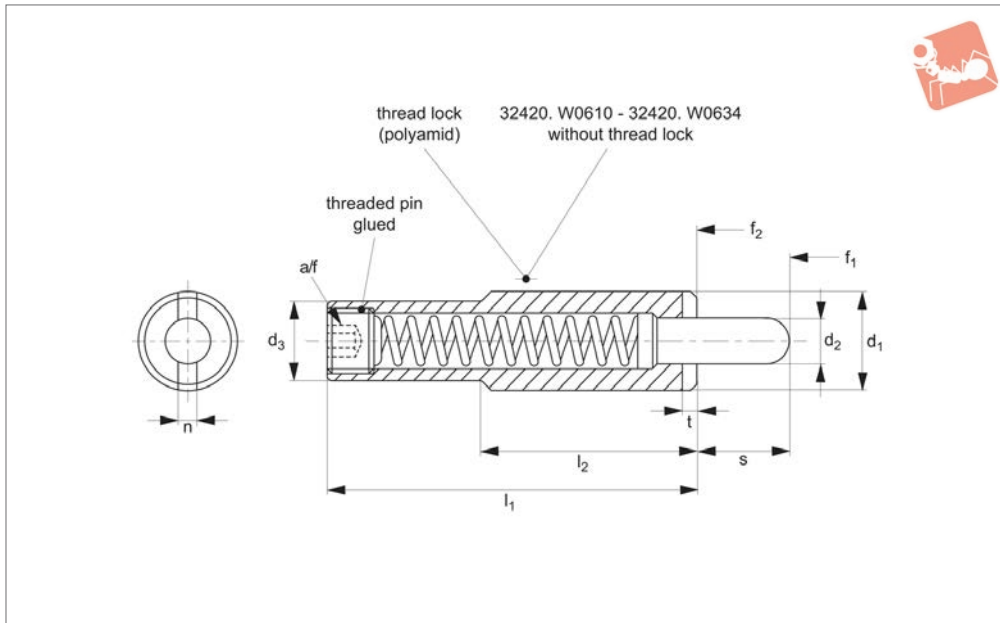




# Spring Plungers

## Long version

# Spring Plunger & Detent Pins



## 32420

SPRING PLUNGER & DETENT PINS

### Material

Body: free cutting steel, blackened or heat-treated steel tempered blackened.  
 Part nos. 32420.W0512 to 32420.W0580 - threaded body bright finish.  
 Pin: case hardened steel, blackened.  
 Spring: stainless steel.

### Technical Notes

Used for ejecting parts (particularly in

press tools), and applying pressure. They are fitted/removed by means of the slot or internal hexagon.  
 Spring load\* = statistical average value.

### Tips

#### Spring Load Identifier:

Normal spring load - no marking.  
 Increased spring load - body marked with two lines.

Parts 32420.W0408 to 32420.W0580 with thread-lock.

