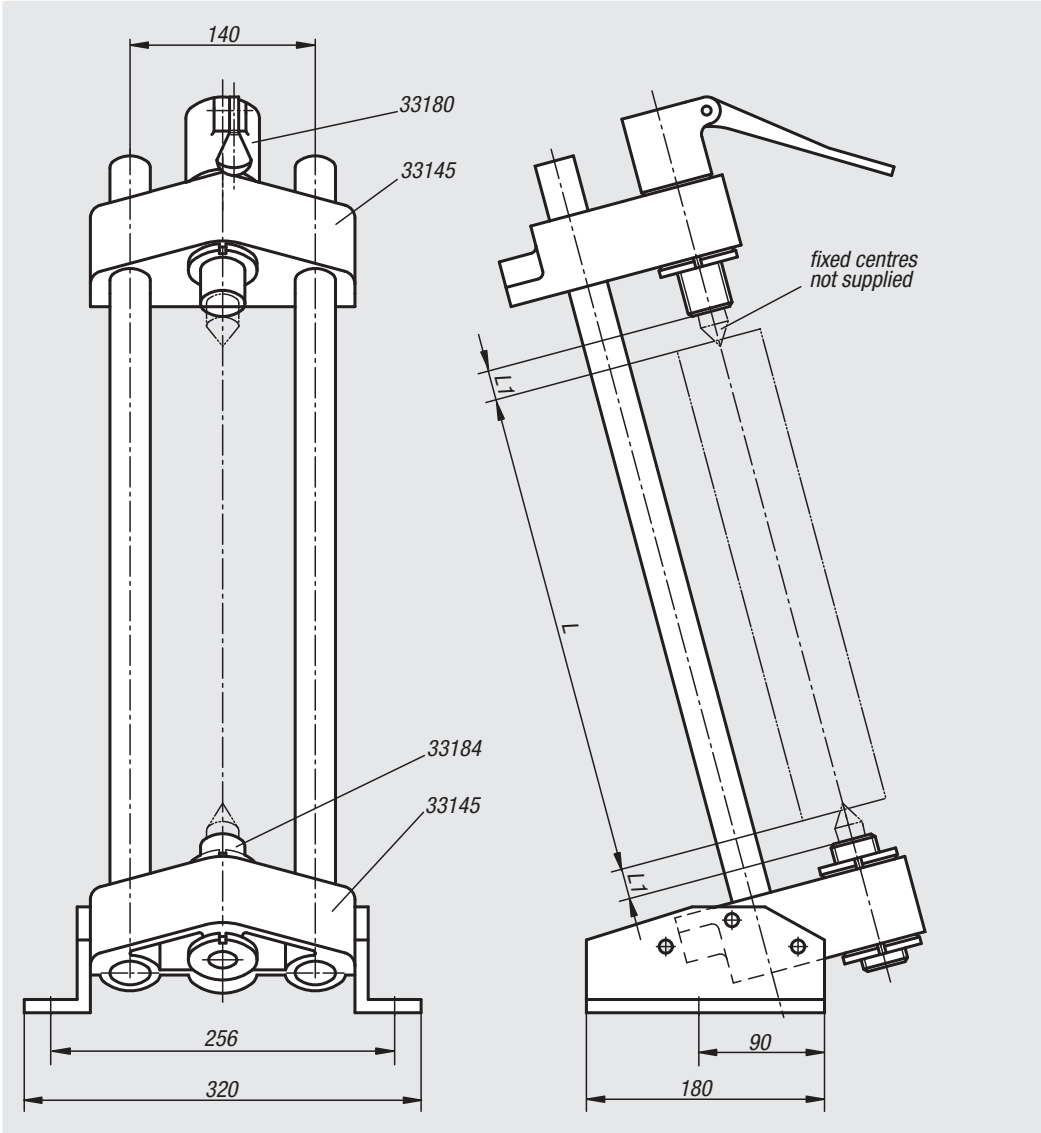


Material:
Steel.
Shaft bearing GJL 200

Version:
Steel parts black oxidised.
Shaft bearing painted.

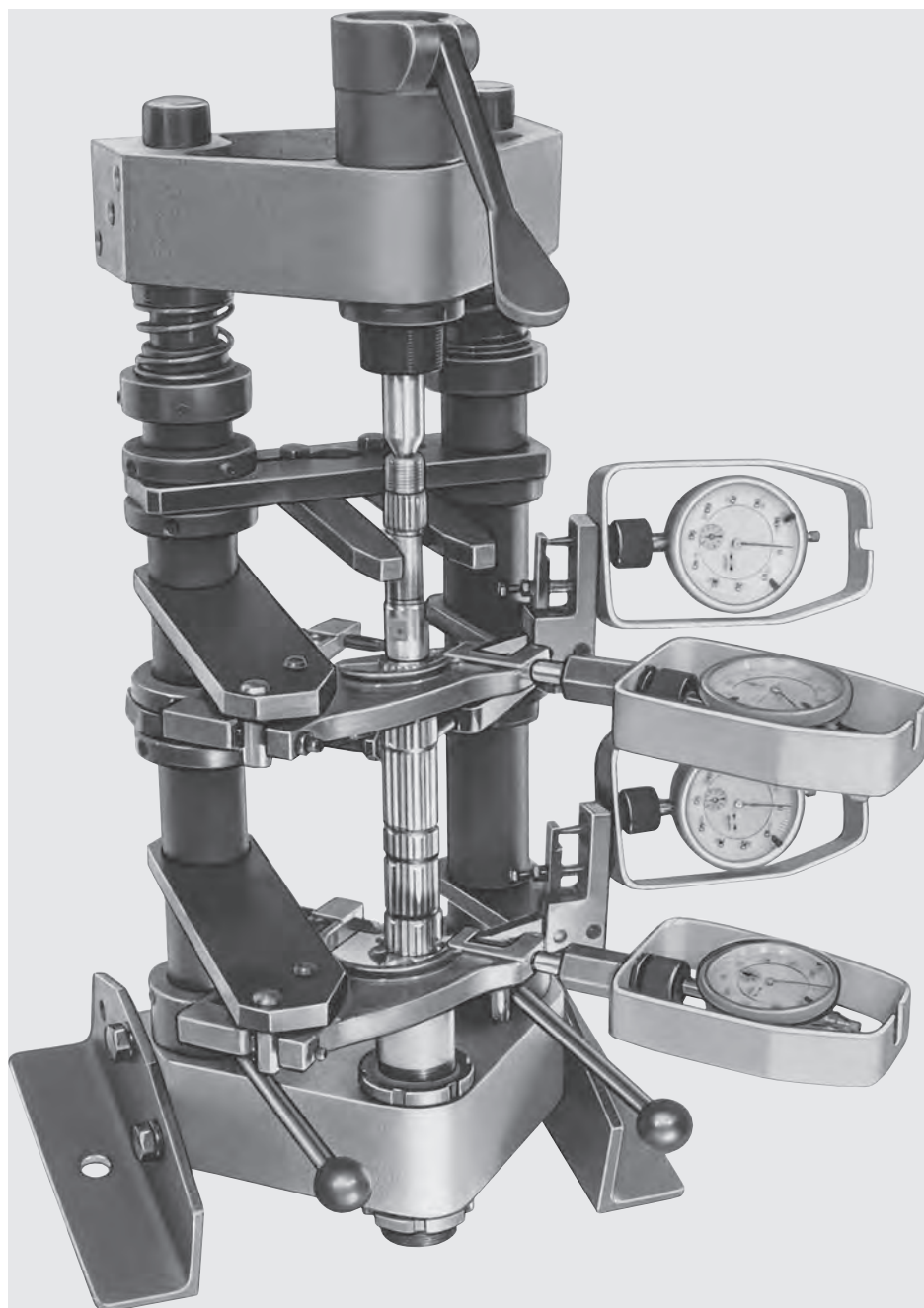
Sample order:
nlm 33140-240444

Note:
See example of a measuring fixture.



