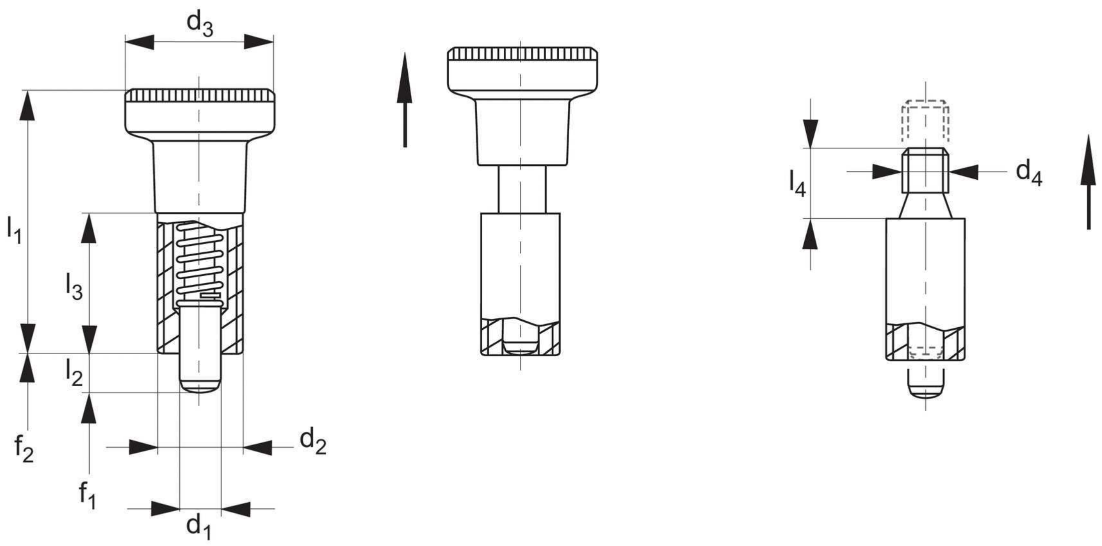
Index Plunger - Pull Grip

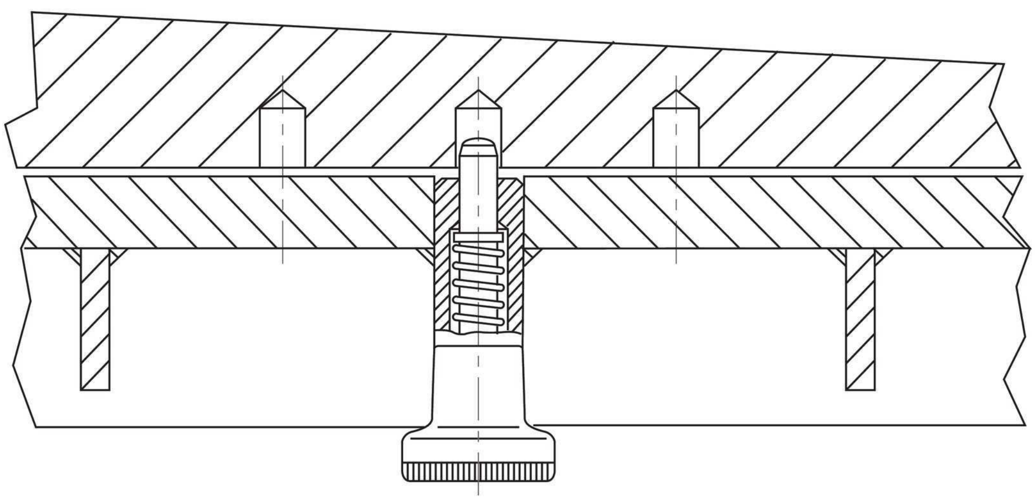
weldable - non-locking

32720



with grip

no grip



Order No.	Type	d_1 -0,02 -0,04	d_2 h9	d_3	d_4	l_1 ≈	l_2 min.	l_3	l_4	Spring load* f_1 N≈	Spring load* f_2 N≈	g
32720.W0805	With Grip	5	12	21	-	45,0	5	22	-	7,0	16	25
32720.W0806	With Grip	6	14	25	-	54,5	6	26	-	6,5	15	40
32720.W0808	With Grip	8	18	31	-	69,0	8	34	-	12,0	31	84
32720.W0825	No Grip	5	12	-	M 5	-	5	22	6	7,0	16	19
32720.W0826	No Grip	6	14	-	M 6	-	6	26	10	6,5	15	32
