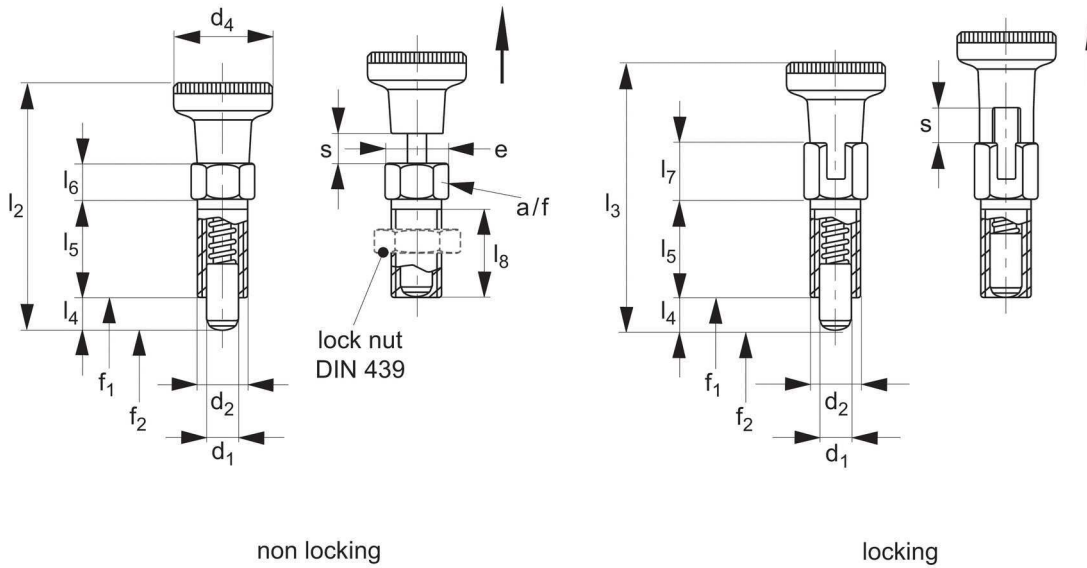


Index Plungers - Pull Grip

steel - coarse thread



32570



| Order No. | Type | d ₁ h9 | d ₂ | d ₄ | e | l ₂ | l ₃ | l ₄ =s min. | l ₅ | l ₆ | l ₇ | l ₈ | a/f | Sp rin g l oa d* f ₁ N ≈ | Tigh Spr ing oad * f ₂ N ≈ | Tigh ten ing tor que max Nm | △ g |
|-------------|----------|----------------------|----------------|----------------|------|----------------|----------------|---------------------------|----------------|----------------|----------------|----------------|-----|--|--|---|--------|
| 32570.W0743 | Non Lock | 3 | M 6x1,00 | 12 | 6,9 | 30,0 | - | 3,5 | 12 | 4,5 | - | 10,0 | 6 | 3 | 12 | 2 | 3,6 |
| 32570.W0744 | Non Lock | 4 | M 6x1,00 | 12 | 6,9 | 30,5 | - | 4 | 12 | 4,5 | - | 10,0 | 6 | 3 | 12 | 2 | 4,0 |
| 32570.W0745 | Non Lock | 5 | M 8x1,25 | 16 | 9,2 | 40,0 | - | 5 | 16 | 6,0 | - | 13,5 | 8 | 5 | 24 | 7 | 9,2 |
| 32570.W0746 | Non Lock | 6 | M10x1,50 | 18 | 11,5 | 49,0 | - | 6 | 20 | 7,5 | - | 17,0 | 10 | 5 | 21 | 15 | 18,0 |
| 32570.W0748 | Non Lock | 8 | M12x1,75 | 21 | 13,8 | 59,0 | - | 8 | 24 | 9,0 | - | 20,5 | 12 | 6 | 22 | 20 | 32,0 |
| 32570.W0763 | Lock | 3 | M 6x1,00 | 12 | 6,9 | - | 32,5 | 3,5 | 12 | - | 7,0 | 10,0 | 6 | 3 | 12 | 2 | 3,8 |
| 32570.W0764 | Lock | 4 | M 6x1,00 | 12 | 6,9 | - | 33,0 | 4 | 12 | - | 7,0 | 10,0 | 6 | 3 | 12 | 2 | 4,2 |
| 32570.W0765 | Lock | 5 | M 8x1,25 | 16 | 9,2 | - | 43,5 | 5 | 16 | - | 9,5 | 13,5 | 8 | 5 | 24 | 7 | 9,8 |
| 32570.W0766 | Lock | 6 | M10x1,50 | 18 | 11,5 | - | 52,0 | 6 | 20 | - | 10,5 | 17,0 | 10 | 5 | 21 | 15 | 18,0 |
| 32570.W0768 | Lock | 8 | M12x1,75 | 21 | 13,8 | - | 63,5 | 8 | 24 | - | 13,5 | 20,5 | 12 | 6 | 22 | 20 | 32,0 |
| 32550.W0704 | Nut | - | M 6x1,00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1,3 |
| 32550.W0705 | Nut | - | M 8x1,25 | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,8 |
| 32550.W0706 | Nut | - | M10x1,50 | - | - | - | - | - | - | - | - | - | - | - | - | - | 5,3 |
| 32550.W0708 | Nut | - | M12x1,75 | - | - | - | - | - | - | - | - | - | - | - | - | - | 7,6 |

