

Type	Body	Spring	Ball
BEE	Polyacetal	Stainless steel (SUS302WPA)	Polyacetal plastic
BEU	plastic		Stainless steel (SUS420)

Plastic Ball		Stainless Steel Ball		M	d	L	S	w	Force (N) Initial - Final
Part Number	Weigh(g)	Part Number	Weigh(g)						
BEE 6	0.4	BEU 6	0.6	M 6×1	3.5	14	1	1	9~13
BEE 8	0.8	BEU 8	1.2	M 8×1.25	5	16	1.5	1.2	15~30
BEE10	1.6	BEU10	2.3	M10×1.5	6	19	2	1.6	20~40

How To Use

Can be used with Ball Detents (**BLB**).

Technical Information

Heat resistance : 90°C

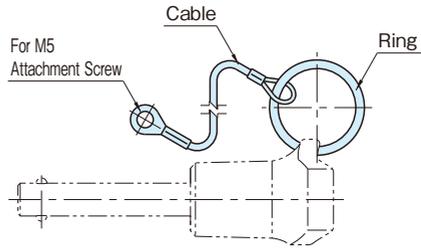
BLP-C / BLP-R CABLES & RINGS FOR BALL LOCK PINS



BLP-C
(Cable)



BLP-R
(Ring)



BLP-C

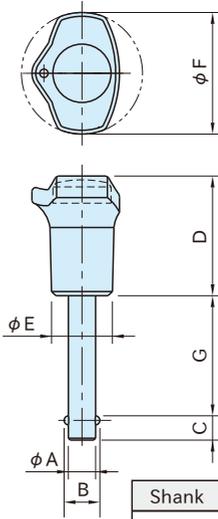
Part Number	Cable Length	Weight (g)
BLP150C	150	2.2
BLP200C	200	2.5
BLP300C	300	3.1

BLP-R

Part Number	Ring Dia.	Weight (g)
BLP15R	φ 15	0.5
BLP19R	φ 19	0.7
BLP23R	φ 23	1.1
BLP28R	φ 28	2.8



BLP-SUS BALL LOCK PINS



Shank	Handle	Balls
Stainless steel (SUS303)	Polyamide plastic	Stainless steel (SUS420)

Part Number	A (-0.04 -0.08)	B	C	D	E	F	G ($+0.6$ 0)	Recommended Hole Dia. (H11)	Min. Double Shear Strength (N)	Weight (g)
BLP05015-SUS							15	5	15.000	25
BLP05020-SUS	5	5.5	6	32.5	16	38	20			
BLP05025-SUS							25			
BLP05030-SUS							30			
BLP06020-SUS										
BLP06025-SUS	6	7	7	32.5	16	38	25			
BLP06030-SUS							30			
BLP06040-SUS							40			
BLP06050-SUS							50			
BLP08020-SUS							20	8	38.000	34
BLP08025-SUS	8	9.5	8	32.5	16	38	25			
BLP08030-SUS							30			
BLP08040-SUS							40			
BLP08050-SUS							50			
BLP10025-SUS							25	10	60.000	79
BLP10030-SUS	10	12	9	40	23	47	30			
BLP10040-SUS							40			
BLP10050-SUS							50			
BLP12030-SUS										
BLP12040-SUS	12	14.5	10	40	23	47	40			
BLP12050-SUS							50			
BLP16050-SUS							16	19	13	40

LPL,LPLN

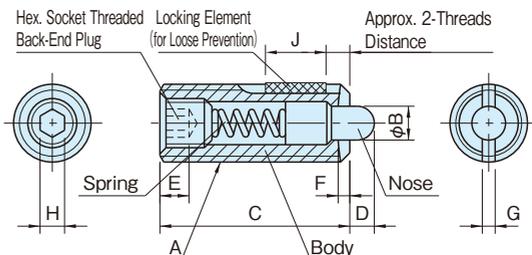
SPRING PLUNGERS



LPL
(Steel Body, Steel Nose)



LPLNL
(Steel Body, Plastic Nose)



Type	Body	Spring	Nose	Locking Element
LPLL LPL LPLH	Steel (SUM22L) Black oxide finish	Steel (SWPA)	Steel (SUM22L) Zinc plated for LPLL type Heat treated to Rc56-60	Polyamide plastic
LPLNL LPLN			Polyacetal	

Type / Size	A	B	C	D	E	F	G	H	J	Moment (N·m)		Weight (g)	Plunger Wrenches	
										Insertion	Removal			
LPLL LPL LPLH LPLNL LPLN	5	M 5×0.8	2.4	18	2.3	2	0.8	0.8	1.5	7	0.12	0.08	1.3	PW 5
	6	M 6×1	2.7	20	2.5	2.5	1	1	2		0.45	0.22	2.5	PW 6
	8	M 8×1.25	3.5	22	3	3.5	1.4	1.2	2.5	8	1.05	0.37	6	PW 8
	10	M10×1.5	4		1.6		3	9	1.3	0.6	9	PW10		
	12	M12×1.75	6	28	4	5	2	2	4	10	2	1.3	16	PW12
	16	M16×2	7.5	32	5	6	2.5	2.5	5	14	3.9	3	35	PW16

LPLL LPL LPLH (Steel Nose)

Light Force		Heavy Force		Extra Heavy Force	
Part Number	Force (N) Initial - Final	Part Number	Force (N) Initial - Final	Part Number	Force (N) Initial - Final
LPLL 5	3~10	LPL 5	6~ 20	LPLH 5	11~ 29
LPLL 6	3~ 9	LPL 6	7~ 20	LPLH 6	14~ 37
LPLL 8	4~16	LPL 8	9~ 35	LPLH 8	22~ 65
LPLL10		LPL10		LPLH10	19~ 70
LPLL12	5~27	LPL12	10~ 55	LPLH12	25~ 85
LPLL16	20~45	LPL16	45~100	LPLH16	60~150

LPLNL LPLN (Plastic Nose)

Light Force		Heavy Force	
Part Number	Force (N) Initial - Final	Part Number	Force (N) Initial - Final
LPLNL 5	3~10	LPLN 5	6~ 20
LPLNL 6	3~ 9	LPLN 6	7~ 20
LPLNL 8	4~16	LPLN 8	9~ 35
LPLNL10		LPLN10	
LPLNL12	5~27	LPLN12	10~ 55
LPLNL16	20~45	LPLN16	45~100

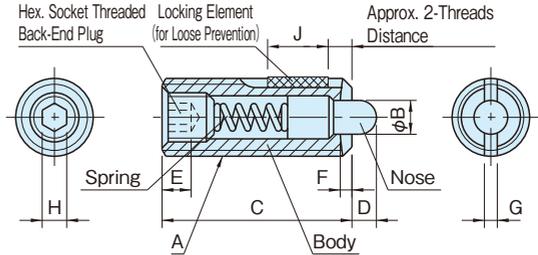
- The nylon locking element holds the plunger securely in place after installation.
- Locking effect lasts in repeated use of up to around 20 times.
- Heat resistance : 80°C
- The nylon-nose design prevents marring.
- Plunger wrenches (PW) are available for installing Spring Plungers from the back-end side.
- Once the current version of LPLL plungers with a zinc-plated nose runs out of stock, they will be provided with a black-oxide finished nose.
- Identification lines are marked at the back end : one for LPLL and LPLNL type and two for LPLH type.

LPL-SUS, LPLH-SUS

SPRING PLUNGERS



LPLH-SUS
(Stainless Steel)



Body	Spring	Nose	Locking Element
SUS303	SUS302WPA	SUS420	Polyamide plastic

Type / Size	A	B	C	D	E	F	G	H	J	Moment (N·m)		Weight (g)	Plunger Wrenches	
										Insertion	Removal			
LPL-SUS LPLH-SUS	5	M 5X0.8	2.4	18	2.3	2	0.8	0.8	1.5	7	0.12	0.08	1.3	PW 5
	6	M 6X1	2.7	20	2.5	2.5	1	1	2		0.45	0.22	2.5	PW 6
	8	M 8X1.25	3.5	22	3	3	1.4	1.2	2.5	8	1.05	0.37	6	PW 8
	10	M10X1.5	4		3.5	1.6		3	9	1.3	0.6	9	PW10	
	12	M12X1.75	6	28	4	5	2	2	4	10	2	1.3	16	PW12
	16	M16X2	7.5	32	5	6	2.5	2.5	5	14	3.9	3	35	PW16

Heavy Force		Extra Heavy Force	
Part Number	Force (N) Initial - Final	Part Number	Force (N) Initial - Final
LPL 5-SUS	5~ 17	LPLH 5-SUS	9~26
LPL 6-SUS	6~ 17	LPLH 6-SUS	11~35
LPL 8-SUS	7~ 29	LPLH 8-SUS	15~48
LPL10-SUS	8~ 31	LPLH10-SUS	15~58
LPL12-SUS	10~ 47	LPLH12-SUS	19~74
LPL16-SUS	45~100	-	-

- The nylon locking element holds the plunger securely in place after installation.
- Locking effect lasts in repeated use of up to around 20 times.
- Heat resistance : 80°C
- The nylon-nose design prevents marring.
- Plunger wrenches (**PW**) are available for installing Spring Plungers from the back-end side.
- Identification lines are marked at the back end : two for LPLL-SUS type.

Note that, for some of the types shown here, order might be unable to be received by the MISUMI Malaysia, Indonesia, and/or India offices.

Ball Plungers

Economy / Standard

Ball Plungers

Stainless Steel / Roller / Load Adjustable

■ **Features:** By omitting heat treating, wrench slot and thread locking treatment, overwhelmingly low price is achieved.

■ **Economy**

Type	Body	Ball	Spring	Spacer	Operating Temperature			
	Material	Material	Material	Material				
Light Load	BPU	SCM435	Trivalent Chromate	SUJ2	55HRC~	SWP-B	SUS304	-30~80°C
Heavy Load	BPM							
Extra Heavy Load	BPQ							

⚠ Values below are not guaranteed values but experimental values.

M	Breaking Torque (N-cm)
3	98
4	98
5	226
6	520
8	1726
10	2746
12	5099
16	7845
20	10787

RoHS

Part Number	Type	M (Coarse)	d	S	L	l	B	Light Load (N)		Heavy Load (N)		Extra Heavy Load (N)		Unit Price
								min.	max.	min.	max.	min.	max.	
BPU BPM BPQ	3	1.5	0.5	7	1	1.5	1	2	1.5	2.9	2.2	5		
	4	2.5		9	2.4	2	2	4.9	3.9	9.8	2.5	12.5		
	5		0.8	12	2	2.5	2	9.8	4.9	19.6	11.2	24.1		
	6	3		13	2.5	3	4	14.7	9.8	29.4	17.7	33.4		
	8	4	1	15	2.5	4	6	19.6	12.7	39.2	21.4	45.3		
	10	5	1.2	16	3	5	8	24.5	18.6	49	23.5	58.7		
	12	7.1	1.8	20	3	6	9.8	29.4	19.6	58.8	24.1	62.3		
16	9.5	2.5	25	3	8	15.7	49	29.4	98	43.6	116			
20	11.9	4.5	40	6	10	53.9	98	78.4	147.6	84.6	196.6			

⚠ Has no Slit for a wrench on the tip. It can be installed only by using a hex socket.

⚠ Min. load is the initial load, and max. load is the one when the tip is fully compressed.

Part Number	Unit Price	(Reference)
Type	M (Coarse)	1 ~ 4 pack(s)
PACK-BPU (Light Load)	3	
	4	
	5	
	6	

- ⚠ PACK-BPU is sold by the package.
- ⚠ For package sales, minimum order is 1 pack.
- ⚠ 100 pcs./package
- ⚠ For orders larger than indicated quantity, please request a quotation.

■ **BPJF, BSJF:** BPJ, BSJ (Identical Standard Products mentioned in Press Catalog) are also available.

■ **Standard**

Type	Standard	Body	Ball	Spring	Spacer	Operating Temperature
	Material	Material	Material	Material	Material	
Ultra Light Load	BPY	BPY-N	SCM435	29~35HRC	Black Oxide	
Light Load	BPJF	BPJ-N	SUS304 Equivalent	-	-	
Heavy Load	BSJF	BSJ-N				
Extra Heavy Load	BPW	BPW-N	SCM435	29~35HRC	Electroless Nickel Plating	
Ultra Light Load	NBPS					
Light Load	NBPJ		S45C	29~35HRC	Black Oxide	
Heavy Load	NBSJ					
Extra Heavy Load	NBPW					

⚠ Part Number [] is not RoHS Compliant

⚠ Thread Locking Treatment is not provided on M2, M3 and M4 of Standard Type.