Order No.	L when L1 = 32 with fixed centre 33190-02096	L when L1 = 49 with fixed centre 33190-02113
33140-240444	274-444	240-410
33140-410524	444-524	410-490

Example of a measuring fixture



Measuring arms

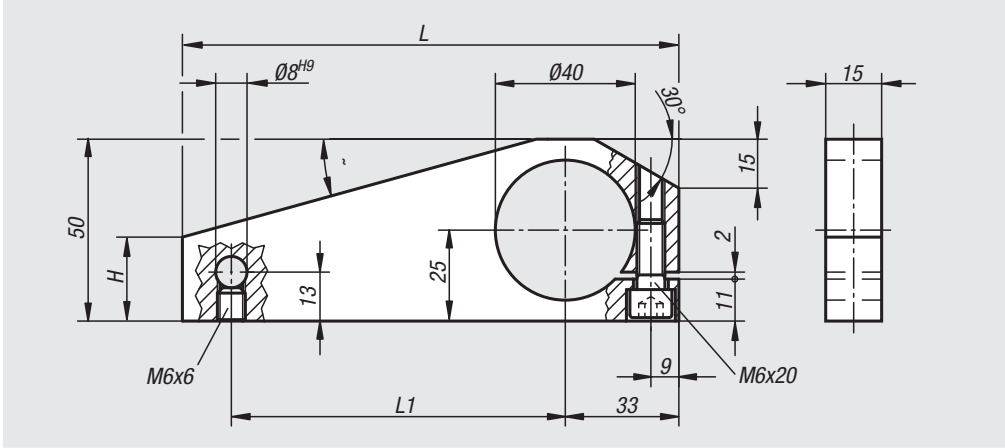


Material:
Steel.

Version:
Black oxidised.

Sample order:
nlm 33150-095

Note:
The measuring arms are suitable for pivoting columns 33110 and pivoting systems 33115.



Order No.	L	L1	H	α
33150-095	95	50	18	30°
33150-140	140	95	23	15°

20000
21000
22000
23000
24000
26000
27000
28000
29000
31000
32000
33000

Spring mounted centre sleeves

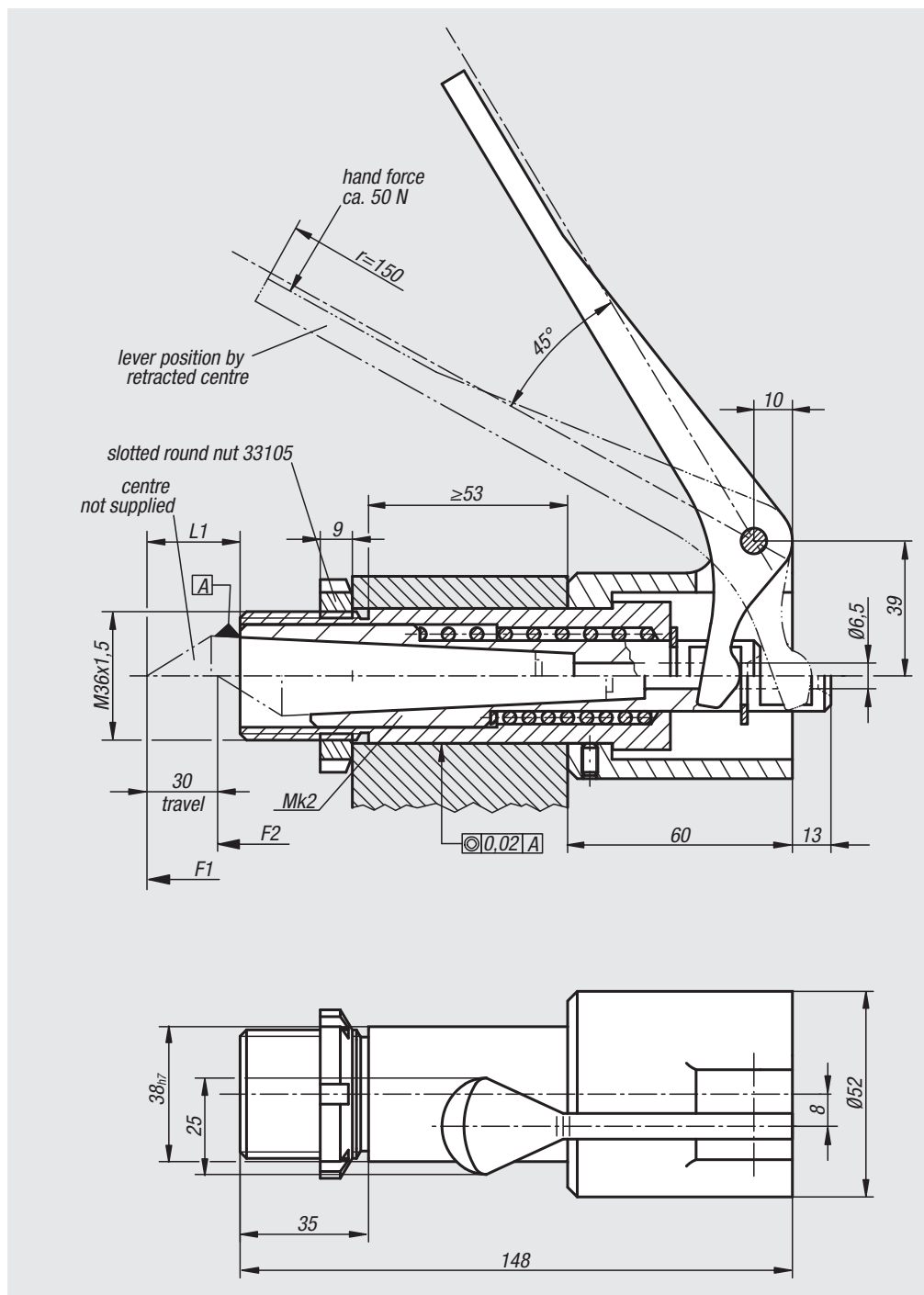
with tension lever



Material:
Steel.

Version:
Black oxidised.

Sample order:
nlm 33180-02



Order No.	L1	Matching fixed centre	Spring force initial pressure F1 approx. N	Final pressure F2 approx. N
33180-02	32	33190-02096	100	150
	41	33190-02105		
	49	33190-02113		

Centre sleeves

spring mounted with retraction cam



Material:

Steel.
Ball black thermoset PF 31.

Version:

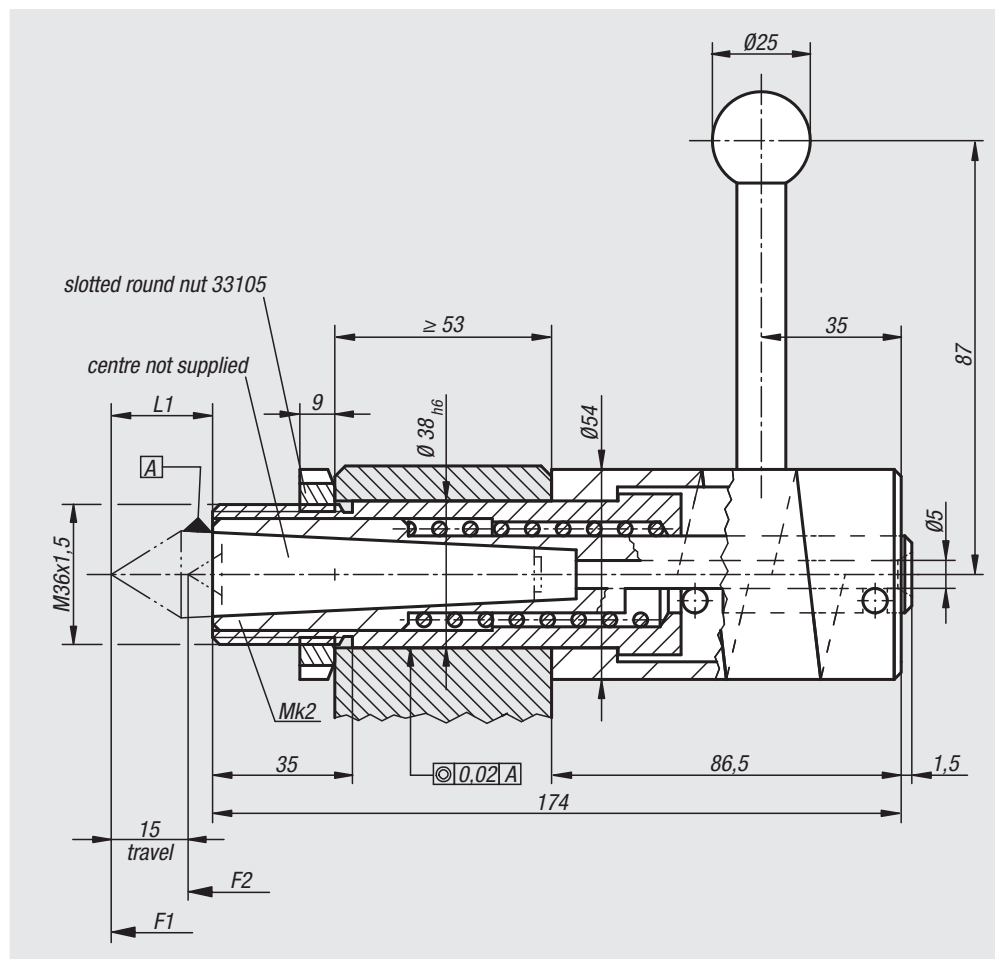
Black oxidised.

