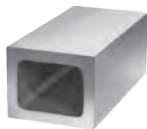


norelem positions

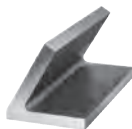
Flexible standard component system

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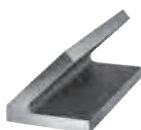
Rectangular hollow profiles
grey cast iron

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Angle profiles 60°
grey cast iron

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Angle profiles 45°
grey cast iron

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Workholding cubes, grey cast iron
with pre-machined clamping faces

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Workholding cubes, grey cast iron
with T-slots

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Tombstones cube
grey cast iron

02000

Self-aligning pads
Fixture feet
Clamp rests
Support elements



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Self-aligning pads

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Self-aligning pads
swivel angle 14° and 20°

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Self-aligning pads
with O-ring

02003
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Self-aligning pads
with O-ring and exchangeable inserts

02004
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Self-aligning pads
self-righting

02005
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Self-aligning pads
adjustable

02006
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Self-aligning pads
adjustable with O-ring

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Self-aligning pads
adjustable with O-ring and exchangeable
inserts

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Self-aligning pads
adjustable with O-ring and hexagon
socket

02009
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Self-aligning pads
adjustable with O-ring, exchangeable
inserts and hexagon socket

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Rest pads

02010-01
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Rest pads, ceramic

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Locating pins and rest pads
DIN 6321 (Issue 1973)

02020-01
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Locating pins ceramic
similar to DIN 6321

+ New/Expanded Items

norelem positions

Flexible standard component system

02000

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Locating pins
with internal thread



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Locating bushes
for locating pins



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Rest pads
pin form, internal thread

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Rest pads
pin form, external thread

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Rest pads

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Rest pads
with positioning pin

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Feet
with threaded pin,
DIN 6320 (Edition 1971)

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Extension pieces

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Extension pieces

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Support bolts

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Positioning feet

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Positioning feet

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Fixture feet
with external thread

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Fixture feet
with internal thread

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Self-aligning pads
swivel 12°

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Self-aligning pads
self-righting

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Locating feet

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Swivel pads

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Rest pads

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Rest pads adjustable
with locknut

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Rest pads

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Jack screws

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Stops adjustable
with end position feedback

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Screw rest
with flat face, steel

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Screw rest
with flat face, stainless steel

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Screw rest
with flat face, aluminium

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Screw rest
with flat face and magnetic foot,
aluminium

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Atlas jack
with locknut

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Screw rest inserts
spherical, centring disc, prism, locating
pin, revolving ball

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Step blocks

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Step block sets

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Wedge supports

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Support elements cylindrical

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Workpiece supports
adjustable

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Workpiece supports

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Workpiece support cylinders

New/Expanded Items

02000

Self-aligning pads
Fixture feet
Clamp rests
Support elements



01000

02000

03000

04000

05000

06000

07000

08000

09000

10000

12000

Self-aligning pads



Material:

Body carbon steel.
Ball, ball bearing steel 1.2067.
Form D: Ball with POM insert.
Form H: Ball with POM insert.
Form K: Ball with carbide insert.
Form M has a carbide ball.

Version:

Body tempered and phosphated.
Ball hardened.
Form M ball nickel plated.

Sample order:

nIm 02000-120

Note:

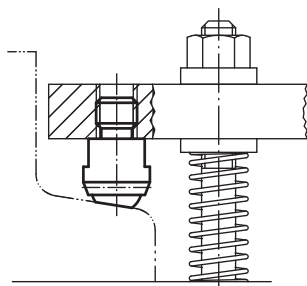
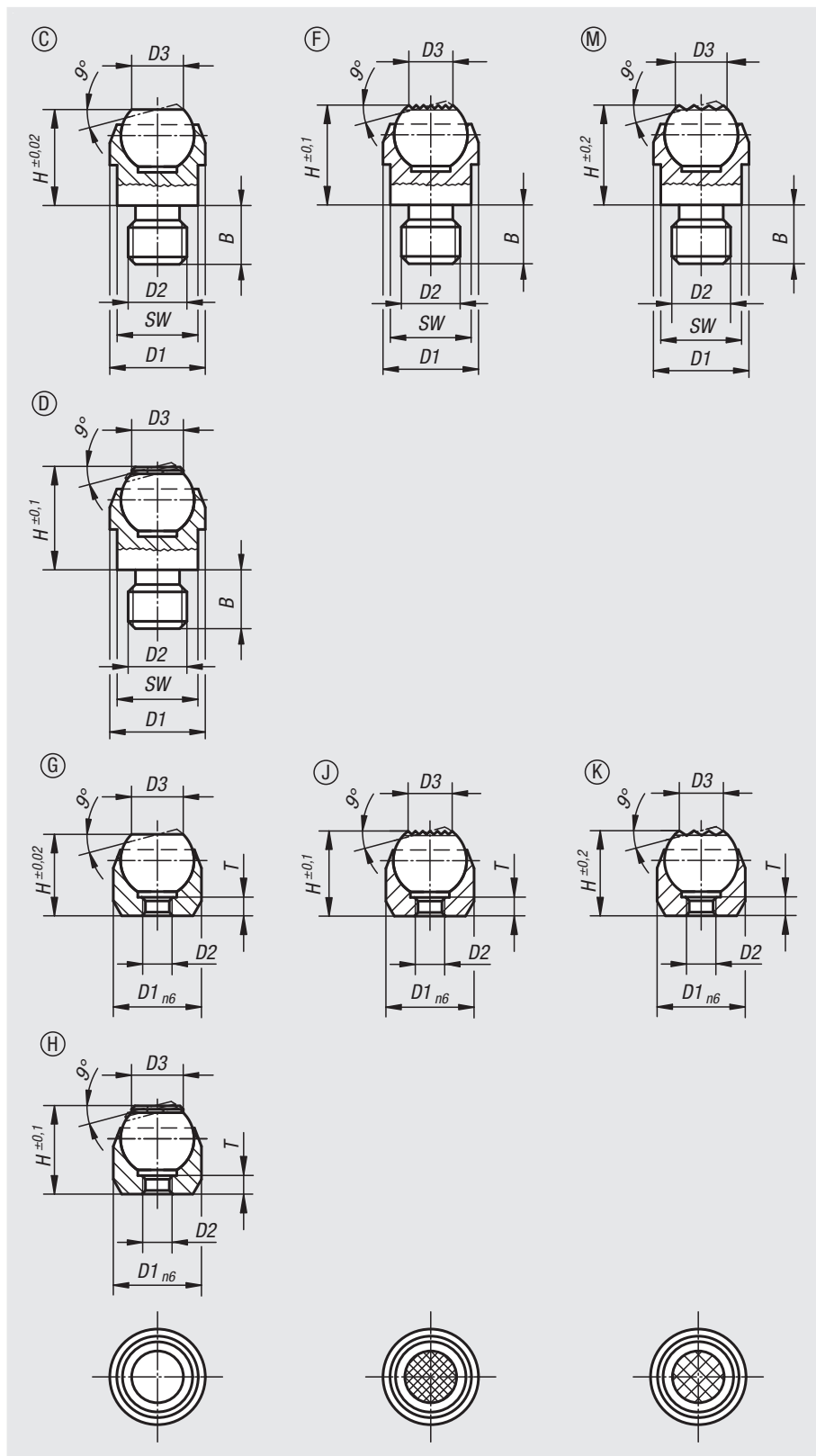
Self-aligning pads serve as stops, supports and thrust pads in fixture constructions.

Ball secured against rotation.

* Valid only if the minimum bore depth is observed.

Drawing reference:

Form C: with male thread, flattened ball, smooth.
Form D: with male thread, flattened ball, with POM insert.
Form F: with male thread, flattened ball, diamond grip.
Form M: with male thread, flattened ball, with carbide insert.
Form G: press fit, flattened ball, smooth.
Form H: press fit, flattened ball, with POM insert.
Form J: press fit, flattened ball, diamond grip.
Form K: press fit, flattened ball, with carbide insert.



Self-aligning pads

Self-aligning pads

Order No.	Form	B	D1	D2	D3	H	Ball-Ø	SW	Load rating max. kN (static load only)
02000-108	C	8	13	M8	7,2	13	10	11	10
02000-110	C	10	20	M10	10,5	18	16	17	25
02000-112	C	12	20	M12	10,5	18	16	17	25
02000-116	C	16	30	M16	20	27	25	27	90
02000-120	C	20	50	M20	34,5	35	40	41	165
Order No.	Form	B	D1	D2	D3	H	Ball-Ø	SW	Load rating max. kN (static load only)
02000-208	D	8	13	M8	7,9	13	10	11	10
02000-210	D	10	20	M10	12,7	18	16	17	25
02000-212	D	12	20	M12	12,7	18	16	17	25
Order No.	Form	B	D1	D2	D3	H	Ball-Ø	SW	Load rating max. kN (static load only)
02000-308	F	8	13	M8	7,2	13	10	11	10
02000-310	F	10	20	M10	10,5	18	16	17	25
02000-312	F	12	20	M12	10,5	18	16	17	25
02000-316	F	16	30	M16	20	27	25	27	90
02000-320	F	20	50	M20	34,5	35	40	41	165
Order No.	Form	B	D1	D2	D3	H	Ball-Ø	SW	Load rating max. kN (static load only)
02000-908	M	8	13	M8	7,7	13,3	10	11	10
02000-910	M	10	20	M10	12	18	16	17	25
02000-912	M	12	20	M12	12	18	16	17	25
Order No.	Form	D1	D2	D3	H	T	Ball-Ø	Receiving hole	Load rating max. kN (static load only)
02000-403	G	12	M3	7,2	11	3,5	10	Ø 12 H7X6 min.	10*
02000-404	G	18	M4	10,5	17	4,4	16	Ø 18 H7X8 min.	25*
02000-405	G	28	M5	20	25	6,3	25	Ø 28 H7X13 min.	90*
Order No.	Form	D1	D2	D3	H	T	Ball-Ø	Receiving hole	Load rating max. kN (static load only)
02000-503	H	12	M3	7,9	11	3	10	Ø 12 H7X6 min.	10*
02000-504	H	18	M4	12,7	17	4	16	Ø 18 H7X8 min.	25*
02000-505	H	28	M5	19,05	25	6	25	Ø 28 H7X13 min.	90*
Order No.	Form	D1	D2	D3	H	T	Ball-Ø	Receiving hole	Load rating max. kN (static load only)
02000-603	J	12	M3	7,2	11	3,5	10	Ø 12 H7X6 min.	10*
02000-604	J	18	M4	10,5	17	4,4	16	Ø 18 H7X8 min.	25*
02000-605	J	28	M5	20	25	6,3	25	Ø 28 H7X13 min.	90*
Order No.	Form	D1	D2	D3	H	T	Ball-Ø	Receiving hole	Load rating max. kN (static load only)
02000-803	K	12	M3	7,9	11	3	10	Ø 12 H7X6 min.	10*
02000-804	K	18	M4	12,7	17	4	16	Ø 18 H7X8 min.	25*
02000-805	K	28	M5	19,05	25	6	25	Ø 28 H7X13 min.	90*

Self-aligning pads

swivel angle 14° and 20°



Material:

Body steel.
Ball rust and acid resistant steel.
Form M with carbide insert.

Version:

Body black oxidised.
Ball bright.

Sample order:

nlm 02001-108

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces. They also serve as stops, supports and thrust pads in fixture and toolmaking.

Grub screws or threaded studs can be screwed and glued into thread D2 making a self-aligning pad with external thread.

Ball secured against rotation.

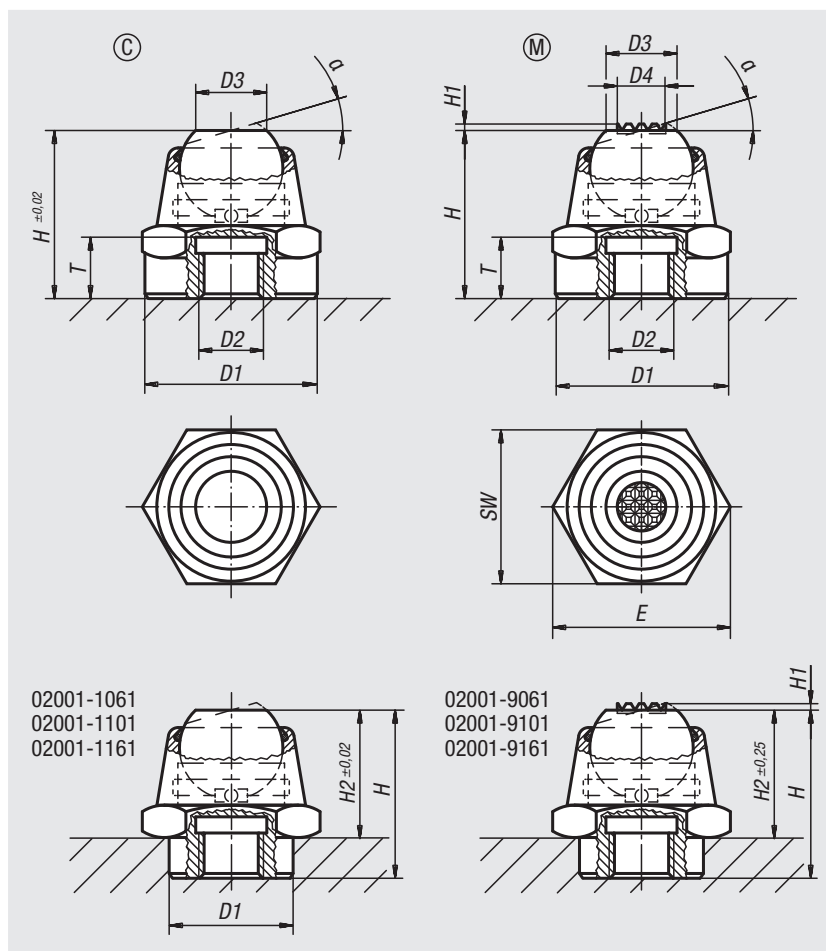
Advantages:

- Self-aligning pads can be swiveled.
- High load forces can be absorbed.
- The built-in o-ring keeps dirt and foreign particles out, which in turn guarantees reliable operation.

Drawing reference:

Form C: flattened ball, smooth

Form M: flattened ball, with carbide serrations



Self-aligning pads

swivel angle 14° and 20°

Form C, flattened ball, flat face

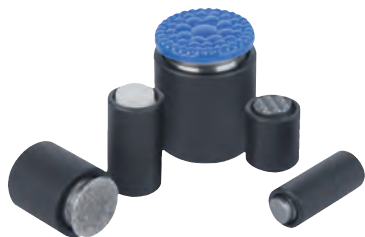
Order No.	Form	α	D1	D2	D3	H	H2	T	E	SW	Ball-Ø	Load rating max. kN (static load only)
02001-1061	C	14°	12	M6	7	17,5	12,5	6	19,6	17	10	14
02001-106	C	14°	16	M6	7	17,5	-	6	19,6	17	10	14
02001-108	C	20°	22	M8	11	26	-	9	27,7	24	16	34
02001-1101	C	20°	18	M10	11	26	20	9	27,7	24	16	34
02001-110	C	20°	22	M10	11	26	-	9	27,7	24	16	34
02001-112	C	20°	22	M12	11	26	-	9	27,7	24	16	34
02001-1161	C	20°	26	M16	18	40	30	15	41,6	36	25	90
02001-116	C	20°	34	M16	18	40	-	15	41,6	36	25	90
02001-120	C	20°	34	M20	18	40	-	15	41,6	36	25	90

Form M, flattened ball, carbide steel diamond grip

Order No.	Form	α	D1	D2	D3	D4	H	H1	H2	E	T	Ball-Ø	SW	Load rating max. kN (static load only)
02001-9061	M	14°	12	M6	7	5	17,5	0,6	12,5	19,6	6	10	17	14
02001-906	M	14°	16	M6	7	5	17,5	0,6	-	19,6	6	10	17	14
02001-908	M	20°	22	M8	11	7,5	26	0,8	-	27,7	9	16	24	34
02001-9101	M	20°	18	M10	11	7,5	26	0,8	20	27,7	9	16	24	34
02001-910	M	20°	22	M10	11	7,5	26	0,8	-	27,7	9	16	24	34
02001-912	M	20°	22	M12	11	7,5	26	0,8	0,8	27,7	9	16	24	34
02001-9161	M	20°	26	M16	18	13	40	0,9	30	41,6	15	25	36	90
02001-916	M	20°	34	M16	18	13	40	0,9	0,9	41,6	15	25	36	90
02001-920	M	20°	34	M20	18	13	40	0,9	-	41,6	15	25	36	90

Self-aligning pads

with O-ring



Material:

Body carbon steel.

Ball:

Form C, F tool steel.

Form K POM.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane face.

Version:

Body tempered, black oxidised.

Ball:

Form C, F hardened, black oxidised.

Form K POM ball, white.

Form O surface comparable to 100 grade abrasive grit.

Form P polyurethane, hardness 60 Shore.

Sample order:

nIm 02002-704X012

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces.

They also serve as stops, supports and thrust pads in fixtures and toolmaking.

Ball secured against rotation.

Form O: The abrasive diamond surface is fused firmly to the ball. It is ideally suited to supporting smooth or slippery applications with a minimum of clamping pressure. This allows the diamond particles to get a firm grip on a very small area with minimum damage to the surface. The diamond surface offers excellent wear resistance.

Form P: The polyurethane surface is permanently vulcanised on the ball. It is abrasion-resistant and does not discolour. Offers optimum protection against damage to delicate surfaces. The pearl-like surface gives a firm grip and allows air to escape so as to prevent any suction effect between the contact surface and the self-aligning pads.

Advantages:

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out ensuring smooth and even movement.

Drawing reference:

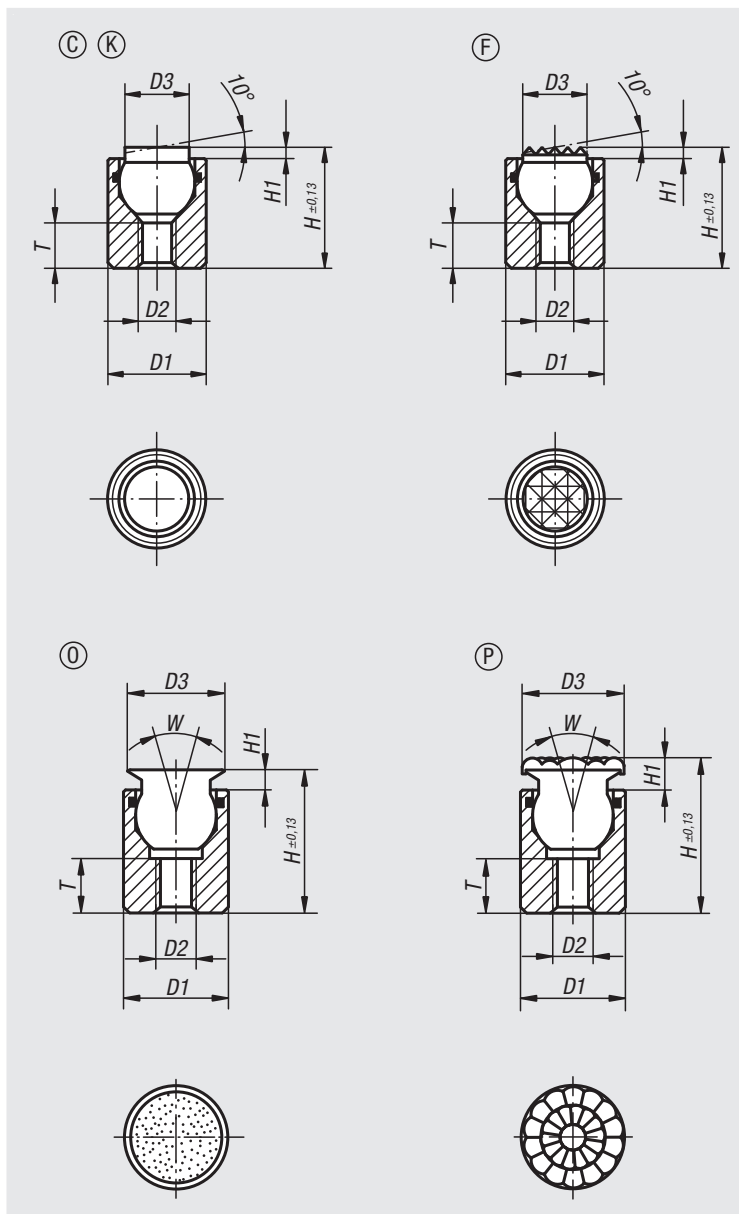
Form C: flattened steel ball, smooth

Form F: flattened steel ball, with serrations

Form K: POM ball, flattened, smooth

Form O: stainless steel ball diamond impregnated

Form P: stainless steel ball with polyurethane surface



Self-aligning pads

with O-ring

Form C, flattened steel ball, smooth

Order No.	Form	D1	D2	D3	H	H1	T	Ball-Ø	Load rating max. kN (static load only)
02002-104X012	C	10	M4	6	12	1,5	4,5	7	12
02002-104X025	C	10	M4	6	25	1,5	12	7	12
02002-105X016	C	13	M5	8,5	16	1,5	5	10	20
02002-105X025	C	13	M5	8,5	25	1,5	12	10	20

Form F, flattened steel ball, diamond grip

Order No.	Form	D1	D2	D3	H	H1	T	Ball-Ø	Load rating max. kN (static load only)
02002-304X012	F	10	M4	6	12	1,5	4,5	7	12
02002-304X025	F	10	M4	6	25	1,5	12	7	12
02002-305X016	F	13	M5	8,5	16	1,5	5	10	20
02002-305X025	F	13	M5	8,5	25	1,5	12	10	20

Form K, flattened POM ball, smooth

Order No.	Form	D1	D2	D3	H	H1	T	Ball-Ø	Load rating max. kN (static load only)
02002-704X012	K	10	M4	6	12	1,5	4,5	7	2
02002-704X025	K	10	M4	6	25	1,5	12	7	2
02002-705X016	K	13	M5	8,5	16	1,5	5	10	4
02002-705X025	K	13	M5	8,5	25	1,5	12	10	4

Form O, stainless-steel ball, diamond impregnated

Order No.	Form	D1	D2	D3	H	H1	T	W	Ball-Ø	Load rating max. kN (static load only)
02002-504X012	O	10	M4	8	12,5	2	3,5	28	7	11,5
02002-504X025	O	10	M4	8	25,5	2	9	28	7	11,5
02002-505X017	O	13	M5	11	17,5	3	6,5	28	10	19,8
02002-505X026	O	13	M5	11	26,5	3	9	28	10	19,8
02002-506X021	O	17	M6	14	21	3	7,5	28	13	27,4
02002-508X024	O	19	M8	19	24	4	8,5	24	15	38,6
02002-510X028	O	24	M10	21	28	4	9	24	20	58,3

Form P, stainless-steel ball with polyurethane face

Order No.	Form	D1	D2	D3	H	H1	W	T	Ball-Ø
02002-604X014	P	10	M4	10	14,5	4	28	3,5	7
02002-604X027	P	10	M4	10	27,5	4	28	9	7
02002-605X019	P	13	M5	13	19,5	5	28	6,5	10
02002-605X028	P	13	M5	13	28,5	5	28	9	10
02002-606X023	P	17	M6	16	23	5	28	7,5	13
02002-608X026	P	19	M8	21	26	6	24	8,5	15
02002-610X030	P	24	M10	23	30	6	24	9	20

Self-aligning pads

with O-ring and exchangeable inserts



Material:

Body carbon steel.

Ball rust and acid resistant steel.

Inserts:

Form C, F, M tool steel

Form K POM

Form E stainless steel.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane surface.

Version:

Body tempered, black oxidised.

Ball hardened, bright.

Inserts:

Form C, F hardened, black oxidised.

Form M with carbide serrations, black oxidised.

Form K white.

Form E hardened, bright.

Form O diamond impregnated surface comparable to 100 grade abrasive grit.

Form P polyurethane surface, hardness 60 Shore.

Sample order:

nIm 02003-736X036

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces.

In addition, they serve as stops, supports and thrust pads in fixtures and toolmaking.

The ball can be removed from the housing by applying light pressure to the socket head screw.

Ball secured against rotation.

Advantages:

Highly cost-effective as inserts can be exchanged.

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out, ensuring uniform movement.

Drawing reference:

Form C: flattened steel insert, smooth

Form E: flattened stainless steel insert, smooth

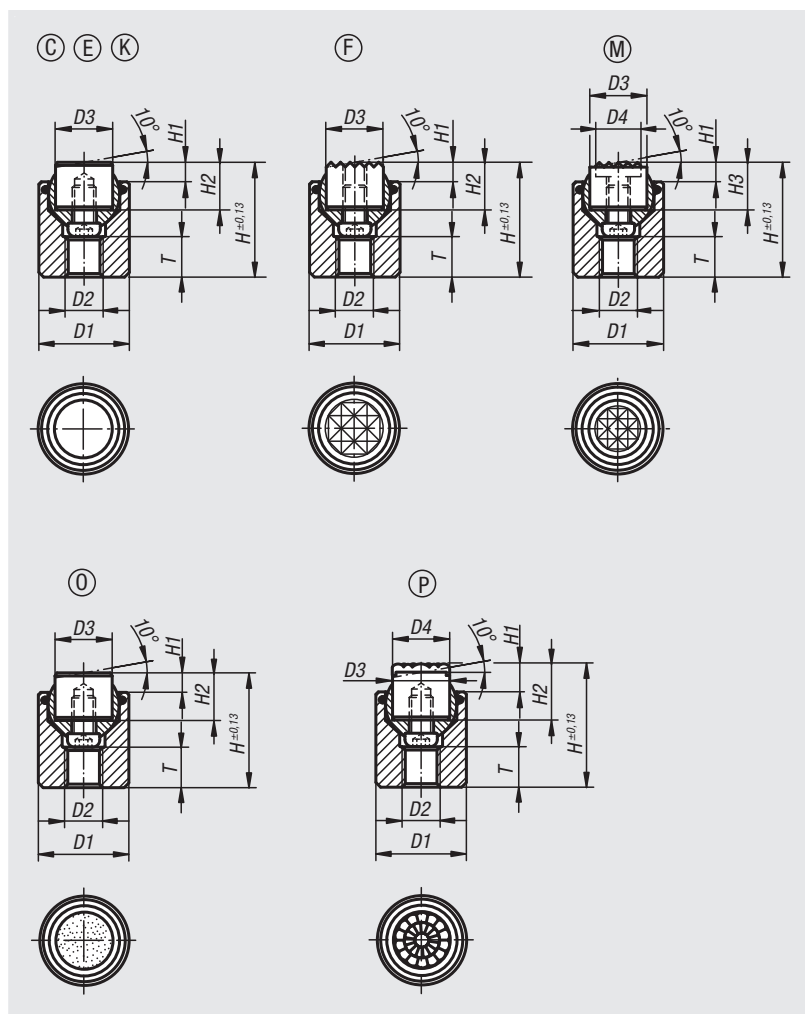
Form F: gripper face

Form K: flattened POM insert, smooth

Form M: gripper face, with carbide serrations

Form O: stainless steel insert diamond impregnated

Form P: stainless steel insert with polyurethane surface



Order No.	Form	D1	D2	D3	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. steel insert
02003-117X022	C	17	M6	10	22	4	10	7	13	28	07113-10108
02003-119X024	C	19	M8	12	24	4	10	8	15	39	07113-12108
02003-124X028	C	24	M10	16	28	4	10	8	20	58	07113-16108
02003-130X030	C	30	M12	20	30	4	10	9	23	95	07113-20108
02003-136X036	C	36	M12	25	36	4	10	11	28	136	07113-25108

Self-aligning pads

with O-ring and exchangeable inserts

Order No.	Form	D1	D2	D3	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert	
02003-217X022	E	17	M6	10	22	4	10	7	13	28	07113-10102	
02003-219X024	E	19	M8	12	24	4	10	8	15	39	07113-12102	
02003-224X028	E	24	M10	16	28	4	10	8	20	58	07113-16102	
02003-230X030	E	30	M12	20	30	4	10	9	23	95	07113-20102	
02003-236X036	E	36	M12	25	36	4	10	11	28	136	07113-25102	
Order No.	Form	D1	D2	D3	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper	
02003-317X022	F	17	M6	10	22	4	10	7	13	28	07113-1010	
02003-319X024	F	19	M8	12	24	4	10	8	15	39	07113-1210	
02003-324X028	F	24	M10	16	28	4	10	8	20	58	07113-1610	
02003-330X030	F	30	M12	20	30	4	10	9	23	95	07113-2010	
02003-336X036	F	36	M12	25	36	4	10	11	28	136	07113-2510	
Order No.	Form	D1	D2	D3	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. POM insert	
02003-717X022	K	17	M6	10	22	4	10	7	13	4	07113-10109	
02003-719X024	K	19	M8	12	24	4	10	8	15	7	07113-12109	
02003-724X028	K	24	M10	16	28	4	10	8	20	14	07113-16109	
02003-730X030	K	30	M12	20	30	4	10	9	23	27	07113-20109	
02003-736X036	K	36	M12	25	36	4	10	11	28	47	07113-25109	
Order No.	Form	D1	D2	D3	D4	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper
02003-917X022	M	17	M6	10	7,9	22	4	10	7	13	28	07113-10107
02003-919X024	M	19	M8	12	9,5	24	4	10	8	15	39	07113-12107
02003-924X028	M	24	M10	16	12,7	28	4	10	8	20	58	07113-16107
02003-930X030	M	30	M12	20	15,9	30	4	10	9	23	95	07113-20107
02003-936X036	M	36	M12	25	19	36	4	10	11	28	136	07113-25107
Order No.	Form	D1	D2	D3	H	H1	H2	T	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert, diamond surface	
02003-517X022	O	17	M6	10	22	4	10	7	13	28	07113-10105	
02003-519X024	O	19	M8	12	24	4	10	8	15	39	07113-12105	
02003-524X028	O	24	M10	16	28	4	10	8	20	58	07113-16105	
02003-530X030	O	30	M12	20	30	4	10	9	23	95	07113-20105	
02003-536X036	O	36	M12	25	36	4	10	11	28	136	07113-25105	
Order No.	Form	D1	D2	D3	D4	H	H1	H2	T	Ball-Ø	Order No. stainless steel insert, polyurethane surface	
02003-617X024	P	17	M6	10	10	24	6	12	7	13	07113-10126	
02003-619X026	P	19	M8	12	13	26	6	12	8	15	07113-12126	
02003-624X030	P	24	M10	16	16	30	6	12	8	20	07113-16126	
02003-630X032	P	30	M12	20	21	32	6	12	9	23	07113-20126	
02003-636X038	P	36	M12	25	27	38	6	12	11	28	07113-25126	

Self-aligning pads

self-righting



Material:
Carbon steel.