⚠ Thread Locking Treatment is where anaerobic thread locking compound in micro capsules is used to retain the threads. Once parts have been loosened, adhesion is lost. Use an anaerobic thread locking compound when reassembling.

⚠ The thread locking is most effective by leaving the parts for 72 hours or more in 25°C. It should be noted if the parts are left for short period of time and in low temperature, the thread locking compound will be less-effective.

RoHS

Part Number	Type	M (Coarse)	d	S	L	l	B	Ultra Light Load (N)		Light Load (N)		Heavy Load (N)		Extra Heavy Load (N)		Unit Price
								min.	max.	min.	max.	min.	max.	min.	max.	
(Metal Ball) BPY (* only)	3	1.5	0.5	7	1	1.5	1	2	1.5	2.9	2.2	5				
	4	2.5		9	1.5	2	2	4.9	3.9	9.8	2.5	12.5				
	5	3	0.8	12	2	2.5	1	9.8	4.9	19.6	11.2	24.1				
	6	3		13	2.5	3	4	14.7	9.8	29.4	17.7	33.4				
	8	4	1	15	2.5	4	6	19.6	12.7	39.2	21.4	45.3				
	10	5	1.2	16	3	5	8	24.5	18.6	49	23.5	58.7				
	12	7.1	1.8	20	3	6	9.8	29.4	19.6	58.8	24.1	62.3				
16	9.5	2.5	25	3	8	15.7	49	29.4	98	43.6	116					

⚠ M2, M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex socket.

⚠ Min. load is the initial load, and max. load is the one when the tip is fully compressed.

■ **No Thread Locking Compound**

Part Number	Type	M (Coarse)	d	S	L	l	B	Ultra Light Load (N)		Light Load (N)		Heavy Load (N)		Extra Heavy Load (N)		Unit Price
								min.	max.	min.	max.	min.	max.	min.	max.	
(Metal Ball) BPY-N	3	1.5	0.5	7	1	1.5	1	2	1.5	2.9	2.2	5				
	4	2.5		9	1.5	2	2	4.9	3.9	9.8	2.5	12.5				
	5	3	0.8	12	2	2.5	1	9.8	4.9	19.6	11.2	24.1				
	6	3		13	2.5	3	4	14.7	9.8	29.4	17.7	33.4				
	8	4	1	15	2.5	4	6	19.6	12.7	39.2	21.4	45.3				
	10	5	1.2	16	3	5	8	24.5	18.6	49	23.5	58.7				
	12	7.1	1.8	20	3	6	9.8	29.4	19.6	58.8	24.1	62.3				
16	9.5	2.5	25	3	8	15.7	49	29.4	98	43.6	116					

⚠ Min. load is the initial load, and max. load is the one when the tip is fully compressed.

Ordering Example: BPC8, PACK-BPU8, BPW-N12

■ **BSZF:** Equivalent to BSZ (old product). Up to 12% price reduction compared to BSZ.

■ **Stainless Steel**

Type	Body	Ball	Spring	Spacer	Operating Temperature	
	Material	Material	Material	Material		
Ultra Light Load	BMS	SUS440C	55HRC~	SUS631J1	SUS304	-30~260°C
Light Load	BSM					
Heavy Load	BSZF					
Extra Heavy Load	BSX					
Ultra Light Load	NBSS	Polyacetal	-	SUS631J1	SUS304	-30~80°C
Light Load	NBSM					
Heavy Load	NBSZ					
Extra Heavy Load	NBSX					

RoHS

Part Number	Type	M (Coarse)	d	S	L	l	B	Ultra Light Load (BMS, NBSS) (N)		Light Load (BSM) (N)		Light Load (NBSM) (N)		Heavy Load (BSZF, NBSZ) (N)		Extra Heavy Load (BSX, NBSX) (N)		Unit Price
								min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	
(Metal Ball) BMS (* only)	3	1.5	0.5	7	1	1.5	0.9	0.3	0.64	1	2	-	-	1.5	2.9	2.2	5	
BSM (* only)	4	2.5		9	1.5	2	0.6	1.6	1.9	4.9	2	4.9	3.9	9.8	2.5	12.5		
BSZF (* only)	5	3	0.8	12	2	2.5	1	3.12	3.3	9.8	2.9	9.8	4.9	19.6	11.2	24.1		
(Plastic Ball) NBSS (* only)	6	3		13	2.5	3	1.6	4.85	5.1	15.3	4.9	14.7	9.8	29.4	17.7	33.4		
NBSM (* only)	8	4	1	15	2.5	4	2.4	6.36	5.5	19.1	6.9	19.6	12.7	39.2	21.4	45.3		
NBSZ (* only)	10	5	1.2	16	3	5	3	8.1	8.9	24.1	8.8	24.5	18.6	49	23.5	60		
NBSX (* only)	12	7.1	1.8	20	3	6	3.5	9.68	10.5	29.3	9.8	29.4	19.6	58.8	24.1	63.7		
	16	9.5	2.5	25	3	8	5.7	15.8	14.9	48.9	15.7	49	29.4	98	43.6	116.3		

⚠ M2, M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex socket.

⚠ Thread locking treatment not applied.

kgf=Nx0.101972

■ **Roller**

Type	Body	Ball	Sub Ball	Spring	Operating Temperature
	Material	Material	Material	Material	
Metal Ball	BPRM	SUS440C	55HRC~	SUS631J1	-30~100°C
Plastic Ball	BPRJ	Polyacetal	-		-30~80°C

RoHS

■ **Features**

The combination structure of the main ball and the sub balls helps smooth rotation of the ball.

Part Number	Type	M (Coarse)	d	S	L	l	B	h	Load (N)		Unit Price
									min.	max.	
BPRM BPRJ	5	2.4	0.7	12	2	2.5	1.2	4.4	19.6		
	6	3	0.8	13	3	1.5	8.1	29.6			
	8	4	1.3	15	4	2	12.6	39.8			
	10	5	1.6	16	5	2.5	13.5	44.4			
	12	7.1	2.3	20	6	3	16.1	46.9			
	16	9.5	3.1	25	8	4	26.1	88.2			

⚠ Has no Slit for a wrench on the tip. It can be installed only by using a hex socket.

⚠ Thread locking treatment not applied.

■ **Features:** By moving the nut for compressing the inner spring, the load can be adjusted freely.

■ **Load Adjustable**

Type	Body	Ball	Spring	Nut	Spacer	Operating Temperature	
	Material	Material	Material	Material	Material		
Metal Ball	BPCF	SUS440C	55HRC~	SUS304-WPB	SUS303	SUS304	-30~80°C
Plastic Ball	NPCF	Polyacetal	-				

⚠ For facilitating installation, the plunger is tightened approx. X=C/2mm at shipping.

Min. Tightening (X=0)

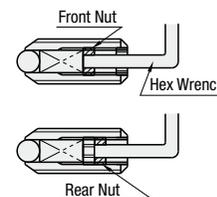
Max. Tightening (X=Xmax)

Part Number	Type	M1 (Coarse)	d	S	L	l	M2 (Fine)	C	X	Min. Tightening (X=0) Load (N)		Max. Tightening (X=Xmax) Load (N)		Unit Price	
										min.	max.	min.	max.	BPCF	NPCF
BPCF NPCF	8	4	1	4	1	16	6.4	5	1	0~2.6	10	20	32	41	
	10	4.8	1.2	4.8	1.2	18	6.5	6	1.3	0~2.7	7	21	38	52	
	12	7.1	1.8	7.1	1.8	22	6.6	8	1.8	0~2.8	3	29	42	62	

⚠ Has slits for a wrench on the tip. The rear hex socket is provided for load adjustments and can not be used to tighten the unit. Only the straight slot is used for tightening.

⚠ Thread locking treatment not applied.

Ordering Example: BSX8, BPRM10, BPCF8



Moving the front (ball side) nut back and forth enables users to change the load freely to the desired hardness. Then tightening the rear nut after adjustment prevents the front nut from loosening.

Ball Plungers / Wrenches for Ball Plungers

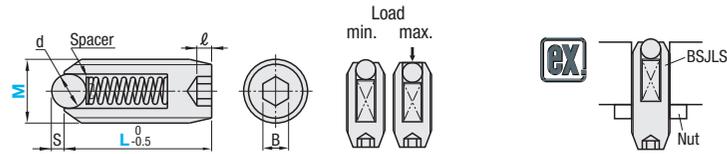
L Selectable Long / L Selectable Stainless Steel Long

Ball Plungers / Ball Buttons

Hex Screw / Flanged

L Selectable Long

Type	Body		Ball		Spring	Spacer	Operating Temperature	
	Material	Hardness	Material	Hardness				
Ultra Light Load Light Load Heavy Load Extra Heavy Load	BSPLS BPJLS BSJLS BPWLS	S45C	29~35HRC	Black Oxide Electroless Nickel Plating	SUJ2	55HRC~	SWP-B Brass	-30~80°C
Plastic Ball Light Load	NPJRS			Black Oxide	Polyacetal	-		



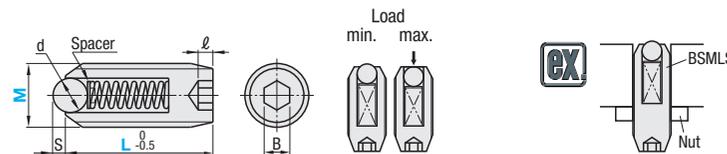
Part Number	Type	M (Coarse)	L Selection	Metal Ball		Plastic Ball		Ultra Light Load (BSPLS)		Light Load (BPJLS, NPJRS)		Heavy Load (BSJLS)		Extra Heavy Load (BPWLS)		Unit Price		
				d	S	d	S	min.	max.	min.	max.	min.	max.	min.	max.			
	(Metal Ball)	3	20 30	1.5	0.5	-	-	1	1.5	0.3	0.64	1	2	1.5	2.9	2.2	5	
	BPJLS	4	20 30	2.5	0.7	1.5	2	0.6	1.6	2	4.9	3.9	9.8	2.5	12.6			
	BSJLS	5	30 40	3	0.8	3	0.8	2	2.5	1	3.12	2.9	9.8	4.9	19.6	11.7	25.1	
	BPWLS	6	30 40	3	0.8	2.5	3	1.6	4.85	4.9	14.7	9.8	29.4	18.7	35.3			
	(Plastic Ball)	8	40 50	4	1	4	1	2.5	4	2.4	6.36	6.9	19.6	12.7	39.2	24.5	46.8	
	NPJRS (* only)	10	40 50	5	1.2	5	1.2	3	5	3	8.1	8.8	24.5	18.6	49	26.7	58.7	
		12	50 60	7.1	1.8	7	1.8	3	6	3.5	9.68	9.8	29.4	19.6	58.8	26.1	62.3	
		16	50 60	9.5	2.5	9.5	2.5	3	8	5.7	15.8	15.7	49	29.4	98	55.4	116	

*M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex socket. *Min. load is the initial load, and max. load is the one when the tip is fully compressed. kgf=Nx0.101972

Ordering Example: Part Number - L
BPJLS6 - 40

L Selectable Stainless Steel Long

Type	Body		Ball		Spring	Spacer	Operating Temperature
	Material	Hardness	Material	Hardness			
Ultra Light Load Light Load Heavy Load Extra Heavy Load	BSSLS BSMLS BSZLS BSXLS	SUS304	SUS440C	55HRC	SUS631J1	SUS304	-30~260°C