32720.W0828	No Grip	8	18	-	M 8	-	8	34	12	12,0	31	67

Material

Body: free cutting steel, blackened, weldable.
Pin: hardened steel.
Grip: plastic (PA 6), black, non-removable.

Technical Notes

"Non Locking" type- pin simply springs back when pull ring released.
Designed specifically for installation via welding or use of glues. Plungers without grip enable your own adaptation with actuation grip/lever to your own design.
Without grip temperature resistance up to 250°C .

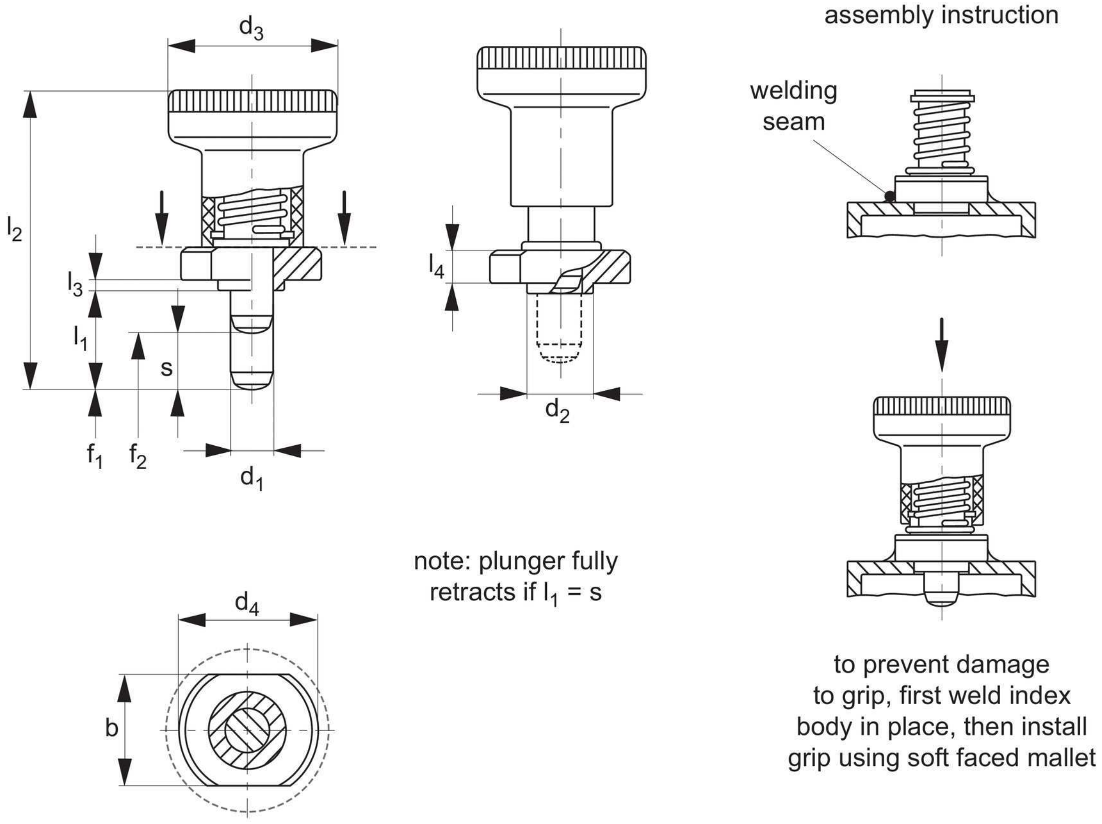
Tips

Grip non-removable.
Spring loads * = statistical average.