Sample order:

nIm 33182-02

Note:

The max. travel of 15 mm is achieved by rotating the cam 180°.



Order No.	L1	Matching fixed centre	Spring force initial pressure F1 approx. N	Final pressure F2 approx. N
33182-02	32	33190-02096	100	137
	41	33190-02113		
	49	33190-02105		

Adjustable holder

for fixed centres


Material:

Body 1.7220

Version:

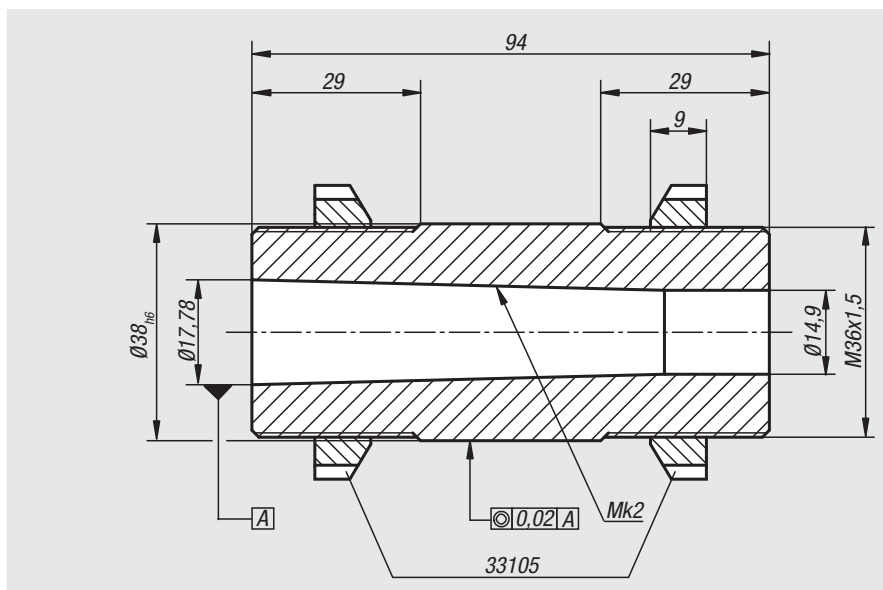
Black oxidised.

Sample order:

nIm 33184-02

Note:

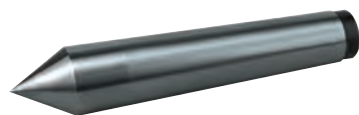
Matching fixed centre 33190.



Order No.	Dimensions
33184-02	see drawing

33190

Fixed centres


Material:

1.2067

Version:

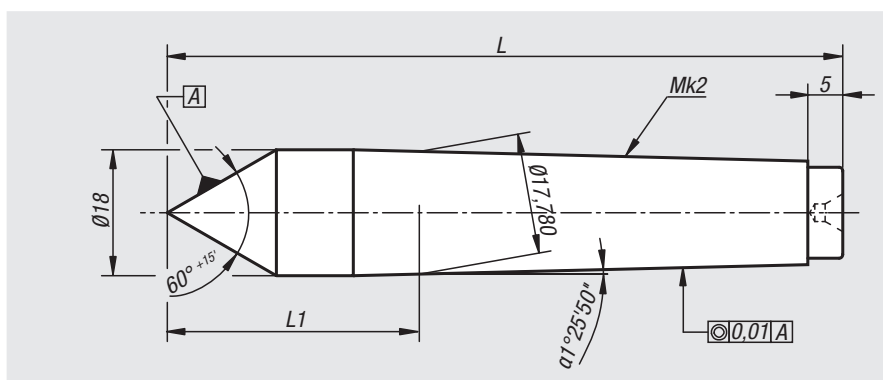
Hardened and ground, bright.

Sample order:

nIm 33190-02105

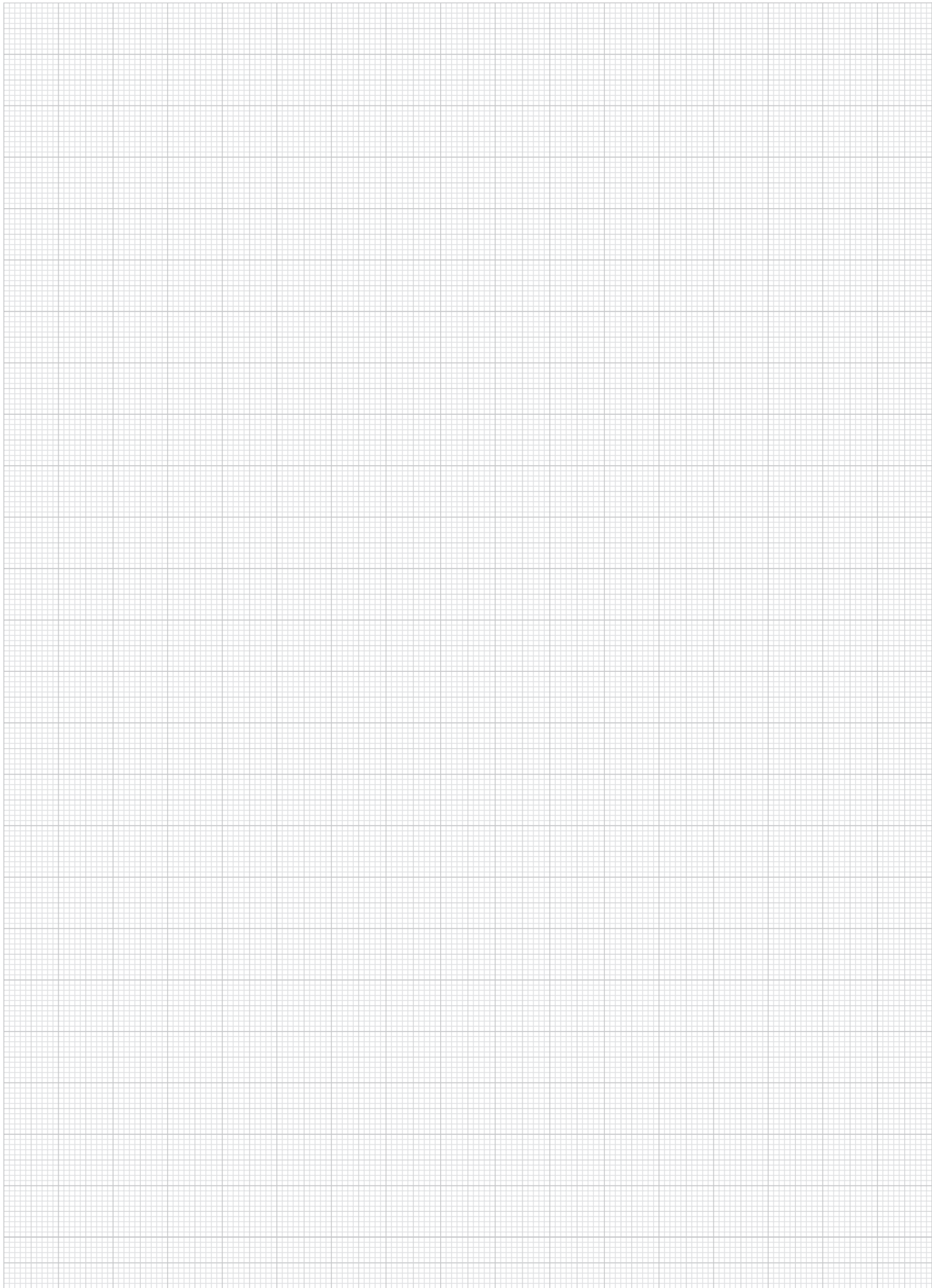
Note:

These fixed centres fit in 33180, 33182 and 33184.