Part Number	Type	M (Coarse)	L Selection	Metal Ball		Plastic Ball		Ultra Light Load (BSSLS)		Light Load (BSMLS)		Heavy Load (BSZLS)		Extra Heavy Load (BSXLS)		Unit Price
				d	S	d	S	min.	max.	min.	max.	min.	max.	min.	max.	
	(Metal Ball)	3	20 30	1.5	0.5	1	1.5	0.3	0.65	1	2	1.5	2.9	2.2	5	
	BSSLS	4	20 30	2.5	0.7	1.5	2	0.6	1.62	1.9	4.9	3.9	9.8	2.5	12.5	
	BSMLS	5	30 40	3	0.8	2	2.5	1.1	3.21	3.3	9.8	4.9	19.6	11.2	24.1	
	BSZLS	6	30 40	3	0.8	2.5	3	1.7	4.96	5.1	15.3	9.8	29.4	17.7	33.4	
	BSXLS	8	40 50	4	1	2.5	4	2.5	6.56	5.5	19.1	12.7	39.2	21.4	45.3	
		10	40 50	5	1.2	3	5	3.2	8	8.9	24.1	18.6	49	23.5	60	
		12	50 60	7.1	1.8	3	6	3.5	9.8	10.5	29.3	19.6	58.8	24.1	63.7	
		16	50 60	9.5	2.5	3	8	6.1	15.6	14.9	48.9	29.4	98	43.6	116.3	

*M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex socket. *Min. load is the initial load, and max. load is the one when the tip is fully compressed. kgf=Nx0.101972

Ordering Example: Part Number - L
BSZLS8 - 40

Wrenches for Ball Plungers

BPJG



M Material: S45C
H Hardness: 34~43HRC
S Surface Treatment: Black Oxide (Fe3O4)

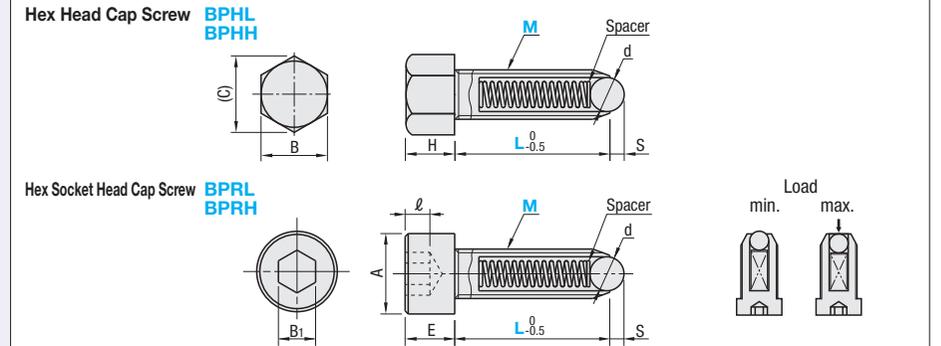
Part Number	Applicable M Size	Applicable Plunger	Unit Price	Volume Discount Rate
BPJG1	5, 6	P.1763 Standard (only Metal Ball)	1 - 3 pc(s).	4 - 19 pcs.
BPJG2	8	P.1764 Stainless Steel		
BPJG3	10	P.1766 Long / Stainless Steel Long		
BPJG4	12	P.1767 L Selectable Long / Stainless Steel Long		
BPJG5	16			

Ordering Example: Part Number
BPJG2

*For orders larger than indicated quantity, please request a quotation.

Hex Screw

Type	Body		Ball		Spring	Spacer	Operating Temperature	
	Material	Hardness	Material	Hardness				
Light Load Heavy Load	S45C	29~35HRC	Black Oxide Electroless Nickel Plating	SUJ2	55HRC~	SWP-B	SUS304	-30~80°C
Light Load Heavy Load	SCM435		Black Oxide Electroless Nickel Plating					



RoHS

The incomplete threaded portion (Pitch2) is included in L dim.

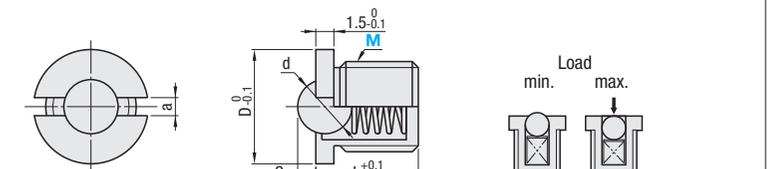
Part Number	Type	M	L Selection	d	S	A	B	B1	(C)	E	H	l	Load (N)				Unit Price		
													BPHL min.	BPRH min.	BPHH min.	BPRH max.	BPHL BPHH	BPRH	BPRH
	(Hex Head Cap Screw)	4	*10 *15 *20 30	2.5	0.8	7	7	3	8.1	4	2.8	2	1.9	4.9	3.9	9.8			
	BPHL	5	*15 *20 30 40	3	0.8	8.5	8	4	9.2	5	3.5	2.5	3.3	9.8	4.9	19.6			
	BPHH	6	*15 *20 30 40	3	0.8	10	10	5	11.5	6	4	3	5.1	15.3	9.8	29.4			
	(Hex Socket Head Cap Screw)	8	*15 *20 30 40	4	1	13	13	6	15	8	5.5	4	5.5	19.1	12.7	39.2			
	BPRH	10	*15 *20 30 40 50	5	1.2	16	17	8	19.6	10	7	5	8.9	24.1	18.6	49			
	BPRH	12	*25 30 40	7.1	1.8	18	19	10	21.9	12	8	6	10.9	29.3	19.6	58.8			
		16	40	9.5	2.5	24	24	14	27.7	16	10	8	14.9	48.9	29.4	98			

*BPHL and BPHH are available for L sizes marked with * only.

Ordering Example: Part Number - L
BPRH5 - 30

Flanged

Type	Body		Ball		Spring	Operating Temperature	
	Material	Hardness	Material	Hardness			
FBPJ	S45C	29~35HRC	Black Oxide	SUS440C	55HRC~	SUS631J1	-30~80°C
FBPJS	SUS303	-	-				-30~260°C



RoHS

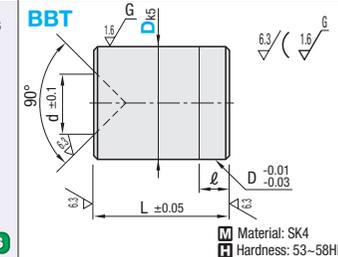
Part Number	Type	M (Coarse)	D	L	S	d	a	FBPJ Load (N)		FBPJS Load (N)		Applicable Wrench	Unit Price	
								min.	max.	min.	max.		FBPJ	FBPJS
	(Metal Ball)	5	7	5	0.8	3	0.8	0.6	5.6	1.3	6.4	BPJG1		
	FBPJ	6	8	6	1	4	1	2.8	6.3	2.7	8	BPJG2		
	FBPJS	8	10	7	1.6	5	1.5	2.9	9.8	1.3	10.2	BPJG3		
		10	12	9	1.9	6.35	1.5	6.4	11.7	6.1	17.2	BPJG4		
		12	14	11.5	2.4	7.94		9	15	2.1	18.8	BPJG5		
		16	18	16	3.2	9.53	2	9.9	21.5	13	25.5	BPJG5		

Ordering Example: Part Number
FBPJ5

kgf=Nx0.101972

*For Tapped Type which enables users to change the parts easily, refer to P.1769.

Ball Buttons



RoHS

M Material: SK4
H Hardness: 53~58HRC

Part Number	Type	D	Dk5	L	d	l	Unit Price	Volume Discount Rate		
	(Metal Ball)	6	+0.006 +0.001	8	2	2	1 - 19 pc(s).	20~49	50~199	200~500
	BBT	8	+0.007 +0.001	10	3	2				
		10	+0.007 +0.001	12	4	3				
		12	+0.009 +0.001	14	5	3				
		16	+0.009 +0.001	18	8	3				

*When using it with a ball plunger, select the same No.(M=D). (BBT6 is also applicable to M5)

Ordering Example: Part Number
BBT6

Press Fit Plungers / Ball Buttons

Standard / Roller

Tapped

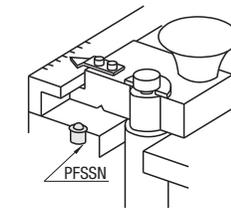
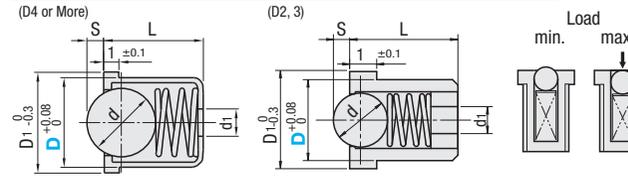
Roller Plungers

Compact / Surface Mount / Hex Screw

Press Fit Plungers Standard



Type	Body	Ball	Spring	Operating Temperature	
	Material	Material	Material		
Light Load	PFSSN	SUS303	SUS440C	55HRC~	-20~120°C
Heavy Load	PFSSR	SUS303	SUS440C	55HRC~	-20~120°C
Light Load	PFPSN	Polyacetal	Polyacetal	-	-30~80°C
	PFPFN	Polyacetal	Polyacetal	-	-30~80°C



Part Number	Type	D	D1	L	S	d	Light Load (N)				Heavy Load (N)		Unit Price					
							PFSSN	PFSSR	PFPSN	PFPFN	PFSSN	PFSSR	PFSSN	PFSSR	PFPFN	PFPFN		
	2	2.5	3	-	0.3	1	0.5	0.54	0.78	0.54	0.78	-	-	-	-	-	-	-
	3	3.6	4	-	0.6	2	1	0.74	0.98	0.74	0.94	-	-	-	-	-	-	-
	4	4.6	5	6.5	0.8	3	1.5	0.65	5.6	1.3	6.4	3.1	8.7	-	-	-	-	-
	5	5.6	6	8	1	4	2	2.8	6.3	2.7	8	5.1	13.5	-	-	-	-	-
	6	6.6	7	9	1.6	5	2.5	2.95	9.6	1.15	10.2	5.3	16.5	-	-	-	-	-
	8	8.6	9	12	1.9	6.35	3	6.5	11.7	6.15	17.2	8	28	-	-	-	-	-
	10	10.6	11.5	14.5	2.4	8	3	9	15	2.1	18.8	13.5	30.5	-	-	-	-	-

Recommended Diameter of Mounting Hole $D_1: \pm 0.03$

Use adhesive to prevent loosening.

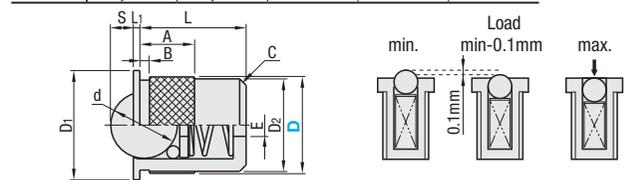
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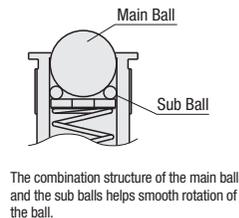
Press Fit Plungers Roller



Type	Body	Main Ball	Sub Balls	Spring	Operating Temperature
	Material	Material	Material	Material	
PFPR	Polyacetal	Polyacetal	SUS440C	SUS631J1	-30~80°C



Features



Part Number	Type	D	D1	D2	L	S	L1	d	A	B	E	C	Allowable Load (N)			Unit Price	
													min.	min-0.1mm	max.		
	7	9	-	7.5	1.5	-	-	4.76	7.5	1	1.5	0.8	0	0.1	2	-	-
	9	11	8.4	10	1.7	-	-	5.56	7	1.2	2.5	-	0	0.2	4	-	-
	13	15	12.4	15	2.8	-	-	8.73	7	1.5	3	-	0	0.3	7	-	-
	15	17	14.7	16.5	3.5	-	-	10.32	8.5	1.5	3.5	1	0	0.3	11	-	-
	20	22	19.4	22.5	5.2	-	-	15.88	10.5	1.5	5.3	-	0	0.3	14	-	-
	24	26	23.4	29	6.6	-	-	19.05	13.5	1.5	6.4	-	0	0.3	21	-	-

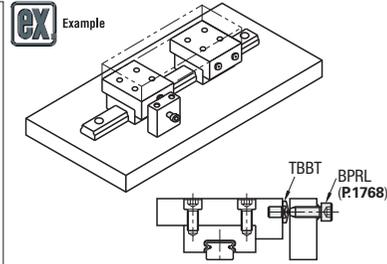
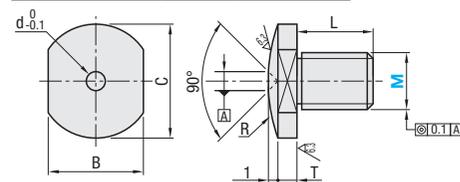
Recommended Diameter of Mounting Hole DH8



Ball Buttons - Tapped



Type	Material	Hardness	Surface Treatment
TBBT	SK4	55~60HRC	Electroless Nickel Plating



Part Number	Type	M (Coarse)	B	L	C	T	R	d	Unit Price	
									min.	max.
	4	7	5	8	2	8.4	1.5	-	-	-
	5	8	6	9	2	10.2	2	-	-	-
	6	10	8	12	2	18	2	-	-	-
	8	13	10	15	3	27.6	3	-	-	-
	10	17	12	20	3	48.5	4	-	-	-
	12	19	15	22	3	57.8	5	-	-	-

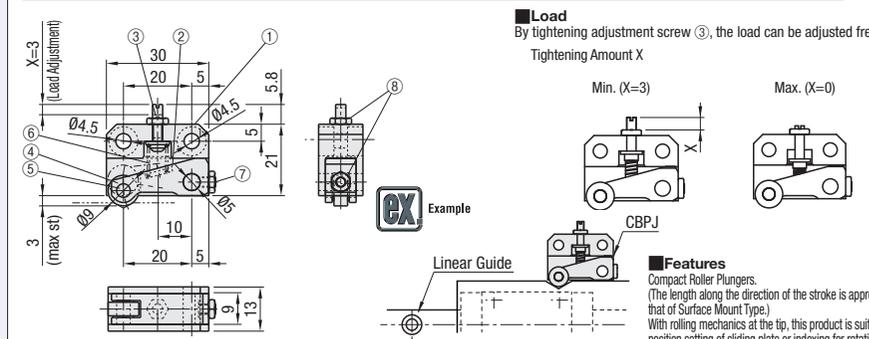


Features: Has a ball bearing on the tip.

