Locating Pins - Sphere Small Head

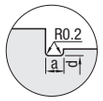
D and P Selectable Tolerance

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

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

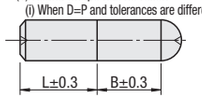
Material No.	M Material	S Surface Treatment	H Hardness	Type: Press Fit	Type: Tapped	Shape Code
(1)	SKS3 Equivalent	-	Treated Hardness: 60~63HRC	KFQS	KFQST	A (Round) D (Diamond)
(2)	SKS3 Equivalent	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50~55HRC Plating Hardness: 750HV~	GKFQS	GKFQST	
(3)	SUS304	-	-	SKFQS	SKFQST	
(4)	SUS440C Equivalent	-	Treated Hardness: 50~55HRC	CKFQS	-	

SUS440C Equivalent 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.

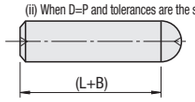


When P<3: a=0.5, d=P-0.1
When P≥3: a=1.0, d=P-0.2
Relief dimension is a reference value.

When D=P,
(1) Round Shape has no relief.
(i) When D=P and tolerances are different

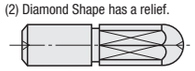


(ii) When D=P and tolerances are the same



(L+B) is general tolerance.

(2) Diamond Shape has a relief.



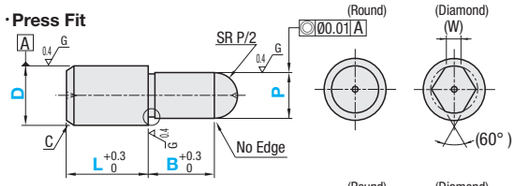
Straight Sphere Type for which D=P is standardized is also available. P.1690

Tolerance Selection

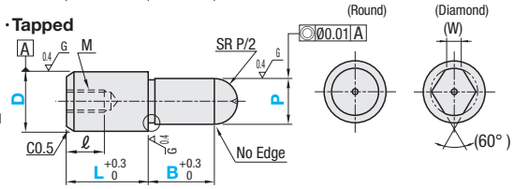
D or P	Standard Grade: M	P	G	H	S	Precision Grade: A	B
	m6	p6	g6	h7	-	-	-
1.00 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010	0 -0.01	+0.005 0	0 -0.005
3.01 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015			
10.01 18.00	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	0 -0.018			
18.01 20.00	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020	0 -0.021			

The unit price of Precision Type is the price of Standard Type multiplied by 1.1.
Hard Chrome Plating products are not available with Precision Grade Tolerance.
The spherical head may be polished.

・Press Fit



・Tapped



Press Fit

Part Number: Type	Shape	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	(W)	Unit Price Round Shape (1)Treated SKS3 KFQSA	(2)Hard SKS3 GKFQSA	(3)SUS304 SKFQSA	(4)SUS440C CKFQSA	Unit Price Diamond Shape (1)Treated SKS3 KFQSD	(2)Hard SKS3 GKFQSD	(3)SUS304 SKFQSD	(4)SUS440C CKFQSD
KFQS GKFQS * SKFQS CKFQS	A (Round) D (Diamond)	M P G H *A *B	S M P G H *A *B	2	1.00~2.00	2~5	2.0~10.0	0.3	-					-	-	-	-
				3	1.00~3.00	3~10	2.0~10.0	0.5	1.0					-	-	-	-
				4	1.50(2.00)~4.00	4~10	2.0~10.0	1	1.0								
				5	2.00~5.00	5~10	2.0~15.0(10.0)		1.2								
				6	2.00~6.00	5~17	2.0~15.0		1.5								
				8	3.00~8.00	8~21	2.0~20.0(15.0)	1.5	1.8								
				10	3.00~10.00	10~23	3.0~20.0	2	2.2								
				12	5.00~12.00	12~24	3.0~30.0(25.0)		2.5								
				13	6.00~13.00	13~26	5.0~30.0(25.0)		3								
				16	10.00~16.00	16~32	5.0~30.0	3	4								
				20	13.00~20.00	20~40	5.0~30.0		5								

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

Tapped

Part Number: Type	Shape	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price Round Shape (1)Treated SKS3 KFQSTA	(2)Hard SKS3 GKFQSTA	(3)SUS304 SKFQSTA	Unit Price Diamond Shape (1)Treated SKS3 KFQSTD	(2)Hard SKS3 GKFQSTD	(3)SUS304 SKFQSTD
KFQST GKFQST SKFQST	A (Round) D (Diamond)	M P G H	S M P G H	6	4.00~6.00	8(9)~17	2.0~15.0	1.5	M3	147	5						
				8	6.00~8.00	11(12)~21	2.0~20.0(15.0)	1.8	M5	676	8						
				10	7.00~10.00	11(12)~23	3.0~20.0	2.2									
				12	7.00~12.00	12~24	3.0~30.0(25.0)	2.5									
				13	8.00~13.00	13(14)~26	5.0~30.0(25.0)	3	M8	2803	10						
				16	10.00~16.00	16~32	5.0~30.0	4			12						
				20	13.00~20.00	20~40	5.0~30.0	5									

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.
* Tightening torque (reference) is of Tightening Torque Strength Class (10.9) indicated on Technical Data P.2365. Not applicable when using locking materials or lock washers.

