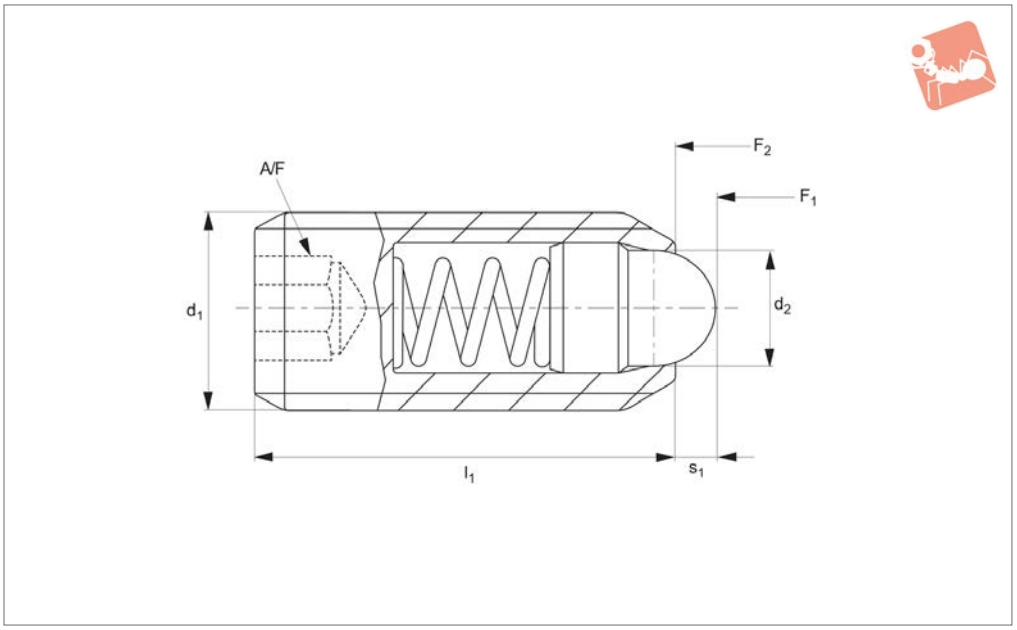


31600

Material

Free cutting steel type-
Body: free cutting steel, blackened.
Pin: free cutting steel, hardened, blackened.
Spring: stainless steel.
Stainless steel type-
Body: stainless steel 1.4305 (AISI 303).
Pin: stainless steel 1.4305 (AISI 303).
Spring: stainless steel.

Technical Notes

These spring plungers may be used for locating, for applying pressure or lifting off.
Temperature range max. 250° C. Spring load * = statistical average value.

Tips

Spring load identifier:
Normal spring load - no marking.
Increased spring load - body marked with two lines.
Special types available on request.

Important Notes

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

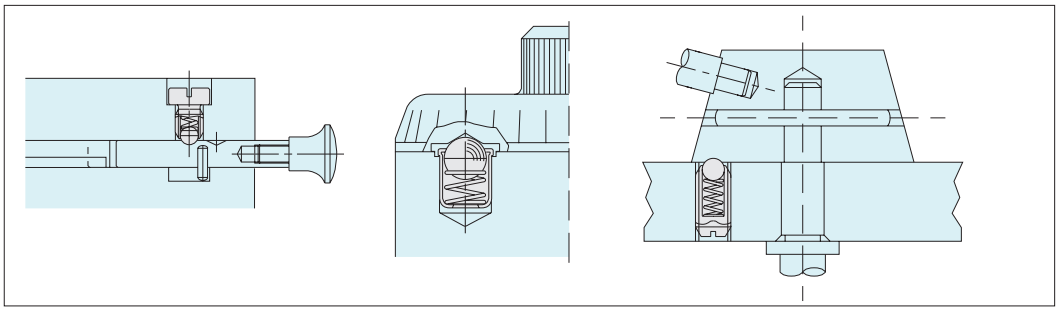
Order No.	Material	Spring load	d_1	d_2	l_1	Spring load F_1 N ≈	Spring load F_2 N ≈	Stroke s_1	A/F	Weight g
31600.W0104	Steel	Normal	M 4	1.8	12	4.5	12.5	1.5	2.0	0.6
31600.W0105	Steel	Normal	M 5	2.4	14	5.0	13.0	2.0	2.5	1.3
31600.W0106	Steel	Normal	M 6	2.7	15	6.0	17.0	2.0	3.0	1.9
31600.W0108	Steel	Normal	M 8	3.8	18	16.0	33.0	2.0	4.0	4.2
31600.W0110	Steel	Normal	M10	4.5	23	19.0	42.0	2.5	5.0	8.5
31600.W0112	Steel	Normal	M12	6.2	26	22.0	57.0	3.5	6.0	13.0
31600.W0116	Steel	Normal	M16	8.5	33	38.0	78.0	4.5	8.0	32.0
31600.W0120	Steel	Normal	M20	10.0	43	39.0	81.0	6.5	10.0	67.0
31600.W0124	Steel	Normal	M24	13.0	48	72.0	155.0	8.0	12.0	106.0
31600.W0146	Steel	Increased	M 6	2.7	15	11.0	25.0	2.0	3.0	2.0
31600.W0148	Steel	Increased	M 8	3.8	18	23.0	59.0	2.0	4.0	4.2
31600.W0150	Steel	Increased	M10	4.5	23	20.0	54.0	2.5	5.0	8.5
31600.W0152	Steel	Increased	M12	6.2	26	38.0	96.0	3.5	6.0	13.0
31600.W0156	Steel	Increased	M16	8.5	33	50.0	100.0	4.5	8.0	32.0
31600.W0160	Steel	Increased	M20	10.0	43	52.0	133.0	6.5	10.0	67.0
31600.W0164	Steel	Increased	M24	13.0	48	91.0	223.0	8.0	12.0	106.0
31600.W0304	Stainless	Normal	M 4	1.8	12	4.5	12.5	1.5	2.0	0.6
31600.W0305	Stainless	Normal	M 5	2.4	14	5.0	13.0	2.0	2.5	1.3
31600.W0306	Stainless	Normal	M 6	2.7	15	6.0	17.0	2.0	3.0	1.9
31600.W0308	Stainless	Normal	M 8	3.8	18	16.0	33.0	2.0	4.0	4.2
31600.W0310	Stainless	Normal	M10	4.5	23	19.0	42.0	2.5	5.0	8.5
31600.W0312	Stainless	Normal	M12	6.2	26	22.0	57.0	3.5	6.0	13.0
31600.W0316	Stainless	Normal	M16	8.5	33	38.0	78.0	4.5	8.0	32.0
31600.W0320	Stainless	Normal	M20	10.0	43	39.0	81.0	6.5	10.0	67.0
31600.W0324	Stainless	Normal	M24	13.0	48	72.0	155.0	8.0	12.0	106.0
31600.W0346	Stainless	Increased	M 6	2.7	15	11.0	25.0	2.0	3.0	2.0