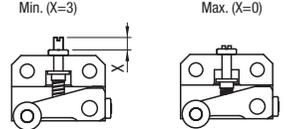
Compact Load Adjusting Function



Type	①②③ Main Body, Arm, Adjustment Screw	④ Bearing	⑤ Bearing Shaft	⑥ Spring	⑦ Set Screw	⑧ Nut	
	Material	Material	Material	Material	Material	Material	
CBPJ	S45C	Electroless Nickel Plating	SUS440	SUJ2	58HRC~	SUS304-WPB	SCM435
	Surface Treatment	Surface Treatment	Surface Treatment	Surface Treatment	Surface Treatment	Surface Treatment	Surface Treatment



Load
By tightening adjustment screw (3), the load can be adjusted freely.
Tightening Amount X



Features
Compact Roller Plungers.
(The length along the direction of the stroke is approx. 1/3 of that of Surface Mount Type.)
With rolling mechanics at the tip, this product is suitable for the position setting of sliding plate or indexing for rotating table.

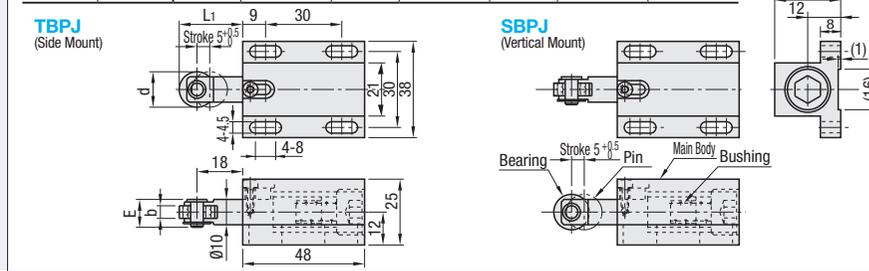
Part Number	Type	No.	Min. Tightening (X=3)		Max. Tightening (X=0)		Unit Price
			Load (N)	min	max	Load (N)	
CBPJ	9		0.4	4.2	6.6	10.2	-



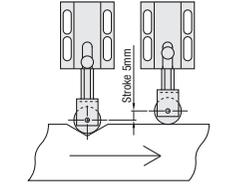
Surface Mount



Type	Main Body		Pin		Bearing	Bushing	Spring	
	Material	Surface Treatment	Material	Surface Treatment	Material	Material	Material	
Side Mount	TBPJ	S45C	Electroless Nickel Plating	S45C	Electroless Nickel Plating	SUJ2	High-Tensile Brass Alloy	SUS304-WPB
Vertical Mount	SBPJ	S45C	Electroless Nickel Plating	S45C	Electroless Nickel Plating	SUJ2	High-Tensile Brass Alloy	SUS304-WPB



Part Number	Type	No.	d	b	E	L1	Load (N)		Unit Price
							min.	max.	
Light Load	TBPJ (Side Mount)	1	14	5	11	25	3	5.1	-
		1A	19	6	12.8	27.5	6.1	10.4	-
Heavy Load	TBPJ (Side Mount)	2	14	5	11	25	3	5.1	-
		2A	19	6	12.8	27.5	6.1	10.4	-
Light Load	SBPJ (Vertical Mount)	1	14	5	11	25	3	5.1	-
		1A	19	6	12.8	27.5	6.1	10.4	-
Heavy Load	SBPJ (Vertical Mount)	2	14	5	11	25	3	5.1	-
		2A	19	6	12.8	27.5	6.1	10.4	-



Features
The stroke is longer (5~10mm) than that of ball plungers (0.2~2.5mm).

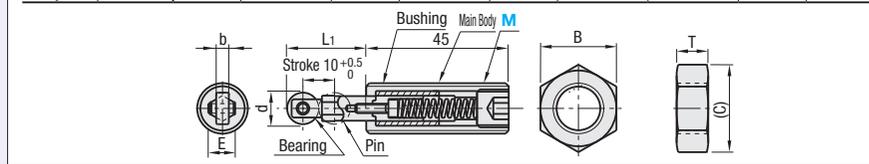
No. 1A and 2A have larger bearing dia. than that of conventional products.



Hex Screw



Type	Main Body		Pin		Bearing	Bushing	Spring	Accessory (Nut x2 pcs.)		
	Material	Surface Treatment	Material	Surface Treatment	Material	Material	Material	Material	Surface Treatment	
Light Load	RBPJ	S45C	Electroless Nickel Plating	S45C	Electroless Nickel Plating	SUJ2	High-Tensile Brass Alloy	SUS304-WPB	SS400	Electroless Nickel Plating
Heavy Load	RBSJ	S45C	Electroless Nickel Plating	S45C	Electroless Nickel Plating	SUJ2	High-Tensile Brass Alloy	SUS304-WPB	SS400	Electroless Nickel Plating



Part Number	Type	M (Coarse)	d	b	E	L1	M (Coarse)	B	Nut (C)	T	Load (N)		Unit Price
											min.	max.	
Light Load	RBPJ	16	10	4	9	25	16x2.0	24	27.7	10	1.6	4.8	-
		20	19	6	11.5	30	20x2.5	30	34.6	12	-	-	-
Heavy Load	RBSJ	16	10	4	9	25	16x2.0	24	27.7	10	2.9	8.4	-
		20	19	6	11.5	30	20x2.5	30	34.6	12	-	-	-

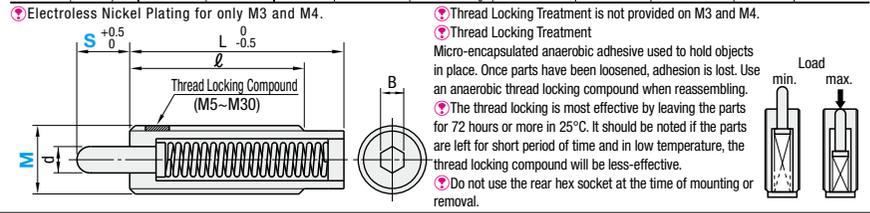


Spring Plungers

Steel



Load Category	Type		Body		Pin			Spring	Operating Temperature		
	Standard	No. Thread Locking Compound	Material	Hardness	Material	Hardness	Surface Treatment				
Steel Nose	Ultra Light Load	PJS	PJS-N	S45C	29-35HRC	S45C	57-63HRC (Carburized)	Trivalent Chromate	SWP-B	-30~80°C	
	Light Load	PJL	PJL-N								Black Oxide
	Heavy Load	PJH	PJH-N								
Plastic Tip	Ultra Light Load	PJX	PJX-N	Polyacetal	-	-	-	-	-	-	
	Light Load	NPJS	NPJS-N								Black Oxide
	Heavy Load	NPJH	NPJH-N								



Standard

Part Number	Type	M (Coarse)	S	d	ℓ	L		B	Ultra Light Load		Light Load		Heavy Load		Extra Heavy Load		Unit Price						
						Ultra Light / Light / Heavy Load	Extra Heavy Load		min.	N Load max.	min.	N Load max.	min.	N Load max.	min.	N Load max.	Ultra Light / Light / Heavy Load	Extra Heavy Load					
3	PJS	3	1.5	1.1	10(15)	10	15	0.9	0.05	0.32	1.0	0.78	2.9	2.2	4.5								
						15	20	0.9	0.09	0.32	0.29	1.0	0.78	2.9	1.8	4.5							
						15(24)	15	24	1.3	0.23	0.65	1.0	2.0	2.9	8.8	5.2	13						
4	PJL	4	2	1.6	24	24	24	1.3	0.24	0.65	0.59	2.0	2.0	8.8	5.2	13							
						20(27)	20	27	1.5	0.74	2.95	2.0	9.8	4.9	19.6	9.1	24.5						
						27(39)	27	39	1.5	0.72	2.95	2.0	9.8	2.9	19.6	8.8	24.8						
5	PJH	5	3	2.0	30	30	30	2	0.85	3.2	5.9	9.8	7.8	29.4	14.2	39.5							
						30(36)	30	36	2	0.85	3.2	2.0	9.8	4.9	29.4	14.1	39.4						
						30	2.5	30	39	-	2	-	1.4	9.8	5.0	28.0	-	-					
6	PJX	6	4	2.5	30	30	36	2	0.85	3.2	2.0	9.8	4.9	29.4	14.1	39.4							
						30	2.5	30	39	-	2	-	1.4	9.8	5.0	28.0	-	-					
						30	3.1	25(27)	25	27	2.5	0.9	3.3	5.9	9.8	14.7	29.4	35.3	41.2				
8	NPJS	8	5	3.1	27(30)	27	35	2.5	0.9	3.3	2.9	9.8	7.8	29.4	14.7	41.2							
						30	3.1	30	43	-	2.5	-	-	3.0	9.8	7.0	28.8	-	-				
						30	3.8	30	30	35	3	1.9	4.7	5.9	14.7	8.8	49.0	15.7	62.8				
10	NPJL	10	6	3.8	30	30	43	3	1.7	4.7	2.9	14.7	7.8	49.0	12.7	62.8							
						30	3.8	30	43	53	3	1.9	4.7	5.9	14.7	8.8	49.0	15.7	62.8				
						30	5.5	30(35)	30	43	4	1.5	4.7	5.9	14.7	18.6	49.0	37.2	98.1				
12	NPJH	12	7	5.5	35	35	43	4	1.3	5.9	2.9	19.6	7.8	49.0	14.7	98.1							
						35	5.5	35	51	78	4	1.6	5.9	2.9	19.6	4.9	49.0	14.9	98.1				
						35	8	35	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2				
16	NPJX	16	8	8	35	35	60	5	1.7	12.8	3.9	39.2	12.7	78.5	21.6	147.2							
						35	8	35	85	90	5	1.7	12.8	4.9	39.2	9.8	78.5	12.7	147.2				
						35	8	35	125	125	5	-	-	3.5	19.6	6.9	49.0	-	-				
20	PJS	20	10	8	35	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	60	70	5	1.7	12.8	3.9	39.2	12.7	78.5	21.6	147.2				
						60	8	35	85	90	5	1.7	12.8	4.9	39.2	9.8	78.5	12.7	147.2				
24	PJL	24	12	10	45	60	60	5	1.7	12.8	2.9	39.2	6.9	78.5	19.6	147.2							
						60	8	35	125	125	5	-	-	3.5	19.6	6.9	49.0	-	-				
						60	8	35	125	125	5	-	-	3.5	19.6	6.9	49.0	-	-				
30	PJH	30	16	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	155	155	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	159	159	5	-	-	2.9	49.0	3.9	78.5	-	-				
30	PJX	30	20	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
30	NPJS	30	24	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
30	NPJL	30	24	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
30	NPJH	30	24	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
30	NPJX	30	24	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2							
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				
						60	8	35	185	185	5	-	-	3.4	49.0	5.5	78.5	-	-				

