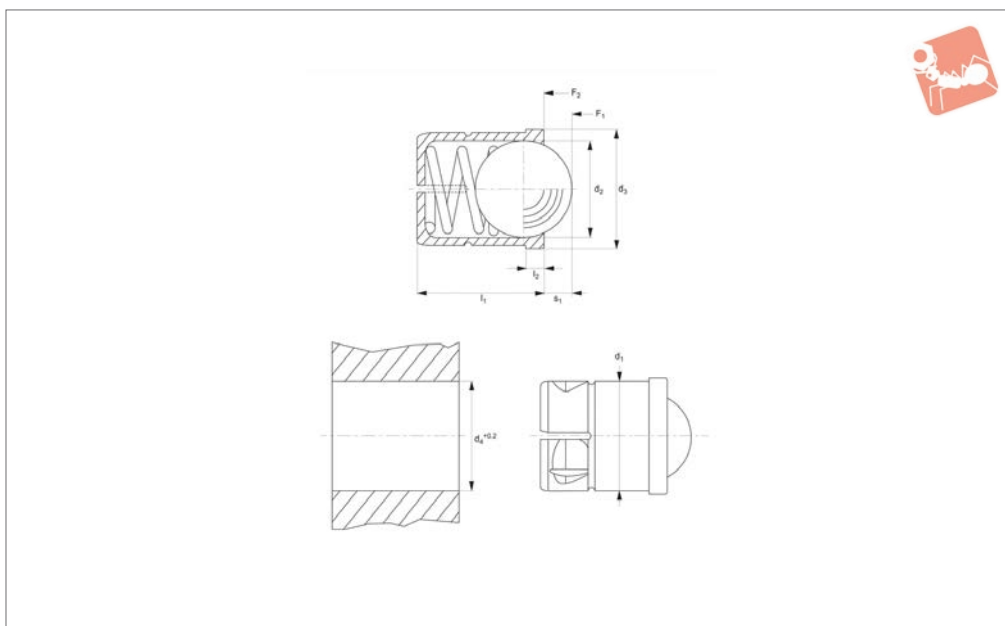


Expander Fit Spring Plunger

smooth body - thermoplastic

Spring Plunger & Detent Pins



32302

SPRING PLUNGER & DETENT PINS

Material

Body: thermoplastic POM, black.
 Ball: ball bearing steel 1.3505 (100Cr6) hardened or thermoplastic POM, white.
 Spring: stainless steel.

Technical Notes

Unique body design flexes to expand and contract to fit in location bore tolerances

as wide as +0,2mm of d_4 . Especially suited to installation in plastic moulded components where hole and bore precision is not high.
 Guarantees a secure overhead installation. Simple push fit design, no special tooling necessary.
 For calculation of indexing resistance

please refer to spring plunger technical pages.

Tips

Spring load* - statistical average value.
 Temperature range -30°C to +50°C

See Wixroyd.com for:
 32305 - Spring plungers - INCH

Order No.	Finish	d_1 +0.1	d_2	d_3	d_4 +0.2	l_1 ±0.2	l_2 ≈	s_1	Spring load F_1 N ≈	Spring load F_2 N ≈	Temperature °C max.	Weight g
32302.W0704	Body Thermo & Ball Stainless	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,12
32302.W0705	Body Thermo & Ball Stainless	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,34
32302.W0706	Body Thermo & Ball Stainless	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,63
32302.W0708	Body Thermo & Ball Stainless	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	1,40
32302.W0710	Body Thermo & Ball Stainless	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	2,90
32302.W0804	Body & Ball Thermo	4	3,0	4,6	4	5,0	1,0	0,8	3,0	6,5	-30/+50	0,06
32302.W0805	Body & Ball Thermo	5	4,0	5,6	5	6,0	1,0	1,0	6,0	9,4	-30/+50	0,17
32302.W0806	Body & Ball Thermo	6	5,0	6,5	6	7,0	1,0	1,6	6,2	12,6	-30/+50	0,23
32302.W0808	Body & Ball Thermo	8	6,5	8,5	8	9,0	1,0	1,9	10,0	20,4	-30/+50	0,57
32302.W0810	Body & Ball Thermo	10	8,0	11,0	10	13,5	1,5	2,4	11,9	22,3	-30/+50	1,21