Version:
Hardened, black oxidised.

Sample order:
nlm 02004-105

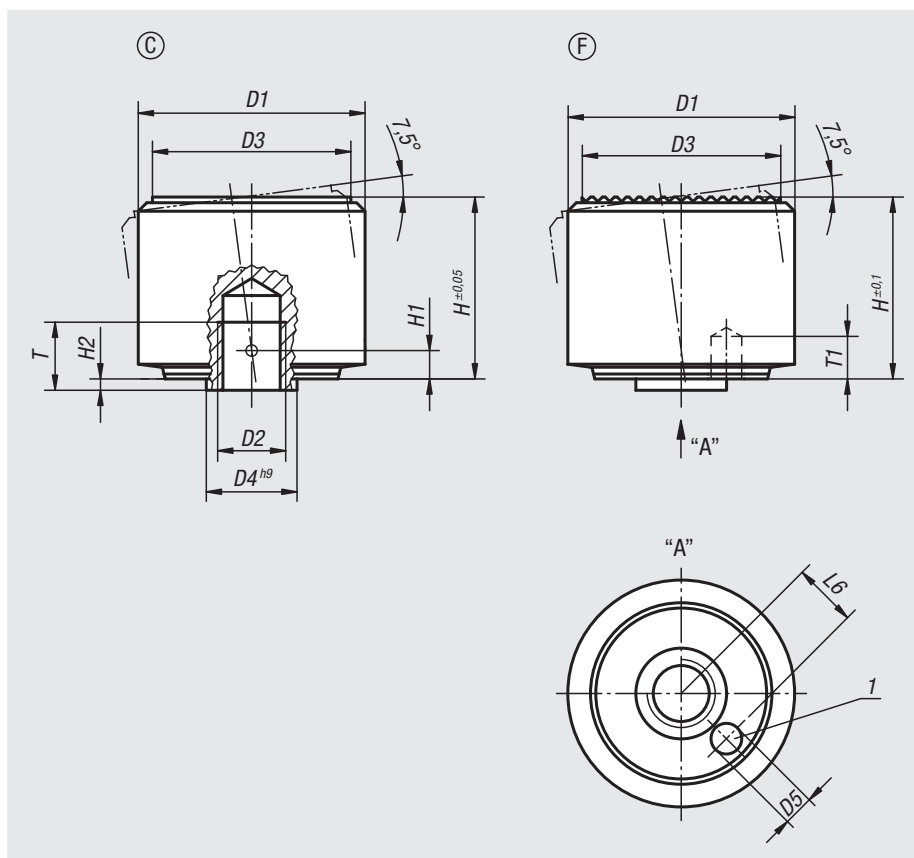
Note:
Self-aligning pads are used to support and clamp unmachined and machined workpieces. They also serve as stops, supports and thrust pads in fixtures and toolmaking.

Advantages:

- The built-in O-ring prevents dirt and foreign particles from entering.
- The clamping surface swivels back automatically after clamping.
- High load rating and small size.

Drawing reference:

Form C: smooth face
Form F: serrated face

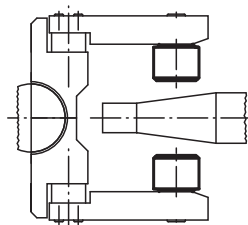


1) Hole for pin as a rotation lock

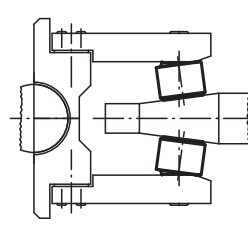
1. bring gripper into position

2. grip workpiece

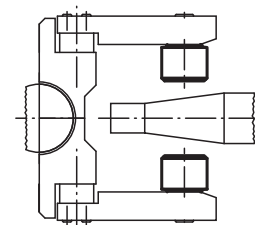
3. open gripper



zero-point position of self-aligning pads



self-aligning pads adapt to workpiece contour



self-aligning pads swivel back automatically

Order No.	Form	D1	D2	D3	D4	D5	H	H1	H2	T	T1	L6	Load rating max. kN (static load only)
02004-105	C	18	M5	15	7	1,8	14	2,1	0,8	5	3	4,6	30
02004-106	C	22	M6	18	8	2,8	16,5	2,5	1	6	4	5,6	50
02004-108	C	28	M8	23	11	3,3	21,5	3,4	1,3	8	5	7,5	90
02004-110	C	34	M10	29	13	4,4	27	4,2	1,6	10	6	9,2	140
02004-112	C	40	M12	35	16	5,4	32	5	2	12	8	11,3	220

Order No.	Form	D1	D2	D3	D4	D5	H	H1	H2	T	T1	L6	Load rating max. kN (static load only)
02004-305	F	18	M5	15	7	1,8	14	2,1	0,8	5	3	4,6	30
02004-306	F	22	M6	18	8	2,8	16,5	2,5	1	6	4	5,6	50
02004-308	F	28	M8	23	11	3,3	21,5	3,4	1,3	8	5	7,5	90
02004-310	F	34	M10	29	13	4,4	27	4,2	1,6	10	6	9,2	140
02004-312	F	40	M12	35	16	5,4	32	5	2	12	8	11,3	220

Self-aligning pads

adjustable



Material:

Steel or stainless steel.

Version:

Steel version:

Housing tempered and manganese phosphated.

Nut black oxidised.

Stainless steel version:

Housing tempered and electropolished.

Nut bright.

Sample order:

nIm 02005-316

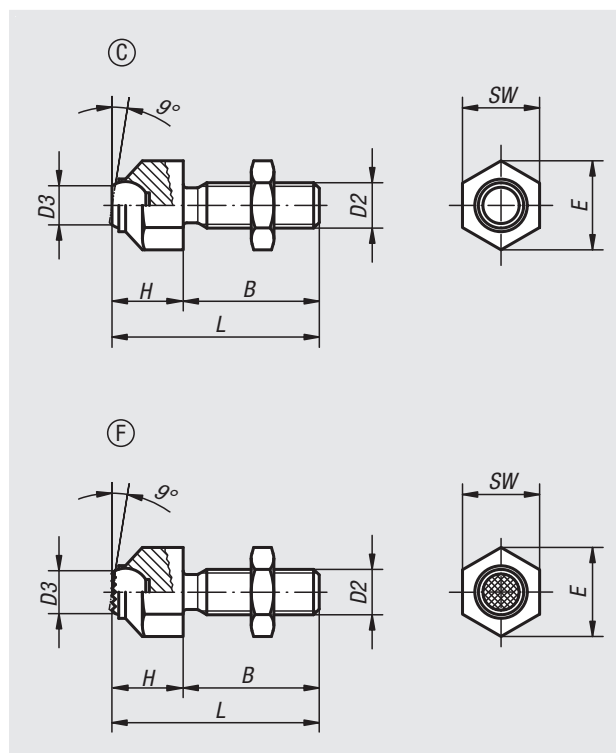
Note:

Ball secured against rotation.

Drawing reference:

Form C: flattened ball, smooth

Form M: flattened ball, with serrations



Order No.	Form	Main material	B	D2	D3	H	L	E	SW	Ball-Ø	Load rating max. kN (static load only)
02005-108	C	steel	25	M8	5,8	11,6	36,6	14,5	13	8,5	8
02005-110	C	steel	30	M10	8,6	15,7	45,7	19	17	12	8
02005-112	C	steel	35	M12	8,6	15,7	50,7	19	17	12	15
02005-116	C	steel	40	M16	10,5	20,7	60,7	27	24	16	25
02005-120	C	steel	50	M20	20	27,3	77,3	33	30	25	90
02005-1081	C	stainless steel	25	M8	5,8	11,6	36,6	14,5	13	8,5	8
02005-1101	C	stainless steel	30	M10	8,6	15,7	45,7	19	17	12	8
02005-1121	C	stainless steel	35	M12	8,6	15,7	50,7	19	17	12	15
02005-1161	C	stainless steel	40	M16	10,5	20,7	60,7	27	24	16	25
02005-1201	C	stainless steel	50	M20	20	27,3	77,3	33	30	25	90

Order No.	Form	Main material	B	D2	D3	H	L	E	SW	Ball-Ø	Load rating max. kN (static load only)
02005-308	F	steel	25	M8	5,8	11,6	36,6	14,5	13	8,5	8
02005-310	F	steel	30	M10	8,6	15,7	45,7	19	17	12	8
02005-312	F	steel	35	M12	8,6	15,7	50,7	19	17	12	15
02005-316	F	steel	40	M16	10,5	20,7	60,7	27	24	16	25
02005-320	F	steel	50	M20	20	27,3	77,3	33	30	25	90
02005-3081	F	stainless steel	25	M8	5,8	11,6	36,6	14,5	13	8,5	8
02005-3101	F	stainless steel	30	M10	8,6	15,7	45,7	19	17	12	8
02005-3121	F	stainless steel	35	M12	8,6	15,7	50,7	19	17	12	15
02005-3161	F	stainless steel	40	M16	10,5	20,7	60,7	27	24	16	25
02005-3201	F	stainless steel	50	M20	20	27,3	77,3	33	30	25	90

Self-aligning pads

adjustable with O-ring



Material:

Body carbon steel.

Ball:

Form C, F, tool steel.

Form K POM.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane surface.

Version:

Body tempered, black oxidised.

Ball:

Form C, F hardened, black oxidised.

Form K POM ball, white.

Form O surface comparable to 100 grade abrasive grit.

Form P polyurethane, hardness 60 Shore.

Sample order:

nIm 02006-106X040

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces. They also serve as stops, supports and thrust pads in fixtures and toolmaking.

Ball secured against rotation.

Form O: The abrasive diamond surface is bonded firmly to the ball. It is ideally suited to supporting smooth or slippery applications with a minimum of clamping pressure. This allows the diamond particles to get a firm grip on a very small area with minimum damage to the surface. The diamond surface offers excellent wear resistance.

Form P: The polyurethane surface is vulcanised firmly to the ball. It is abrasion-resistant and does not discolour. It offers optimum protection against damage to delicate surfaces. The pearl-like surface gives a firm grip and allows air to escape so as to prevent any suction effect between the contact surface and the self-aligning pads.

Advantages:

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out, ensuring uniform movement.

Drawing reference:

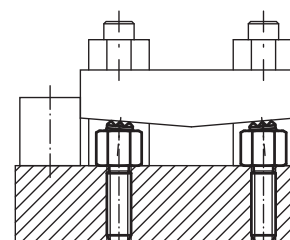
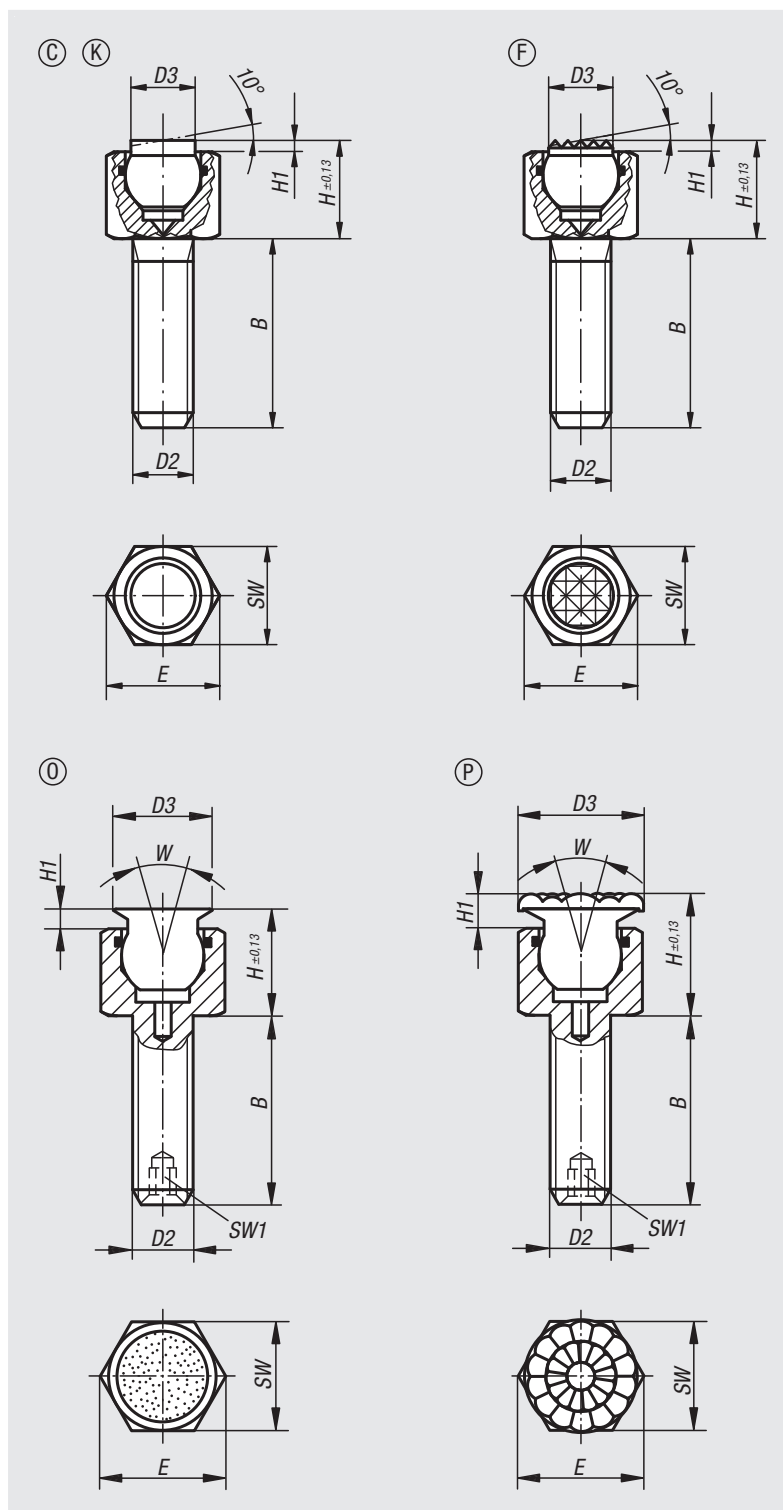
Form C: flattened steel ball, smooth

Form F: flattened steel ball, with serrations

Form K: POM ball, flattened, smooth

Form O: stainless steel ball diamond impregnated

Form P: stainless steel ball with polyurethane surface



Self-aligning pads

adjustable with O-ring

Order No.	Form	B	D2	D3	H	H1	E	SW	Ball-Ø	Load rating max. kN (static load only)
02006-106X012	C	12	M6	6	9,5	1,5	11,5	10	7	9
02006-106X025	C	25	M6	6	9,5	1,5	11,5	10	7	9
02006-106X040	C	40	M6	6	9,5	1,5	11,5	10	7	9
02006-108X012	C	12	M8	8,5	13	1,5	15	13	10	15
02006-108X025	C	25	M8	8,5	13	1,5	15	13	10	15
02006-108X040	C	40	M8	8,5	13	1,5	15	13	10	15

Order No.	Form	B	D2	D3	H	H1	E	SW	Ball-Ø	Load rating max. kN (static load only)
02006-306X012	F	12	M6	6	9,5	1,5	11,5	10	7	9
02006-306X025	F	25	M6	6	9,5	1,5	11,5	10	7	9
02006-306X040	F	40	M6	6	9,5	1,5	11,5	10	7	9
02006-308X012	F	12	M8	8,5	13	1,5	15	13	10	15
02006-308X025	F	25	M8	8,5	13	1,5	15	13	10	15
02006-308X040	F	40	M8	8,5	13	1,5	15	13	10	15

Order No.	Form	B	D2	D3	H	H1	E	SW	Ball-Ø	Load rating max. kN (static load only)
02006-706X012	K	12	M6	6	9,5	1,5	11,5	10	7	2
02006-706X025	K	25	M6	6	9,5	1,5	11,5	10	7	2
02006-706X040	K	40	M6	6	9,5	1,5	11,5	10	7	2
02006-708X012	K	12	M8	8,5	13	1,5	15	13	10	4
02006-708X025	K	25	M8	8,5	13	1,5	15	13	10	4
02006-708X040	K	40	M8	8,5	13	1,5	15	13	10	4

Order No.	Form	B	D2	D3	H	H1	E	SW	SW1	W	Ball-Ø	Load rating max. kN (static load only)
02006-506X	O	12	M6	8	10	2	11,5	10	-	28	7	9,2
02006-508X	O	12	M8	11	14,5	3	15	13	-	28	10	15,5
02006-510X	O	15	M10	14	16	3	19,6	17	3	28	13	18,8
02006-512X	O	20	M12	19	19	4	21,9	19	5	24	15	29,8
02006-516X	O	25	M16	21	23	4	27,7	24	6	24	20	50,3

Order No.	Form	B	D2	D3	H	H1	E	SW	SW1	W	Ball-Ø
02006-606X	P	12	M6	10	12	4	11,5	10	-	28	7
02006-608X	P	12	M8	13	16,5	5	15	13	-	28	10
02006-610X	P	15	M10	16	18	5	19,6	17	3	28	13
02006-612X	P	20	M12	21	21	6	21,9	19	5	24	15
02006-616X	P	25	M16	23	25	6	27,7	24	6	24	20

Self-aligning pads

adjustable with O-ring and exchangeable inserts



Material:

Body carbon steel.

Ball rust and acid resistant steel.

Inserts:

Form C, F, M tool steel

Form K POM

Form E stainless steel.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane surface.

Version:

Body tempered, black oxidised.

Ball hardened, bright.

Inserts:

Form C, F hardened, black oxidised.

Form M with carbide serrations, black oxidised.

Form K white.

Form E hardened, bright.

Form O diamond impregnated surface comparable to 100 grade abrasive grit.

Form P polyurethane surface, hardness 60 Shore.

Sample order:

nIm 02007-124X100

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces.

They also serve as stops, supports and thrust pads in fixtures and toolmaking.

The ball can be removed from the housing by applying light pressure to the socket head screw.

Ball secured against rotation.

Advantages:

Highly cost-effective as inserts can be exchanged.

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out, ensuring uniform movement.

Drawing reference:

Form C: flattened steel insert, smooth

Form E: flattened stainless steel insert, smooth

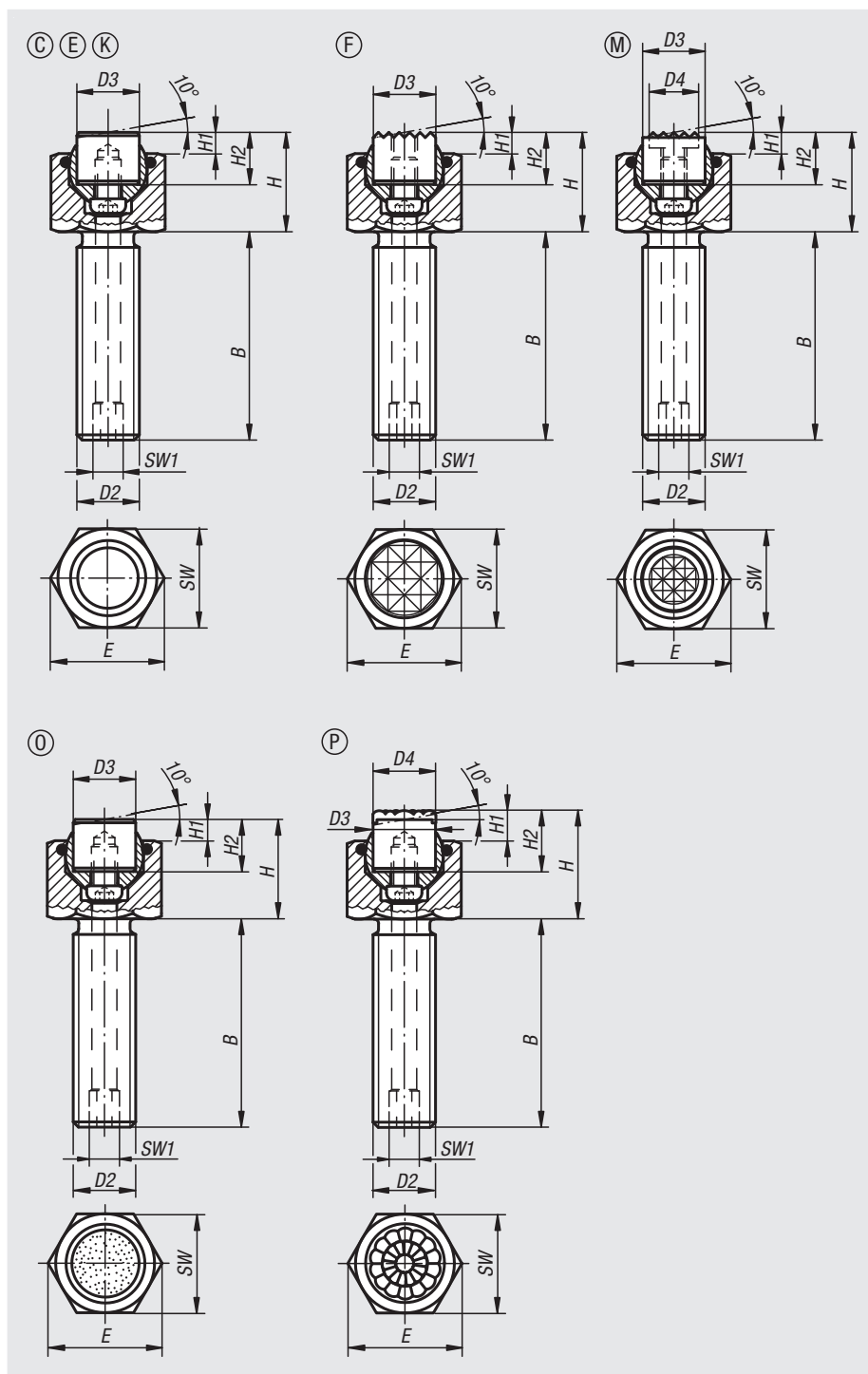
Form F: gripper face

Form K: flattened POM insert, smooth

Form M: gripper, with carbide serrations

Form O: stainless steel insert diamond impregnated

Form P: stainless steel insert with polyurethane surface



Self-aligning pads

adjustable with O-ring and exchangeable inserts

Order No.	Form	B	D2	D3	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. steel insert
02007-110X015	C	15	M10	10	17	4	10	19,6	17	3	13	19	07113-10108
02007-110X030	C	30	M10	10	17	4	10	19,6	17	3	13	19	07113-10108
02007-110X050	C	50	M10	10	17	4	10	19,6	17	3	13	19	07113-10108
02007-112X020	C	20	M12	12	19	4	10	21,9	19	5	15	30	07113-12108
02007-112X040	C	40	M12	12	19	4	10	21,9	19	5	15	30	07113-12108
02007-112X060	C	60	M12	12	19	4	10	21,9	19	5	15	30	07113-12108
02007-116X025	C	25	M16	16	23	4	10	27,7	24	6	20	50	07113-16108
02007-116X050	C	50	M16	16	23	4	10	27,7	24	6	20	50	07113-16108
02007-116X080	C	80	M16	16	23	4	10	27,7	24	6	20	50	07113-16108
02007-120X030	C	30	M20	20	24	4	10	34,6	30	8	23	85	07113-20108
02007-120X060	C	60	M20	20	24	4	10	34,6	30	8	23	85	07113-20108
02007-120X100	C	100	M20	20	24	4	10	34,6	30	8	23	85	07113-20108
02007-124X040	C	40	M24	25	30	4	10	41,6	36	10	28	121	07113-25108
02007-124X100	C	100	M24	25	30	4	10	41,6	36	10	28	121	07113-25108
Order No.	Form	B	D2	D3	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert
02007-210X015	E	15	M10	10	17	4	10	19,6	17	3	13	19	07113-10102
02007-210X030	E	30	M10	10	17	4	10	19,6	17	3	13	19	07113-10102
02007-210X050	E	50	M10	10	17	4	10	19,6	17	3	13	19	07113-10102
02007-212X020	E	20	M12	12	19	4	10	21,9	19	5	15	30	07113-12102
02007-212X040	E	40	M12	12	19	4	10	21,9	19	5	15	30	07113-12102
02007-212X060	E	60	M12	12	19	4	10	21,9	19	5	15	30	07113-12102
02007-216X025	E	25	M16	16	23	4	10	27,7	24	6	20	50	07113-16102
02007-216X050	E	50	M16	16	23	4	10	27,7	24	6	20	50	07113-16102
02007-216X080	E	80	M16	16	23	4	10	27,7	24	6	20	50	07113-16102
02007-220X030	E	30	M20	20	24	4	10	34,6	30	8	23	85	07113-20102
02007-220X060	E	60	M20	20	24	4	10	34,6	30	8	23	85	07113-20102
02007-220X100	E	100	M20	20	24	4	10	34,6	30	8	23	85	07113-20102
02007-224X040	E	40	M24	25	30	4	10	41,6	36	10	28	121	07113-25102
02007-224X100	E	100	M24	25	30	4	10	41,6	36	10	28	121	07113-25102
Order No.	Form	B	D2	D3	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper
02007-310X015	F	15	M10	10	17	4	10	19,6	17	3	13	19	07113-1010
02007-310X030	F	30	M10	10	17	4	10	19,6	17	3	13	19	07113-1010
02007-310X050	F	50	M10	10	17	4	10	19,6	17	3	13	19	07113-1010
02007-312X020	F	20	M12	12	19	4	10	21,9	19	5	15	30	07113-1210
02007-312X040	F	40	M12	12	19	4	10	21,9	19	5	15	30	07113-1210
02007-312X060	F	60	M12	12	19	4	10	21,9	19	5	15	30	07113-1210
02007-316X025	F	25	M16	16	23	4	10	27,7	24	6	20	50	07113-1610
02007-316X050	F	50	M16	16	23	4	10	27,7	24	6	20	50	07113-1610
02007-316X080	F	80	M16	16	23	4	10	27,7	24	6	20	50	07113-1610
02007-320X030	F	30	M20	20	24	4	10	34,6	30	8	23	85	07113-2010
02007-320X060	F	60	M20	20	24	4	10	34,6	30	8	23	85	07113-2010
02007-320X100	F	100	M20	20	24	4	10	34,6	30	8	23	85	07113-2010
02007-324X040	F	40	M24	25	30	4	10	41,6	36	10	28	121	07113-2510
02007-324X100	F	100	M24	25	30	4	10	41,6	36	10	28	121	07113-2510

Self-aligning pads

adjustable with O-ring and exchangeable inserts

Order No.	Form	B	D2	D3	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. POM insert
02007-710X015	K	15	M10	10	17	4	10	19,6	17	3	13	4	07113-10109
02007-710X030	K	30	M10	10	17	4	10	19,6	17	3	13	4	07113-10109
02007-710X050	K	50	M10	10	17	4	10	19,6	17	3	13	4	07113-10109
02007-712X020	K	20	M12	12	19	4	10	21,9	19	5	15	7	07113-12109
02007-712X040	K	40	M12	12	19	4	10	21,9	19	5	15	7	07113-12109
02007-712X060	K	60	M12	12	19	4	10	21,9	19	5	15	7	07113-12109
02007-716X025	K	25	M16	16	23	4	10	27,7	24	6	20	14	07113-16109
02007-716X050	K	50	M16	16	23	4	10	27,7	24	6	20	14	07113-16109
02007-716X080	K	80	M16	16	23	4	10	27,7	24	6	20	14	07113-16109
02007-720X030	K	30	M20	20	24	4	10	34,6	30	8	23	27	07113-20109
02007-720X060	K	60	M20	20	24	4	10	34,6	30	8	23	27	07113-20109
02007-720X100	K	100	M20	20	24	4	10	34,6	30	8	23	27	07113-20109
02007-724X040	K	40	M24	25	30	4	10	41,6	36	10	28	47	07113-25109
02007-724X100	K	100	M24	25	30	4	10	41,6	36	10	28	47	07113-25109