Order No.	L	L1
33190-02096	96	32
33190-02105	105	41
33190-02113	113	49

Notes



20000
21000
22000
23000
24000
26000
27000
28000
29000
31000
32000
33000

Measuring element

for gear wheels


Material:

Steel.

Version:

Black oxidised.

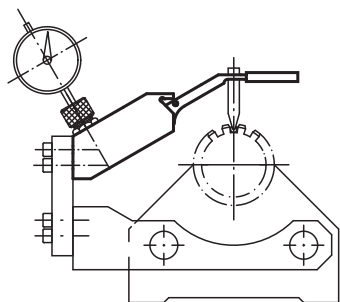
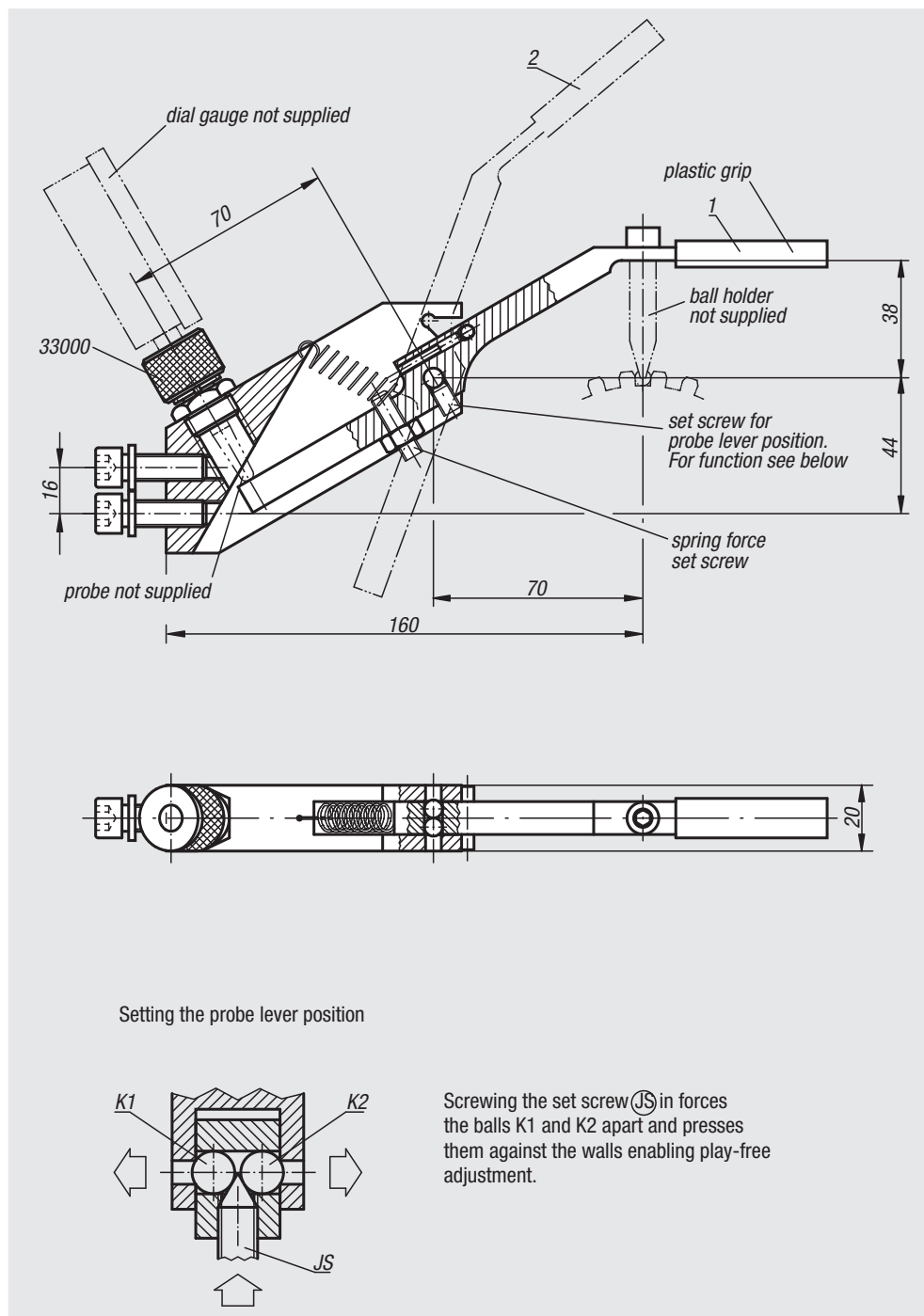
Sample order:

nln 33202-070

Note:

- 1 = Probe lever in test position
2 = Probe lever at rest, engaged

Suitable ball holder see 32205.
Dial gauges see 32540 and 32542.
Probe inserts see 33040 up to 33052.



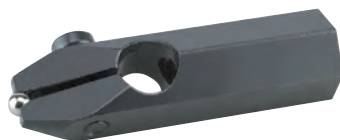
Order No.

Dimensions

33202-070

see drawing

Ball holders


Material:

Spring steel

Version:

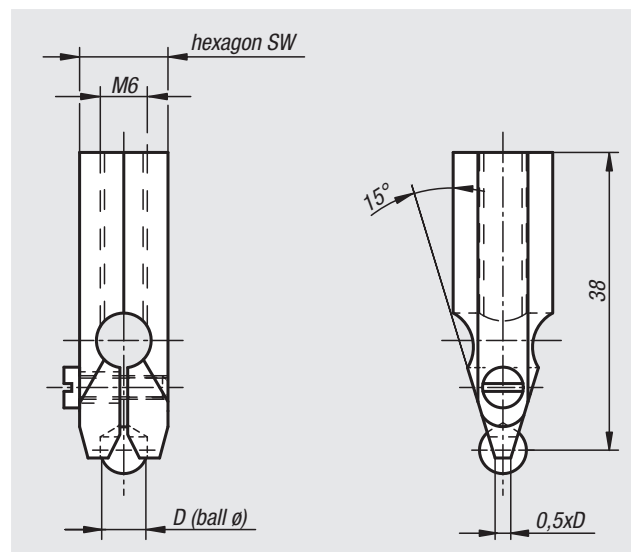
Black oxidised.

Sample order:

nIm 33205-03500

Note:

Carbide balls available on request.
The ball holders fit in the measuring
element for gear wheels 33202.



Order No.	D	SW
33205-02000	2	10
33205-02380	2,38	10
33205-02500	2,5	10
33205-03000	3	10
33205-03500	3,5	10
33205-03960	3,96	10
33205-04000	4	10
33205-04500	4,5	10
33205-04760	4,76	10
33205-05000	5	10
33205-05560	5,56	10
33205-06000	6	10
33205-06500	6,5	13
33205-07000	7	13
33205-07540	7,54	13
33205-07938	7,938	13
33205-08500	8,5	13
33205-09520	9,52	13
33205-10000	10	13

Precision vice



Material:
Steel.