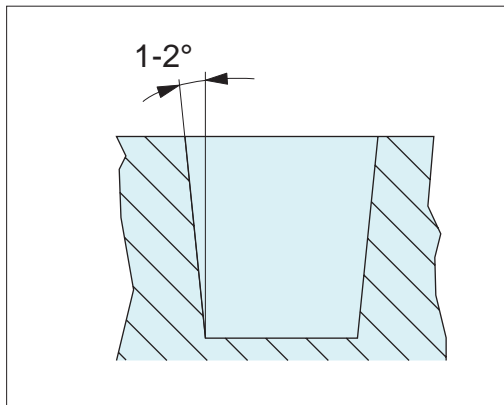
Struggle with inconsistent location bore tolerances and wide material variation?

Looking to reduce machining costs?

Our smooth body expander fit spring plunger offers a simple and accommodating solution - with the capacity to accommodate location bore tolerances as wide as $+0.2\text{mm}$.



Unique Expander Fit Design

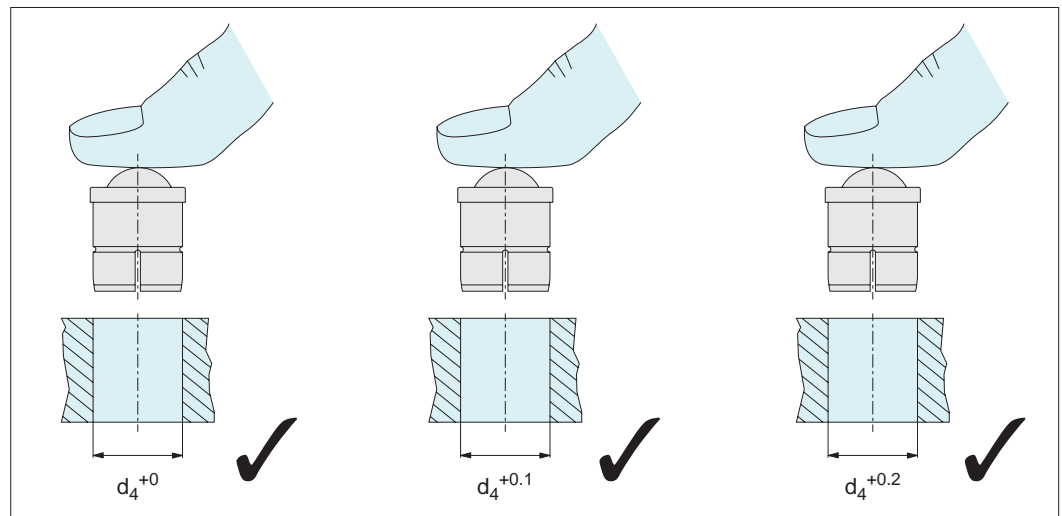


Typically, unmachined plastic injection moulded holes can vary widely in accuracy, with sidewall variation of ± 1 to 2° .



Unique body design flexes to expand and contract to fit in location bore tolerances as wide as $+0,2\text{mm}$.

Especially suited to installation in plastic moulded components where hole and bore precision is not high.



Expands/contracts to fit a range of hole tolerances from $+0$ to $+0,2$.

Unique Advantages

- Speed and flexibility in production and assembly.
- Removes need and cost of high tolerance machining and workpiece preparation.
- Easy push fit installation, no special tools or punches required.