Order No.	Form	B	D2	D3	D4	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper
02007-910X015	M	15	M10	10	7,9	17	4	10	19,6	17	3	13	19	07113-10107
02007-910X030	M	30	M10	10	7,9	17	4	10	19,6	17	3	13	19	07113-10107
02007-910X050	M	50	M10	10	7,9	17	4	10	19,6	17	3	13	19	07113-10107
02007-912X020	M	20	M12	12	9,5	19	4	10	21,9	19	5	15	30	07113-12107
02007-912X040	M	40	M12	12	9,5	19	4	10	21,9	19	5	15	30	07113-12107
02007-912X060	M	60	M12	12	9,5	19	4	10	21,9	19	5	15	30	07113-12107
02007-916X025	M	25	M16	16	12,7	23	4	10	27,7	24	6	20	50	07113-16107
02007-916X050	M	50	M16	16	12,7	23	4	10	27,7	24	6	20	50	07113-16107
02007-916X080	M	80	M16	16	12,7	23	4	10	27,7	24	6	20	50	07113-16107
02007-920X030	M	30	M20	20	15,9	24	4	10	34,6	30	8	23	85	07113-20107
02007-920X060	M	60	M20	20	15,9	24	4	10	34,6	30	8	23	85	07113-20107
02007-920X100	M	100	M20	20	15,9	24	4	10	34,6	30	8	23	85	07113-20107
02007-924X040	M	40	M24	25	19	30	4	10	41,6	36	10	28	121	07113-25107
02007-924X100	M	100	M24	25	19	30	4	10	41,6	36	10	28	121	07113-25107

Self-aligning pads

adjustable with O-ring and exchangeable inserts

Order No.	Form	B	D2	D3	H	H1	H2	E	SW	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert, diamond surface
02007-510X015	O	15	M10	10	17	4	10	19,6	17	3	13	19	07113-10105
02007-510X030	O	30	M10	10	17	4	10	19,6	17	3	13	19	07113-10105
02007-510X050	O	50	M10	10	17	4	10	19,6	17	3	13	19	07113-10105
02007-512X020	O	20	M12	12	19	4	10	21,9	19	5	15	30	07113-12105
02007-512X040	O	40	M12	12	19	4	10	21,9	19	5	15	30	07113-12105
02007-512X060	O	60	M12	12	19	4	10	21,9	19	5	15	30	07113-12105
02007-516X025	O	25	M16	16	23	4	10	27,7	24	6	20	50	07113-16105
02007-516X050	O	50	M16	16	23	4	10	27,7	24	6	20	50	07113-16105
02007-516X080	O	80	M16	16	23	4	10	27,7	24	6	20	50	07113-16105
02007-520X030	O	30	M20	20	24	4	10	34,6	30	8	23	85	07113-20105
02007-520X060	O	60	M20	20	24	4	10	34,6	30	8	23	85	07113-20105
02007-520X100	O	100	M20	20	24	4	10	34,6	30	8	23	85	07113-20105
02007-524X040	O	40	M24	25	30	4	10	41,6	36	10	28	121	07113-25105
02007-524X100	O	100	M24	25	30	4	10	41,6	36	10	28	121	07113-25105

Order No.	Form	B	D2	D3	D4	H	H1	H2	E	SW	SW1	Ball-Ø	Order No. stainless steel insert, polyurethane surface
02007-620X030	P	30	M20	20	21	26	6	12	34,6	30	8	23	07113-20126
02007-612X020	P	20	M12	12	13	21	6	12	21,9	19	5	15	07113-12126
02007-610X015	P	15	M10	10	10	19	6	12	19,6	17	3	13	07113-10126
02007-624X100	P	100	M24	25	27	32	6	12	41,6	36	10	28	07113-25126
02007-616X025	P	25	M16	16	16	25	6	12	27,7	24	6	20	07113-16126
02007-616X050	P	50	M16	16	16	25	6	12	27,7	24	6	20	07113-16126
02007-612X060	P	60	M12	12	13	21	6	12	21,9	19	5	15	07113-12126
02007-610X030	P	30	M10	10	10	19	6	12	19,6	17	3	13	07113-10126
02007-620X100	P	100	M20	20	21	26	6	12	34,6	30	8	23	07113-20126
02007-624X040	P	40	M24	25	27	32	6	12	41,6	36	10	28	07113-25126
02007-610X050	P	50	M10	10	10	19	6	12	19,6	17	3	13	07113-10126
02007-616X080	P	80	M16	16	16	25	6	12	27,7	24	6	20	07113-16126
02007-620X060	P	60	M20	20	21	26	6	12	34,6	30	8	23	07113-20126
02007-612X040	P	40	M12	12	13	21	6	12	21,9	19	5	15	07113-12126

Self-aligning pads

adjustable with O-ring and hexagon socket



Material:

Body carbon steel.

Ball:

Form C, F, tool steel.

Form K POM.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane surface.

Version:

Body tempered, black oxidised.

Ball:

Form C, F hardened, black oxidised.

Form K POM ball, white.

Form O surface comparable to 100 grade abrasive grit.

Form P polyurethane, hardness 60 Shore.

Sample order:

nIm 02008-112X050

(Include length B.)

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces.

They also serve as stops, supports and thrust pads in fixtures and toolmaking.

Ball secured against rotation.

Form O: The abrasive diamond surface is bonded firmly to the ball. It is ideally suited to supporting smooth or slippery applications with a minimum of clamping pressure. This allows the diamond particles to get a firm grip on a very small area with minimum damage to the surface.

The diamond surface offers excellent wear resistance.

Form P: The polyurethane surface is vulcanised firmly to the ball. It is abrasion-resistant and does not discolour. Offers optimum protection against damage to delicate surfaces. The pearl-like surface gives a firm grip and allows air to escape so as to prevent any suction effect between the contact surface and the toggle locator.

Advantages:

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out, ensuring uniform movement.

The hexagon socket allows easy adjustment and positioning in through holes.

Drawing reference:

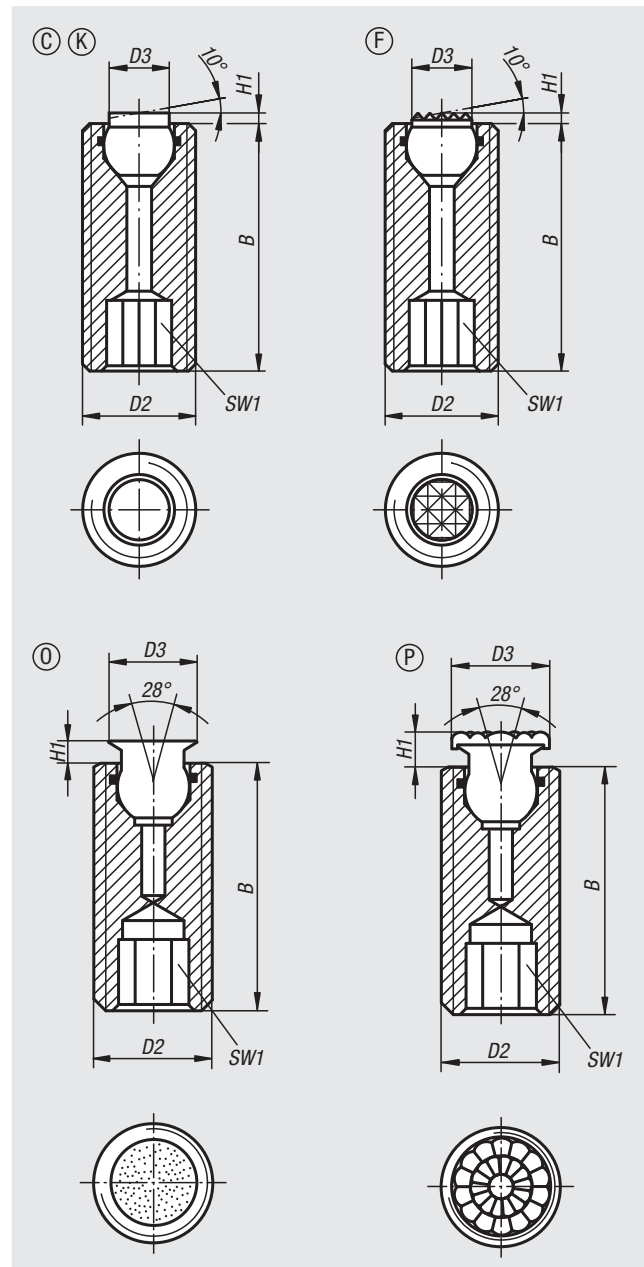
Form C: flattened steel ball, smooth

Form F: flattened steel ball, with serrations

Form K: POM ball, flattened, smooth

Form O: stainless steel ball diamond impregnated

Form P: stainless steel ball with polyurethane surface



Order No.	Form	B	D2	D3	H1	SW1	Ball-Ø	Load rating max. kN (static load only)
02008-112X025	C	25	M12	6	1,5	6	7	15
02008-112X035	C	35	M12	6	1,5	6	7	15
02008-112X050	C	50	M12	6	1,5	6	7	15
02008-116X025	C	25	M16	8,5	1,5	8	10	23
02008-116X035	C	35	M16	8,5	1,5	8	10	23
02008-116X050	C	50	M16	8,5	1,5	8	10	23
Order No.	Form	B	D2	D3	H1	SW1	Ball-Ø	Load rating max. kN (static load only)
02008-312X025	F	25	M12	6	1,5	6	7	15
02008-312X035	F	35	M12	6	1,5	6	7	15
02008-312X050	F	50	M12	6	1,5	6	7	15
02008-316X025	F	25	M16	8,5	1,5	8	10	23
02008-316X035	F	35	M16	8,5	1,5	8	10	23
02008-316X050	F	50	M16	8,5	1,5	8	10	23
Order No.	Form	B	D2	D3	H1	SW1	Ball-Ø	Load rating max. kN (static load only)
02008-712X025	K	25	M12	6	1,5	6	7	2
02008-712X035	K	35	M12	6	1,5	6	7	2
02008-712X050	K	50	M12	6	1,5	6	7	2
02008-716X025	K	25	M16	8,5	1,5	8	10	4
02008-716X035	K	35	M16	8,5	1,5	8	10	4
02008-716X050	K	50	M16	8,5	1,5	8	10	4
Order No.	Form	B	D2	D3	H1	SW1	Ball-Ø	Load rating max. kN (static load only)
02008-510X	O	25	M10	6	1,5	5	5	-
02008-512X	O	25	M12	8	2	6	7	15,4
02008-516X	O	25	M16	11	3	8	10	23,3
02008-520X	O	30	M20	14	3	10	13	37,7
Order No.	Form	B	D2	D3	H1	SW1	Ball-Ø	
02008-610X	P	25	M10	8	3,5	5	5	
02008-612X	P	25	M12	10	4	6	7	
02008-616X	P	25	M16	13	5	8	10	
02008-620X	P	30	M20	16	5	10	13	

Self-aligning pads

adjustable with O-ring, exchangeable inserts and hexagon socket



Material:

Body carbon steel.

Ball rust and acid resistant steel.

Inserts:

Form C, F, M tool steel

Form K POM

Form E stainless steel.

Form O stainless steel diamond impregnated.

Form P stainless steel with polyurethane surface.

Version:

Body tempered, black oxidised.

Ball hardened, bright.

Inserts:

Form C, F hardened, black oxidised.

Form M with carbide serrations, black oxidised.

Form K white.

Form E hardened, bright.

Form O diamond impregnated surface comparable to 100 grade abrasive grit.

Form P polyurethane surface, hardness 60 Shore.

Sample order:

n1m 02009-720X070

Note:

Self-aligning pads are used to support and clamp unmachined and machined workpieces.

They also serve as stops, supports and thrust pads in fixtures and toolmaking.

The ball can be removed from the housing by applying light pressure to the socket head screw.

Ball secured against rotation.

Advantages:

Highly cost-effective as inserts can be exchanged.

The built-in O-ring holds the ball in place and keeps dirt and foreign particles out, ensuring uniform movement.

Drawing reference:

Form C: flattened steel insert, smooth

Form E: flattened stainless steel insert, smooth

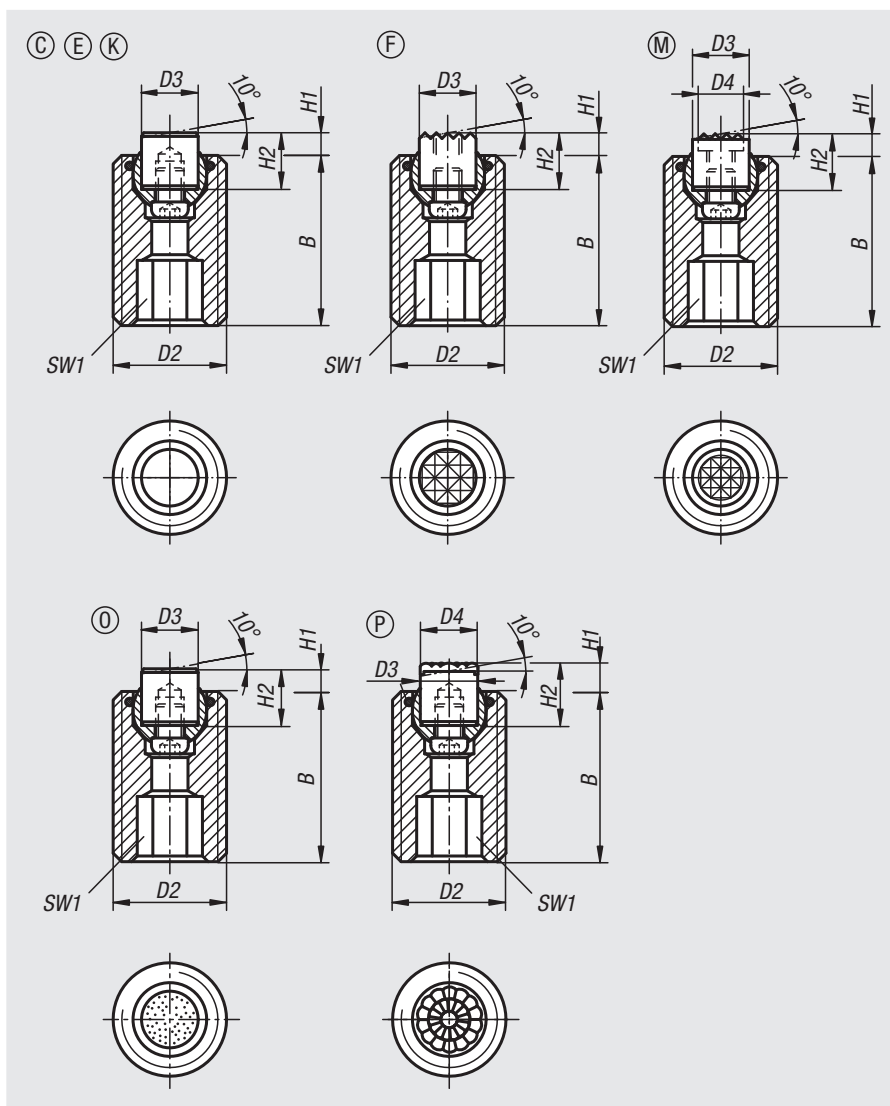
Form F: gripper face

Form K: flattened POM insert, smooth

Form M: gripper, with carbide serrations

Form O: stainless steel insert diamond impregnated

Form P: stainless steel insert with polyurethane surface



Order No.	Form	B	D2	D3	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. steel insert
02009-120X030	C	30	M20	10	4	10	10	13	37	07113-10108
02009-120X050	C	50	M20	10	4	10	10	13	37	07113-10108
02009-120X070	C	70	M20	10	4	10	10	13	37	07113-10108
02009-124X040	C	40	M24	12	4	10	10	15	55	07113-12108
02009-124X080	C	80	M24	12	4	10	10	15	55	07113-12108

Self-aligning pads

adjustable with O-ring, exchangeable inserts and hexagon socket

Order No.	Form	B	D2	D3	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert	
02009-220X030	E	30	M20	10	4	10	10	13	37	07113-10102	
02009-220X050	E	50	M20	10	4	10	10	13	37	07113-10102	
02009-220X070	E	70	M20	10	4	10	10	13	37	07113-10102	
02009-224X040	E	40	M24	12	4	10	10	15	55	07113-12102	
02009-224X080	E	80	M24	12	4	10	10	15	55	07113-12102	
Order No.	Form	B	D2	D3	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper	
02009-320X030	F	30	M20	10	4	10	10	13	37	07113-1010	
02009-320X050	F	50	M20	10	4	10	10	13	37	07113-1010	
02009-320X070	F	70	M20	10	4	10	10	13	37	07113-1010	
02009-324X040	F	40	M24	12	4	10	10	15	55	07113-1210	
02009-324X080	F	80	M24	12	4	10	10	15	55	07113-1210	
Order No.	Form	B	D2	D3	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. POM insert	
02009-720X030	K	30	M20	10	4	10	10	13	4	07113-10109	
02009-720X050	K	50	M20	10	4	10	10	13	4	07113-10109	
02009-720X070	K	70	M20	10	4	10	10	13	4	07113-10109	
02009-724X040	K	40	M24	12	4	10	10	15	7	07113-12109	
02009-724X080	K	80	M24	12	4	10	10	15	7	07113-12109	
Order No.	Form	B	D2	D3	D4	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. gripper
02009-920X030	M	30	M20	10	7,9	4	10	10	13	37	07113-10107
02009-920X050	M	50	M20	10	7,9	4	10	10	13	37	07113-10107
02009-920X070	M	70	M20	10	7,9	4	10	10	13	37	07113-10107
02009-924X040	M	40	M24	12	9,5	4	10	10	15	55	07113-12107
02009-924X080	M	80	M24	12	9,5	4	10	10	15	55	07113-12107
Order No.	Form	B	D2	D3	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert, diamond surface	
02009-520X030	O	30	M20	10	4	10	10	13	37	07113-10105	
02009-520X050	O	50	M20	10	4	10	10	13	37	07113-10105	
02009-520X070	O	70	M20	10	4	10	10	13	37	07113-10105	
02009-524X040	O	40	M24	12	4	10	10	15	55	07113-12105	
02009-524X080	O	80	M24	12	4	10	10	15	55	07113-12105	
Order No.	Form	B	D2	D3	D4	H1	H2	SW1	Ball-Ø	Load rating max. kN (static load only)	Order No. stainless steel insert, polyurethane surface
02009-620X030	P	30	M20	10	10	6	12	10	13	37	07113-10126
02009-620X050	P	50	M20	10	10	6	12	10	13	37	07113-10126
02009-620X070	P	70	M20	10	10	6	12	10	13	37	07113-10126
02009-624X040	P	40	M24	12	13	6	12	10	15	55	07113-12126
02009-624X080	P	80	M24	12	13	6	12	10	15	55	07113-12126

Rest pads


Material:

Tool steel.

Version:

Hardened and ground.

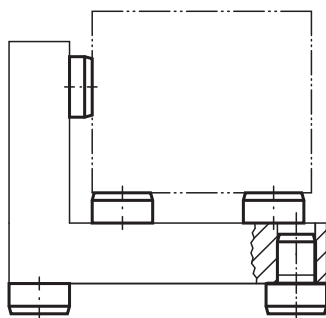
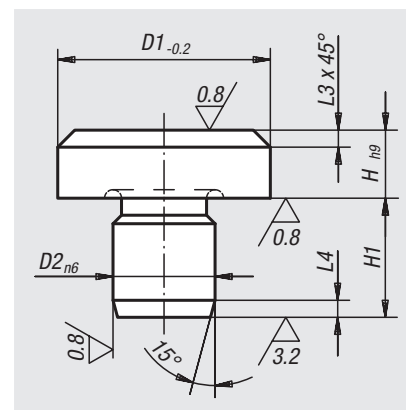
Top face without centerbore.

Sample order:

nIm 02010-041

Note:

If more than one rest pad is used, the support height can be reground. Rest pads can also be used as feet for jigs and fixtures.



Order No.	D1	D2	H	H1	L3	L4
02010-041	6	4	2,5	6,5	0,7	1,2
02010-042	6	4	4,5	8,5	0,7	1,2
02010-04	6	4	5	6	0,7	1,2
02010-061	10	6	4,5	8,5	0,9	1,5
02010-06	10	6	8	8,5	0,9	1,5
02010-08	16	8	5	10	2	2
02010-081	16	8	13	10	2	2
02010-10	20	10	6	12	2	2
02010-101	20	10	12	12	2	2
02010-12	25	12	8	14	2	2
02010-122	25	12	20	14	2	2
02010-123	25	12	30	14	2	2
02010-16	30	16	25	20	2,5	2,5
02010-164	30	16	40	20	2,5	2,5
02010-165	30	16	50	20	2,5	2,5
02010-166	30	16	65	20	2,5	2,5
02010-20	30	20	80	20	2,5	2,5
02010-201	30	20	100	20	2,5	2,5
02010-202	40	20	13	20	3,2	3,2
02010-203	40	20	32	20	3,2	3,2

Rest pads, ceramic

**Material:**

High-performance ceramic, Cerazur.

Version:

Ground.

Top face without centerbore.

Sample order:

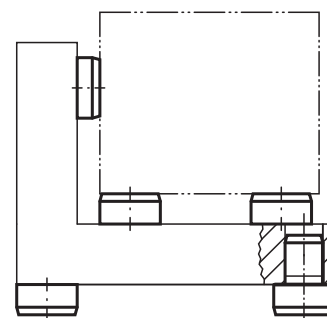
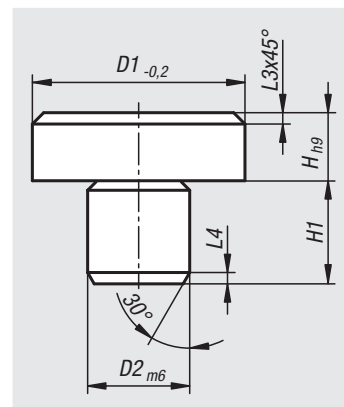
nlm 02010-01-060025

Note:

Rest pads can also be used as feet for jigs and fixtures.

Advantages:

Cerazur is extremely impact and bend resistant. The basis of this material is zirconium oxide. It is a composite metal-ceramic material.



Order No.	D1	D2	H	H1	L3	L4
02010-01-060025	6	4	2,5	6,5	1	1
02010-01-060045	6	4	4,5	8,5	1	1
02010-01-060050	6	4	5	6	1	1
02010-01-100040	10	6	4	8,5	1	1
02010-01-100080	10	6	8	8,5	1	1
02010-01-120060	12	6	6	10	1	1
02010-01-120100	12	6	10	10	1	1
02010-01-160050	16	8	5	10	1	1
02010-01-160130	16	8	13	10	1	1
02010-01-194060	19,4	10	6	12	1	1
02010-01-194120	19,4	10	12	12	1	1
02010-01-250080	25	12	8	14	1	1
02010-01-250200	25	12	20	14	1	1
02010-01-250300	25	12	30	14	1	1
02010-01-300250	30	16	25	20	1	1
02010-01-300400	30	16	40	20	1	1
02010-01-300500	30	16	50	20	1	1
02010-01-300650	30	16	65	20	1	1

Locating pins and rest pads

DIN 6321 (Issue 1973)



Material:

Tool steel.

Version:

Hardened and ground.

Sample order:

nln 02020-212

Note:

Rest pads Form A are supports for workpieces and fixtures.

Locating pins Form B are for positioning workpieces and fixture components in reamed holes.

The flattened Form C can be used to bridge tolerances in hole spacing or to secure the part to be positioned in one direction only.

Form A and B can also be used as hardened stops and as fixture feet.

For similar pins see 03120, 03130, 03140 and 03150.

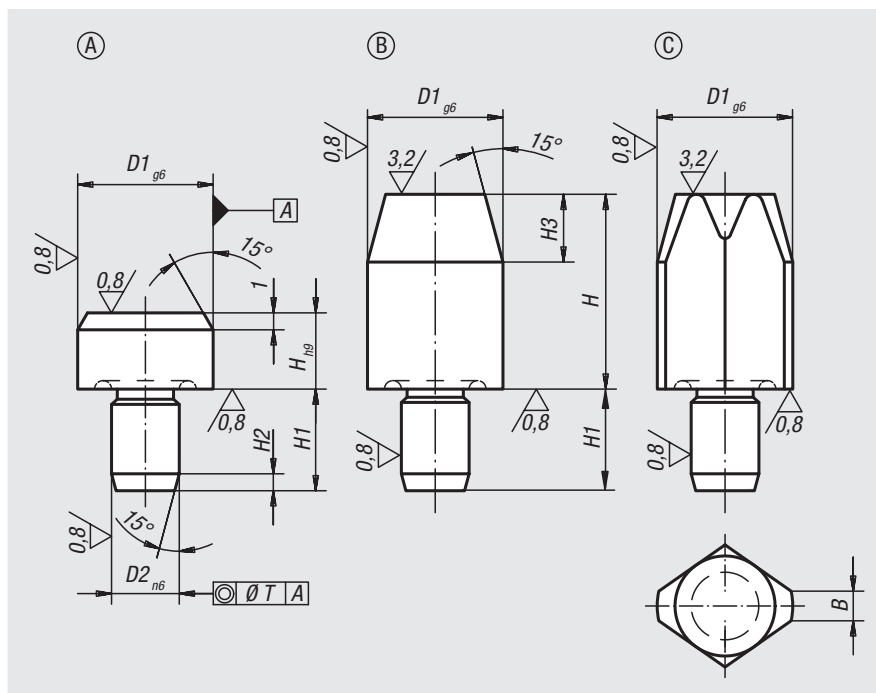
Drawing reference:

Form A: Rest pad

Form B: Cylindrical locating pin

Form C: Flattened locating pin

For other dimensions see Form A.



Rest pads, Form A

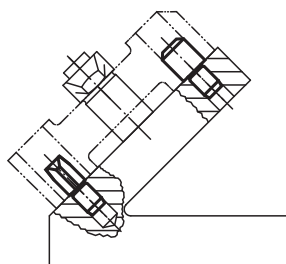
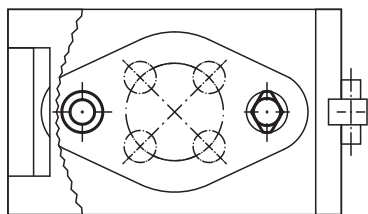
Order No. without centre bore	D1	D2	H	H1	H2	T
02020-106	6	4	5	6	1,2	0,02
02020-110	10	6	6	9	1,6	0,02
02020-116	16	8	8	12	2	0,04
02020-125	25	12	10	18	2,5	0,04

Locating pin cylindrical, Form B

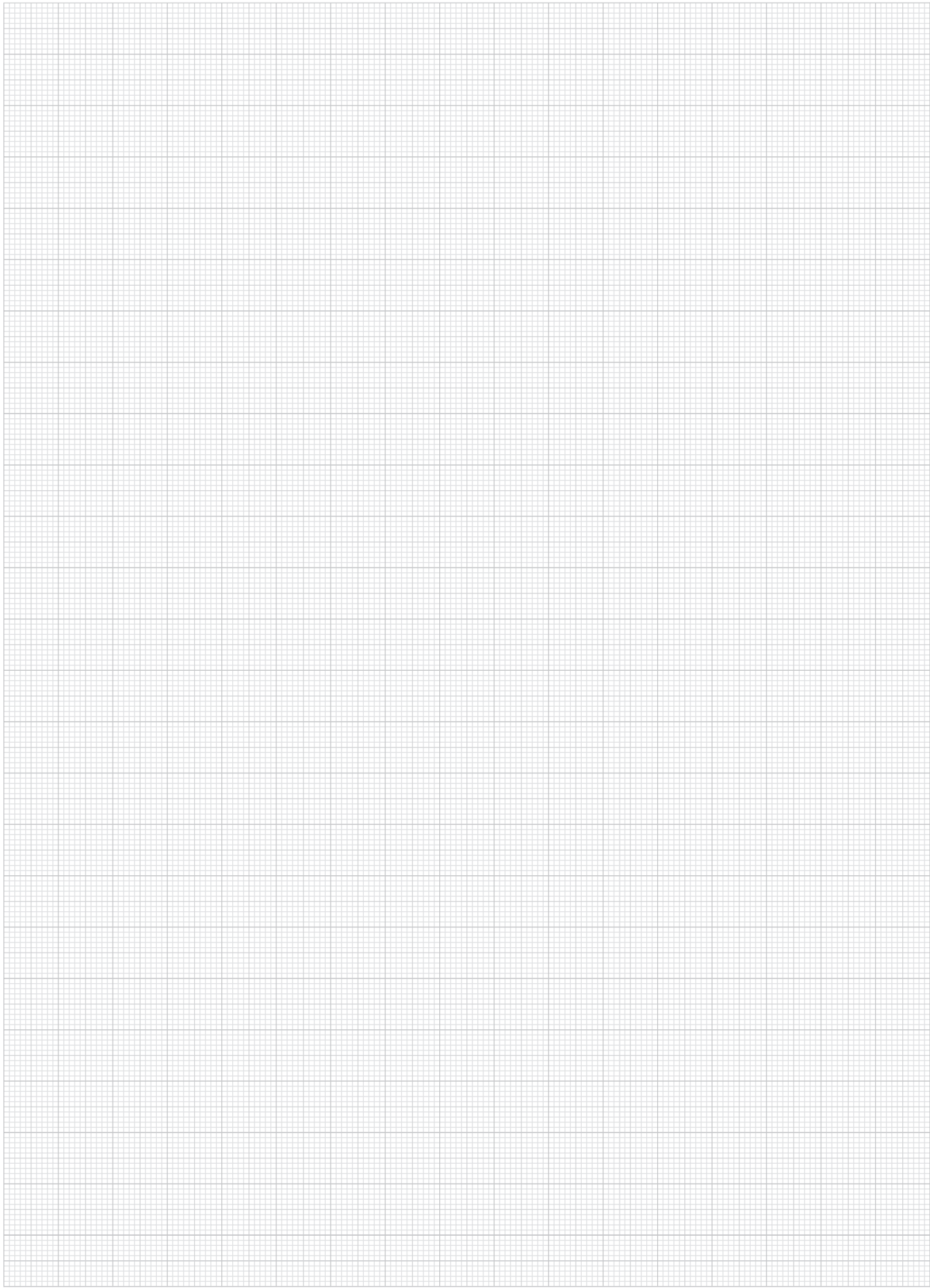
Order No. short	Order No. long	D1	D2	H	H1	H2	H3	T
02020-206	02020-306	6	4	7/12	6	1,2	4	0,02
02020-208	02020-308	8	6	10/16	9	1,6	6	0,02
02020-210	02020-310	10	6	10/18	9	1,6	6	0,02
02020-212	02020-312	12	6	10/18	9	1,6	6	0,02
02020-216	02020-316	16	8	13/22	12	2	8	0,04
02020-220	02020-320	20	12	15/25	18	2	9	0,04
02020-225	02020-325	25	12	15/25	18	2,5	9	0,04

Locating pin rhombic, Form C

Order No. short	Order No. long	B	D1	D2	H	H1	H2	H3	T
02020-410	02020-510	2,5	10	6	10/18	9	1,6	6	0,02
02020-412	02020-512	2,5	12	6	10/18	9	1,6	6	0,02
02020-416	02020-516	3,5	16	8	13/22	12	2	8	0,04
02020-420	02020-520	5	20	12	15/25	18	2	9	0,04
02020-425	02020-525	5	25	12	15/25	18	2,5	9	0,04
02020-406	02020-506	1	6	4	7/12	6	1,2	4	0,02
02020-408	02020-508	1,6	8	6	10/16	9	1,6	6	0,02



Notes



01000

02000

03000

04000

05000

06000

07000

08000

09000

10000

12000



Locating pins ceramic

similar to DIN 6321



Material:

High-performance ceramic, Cerazur.