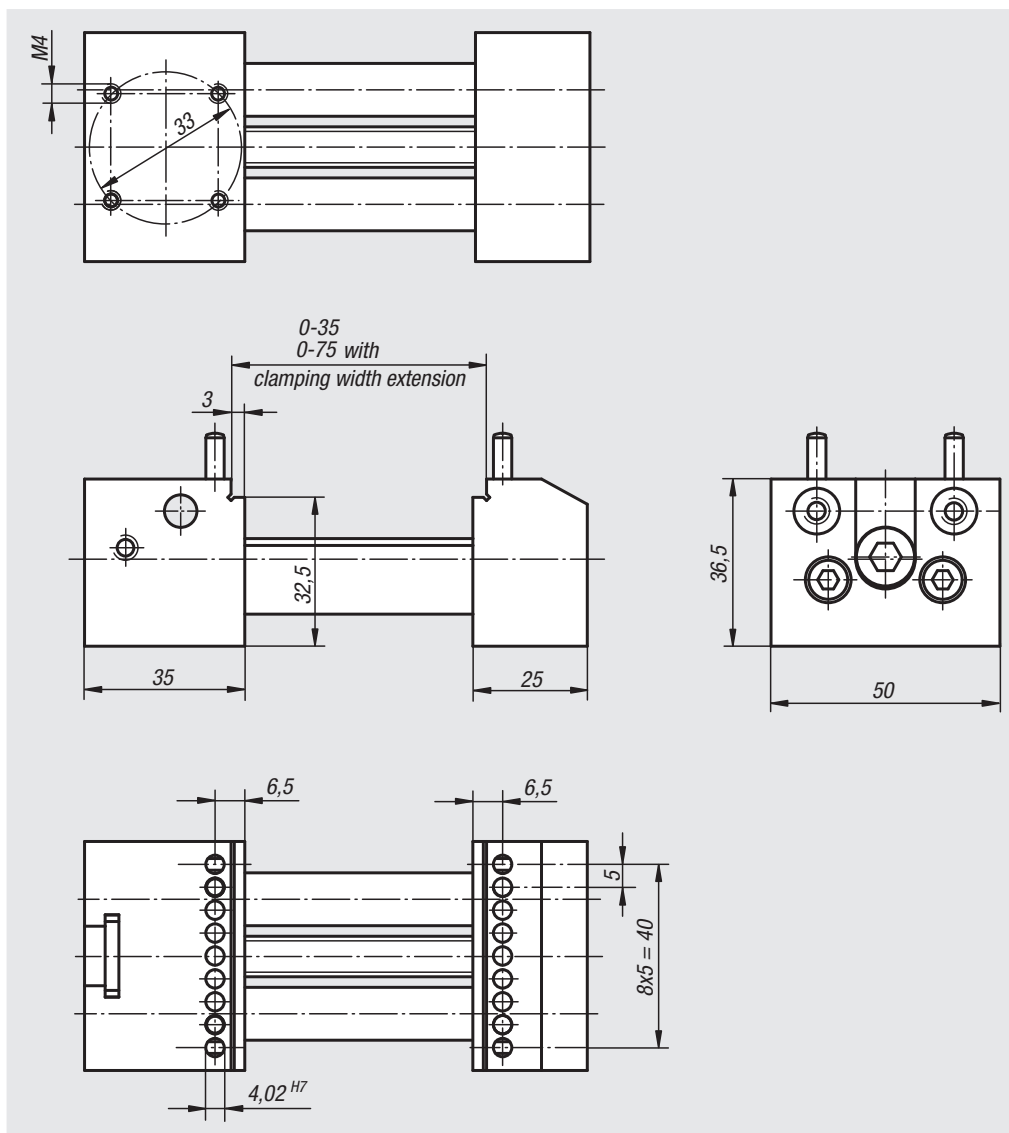
Version:
surface-hardened and precision-ground.

Sample order:
nlm 33225-500351

Note:
The precision vice is a flexible solution for positioning and securing workpieces quickly and easily for metrology machines. Parts are held in the offset jaws or pins that can be inserted into the jaws. The pins allow workpieces to be held in bores. The interchangeable guide columns allow the clamping width to be increased from 35 mm to up to 75 mm. The vice can be placed on the inspection table in 4 positions at right angles to each other.

The vice is supplied with an adjustable stop, a set of columns for extending the clamping width up to 75 mm, a spindle extension, 4 pins and operating tool.

On request:
Set of columns for extending the clamping width 100 mm or 150 mm.



Order No.

Dimensions

33225-500351

see drawing

Accessories for precision vice



33225-01
Offset cylindrical pins
for clamping tall parts



33225-03
Offset cylindrical pins
for clamping tall parts
with 120° vee block



33225-05
Jaws for small parts



33225-06
Prism jaws



33225-07
Prism jaws
with two-point contact

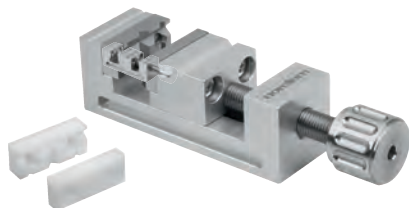


33225-08
Prism jaws
with three-point contact

Order No.	Item	Material	Clamp range	Supplied with
33225-01	Dowel Pin	steel	-	4-piece set
33225-03	Dowel Pin	steel	-	4-piece set
33225-05	Jaw	stainless steel	<3	single with fastening screws
33225-06	Prism Jaw	stainless steel	Ø2-Ø10	1 pair with fastening screws
33225-07	Prism Jaw	aluminium	Ø5-Ø20	1 pair with fastening screws
33225-08	Prism Jaw	aluminium	≤ Ø30	1 pair with fastening screws

Precision vices

stainless steel, aluminium or brass, mini



Material:

Precision vice: stainless steel, aluminium or brass.

Jaw plates: stainless steel or plastic

Version:

Aluminium matt anodised

Brass matt chromed.

Sample order:

nln 33225-10-15140

Note:

The precision vices in miniature design are a flexible solution to position and hold workpieces in measuring systems, microscopes, profile projectors etc. Ideal for clamping, measuring and machining small parts.

The jaw plates have prisms which enable cylindrical components to be easily and accurately clamped.

The stainless steel and plastic jaw plates have a parallel precision of 0.02 mm and an angular accuracy of 0.04 mm.

Supplied with:

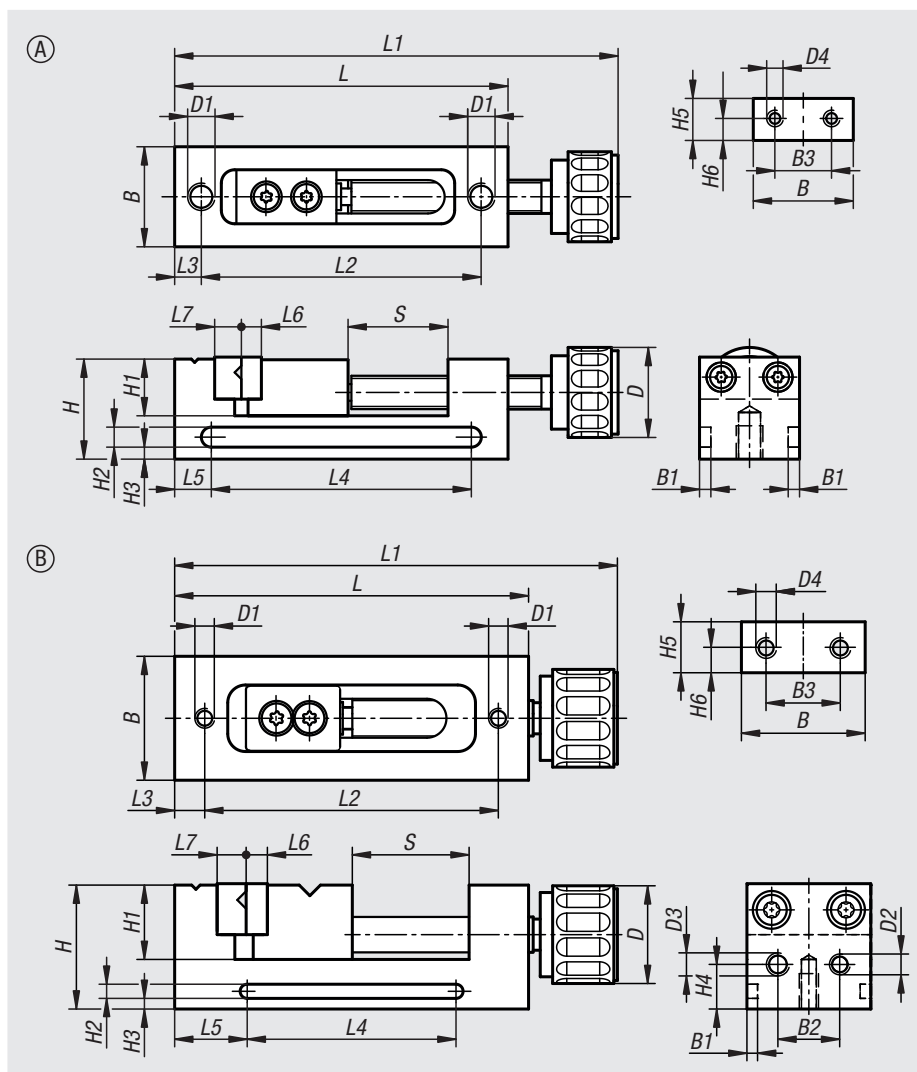
1x precision vice.

2x stainless steel jaw plates

2x plastic jaw plates (33225-10-15142, 33225-10-25231 and 33225-10-35321).

Accessories:

Jaw plates 33225-15 and mounting plates 33225-16.



