

Spring Plungers • smooth, with collar and ball

EH 22080.



PRODUCT DESCRIPTION

Spring plungers can be used for locating or for applying pressure, as a detent or for ejection.

Material

Body

- Stainless steel 1.4303
- Brass
- Thermoplastic POM, blue

Ball

- Stainless steel, hardened
- Thermoplastic POM, white

Spring

- Stainless steel

Assembly

A tolerance of H7 is recommended for the locating hole of d_1 .

Characteristic

Light spring load: marked with one line

Standard spring load: no marking

Reinforced spring load: marked with two lines

MORE INFORMATION

Notes

Special types on request.

Spring plungers are specially tested for spring range and forces.

References

Calculation of indexing resistance, please refer to appendix - Technical Data - Version with higher spring forces see "EH 22080. Spring Plungers, smooth, long, with collar and ball".

Further products

Spring Plungers, with collar and ball, front slot. → p. 77
 Spring Plungers, smooth, long, with collar and ball → p. 81
 Spring Plungers, smooth, with collar and ball, self-clamping. → p. 82
 Holders, for spring plungers → p. 86



Light spring load

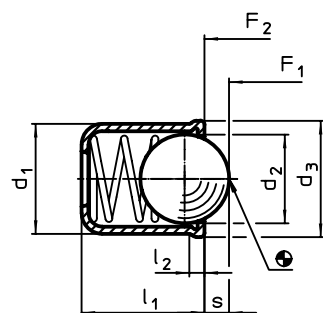


Standard spring load

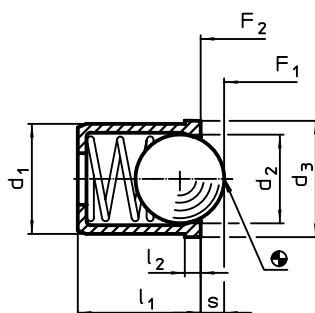


Heavy spring load

DRAWING



picture 1



picture 2

ORDER INFORMATION

Dimensions					Stroke s	Spring load ¹⁾		 min. max. [°C]	Location hole H7	 [g]	Art. No.	
d ₁ +0.1	d ₂	d ₃	l ₁	l ₂ ~		F ₁ ~	F ₂ ~					
[mm]					[mm]	[N]			[mm]			
body and ball from stainless steel, light spring load – picture 1												
3	2.38	3.5	4.0	0.6	0.70	0.4	1.3	–	250	3	0.1	22080.1003
4	3.00	4.6	5.0	0.9	1.00	0.4	1.0	–	250	4	0.3	22080.1004
5	4.00	5.6	6.0	0.9	1.40	0.5	4.7	–	250	5	0.6	22080.1005
6	5.00	6.5	7.0	1.0	1.80	2.3	6.5	–	250	6	1.0	22080.1006
8	6.50	8.5	9.0	1.1	2.40	4.0	9.0	–	250	8	2.0	22080.1008
10	8.50	11.0	13.0	1.5	3.30	3.9	10.0	–	250	10	4.0	22080.1010
12	10.00	13.0	16.0	2.3	4.00	6.2	14.6	–	250	12	7.0	22080.1012

