

Ball Plungers / Wrenches for Ball Plungers

L Selectable Long / L Selectable Stainless Steel Long

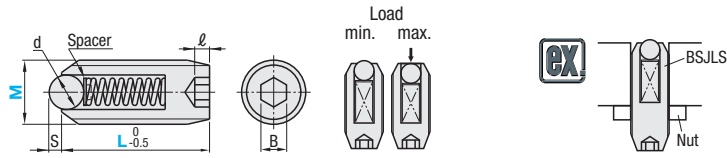
Ball Plungers / Ball Buttons

Hex Screw / Flanged

L Selectable Long



Type	Body		Ball		Spring	Spacer	Operating Temperature			
	M Material	H Hardness	S Surface Treatment	M Material				H Hardness		
Metal Ball	Ultra Light Load	BPJLS	EN 1.1191 Equiv.	29~35HRC	Black Oxide	EN 1.3505 Equiv.	55HRC~	JIS-SWP-B	Brass	-30~80°C
	Light Load	BPJLS								
	Heavy Load	BSJLS								
	Extra Heavy Load	BPWLS								
Plastic Ball	Light Load	NPJRS			Black Oxide	Polyacetal	-			



Part Number	Type	M (Coarse)	L Selection	Metal Ball		Plastic Ball		Ultra Light Load (BPJLS)		Light Load (BPJLS, NPJRS)		Heavy Load (BSJLS)		Extra Heavy Load (BPWLS)		Unit Price		
				d	S	d	S	l	B	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	2	2.5	0.6	1.6	2	4.9	3.9	9.8	2.5	12.6	
	BPJLS	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	
	BSJLS	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			
	BPWLS	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	
	(Plastic Ball)	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	
	NPJRS (* only)	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	

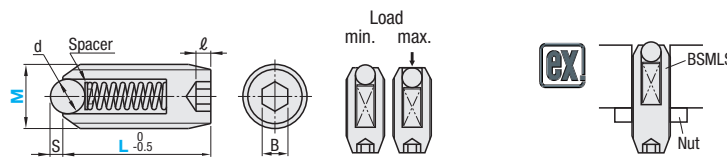
*M3 and M4 have no slits for a wrench on the tip. It can be installed only by using a hex screw. *Min. load is the initial load, and max. load is the one when the tip is fully compressed. kgf=Nx0.101972

Ordering Example: Part Number - L
BPJLS6 - 40

L Selectable Stainless Steel Long



Type	Body		Ball		Spring	Spacer	Operating Temperature	
	M Material	H Hardness	M Material	H Hardness				
Metal Ball	Ultra Light Load	BSSLS	EN 1.4301 Equiv.	EN 1.4125 Equiv.	55HRC	EN 1.4568 Equiv.	EN 1.4301 Equiv.	-30~260°C
	Light Load	BSMLS						
	Heavy Load	BSZLS						
	Extra Heavy Load	BSXLS						



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	l	B	min.	max.	min.	max.	min.	max.		min.
	(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	2	2.5	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 screw. *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



M Material: EN 1.1191 Equiv.
H Hardness: 34~43HRC
S Surface Treatment: Black Oxide (Fe3O4) **RoHS10**

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			

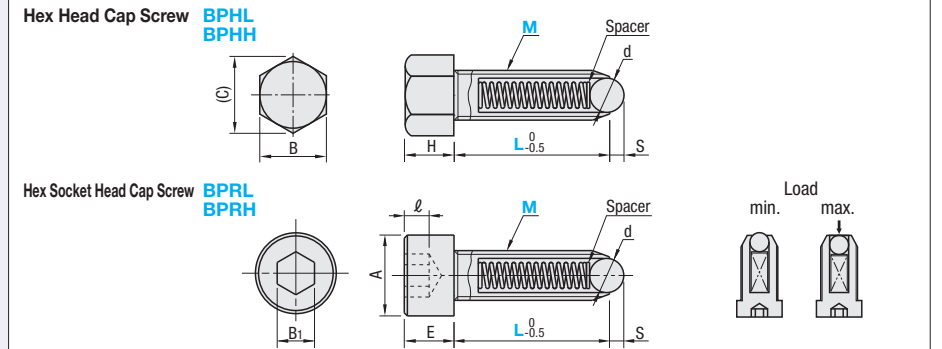
*For orders larger than indicated quantity, please request a quotation.

Ordering Example: Part Number
BPJG2

Hex Screw



Type	Body		Ball		Spring	Spacer	Operating Temperature			
	M Material	H Hardness	S Surface Treatment	M Material				H Hardness		
Light Load	Hex Head Cap Screw	EN 1.1191 Equiv.	29~35HRC	Black Oxide	EN 1.3505 Equiv.	55HRC~	JIS-SWP-B	EN 1.4301 Equiv.	-30~80°C	
										BPHL
										BPHH
										BPHH
Heavy Load	Hex Socket Head Cap Screw	EN 1.7220 Equiv.	29~35HRC	Black Oxide	EN 1.3505 Equiv.	55HRC~	JIS-SWP-B	EN 1.4301 Equiv.	-30~80°C	
										BPHL
										BPRH
										BPRH



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		
													min.	max.	min.	max.	BPHL	BPHH	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	1.0	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			

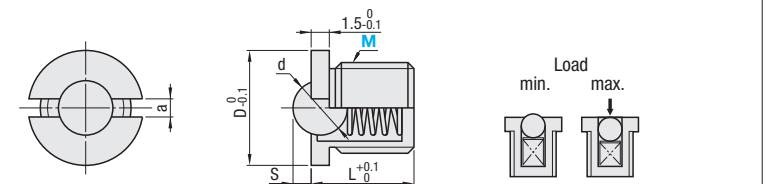
*BPHL and BPHH are available for L sizes marked with * only.

Ordering Example: Part Number - L
BPHL5 - 30

Flanged



Type	Body		Ball		Spring	Operating Temperature
	M Material	H Hardness	M Material	H Hardness		
FBPJ	EN 1.1191 Equiv.	29~35HRC	Black Oxide	EN 1.4125 Equiv.	55HRC~	-30~80°C
FBPJS	EN 1.4305 Equiv.	-	-	EN 1.4568 Equiv.		-30~260°C



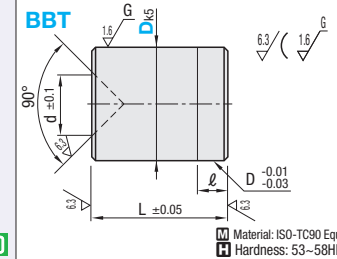
Part Number	Type	M (Coarse)	D	L	S	d	a	FBPJ Load (N)		FBPJS Load (N)		Applicable Wrench	Unit Price	
								min.	max.	min.	max.		FBPJ	FBPJS
	FBPJ	5	7	5	0.8	3	0.8	0.6	5.6	1.3	6.4	BPJG1		
		6	8	6	1	4	1	2.8	6.3	2.7	8	BPJG2		
		8	10	7	1.6	5	1.5	2.9	9.6	1.3	10.2	BPJG3		
		10	12	9	1.9	6.35		6.4	11.7	6.1	17.2	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 P.1769.

Ball Buttons



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