Order No.	Form	Main material	Steel code	Surface finish body	Travel S	B	B1	B2	B3	D	D1	D2	D3	D4	
33225-10-15142	A	brass	-	matt chromed	14	15	1,7	-	8,5	13,5	M04X5	-	-	M02	
33225-10-15140	A	stainless steel	1.4021	-	14	15	1,7	-	8,5	13,5	M04X5	-	-	M02	
33225-10-25231	B	aluminium	-	matt anodised	23	25	3	12,5	15	19,7	M04X7	M04X5	M05X8	M4	
33225-10-25230	B	stainless steel	1.4021	-	23	25	3	12,5	15	19,7	M04X7	M04X5	M05X8	M4	
33225-10-35321	B	aluminium	-	matt anodised	32	35	3	17,5	21	27,6	M05X10	M05x10	M06X10	M5	
33225-10-35320	B	stainless steel	1.4021	-	32	35	3	17,5	21	27,6	M05X10	M05x10	M06X10	M5	
Order No.	H	H1	H2	H3	H4	H5	H6	L	L1	L2	L3	L4	L5	L6	L7
33225-10-15142	15	8,5	3	1,8	-	6,3	3,3	50	66,5-80,5	42	4	39	5,5	3	4
33225-10-15140	15	8,5	3	1,8	-	6,3	3,3	50	66,5-80,5	42	4	39	5,5	3	4
33225-10-25231	25	15	4	3	9	10,3	5	75	93,5-116,5	62,5	6,25	59	8	4,5	6,2
33225-10-25230	25	15	4	3	9	10,3	5	75	93,5-116,5	62,5	6,25	59	8	4,5	6,2
33225-10-35321	35	21	4	3	12,6	14,4	7	100	125-157	83	8,5	59	20,5	6	8,2
33225-10-35320	35	21	4	3	12,6	14,4	7	100	125-157	83	8,5	59	20,5	6	8,2

Stainless steel jaw plates

for precision vices



Material:

Stainless steel

Sample order:

nlm 33225-15-2520

Note:

Exchange jaw plates for the precision vice 33225-10.

Form A: Jaw plate set consisting of one prism plate and one smooth plate.

Form B: Stepped jaws.

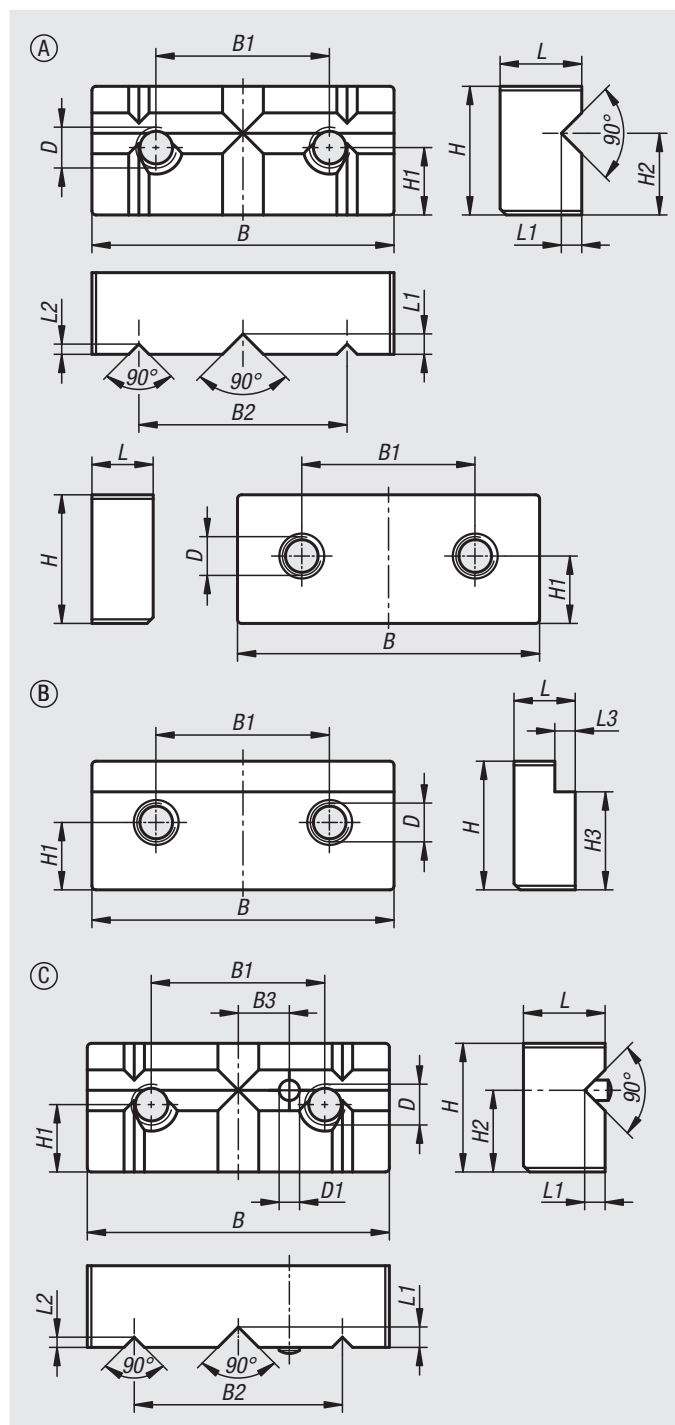
Form C: Prism jaws with stop pin.

Supplied with:

Form A: 1x prism plate and 1x smooth plate.

Form B: 1x stepped jaw.

Form C: 1x prism jaw with stop pin.



Order No.	Version 1	Version 2	Form	Packaging unit	B	B1	B2	B3	D	D1	H	H1	H2	H3	L	L1	L2	L3
33225-15-1520	1 pce. prism	1 pce. smooth finish	A	Set	15	8,5	10,2	-	M2	-	6,3	3,3	4	-	4/3	1	0,5	-
33225-15-2520	1 pce. prism	1 pce. smooth finish	A	Set	25	15	17	-	M4	-	10,3	5	7	-	6,2/4,5	2	1	-
33225-15-3520	1 pce. prism	1 pce. smooth finish	A	Set	35	21	23,8	-	M5	-	14,4	7	9,8	-	8,2/6	2,5	1,8	-
33225-15-1501	smooth	stepped	B	-	15	8,5	-	-	M2	-	6,3	3,3	-	4,8	3	-	-	1
33225-15-2501	smooth	stepped	B	-	25	15	-	-	M4	-	10,3	5	-	8,5	4,5	-	-	1,3
33225-15-3501	smooth	stepped	B	-	35	21	-	-	M5	-	14,4	7	-	12,4	6	-	-	1,5
33225-15-1511	v-block	with stop pin	C	-	15	8,5	10,2	2,5	M2	1	6,3	3,3	4	-	4	1	0,5	-
33225-15-2511	v-block	with stop pin	C	-	25	15	17	4	M4	2	10,3	5	7	-	6,2	2	1	-
33225-15-3511	v-block	with stop pin	C	-	35	21	23,8	6	M5	3	14,4	7	9,8	-	8,2	2,5	1,8	-

Mounting plates aluminium

for precision vices


Material:

Aluminium.

Version:

Anodised aluminium.

Sample order:

nIm 33225-16-254677

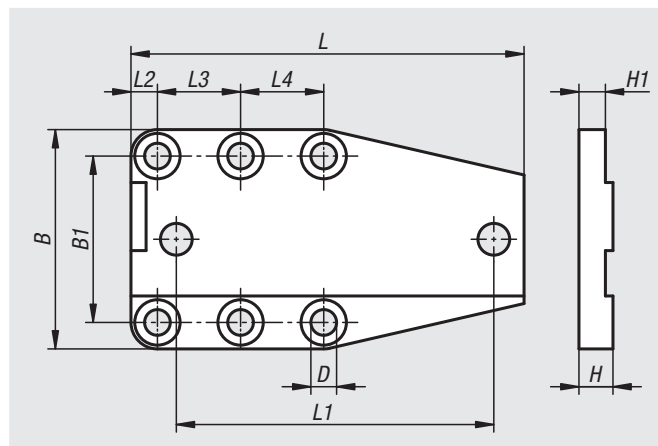
Note:

The aluminium mounting plate can be used as a baseplate for the precision vice 33225-10.

By using the mounting plate, the precision vice can be mounted on all positioning systems with dimension B=29 or B=46.