Version:

Ground

Sample order:

nIm 02020-01-10607

Note:

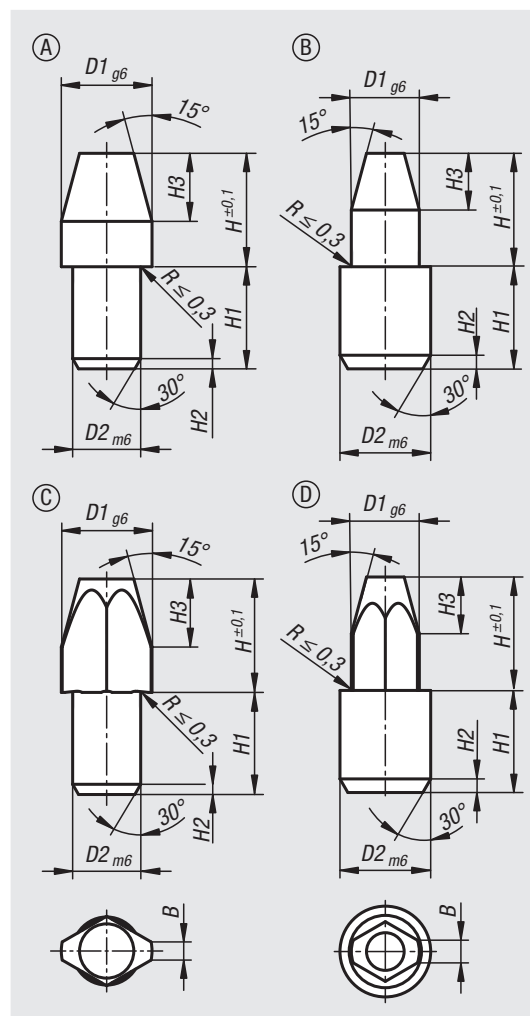
Form A locating pins are used to position workpieces and fixture parts in reamed holes. The flattened Form C can be used to bridge tolerances in hole spacing or to secure the part to be positioned in one direction only. The Form A locating pins can also be used as limit stops or fixture feet.

Advantages:

Cerazur is extremely impact and bend resistant. The basis of this material is zirconium oxide. It is a composite metal-ceramic material.

Drawing reference:

Form A and B: cylindrical locating pin
Form C and D: flattened locating pin



Locating pin ceramic

similar to DIN 6321



Order No.	Form	D1	D2	H	H1	H2	H3
02020-01-10607	A	6	4	7	6	0,6	4
02020-01-10612	A	6	4	12	6	0,6	4
02020-01-10810	A	8	6	10	9	0,9	6
02020-01-10816	A	8	6	16	9	0,9	6
02020-01-11010	A	10	6	10	9	0,9	6
02020-01-11018	A	10	6	18	9	0,9	6
02020-01-11210	A	12	6	10	9	0,9	6
02020-01-11218	A	12	6	18	9	0,9	6
02020-01-11613	A	16	8	13	12	1,2	8
02020-01-11622	A	16	8	22	12	1,2	8

Order No.	Form	D1	D2	H	H1	H2	H3
02020-01-20307	B	3	4	7	6	0,6	3
02020-01-20312	B	3	4	12	6	0,6	3
02020-01-20410	B	4	6	10	9	0,9	4
02020-01-20416	B	4	6	16	9	0,9	4
02020-01-20610	B	6	8	10	9	1,2	5
02020-01-20618	B	6	8	18	9	1,2	5

Order No.	Form	B	D1	D2	H	H1	H2	H3
02020-01-30607	C	1	6	4	7	6	0,6	4
02020-01-30612	C	1	6	4	12	6	0,6	4
02020-01-30810	C	1,6	8	6	10	9	0,9	6
02020-01-30816	C	1,6	8	6	16	9	0,9	6
02020-01-31010	C	2,5	10	6	10	9	0,9	6
02020-01-31018	C	2,5	10	6	18	9	0,9	6
02020-01-31210	C	2,5	12	6	10	9	0,9	6
02020-01-31218	C	2,5	12	6	18	9	0,9	6
02020-01-31613	C	3,5	16	8	13	12	1,2	8
02020-01-31622	C	3,5	16	8	22	12	1,2	8

Order No.	Form	B	D1	D2	H	H1	H2	H3
02020-01-40307	D	1,2	3	4	7	6	0,6	3
02020-01-40312	D	1,2	3	4	12	6	0,6	3
02020-01-40410	D	1,6	4	6	10	9	0,9	4
02020-01-40416	D	1,6	4	6	16	9	0,9	4
02020-01-40610	D	2	6	8	10	9	1,2	5
02020-01-40618	D	2	6	8	18	9	1,2	5

Locating pins

with internal thread



Material:
Steel.

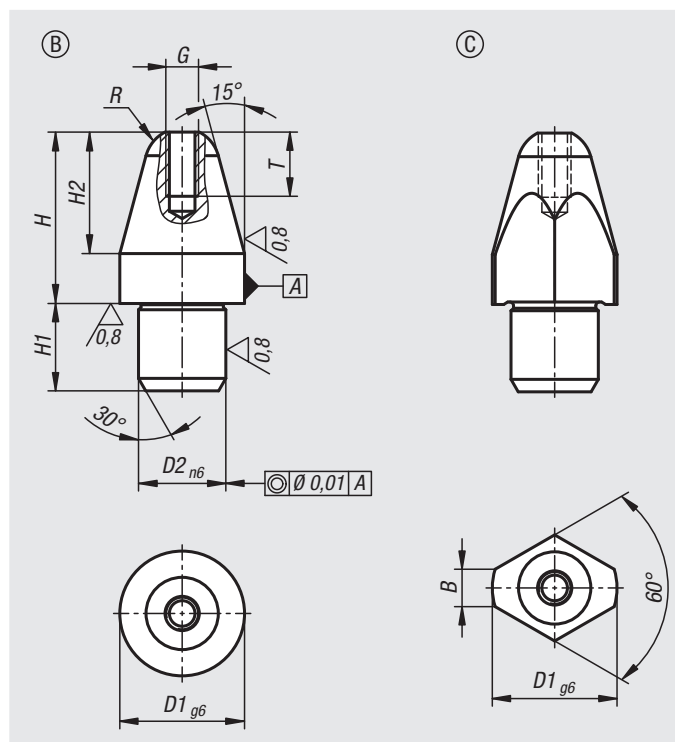
Version:
Hardened and ground (HRC 60 ±2).

Sample order:
nlm 02025-208

Note:
The locating pins are designed to make the joining process easier. Used in combination with hardened locating bushes 02026, they enable exact, low-wear, and fast changes of the workpiece.

Versions D1 = 5 and D1 = 6 do not have an internal thread.

Drawing reference:
Form B: cylindrical pin
Form C: rhomboid pin



Locating pins, short

Order No. Form B	Order No. Form C	Version 1	D1	D2	G	H	H1	H2	R	B	T
02025-205	02025-405	short	5	3	-	8	3	5	1,50	-/-	-
02025-206	02025-406	short	6	4	-	10	4	6	1,80	-/-	-
02025-208	02025-408	short	8	6	M2,5	11,4	6	7,4	2,5	-/2,5	5
02025-210	02025-410	short	10	7	M2,5	13,7	7	9,7	3	-/3,0	5
02025-212	02025-412	short	12	8	M3	16	8	12	3,5	-/3,5	6
02025-216	02025-416	short	16	12	M4	20	12	15	5	-/5	8
02025-220	02025-420	short	20	14	M5	25,5	14	19,5	6	-/6	10

Locating pins, long

Order No. Form B	Order No. Form C	Version 1	D1	D2	G	H	H1	H2	R	B	T
02025-305	02025-505	long	5	3	-	10	3	5	1,50	-/-	-
02025-306	02025-506	long	6	4	-	12	4	6	1,80	-/-	-
02025-308	02025-508	long	8	6	M2,5	17,4	6	7,4	2,5	-/2,5	5
02025-310	02025-510	long	10	7	M2,5	21,7	7	9,7	3	-/3,0	5
02025-312	02025-512	long	12	8	M3	24	8	12	3,5	-/3,5	6
02025-316	02025-516	long	16	12	M4	29	12	15	5	-/5	8
02025-320	02025-520	long	20	14	M5	35,5	14	19,5	6	-/6	10

Locating bushes

for locating pins


Material:

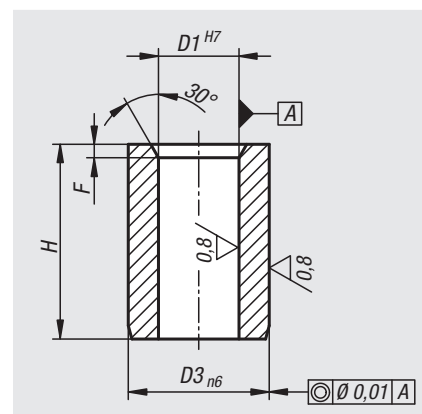
Steel.

Version:

Hardened and ground (HRC 60 ±2).

Sample order:

nlm 02026-0812



Order No.	Version 1	D1	D3	F	H
02026-0508	short	5	8	1	8
02026-0610	short	6	10	1	10
02026-0812	short	8	12	1,2	12
02026-1014	short	10	15	1,5	14
02026-1216	short	12	18	1,5	16
02026-1620	short	16	26	1,5	20
02026-2026	short	20	30	2,5	26
02026-0510	long	5	8	1	10
02026-0612	long	6	10	1	12
02026-0818	long	8	12	1,2	18
02026-1022	long	10	15	1,5	22
02026-1224	long	12	18	1,5	24
02026-1630	long	16	26	1,5	30
02026-2036	long	20	30	2,5	36

Rest pads

pin form, internal thread


Material:

Carbon steel.

Version:

Tempered, black oxidised.

Seating face inductively hardened and ground.

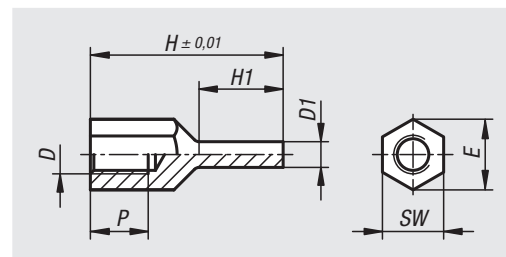
Sample order:

nIm 02027-2060420

Note:

The rest pads can be used both as a stable and precise support and as a stop.

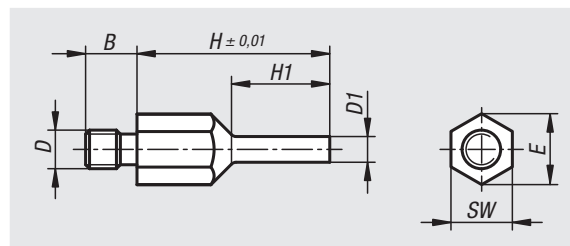
The pin form of the rest pad also allows it to be used with components with constricted support points.



Order No.	D	D1	E	H	H1	P	SW
02027-2060420	M6	4	11	20	8,5	6	10
02027-2060430	M6	4	11	30	13,5	9	10
02027-2080430	M8	4	14,4	30	13	10	13
02027-2080440	M8	4	14,4	40	18	14	13
02027-2080630	M8	6	14,4	30	13	10	13
02027-2080640	M8	6	14,4	40	18	14	13
02027-2100630	M10	6	19	30	12	10	17
02027-2100650	M10	6	19	50	25	15	17
02027-2100830	M10	8	19	30	12	10	17
02027-2100850	M10	8	19	50	25	15	17
02027-2120640	M12	6	21,2	40	18	12	19
02027-2120660	M12	6	21,2	60	28	18	19
02027-2120840	M12	8	21,2	40	18	12	19
02027-2120860	M12	8	21,2	60	28	18	19

Rest pads

pin form, external thread



Material:

Carbon steel.

Version:

Tempered, black oxidised.

Seating face inductively hardened and ground.

Sample order:

nIm 02027-1060420

Note:

The rest pads can be used both as a stable and precise support and as a stop.

The pin form of the rest pad also allows it to be used with components with constricted support points.

Order No.	B	D	D1	E	H	H1	SW
02027-1060420	8	M6	4	11	20	10	10
02027-1060430	8	M6	4	11	30	15	10
02027-1080430	10	M8	4	14,4	30	15	13
02027-1080440	10	M8	4	14,4	40	20	13
02027-1080630	10	M8	6	14,4	30	15	13
02027-1080640	10	M8	6	14,4	40	20	13
02027-1100630	14	M10	6	19	30	15	17
02027-1100650	14	M10	6	19	50	25	17
02027-1100830	14	M10	8	19	30	15	17
02027-1100850	14	M10	8	19	50	25	17
02027-1120640	14	M12	6	21,2	40	20	19
02027-1120660	14	M12	6	21,2	60	30	19
02027-1120840	14	M12	8	21,2	40	20	19
02027-1120860	14	M12	8	21,2	60	30	19

Rest pads


Material:

Body high carbon steel.

Version:

Body tempered and black oxidised.

Sample order:

nln 02028-106012

Note:

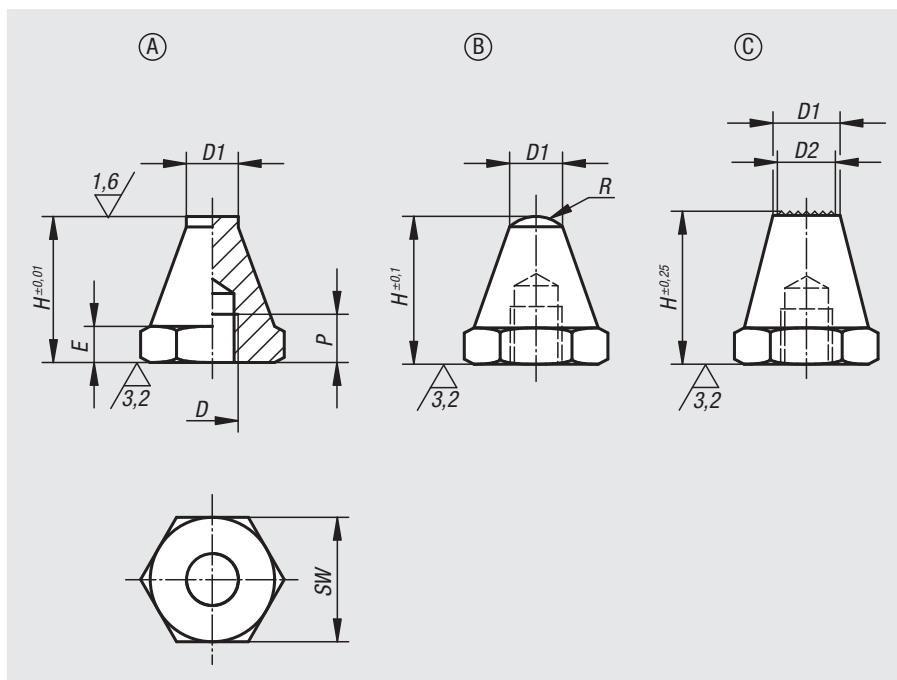
Rest pads are for supporting machined and non-machined parts. They can also be used as stops and thrust pads in fixtures and toolmaking. Studs or grub screws can be screwed and glued into the tapped hole D to make a rest pad with external thread.

Drawing reference:

Form A: flat face

Form B: ball end

Form C: diamond grip



Order No. Form A	Order No. Form B	Order No. Form C	D	D1	D2	E	H	P	R	SW
02028-106012	02028-206012	02028-306012	M6	6	-/-/5	3	12,5	4	-/5/-	11
02028-106025	02028-206025	02028-306025	M6	6	-/-/5	3	25	7	-/5/-	11
02028-108015	02028-208015	02028-308015	M8	8	-/-/6	4	15	6	-/8,5/-	13
02028-108030	02028-208030	02028-308030	M8	8	-/-/6	4	30	9	-/8,5/-	13
02028-110020	02028-210020	02028-310020	M10	10	-/-/8	5	20	9	-/9/-	17
02028-110040	02028-210040	02028-310040	M10	10	-/-/8	5	40	13	-/9/-	17
02028-112025	02028-212025	02028-312025	M12	12	-/-/9,5	6	25	11	-/12,75/-	19
02028-112050	02028-212050	02028-312050	M12	12	-/-/9,5	6	50	16	-/12,75/-	19
02028-116030	02028-216030	02028-316030	M16	16	-/-/13	8	30	12	-/17/-	24
02028-116060	02028-216060	02028-316060	M16	16	-/-/13	8	60	20	-/17/-	24

Rest pads

with positioning pin



Material:

Body high carbon steel.

Version:

Body tempered and black oxidised.
Contact faces case-hardened.

Sample order:

nIm 02029-106012

Note:

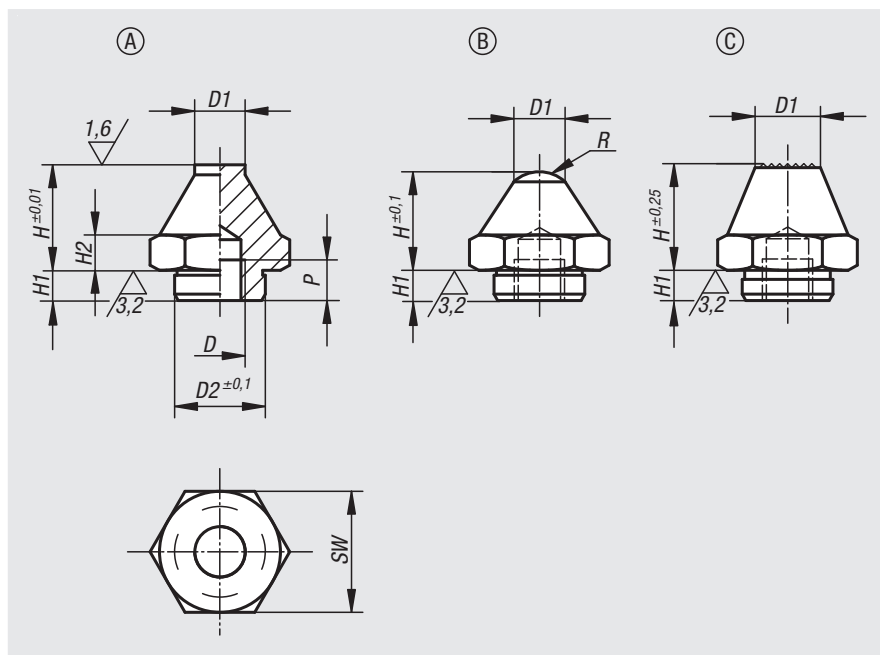
Rest pads are for supporting machined and unmachined parts. They can also be used as stops and thrust pads in fixtures and toolmaking. Studs or grub screws can be screwed and glued into the tapped hole D to make a support with external thread.

Drawing reference:

Form A: flat face

Form B: ball end

Form C: diamond grip



Order No.	Form	D	D1	D2	H	H1	H2	P	R	SW
02029-106012	A	M6	7	11,9	12,5	4	4	6	-	17
02029-106025	A	M6	7	11,9	25	4	4	6	-	17
02029-110020	A	M10	10	17,8	20	5	7	10	-	24
02029-110040	A	M10	10	17,8	40	6	7	10	-	24
02029-116030	A	M16	20	25,8	30	10	13	16	-	41
02029-116060	A	M16	20	25,8	60	10	13	16	-	41
02029-206012	B	M6	7	11,9	12,5	4	4	6	6	17
02029-206025	B	M6	7	11,9	25	4	4	6	6	17
02029-210020	B	M10	10	17,8	20	5	7	10	7,5	24
02029-210040	B	M10	10	17,8	40	6	7	10	7,5	24
02029-216030	B	M16	20	25,8	30	10	13	16	26	41
02029-216060	B	M16	20	25,8	60	10	13	16	26	41
02029-310020	C	M10	15	17,8	20	5	7	10	-	24
02029-310040	C	M10	10	17,8	40	6	7	10	-	24
02029-316030	C	M16	20	25,8	30	10	13	16	-	41
02029-316060	C	M16	20	25,8	60	10	13	16	-	41

Feet

with threaded pin, DIN 6320 (Edition 1971)



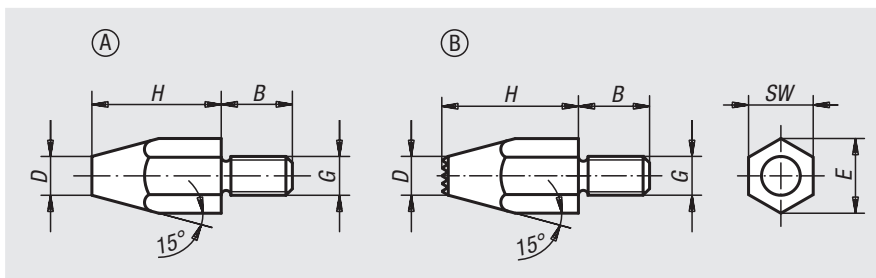
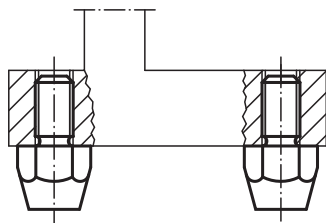
Material:
Carbon steel 1.1172.

Version:
Black oxidised.

Sample order:
nlm 02030-10

Note:
Rest pads 02010 and 02020 can also be used as feet.

Drawing reference:
Form A: Smooth face
Form B: Carbide tips



Order No.	Form	D	G	H	B	E	SW
02030-06	A	8	M6	10	11	11,5	10
02030-061	A	6	M6	20	11	11,5	10
02030-08	A	10	M8	15	13	15	13
02030-081	A	9	M8	30	13	15	13
02030-10	A	13	M10	20	16	19,6	17
02030-101	A	13	M10	40	16	19,6	17
02030-12	A	15	M12	25	20	21,9	19
02030-121	A	15	M12	50	20	21,9	19
02030-083	B	11,5	M8	15	13	15	13
02030-123	B	15	M12	25	20	21,9	19

02035

Extension pieces

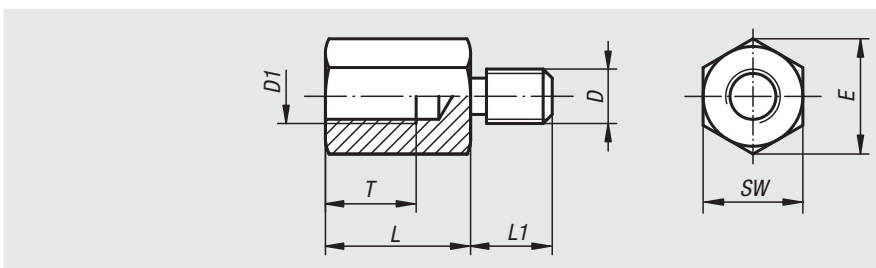


Material:
Carbon steel.

Version:
Black oxidised.

Sample order:
nlm 02035-120750

Note:
Extension pieces are used to extend self-aligning pads, spring plungers, positioning feet, rest pads etc.



Order No.	L	L1	T	D	D1	E	SW
02035-08025	25	13	15	M8	M8	15	13
02035-08032	32	13	15	M8	M8	15	13
02035-08040	40	13	15	M8	M8	15	13
02035-10025	25	15	17	M10	M10	19,6	17
02035-10032	32	15	17	M10	M10	19,6	17
02035-10040	40	15	17	M10	M10	19,6	17
02035-120320	32	18	20	M12	M12	25,4	22
02035-120500	50	18	20	M12	M12	25,4	22
02035-120750	75	18	20	M12	M12	25,4	22
02035-160320	32	25	20	M16	M16	31,2	27
02035-160500	50	25	30	M16	M16	31,2	27
02035-160750	75	25	30	M16	M16	31,2	27

Extension pieces


Material:

Steel 1.0718.

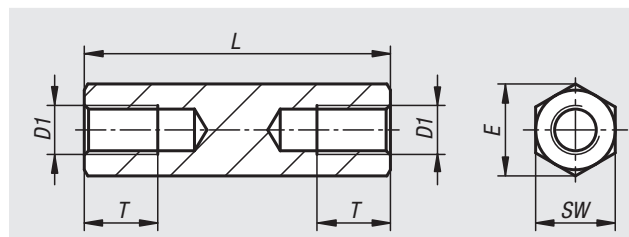
Version:

Trivalent blue passivated.

Sample order:

nIm 02035-10-205025

(include length L e.g. 025 for L = 25 mm.)



Order No.	D1	E	L	SW	T
02035-10-205***	M5	9,2	25/30/35	8	8
02035-10-206***	M6	11,5	30/35/40/50/60	10	9
02035-10-208***	M8	15	30/35/40/50/60/90	13	12
02035-10-210***	M10	18,5	40/45/55/65/95/115	16	15
02035-10-212***	M12	20,8	40/45/55/65/95/115	18	18

Support bolts


Material:

Carbon steel, tempered.

Version:

Black oxidised.

Sample order:

nIm 02037-16016

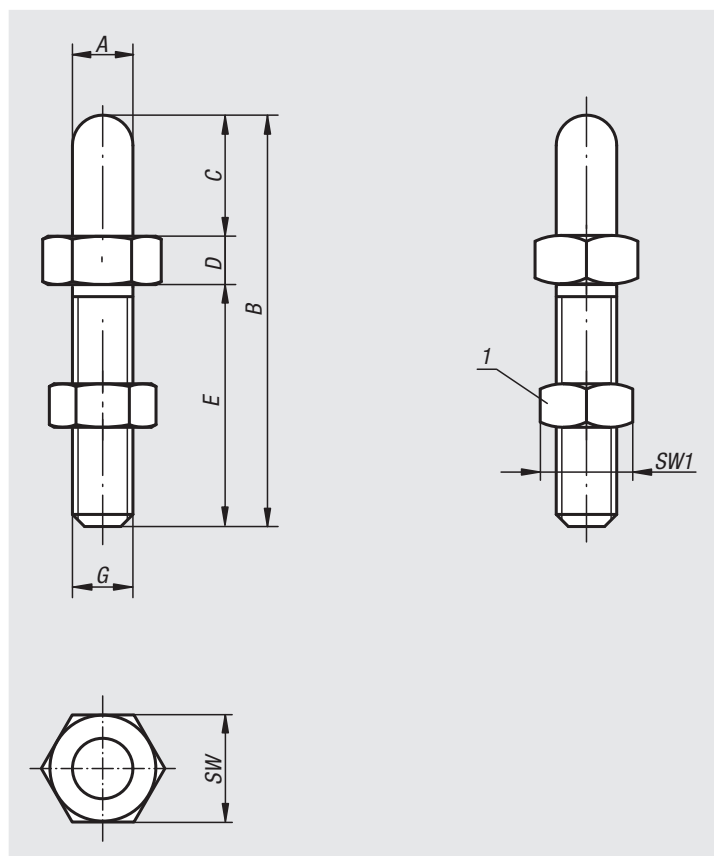
Note:

The rounded nose also allows support bolts to be used as positioning elements for workpieces with matching holes.