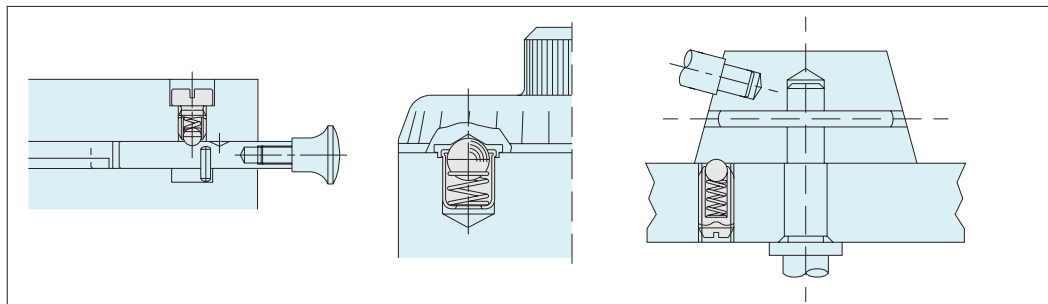
Important Note

Important Note: It is not recommended to repeatedly install and uninstall expander fit spring plungers between locating bores of different tolerances, as such repeated action can lead to reduction of its capacity to expand into holes of wider tolerances (due to slight plastic fatigue).

As with all our smooth bodied spring plungers, best results are achieved when used as a single one-off installation.

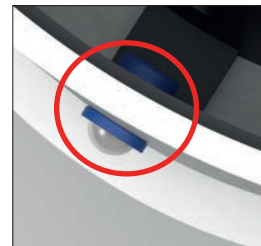


Wixroyd Spring Plungers - A Range of Endless Possibilities



Made of high quality steel and stainless steel, Wixroyd's Spring Plunger range is proven to be reliable for millions of repetitions in securing, positioning, positive locking, indexing and quick release. Their application is limited only by the imagination!

Three push-fit spring plungers no. 32000 have been added to the design of this recessed commercial light fitting. The push-fit design of the plunger makes for easy assembly during production. Their use greatly simplifies the mounting and servicing of the units, reducing handling costs and saving valuable operator time.



Commercial Lighting

Used in conjunction with a simple hinge, Wixroyd spring plunger 32300 provides an easy and secure means to positively position and secure the back panel of a blood gas analysis machine. With both brass and stainless steel varieties, our spring plungers have a wide range of application in the medical, pharmaceutical, food and drink processing industries.



Medical Applications

Uses

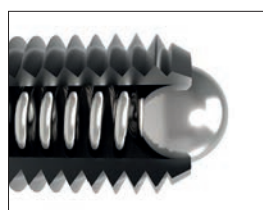
- For location, applying pressure and "lifting off".
- Securing and positioning.
- Positive locking and indexing.
- Quick release.

Industry Sectors

- Machine and fixture design.
- Measuring equipment.
- Electronic components.
- Lighting equipment.
- Medical, optics and orthopaedics.

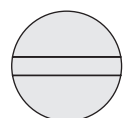
Applications

Wixroyd Spring Plungers - Uses and Mounting Options

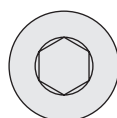


- 31400
- 31420
- 31500
- 32000
- 32100
- 32102
- 32280
- 32300
- 32302
- 32350

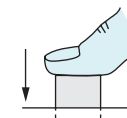
Mounting Options



Rear slot

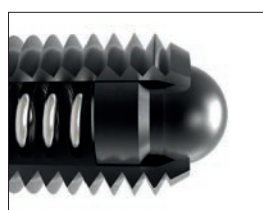


Rear hexagon



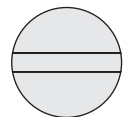
Push fit

Ball Type

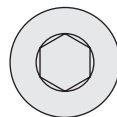


- 31000
- 31600
- 32150
- 32200
- 32220
- 32282
- 32400
- 32420

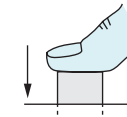
Mounting Options



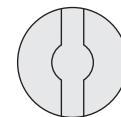
Rear slot



Rear hexagon

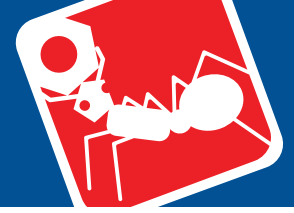


Push fit



Front slot

Pin Head Type



Quality products every time

100% Testing

- Every spring plunger that is produced on the Wixroyd assembly line is individually tested. That is how we guarantee the quality of our products.
- A Wixroyd spring plunger is tested against four key criteria during manufacture.