No Thread Locking Compound

Part Number	Type	M (Coarse)	S	d	ℓ	L		B	Ultra Light Load		Light Load		Heavy Load		Extra Heavy Load		Unit Price					
						Ultra Light / Light / Heavy Load	Extra Heavy Load		min.	N Load max.	min.	N Load max.	min.	N Load max.	min.	N Load max.	Ultra Light / Light / Heavy Load	Extra Heavy Load				
5	PJS	5	2.0	2.0	20(27)	20	27	1.5	0.74	2.95	2.0	9.8	4.9	19.6	9.1	24.5						
						27	39	1.5	0.72	2.95	2.0	9.8	2.9	19.6	8.8	24.8						
						27(39)	27	39	1.5	0.72	2.95	2.0	9.8	2.9	19.6	8.8	24.8					
6	PJL	6	2.5	2.5	25(30)	25	30	2	0.85	3.2	5.9	9.8	7.8	29.4	14.2	39.5						
						30	36	2	0.85	3.2	2.0	9.8	4.9	29.4	14.1	39.4						
						30(36)	30	36	2	0.85	3.2	2.0	9.8	4.9	29.4	14.1	39.4					
8	PJH	8	3	3.1	25(27)	25	27	2.5	0.9	3.3	5.9	9.8	14.7	29.4	35.3	41.2						
						27	35	2.5	0.9	3.3	2.9	9.8	7.8	29.4	14.7	41.2						
						27(30)	27	35	2.5	0.9	3.3	2.9	9.8	7.8	29.4	14.7	41.2					
10	PJX	10	5	3.8	30	30	35	3	1.9	4.7	5.9	14.7	8.8	49.0	15.7	62.8						
						30	3.8	30	43	53	3	1.7	4.7	2.9	14.7	7.8	49.0	12.7	62.8			
						30	5.5	30(35)	30	43	4	1.5	4.7	5.9	14.7	18.6	49.0	37.2	98.1			
12	NPJS	12	7	5.5	35	35	43	4	1.3	5.9	2.9	19.6	7.8	49.0	14.7	98.1						
						35	5.5	35	51	78	4	1.6	5.9	2.9	19.6	4.9	49.0	14.9	98.1			
						35	8	35	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2			
16	NPJL	16	8	8	35	60	60	5	1.7	12.8	3.9	39.2	12.7	78.5	21.6	147.2						
						60	8	35	85	90	5	1.7	12.8	4.9	39.2	9.8	78.5	12.7	147.2			
						60	8	35	125	125	5	-	-	3.5	19.6	6.9	49.0	-	-			
20	NPJH	20	10	10	45	60	60	5	1.7	12.8	5.9	39.2	12.7	78.5	23.5	147.2						
						60	8	35	155	155	5	-	-	3.4	49.0	5.5	78.5	-	-			

Short Spring Plungers

Steel / Stainless Steel

Steel

Load Category	Type	Body		Pin		Spring	Operating Temperature				
		Material	Hardness	Material	Hardness						
Steel Tip	Ultra Light Load	SPJS	SPJS-N	SCM435	29~35HRC	Black Oxide	S45C	57~63HRC (Carburized)	Trivalent Chromate	SWP-B	-30~80°C
	Light Load	SPJL	SPJL-N								
	Heavy Load	SPJH	SPJH-N								
	Extra Heavy Load	SPJF	SPJF-N								
Plastic Tip	Ultra Light Load	SPRRS	SPRRS-N	Electroless Nickel Plating	Black Oxide	Polyacetal	-	-	-	-	-
	Light Load	SPRPM	SPRPM-N								
	Heavy Load	SPRH	-								
	Extra Heavy Load	SPRF	SPRF-N								

Thread Locking Compound (M5~M16)

⚠ Thread-Lock Untreated Type is not available for M3 or M4 (M3 and M4 Standard Type are not thread-locking treated.)
 ⚠ Thread Locking Treatment: Micro-encapsulated anaerobic adhesive used to hold objects in place. Once parts have been loosened, adhesion is lost. Use an anaerobic thread locking compound when reassembling.

Standard

Part Number	Type	M (Coarse)	d	S	L	l	B	Load (N)				Unit Price				
								Ultra Light	Light	Heavy	Extra Heavy	SPJL	SPJH	SPJF		
(Steel Tip) SPJS SPJL SPJH SPJF	(Plastic Tip) SPRRS SPRPM SPRH SPRF	3	1.2	1	7	1	1.5	0.11	0.48	0.4	1.5	0.8	2.0	-	-	-
		4	2.1	1.2	9	1.5	2	0.49	1.55	1.6	5.0	2.0	9.0	4.4	11.9	-
		5	2.7	1.5	12	2	2.5	0.53	2.53	2.0	7.8	4.9	14.7	4.1	24.9	-
		6	3.2	1.5	13	2.5	3	0.89	3.11	2.9	9.8	5.9	19.6	7.7	30.6	-
		8	4	2	15	2.5	4	0.9	3.14	2.9	9.8	5.9	19.6	8.6	43	-
		10	5	2.5	16	3	5	1.76	4.71	4.9	14.7	9.8	29.4	14.1	53.1	-
		12	6	3.5	20	3	6	1.96	4.82	4.9	14.7	9.8	29.4	23.1	58.3	-
		16	8	4.5	22	3	8	3.29	9	9.8	29.4	19.6	58.8	26.6	78.8	-

⚠ No slits for swaging on the tip. ⚠ Min. is the initial load, and max. is the load when the tip is fully compressed. ⚠ Extra Heavy Load Type is available from M4 size. kgf=Nx0.101972

No Thread Locking Compound

Part Number	Type	M (Coarse)	d	S	L	l	B	Load (N)				Unit Price			
								Ultra Light	Light	Heavy	Extra Heavy				
(Steel Tip) SPJS-N SPJL-N SPJH-N SPJF-N	(Plastic Tip) SPRRS-N SPRPM-N SPRH-N SPRF-N	5	2.7	1.5	12	2	2.5	0.53	2.53	2	7.8	4.9	14.7	4.1	24.9
		6	3.2	1.5	13	2.5	3	0.89	3.11	2.9	9.8	5.9	19.6	7.7	30.6
		8	4	2	15	2.5	4	0.9	3.14	2.9	9.8	5.9	19.6	8.6	43
		10	5	2.5	16	3	5	1.76	4.71	4.9	14.7	9.8	29.4	14.1	53.1
		12	6	3.5	20	3	6	1.96	4.82	4.9	14.7	9.8	29.4	23.1	58.3
		16	8	4.5	22	3	8	3.29	9	9.8	29.4	19.6	58.8	26.6	78.8

⚠ No slits for swaging on the tip. ⚠ Min. is the initial load, and max. is the load when the tip is fully compressed. kgf=Nx0.101972

Ordering Example: Part Number SPJL12, SPRS-N5

Stainless Steel

Load Category	Type	Body		Pin		Spring	Operating Temperature
		Material	Hardness	Material	Hardness		
Stainless Steel Tip	Ultra Light Load	SPJY	-	SUS304	SUS440C	55HRC~	-30~260°C
	Light Load	SPJK	-	Equivalent	-	-	
	Heavy Load	SPJZ	-	-	-	-	
	Extra Heavy Load	SPJX	-	-	-	SUS631J1	
Plastic Tip	Ultra Light Load	SPRY	-	Equivalent	-	-	-30~80°C
	Light Load	SPRK	-	Polyacetal	-	-	
	Heavy Load	SPRZ	-	-	-	-	
	Extra Heavy Load	SPRX	-	-	-	-	

Part Number	Type	M (Coarse)	d	S	L	l	B	Ultra Light Load (SPJY, SPRY)		Light Load (SPJK, SPRK)		Heavy Load (SPJZ, SPRZ)		Extra Heavy Load (SPJX, SPRX)		Unit Price
								min.	max.	min.	max.	min.	max.	min.	max.	
(Stainless Steel Tip) SPJY SPJK SPJZ SPJX	(Plastic Tip) SPRY SPRK SPRZ SPRX	3	1.2	1	7	1	1.5	0.11	0.49	0.5	1.51	0.8	2.0	-	-	-
		4	2.1	1.2	9	1.5	2	0.51	1.54	1.6	4.8	2.0	9.0	4.0	11.5	-
		5	2.7	1.5	12	2	2.5	0.62	2.49	2	7.9	5.1	14.7	6.0	24.2	-
		6	3.2	1.5	13	2.5	3	0.97	3.06	2.8	9.9	5.5	19.6	9.4	29.5	-
		8	4	2	15	2.5	4	1.16	3.26	3.6	10.9	6.1	19.6	13.5	43.7	-
		10	5	2.5	16	3	5	1.54	4.76	4.2	14.6	9.6	29.4	19.1	53.3	-
		12	6	3.5	20	3	6	1.81	4.82	4.6	14.8	10.4	29.4	24.5	58.8	-
		16	8	4.5	22	3	8	3.1	9.1	9.9	29.3	18.0	58.8	26.6	78.7	-

⚠ No slits for swaging on the tip. ⚠ Min. is the initial load, and max. is the load when the tip is fully compressed. ⚠ Thread locking treatment is not applied. kgf=Nx0.101972

Ordering Example: Part Number SPJZ10

Micro Spring Plungers

Standard / Short / Set Screw

Standard

Load Category	Type			Body		Pin		Spring	Operating Temperature
	Flat	Spherical	Taper R	Material	Material	Material	Material		
Light Load	MPFL	MPJL	MPTL	SUS303	SUS304	SUS304	-	-30~140°C	
Heavy Load	MPFH	MPJH	-	-	-	-	-	-	

Part Number	Type	Dh7	S	d	D1	L	C	R	Light Load		Heavy Load		Unit Price
									min.	max.	min.	max.	
(Flat) MPFL MPFH (Spherical) MPJL MPJH (Taper R) MPTL	RoHS	1.5	1.5	0.5	2	13	0.05	0.15	0.49	0.98	0.93	1.86	-
		2	1.5	1	2.5	16	0.1	0.3	0.49	0.98	1.96	3.92	-
		3	3	2	3.5	16	0.15	0.5	0.49	1.47	2.45	3.92	-
		4	3	3	4.5	15	0.2	1	0.49	1.47	2.26	3.73	-
		4	3	3	4.5	20	0.2	1	0.59	1.47	3.43	5.3	-
		4	3	3	4.5	32	0.2	1	0.49	2.06	2.45	5.3	-
		4	3	3	4.5	17	0.2	1	0.69	3.92	2.94	6.47	-
		5	8	4	5.5	24	0.3	1.5	0.64	1.96	3.73	6.96	-
		5	8	4	5.5	24	0.3	1.5	0.78	3.82	3.04	7.06	-
		5	8	4	5.5	32	0.3	1.5	0.83	5.79	2.75	7.06	-

⚠ Recommended Diameter of Mounting Hole : Dh7 ⚠ Use adhesive to prevent loosening. kgf=Nx0.101972

Ordering Example: Part Number MPJL2, S 1.5

Short

Load Category	Type			Body		Pin		Spring	Operating Temperature
	Flat	Spherical	Taper R	Material	Material	Material	Material		
Light Load	MPFS	MPJS	-	SUS303	SUS304	SUS304	-	-30~140°C	

Part Number	Type	Dh7	S	d	D1	L	C	Light Load (N)		Unit Price
								min.	max.	
(Flat) MPFS (Spherical) MPJS	RoHS	1.5	1.5	0.5	2	9.5	0.05	0.49	0.98	-
		2	1.5	1	2.5	8	0.1	0.49	0.98	-
		3	3	2	3.5	10	0.15	0.49	1.47	-
		4	3	3	4.5	10	0.2	0.59	1.47	-
		5	4	4	5.5	11.5	0.3	0.64	1.96	-

⚠ Recommended Diameter of Mounting Hole : Dh7 ⚠ Use adhesive to prevent loosening.