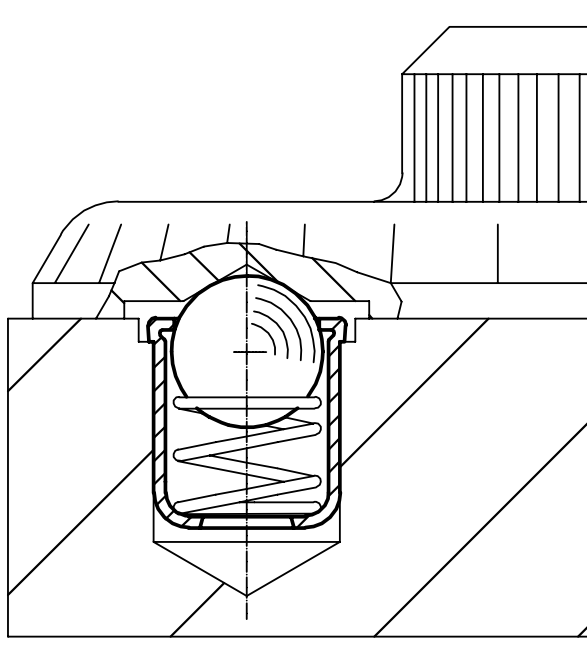
¹⁾ statistical average value



Dimensions					Stroke s	Spring load ¹⁾		 min. max.		Location hole H7		Art. No.
d ₁ +0.1	d ₂	d ₃	l ₁	l ₂ ~		F ₁ ~	F ₂ ~	[°C]		[mm]	[g]	
[mm]					[mm]	[N]						
body and ball from stainless steel, standard spring load – picture 1												
3	2.38	3.5	4.0	0.6	0.70	1.8	3.5	–	250	3	0.1	22080.0003
4	3.00	4.6	5.0	0.9	1.00	2.5	6.0	–	250	4	0.3	22080.0004
5	4.00	5.6	6.0	0.9	1.40	3.0	6.5	–	250	5	0.6	22080.0005
6	5.00	6.5	7.0	1.0	1.80	5.5	11.5	–	250	6	1.0	22080.0006
8	6.50	8.5	9.0	1.1	2.40	7.0	12.5	–	250	8	2.1	22080.0008
10	8.50	11.0	13.0	1.5	3.30	8.5	18.5	–	250	10	4.5	22080.0010
12	10.00	13.0	16.0	2.3	4.00	12.0	26.5	–	250	12	7.2	22080.0012
body and ball from stainless steel, heavy spring load – picture 1												
3	2.38	3.5	4.0	0.6	0.70	2.4	5.5	–	250	3	0.1	22080.2003
4	3.00	4.6	5.0	0.9	1.00	5.0	10.4	–	250	4	0.3	22080.2004
5	4.00	5.6	6.0	0.9	1.40	6.0	12.0	–	250	5	0.6	22080.2005
6	5.00	6.5	7.0	1.0	1.80	7.3	19.0	–	250	6	1.0	22080.2006
8	6.50	8.5	9.0	1.1	2.40	11.0	25.0	–	250	8	2.2	22080.2008
10	8.50	11.0	13.0	1.5	3.30	17.0	37.0	–	250	10	4.6	22080.2010
12	10.00	13.0	16.0	2.3	4.00	28.0	57.0	–	250	12	7.4	22080.2012
body from brass, ball from stainless steel, standard spring load – picture 2												
3	2.38	3.6	4.0	0.6	0.60	1.8	3.5	–	250	3	0.2	22080.0203
4	3.00	4.5	5.0	1.0	0.80	3.0	6.0	–	250	4	0.4	22080.0204
5	4.00	5.5	6.0	1.0	1.00	4.0	6.5	–	250	5	0.7	22080.0205
6	5.00	6.5	7.0	1.0	1.60	6.0	11.5	–	250	6	1.2	22080.0206
8	6.50	8.5	9.0	1.0	1.90	8.0	12.5	–	250	8	2.8	22080.0208
body from thermoplastic, ball from stainless steel, standard spring load – picture 2												
3	2.00	3.6	4.0	0.6	0.55	1.7	3.5	-30	50	3	0.1	22080.0403
4	3.00	4.6	5.0	1.0	0.80	3.0	6.5	-30	50	4	0.2	22080.0404
5	4.00	5.6	6.0	1.0	1.00	6.0	9.4	-30	50	5	0.4	22080.0405
6	5.00	6.5	7.0	1.0	1.60	6.2	12.6	-30	50	6	0.7	22080.0406
8	6.50	8.5	9.0	1.0	1.90	10.0	20.4	-30	50	8	1.5	22080.0408
10	8.00	11.0	13.5	1.5	2.40	11.9	22.3	-30	50	10	3.1	22080.0410
12	10.00	13.0	16.0	1.5	3.30	14.0	25.0	-30	50	12	5.7	22080.0412
body and ball from thermoplastic, standard spring load – picture 2												
4	3.00	4.6	5.0	1.0	0.80	3.0	6.5	-30	50	4	0.1	22080.0604
5	4.00	5.6	6.0	1.0	1.00	6.0	9.4	-30	50	5	0.2	22080.0605
6	5.00	6.5	7.0	1.0	1.60	6.2	12.6	-30	50	6	0.3	22080.0606
8	6.50	8.5	9.0	1.0	1.90	10.0	20.4	-30	50	8	0.6	22080.0608
10	8.00	11.0	13.5	1.5	2.40	11.9	22.3	-30	50	10	1.4	22080.0610
12	10.00	13.0	16.0	1.5	3.30	14.0	25.0	-30	50	12	2.4	22080.0612