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

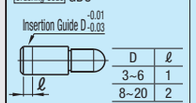
Ordering Example

Part Number										
Type	Shape	D Tol.	P Tolerance	D	-	P	-	L	-	B
KFQS	A	G	S	10	-	P8.00	-	L10	-	B8.0

Alterations

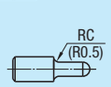
Part Number										
KFQSAGS10	-	P8.00	-	L10	-	B8.0	-	RC		

Alterations	Insertion Guide	Sphere Tip	Air Vent	Wrench Hole Machining
Code	GDC	RC	AC	LAC
Spec.	Adds the insertion guide. Ordering Code GDC	Changes the relief to R0.5. Ordering Code RC	Adds an air vent. Ordering Code AC	Machines wrench holes. Ordering Code LAC

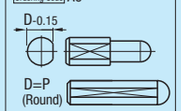


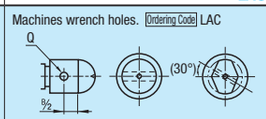
D	ℓ
3~6	1
8~20	2

Not applicable when D≤2



Applicable when D-P≥2.





D	Applicable Dimension P	B
8 8T	6.00~8.00	5.0~
10 10T	7.00(8.00)~10.00	
12 12T	7.00(8.00)~12.00	
13 13T	8.00~13.00	
16 16T	10.00~16.00	
20 20T	13.00~20.00	10.0~

Wrench Hole Dimensions P	Q
6.00~9.99	2
10.00~15.99	3.5
16.00~	5

P dimension in ( ) is applicable to Diamond Shape.
Round Shape is applicable to D≥8, and Diamond Shape is applicable to D≥10.
Diamond Shape Hole is drilled on the diamond head vertically but with arbitrary orientation of its diamond surfaces against those of the diamond head.
Applicable when Q+1.5≤B. Not applicable to Press Fit Type.

Locating Pins - Sphere Large/Small Head

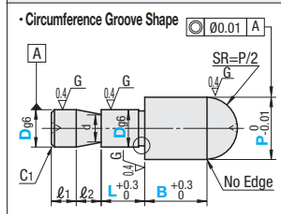
Set Screw

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

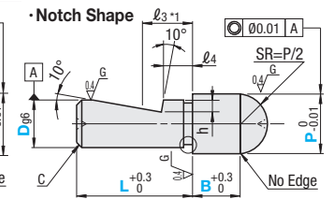
Features: Sphere Large Head/Small Head - Set Screw. Selectable from Circumference Groove, Notched and Set Screw Flat Shapes.

Material No.	M Material	S Surface Treatment	H Hardness	Type: Circumference Groove	Type: Notched	Type: Set Screw Flat	Shape Code
(1)	SKS3 Equivalent	-	Treated Hardness: 60~63HRC	JPGQ	JPCQ	JPDQ	S (Round) D (Diamond)
(2)	SKS3 Equivalent	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50~55HRC Plating Hardness: 750HV~	GJPGQ	GJPCQ	-	
(3)	SUS304	-	-	SJPGQ	SJPCQ	-	
(4)	SUS440C Equivalent	-	Treated Hardness: 50~55HRC	CJPGQ	-	-	

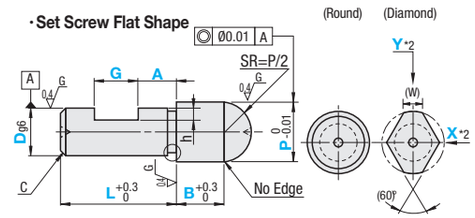
・Circumference Groove Shape



・Notch Shape



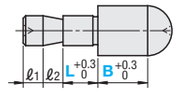
・Set Screw Flat Shape



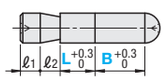
SUS440C Equivalent has an identification groove at any position on D part. *1. ℓ3 is the recommended dimension of the position of set screw tip. L>G+A+1

*2 Select set screw position X or Y for Notched Diamond Type and Set Screw Flat Diamond Type.