Material

Body: steel, galvanized.
Pin: stainless steel 1.4305 (AISI 303).
Grip: thermoplastic PA 6, black.

Technical Notes

"**Locking**" type- enable pin to be held in retracted/non-projecting position; pull back grip, turn 90° to engage 'locking' on a notched catch.

"**Non Locking**" type- pin simply springs back when grip released.

For applications where high precision is not required.

Coarse thread.

Temperature resistance -30° C to +80° C.

Tips

Grip non-removable.

Spring loads * = statistical average.



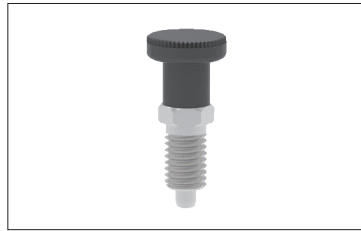
A wide selection of solutions

- 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.

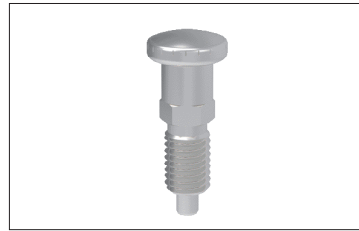
Applications



Steel with plastic grip



Stainless with plastic grip



Stainless body and grip

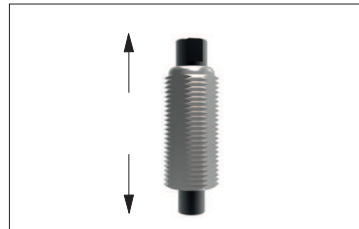
Materials



Locking (park)



Non locking (spring back)



Push pull

Locking or non locking



Standard grip



Lever grip



T-handle



Pull ring



Threaded for bespoke handle

Handling and actuation methods



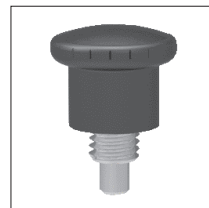
Fine threaded (standard)



Coarse thread



Flange mount



Thin wall mount



Weldable

Mounting options

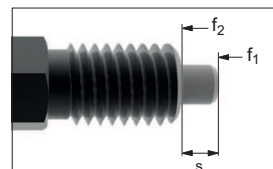
- Unless otherwise stated, grips on index plungers are not removeable.
- Many of the pins on index plungers are toleranced to either the pin or the hole. Please refer to the specific product table.
- Index plungers are not recommended for shear load applications.

Pin Tol. Hole Tol.

| | | |
|---|----------------|----------------|
| ① | h_9 | +0,03 +0,08 |
| ② | -0,02 -0,04 | H ₇ |

Additional technical notes

- s** Stroke, or movement of plunger's pin.
- f₁** The force required in Newtons (N) to overcome the static strength of the spring and achieve initial movement of the plunger's pin.
- f₂** The force required in Newtons (N) to fully compress the spring until the pin is fully depressed against the plunger's body.