Spring Plungers

with round-ended pin & hex. socket

Order No.	Material	Spring load	d_1	d_2	l_1	Spring load F_1 N ≈	Spring load F_2 N ≈	Stroke s_1	A/F	Weight g
31600.W0348	Stainless	Increased	M 8	3.8	18	23.0	59.0	2.0	4.0	4.2
31600.W0350	Stainless	Increased	M10	4.5	23	20.0	54.0	2.5	5.0	8.5
31600.W0352	Stainless	Increased	M12	6.2	26	38.0	96.0	3.5	6.0	13.0
31600.W0356	Stainless	Increased	M16	8.5	33	50.0	100.0	4.5	8.0	32.0
31600.W0360	Stainless	Increased	M20	10.0	43	52.0	133.0	6.5	10.0	67.0
31600.W0364	Stainless	Increased	M24	13.0	48	91.0	223.0	8.0	12.0	106.0

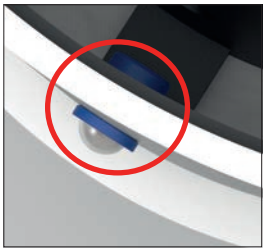
Wixroyd Spring Plungers - A Range of Endless Possibilities



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!

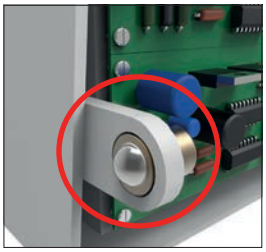
Commercial Lighting

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

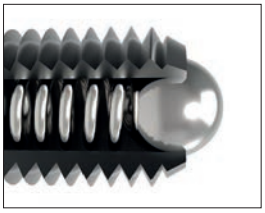
Uses

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

Industry Sectors

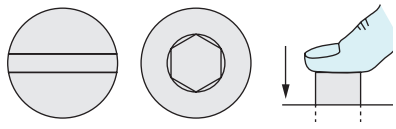
- Machine and fixture design.
- Measuring equipment.
- Electronic components.
- Lighting equipment.
- Lighting equipment.
- Medical, optics and orthopaedics.