Accessories:

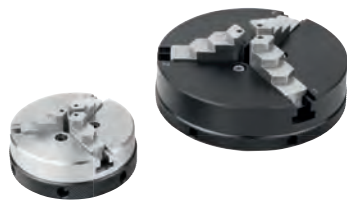
Suitable for positioning stages (21100, 21102, 21104, 21120, 21122, 21124), cross tables (21130, 21132, 21133, 21134, 21136, 21137) and vertical stages (21140, 21142).



Order No.	B	B1	D	H	H1	L	L1	L2	L3	L4
33225-16-152952	29	22	3,4	7	6	52	42	3,5	11	11
33225-16-254677	46	36	4,5	7	6	77	62,5	5	18	18

Precision three-jaw chuck

manual operation



Material:

Body and jaws steel.

Bodies over Ø100 aluminium, jaws steel.

Version:

Steel bodies bright, jaws hardened and bright.

Aluminium bodies hard anodised.

Sample order:

nlm 33226-50

Note:

These chucks have been specifically designed to meet requirements for a low clamping force with high precision. For internal and external holding of cylindrical workpieces. The jaws are moved in and out by simply rotating the clamping ring by hand or using the supplied lever. The hardened internal jaws, supplied as standard are reversible. The jaw number is marked on the top and bottom face of each jaw. The jaw number is marked on the matching slot of the chuck body.

Chuck D=50 with operating tool and Ø2 mm pins,
3x12 mm and 3x18 mm long.

Chuck D=64 with operating tool and Ø2 mm pins,
3x12 mm and 3x18 mm long.

Chuck D=104 with operating tool and Ø2 mm pins, 3x12 mm, 3x18 mm and 3x24 mm long.

Chuck D=160 with operating tool.

The pins can be inserted into the hole in the front face of each jaw and are used for raised holding of light parts. The pins can be removed again.

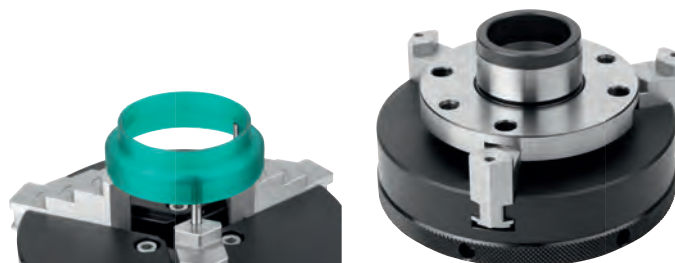
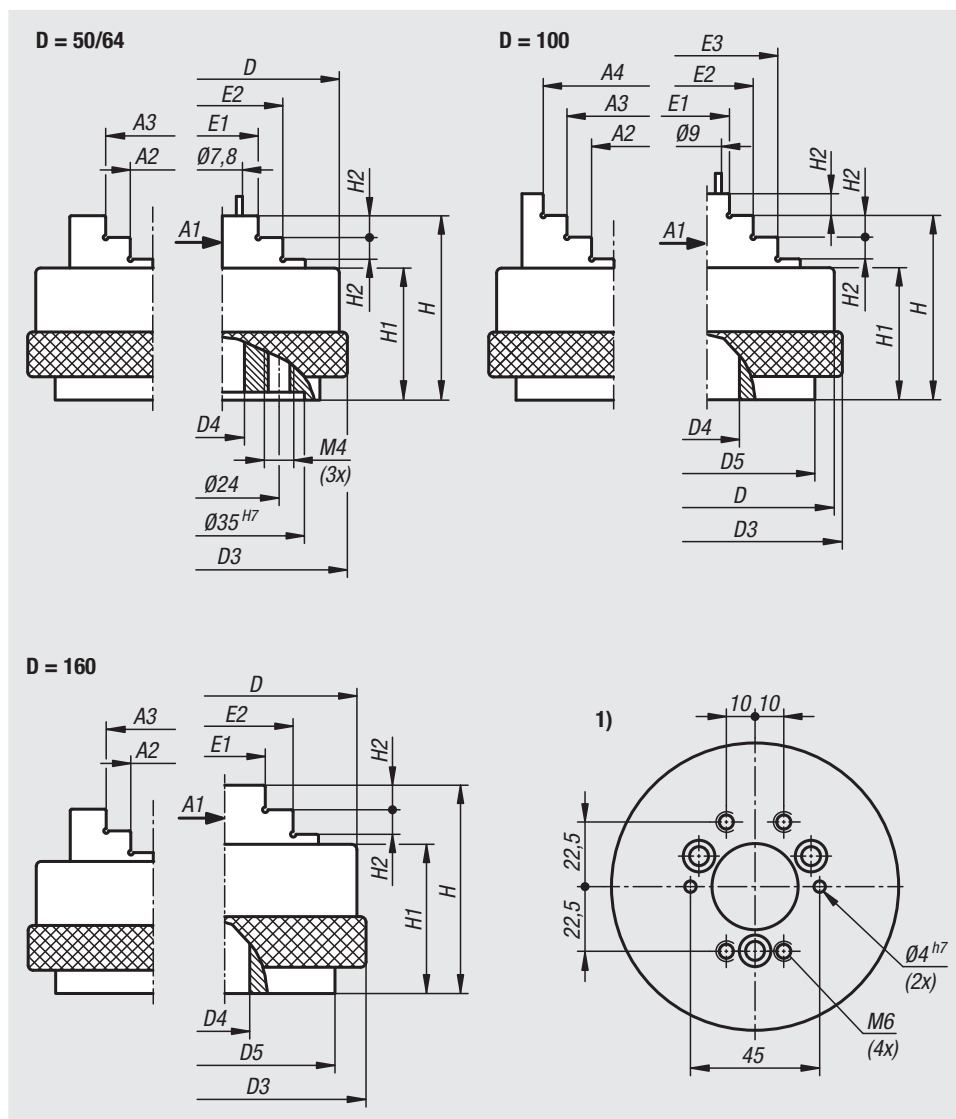
Concentricity < 0.03 mm

Circular runout < 0.01 mm

Repeat clamping accuracy < 0.01 mm

Drawing reference:

1) Connection dimensions for 100 and 160 mm chucks.



Order No.	Main material	A1	A2	A3	A4	D	D1	D2	D3	D4	D5	E1	E2	E3	H	H1	H2
33226-50	steel	1-18	18-36	36-54	-	50	34,8	16,8	52,5	11	-	17-35	35-53	-	37,5	28	4
33226-64	steel	1-30	18-48	36-66	-	64	34,8	16,8	66	13	-	17-47	35-65	-	37,5	28	4
33226-100	aluminium	1-40	28-66	48-84	68-102	104	60	40	105,5	18	89	20-60	40-80	60-100	48	33	4,5
33226-160	aluminium	2,5-70	42-120	100-160	-	160	82	38	164	34	96	30-100	90-160	-	78,5	53	10

Needle support

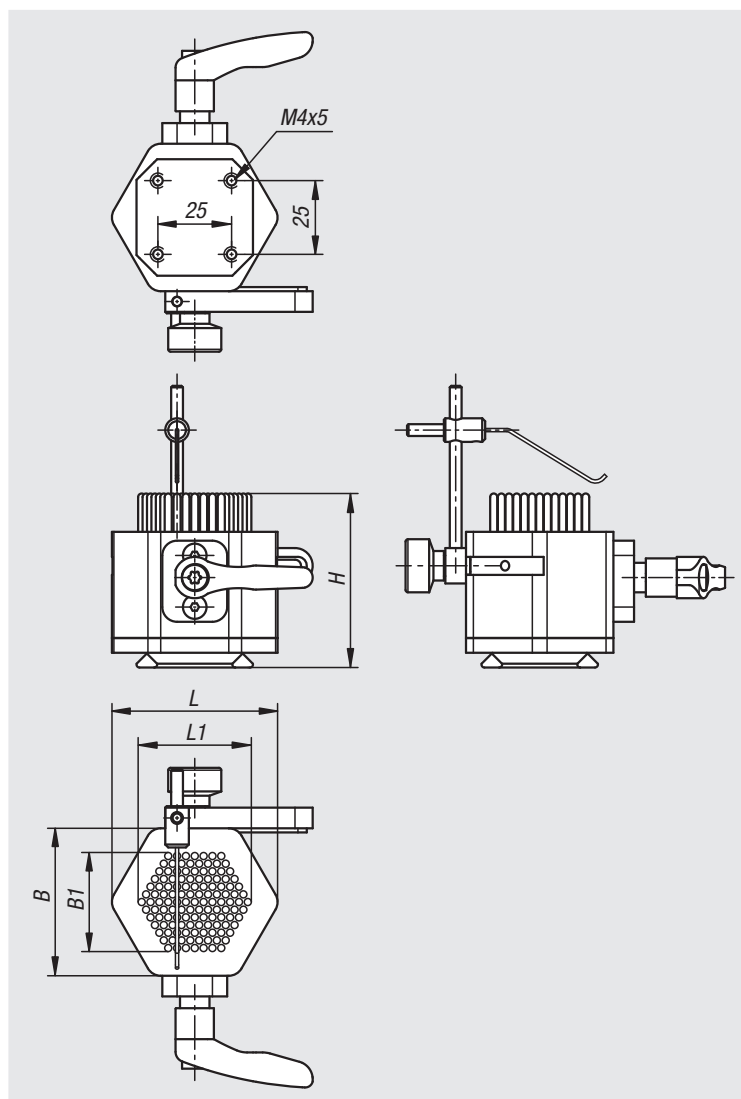


Material:
Steel.

