Locating Pins - Sphere Large Head

D and P Selectable Tolerance

For products uncovered by e-Catalog Standard, see P.131.

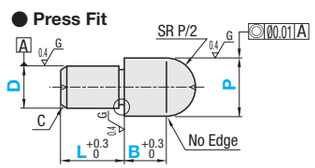
Features: Sphere Large Head with each dimension configurable. The tolerances on both ends are also configurable.

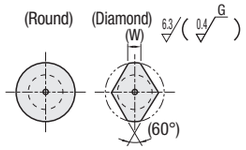
Material No.	M Material	S Surface Treatment	H Hardness	Type: Press Fit	Type: Tapped	Type: Threaded	Shape Code
(1)	SKS3 Equivalent	-	Treated Hardness: 60~63HRC	KFQ	KFQT	KFQN	A (Round) / D (Diamond)
(2)	SKS3 Equivalent	Hard Chrome Plating	Treated Hardness: 50~55HRC / Plating Hardness: 750HV ~	GKFQ	GKFQT	GKFQN (Round only)	
(3)	SUS304	-	-	SKFQ	SKFQT (Round only)	SKFQN	
(4)	SUS304	Hard Chrome Plating	Plating Hardness: 750HV ~	HKFQ	-	-	
(5)	SUS440C or 13Cr stainless	-	Treated Hardness: 50~55HRC	CKFQ	CKFQT (Round only)	CKFQN	
(7)	SKS3 Equivalent	Buffing	Treated Hardness: 60~63HRC	MKFQ	-	-	
(8)	SKS3 Equivalent	Hard Chrome Plating + Buffing	Treated Hardness: 50~55HRC / Plating Hardness: 750HV ~	MGKFQ	MGKFQT	MGKFQN	
(9)	SUS440C or 13Cr stainless	Buffing	Treated Hardness: 50~55HRC	-	MCKFQT	-	

Tolerance Selection

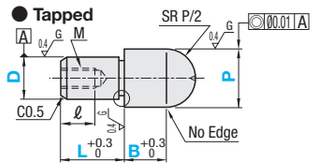
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 ~ 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 ~ 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 ~ 18.00	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	0 -0.018			
18.01 ~ 30.00	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020	0 -0.021			

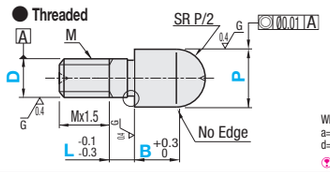
- Precision Type Unit Price: Standard Type Price x 1.1
- Hard Chrome Plating and buff finished products are not available with Precision Grade Tolerance.
- SUS440C or 13Cr stainless has an identification groove at any position on D part.
- Polished, centering hole is sometimes not available for SUS304.
- When the P dimension is small, a centering hole will cause the sphere section to become small.
- The spherical head may be polished.





- When D=P
  (1) Round Shape has no relief.
  (i) When D=P and tolerances are different
  (ii) When D=P and tolerances are the same
  (L+B) is general tolerance.
  (2) Diamond Shape has a relief.
- Straight Sphere Type for which D=P is standardized is also available. P.1690





When D<3 a=0.5 d=D-0.1
When D≥3 a=1.0 d=D-0.2

- Relief dimension is a reference value.

Press Fit

Type		Part Number: D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	(W)
KFQ, GKFQ*, SKFQ, HKFQ*, CKFQ	(Buff Finished) MKFQ*, MGKFQ* (Applicable when D≥5.)	A (Round), D (Diamond)	M, P, G, H, *A, *B	S, M, P, G, H, *A, *B	1	1.00~3.00(2.50)	2·3	2.0~5.0	0.1	-
					2	2.00~6.00(4.00)	2~6	2.0~15.0(10.0)	0.5	1.2
					3	3.00~8.00	3~10	2.0~15.0(10.0)		1.5
					4	4.00~8.00	3(4)~14	2.0~15.0(10.0)	1	1.8
					5	5.00~10.00	5~15	2.0~15.0(10.0)		2.2
					6	6.00~10.00	5~15	2.0~30.0(15.0)		3.0
					8	8.50~15.00	5(6)~16	2.0~30.0(15.0)	1.5	3.5
					10	10.00~17.00	5(10)~20	3.0~30.0(25.0)	2	4.0
					12	12.00~18.00	6(10)~24	3.0~30.0(25.0)		5.0
					13	13.00~20.00	7(12)~26	5.0~30.0(25.0)		5.5
					16	16.00~27.00	8(15)~32	5.0~30.0	3	7.0
					20	20.00~30.00	10(15)~40	5.0~30.0		9.0

