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**Ball Plungers**  
Loosening prevention treatment applied

RoHS

Type    is non-correspondence

BPJ BSJ  
Loosening prevention treatment not applied

BSZ BSX

Type	Loosening prevention treatment	Main body			Ball		Spring	Spacer	Possible temperature of use	
		M	H	S	M	H	M	M		
For light load	BPJ	Yes	S45C	29~35HRC	Black Oxide	SUJ2	55HRC~	SWP-B	SUS304 ※Brass	-30°C~80°C
For heavy load	BSJ	Yes	—	—	—	—	—	—	—	—
Stainless steel for heavy load	BSZ	No	SUS304 (comparate)	—	—	SUS440C	55HRC~	SUS631J1	SUS304	-30°C~260°C
Stainless steel for extra heavy load	BSX	No	—	—	—	—	—	—	—	—

Spacer  
Loosening prevention treatment (M5~M16) except for BSZ-BSX

※: The material of the spacer of BSJ is progressively being changed over from brass to SUS304.

d	S	L	ℓ	B	For light load BPJ				For heavy load BSJ		For heavy load BSZ		For extra heavy load BSX		Catalog No.	M (coarse thread)	U/Price	
					Load (N)		Load (N)		Load (N)		Load (N)		BPJ	BSJ			BSZ	BSX
					min.	max.	min.	max.	min.	max.	min.	max.	1~19	1~19				
1.0	0.2	5	1.0	0.9	1.0	2.04	—	—	1.4	2.37	—	—	—	—	*2			
1.5	0.5	7	1.0	1.5	1.0	2.0	1.5	2.9	1.5	2.9	2.2	5.0	—	—	3			
2.5	9	1.5	2	2.0	2.0	4.9	3.9	9.8	3.9	9.8	2.5	12.5	—	—	4			
3.0	0.8	12	2.0	2.5	2.9	9.8	4.9	19.6	4.9	19.6	11.2	24.1	—	—	5			
3.0	13	2.5	3	4.9	14.7	9.8	29.4	9.8	29.4	17.7	33.4	—	—	6				
4.0	1.0	15	2.5	4	6.9	19.6	12.7	39.2	12.7	39.2	21.4	45.3	—	—	8			
5.0	1.2	16	3.0	5	8.8	24.5	18.6	49.0	18.6	49.0	23.5	60.0	—	—	10			
7.0	1.8	20	3.0	6	9.8	29.4	19.6	58.8	19.6	58.8	24.1	63.7	—	—	12			
9.5	2.5	25	3.0	8	15.7	49.0	29.4	98.0	29.4	98.0	43.6	116.3	—	—	16			

Ⓜ2・M3・M4 have no groove for the specific wrench (BPJG), so that they can only be installed in hexagonal holes. Moreover they are not applied with loosening prevention treatment. For M5 or higher, use the specific wrench.  
 Ⓜ2 is only available for BPJ・BSZ. Load values min. "indicate an initial load, and max." a load when the ball is fully sunk. Load (kgf)=Load N×0.101972

Order **Catalog No. BPJ12**

Delivery **SGP Stock 3 Days**

Ⓜ For area out of Singapore please refer to P.i.

Quantity discount rate

Quantity	1~19	20~49	50~99	100~200
Rate	—	5%	10%	15%

### Ball Buttons

**BBT**

RoHS

Ⓜ SK4  
Ⓜ 53~58HRC

Catalog No.	Type	Dk5	L	d	W (g)	U/Price			
						1~19	20~49	50~199	200~500
BBT	6	+0.006 +0.001	8	2	2	Quotation			
	8	+0.007 +0.001	10	3	4	Quotation			
	10	+0.007 +0.001	12	4	8	Quotation			
	12	+0.009 +0.001	14	5	13	Quotation			
	16	+0.009 +0.001	18	8	28	Quotation			

Ⓜ To combine with Ball Plunger, make sure to match their catalog numbers (M=D). (BBT6 is also available for M5.)

Order **Catalog No. BBT6**

Delivery **SGP Stock**

Ⓜ For area out of Singapore please refer to P.i.

Quantity discount rate

Quantity	1~9	10~19	20~29	30~50
Rate	—	5%	10%	15%

### Ball Plunger Wrenches

**BPJG**

RoHS

Ⓜ S45C  
Ⓜ 34~43HRC  
Ⓜ Black Oxide

Catalog No.	Applicable M	U/Price for 1~9
BPJG 1	5・6	
BPJG 2	8	
BPJG 3	10	Quotation
BPJG 4	12	
BPJG 5	16	

Ⓜ Available for M5~M16 of ball plungers (BPJ・BSJ・BSZ・BSX).

Order **Catalog No. BPJG2**

Delivery **3 Days**

Ⓜ For area out of Singapore please refer to P.i.

Quantity discount rate

Quantity	1~9	10~19	20~29	30~50
Rate	—	5%	10%	15%

Stocks Availability Subjected to Prior Sales.

RoHS BPCT

Main body  
Ⓜ SCM435  
Ball  
Ⓜ SUJ2  
Ⓜ 55HRC~  
Spring  
Ⓜ SWP-B  
Possible temperature of use -30°C~80°C

H	T	B	d	S	L	e	Load (N)		Catalog No.		U/Price
							min.	max.	Type	M	
6	2.5	2	2.5	0.8	7	*—	5.8	11.7	BPCT	4	
8	3	2.5	3	0.8	8	*—	5.9	13.8		5	
9	3.5	3	3	0.8	9	1.5	7.5	17.6		6	Quotation
11.5	4	4	4	1	11	2.0	11.6	26.2		8	

\* There is no relief machining on M4 and M5. Also, there is an incomplete threaded part, so chamfer the tap hole on the mounting side.  
 Load values min. "indicate an initial load, and max." a load when the ball is fully sunk. Load (kgf)=Load N×0.101972

Order **Catalog No. BPCT5**

Delivery **SGP Stock**

Ⓜ For area out of Singapore please refer to P.i.

Quantity discount rate

Quantity	1~19	20~49	50~99	100~200
Rate	—	5%	10%	15%

### Example

**Feature**

- It is possible to determine the position from the counterbore depth, so there is no need to adjust the plunger when installing it.
- It is possible to install the plunger using a hex-wrench.
- It is recommended that you use the plunger mounted on a guide rail.