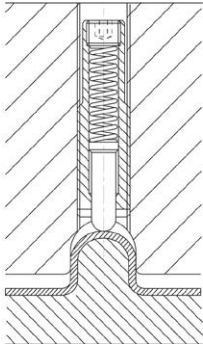
### Important Notes

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

Order No.	Spring load	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	n	s	Spring load F <sub>1</sub> N ≈	Spring load F <sub>2</sub> N ≈	t	A/F	Weight g
32420.W0408	Normal	M10	4.0	7.8	35	25	1.5	8	6	16	1.4	3	13
32420.W0412	Normal	M12	5.5	9.5	43	35	2.7	10	4	18	2.0	4	22
32420.W0430	Normal	M16	8.0	13.4	48	35	3.2	10	7	24	3.0	6	47
32420.W0432	Normal	M16	8.0	13.4	58	35	3.2	10	15	42	3.0	6	52
32420.W0436	Normal	M16	8.0	13.4	58	35	3.2	15	9	33	3.0	6	54
32420.W0440	Normal	M16	8.0	13.4	58	35	3.2	20	4	23	3.0	6	55
32420.W0442	Normal	M16	8.0	13.4	83	35	3.2	20	11	43	3.0	6	71
32420.W0444	Normal	M16	8.0	13.4	98	35	3.2	25	13	41	3.0	6	81
32420.W0450	Normal	M16	8.0	13.4	98	35	3.2	30	13	47	3.0	6	83
32420.W0452	Normal	M16	8.0	13.4	118	35	3.2	30	24	110	3.0	6	97
32420.W0455	Normal	M16	8.0	13.4	148	35	3.2	40	13	63	3.0	6	117
32420.W0460	Normal	M16	8.0	13.4	148	35	3.2	50	7	43	3.0	6	117
32420.W0480	Normal	M24	10.0	19.6	60	45	3.7	15	14	87	3.0	8	132
32420.W0512	Increased	M12	5.5	9.5	43	35	2.7	10	7	46	2.0	4	23
32420.W0530	Increased	M16	8.0	13.4	48	35	3.2	10	10	43	3.0	6	47
32420.W0532	Increased	M16	8.0	13.4	58	35	3.2	10	14	84	3.0	6	54
32420.W0536	Increased	M16	8.0	13.4	58	35	3.2	15	10	57	3.0	6	55
32420.W0542	Increased	M16	8.0	13.4	83	35	3.2	20	18	72	3.0	6	72
32420.W0544	Increased	M16	8.0	13.4	98	35	3.2	25	20	70	3.0	6	82
32420.W0550	Increased	M16	8.0	13.4	98	35	3.2	30	20	80	3.0	6	83
32420.W0555	Increased	M16	8.0	13.4	148	35	3.2	40	21	113	3.0	6	121
32420.W0560	Increased	M16	8.0	13.4	148	35	3.2	50	13	75	3.0	6	121
32420.W0580	Increased	M24	10.0	19.6	60	45	3.7	15	24	192	3.0	8	134
32420.W0610	Normal, Heat-Treated	M16	7.3	13.4	80	35	3.2	11	17	74	3.0	8	69
32420.W0612	Normal, Heat-Treated	M16	7.3	13.4	120	35	3.2	21	21	81	3.0	8	96
32420.W0614	Normal, Heat-Treated	M16	7.3	13.4	150	35	3.2	31	21	89	3.0	8	117
32420.W0616	Normal, Heat-Treated	M16	7.3	13.4	200	35	3.2	41	16	80	3.0	8	149

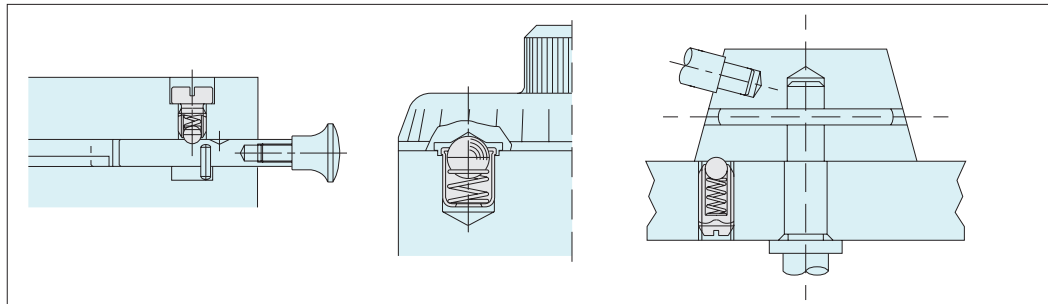


Order No.	Spring load	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	n	s	Spring load F <sub>1</sub> N ≈	Spring load F <sub>2</sub> N ≈	t	A/F	Weight g
<b>32420.W0630</b>	Normal, Heat-Treated	M22	9.0	19.0	130	50	3.5	21	80	214	4.0	8	211
<b>32420.W0632</b>	Normal, Heat-Treated	M22	9.0	19.0	168	50	3.5	31	70	210	4.0	8	278
<b>32420.W0634</b>	Normal, Heat-Treated	M22	9.0	19.0	226	50	3.5	41	76	208	4.0	8	358
<b>32420.W0830</b>	Screwdriver	for M10	-	-	-	-	-	-	-	-	-	-	87
<b>32420.W0832</b>	Screwdriver	for M12	-	-	-	-	-	-	-	-	-	-	88
<b>32420.W0834</b>	Screwdriver	for M16	-	-	-	-	-	-	-	-	-	-	110
<b>32420.W0836</b>	Screwdriver	for M22	-	-	-	-	-	-	-	-	-	-	245
<b>32420.W0838</b>	Screwdriver	for M24	-	-	-	-	-	-	-	-	-	-	258



