

Ball Plungers / Wrenches for Ball Plungers

L Selectable Long / L Selectable Stainless Steel Long

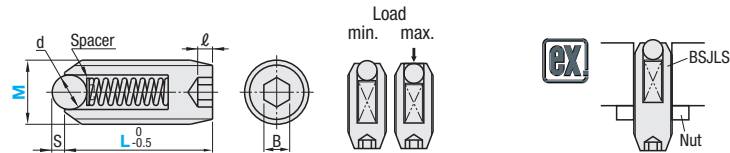
Ball Plungers / Ball Buttons

Hex Screw / Flanged

L Selectable Long



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



Part Number	Type	M (Coarse)	L Selection	Metal Ball		Plastic Ball		ℓ	B	Ultra Light Load (BPSLS)		Light Load (BPJLS, NPJRS)		Heavy Load (BSZLS)		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	
			* 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			
			* 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	
			* 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			
			* 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	
			* 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	
(Plastic Ball)																		
			NPJRS (* only)															

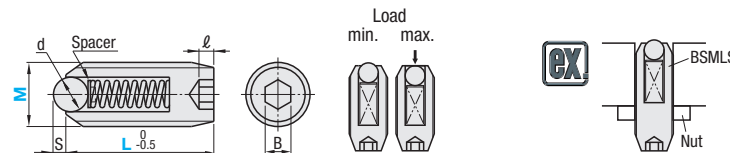
M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex socket. Min. load is the initial load, and max. load is the one when the tip is fully compressed. kgf=Nx0.101972

Ordering Example Part Number - L
BPJLS6 - 40

L Selectable Stainless Steel Long



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



Part Number	Type	M (Coarse)	L Selection	d	S	ℓ	B	Ultra Light Load (BSSLS)		Light Load (BSMLS)		Heavy Load (BSZLS)		Extra Heavy Load (BSXLS)		Unit Price
								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	
			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	
			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	
			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	
			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 1 ~ 3 pc(s).	Volume Discount Rate 4 ~ 19 pcs.
BPJG1	5, 6	P1763 Standard (only Metal Ball)		
BPJG2	8	P1764 Stainless Steel		
BPJG3	10	P1766 Long / Stainless Steel Long		
BPJG4	12	P1767 L Selectable Long / Stainless Steel Long		
BPJG5	16			

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

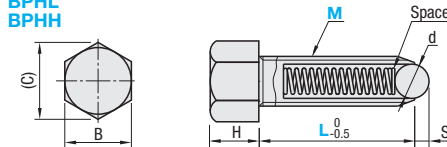
Ordering Example Part Number
BPJG2

Hex Screw

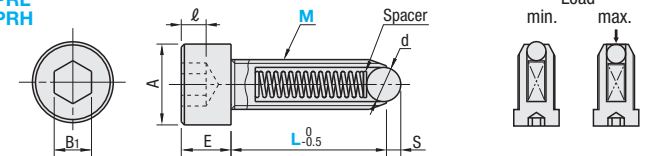


Type			Body			Ball		Spring	Spacer	Operating
			M Material	H Hardness	S Surface Treatment	M Material	H Hardness	M Material	M Material	Temperature
Light Load	Hex Head Cap Screw	BPHL	S45C	29~35HRC	Black Oxide	SUJ2	55HRC~	SWP-B	SUS304	-30~80°C
Heavy Load		BPHH			Electroless Nickel Plating					
Light Load	Hex Socket Head Cap Screw	BPRL	SCM435		Black Oxide					
Heavy Load	Hex Screw	BPRH			Electroless Nickel Plating					

Hex Head Cap Screw BPHL BPHH



Hex Socket Head Cap Screw BPRL BPRH



The incomplete threaded portion (Pitchx2) 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.	BPHL max.	BPHH min.	BPHH max.	BPHL BPHH	BPRL	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			
			5 *15 *20 30 40	3	1	8.5	8	4	9.2	5	3.5	2.5	3.3	9.8	4.9	19.6			
			6 *15 *20 30 40	3	1	10	10	5	11.5	6	4	3	5.1	15.3	9.8	29.4			
			8 *15 *20 30 40	4	1	13	13	6	15	8	5.5	4	5.5	19.1	12.7	39.2			
(Hex Socket Head Cap Screw)			10 15 *20 30 40 50	5	1.2	16	17	8	19.6	10	7	5	8.9	24.1	18.6	49			
			12 15 *20 30 40 50	7.1	1.8	18	19	10	21.9	12	8	6	10.9	29.3	19.6	58.8			
			16 25 30 40 50	9.5	2.5	24	24	14	27.7	16	10	8	14.9	48.9	29.4	98			

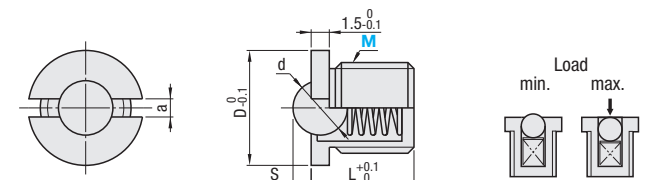
BPHL and BPHH are available for L sizes marked with * only.

Ordering Example Part Number - L
BPRL5 - 30

Flanged



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



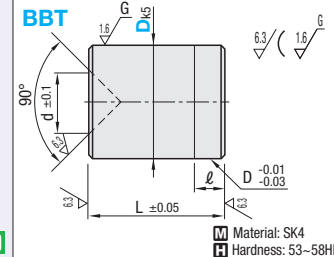
Part Number	Type	M (Coarse)	D	L	S	d	a	FBPJ Load (N)		FBPJS Load (N)		Applicable Wrench	Unit Price	
								min.	max.	min.	max.		FBPJ	FBPJS
FBPJ FBPJS			5	7	5	0.8	3	0.8	0.6	5.6	1.3	6.4	BPJG1	
			6	8	6	1	4	1	2.8	6.3	2.7	8	BPJG2	
			8	10	7	1.6	5	1	2.9	9.8	1.3	10.2	BPJG3	
			10	12	9	1.9	6.35	1.5	6.4	11.7	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	

kgf=Nx0.101972

Ordering Example Part Number
FBPJ5

For Tapped Type which enables users to change the parts easily, refer to P1769.

Ball Buttons



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

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

Ordering Example Part Number
BBT6