The versions 02037-20020 and 02037-20040 have an octagonal collar.

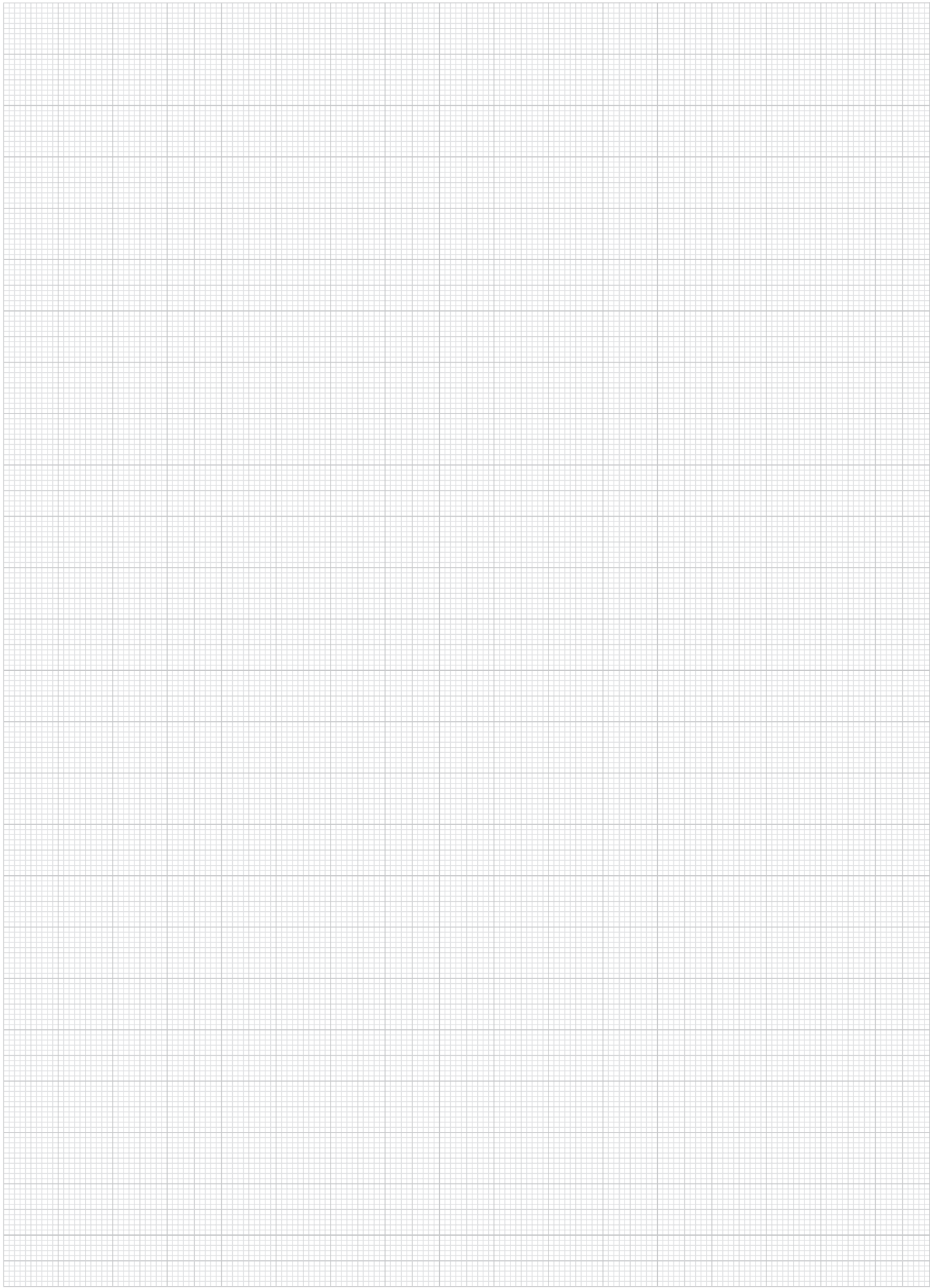
Drawing reference:

1) locknut



Order No.	A	B	C	D	E	G	SW	SW1
02037-06006	6	37	6	6	25	M6	13	10
02037-06012	6	43	12	6	25	M6	13	10
02037-08008	8	45	8	7	30	M8	13	13
02037-08016	8	53	16	7	30	M8	13	13
02037-10010	10	58	10	8	40	M10	17	17
02037-10020	10	68	20	8	40	M10	17	17
02037-12012	12	72	12	10	50	M12	19	19
02037-12024	12	84	24	10	50	M12	19	19
02037-16016	16	89	16	13	60	M16	24	24
02037-16032	16	105	32	13	60	M16	24	24
02037-20020	20	115	20	15	80	M20	36	30
02037-20040	20	135	40	15	80	M20	36	30

Notes



01000

02000

03000

04000

05000

06000

07000

08000

09000

10000

12000

14000

Positioning feet



Material:
Steel.

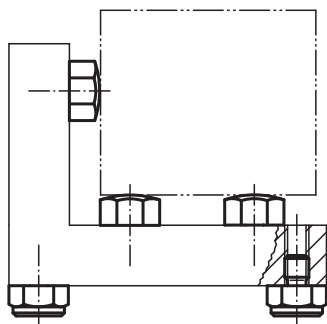
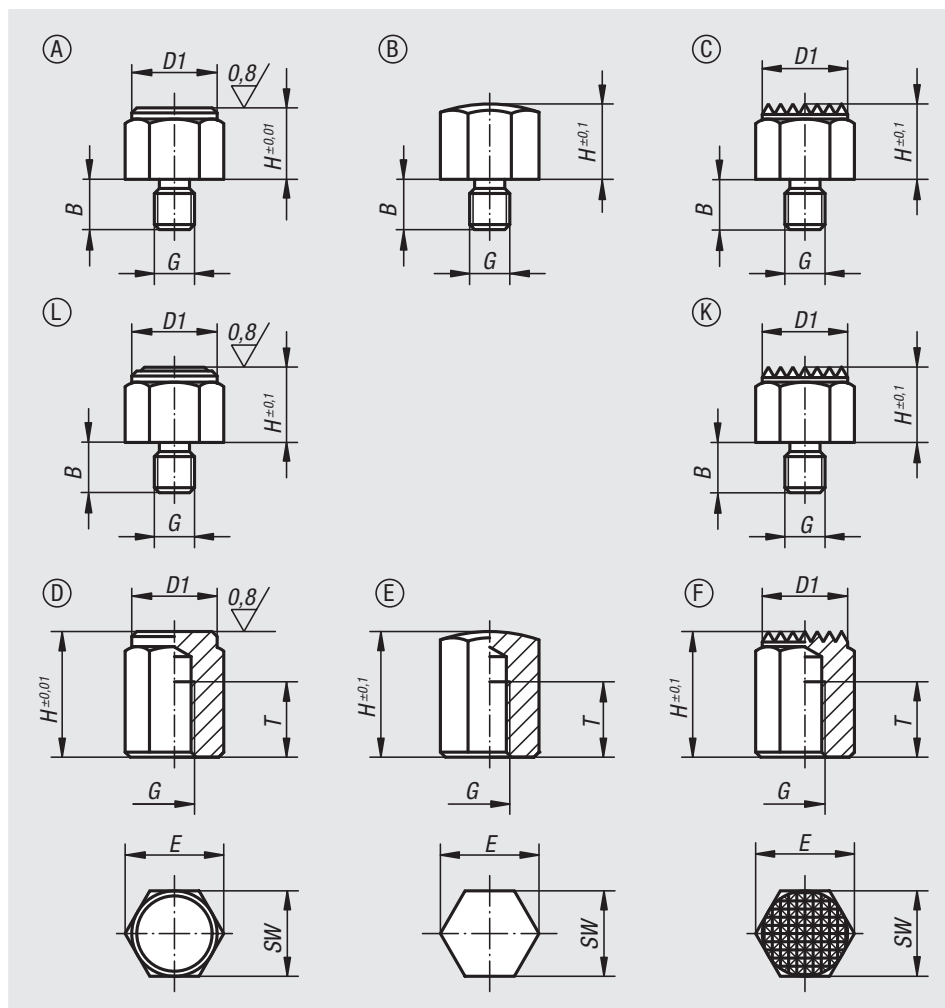
Version:
Case-hardened and black oxidised.

Sample order:
nlm 02040-215

Note:
Positioning feet are used as supports, stops and thrust pads for fixtures and general machine and appliance construction.

Drawing reference:

Form A: External thread and flat face
Form B: External thread and convex face
Form C: External thread and serrated face
Form K: External thread and carbide serrated face
Form L: External thread and POM insert
Form D: External thread and flat face
Form E: External thread and convex face
Form F: External thread and serrated face



Order No.	Form	B	D1	G	H	E	SW	Tightening torque max. Nm
02040-108	A	8	13	M6	8	14,4	13	8,5
02040-1104	A	10	13	M6	10	14,4	13	8,5
02040-1081	A	10	17	M8	8	19,4	17	18
02040-1101	A	10	17	M8	10	19,4	17	18
02040-1103	A	12	19	M10	10	21,1	19	32
02040-1152	A	12	19	M10	15	21,1	19	32
02040-110	A	14	22	M12	10	25,2	22	60
02040-115	A	14	22	M12	15	25,2	22	60
02040-1151	A	19	30	M16	15	33	30	140
02040-1201	A	19	30	M16	20	33	30	140

Positioning feet

Order No.	Form	B	G	H	E	SW	Tightening torque max. Nm
02040-208	B	8	M6	8	14,4	13	8,5
02040-2104	B	10	M6	10	14,4	13	8,5
02040-2081	B	10	M8	8	19,4	17	18
02040-2101	B	10	M8	10	19,4	17	18
02040-2103	B	12	M10	10	21,1	19	32
02040-2152	B	12	M10	15	21,1	19	32
02040-210	B	14	M12	10	25,2	22	60
02040-215	B	14	M12	15	25,2	22	60
02040-2151	B	19	M16	15	33	30	140
02040-2201	B	19	M16	20	33	30	140

Order No.	Form	B	D1	G	H	E	SW	Tightening torque max. Nm
02040-308	C	8	13	M6	8	14,4	13	8,5
02040-3102	C	10	13	M6	10	14,4	13	8,5
02040-3081	C	10	17	M8	8	19,4	17	18
02040-3101	C	10	17	M8	10	19,4	17	18
02040-3103	C	12	19	M10	10	21,1	19	32
02040-3152	C	12	19	M10	15	21,1	19	32
02040-310	C	14	22	M12	10	25,2	22	60
02040-315	C	14	22	M12	15	25,2	22	60
02040-3151	C	19	30	M16	15	33	30	140
02040-3201	C	19	30	M16	20	33	30	140

Order No.	Form	B	D1	G	H	E	SW	Tightening torque max. Nm
02040-7101	K	10	17	M8	10	19,4	17	18
02040-710	K	14	22	M12	10	25,2	22	60
02040-715	K	14	22	M12	15	25,2	22	60
02040-7151	K	19	30	M16	15	33	30	140
02040-7201	K	19	30	M16	20	33	30	140

Order No.	Form	B	D1	G	H	E	SW	Tightening torque max. Nm
02040-8101	L	10	17	M8	10	19,4	17	18
02040-810	L	14	22	M12	10	25,2	22	60
02040-815	L	14	22	M12	15	25,2	22	60
02040-8151	L	19	30	M16	15	33	30	140
02040-8201	L	19	30	M16	20	33	30	140

Positioning feet

Order No.	Form	D1	G	H	T	E	SW
02040-410	D	13	M6	10	6	14,4	13
02040-4151	D	13	M6	15	10	14,4	13
02040-4101	D	17	M8	10	6	19,4	17
02040-415	D	17	M8	15	6	19,4	17
02040-4251	D	17	M8	25	16	19,4	17
02040-4201	D	19	M10	20	10	21,1	19
02040-4302	D	19	M10	30	15	21,1	19
02040-4401	D	19	M10	40	15	21,1	19
02040-420	D	22	M12	20	10	25,2	22
02040-425	D	22	M12	25	15	25,2	22
02040-430	D	22	M12	30	20	25,2	22
02040-440	D	22	M12	40	25	25,2	22
02040-450	D	22	M12	50	25	25,2	22
02040-4301	D	30	M16	30	20	33	30
02040-4501	D	30	M16	50	25	33	30

Order No.	Form	G	H	T	E	SW
02040-510	E	M6	10	6	14,4	13
02040-5151	E	M6	15	10	14,4	13
02040-5101	E	M8	10	6	19,4	17
02040-515	E	M8	15	6	19,4	17
02040-5251	E	M8	25	16	19,4	17
02040-5201	E	M10	20	10	21,1	19
02040-5302	E	M10	30	15	21,1	19
02040-5401	E	M10	40	15	21,1	19
02040-520	E	M12	20	10	25,2	22
02040-525	E	M12	25	15	25,2	22
02040-530	E	M12	30	20	25,2	22
02040-540	E	M12	40	25	25,2	22
02040-550	E	M12	50	25	25,2	22
02040-5301	E	M16	30	20	33	30
02040-5501	E	M16	50	25	33	30

Order No.	Form	D1	G	H	T	E	SW
02040-610	F	13	M6	10	6	14,4	13
02040-6151	F	13	M6	15	10	14,4	13
02040-6101	F	17	M8	10	6	19,4	17
02040-615	F	17	M8	15	6	19,4	17
02040-6251	F	17	M8	25	16	19,4	17
02040-6201	F	19	M10	20	10	21,1	19
02040-6302	F	19	M10	30	15	21,1	19
02040-6401	F	19	M10	40	15	21,1	19
02040-620	F	22	M12	20	10	25,2	22
02040-625	F	22	M12	25	15	25,2	22
02040-630	F	22	M12	30	20	25,2	22
02040-640	F	22	M12	40	25	25,2	22
02040-650	F	22	M12	50	25	25,2	22
02040-6301	F	30	M16	30	20	33	30
02040-6501	F	30	M16	50	25	33	30

Positioning feet


Material:

Body high carbon steel.

Version:

Body tempered and black oxidised.
Contact faces case-hardened.

Sample order:

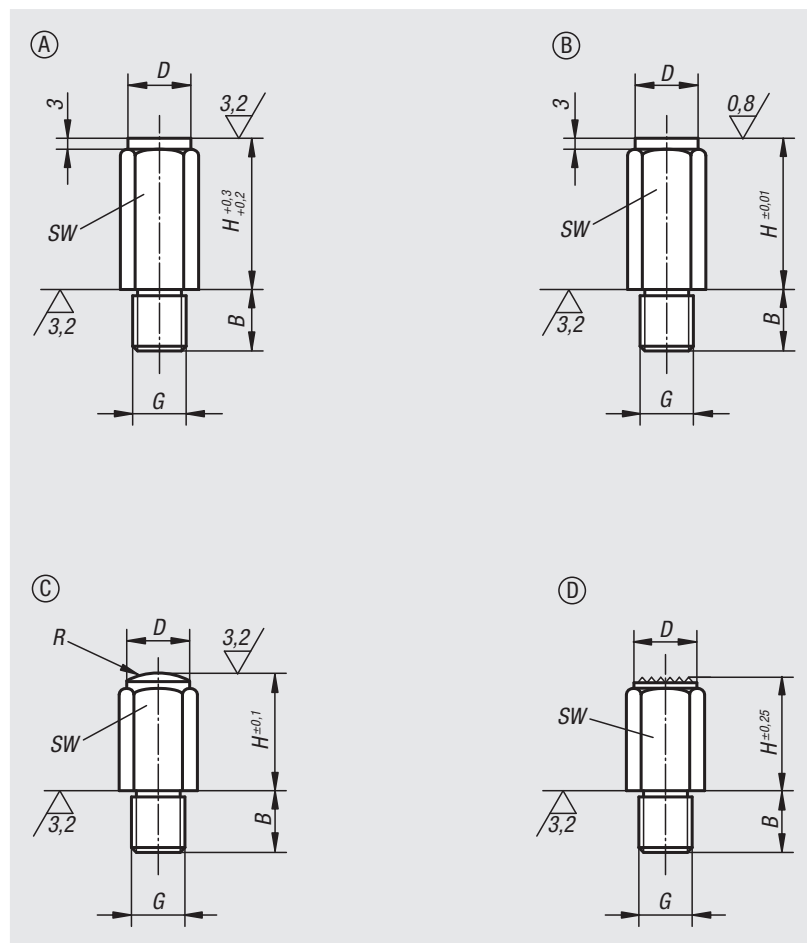
nIm 02041-106010

Note:

These positioning feet are used as supports for rough and machined parts. They can also be used as stops and thrust pads in fixtures and toolmaking.

Drawing reference:

Form A: Flat face hardened
Form B: Flat face hardened and ground
Form C: Spherical face hardened
Form D: Serrated face tempered



Order No. Form A	Order No. Form B	Order No. Form C	Order No. Form D	B	D	G	H	R	SW
02041-106010	02041-206010	02041-306010	02041-406010	11	10	M6	10	-/-/15/-	10
02041-106020	02041-206020	02041-306020	02041-406020	11	10	M6	20	-/-/15/-	10
02041-108010	02041-208010	02041-308010	-	13	13	M8	10	-/-/20	13
02041-108015	02041-208015	02041-308015	02041-408015	13	13	M8	15	-/-/20/-	13
02041-108030	02041-208030	02041-308030	02041-408030	13	13	M8	30	-/-/20/-	13
02041-110010	02041-210010	02041-310010	-	16	17	M10	10	-/-/30	17
02041-110020	02041-210020	02041-310020	02041-410020	16	17	M10	20	-/-/30/-	17
02041-110040	02041-210040	02041-310040	02041-410040	16	17	M10	40	-/-/30/-	17
02041-112010	02041-212010	02041-312010	-	20	19	M12	10	-/-/40	19
02041-112025	02041-212025	02041-312025	02041-412025	20	19	M12	25	-/-/35/-	19
02041-112050	02041-212050	02041-312050	02041-412050	20	19	M12	50	-/-/35/-	19
02041-116015	02041-216015	02041-316015	-	24	27	M16	15	-/-/50	27
02041-116030	02041-216030	02041-316030	02041-416030	24	27	M16	30	-/-/50/-	27
02041-116060	02041-216060	02041-316060	02041-416060	24	27	M16	60	-/-/50/-	27
02041-120040	02041-220040	02041-320040	02041-420040	29	32	M20	40	-/-/60/-	32
02041-120080	02041-220080	02041-320080	02041-420080	29	32	M20	80	-/-/60/-	32

Fixture feet

with external thread



Material:

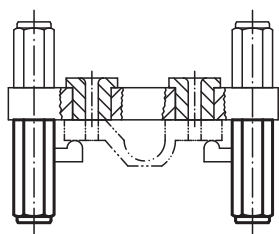
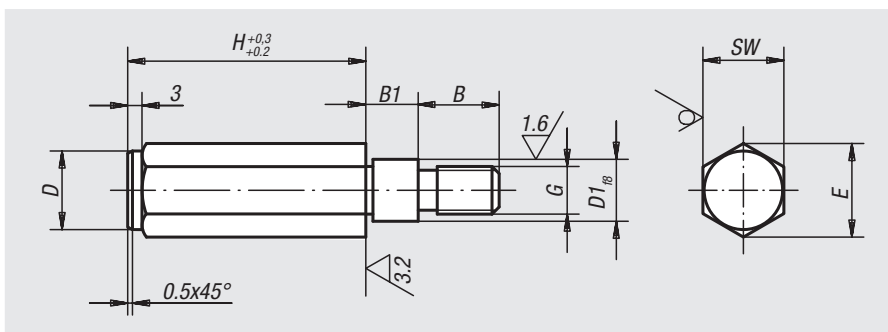
Carbon steel 1.1181.

Version:

Black oxidised.

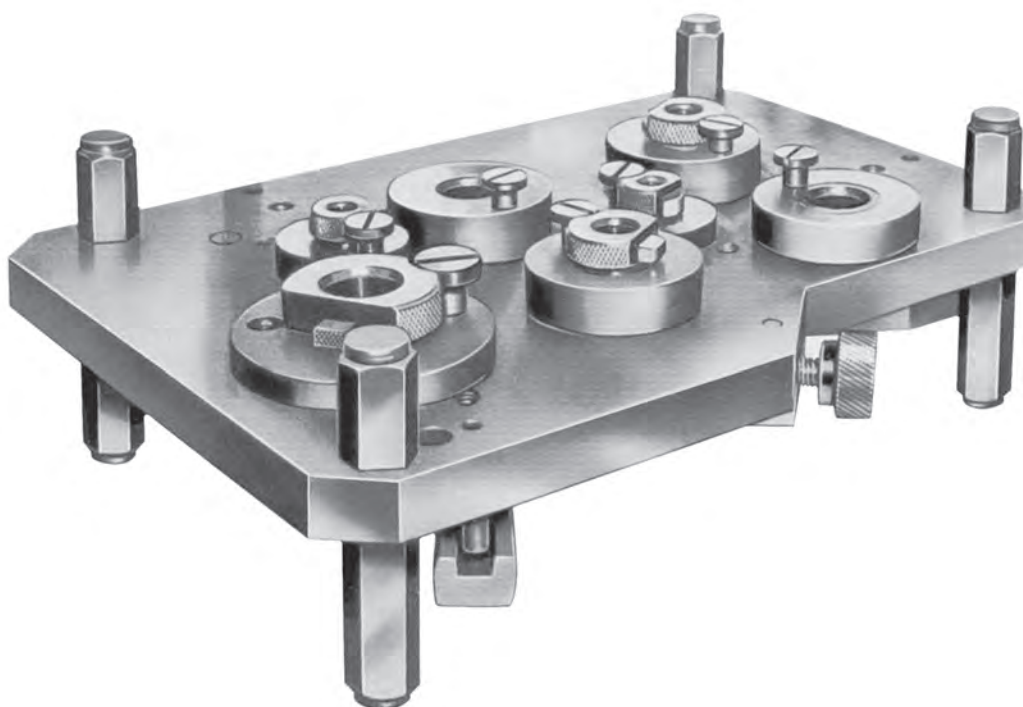
Sample order:

nln 02050-10X75 (include height H)



Order No.	B	B1	D	D1	G	H	E	SW
02050-10X	17	11	16,5	11	M10	50/75/100	19,5	17
02050-12X	17	18	18,5	13	M12	50/75/100/125	21,5	19

Application of a drilling jig



Fixture feet

with internal thread



Material:

Body high carbon steel.

Version:

Body tempered and black oxidised.
Contact faces case-hardened.

Sample order:

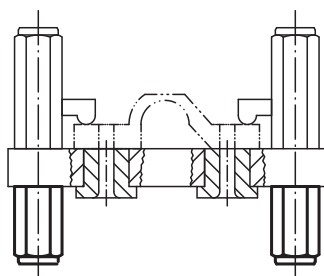
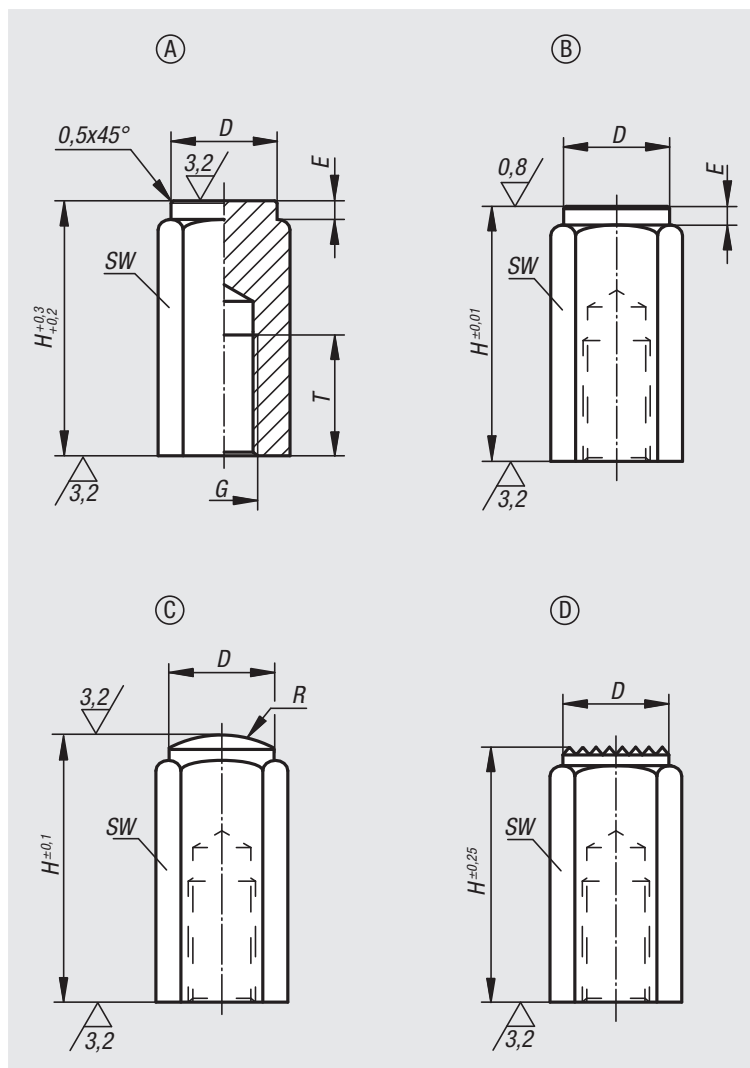
nlm 02070-106X20

Note:

Fixture feet with internal thread are used as supports for fixtures or rough or machined workpieces. They can also be used as stops or thrust pads in fixtures and toolmaking.

Drawing reference:

Form A: Flat face hardened
Form B: Flat face hardened and ground
Form C: Spherical face hardened
Form D: Serrated face tempered



Order No. Form A	Order No. Form B	Order No. Form C	Order No. Form D	D	E	G	H	R	T	SW
02070-106X20	02070-206X20	02070-306X20	02070-406X20	9,5	2/2/-/-	M6	20	-/-/15/-	12	10
02070-106X40	02070-206X40	02070-306X40	02070-406X40	9,5	2/2/-/-	M6	40	-/-/15/-	12	10
02070-110X32	02070-210X32	02070-310X32	02070-410X32	16,5	3/3/-/-	M10	32	-/-/30/-	18	17
02070-110X63	02070-210X63	02070-310X63	02070-410X63	16,5	3/3/-/-	M10	63	-/-/30/-	18	17
02070-112X32	02070-212X32	02070-312X32	02070-412X32	18,5	3/3/-/-	M12	32	-/-/35/-	18	19
02070-112X63	02070-212X63	02070-312X63	02070-412X63	18,5	3/3/-/-	M12	63	-/-/35/-	18	19
02070-116X50	02070-216X50	02070-316X50	02070-416X50	23	4/4/-/-	M16	50	-/-/40/-	24	24
02070-116X100	02070-216X100	02070-316X100	02070-416X100	23	4/4/-/-	M16	100	-/-/40/-	24	24

Self-aligning pads

swivel 12°



Material:

Body carbon steel.

Ball, ball-bearing steel 1.3505.

Version:

Body tempered.

Ball hardened (50 - 55 HRC).

Sample order:

nIm 02080-106

Note:

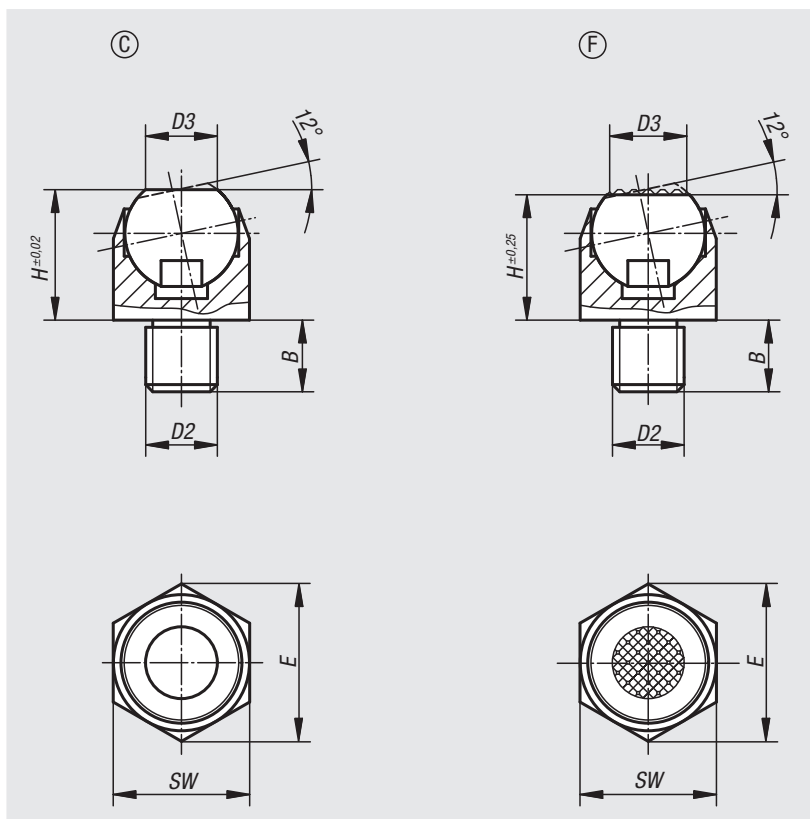
Self-aligning pads serve as stops, supports and thrust pads in fixture construction. They can also be installed in existing clamping devices, e.g. arness clamps.