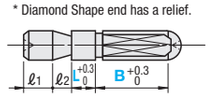
When D<P (Large Head)



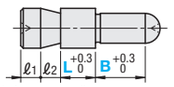
When D=P (Straight)



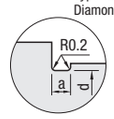
* Diamond Shape end has a relief.



When D>P (Small Head)



When the P dimension is small, a centering hole will cause the sphere section to become small.



When D (P) ≥ 3: a=1.0, d=D(P)-0.2
When D(P)<3: a=0.5, d=D(P)-0.1
Relief dimension is a reference value.

The spherical head may be polished.

Circumference Groove Shape

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	d	ℓ1	ℓ2	C1	(W) When D<P	(W) When D≥P
JPGQ GJPGQ SJPGQ CJPGQ	S (Round) D (Diamond)	6	-0.004 -0.012	2.00~10.00	3~12	2.0~20.0	4.5	5	5	1	3	1.5
		6S			2~12			2		0.5		
		8	-0.005 -0.014	3.00~13.00	4~16	2.0~20.0(15.0)	6.5	6	6	1.5	3.5	1.8
		8S			3~16			3		0.5		
		10		3.00~15.00	5~20	3.0~20.0	8	8	8	2	4	2.2
		10S			4~20			3		0.5		
		12	-0.006 -0.017	5.00~16.00	6~24	3.0~30.0(25.0)	10	8		2	5	2.5
		12S			5~24			4		0.5		
		16		10.00~25.00	8~32	5.0~30.0	14	8		3	7	4
		16S			7~32			4		0.5		
		20	-0.007 -0.020	13.00~30.00	10~40		18	8		3	9	5

Notch Shape, Set Screw Flat Shape

B dimension in ( ) is applicable to Diamond Shape.

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	G 1mm Increment	A 0.1mm Increment	Flat Position	ℓ3	ℓ4	h	C	Applicable Set Screw	*Tightening Torque N·cm	(W) When D<P	(W) When D≥P
(Notched) JPCQ GJPCQ SJPCQ	(Set Screw Flat) JPDQ S (Round) D (Diamond)	6	-0.004 -0.012	5.00~10.00	12~20	5.0~20.0(15.0)	3~9	2.0~8.0	X Y (Applicable to Diamond Shape Type only.)	5.5	2.5	1	1	M4	333	3	1.5
		8	-0.005 -0.014	5.00~13.00	14~22	5.0~30.0(15.0)		2.0~12.0		7.5	3.5	1.2	1.5	M5	676	3.5	1.8
		10		5.00~15.00	15~25			2.0~16.0					2	M6	1156	4	2.2
		12	-0.006 -0.017	5.00~16.00	15~25			2.0~20.0								5	2.5
		16		10.00~25.00	24~35	5.0~30.0		2.0~28.0		10.5	5.5	2	3	M8	2803	7	4
		20	-0.007 -0.020	13.00~30.00	27~40			2.0~36.0		13.5	8.5					9	5

B dimension in ( ) is applicable to Diamond Shape. Applicable set screws in the table are the recommended sizes for Notch Shape.
* Tightening torque (reference) is of Tightening Torque Strength Class (10.9) indicated on Technical Data P.2365. Not applicable when using locking materials or lock washers.

Circumference Groove Shape

D	Unit Price Round Shape (1)Treated SKS3 JPGQS	(2)Hard SKS3 GJPGQS	(3)SUS304 SJPGQS	(4)SUS440C CJPGQS	Unit Price Diamond Shape (1)Treated SKS3 JPGQD	(2)Hard SKS3 GJPGQD	(3)SUS304 SJPGQD	(4)SUS440C CJPGQD
6								
6S								
8								
8S								
10								
10S								
12								
12S								
16								
16S								
20								

Set Screw Flat Shape

D	Unit Price Round Shape (1)Treated SKS3 JPDQS	Unit Price Diamond Shape (1)Treated SKS3 JPDQD
6		
8		
10		
12		
16		
20		

Notch Shape

D	Unit Price Round Shape (1)Treated SKS3 JPCQS	(2)Hard SKS3 GJPCQS	(3)SUS304 SJPCQS	Unit Price Diamond Shape (1)Treated SKS3 JPCQD	(2)Hard SKS3 GJPCQD	(3)SUS304 SJPCQD
6						
8						
10						
12						
16						
20						

Part Number	-	P	-	L	-	B	-	G	-	A	-	Flat Position
JPGQS10	-	P12.00	-	L6	-	B3.5						
SJPCQD8	-	P5.05	-	L15	-	B10.1	-	G4	-	A8.0	-	Y