¹⁾ statistical average value

APPLICATION EXAMPLE



Spring Plungers • smooth, long, with collar and ball

EH 22080.



PRODUCT DESCRIPTION

Spring plungers can be used for locating or for applying pressure, as a detent or for ejection. This version has higher spring forces than the standard version. "EH 22080. Spring Plungers, smooth, with collar and ball".

Material

Body

- Stainless steel 1.4303

Ball

- Stainless steel, hardened

Spring

- Stainless steel

Spring plungers are specially tested for spring range and forces.

References

Calculation of indexing resistance, please refer to appendix - Technical Data -

Further products

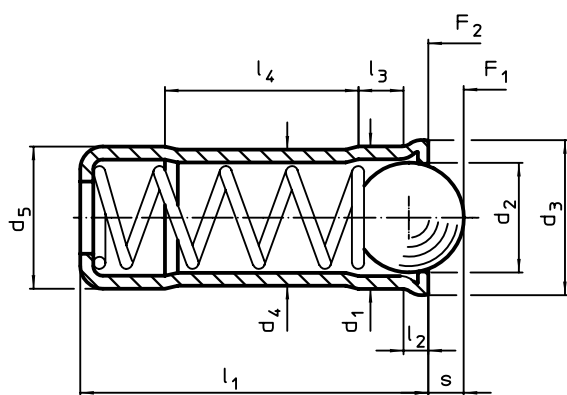
Spring Plungers, smooth, with collar and ball → p. 79

MORE INFORMATION

Notes

Special types on request.

DRAWING

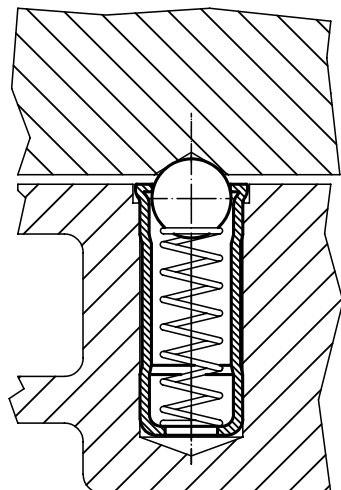


ORDER INFORMATION

Dimensions									Stroke s +0.2 -0.1	Spring load ¹⁾		max.	Location hole H7		Art. No.
d ₁ +0.1 +0.04	d ₂	d ₃	d ₄	d ₅ ±0.04	l ₁	l ₂ ~	l ₃ ~	l ₄ ~	[mm]	F ₁ ~	F ₂ ~	[°C]	[mm]	[g]	
4	3.0	4.6	3.85	4	10.7	0.9	1.8	5.6	0.9	12.9	19.0	250	4	0.6	22080.1104
5	4.0	5.6	4.85	5	12.0	0.9	2.1	6.0	1.3	19.3	29.2	250	5	1.0	22080.1105
6	5.0	6.5	5.85	6	15.0	1.0	2.3	8.2	1.7	28.0	47.5	250	6	1.7	22080.1106
8	6.5	8.5	7.55	8	18.0	1.1	2.9	9.5	2.3	40.0	67.3	250	8	3.6	22080.1108
10	8.5	11.0	9.55	10	26.0	1.5	4.2	14.3	3.1	66.0	105.0	250	10	7.6	22080.1110

¹⁾ statistical average value

APPLICATION EXAMPLE



Spring Plungers • smooth, with collar and ball, self-clamping

EH 22080.