Ball is secured against rotation.

Drawing reference:

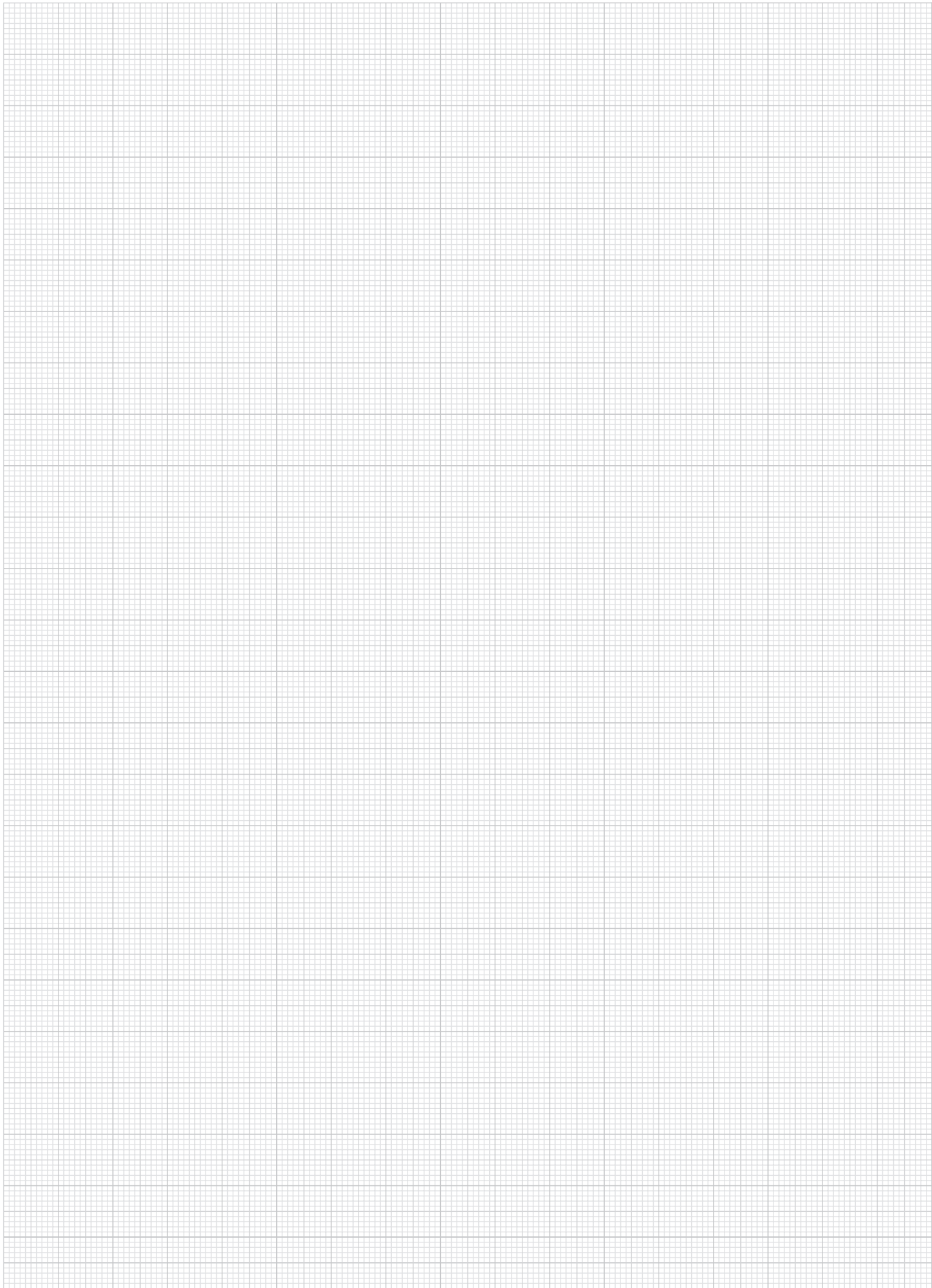
Form C: male thread, smooth flattened ball

Form F: male thread, serrated flattened ball



Order No. Form C	Order No. Form F	B	D2	D3	H	E	SW	Ball-Ø	Load rating max. kN (static load only)
02080-106	02080-306	7	M6	6,7	13	14,5	13	10	10
02080-108	02080-308	8	M8	6,7	13	14,5	13	10	10
02080-110	02080-310	10	M10	10	18	21,9	19	16	25
02080-112	02080-312	12	M12	10	18	21,9	19	16	25
02080-116	02080-316	16	M16	20	27	33	30	24	90
02080-120	02080-320	20	M20	20	27	33	30	24	90

Notes



Self-aligning pads

self-righting



Material:

Form C and F:

Ball steel, ball seat high-carbon steel.

Form G and J:

Ball high-carbon steel, ball seat steel.

Version:

Form C and F:

Ball hardened and black oxidised, ball seat phosphated.

Form G and J:

Ball phosphated, ball seat hardened and black oxidised.

Sample order:

nIm 02081-106

Note:

The self-aligning pads serve as stops, rests and thrust pads in fixture construction.

The seating face returns to the start position when the load is removed.

Ball secured against rotation.

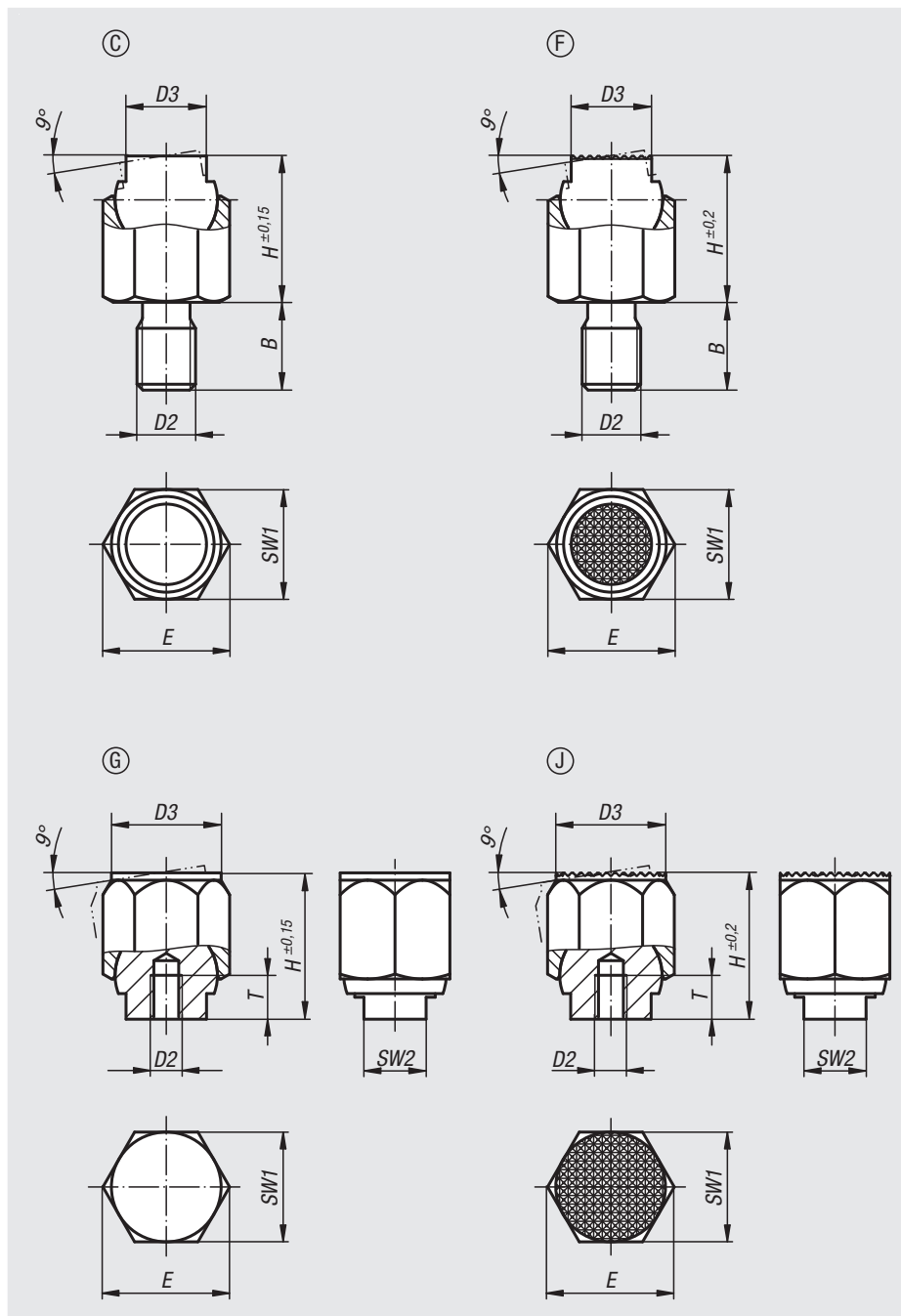
Drawing reference:

Form C: male thread, flattened ball, smooth

Form F: male thread, flattened ball, diamond grip

Form G: press fit, flattened ball, smooth

Form J: press fit, flattened ball, diamond grip



Self-aligning pads

self-righting

Order No.	Form	B	D2	D3	H	E	SW1	Ball-Ø	Load rating max. kN (static load only)
02081-106	C	9	M6	7	13	11,5	10	9	8
02081-108	C	12	M8	9,5	18	15	13	12	16
02081-110	C	15	M10	14	25	21,9	19	17	32
02081-112	C	18	M12	20	36	31,2	27	25	64
02081-116	C	24	M16	22	40	34,6	30	28	90

Order No.	Form	B	D2	D3	H	E	SW1	Ball-Ø	Load rating max. kN (static load only)
02081-306	F	9	M6	7	13	11,5	10	9	8
02081-308	F	12	M8	9,5	18	15	13	12	16
02081-310	F	15	M10	14	25	21,9	19	17	32
02081-312	F	18	M12	20	36	31,2	27	25	64
02081-316	F	24	M16	22	40	34,6	30	28	90

Order No.	Form	D2	D3	H	E	T	SW1	SW2	Ball-Ø	Load rating max. kN (static load only)
02081-403	G	M3	9	13	11,5	5	10	6	9	8
02081-404	G	M4	12	18	15	6	13	8	12	16
02081-405	G	M5	18	25	21,9	8	19	10	17	32
02081-406	G	M6	26	36	31,2	10	27	16	25	64
02081-408	G	M8	30	40	34,6	12	30	17	28	90

Order No.	Form	D2	D3	H	E	T	SW1	SW2	Ball-Ø	Load rating max. kN (static load only)
02081-603	J	M3	9	13	11,5	5	10	6	9	8
02081-604	J	M4	12	18	15	6	13	8	12	16
02081-605	J	M5	18	25	21,9	8	19	10	17	32
02081-606	J	M6	26	36	31,2	10	27	16	25	64
02081-608	J	M8	30	40	34,6	12	30	17	28	90

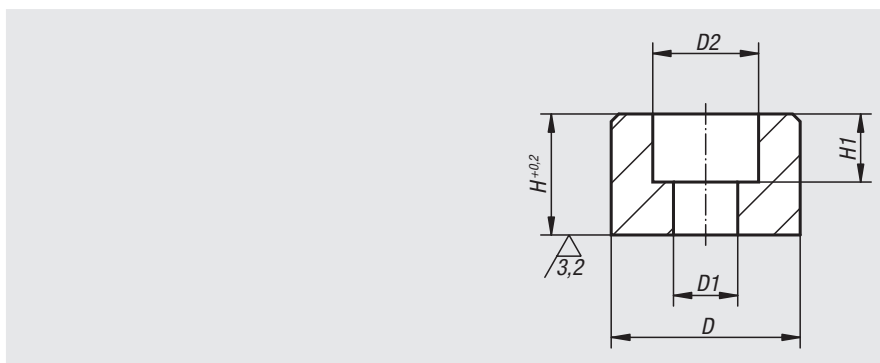
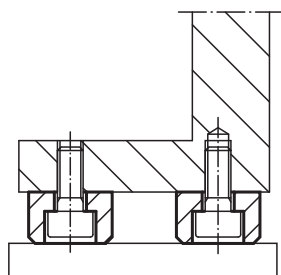
Locating feet



Material:
Steel 1.0718.

Version:
Hardened, black oxidised.

Sample order:
nlm 02090-08



Order No.	D	D1	D2	H	H1
02090-05	16	5,5	10	10	5,7
02090-06	20	6,6	11	12	7
02090-08	25	9	15	16	9
02090-10	32	11	18	20	11
02090-12	36	13,5	20	25	13

02110

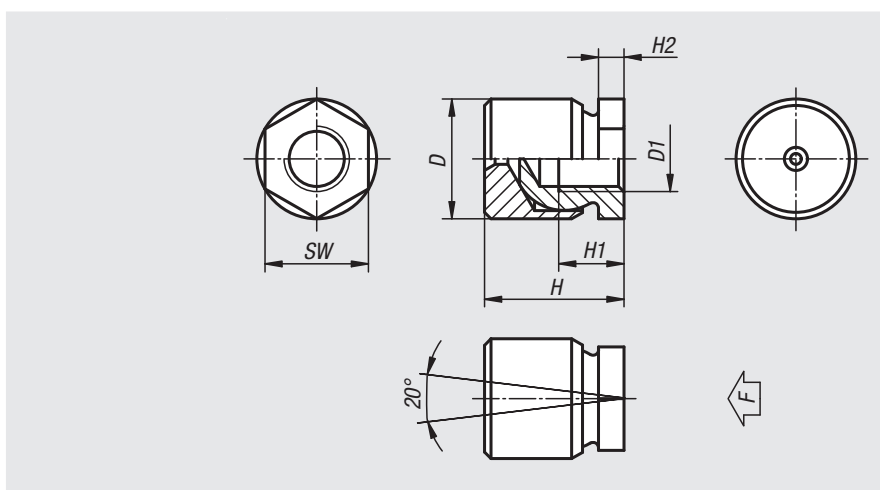
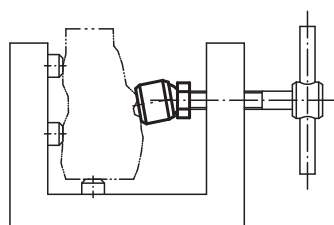
Swivel pads



Material:
Ball element case-hardened steel.
Thrust pad ETG 100 steel.

Version:
Black oxidised.

Sample order:
nlm 02110-10



Order No.	D	D1	H	H1	H2	SW	Load rating max. kN
02110-05	13	M5	16,5	6,5	4	10	1,62
02110-06	13	M6	16,5	8,5	4	10	2,33
02110-08	16	M8	21	9	4	13	4,15
02110-10	19	M10	23	10	4	17	6,48
02110-12	22	M12	25,5	12	4,7	19	8,32
02110-16	25	M16	29,5	14	5	24	13,94
02110-20	32	M20	36	18	8,5	30	21

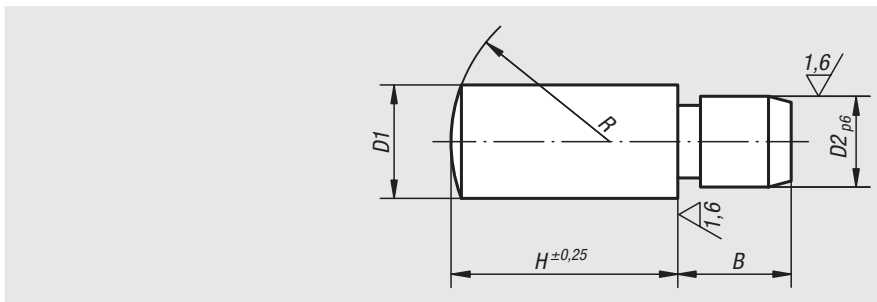
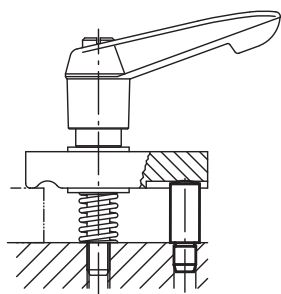
Rest pads



Material:
Steel 1.0301.

Version:
Case-hardened, black oxidised and ground.

Sample order:
nlm 02130-05X8 (include height H)



Order No.	H	B	D1	D2	R
02130-05X	8/10/12/16	5	5	4	7
02130-06X	10/12/16/20	6	6	5	8
02130-08X	12/16/20/25	8	8	6	11
02130-10X	16/20/25/32	10	10	8	14
02130-12X	20/25/32/40	12	12	10	16
02130-14X	20/25/32/40	14	14	12	20
02130-16X	25/32/40/50	16	16	14	25
02130-20X	25/32/40/50	20	20	16	28

02150

Rest pads adjustable

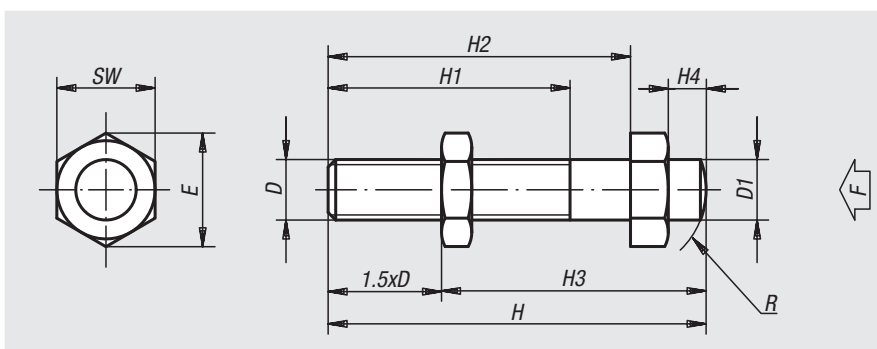
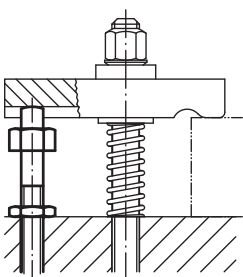
with locknut



Material:
Carbon steel 1.1181.

Version:
Surface hardened, black oxidised.

Sample order:
nlm 02150-05



Order No.	D	D1	H	H1	H2	H3 min.	H3 max.	H4	E	SW	R	F ca.N
02150-05	M5	5	50	32	40	20,5	42,5	5	11,5	10	7	1000
02150-06	M6	6	50	32	40	21	41	5	11,5	10	8	1430
02150-08	M8	8	50	32	40	22	38	5	15	13	11	2620
02150-10	M10	10	52	32	40	25	37	5	19,6	17	14	4180
02150-101	M10	10	70	32	56	42	55	6	19,6	17	14	4180
02150-12	M12	12	70	40	56	36	52	6	21,9	19	16	6100
02150-121	M12	12	95	50	80	51	77	6	21,9	19	16	6100
02150-14	M14	14	100	63	80	44	79	8	25,4	22	20	8320
02150-16	M16	16	100	63	80	45	76	8	27,7	24	25	11520
02150-161	M16	16	120	63	100	65	96	8	27,7	24	25	11520
02150-20	M20	20	110	70	88	50	90	10	34,6	30	28	18000

Rest pads


Material:

Carbon steel or brass

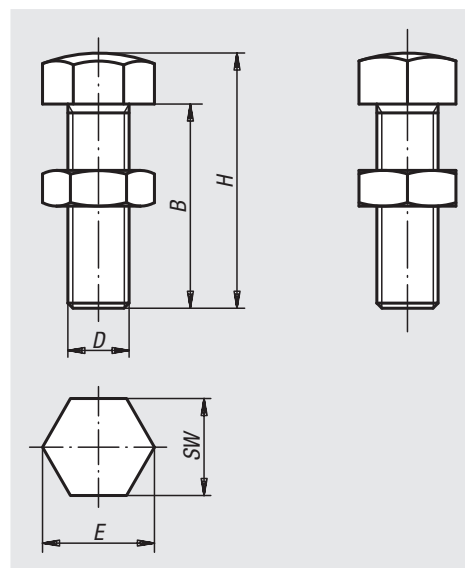
Version:

High-carbon steel tempered and black oxidised.

Brass bright.

Sample order:

nlm 02153-16055



Order No.	Main material	B	D	E	H	SW
02153-06030	high carbon steel	25	M6	11,5	30	10
02153-06040	high carbon steel	35	M6	11,5	40	10
02153-06050	high carbon steel	45	M6	11,5	50	10
02153-08036	high carbon steel	30	M8	15	36	13
02153-08046	high carbon steel	40	M8	15	46	13
02153-08056	high carbon steel	50	M8	15	56	13
02153-10042	high carbon steel	35	M10	19,6	42	17
02153-10048	high carbon steel	40	M10	19,6	48	17
02153-10058	high carbon steel	50	M10	19,6	58	17
02153-10068	high carbon steel	60	M10	19,6	68	17
02153-12048	high carbon steel	42	M12	21,9	50	19
02153-12070	high carbon steel	60	M12	21,9	70	19
02153-12080	high carbon steel	70	M12	21,9	80	19
02153-16055	high carbon steel	45	M16	27,7	55	24
02153-16075	high carbon steel	65	M16	27,7	75	24
02153-16085	high carbon steel	75	M16	27,7	85	24
02153-12148	brass	42	M12	21,9	50	19
02153-16155	brass	45	M16	27,7	55	24

Jack screws

**Material:**

Carbon steel.

Version:

Black oxidised.

Sample order:

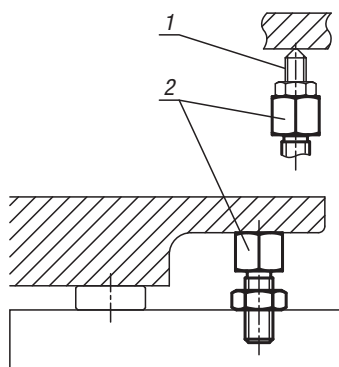
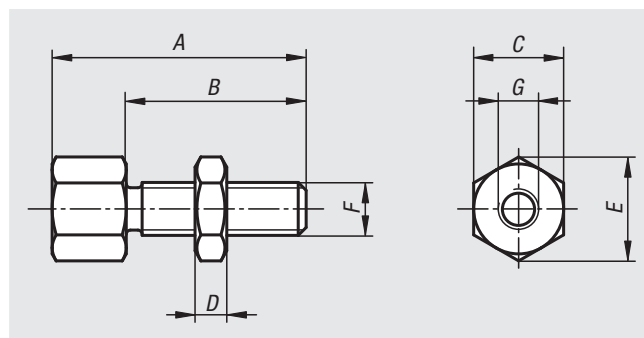
nlm 02155-0803006

Note:

Various rests can be mounted on this jack screw.

Drawing reference:

- 1) screw rest
- 2) jack screw



Order No.	A	B	C	D	E	F	G
02155-0803006	30	20	13	5	14,4	M8	M6 x 6
02155-0804006	40	30	13	5	14,4	M8	M6 x 6
02155-1003808	38	24	17	6	18,9	M10	M8 x 8
02155-1004808	48	34	17	6	18,9	M10	M8 x 8
02155-1205110	51	33	22	7	24,5	M12	M10 x 10
02155-1206610	66	48	22	7	24,5	M12	M10 x 10
02155-1606212	62	40	27	10	30,1	M16	M12 x 12
02155-1607712	77	55	27	10	30,1	M16	M12 x 12

Stops adjustable

with end position feedback



Material:

Screw and plunger stainless steel 1.4301.
Guide bush stainless steel 1.4112.
Sensor housing stainless steel.

Version:

Screw and plunger, bright.
Guide bushing, bright.
Sensor housing, bright.
Inductive sensor:
Relay (NO)
Operating voltage 10 - 30 V DC
Operating current 100 mA
Switching distance 0.8 mm
Protection class: IP 67
Connection type: 0.3 m PUR cable with connector plug
Temperature range: -25°C - +70°C
Approval: CE, c-UL-us

Sample order:

nIm 02160-080352

Note:

The ensured sensing distance is achieved if the plunger is actuated flush up to the stop surface of the guide bush.
The sensor is supplied unassembled.

Installation recommendation: glue in with Loctite 638.

Caution: screw sensor in until it comes to a stop.

Safety:

End position feedback stops are not suitable for personal protection.

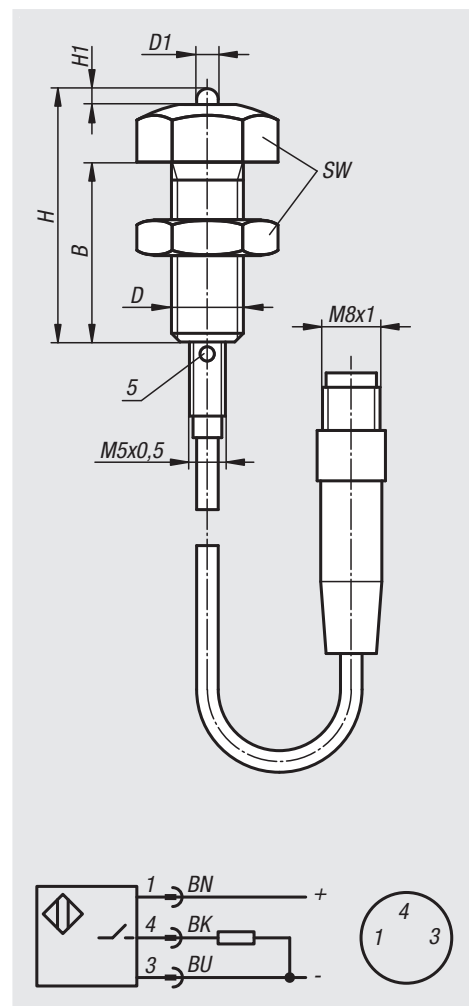
Drawing reference:

5) LED-indicator

BN = brown

BK = black

BU = blue



Order No.	Size	B	D	D1	H	H1	SW
02160-080352	1	25	M8	3	35,2	2	13
02160-100352	2	25	M10	3	35,2	2	17
02160-120352	3	25	M12	3	35,2	2	19

Screw rest

with flat face, steel



Material:
Carbon steel.

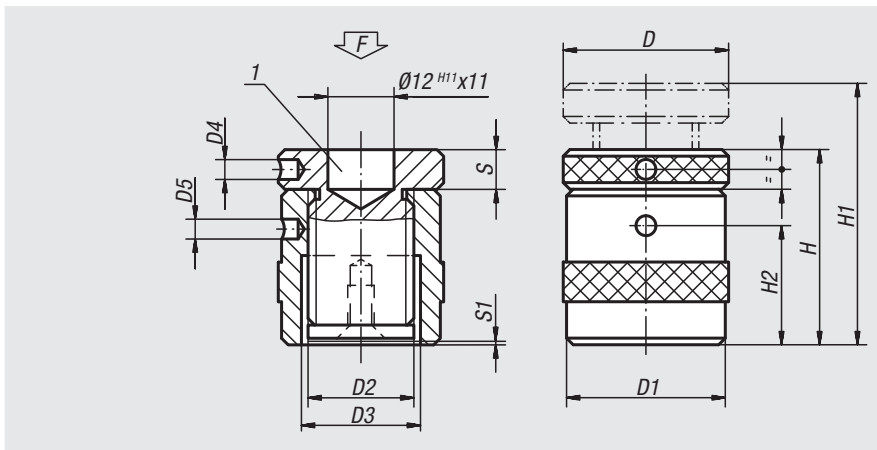
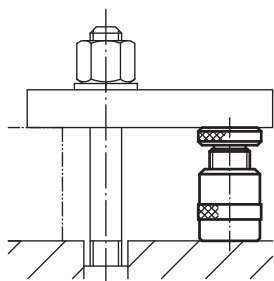
Version:
Painted, trapezoidal thread - self-locking, spindle has end lock

Sample order:
nlm 02170-02

Note:
The version 02170-01 has no Ø 12 centring hole.

Drawing reference:

1) centring hole for 02210



Order No.	D	D1	D2	D3	D4	D5	H	H1	H2	S	S1	F max. kN
02170-01	31	31	Tr 20X4	23	4	4	38	52	23	8	2	15
02170-015	50	49	Tr 30X4	36	6	6	42	52	24	12	2	60
02170-02	50	49	Tr 30X4	36	6	6	50	72	30	12	0,5	60
02170-03	50	49	Tr 30X4	36	6	6	71	102	43	16	1,5	60
02170-04	65	70	Tr 40X7	43	6	6	100	140	58	25	2,5	100
02170-05	70	80	Tr 50X8	55	6	6	140	212	90	30	4	170
02170-06	80	100	Tr 65X10	70	6	8	190	300	126	34	5	350

02171

Screw rest

with flat face, stainless steel



Material:
Stainless steel 1.4305.