Index Plungers - Pull Grip

weldable - flange mounting - compact

32762



Material

Body: steel blackened.
Locking Pin: hardened.
Grip: black matte finish, not removable.

Technical Notes

"Locking" type- enable pin to be held in retracted position; pull back grip, turn 90° to engage 'locking' on a notched catch.
"Non Locking" type- pin simply springs back when grip released.
Installation requires welding of plunger doby to component. To avoid damage to plastic grip, item is supplied part assembled. Grip is driven in indexing mechanism with a light mallet. Non removable once installed.
Pin does not fully retract in all cases - note dimension 's' the stroke of the pin, i.e. the amount by which the pin retracts when actuated.
Temperature resistance -30°C to +80°C

Tips

Spring load* = statistical average.

Important Notes

Only parts 32762.W0826,W0828,W0836 and W0838 have fully retractable index bolt. Bolt of other parts do not fully retract into body, instead bolt will protrude by l_1-s when grip actuated.

Order No.	Type	d_1 -0,02 -0,1	l_1	b	d_2 -0,02 -0,04	d_3	d_4	l_2	l_3	l_4	s	Spring load* f_1 N	Spring load* f_2 N	Axial Load [N]	g
32762.W0826	Non Locking	6	6	18	10	25	22	37	1,5	5,5	6	8,5	22	400	35
32762.W0827	Non Locking	6	14	18	10	25	22	37	1,5	5,5	6	8,5	22	400	36
32762.W0828	Non Locking	8	8	20	12	31	25	44	2,0	6,5	8	15,5	28	500	55
32762.W0829	Non Locking	8	18	20	12	31	25	44	2,0	6,5	8	15,5	28	500	60
32762.W0836	Locking	6	6	18	10	25	22	37	1,5	5,5	6	8,5	22	400	35
32762.W0837	Locking	6	14	18	10	25	22	37	1,5	5,5	6	8,5	22	400	36
32762.W0838	Locking	8	8	20	12	31	25	44	2,0	6,5	8	15,5	28	500	55
32762.W0839	Locking	8	18	20	12	31	25	44	2,0	6,5	8	15,5	28	500	60

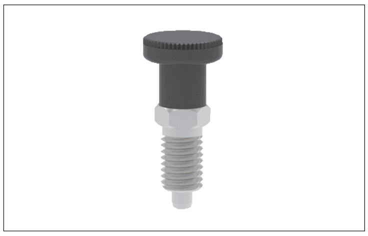
A wide selection of solutions

Applications

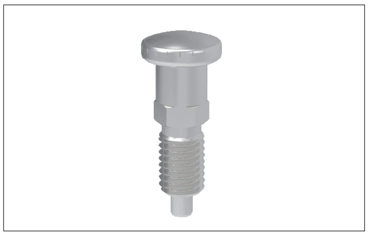
- Locating and positioning.
- Indexing.
- Securing.
- Positive locking.
- Rapid adjustment of all kinds of tables, platforms and fixtures.
- Machine and fixture design.
- OEM products.
- Sports equipment.
- Medical aides (wheelchairs etc.).
- Aerospace.
- Machine cabinets.

Materials

Steel with plastic grip

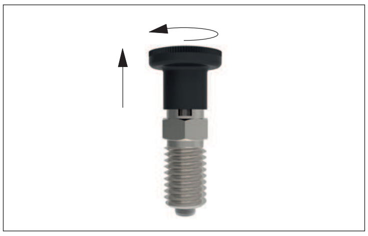


Stainless with plastic grip

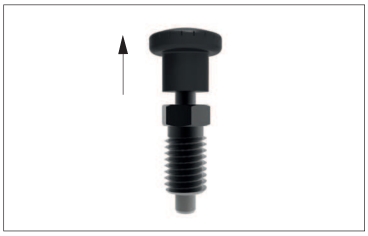


Stainless body and grip

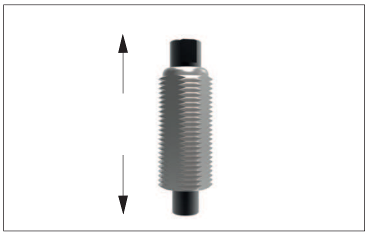
Locking or non locking



Locking (park)