2



PRODUCT DESCRIPTION

Spring plungers can be used for locating or for applying pressure, as a detent or for ejection. Due to expanding fit of the body, the spring plungers can accommodate variation of up to 0,2 mm in the locating bore. A less precise locating hole means lower machining costs.

Material

Body

- Thermoplastic POM, black

Ball

- Stainless steel, hardened
- Thermoplastic POM, white

Spring

- Stainless steel

Assembly

Thanks to the flexible design of the body, a direct manual mounting and a secure overhead installation is possible.

MORE INFORMATION

Notes

Special types on request.

Spring plungers are specially tested for spring range and forces.

References

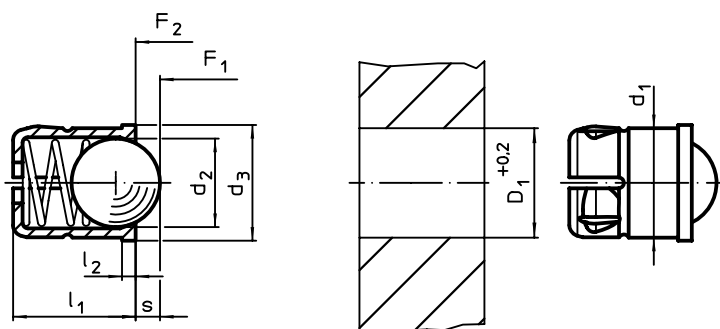
Calculation of indexing resistance, please refer to appendix - Technical Data -

Further products

Spring Plungers, smooth, with collar and ball → p. 79

Spring Plungers, smooth, with collar and ball, self-clamping – INCH → p. 99

DRAWING

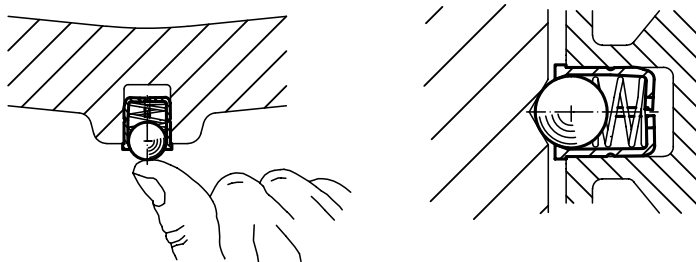


ORDER INFORMATION

Dimensions					Stroke s [mm]	Spring load ¹⁾		 min. max. [°C]	Location hole D ₁ +0.2 [mm]	 [g]	Art. No.	
d ₁ +0.1	d ₂	d ₃	l ₁ ±0.2	l ₂ ~		F ₁ ~	F ₂ ~					
[mm]						[N]						
thermoplastic body, stainless steel ball												
4	3.0	4.6	5.0	1.0	0.8	3.0	6.5	-30	50	4	0.2	22080.0704
5	4.0	5.6	6.0	1.0	1.0	6.0	9.4	-30	50	5	0.4	22080.0705
6	5.0	6.5	7.0	1.0	1.6	6.2	12.6	-30	50	6	0.7	22080.0706
8	6.5	8.5	9.0	1.0	1.9	10.0	20.4	-30	50	8	1.5	22080.0708
10	8.0	11.0	13.5	1.5	2.4	11.9	22.3	-30	50	10	3.1	22080.0710
body and ball from thermoplastic												
4	3.0	4.6	5.0	1.0	0.8	3.0	6.5	-30	50	4	0.1	22080.0804
5	4.0	5.6	6.0	1.0	1.0	6.0	9.4	-30	50	5	0.1	22080.0805
6	5.0	6.5	7.0	1.0	1.6	6.2	12.6	-30	50	6	0.2	22080.0806
8	6.5	8.5	9.0	1.0	1.9	10.0	20.4	-30	50	8	0.5	22080.0808
10	8.0	11.0	13.5	1.5	2.4	11.9	22.3	-30	50	10	1.4	22080.0810

¹⁾ statistical average value

APPLICATION EXAMPLE



Spring Plungers • smooth, with collar and pin

EH 22080.



