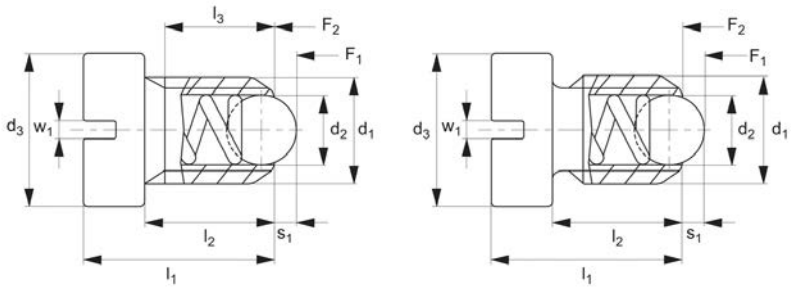
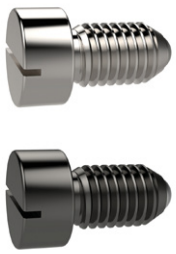


size M4 and M5

size M6 to M12



31400

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Ball: ball bearing steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Ball: stainless steel 1.3505 (100Cr6), hardened.
Spring: stainless steel.
For calculation of indexing resistance please refer to appendix - Technical Data.

Technical Notes

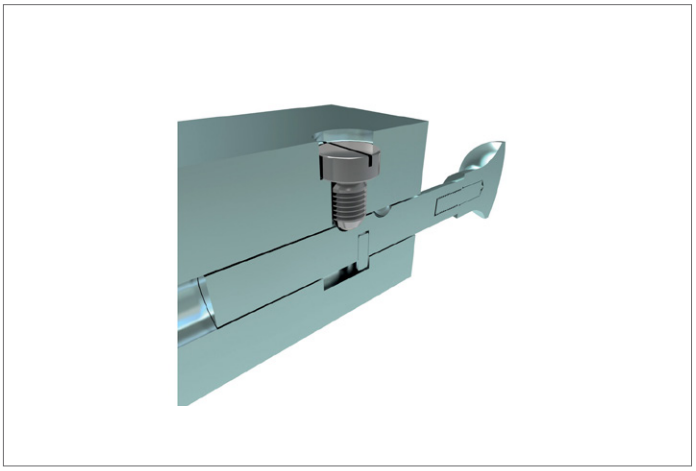
Max. temperature 250°C. Spring loads = statistical average.
For M4 and M5 threads dimension l_3 is max. screw in depth, i.e. there is no undercut.
For calculation of indexing resistance please refer to spring plunger technical pages.

Important Notes

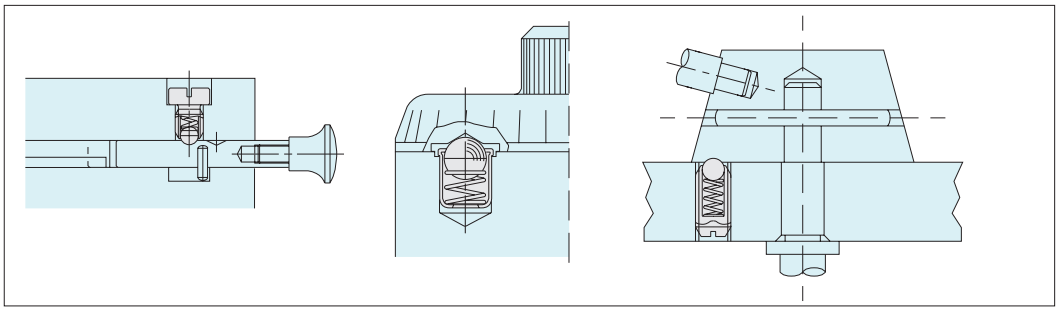
All metric Wixroyd spring plungers have a coarse thread, see appendix five for thread details.