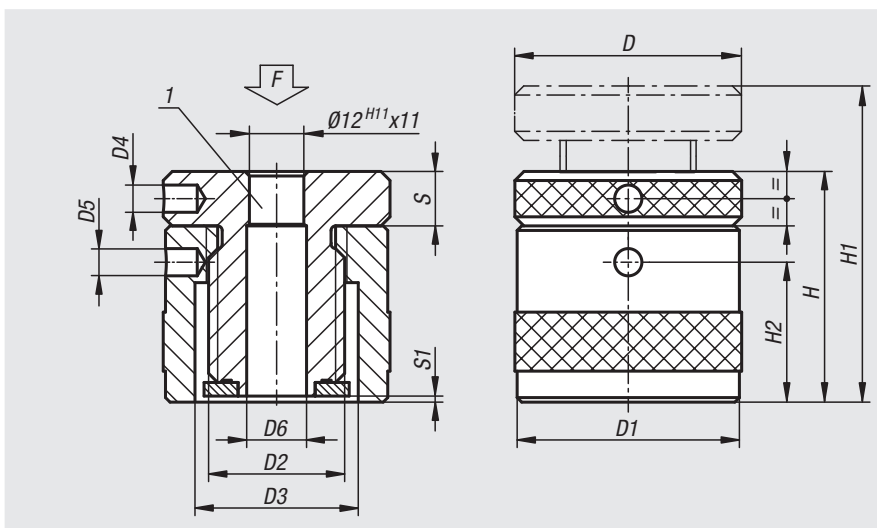
Version:
Self-locking trapezoidal thread, spindle has end lock.

Sample order:
nlm 02171-02

Note:
The through hole allows easy clamping and positioning of the workpiece.

Drawing reference:

1) centring hole for 02210



Order No.	D	D1	D2	D3	D4	D5	D6	H	H1	H2	S	S1	F max. kN
02171-015	50	49	Tr 30X4	36	6	6	13	42	52	24	12	2	50
02171-02	50	49	Tr 30X4	36	6	6	13	50	72	30	12	0,5	50
02171-03	50	49	Tr 30X4	36	6	6	13	71	102	43	16	1,5	50

Screw rest

with flat face, aluminium


Material:

Aluminium (400 N/mm² tensile strength).
Spindle carbon steel.

Version:

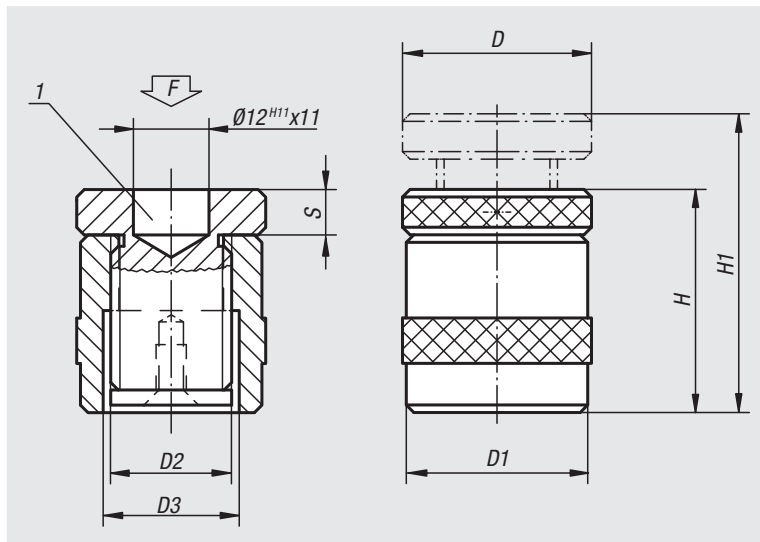
Self-locking trapezoidal thread, spindle has end lock.

Sample order:

nIm 02180-01

Drawing reference:

1) centring hole for 02210



Order No.	D	D1	D2	D3	H	H1	S	F max. kN
02180-01	50	50	Tr 30X4	36	42	52	12	30
02180-02	50	50	Tr 30X4	36	50	70	12	30
02180-03	50	50	Tr 30X4	36	70	100	12	30

Screw rest

with flat face and magnetic foot, aluminium


Material:

Aluminium (400 N/mm² tensile strength).
Spindle carbon steel.

Version:

Self-locking trapezoidal thread, spindle has end lock.

Sample order:

nIm 02182-01

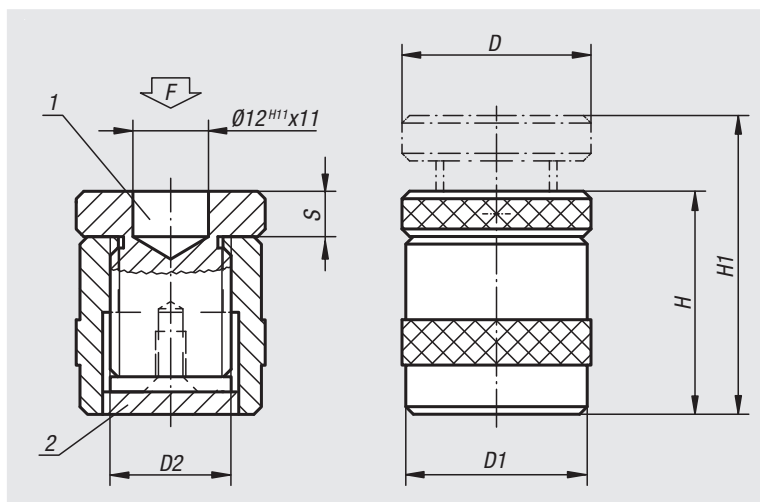
Note:

Suitable for horizontal and vertical applications. The magnetic foot allows durable and accurate vertical positioning of the workpiece.

Drawing reference:

1) centring hole for 02210

2) magnetic foot



Order No.	D	D1	D2	H	H1	S	F max. kN
02182-01	50	50	Tr 30X4	52	62	12	30
02182-02	50	50	Tr 30X4	60	80	12	30
02182-03	50	50	Tr 30X4	80	110	12	30

Atlas jack

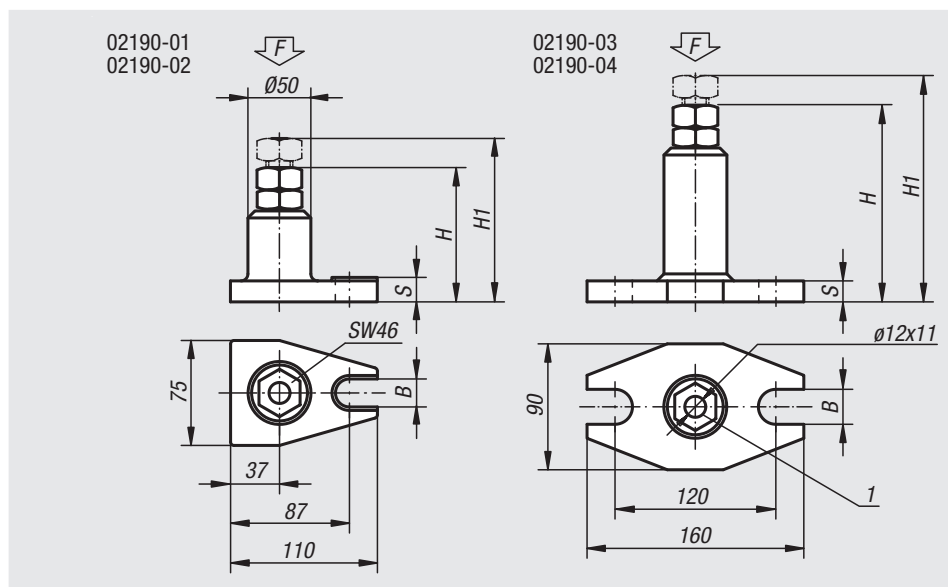
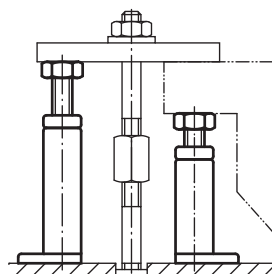
with locknut

Material:
Carbon steel.

Version:
Hammerstone, spindle with 30 x 6
trapezoidal thread.

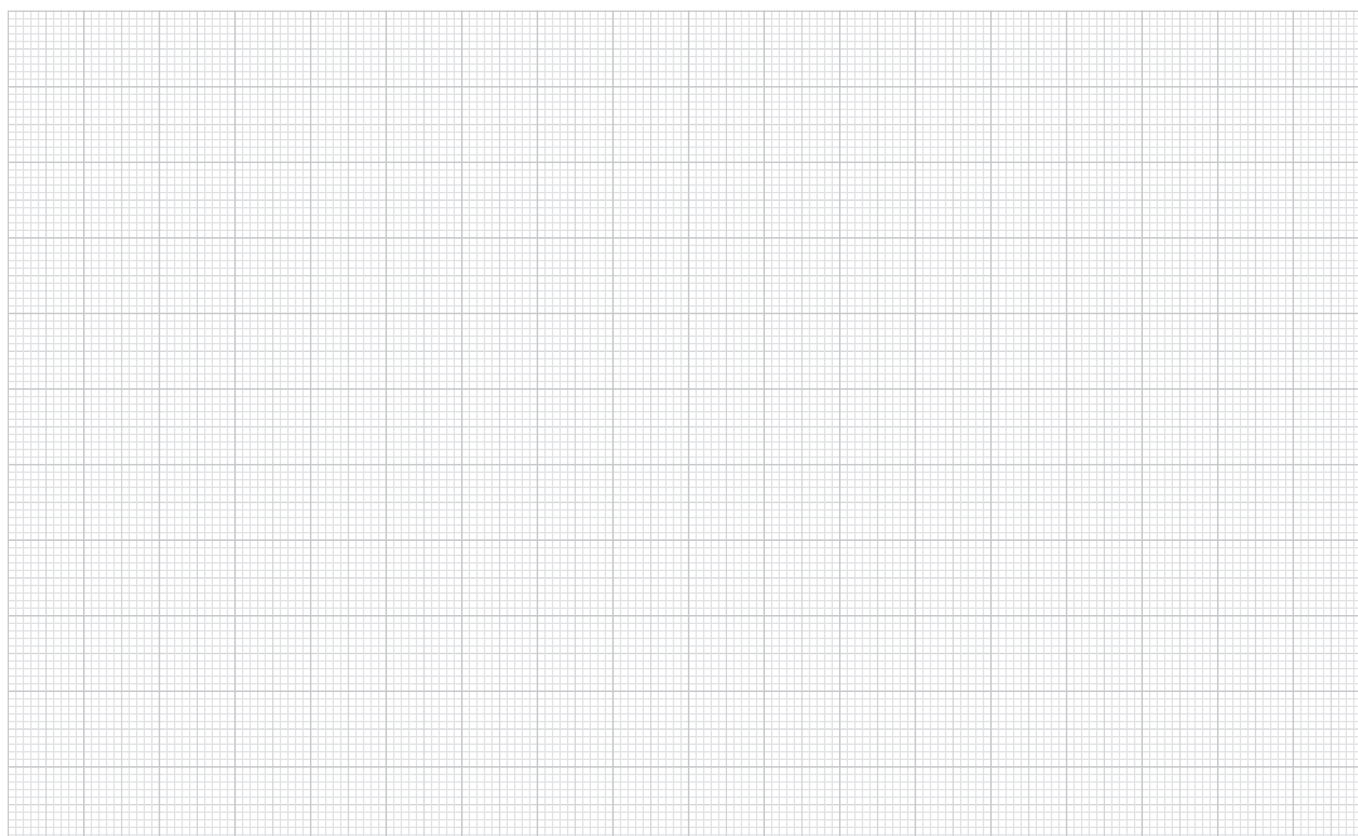
Sample order:
nlm 02190-03

Drawing reference:
1) centring hole for 02210



Order No.	Adjustment range	base plate	H	H1	B	S	F kN
02190-01	100 - 140	76x111	100	140	18	17	60
02190-02	140 - 200	76x111	140	200	18	17	60
02190-03	200 - 320	90x160	200	320	22	22	40
02190-04	320 - 540	90x160	320	540	22	25	25

Notes



Screw rest inserts

spherical, centring disc, prism, locating pin, revolving ball



Material:
Carbon steel.

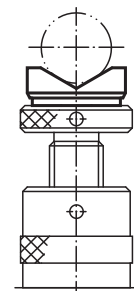
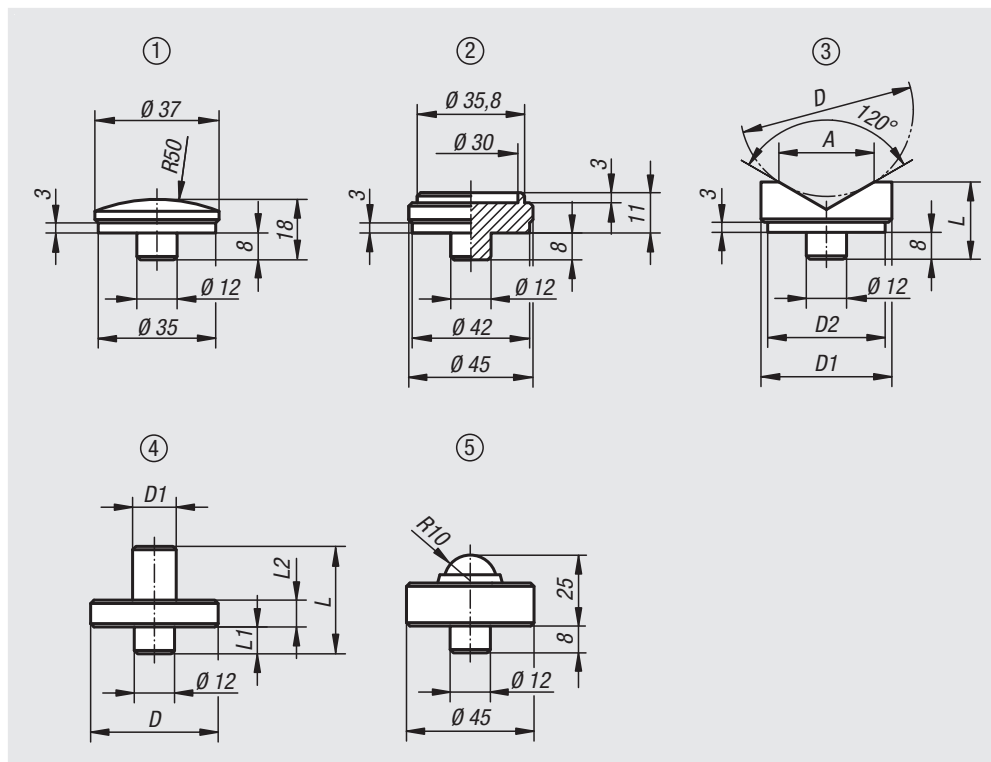
Version:
Tempered and black oxidised.
Ball hardened.

Sample order:
nlm 02210-021

Note:
Can be used with
02170
02180
02182
02190
02320
02330-020
02350-010

Drawing reference:

- 1) spherical
- 2) centring disc
- 3) prism
- 4) locating pin
- 5) revolving ball



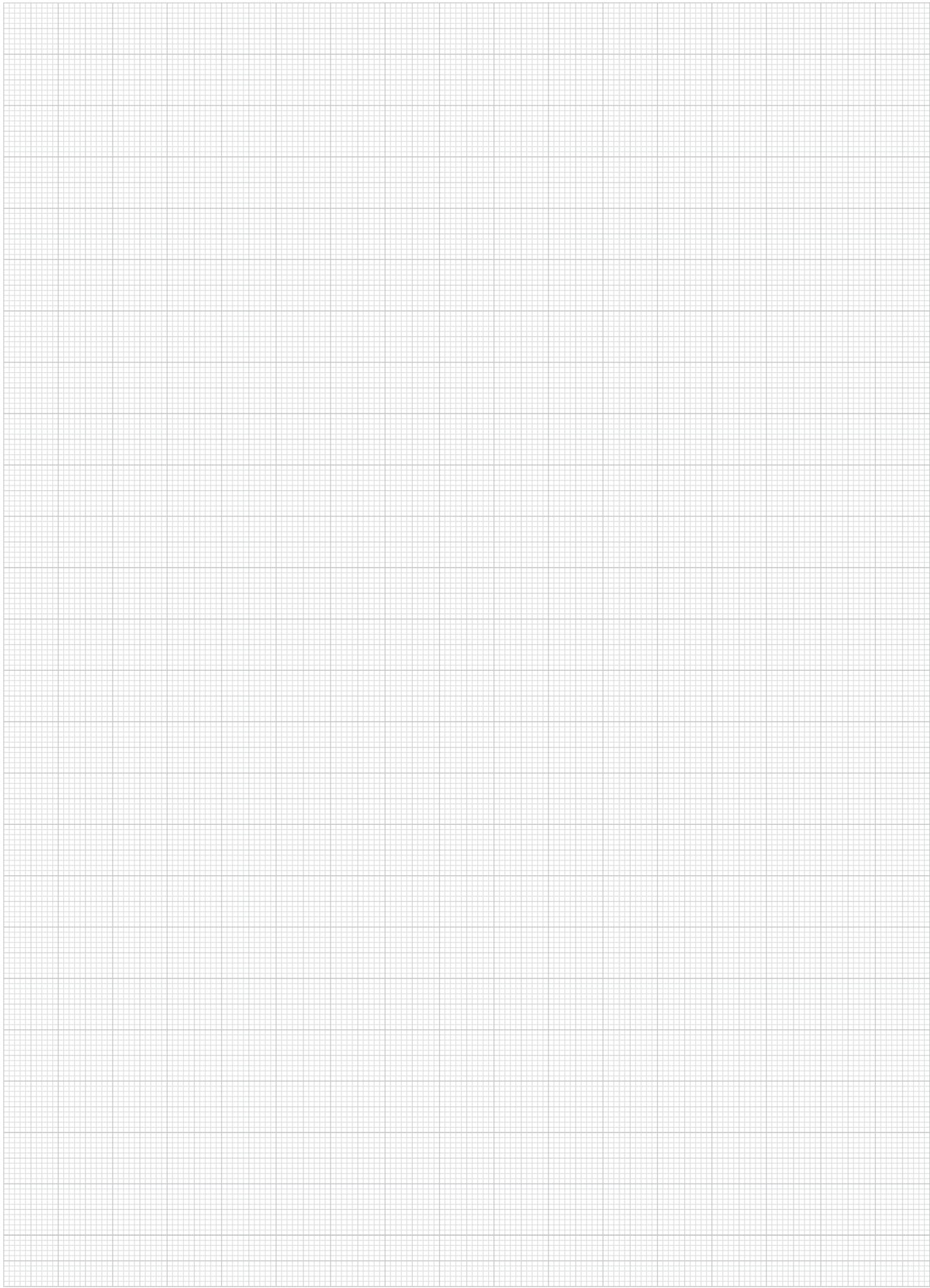
Order No.	Version
02210-01	spherical
02210-03	centring disc

Order No.	Version	D max.	D min.	D1	D2	L	A
02210-02	prism	50	10	45	42	23	32
02210-021	prism	100	22	65	62	38	56

Order No.	Version	D	D1	L	L1	L2
02210-04	locating pin	63	14	35	8	12
02210-041	locating pin	78	25	53	8	15

Order No.	Version	F max. kN
02210-05	revolving ball	30

Notes



Step blocks

Material:

Carbon steel.

Version:

Painted

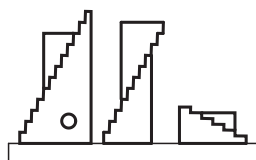
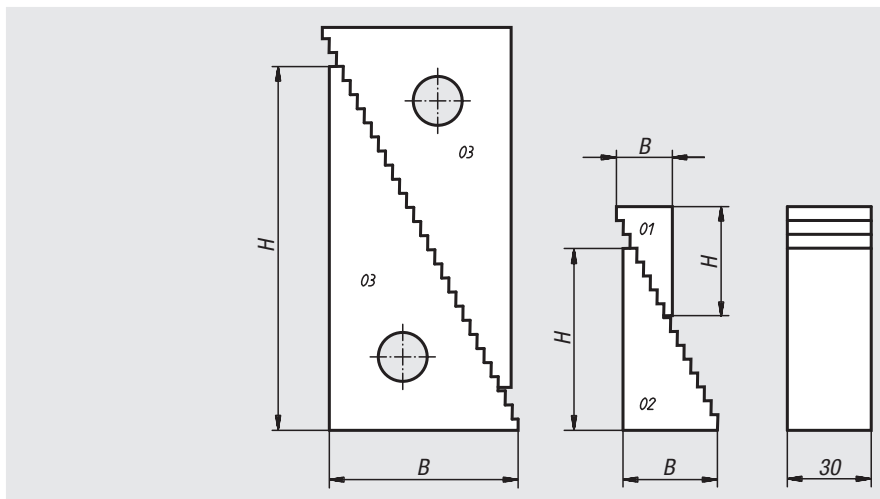
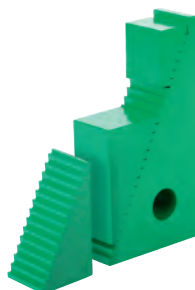
Sample order:

nlm 02270-02

Note:

For step block sets, see 02310.
Step blocks can also be used together
with stepped-heel clamp straps 04070.

Vertical step height: 4.65 mm
Horizontal step height: 2.3 mm



Order No.	B	H	Support height max.	Support height min.
02270-01	19	32	51	22
02270-02	35,5	65	107	39
02270-03	68	130	208	71

Step block sets

Material:

Carbon steel.

Version:

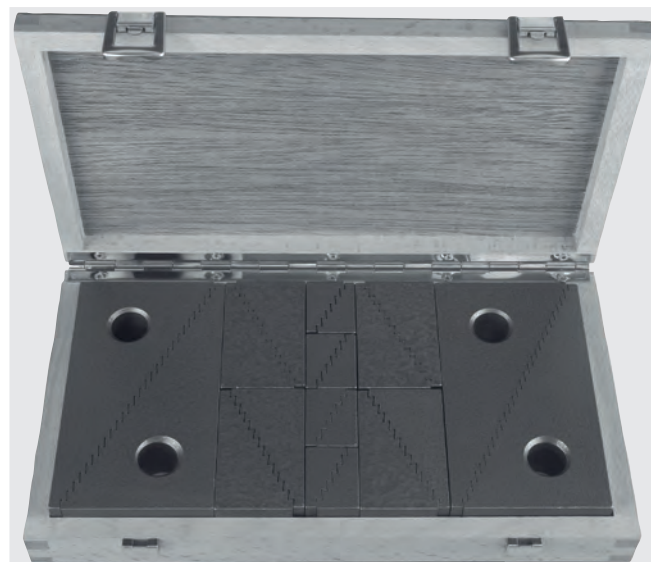
Painted

Sample order:

nlm 02310-01

Note:

The special tooth form allow these blocks to be used
vertically or horizontally. The complete set in a wooden
box comprises 20 parts which are interchangeable and
provide many possible uses. These blocks can also be
ordered separately, see 02270. Step blocks can also be
used together with stepped-heel clamp straps 04070.



Order No.	Content	Support height mm	Box dimensions mm
02310-01	8 ea. No. 01, 8 ea. No. 02, 4 ea. No. 03	from 22 to 208	280 x 155 x 40

Wedge supports


Material:

Carbon steel and ductile iron.

Version:

Tempered and black oxidised.
Wedge faces fine machined.

Sample order:

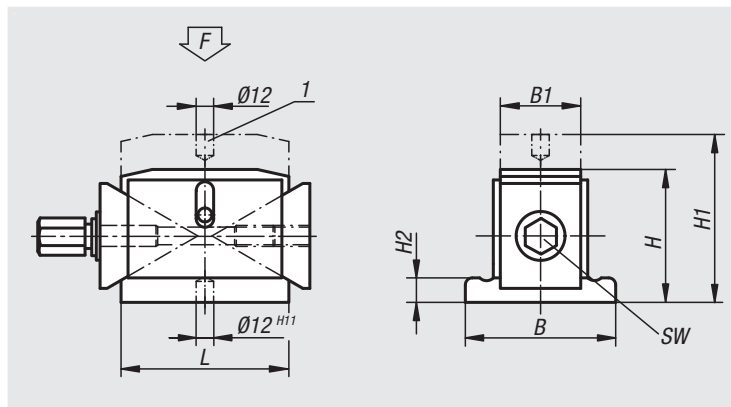
nIm 02320-50

Note:

Fine adjustments made using knurled screw or hexagon key. Vertical movement with no lateral shift. Particularly suited for marking out or machining heavy parts. A spherical insert 02210-01 is included with every support wedge.

Drawing reference:

1) centring hole for 02210



Order No.	Clamp range	B	B1	H	H1	H2	L	SW	travel per spindle rotation	F kN
02320-50	50 - 68	63	40	50	68	7	63	13	0,86	40
02320-100	100 - 125	115	60	100	125	20	125	24	1,16	100

02330

Support elements cylindrical


Material:

Carbon steel
1.1181.

Version:

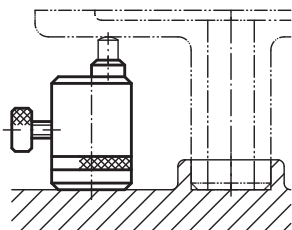
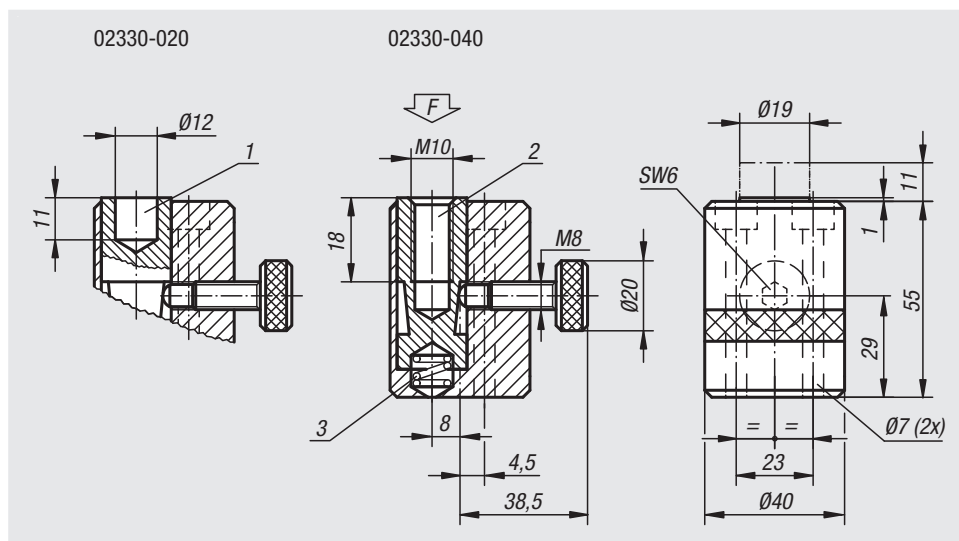
Black oxidised.

Sample order:

nIm 02330-040

Drawing reference:

- 1) centring hole for 02210
- 2) tapped hole for: 02000-110, 02000-310, 02000-910, 02030-10, 02030-101
- 3) spring force 0.8 - 2.1 N



Order No.	F max. N
02330-020	4000
02330-040	4000

Workpiece supports

adjustable



Material:

Carbon steel.

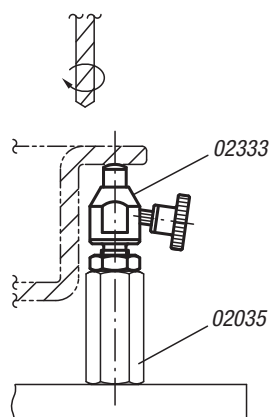
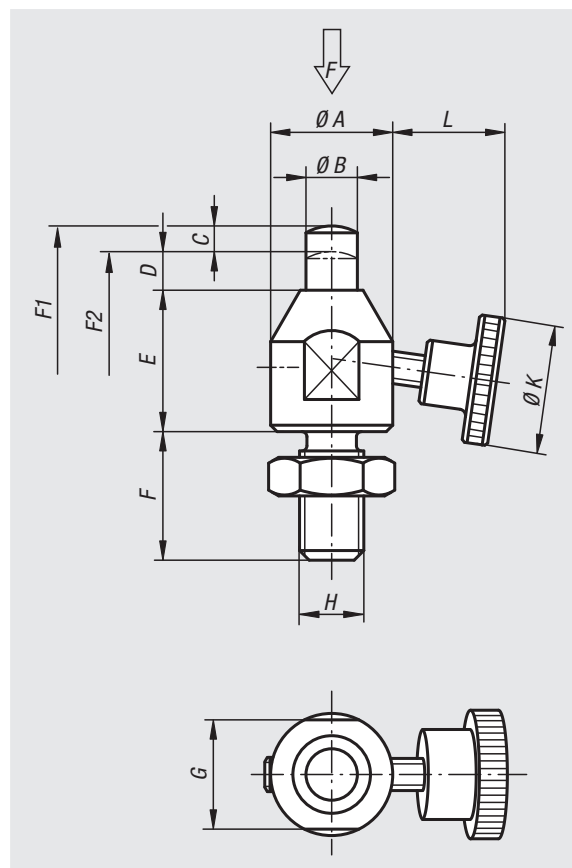
Version:

Body black oxidised.

Rest pad hardened and black oxidised.