PRODUCT DESCRIPTION

To be used for locating, tightening, as an assembly support, for applying pressure, as a detent, for ejection or as a shock absorber.

Material

Pin

- Stainless steel 1.4305
- Thermoplastic POM, white

Body

- Stainless steel 1.4303

Spring

- Stainless steel

Assembly

A tolerance of H7 is recommended for the locating hole of d_1 .

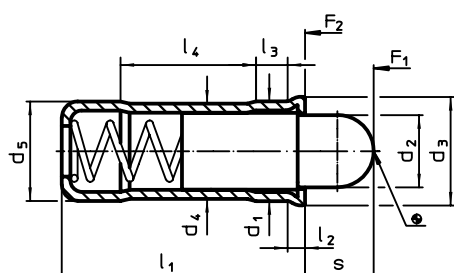
MORE INFORMATION

Notes

Special types on request.

Spring plungers are specially tested for spring range and forces.

DRAWING

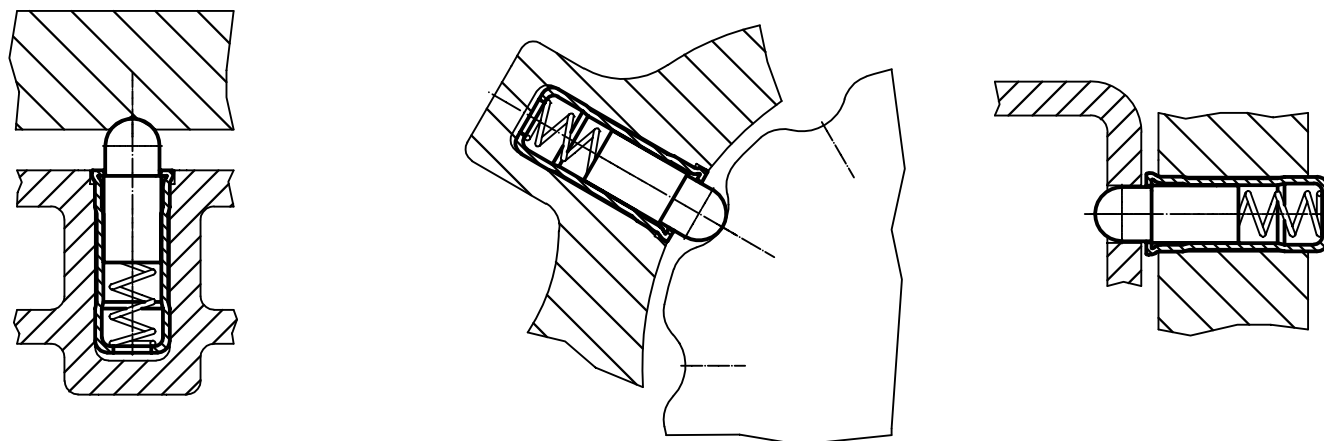


ORDER INFORMATION

Dimensions									Stroke s	Spring load ¹⁾				Location hole H7		Art. No.
d ₁ +0.1 +0.04	d ₂	d ₃	d ₄	d ₅ ±0.04	l ₁	l ₂ ~	l ₃ ~	l ₄ ~		F ₁ ~	F ₂ ~	min.	max.			
[mm]									[mm]	[N]		[°C]		[mm]	[g]	
body and pin from stainless steel																
4	2.8	4.6	3.85	4	10.7	0.9	1.8	5.6	2.7	3.0	8.2	–	250	4	0.7	22080.0104
5	3.8	5.6	4.85	5	12.0	0.9	2.1	6.0	4.0	3.3	9.0	–	250	5	1.1	22080.0105
6	4.8	6.5	5.85	6	15.0	1.0	2.3	8.2	5.5	6.1	12.0	–	250	6	2.0	22080.0106
8	6.2	8.5	7.55	8	18.0	1.1	2.9	9.5	6.5	9.0	20.1	–	250	8	4.0	22080.0108
10	8.1	11.0	9.55	10	26.0	1.5	4.2	14.3	8.0	16.2	29.0	–	250	10	9.0	22080.0110
stainless steel body, thermoplastic pin																
4	2.8	4.6	3.85	4	10.7	0.9	1.8	5.6	2.7	3.0	8.2	-30	50	4	0.5	22080.0124
5	3.8	5.6	4.85	5	12.0	0.9	2.1	6.0	4.0	3.3	9.0	-30	50	5	0.7	22080.0125
6	4.8	6.5	5.85	6	15.0	1.0	2.3	8.2	5.5	6.1	12.0	-30	50	6	1.2	22080.0126
8	6.2	8.5	7.55	8	18.0	1.1	2.9	9.5	6.5	9.0	20.1	-30	50	8	2.3	22080.0128
10	8.1	11.0	9.55	10	26.0	1.5	4.2	14.3	8.0	16.2	29.0	-30	50	10	4.8	22080.0130

¹⁾ statistical average value

APPLICATION EXAMPLE



Spring Plungers • smooth, without collar

EH 22080.



PRODUCT DESCRIPTION

Spring plungers can be used for locating or for applying pressure, as a detent or for ejection.

Material

Body

- Stainless steel 1.4305

Ball

- Stainless steel, hardened

Spring

- Stainless steel

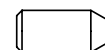
Assembly

The locating hole has to be adapted to each individual application case. We recommend an F8 size location hole for easy assembly and a H9 size when tight fit is required.

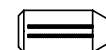
Characteristic

Standard spring load: no marking

Reinforced spring load: marked with two lines



Standard spring load



Heavy spring load

MORE INFORMATION

Notes

Special types on request.

Spring plungers are specially tested for spring range and forces.