Ordering Example: Part Number MPFS4, S 3

Set Screw

Load Category	Type	Body		Pin		Spring	Operating Temperature
		Material	Material	Material	Material		
Light Load	MPFLT	SUS303	SUS304	SUS304	-	-30~140°C	
Heavy Load	MPFHT	-	-	-	-	-	

Part Number	Type	Dh7	S	d	D1	L	l	F	G	C	Light Load		Heavy Load		Unit Price
											min.	max.	min.	max.	
(Flat) MPFLT MPFHT	RoHS	1.5	1.5	0.5	2	17.5	2.5	0.5	1	0.05	0.49	0.98	0.93	1.86	-
		2	1.5	1	2.5	20.5	2.5	0.5	1	0.1	0.49	0.98	1.96	3.92	-
		3	3	2	3.5	30.5	2.5	0.5	1	0.15	0.49	0.98	1.67	3.73	-
		3	3	2	3.5	20.5	2.5	0.5	1	0.15	0.49	1.47	2.26	3.73	-
		3	3	2	3.5	30.5	2.5	0.5	1	0.15	0.49	1.47	2.26	3.73	-
		4	6	3	4.5	20.5	3.5	0.8	1	0.2	0.59	1.47	3.43	5.3	-
		4	6	3	4.5	25.5	3.5	0.8	1	0.2	0.49	2.06	2.45	5.3	-
		4	6	3	4.5	37.5	3.5	0.8	1	0.2	0.69	3.92	2.94	6.47	-
		4	6	3	4.5	22.5	3.5	0.8	1	0.2	0.64	1.96	3.73	6.96	-
		5	8	4	5.5	29.5	3.5	0.8	1	0.3	0.78	3.82	3.04	7.06	-
		5	8	4	5.5	37.5	3.5	0.8	1	0.3	0.83	5.79	2.75	7.06	-

⚠ Recommended Diameter of Mounting Hole : Dh7 ⚠ Use adhesive to prevent loosening. kgf=Nx0.101972

Micro Stroke Pins / Stroke Pins

Spring Plungers / Long Sleeve Plungers

Tapped Tip

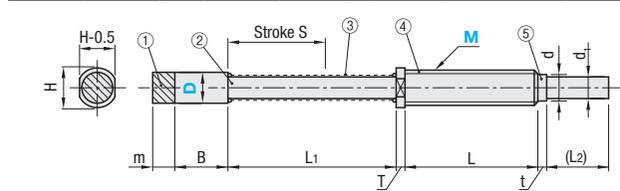
■ Features: Suited for soldering or bonding electronic parts on a circuit board.

Micro Stroke Pins



RoHS

Type	① Pin End	② Pin	③ Spring	④ Sleeve	⑤ Collar
	M Material	H Hardness	S Surface Treatment	M Material	S Surface Treatment
JJPPN	Polyacetal	SK	Heat Treated Hardness HV620-720 Electroless Nickel Plating Nickel Plating	SUS304	SK Electroless Nickel Plating Nickel Plating



⚠ Maintain the stroke not to exceed S dimensions, otherwise the spring may be damaged.
⚠ Tighten the nut with forces under 23.43N for M2, 98.07N for M3 ~ 5.

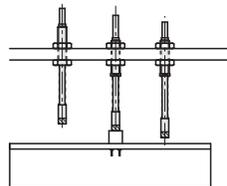
Part Number	Type	M	D	Stroke S	H	m	B	L1	T	L	t	(d)	d1	(L2)	Load (N)		Unit Price
															min.	max.	
JJPPN	2 (Fine)	1.5	8	2.5	2	3.5	14	0.5	9	0.8	1.7	1	4.2	0.20	0.883		
	3 (Coarse)	2.5	11	3.5	2.5	6	19	1	15	1	2.25	1.72	7	0.39			
	4 (Coarse)	3.5		4.5							3	2.45		0.76	3.432		
	5 (Coarse)	4.5		5.5							4	3.45		1.25			

Ordering Example: Part Number - D
JJPPN4 - 3.5

Alterations: Part Number - D - (NT)
JJPPN2 - 1.5 - NT1

EX Example

Alteration	Nuts Included	
	Diagram	Dimensions
Code	NT	
Spec.	One nut is included with NT1, 2 nuts with NT2. Ordering Code: NT1 ⚠ Applicable to M2 only	



■ Features: Bushing built-in plungers specialized in holding. The tip can be ordered separately.

Stroke Pins

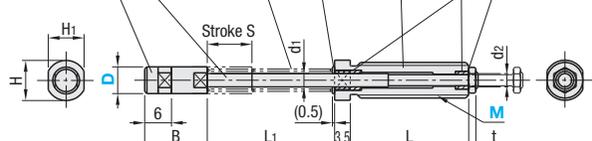


RoHS

Stroke Pins

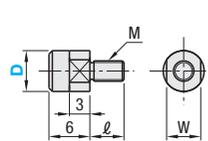
Type	① Pin End	② Pin	③ Spring	④ Shim	⑤ Body	⑥ Oil Free Bushing	⑦ Nut	Pin End	
	Tip	Core Rod	M Material	M Material	M Material	M Material	S Surface Treatment	Type	
	M Material	S Surface Treatment	M Material	Tip					
SPPL	Polyacetal	SUS304	SUS304	SUS304-WPB	SUS304	S45C	Electroless Nickel Plating Nickel Plating	SUM23 Equivalent	Trivalent Chromate

Stroke Pins



⚠ The rear nut is swaged, it cannot be removed.

Pin End



⚠ Can be used as a replacement stroke pin.

Stroke Pins

Part Number	Type	M (Coarse)	D	Stroke S	H	H1	B	L1	L	t	d1	d2	Load (N)		Unit Price	Volume Discount Rate
													min.	max.		
SPPL	6	5	10	8	7	14	27.5	20	(1.2)	2.5	2	2.0	5.9			
	8	6	15	9	8	15	28.5	26.5	(1.6)	3	2.5	3.8	8.0			
	10	8	15	12	10	15	39.5	31.5	(1.8)	4	3	4.7	12.6			

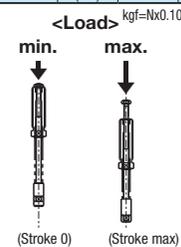
Pin End

Part Number	D	Applicable Stroke Pin	L	W	M x Pitch (Coarse)	Unit Price	Volume Discount Rate
SPPL6-5	5	SPPL6-5	4	M2.5x0.45	1 - 9 pc(s).	10-50 pcs.	
SPPL8-6	6	SPPL8-6	5	M3x0.5			
SPPL10-8	8	SPPL10-8	6	M4x0.7			

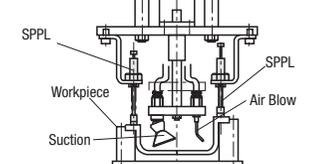
⚠ For orders larger than indicated quantity, please request a quotation.

M	Allowable Tightening Torque (N·m)
6	3.5
8	9
10	20

⚠ Do not exceed the torque values shown above when tightening.



EX Example



<Example of Temporary Holding for Dust Removal Process>

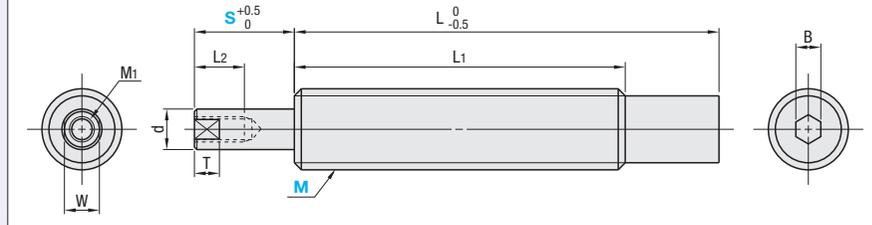
■ Features: Stop Pins (P.1719) or Urethane Pushers (P.2-1553) can be mounted on the tip.

Spring Plungers - Tapped Tip



RoHS

Type	Body	Pin	Spring	Operating Temperature					
	M Material	H Hardness	S Surface Treatment	M Material	H Hardness	S Surface Treatment	M Material		
Light Load	PJLTP	S45C	29-35HRC	Black Oxide	S45C	57-63HRC (Carburized)	Electroless Nickel Plating	SWP-B	-30~80°C
Heavy Load	PJHTP						Black Oxide		



Part Number	Type	Stroke S	d	L	L1	M1 (Coarse)	L2	W	T	B	Light Load Load (N)		Heavy Load Load (N)		Unit Price
											min.	max.	min.	max.	
PJLTP PJHTP	12	15	5.5	51	35	M3	6	4	4	4	2.9	19.6	4.9	49.0	
		20									3.5	19.6	6.9	49.0	
	16	15	8	60	35	M4	8	7	5	5	3.9	39.2	12.7	78.5	
		20									4.9	39.2	9.8	78.5	
	20	15	10	60	45	M5	10	8	6	6	2.9	39.2	6.9	78.5	
		20									12.7	78.5	24.5	147.1	
		30									11.7	78.5	22.6	147.1	

kgf=Nx0.101972

Ordering Example: Part Number - S
PJLTP - 20
PJHTP - 15

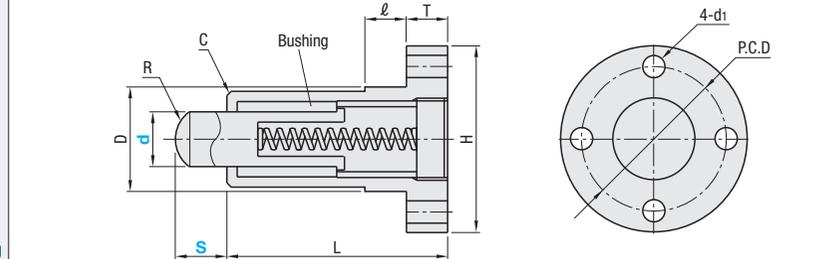
■ Features: As a long pin-guide is used, the structure of this plunger is strong enough to bear the diagonal load.

Long Sleeve Plungers



RoHS

Type	Pin	Main Body	Bushing	Spring			
	M Material	H Hardness	S Surface Treatment	M Material	S Surface Treatment	M Material	M Material
GLPN	S45C	HRC50-55	Black Oxide	S45C	Black Oxide	High-Tensile Brass Alloy Solid Lubricant Embedded	SUS304WPB

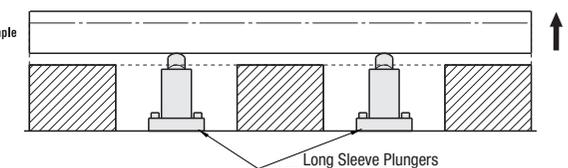


Part Number	Type	d	Stroke S	R	D	L	H	T	l	C	d1	P.C.D	Load (N)		Unit Price
													min.	max.	
GLPN	6	5	10	4	14	32	30	8	5	1	4.5	22	18	29	
													8	29	
		8	5	10	5	16	38		32	24	22	30			
			10								14	30			
		10	10	10	6	20	48		40	30	26	47			
			15								15	47			
	12	15	10	8	22	52	42	32	27	48					
		20							20	48					
	16	15	10	10	28	60	52	40	42	73					
		25							22	73					
	20	20	10	12	32	70	56	10	48	86					
		30							30	86					

⚠ For orders larger than indicated quantity, please request a quotation.

Ordering Example: Part Number - S
GLPN8 - 10
GLPN16 - 25

EX Example



Long Sleeve Plungers

Indexing Plungers

Standard

■ **Features:** Alteration of tip shapes makes it possible to use the product as the application demands.

■ **Standard**

Screw	Returning			Rest Position			Knob	Main Body		Pin			Spring	Lock Nut	
	Spherical	Tapered	Flat	Spherical	Tapered	Flat		Material	Surface Treatment	Material	Hardness	Surface Treatment		Material	Surface Treatment
Fine Thread	PXAN	PXAT	PXAF	PXYAN	PXYAT	PXYAF	A2017 (Black Anodize)	SUM22	Black Oxide	S45C	50-60HRC	Black Oxide	SUS631J1	SS400	Black Oxide
Thread	SXPAN	SXPAT	SXPAT	SXYAN	SXYAT	SXYAF		SUS303		SUS440C	45HRC~		SUS303		

⊕ For M=5, 6 and 8L, the pin hardness is 40-45HRC.

Returning: PXA, SXPA, PXX, SXPA
Rest Position: PXA, SXPA, PXX, SXPA

M	Spherical			Tapered			Flat		
	SR	SR	SR	SR	SR	SR	SR	SR	SR
5	4.5	5.5	5	6	6	6	6	6	6
6	6.7	8.7	8	10	10	10	10	10	10
8	12	17	13	18	18	18	18	18	18
10	20	27	23	30	30	30	30	30	30
12	32	42	38	48	48	48	48	48	48
16	70	90	79	99	99	99	99	99	99

⊕ M dimensions with "L" have longer strokes compared to the conventional products.