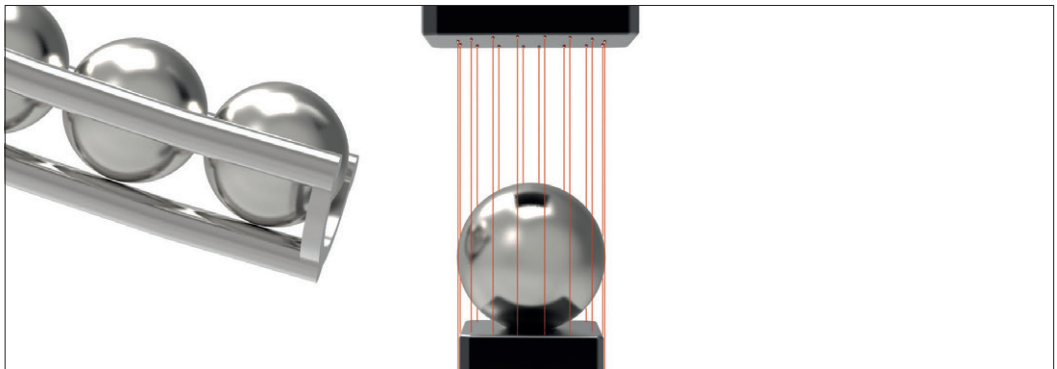
Accuracy of 'S' Stroke/ Spring Range



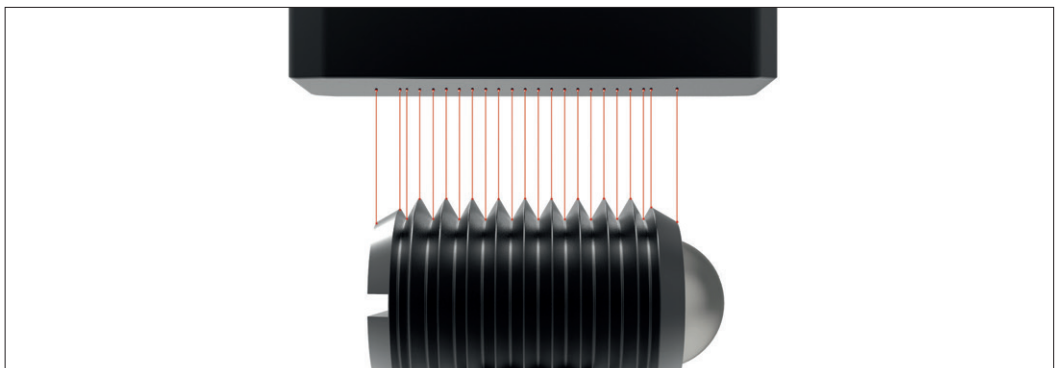
Accuracy of f_1 and f_2 Spring Forces

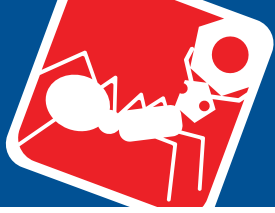


Accuracy of Ball Diameter



Accuracy of Thread





Wixroyd Spring Plungers

metric thread

31000 - 32420
Positioning Elements

Thread Details

All Wixroyd metric spring plungers have a coarse thread.