Order No.	Material	d_1	d_2	d_3	l_1	l_2	l_3	Spring load F_1 N ≈	Spring load F_2 N ≈	Stroke s_1	w_1	Weight g
31400.W0940	Stainless	M 4	2.5	6	9.5	6.5	5.0	8	14	0.8	0.6	1.2
31400.W0941	Stainless	M 5	3.0	8	12.5	8.5	6.7	8	14	0.9	0.8	2.4
31400.W0942	Stainless	M 6	3.5	10	14.0	9.0	-	11	18	1.0	1.0	3.9
31400.W0943	Stainless	M 8	4.5	13	16.5	11.0	-	18	31	1.5	1.2	7.9
31400.W0944	Stainless	M10	6.0	16	20.0	14.0	-	24	45	2.0	1.5	14.0
31400.W0945	Stainless	M12	8.0	18	22.0	15.0	-	26	49	2.5	2.0	20.0
31400.W0930	Steel	M 4	2.5	6	9.5	6.5	5.0	8	14	0.8	0.6	1.2
31400.W0931	Steel	M 5	3.0	8	12.5	8.5	6.7	8	14	0.9	0.8	2.4
31400.W0932	Steel	M 6	3.5	10	14.0	9.0	-	11	18	1.0	1.0	3.9
31400.W0933	Steel	M 8	4.5	13	16.5	11.0	-	18	31	1.5	1.2	7.9
31400.W0934	Steel	M10	6.0	16	20.0	14.0	-	24	45	2.0	1.5	14.0
31400.W0935	Steel	M12	8.0	18	22.0	15.0	-	26	49	2.5	2.0	20.0

Spring Plungers
with ball & slot - headed



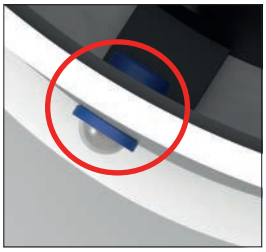
Wixroyd Spring Plungers - A Range of Endless Possibilities



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!

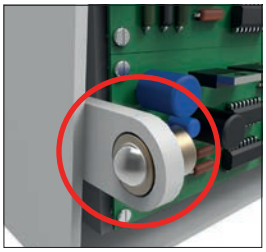
Commercial Lighting

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.



Medical Applications

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.



Applications

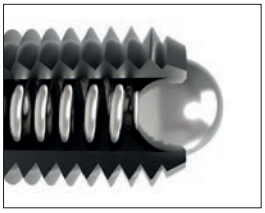
Uses

- 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.

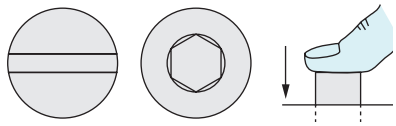
Wixroyd Spring Plungers - Uses and Mounting Options

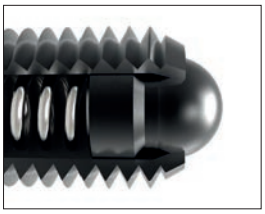


- 31400
- 31420
- 31500
- 32000
- 32100
- 32102
- 32280
- 32300
- 32302
- 32350

Ball Type

Mounting Options

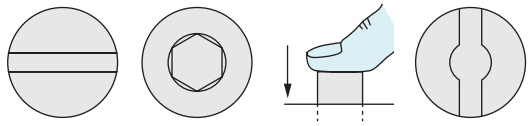




- 31000
- 31600
- 32150
- 32200
- 32220
- 32282
- 32400
- 32420

Pin Head Type

Mounting Options



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Quality products every time

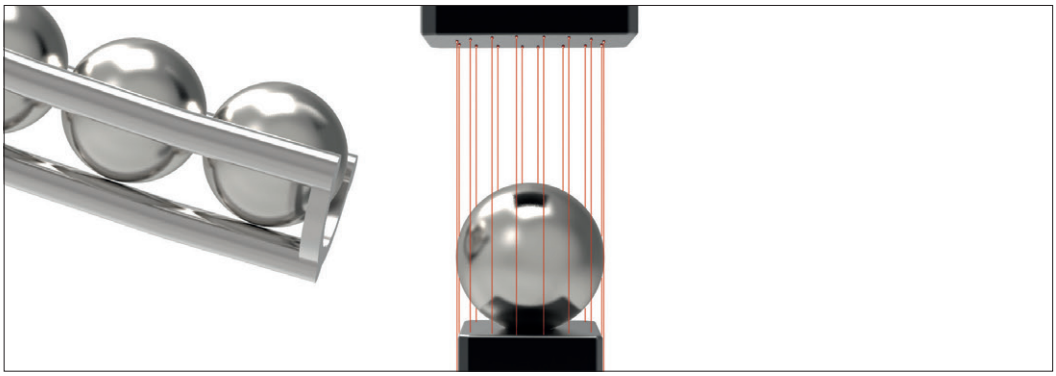
100% Testing

- 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.