P, L, B dimensions in ( ) are applicable to Diamond Shape. Hard Chrome Plating and buffed products are not available with * marked Precision Grade Tolerance (Precision Grade A and B).

Tapped

Type		Part Number: D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	(W)	M (Coarse)	* Tightening Torque N·cm	ℓ
KFQT, GKFQT, SKFQT, CKFQT	(Buff Finished) MGKFQT, MCKFQT	A (Round), D (Diamond)	M, P, G, H	S, M, P, G, H	5	5.00~8.00	5(9)~10	1.5~15.0(12.0)	2.2	M2	-	3
					6	6.00~10.00	6(9)~12	1.5~15.0(12.0)	3	M3	98	5
					6T					M2.6	-	4
					8	8.50~15.00	8(12)~16	1.5~30.0(15.0)	3.5	M5	461	8
					8T		6(12)~16			M4	225	6
					10	10.00~17.00	10(12)~20	3.0~30.0(20.0)	4	M5	461	8
					10T		6(12)~16			M4	225	6
					12	12.00~18.00	12~24	3.0~30.0(20.0)	5	M5	461	8
					12T		8(12)~18			M4	225	6
					13	13.00~20.00	13(14)~26	5.0~30.0(20.0)	5.5	M8	1911	10
					13T		8(14)~20			M6	784	9
					16	16.00~27.00	16~32	5.0~30.0(27.0)	7	M8	1911	12
					16T		10(14)~24			M6	784	9
					20	20.00~30.00	20~40	5.0~30.0	9	M8	1911	12
					20T		12(18)~30			M6	784	9

Pins of D dimension with T have one size smaller thread diameter and larger wall thickness. (Actual D dimension is the number without "T".)
L, B dimensions in ( ) are applicable to Diamond Shape. Note the strength of under-head part P.1618. Please confirm pilot hole depth on P.1618. Holes may go through.
* The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on P.2365.) Not applicable when using locking materials or lock washers.

Threaded

Type		Part Number: D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	(W)	M	* Tightening Torque N·cm
KFQN, GKFQN*, SKFQN, CKFQN	(Buff Finished) MGKFQN* (Applicable when D≥5.)	A (Round), D (Diamond)	M, P, G, H, *A, *B	S, M, P, G, H, *A, *B	3	3.50~8.00	2~6	2.0~10.0	1.5	M 3	98
					4	4.50~8.00	2~8	2.0~10.0	1.8	M 4	225
					5	5.50~8.00	3~10	2.0~15.0(10.0)	2.2	M 5	461
					6	6.50~10.00	3~10	2.0~15.0	3	M 6	784
					8	8.50~15.00	5~10	2.0~30.0(15.0)	3.5	M 8	1911
					10	11.00~17.00	5~15	3.0~30.0(25.0)	4	M10	3783
					12	13.00~20.00(18.00)	5(8)~15	3.0~30.0(25.0)	5	M12	6605
					16	17.00~27.00	5(8)~20	5.0~30.0	7	M16	16366
					20	22.00~30.00	5(10)~20	5.0~30.0	9	M20	32928

P, L, B dimensions in ( ) are applicable to Diamond Shape. Hard Chrome Plating and buffed products are not available with * marked Precision Grade Tolerance (Precision Grade A and B).
* The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on P.2365.) Not applicable when using locking materials or lock washers.

Ordering Example

Part Number: Type		D Tol.	F Tolerance	D	-	P	-	L	-	B
KFQ	A	M	S	6	-	P8.00	-	L8	-	B6.0

Precision Grade Price
When A and B tolerance is selected, multiply the unit price below by 1.1.