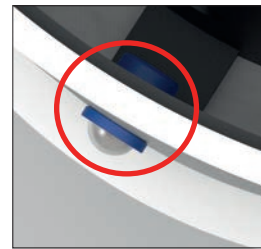


## Wixroyd Spring Plungers - A Range of Endless Possibilities



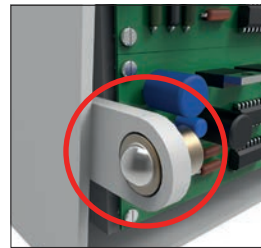
Made of high quality steel and stainless steel, Wixroyd's Spring Plunger range is proven to be reliable for millions of repetitions in securing, positioning, positive locking, indexing and quick release. Their application is limited only by the imagination!

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

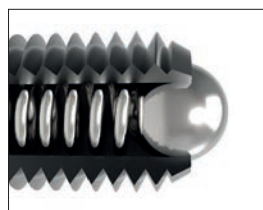
- For location, applying pressure and "lifting off".
- Securing and positioning.
- Positive locking and indexing.
- Quick release.

#### Industry Sectors

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

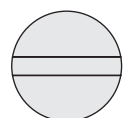
#### Applications

## Wixroyd Spring Plungers - Uses and Mounting Options

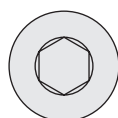


- 31400
- 31420
- 31500
- 32000
- 32100
- 32102
- 32280
- 32300
- 32302
- 32350

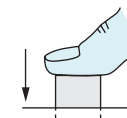
#### Mounting Options



Rear slot

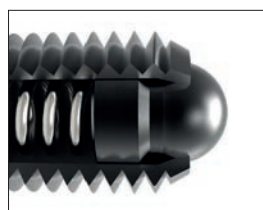


Rear hexagon



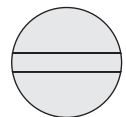
Push fit

#### Ball Type

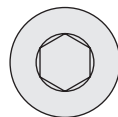


- 31000
- 31600
- 32150
- 32200
- 32220
- 32282
- 32400
- 32420

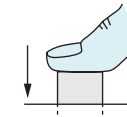
#### Mounting Options



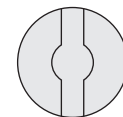
Rear slot



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.

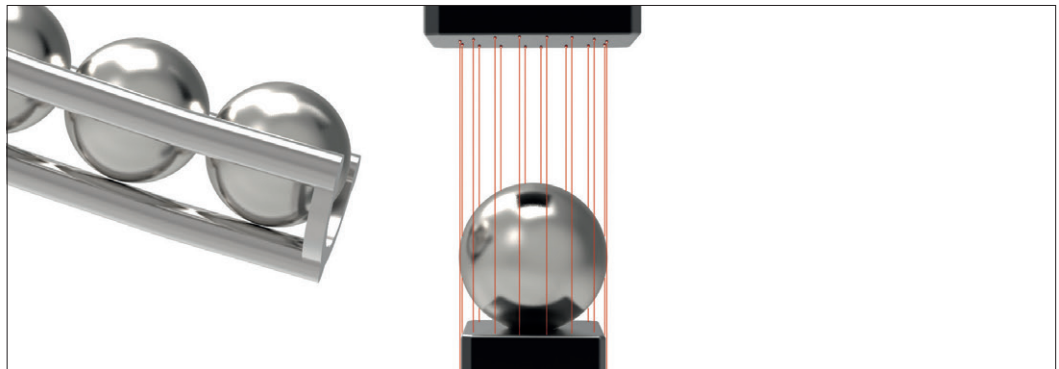
### Accuracy of 'S' Stroke/ Spring Range