Non locking (spring back)



Push pull

Handling and actuation methods

Standard grip

Lever grip

T-handle

Pull ring

Threaded for bespoke handle

Mounting options

Fine threaded (standard)

Coarse thread

Flange mount

Thin wall mount

Weldable

Additional technical notes

- Unless otherwise stated, grips on index plungers are not removeable.
- Many of the pins on index plungers are toleranced to either the pin or the hole. Please refer to the specific product table.
- Index plungers are not recommended for shear load applications.

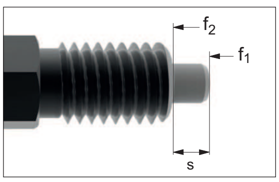
	Pin Tol.	Hole Tol.
1	h_9	+0,03 +0,08
2	-0,02 -0,04	H_7

Spring loads

s Stroke, or movement of plunger's pin.

f_1 The force required in Newtons (N) to over come the static strength of the spring and achieve initial movement of the plunger's pin.

f_2 The force required in Newtons (N) to fully compress the spring until the pin is fully depressed against the plunger's body.



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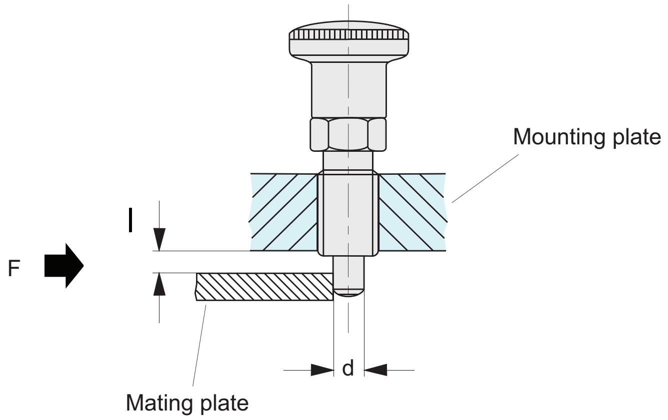
Computing the strength of index plungers

for shear loads / flexure loads of the plunger pin

Flexure loads

As soon as a gap **l** exists between the mounting plate in which the index plunger is installed, and the mating or base plate, the load must be considered to be as per a flexure load, with rod clamped at one side.

With this approach, the calculation is made against the bending of the index plunger.



Formulas for computation

Resistance torque	Flexural stress	Flexural strength
$W = \frac{\pi \times d^3}{32}$	$M_b = \sigma_b \times W$	$F = \frac{M_b}{l} = \frac{\sigma_b \times \pi \times d^3}{l \times 32}$

Material characteristics

The yield or substitute yield limit (Re / Rp 0,2) shown in the table opposite has been determine in tension tests involving tension specimen in accordance with DIN 50125-B6-30.

These tests constitute the basis for the load bearing details given.

Material Description	Material no.	Re in N/mm² (≈ per. flexural tension σ_b)
C45Pb	1.0504	560
X 10 CrNiS 18 9A	ISI 303	580

Calculation example, load values

Example:

Index plungers with a bolt diameter of 5 mm made of steel with a yield limit of Re = 560 N/mm², calculation against permanent deformation, the maximum permissible flexural strength is calculated as:

$$F_{per} = \frac{560\ N/mm^2 \times \pi \times (5mm)^3}{2mm \times 32} = 3430\ N$$

d Bolt diameter	max. flexural strength **F** in **N**, acc. to material and gap **l** differentiated — C45Pb/1.0504, **l** = 2 mm	C45Pb/1.0504, **l** = 3 mm	X 10 CrNiS 18 9/1.4305, **l** = 2 mm	X 10 CrNiS 18 9/1.4305, **l** = 3 mm
3	740	490	760	510
4	1750	1170	1820	1210
5	3430	2290	3550	2370
65	930	3950	6140	4100
8	14070	9380	14570	9710
10	27480	18320	28470	18980
12	47490	31660	49190	32790
16	90070	102940	93290	119020

Safety information

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1.5; pulsating 1.8 to 2.4 and alternating 3 to 4.