Spring loads

Computing the strength of index plungers

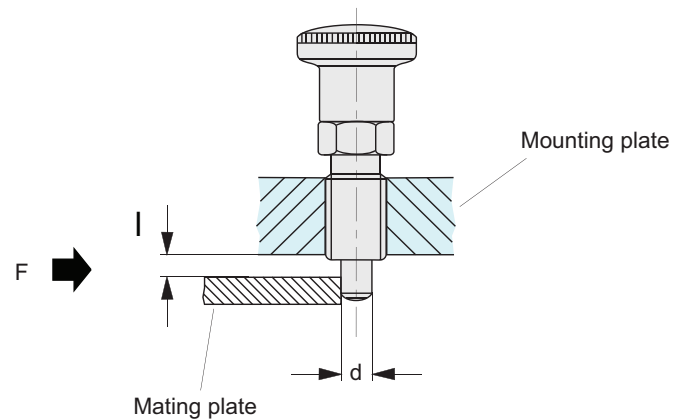
for shear loads / flexure loads of the plunger pin



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

$$W = \frac{\pi \times d^3}{32}$$

Flexural stress

$$M_b = \sigma_b \times W$$

Flexural strength

$$F = \frac{M_b}{l} = \frac{\sigma_b \times \pi \times d^3}{l \times 32}$$

Material characteristics

The yield or substitute yield limit ($R_e / R_p 0,2$) shown in the table opposite has been determined 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. | R_e in N/mm ² (≈ 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 $R_e = 560 \text{ N/mm}^2$, calculation against permanent deformation, the maximum permissible flexural strength is calculated as:

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

| d Bolt diameter | max. flexural strength F in N, acc. to material and gap l differentiated | | | |
|--------------------|---|--------------------|------------------------|--------------------|
| | C45Pb/1.0504 | | X 10 CrNiS 18 9/1.4305 | |
| | $l = 2 \text{ mm}$ | $l = 3 \text{ mm}$ | $l = 2 \text{ mm}$ | $l = 3 \text{ mm}$ |
| 3 | 740 | 490 | 760 | 510 |
| 4 | 1750 | 1170 | 1820 | 1210 |
| 5 | 3430 | 2290 | 3550 | 2370 |
| 6.5 | 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

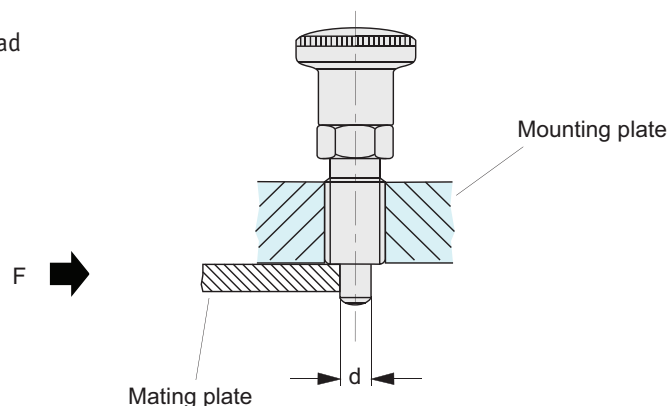
Providing only a very small gap exists between the mounting plate in which the index plunger is installed, and the mounting plate or base plate, the load can be calculated as a clean shear action.

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 R_m , i.e. against the index pin shearing off.

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

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



Formulas for computation

Bolt cross-section

$$S = \frac{d^2 \times \pi}{4}$$

Limit tension

$$\tau_a = 0,8 \times R_m$$

Shear force

$$F = S \times \tau_a = \frac{d^2 \times \pi}{4} \times 0,8 \times R_m$$

Material characteristics

The tensile strength shown in the table opposite (R_m) and the yield or substitute yield limit ($R_e / R_p 0,2$) 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. | R_e in N/mm ² | R_m in N/mm ² |
|----------------------|--------------|-------------------------------|-------------------------------|
| 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 $R_e = 580 \text{ N/mm}^2$, calculation against permanent deformation, the maximum permissible shear stress is calculated as:

$$F_{per} = \frac{(6 \text{ mm})^2 \times \pi}{4} \times 0,8 \times 580 \text{ N/mm}^2 = 13120 \text{ N}$$

| d Bolt diameter | max. force F in N, acc. to material and strength value differs | | | |
|--------------------|---|----------|------------------------|----------|
| | C45Pb/1.05045 | | X 10 CrNiS 18 9/1.4305 | |
| | at R_e | at R_m | at R_e | at R_m |
| 3 | 3160 | 3610 | 3270 | 4180 |
| 4 | 5620 | 6430 | 5830 | 7430 |
| 5 | 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.