Wixroyd Spring Plungers - Uses and Mounting Options

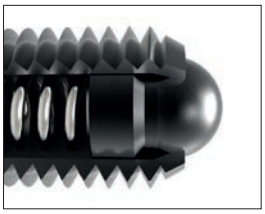


- 31400
- 31420
- 31500
- 32000
- 32100
- 32102
- 32280
- 32300
- 32302
- 32350

Mounting Options

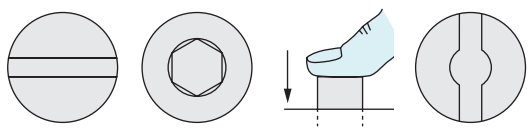


Ball Type



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

Mounting Options



Pin Head Type

Quality products every time

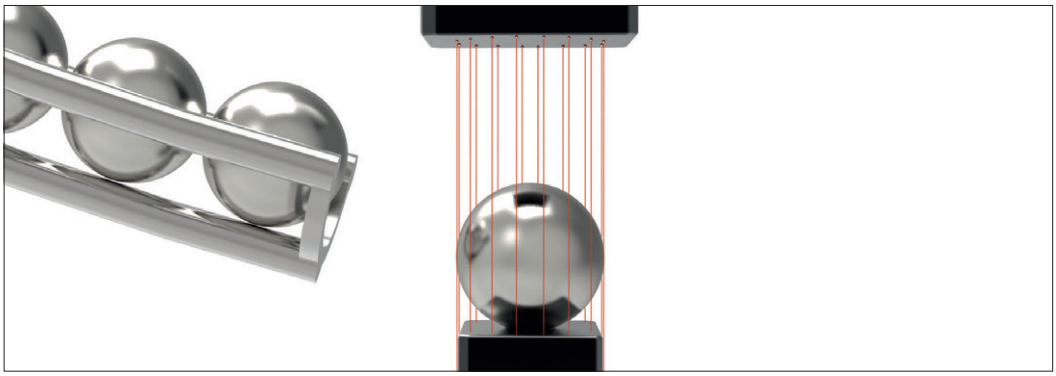
100% Testing

- 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.

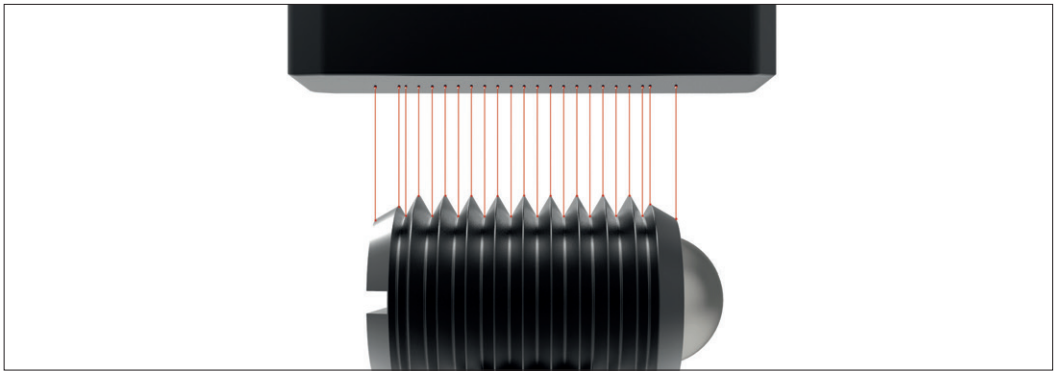
Accuracy of 'S' Stroke/ Spring Range

Accuracy of f_1 and f_2 Spring Forces

Accuracy of Ball Diameter



Accuracy of Thread



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Thread Details

All Wixroyd metric spring plungers have a coarse thread.

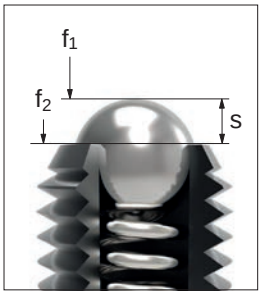
ISO metric coarse threads (mm)																
Thread (D)	3	3,5	4	4,5	5	6	7	8	10	12	14	16	18	20	22	24
Pitch	0,5	0,6	0,7	0,75	0,8	1,0	1,0	1,25	1,5	1,75	2,00	2,0	2,5	2,5	2,5	3,0

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.

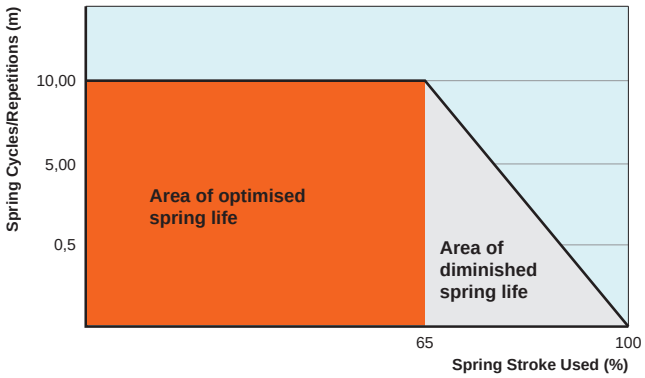
f_2 The force required in Newtons (N) to fully compress the spring until the ball or pin is fully depressed against the plunger's body.



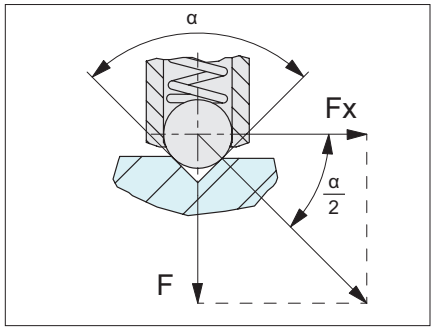
Typical Spring Repetitions

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.