Sample order:

nIm 02333-08023



Order No.	A	B	C (travel)	D	E	F	G	H	K	L	F N	Spring force initial pressure F1 approx. N	Spring force final pressure F2 approx. N
02333-08023	15	6	3	5	18	16	13	M8	20	13,2	200	1,5	3
02333-10028	19	8	4	6	22	20	17	M10	25	16,3	300	1,8	3
02333-12031	22	10	4	6	25	24	19	M12	28	22,3	400	1,8	3

Workpiece supports



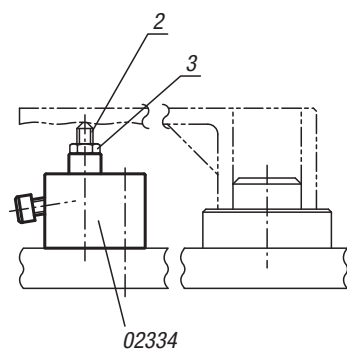
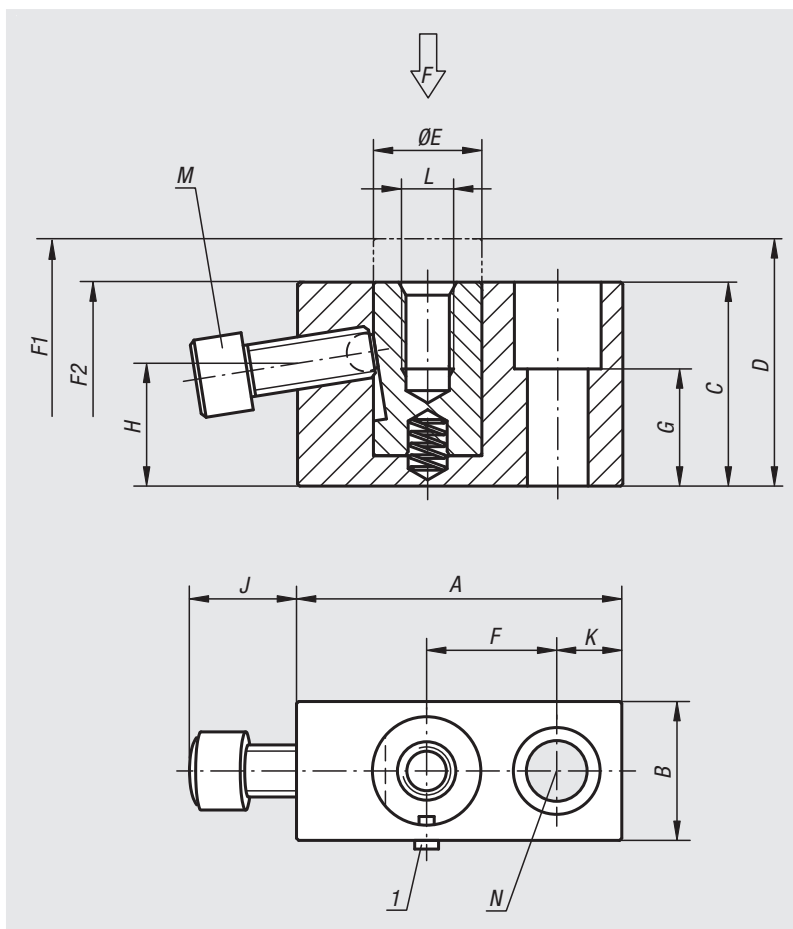
Material:
Carbon steel.

Version:
Body black oxidised.
Thrust pin tempered and black oxidised.

Sample order:
nlm 02334-06029

Drawing reference:
M = ball pressure screw
N = through hole for socket head screw DIN 912

- 1) rotation lock
- 2) screw rest
- 3) hexagonal nut



Order No.	A	B	C	D	E	F	G	H	J	K	L	M	N	F N	Spring force initial pressure F1 approx. N	Spring force final pressure F2 approx. N
02334-06029	38	19	29	35	12	15	15	17,6	13	8	M6x10	M6x16	M6	4000	0	6
02334-08037	50	22	37	47	16	20	20	21,1	16	10	M8x15	M8x20	M8	6000	0	7
02334-12047	75	32	47	57	25	30	27	28,3	25	15	M12x20	M12x30	M12	9000	1	11

Workpiece support cylinders


Material:

Carbon steel.

Version:

Body black oxidised.

Thrust pin hardened and black oxidised.

Sample order:

nIm 02335-06039

Drawing reference:

J = mounting screw

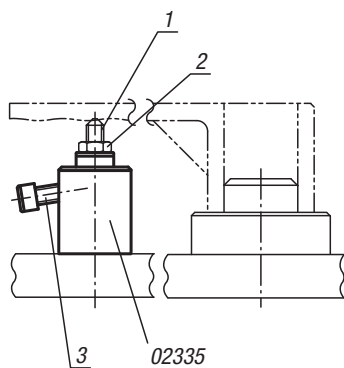
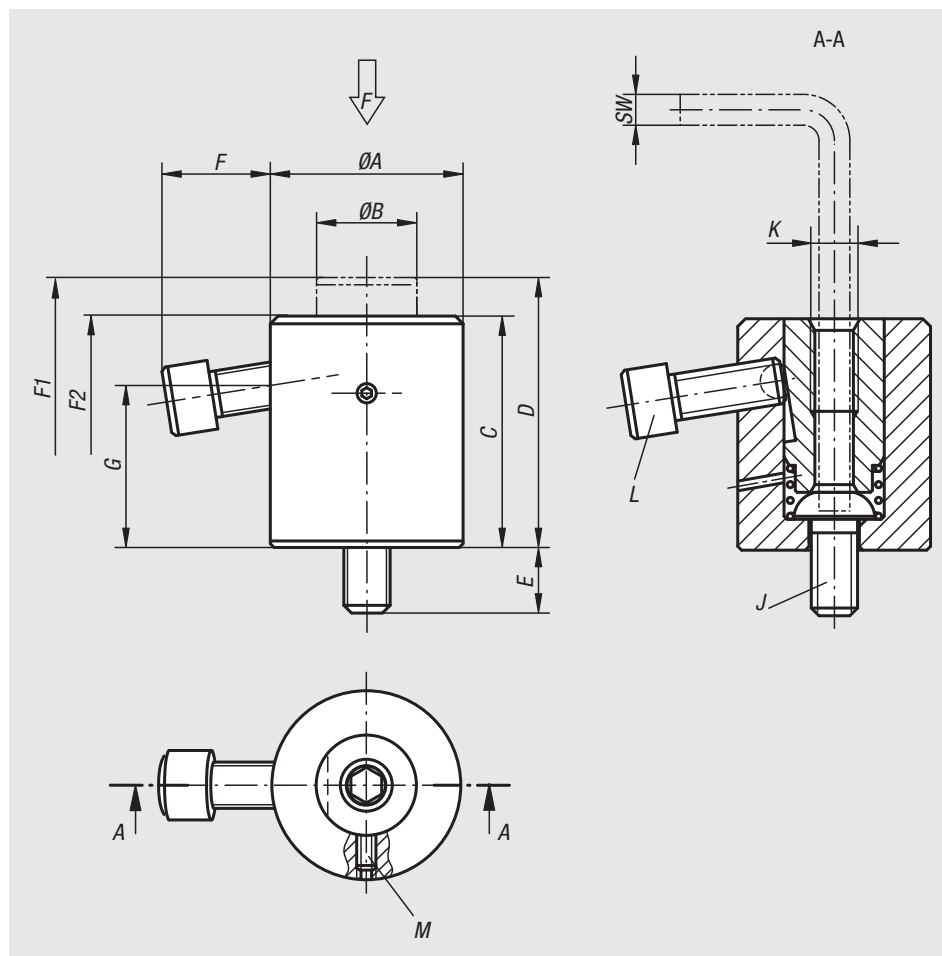
L = ball-end thrust screw

M = grub screw

1) screw rest

2) hexagonal nut

3) ball-end thrust screw



Order No.	A	B	C	D	E	F	G	J	K	L	M	SW	F N	Spring force initial pressure F1 approx. N	Spring force final pressure F2 approx. N
02335-06039	28	14	33	39	10	14,1	22	M6	M6x12	M6x16	M4x8	4	4000	10	22
02335-08052	35	19	42	52	15	18,8	28,5	M8	M8x16	M8x20	M4x8	5	6000	10	27
02335-12070	50	26	60	70	17	28,5	42	M12	M12x24	M12x30	M5x12	8	9000	15	30
02335-16080	60	33	70	80	22	26,5	47	M16	M16x32	M12x30	M5x15	10	9000	15	35

Support element



Material:

Main body hardened steel.
Housing aluminium.

Version:

Main body nitrated, manganese phosphated and ground.
Housing red anodised.

Sample order:

nlm 02340-0508

Note:

The support element is for supporting overhanging workpiece parts. It prevents vibration and bending during machining.

Method of operation:

1. Turn the cam screw (hex. socket SW 6) on the side of the housing, the support bolt will move out under light spring load until it makes contact with the workpiece.
2. Continue to turn to „lock“ position. The support bolt locks without changing position.
3. Turn the cam screw in the opposite direction and the support bolt will unlock. Continue turning to the „unlock“ position and the support bolt will slide back into the body.

Assembly:

Mount the support element to the fixture using the two M6 tapped holes.

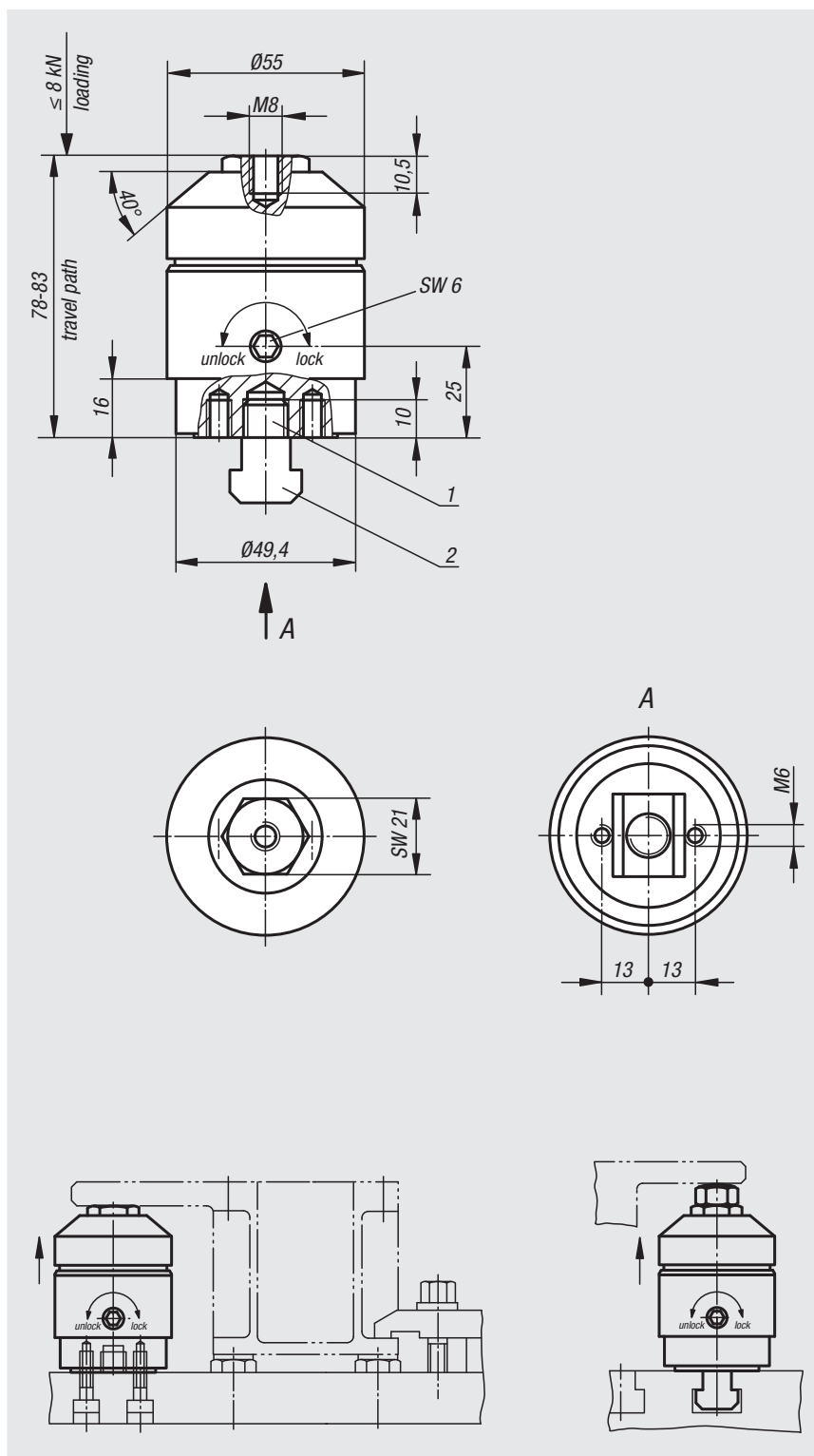
Alternatively: Exchange the M12x10 plug screw for a M12x30 grub screw and mount the support directly onto the machine table with a T-nut.

For safe operation the M12 tapped hole must always be filled. It is possible to countersink the support element by 16 mm. Various rest pads can be mounted into the M8 tapped hole on the support bolt.

Supplied with M12x30 grub screw and M12 nut for T-slots (DIN 508).

Drawing reference:

- 1) grub screw M12x30 DIN 913 (exchangeable)
2) nut for T-slots M12x14 DIN 508



Order No.	Load capacity N	Travel path
02340-0508	8000	5 mm

Rectangular support elements


Material:

Housing GJL 250, thrust pads and locking parts carbon steel.

Version:

Housing painted, steel parts black oxidised.

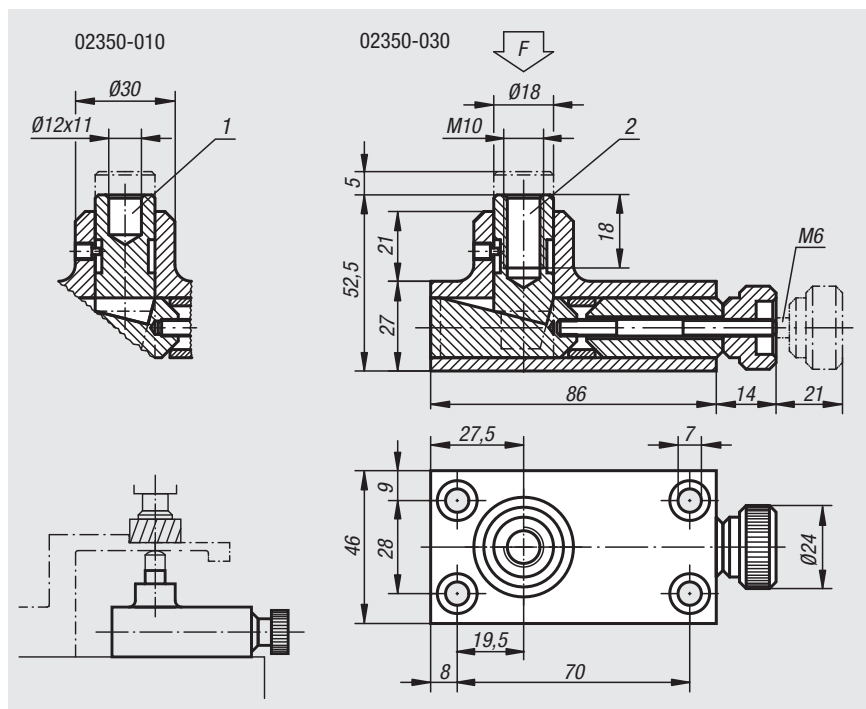
Sample order:

nIm 02350-030

Drawing reference:

- 1) centring hole for 02210
- 2) tapped hole for: 02000-110, 02000-310, 02000-910, 02030-10, 02030-101

Order No.	F max. kN
02350-010	30
02350-030	30



02360

Workpiece supports


Material:

Steel.

Version:

Case-hardened, black oxidised and ground.

Sample order:

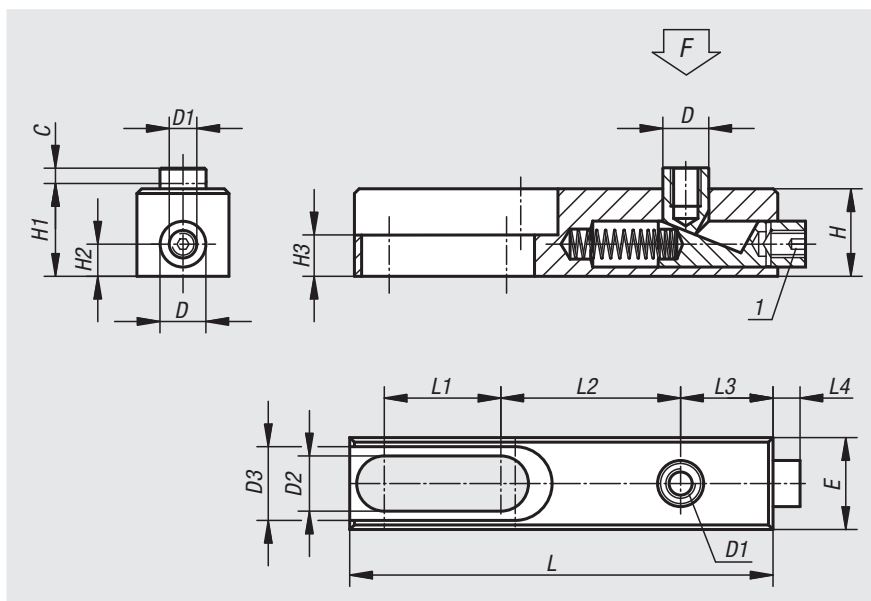
nIm 02360-006

Note:

These supports are placed under long or thin workpieces to prevent vibration or bending during milling, drilling, grinding or shaping operations.

Drawing reference:

- 1) set screw



Order No.	C	D	D1	D2	D3	E	H	H1	H2	H3	L	L1	L2	L3	L4	F kN
02360-006	4	10	M6	8,2	16,2	20	19	19,5	7	9	92	25,5	39	20	6	3
02360-010	6	16	M10	12,5	24,4	30	30	31	10	10	149	44	61	32	11	15

Workpiece supports


Material:

Steel.

Version:

Case-hardened, black oxidised and ground.

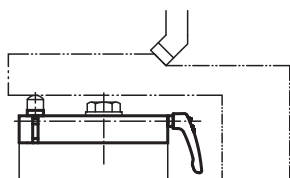
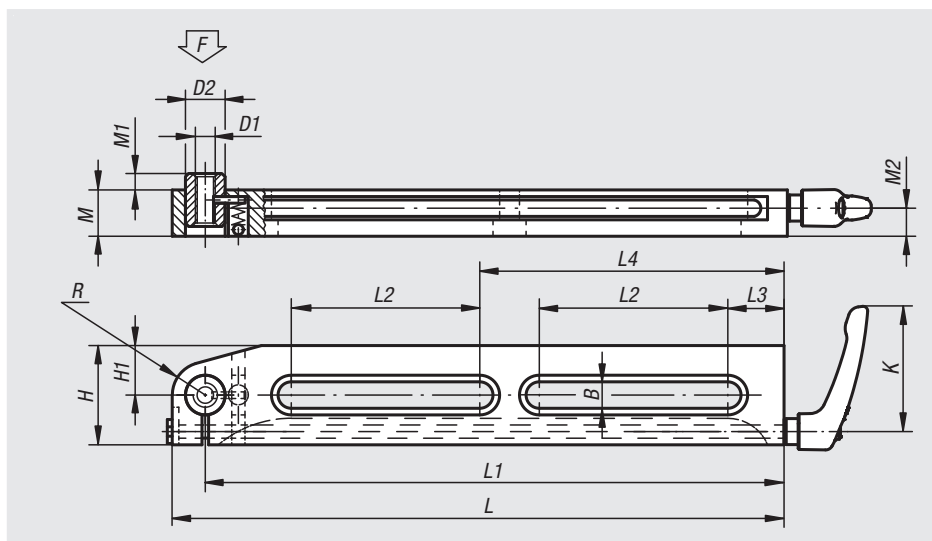
Sample order:

nIm 02380-150

Note:

These supports are placed under long or thin workpieces to prevent vibration or bending during milling, drilling, grinding or shaping operations. The support can be accurately placed without the need to reach under the workpiece. The support pin contacts the workpiece under light pressure. It can be tightened in any position. Various types of pins can be screwed into the tapped hole in the thrust pin to adapt the support height.

The supports 02380-075, 02380-150 and 02380-170 have only 1 slot.



Order No.	K	L	L1	L2	L3	L4	B	H	H1	D1	D2	M	M1	M2	R	F N
02380-75	65	85	75	35	13	-	8,5	30	10	M8	13	19,5	3	11,5	-	500
02380-150	80	165	150	90	20	-	13	50	25	M10	20	24	6	14	15	2500
02380-170	110	190	170	100	25	-	17	60	20	M16	26	34	11	21,5	-	5000
02380-300	80	315	300	100	30	160	13	50	25	M10	20	24	6	14	15	2500

Jack screws

Material:

Carbon steel.

Version:

Black oxidised.

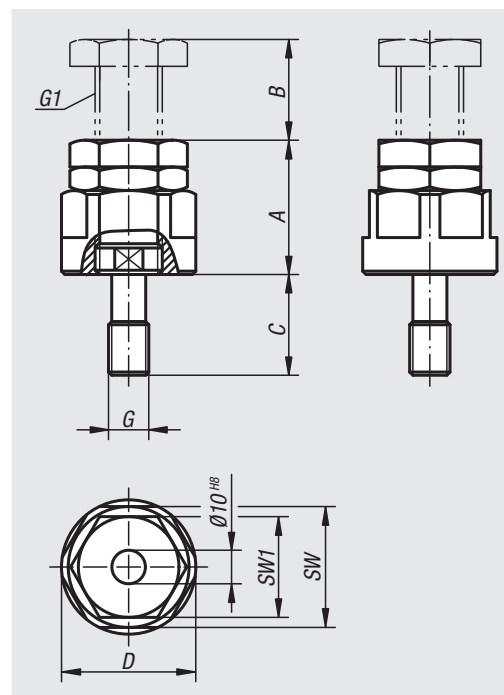
Adjustment spindle tempered.

Sample order:

nlm 02385-16100

Note:

Use the inserts 02387 to adapt the contact face to requirements.



Order No.	A min.	B max.	C	D	SW	SW1	G	G1
02385-12040	40	10	30	40	36	30	M12	M20x1,5
02385-12050	50	20	30	40	36	30	M12	M20x1,5
02385-12070	70	40	30	40	36	30	M12	M20x1,5
02385-12100	100	50	30	50	46	36	M12	M24x2
02385-12150	150	100	30	50	46	36	M12	M24x2
02385-16040	40	10	30	40	36	30	M16	M20x1,5
02385-16050	50	20	30	40	36	30	M16	M20x1,5
02385-16070	70	40	30	40	36	30	M16	M20x1,5
02385-16100	100	50	30	50	46	36	M16	M24x2
02385-16150	150	100	30	50	46	36	M16	M24x2

02387

Inserts


Material:

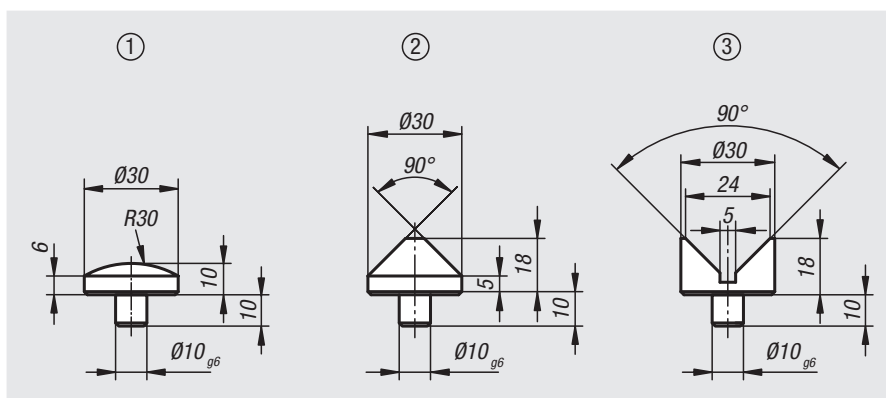
Carbon steel.

Version:
Tempered to 1100-1200 N/mm², black oxidised.
Sample order:

nlm 02387-02

Drawing reference:

- 1) rounded insert
- 2) cone insert
- 3) prism insert



Order No.	Version
02387-01	Rounded Insert
02387-02	Cone Insert
02387-03	Prism Insert

Jack screws extended

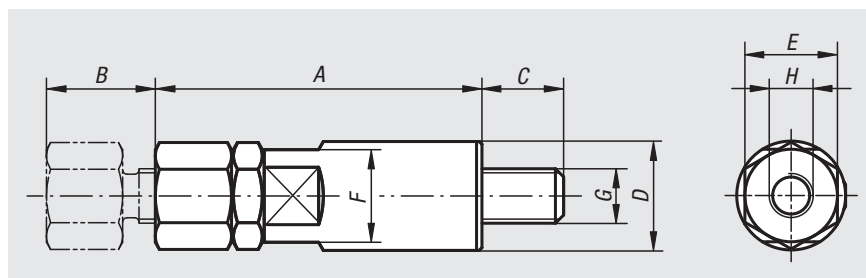


Material:
Carbon steel.

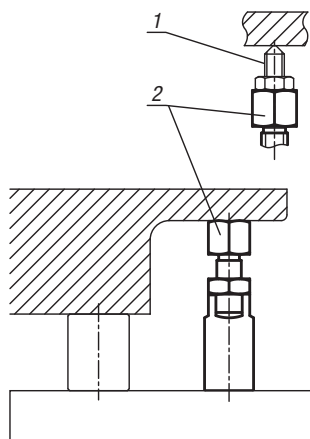
Version:
Black oxidised.

Sample order:
nlm 02388-08040

Drawing reference:
1) screw rest
2) jack screw

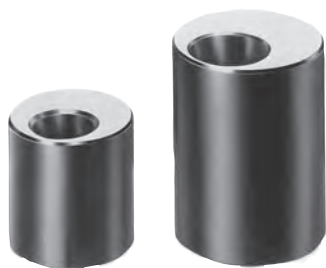


Jack screw for mounting various rests



Order No.	A	B	C	D	E	F	G	H
02388-08040	40	10	12	16	13	13	M8	M6 x 6
02388-08050	50	20	12	16	13	13	M8	M6 x 6
02388-10050	50	10	14	20	17	17	M10	M8 x 8
02388-10060	60	20	14	20	17	17	M10	M8 x 8
02388-12065	65	15	19	24	22	22	M12	M10 x 10
02388-12080	80	30	19	24	22	22	M12	M10 x 10
02388-16080	80	15	24	32	27	27	M16	M12 x 12
02388-16095	95	30	24	32	27	27	M16	M12 x 12

Eccentric supports


Material:

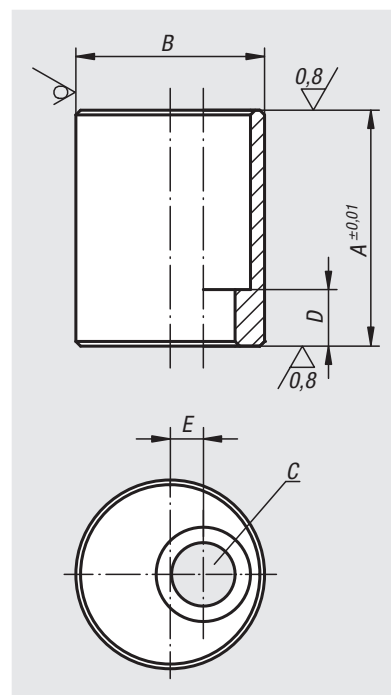
Special steel alloy.

Version:

Tempered, black oxidised.
Contact faces ground.

Sample order:

nln 02390-10040



Order No.	A	B	C hole for DIN 912 cap screw	D	E
02390-08016	16	25	M8	7	3,5
02390-08020	20	25	M8	7	3,5
02390-08025	25	25	M8	7	3,5
02390-08032	32	25	M8	7	3,5
02390-08040	40	25	M8	7	3,5
02390-08050	50	25	M8	7	3,5
02390-10020	20	32	M10	9	5
02390-10025	25	32	M10	9	5
02390-10032	32	32	M10	9	5
02390-10040	40	32	M10	9	5
02390-10050	50	32	M10	9	5
02390-10063	63	32	M10	9	5
02390-12020	20	40	M12	7	7
02390-12025	25	40	M12	12	7
02390-12032	32	40	M12	12	7
02390-12040	40	40	M12	12	7
02390-12050	50	40	M12	12	7
02390-12063	63	40	M12	12	7
02390-12080	80	40	M12	22	7
02390-12100	100	40	M12	22	7
02390-12125	125	40	M12	22	7
02390-16025	25	50	M16	8	10
02390-16032	32	50	M16	15	10
02390-16040	40	50	M16	15	10
02390-16050	50	50	M16	15	10
02390-16063	63	50	M16	15	10
02390-16080	80	50	M16	35	10
02390-16100	100	50	M16	35	10
02390-16125	125	50	M16	35	10