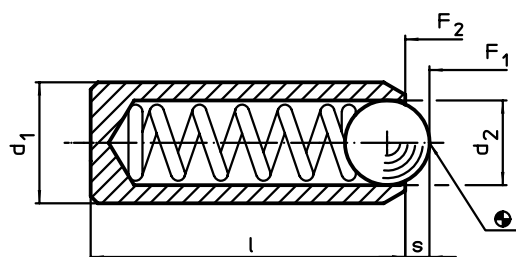
References

Calculation of indexing resistance, please refer to appendix - Technical Data -

Further products

Spring Plungers, smooth, without collar, with moveable ball → p. 85

DRAWING



ORDER INFORMATION

Dimensions			Stroke s	Spring load ¹⁾		max. [°C]	Location hole joint connection F8 / press fit H9	[g]	Art. No.
d ₁ ±0.04	d ₂	l		F ₁ ~	F ₂ ~				
[mm]	[mm]	[mm]	[mm]	[N]	[N]		[mm]		
stainless steel, standard spring load									
2.0	1.0	3.5	0.30	0.8	1.5	250	2.0	0.1	22080.0306
2.5	1.5	5.0	0.40	2.8	4.7	250	2.5	0.1	22080.0308
3.0	2.0	7.0	0.65	4.5	7.5	250	3.0	0.3	22080.0310
3.5	2.5	9.0	0.80	8.5	14.0	250	3.5	0.5	22080.0312
4.0	3.0	11.0	0.90	8.0	14.0	250	4.0	0.7	22080.0315
4.5	3.2	12.0	0.95	9.5	16.5	250	4.5	1.0	22080.0317
5.0	3.5	13.0	1.00	11.0	18.0	250	5.0	1.4	22080.0320
5.5	4.0	14.0	1.20	15.5	25.0	250	5.5	1.8	22080.0322
6.0	4.5	15.0	1.50	18.0	31.0	250	6.0	2.3	22080.0325
8.0	6.0	18.0	2.00	24.0	45.0	250	8.0	5.0	22080.0327
10.0	8.0	20.0	2.50	26.0	49.0	250	10.0	8.4	22080.0330
12.0	10.0	22.0	3.50	41.0	86.0	250	12.0	12.0	22080.0332
stainless steel, heavy spring load									
2.0	1.0	3.5	0.30	1.3	2.2	250	2.0	0.1	22080.0356
2.5	1.5	5.0	2.50	4.7	7.1	250	2.5	0.1	22080.0358
3.0	2.0	7.0	0.65	7.8	11.6	250	3.0	0.3	22080.0360
3.5	2.5	9.0	0.80	12.0	18.0	250	3.5	0.5	22080.0362
4.0	3.0	11.0	0.90	15.0	22.0	250	4.0	0.7	22080.0365
4.5	3.2	12.0	0.95	18.7	25.1	250	4.5	1.0	22080.0367
5.0	3.5	13.0	1.00	19.3	26.6	250	5.0	1.4	22080.0370
5.5	4.0	14.0	1.20	25.1	39.2	250	5.5	1.8	22080.0372
6.0	4.5	15.0	1.50	36.0	60.5	250	6.0	2.3	22080.0375
8.0	6.0	18.0	2.00	57.0	103.5	250	8.0	5.1	22080.0377
10.0	8.0	20.0	2.50	61.0	110.0	250	10.0	8.5	22080.0380