Disclaimer:

You should carry out your own test series to verify whether a certain product is suitable for your specific applications.

Computing the strength of index plungers

for shear loads / flexure loads of the plunger pin

Shear loads

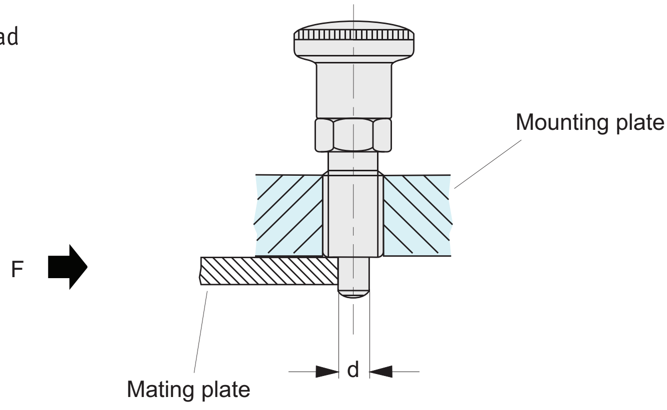
Providing only a very small gap exists between the mounting plate in which the index plunger is installed, and the mounting plate or base plate, the load can be calculated as a clean shear action.

As this is normally not the case, the “flexure” load should be used - see following page.

Approximately 80 % of the bolt’s tensile strength is assumed for the shear strength. This approach calculates against the tensile strength Rm, i.e. against the index pin shearing off.

To ensure the permanent and proper function of the index plunger, the yield limit Re must be considered in place of the tensile strength Rm.

Stop using the index plunger if the pin is damaged or deformed.



Formulas for computation

Bolt cross-section	Limit tension	Shear force
$S = \frac{d^2 \times \pi}{4}$	$\tau_a = 0{,}8 \times R_m$	$F = S \times \tau_a = \frac{d^2 \times \pi}{4} \times 0{,}8 \times R_m$

Material characteristics

The tensile strength shown in the table opposite (Rm) and the yield or substitute yield limit (Re / Rp 0,2) have been determine in tension tests involving tension specimen in accordance with DIN 50125- B6-30

These tests constitute the basis for the load bearing details given.

Material Description	Material no.	Re in N/mm²	Rm in N/mm²
C45Pb	1.0504	560	640
X 10 CrNiS 18 9A	ISI 303	580	740

Calculation example, load values

Example:

Index plungers with a bolt diameter of 6 mm made of Stainless Steel with a yield limit of Re = 580 N/mm², calculation against permanent deformation, the maximum permissible shear stress is calculated as:

$$F_{per} = \frac{(6\ mm)^2 \times \pi}{4} \times 0.8 \times 580\ N/mm^2 = 13120\ N$$

d Bolt diametre	max. force F in N, acc. to material and strength value differs — C45Pb/1.05045 at Re	C45Pb/1.05045 at Rm	X 10 CrNiS 18 9/1.4305 at Re	X 10 CrNiS 18 9/1.4305 at Rm
3	3160	3610	3270	4180
4	5620	6430	5830	7430
58	790	10050	9110	11620
6	12660	14470	13120	16730
8	22510	25730	23320	29750
10	35180	40210	36440	46490
12	50660	57900	52470	66950
16	90070	102940	93290	119020

Safety information

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1,5; pulsating 1.8 to 2.4 and alternating 3 to 4.

Disclaimer:

You should carry out your own test series to verify whether a certain product is suitable for your specific applications.