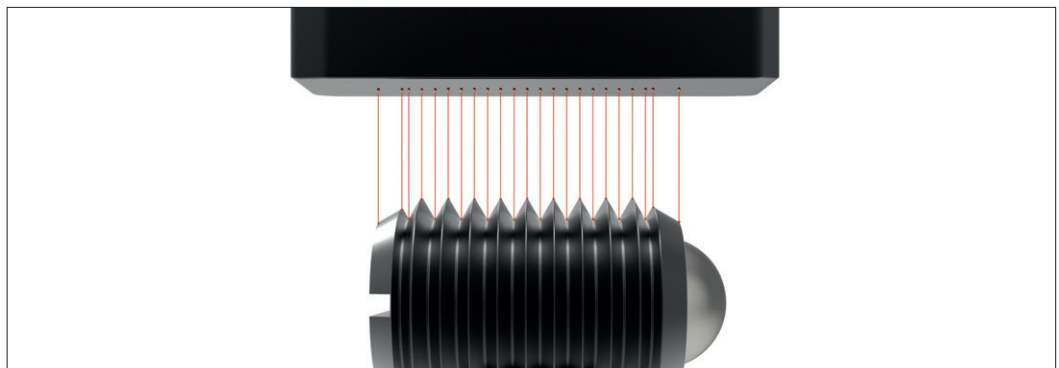
### Accuracy of $f_1$ and $f_2$ Spring Forces



### 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

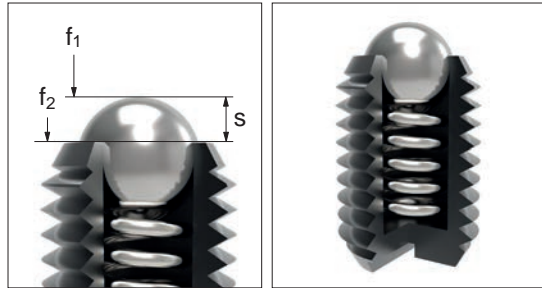
## Calculating Indexing Resistance

## Electrical Conductivity

## Specials to Your Own Design

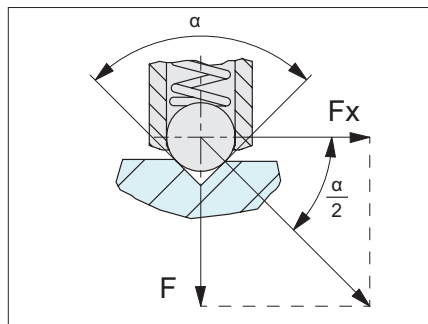
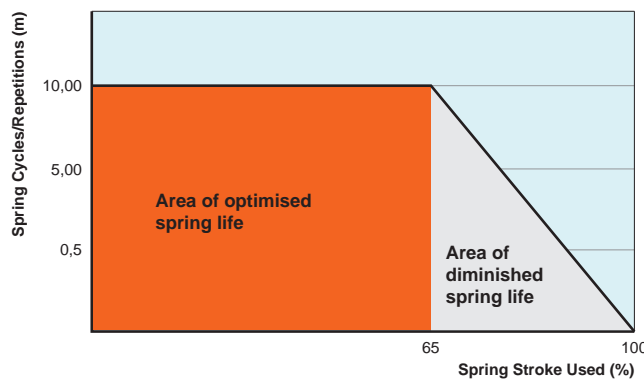
	ISO metric coarse threads (mm)															
Thread (D)	3	3,5	4	4,5	5	6	7	8	10	12	14	16	18	20	22	24
Pitch	0,5	0,6	0,7	0,75	0,8	1,0	1,0	1,25	1,5	1,75	2,00	2,0	2,5	2,5	2,5	3,0

- s** Stroke, or movement of plunger's ball or pin.
- f<sub>1</sub>** 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.
- f<sub>2</sub>** 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)  
 $\alpha$  = 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.