Part Number	Type	M	Pitch (Fine Thread)	D	D1	S	B	L								Load (N)				
								Returning	Rest Position	L1	L2	L3	L4	L5	Sw1	Sw2	SR	min.	max.	
Returning (Spherical) (Tapered) (Flat) PXAN PXAT PXAF PXYAN PXYAT PXYAF PXKN PXKT PKF PXYKN PXYKT PXYKF SXPAN SXPAT SXPAT SXYAN SXYAT SXYAF SXPKN SXPKT SXPKT SXYKN SXYKT SXYKF	5	0.5	10	8.1	5	2	35	41	15	3	14	2.7	1.5	7	8	1	1	6		
	6	0.75	12	9.2	5	2.5	36	42	15	4	13.5	3.2	1.5	8	10	1.3	1	6		
	8	1.0	15	11.5	4	4	40	46	16	5	14	4	1.5	10	13	2	3	9		
	8L						42	48	16	5	14	4	1.5	10	13	2	3	12		
	10	1.0	18	13.8	5	5	45	50	17	5	15	5	2.0	12	17	2.5	5	11.5		
	10L						48	53	17	5	15	5	2.0	12	17	2.5	5	16		
	12	1.5	21	16.2	6	6	54.5	60.5	20	6	17	6	2.5	14	19	3	6.5	14.5		
	12L						58.5	64.5	20	6	17	6	2.5	14	19	3	6.5	20		
	16	1.5	26	21.9	7	8	68	75.5	26	8	23	8	3.0	19	24	4	7.15	18		
	16L						73	80.5	26	8	23	8	3.0	19	24	4	7.15	25		

⊕ M dimensions with "L" have longer strokes compared to the conventional products. ⊕ Relief at Thread Base: None for M=5 and 6; provided for M=8-16. kgf=Nx0.101972

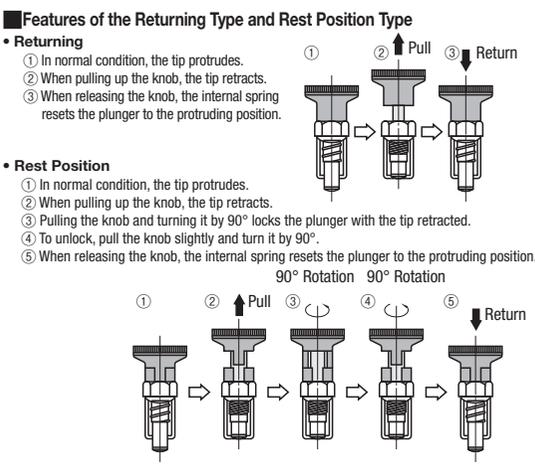
Ordering Example: SXPAN12L, PKKF10

■ **Returning**

M	Spherical			Tapered			Flat		
	PXAN	PXKN	SXPAN	PXAT	PXKT	SXPAT	PXAF	PXKF	SXPAT
5									
6									
8									
8L									
10									
10L									
12									
12L									
16									
16L									

■ **Rest Position**

M	Spherical			Tapered			Flat		
	PXYAN	PXYKN	SXYAN	PXYAT	PXYKT	SXYAT	PXYAF	PXYKF	SXYAF
5									
6									
8									
8L									
10									
10L									
12									
12L									
16									
16L									



Indexing Plungers

Flanged / Tapped Tip

■ **Features:** The flanges enable the indexing plunger to be adjusted to right or left.

■ **Flanged**

Screw	Returning	Rest Position	Knob	Main Body		Pin			Spring	Flange		Lock Nut	
				Material	Surface Treatment	Material	Hardness	Surface Treatment		Material	Surface Treatment	Material	Surface Treatment
Fine Thread	FPXA	FPXY	A2017 (Black Anodize)	SUM22	Black Oxide	S45C	50-60HRC	Black Oxide	SUS631J1	SS400	Trivalent Chromate	SS400	Black Oxide

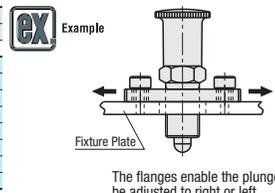
⊕ For M=8 and 8L, the pin hardness is 40-45HRC.

Returning: FPXA, FPXY
Rest Position: FPXA, FPXY

⊕ M dimensions with "L" have longer strokes compared to the conventional products.

Ordering Example: Part Number FPXA8

M	Unit Price			
	FPXA	FPXK	FPXY	FPXR
8				
8L				
10				
10L				
12				
12L				
16				
16L				



■ **Features:** By mounting the attachment to the tip, the pin dia. and length are adjustable, and the workpiece can be clamped.

■ **Tapped Tip**

Type	Knob	Main Body		Pin			Spring	Lock Nut	
		Material	Surface Treatment	Material	Hardness	Surface Treatment		Material	Surface Treatment
Returning: PXTAB, PXTNB, PXTAS, PXTNS	A2017 (Black Anodize)	SUM22	Black Oxide	S45C	50-60HRC	Black Oxide	SUS631J1	SS400	Black Oxide
Rest Position: PXTYB, PXTSB, PXTYS, PXTSS		SUS303		SUS440C	45HRC~			SUS303	

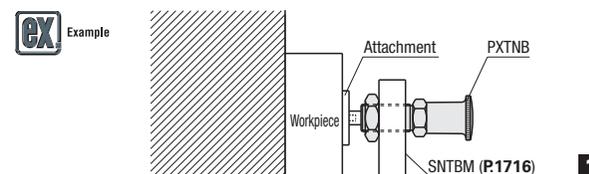
Returning: PXTA, PXTN
Rest Position: PXTY, PXTS

Part Number	Type	M	S (Stroke)	Pitch (Fine)	D	D1	B	M1	l	L								Load (N)			
										Returning	Rest Position	L1	L2	L3	L4	Sw1	Sw2	min.	max.		
(Returning) PXTAB, PXTNB, PXTAS, PXTNS	(Rest Position) PXTYB, PXTSB, PXTYS, PXTSS	10	5	1.0	18	13.8	5	M3	5	45	50	17	5	15	5	12	17	5	11.5		
		8	6							48	53										
		12	10	1.5	21	16.2	6	M4	6	54.5	60.5	20	6	17	6	14	19	6.5	14.5		
		16	7	1.5	26	21.9	8	M5	8	58.5	64.5	20	6	17	6	14	19	6.5	20		

kgf=Nx0.101972

Ordering Example: Part Number PXTAB10-5

M	S	Returning				Rest Position			
		PXTAB	PXTNB	PXTAS	PXTNS	PXTYB	PXTSB	PXTYS	PXTSS
5									
10									
12									
16									



Indexing Plungers

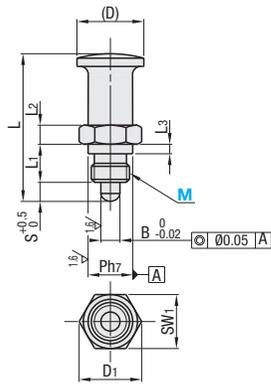
Pilot, Precision Grade / Press Fit / Knobs for Press Fit Plungers

■Features: Clearance of the pin is 0.035 or less.

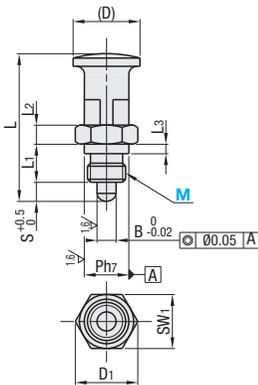
■Pilot, Precision

Load	Type		Thread Type	Knob	Main Body		Pin			Spring	
	Returning	Rest Position			Material	Hardness	Surface Treatment	Material	Hardness		Surface Treatment
Light Load	PMXSL	PMXYSL	Coarse Thread	Nylon 6	S45C	33-38HRC	Black Oxide	S45C	HV500-600	Black Oxide	SUS304-WPB
Heavy Load	PMXSH	PMXYSH									
Light Load	PXSL	PXYSL	Fine Thread	Nylon 6	S45C	33-38HRC	Black Oxide	S45C	HV500-600	Black Oxide	SUS304-WPB
Heavy Load	PXSH	PXYSH									

Returning



Rest Position



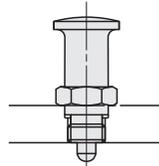
Part Number	Type	Pitch		Ph7	(D)	D1	S	B	L	L1	L2	L3	SW1	Light Load/Heavy Load				Unit Price							
		Coarse Thread	Fine Thread											min.	max.	min.	max.	PMXSL	PMXYSL	PXSL	PXYSL	PMXSH	PMXYSH	PXSH	PXYSH
(Coarse Thread)	10	1.5	1	12	18	16.2	5	5	38	10	5	3	14	4.5	7.3	5.7	11.9								
(Fine Thread)	12	1.75	1.5	14	20	19.6	6	6	46	12	6	3	17	5.3	8.8	6.7	13.2								
	16	2	1.5	18	26	25.4	8	8	56.5	16	6	4	22	5.7	10.1	7.4	17.2								
	20	2.5	1.5	22	32	31.2	10	10	70	20	10	4	27	6.6	15.0	8.0	26.8								

Ordering Example Part Number PXSL20

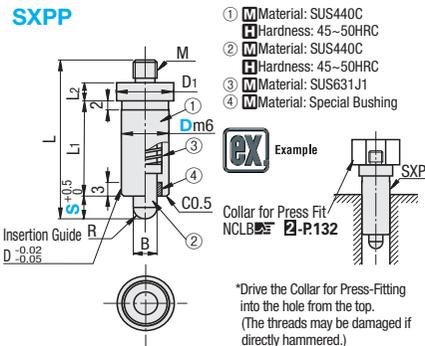
Example

■Features

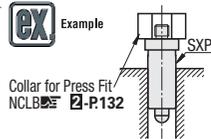
- h7 finished pilot ensures high repeatability.
- Clearance of the pin part is 0.035 or less, which helps to prevent backlash.



■Press Fit



- ① Material: SUS440C
- ② Material: SUS440C
- ③ Material: SUS631J1
- ④ Material: Special Bushing

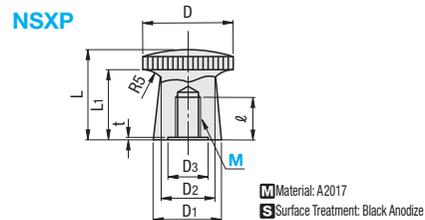


*Drive the Collar for Press-Fitting into the hole from the top. (The threads may be damaged if directly hammered.)

Part Number	Type	Dm6	S min	D1	B	L	L1	L2	M (Coarse)	R	Load (N) min.	Load (N) max.	Mass (g) min.	Mass (g) max.	Unit Price
SXPP	8	+0.015	4	10	4	32	19	4	3	2	9	9			
	10	+0.006	6	12	5	34	20	5	2.5	5	11.5	15			
	12	+0.018	8	14	6	37	24	6	3	6.5	14.5	26.5			
	15	+0.007	10	19	8	42	32	8	4	7.15	18	54	25	55.5	

Recommended Tolerance of Mounting Hole : H7 kgf=Nx0.101972

■Knobs for Press Fit Plungers



Material: A2017
Surface Treatment: Black Anodize

Part Number	Type	M	Applicable Indexing Plunger	L	L1	t	D	D1	D2	D3	ℓ	Unit Price
NSXP	3	SXPP8	15	12		15	9.8	9	6	5		
	5	SXPP10	18	14		18	11.8	11	8	8		
	6	SXPP12	22.5	17.5	1.5	21	13.8	13	9	9		
	8	SXPP15	27	21		26	18.8	18	11	11		

Ordering Example Part Number SXPP10 NSXP8

Indexing Plungers

Knobless Standard / Knobless Large Screws for Mounting Knobs

■Features: The most suitable knob for each purpose can be mounted.