12.0	10.0	22.0	3.50	68.0	143.0	250	12.0	13.0	22080.0382

¹⁾ statistical average value

Spring Plungers • smooth, without collar, with moveable ball

EH 22081.



PRODUCT DESCRIPTION

Spring plungers can be used for locating or for applying pressure, as a detent or for ejection. The running of the ball minimises wear on the counterpart, this also results in a positive locking behaviour depending on the counterpart. Another advantage of the plastic ball is the electric insulation.

Material

Body

- Stainless steel 1.4305

Ball

- Stainless steel, hardened

Bearing

- Plastic

Spring

- Stainless steel

an F8 size location hole for easy assembly and a H9 size when tight fit is required.

MORE INFORMATION

Notes

Special types on request.
Spring plungers are specially tested for spring range and forces.

References

Calculation of indexing resistance, please refer to appendix - Technical Data -

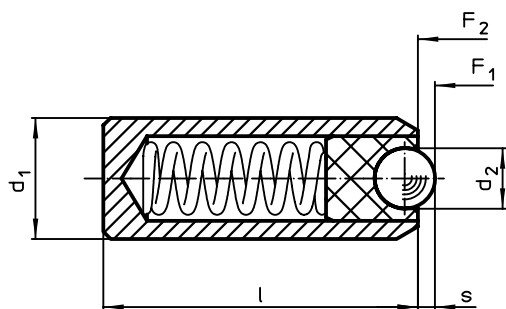
Assembly

The locating hole has to be adapted to each individual application case. We recommend

Further products

Spring Plungers, smooth, without collar → p. 84

DRAWING



ORDER INFORMATION

Dimensions			Stroke s	Spring load ¹⁾		min.	max.	Location hole joint connection F8 / press fit H9	[g]	Art. No.
d ₁ ±0.04	d ₂	l		F ₁ ~	F ₂ ~					
[mm]	[mm]	[mm]	[mm]	[N]	[N]	[°C]	[°C]	[mm]		
body and ball from stainless steel										
4	2.0	11	0.50	4.8	6.8	-30	90	4	0.6	22081.0315
5	2.5	13	0.70	6.3	10.0	-30	90	5	1.3	22081.0320
6	3.5	15	0.95	16.0	24.0	-30	90	6	2.0	22081.0325
8	4.5	18	1.40	18.8	31.7	-30	90	8	4.4	22081.0327
10	6.5	20	2.50	24.0	49.0	-30	90	10	7.1	22081.0330
12	8.5	22	3.10	38.0	68.0	-30	90	12	11.0	22081.0332

¹⁾ statistical average value