Sample order:
nlm 33227-253834

Note:
Ideal for holding die-cast and injection moulded parts. The spring-loaded needles adapt to the shape of a workpiece when it is pushed in. The needles are then locked in this position. A series of workpieces can now be positioned and fixated in the pre-formed fixture.

Supplied are: needle support fixture and holding unit comprising of arm, column and spring finger.



Order No.	B	B1	H	L	L1	Pin Ø	Spring travel max.
33227-253834	50	34	59	56	38	2,5	10
33227-505548	72	48	85,7	81	55	5	12
33227-509583	110	83	95,7	125	95	5	12

Spring fingers


Material:

Stainless steel

Version:

Bright.

Sample order:

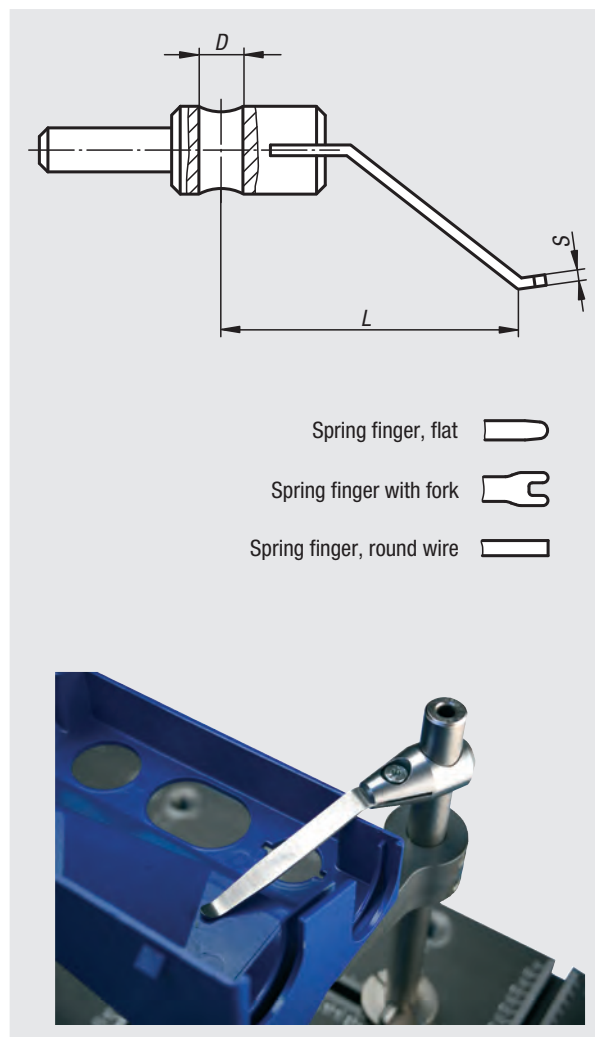
nIm 33260-10605010

Note:

For holding small parts on measurement and control plates.

Accessories:

Columns for spring fingers 33262.



Order No.	Version	D	L	S
33260-10403004	flat	4	30	0,4
33260-10403008	flat	4	30	0,8
33260-10605010	flat	6	50	1
33260-10607510	flat	6	75	1
33260-11207510	flat	12	75	1
33260-11209510	flat	12	95	1
33260-21207515	fork	12	75	1,5
33260-21209515	fork	12	95	1,5
33260-30404011	round	4	40	1,1
33260-30406011	round	4	60	1,1
33260-31208025	round	12	80	2,5
33260-31208030	round	12	80	3

Columns

for spring fingers


Material:

Stainless steel 1.4301.

Version:

Bright.

Sample order:

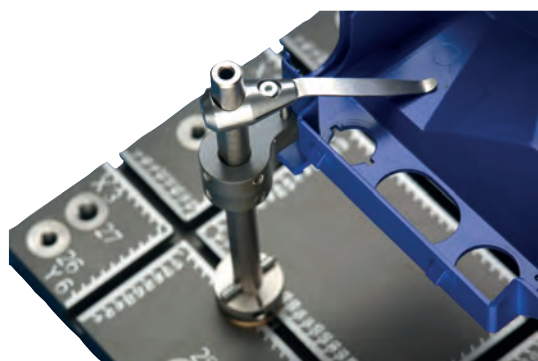
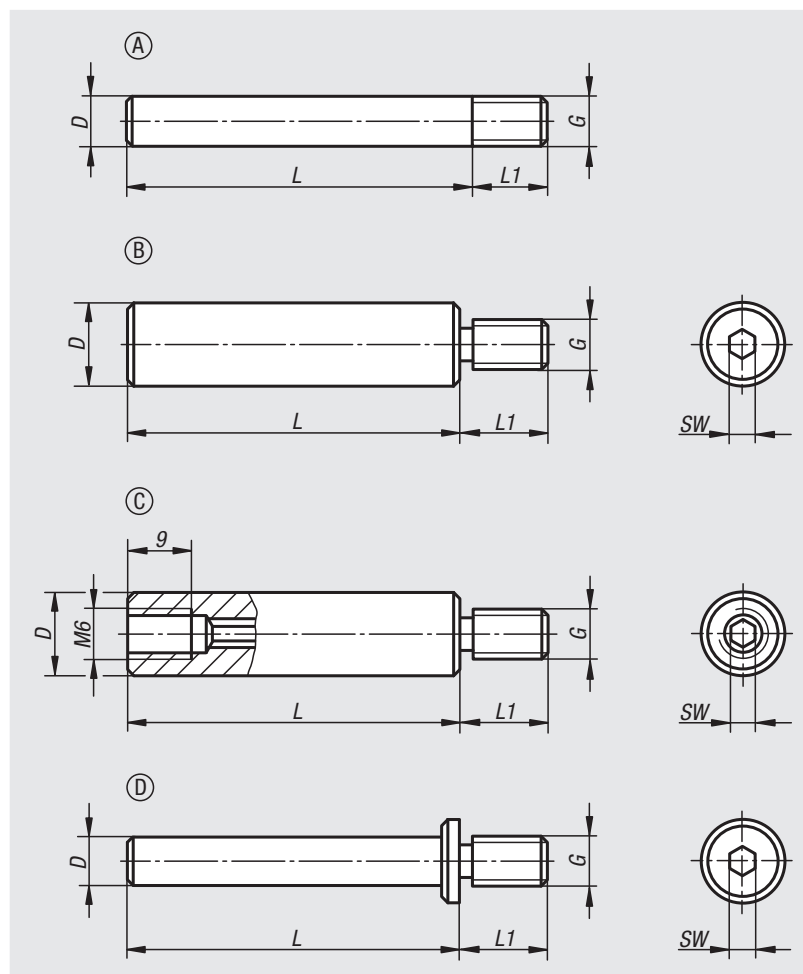
nlm 33262-0606X030 (include length L)

Note:

Columns for holding our spring fingers.

Accessories:

Spring clamp 33260.



Order No.	Form	D	G	L	L1	SW
33262-0404X	A	4	M4	30/50	5	-
33262-0606X	A	6	M6	30/50	8	-
33262-0608X	D	6	M8	30/50	10	3
33262-1206X	C	12	M6	50/100	8	3
33262-1208X	B	12	M8	50/100	11,5	4
33262-1210X	B	12	M10	50/100/150	11,5	4