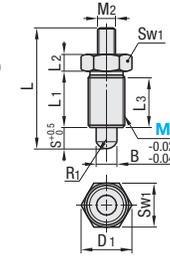
■Knobless Standard



Type	Main Body		Pin			Spring		Lock Nut	
	Material	Surface Treatment	Material	Hardness	Surface Treatment	Material	Material	Material	Surface Treatment
PXNAN	SUM22	Black Oxide	S45C	50-60HRC (Carburized)	Black Oxide	SUS631J1	SS400	-	Black Oxide
PXNKN	-	-	-	-	-				
SXNAN	SUS303	-	SUS440C	45HRC~	-				
SXNKN	-	-	-	-	-	SUS303	-	-	-

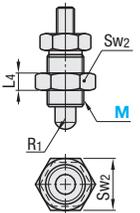
For M=8 and 8L, the pin hardness is 40-45HRC.

PXNAN (Stainless Steel)



With Lock Nut

PXNKN (Stainless Steel)



Part Number	Type	Pitch (Fine Thread)	D1	B	S	L	L1	L2	L3	L4	M2 (Coarse)	Sw1	Sw2	R1	Load (N)		Mass (g)		Unit Price			
															min.	max.	PXNAN	PXNKN	SXNAN	SXNKN	PXNAN	SXNAN
PXNAN	8	1.0	11.5	4	4	30	16	5	14	4	3	10	13	2	3	9	10	15				
																12	15	22				
	10	1.0	13.8	5	5	32	17	5	15	5	4	12	17	2.5	5	11.5	15	22				
																16	25	35				
	12	1.5	16.2	6	6	39	20	6	17	6	5	14	19	3	6.5	14.5	20	35				
																20	25	77				
16	1.5	21.9	8	7	49	26	8	23	8	6	19	24	4	7.5	18	25	77					
															25	77						

M dimensions with "L" have longer strokes compared to the conventional products.

kgf=Nx0.101972

Ordering Example Part Number PXNAN12L

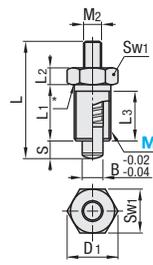
■Features: Screws for mounting knobs (M2) are larger by 1 size than the Standard Type.

■Knobless Large Screws for Mounting Knobs



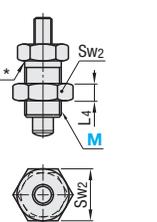
Type	Main Body		Pin			Spring		Lock Nut	
	Material	Surface Treatment	Material	Hardness	Surface Treatment	Material	Material	Material	Surface Treatment
PXNK	SUM22L	Black Oxide	S45C	50-60HRC	Black Oxide	SWP-B	S45C	-	Black Oxide
SXNA	-	-	-	-	-	Nickel Plating	SUS301	-	-
SXNK	SUS303	-	SUS303	-	Nickel Plating	-	SUS303	-	-

SXNA (Stainless Steel)



With Lock Nut

PXNK (Stainless Steel)



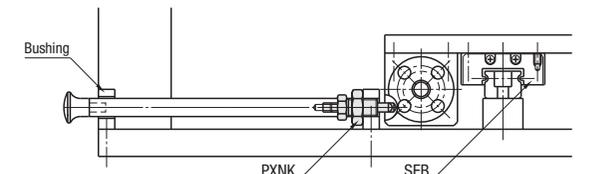
*The nut does not closely contact under the neck because of the radius.

Part Number	Type	Pitch (Fine Thread)	D1	B	S min.	L	L1	L2	L3	L4	M2 (Coarse)	Sw1	Sw2	R1	Load (N)		Mass (g)		Unit Price					
															min.	max.	min.	max.	SXNA	PXNK	SXNA	PXNK	SXNK	
SXNA	10	1.0	13.8	5	5	33	17	5	15	5	5	12	17	7	7	17	6	15	15	22				
															9	24	8	21	25	35				
PXNK	12	1.5	16.2	6	6	42	20	6	17	6	6	14	18	9	9	24	8	21	25	35				
															24	30	9	26	57	77				
SXNK	16	1.5	21.9	8	8	54	26	8	23	8	8	19	24	24	24	30	9	26	57	77				
															26	77								

kgf=Nx0.101972

Ordering Example Part Number SXNA12 PXNK16

Example



Features of the Returning Type and Rest Position Type P.1779

Indexing Plungers

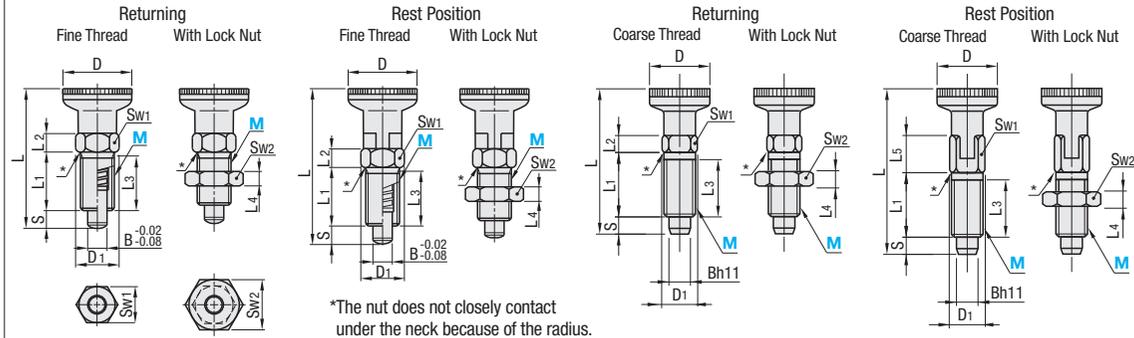
Fine Thread / Coarse Thread

Fine Thread / Coarse Thread



Screw	Returning	Rest Position	Knob		Main Body		Pin		Spring		Lock Nut		
			M Material	S Surface Treatment	M Material	S Surface Treatment	M Material	H Hardness	S Surface Treatment	M Material	S Surface Treatment	M Material	S Surface Treatment
Fine Thread	PXA	PXYA	Nylon 6 (Mat Black)	-	SUM22L	Black Oxide	S45C	50~60HRC	Black Oxide	SWP-B	S45C	Black Oxide	
	PXK	PXYK			SUS303	-	-	-	Nickel Plating	-	-	SUS303	-
	SXPA	-			-	-	-	-	-	-	-	-	-
Coarse Thread	SXPK	SXYK	-	-	-	-	-	-	-	SUS301	-	-	
	PMXA	PMXYA	SUM22L	Trivalent Chromate	SUS303	-	-	-	-	-	S45C	Trivalent Chromate	
	PMXK	PMXYK	-	-	-	-	-	-	-	-	-	-	

RoHS



*The nut does not closely contact under the neck because of the radius.

Tolerance

B	h11
4	0
5	-0.075
6	0
8	-0.090

• Features of the Returning Type and Rest Position Type P.1779

Fine Thread

M	Pitch (Fine Thread)	D	D1	B	S min.	L		L1	L2	L3	L4	Sw1	Sw2	Load (N)				Mass (g)			
						Returning	Rest Position							PXA min.	PXYA min.	SXPA min.	SXPX min.	PXA max.	PXK max.	PXYA max.	PXYK max.
10	1.0	21	13.8	5	5	45	51	17	5	15	5	12	17	7	17	6	15	20	27	23	30
12	1.5	25	16.2	6	6	54.5	61	20	6	17	6	14	18	9	24	8	21	32	42	38	48
16	1.5	31	21.9	8	8(7)	69	75.5	26	8	23	8	19	24	11	30	9	26	70	90	79	99

Min. S dimension of Rest Position Type M16 is shown in the (). kgf=Nx0.101972

Part Number	Type	M	Returning				Rest Position			Unit Price
			PXA	SXPA	PXK	SXPK	PXYA	PXYK	SXYK	
(Stainless Steel)		10								
PXA		12								
PXK		16								
PXYA										
PXYK										
SXYK										

Coarse Thread

Part Number	Type	M	Pitch (Coarse Thread)	D	D1	B	S min.	L		L1	L2	L3	L4	L5	Sw1	Sw2	Load (N)		Mass (g)				Unit Price
								Returning	Rest Position								min.	max.	PMXA	PMXK	PMXYA	PMXYK	
PMXA	6M	1.0	12	6.9	4	4	30.5	33	12	4.5	10	3.2	7	6	10	3	12	5	9	4	8		
PMXK	8M	1.25	16	9.2	5	5	40	43.5	16	6	14	4	9.5	8	13	5	24	10	15	11	16		
PMXYA	10M	1.5	18	11.5	6	6	49	52	20	7.5	18	5	10.5	10	16	5	21	17	24	18	15		
PMXYK	12M	1.75	21	13.8	8	8	59	63.5	24	9	22	6	13.5	12	18	6	22	31	41	36	46		

kgf=Nx0.101972

Ordering Example

Part Number
SXPA16
PMXK10M

Since the Coarse Thread Type (PMXA, PMXK, PMXYA, PMXYK) are thin threaded, do not exceed the tightening torques shown in the table to the right.

Allowable Tightening Torque (N·m)

M	Torque
6	1.5
8	9
10	20
12	25

Ball Lock Pins

Spring Type / Push Type

Features: Locks with the spring force. Priced at approx. 1/3 of the Push Type.

Ball Lock Pins - Spring Type



RoHS

Type	Ball	Pin	Handle	Ring					
L Selectable	L Configurable	M Material	H Hardness	M Material	S Surface Treatment	M Material	S Surface Treatment	M Material	S Surface Treatment
BLPS	BLPF	SUS440C	HRC55~	S45C	Electroless Nickel Plating	SUM23	Electroless Nickel Plating	SWRH	Nickel Plating

L Selectable

Part Number	Type	B	L Selection					B1	l1	D	l2	E	Unit Price				
			L=25	L=30	L=40	L=50	L=60										
BLPS	5	30	5.5	6	11	22	25	-	-	-	-	-	-	-			
	6	25 30 40 50	7	7	11	22	25	-	-	-	-	-	-				
	8	25 30 40 50	9.5	8	11	22	25	-	-	-	-	-	-				
	10	25 30 40 50 60	12	9	16	27	25	-	-	-	-	-	-				
	12	60	14.5	10	16	27	25	-	-	-	-	-	-				
	16	60	19	14	19	32	25	-	-	-	-	-	-				

L Configurable

Part Number	Type	B	L		B1	l1	D	l2	E	Unit Price
			5mm Increment							
BLPF	5	10-30	5.5	6	11	22	25			
	6	15-50	7	7	11	22	25			
	8	20-100	9.5	8	11	22	25			
	10	25-100	12	9	16	27	25			
	12	30-100	14.5	10	16	27	25			
	16	50-100	19	14	19	32	25			

Ordering Example

Part Number	L
BLPS8	25
BLPF10	45

B	Mating Hole Dimensions	Resistance when Removed (N)	Pin Fracture Load (kN)	Mass (g)
5	5 +0.07/0	9	5	19-22
6	6 +0.07/0	9	7	21-28
8	8 +0.09/0	9	13	27-58
10	10 +0.09/0	20	20	59-105
12	12 +0.11/0	30	29	73-135
16	16 +0.11/0	50	51	159-237

Ball Lock Pins - Push Type



RoHS

Type	Ball	Pin 1	Pin 2	Spring	Knob
	M Material	H Hardness	M Material	M Material	M Material
BLP	SUS440C	55HRC~	SUS630 Equivalent	SUS303	SUS631J1

Knob: Nylon 6 (Black, Orange)

- When the button is pushed, the ball lock is released. The pin can be inserted into a hole as the balls draw in the pin.
- When the button is released, the pin is locked as the balls extend outward from the pin.
- When the button is pushed again, the ball lock is released and the pin is pulled out.

Part Number	Type	B	L					D	D1	B1	l1	l2	Mating Hole Dimensions	Shear Load (kN)	Mass (g)	Unit Price			
			L=10-25	L=30-50	L=60, 80	L=100													
BLP	5	10 15 20 25 30	38	16	7	7	31.5	5	6	5 +0.07/0	24	30-32	-	-					
	6	10 15 20 25 30 40 50	6	7	7	31.5	6 +0.07/0	35	31-39	-	-								
	8	20 25 30 40 50	9.5	8	8	31.5	8 +0.09/0	63	38-47	-	-								
	10	25 30 40 50 60	12	9	9	31.5	10 +0.09/0	100	76-97	-	-								
	12	40 50 60 80	14.5	10	10	31.5	12 +0.11/0	144	100-135	-	-								
	16	60 80 100	19	14	14	31.5	16 +0.11/0	257	171-232	-	-								

Ordering Example

Part Number	L
BLP8	25