Spring Loads

Typical Spring Repetitions

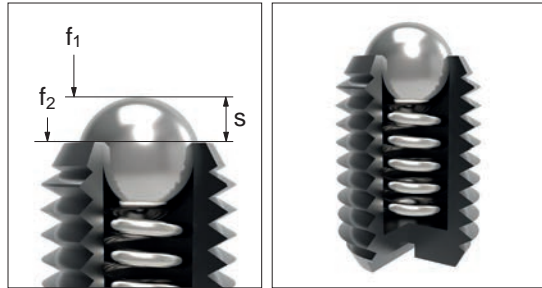
Calculating Indexing Resistance

Electrical Conductivity

Specials to Your Own Design

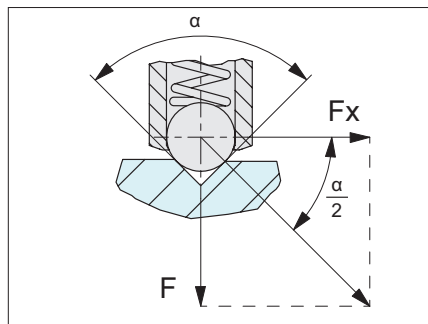
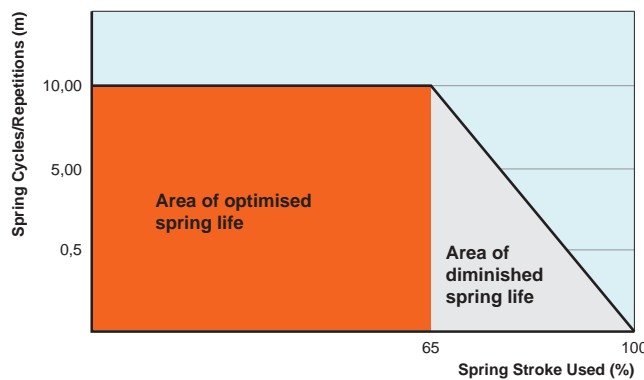
	ISO metric coarse threads (mm)															
Thread (D)	3	3,5	4	4,5	5	6	7	8	10	12	14	16	18	20	22	24
Pitch	0,5	0,6	0,7	0,75	0,8	1,0	1,0	1,25	1,5	1,75	2,00	2,0	2,5	2,5	2,5	3,0

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



Although dependent upon a number of application specific factors, we are able to give the following guide relating to the maximum number of spring repetitions or cycles of our spring plungers.

- 100% or full stroke "s" used: approx. 300,000 cycles.
- 65% of stroke "s" used: approx 10,000,000 cycles.



We are able to provide the following formula as an approximation of the pull or push force (N) required to 'release' a ball plunger from its indexing counterpart.

$$F_x = \frac{F}{\tan \frac{\alpha}{2}}$$

F_x = pull or push force (N)
 F = plungers spring force (see relevant product table)
 α = angle of the indexing counterpart face

For example:

For Spring plunger 31500.W0010;
 $F = 24\text{N}$ (see product table)

If $\alpha = 90^\circ$

$$F_x = \frac{24}{\tan \frac{90}{2}} = 24\text{N}$$

If $\alpha = 60^\circ$

$$F_x = \frac{24}{\tan \frac{60}{2}} = 41,5\text{N}$$

If $\alpha = 120^\circ$

$$F_x = \frac{24}{\tan \frac{120}{2}} = 13,8\text{N}$$

Important Note: This is only an approximation formula. For more accurate calculation the roughness of the counterpart surface as well as any variation in the plungers spring force (due to age or high repetitions) should be considered.

We are often asked the electrical conductivity of our spring plungers, unfortunately we are unable to provide any reliable information related to this as there are many factors in an application. We recommend you study the specific material properties of the spring plunger's component parts to make your own calculations, alternatively if in doubt make a test application.

Manufacturing exactly to your specific requirements is also our strength. If you need a variation in spring pressure, plunger body or pin design we can assist with a special design item for volumes as low as 1,000 units.

For further information, or to request a quotation, please call our sales office on 0333 207 4497.