Press Fit

D	Unit Price Round Shape: (1)Treated SKS3 KFQA	(2)Hard SKS3 GKFQA	(3)SUS304 SKFQA	(4)Hard SUS304 HKFQA	(5)SUS440C or 13Cr stainless CKFQA	(7)Treated SKS3 + Buffed MKFQA	(8)Hard SKS3 + Buffed MGKFQA	Unit Price Diamond Shape: (1)Treated SKS3 KFQD	(2)Hard SKS3 GKFQD	(3)SUS304 SKFQD	(4)Hard SUS304 HKFQD	(5)SUS440C or 13Cr stainless CKFQD	(7)Treated SKS3 + Buffed MKFQD	(8)Hard SKS3 + Buffed MGKFQD
1						-	-	-	-	-	-	-	-	-
2						-	-						-	-
3						-	-						-	-
4						-	-						-	-
5														
6														
8														
10														
12														
13														
16														
20														

Tapped

D	Unit Price Round Shape: (1)Treated SKS3 KFQTA	(2)Hard SKS3 GKFQTA	(3)SUS304 SKFQTA	(5)SUS440C or 13Cr stainless CKFQTA	(8)Hard SKS3 + Buffed MGKFQTA	(9)SUS440C or 13Cr stainless + Buffed MCKFQTA	Unit Price Diamond Shape: (1)Treated SKS3 KFQTD	(2)Hard SKS3 GKFQTD	(3)SUS304 SKFQTD	(5)SUS440C or 13Cr stainless CKFQTD	(8)Hard SKS3 + Buffed MGKFQTD	(9)SUS440C or 13Cr stainless + Buffed MCKFQTD
5								-	-	-		
6									-	-		
6T									-	-		
8									-	-		
8T									-	-		
10									-	-		
10T									-	-		
12									-	-		
12T									-	-		
13									-	-		
13T									-	-		
16									-	-		
16T									-	-		
20									-	-		
20T									-	-		

Threaded

D	Unit Price Round Shape: (1)Treated SKS3 KFQNA	(2)Hard SKS3 GKFQNA	(3)SUS304 SKFQNA	(5)SUS440C or 13Cr stainless CKFQNA	(8)Hard SKS3 + Buffed MGKFQNA	Unit Price Diamond Shape: (1)Treated SKS3 KFQND	(2)Hard SKS3 GKFQND	(3)SUS304 SKFQND	(5)SUS440C or 13Cr stainless CKFQND	(8)Hard SKS3 + Buffed MGKFQND
3					-		-			-
4					-		-			-
5							-			
6							-			
8							-			
10							-			
12							-			
16							-			
20							-			

Alterations

Part Number	-	P	-	L	-	B	-	(GDC, RC···etc.)
KFQAMS6	-	P8.0	-	L8	-	B6.0	-	RC

Alterations	Insertion Guide	Sphere Tip	Air Vent	Wrench Flats	Wrench Hole Machining
Code	GDC	RC	AC	SC	LAC
Spec.	Adds the insertion guide. Ordering Code GDC. Insertion Guide D -0.01 -0.03. D: 3~12 ℓ=1; 13~20 ℓ=2. Not applicable when D≤2. Not applicable to Threaded Type.	Changes the relief to R0.5. Ordering Code RC. (R0.5). Applicable when P-D≥2	Adds an air vent. Ordering Code AC. D-0.15. D=P (Round). Not applicable to Threaded Type.	10, SC. SC = 1mm Increment. P-3≤SC≤P-1, SC≥D. When B≤11, adds wrench flats on the tip. Combination with LAC is not available.	Machines wrench holes. Ordering Code LAC. Q, B/2, (30°). Diamond Shape Hole is drilled on the diamond head vertically but with arbitrary orientation of their diamond surfaces against those of the diamond head. For Threaded Type, the alteration is applicable when D≥5. Combination with SC is not available. Not applicable to Press Fit Type. Applicable when Q+1.5≤B.

D	Applicable Dimension B
5, 6 6T, 8 8T, 10 10T, 12 12T, 13 13T, 16 16T, 20 20T	5.0~
	10.0~

Wrench Hole Dimensions

P	Q
5.50~9.99	2
10.00~16.99	3.5
17.00~	5