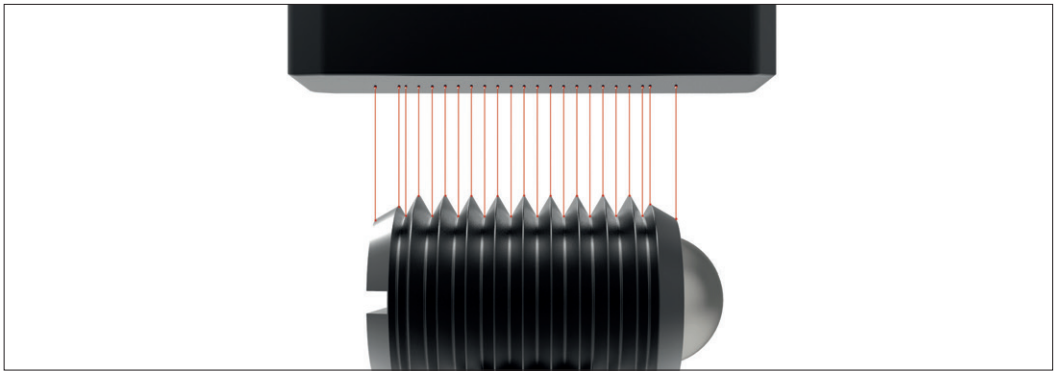
Accuracy of 'S' Stroke/ Spring Range

Accuracy of f_1 and f_2 Spring Forces

Accuracy of Ball Diameter



Accuracy of Thread



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Thread Details

All Wixroyd metric spring plungers have a coarse thread.

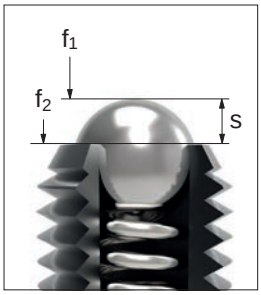
ISO metric coarse threads (mm)																
Thread (D)	3	3,5	4	4,5	5	6	7	8	10	12	14	16	18	20	22	24
Pitch	0,5	0,6	0,7	0,75	0,8	1,0	1,0	1,25	1,5	1,75	2,00	2,0	2,5	2,5	2,5	3,0

Spring Loads

s Stroke, or movement of plunger's ball or 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 ball or pin.

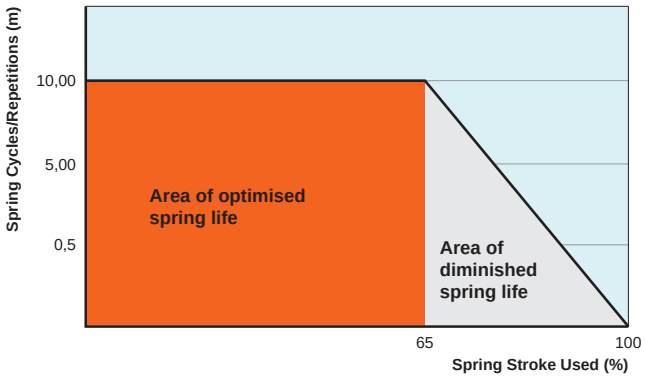
f_2 The force required in Newtons (N) to fully compress the spring until the ball or pin is fully depressed against the plunger's body.



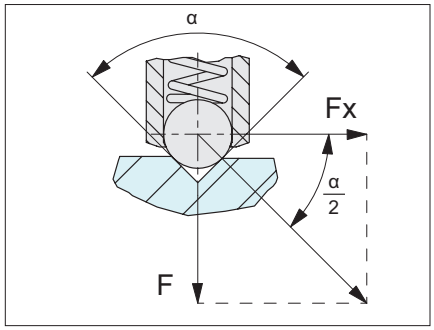
Typical Spring Repetitions

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.



Calculating Indexing Resistance



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.

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

Fx = pull or push force (N)

F = plungers spring force (see relevant product table)

α = angle of the indexing counter part face

For example:

For Spring plunger 31500.W0010;

F = 24N (see product table)

If α = 90°

$$Fx = \frac{24}{\tan\frac{90}{2}} = 24N$$

If α = 60°

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

If α = 120°

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

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.

Electrical Conductivity

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.

Specials to Your Own Design

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.