Locating Pins - Sphere Small Head

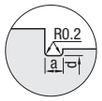
D and P Selectable Tolerance

Spec.Change
Printed in Purple

Features: Sphere Small Head with each dimension configurable. Selectable tolerance on both ends.

RoHS10

Material No.	M Material	S Surface Treatment	H Hardness	Type: Press Fit	Type: Tapped	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFQS	KFQST	A (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFQS	GKFQST	
③	EN 1.4301 Equiv.	-	-	SKFQS	SKFQST	
④	EN 1.4037 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFQS	-	



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.

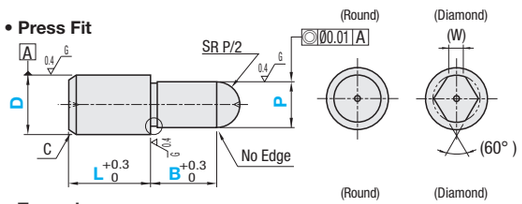
EN 1.4037 Equiv. has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for EN 1.4301 Equiv.
When the P dimension is small, a centering hole will cause the sphere section to become small.

Tolerance Selection

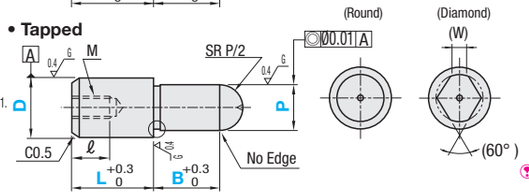
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010	0 -0.01	+0.005 0	0 -0.005
3.01 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015			
10.01 18.00	+0.018 +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. (Round down to nearest ten yen)
Hard Chrome Plating products are not available for Precision Grade Tolerance.
The spherical head may be polished.

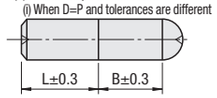
• Press Fit



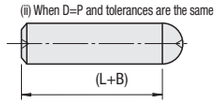
• Tapped



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

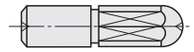


(ii) When D=P and tolerances are the same



(L+B) is general tolerance.

(2) Diamond Shape has a relief.



Straight Sphere Type for which D=P is standardized is available. P.1642

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 EN 1.2510 Equiv. Hardened KFQSA	② Hard EN 1.2510 Equiv. GKFQSA	③ EN 1.4301 Equiv. SKFQSA	④ EN 1.4037 Equiv. CKFQSA	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened KFQSD	② Hard EN 1.2510 Equiv. GKFQSD	③ EN 1.4301 Equiv. SKFQSD	④ EN 1.4037 Equiv. 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	2~4	2.0~10.0	0.3	-					-	-	-	-
				3	1.00~3.00	3~6	2.0~10.0	0.5	1.0					-	-	-	-
				4	2.00~4.00	4~8	2.0~10.0	1	1.0								
				5	2.00~5.00	5~10	2.0~10.0		1.2								
				6	2.00~6.00	6~12	2.0~12.0		1.5								
				8	3.00~8.00	8~16	2.0~15.0	1.5	1.8								
				10	3.00~10.00	10~20	3.0~20.0	2	2.2								
				12	5.00~12.00	12~24	3.0~20.0		2.5								
				13	6.00~13.00	13~26	5.0~20.0		3								
				16	10.00~16.00	16~32	5.0~20.0	3	4								
				20	13.00~20.00	20~40	5.0~20.0		5								

Hard Chrome Plating products are not available in Precision Grade* (precision 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 N·cm	ℓ	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened KFQSTA	② Hard EN 1.2510 Equiv. GKFQSTA	③ EN 1.4301 Equiv. SKFQSTA	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened KFQSTD	② Hard EN 1.2510 Equiv. GKFQSTD	③ EN 1.4301 Equiv. SKFQSTD
KFQST GKFQST SKFQST	A (Round) D (Diamond)	M P G H	S M P G H	6	4.00~6.00	8(9)~12	2.0~12.0	1.5	M3	98	5						
				8	6.00~8.00	11(12)~16	2.0~15.0	1.8	M5	461	8						
				10	7.00~10.00	11(12)~20	3.0~20.0	2.2									
				12	7.00~12.00	12~24	3.0~20.0	2.5									
				13	8.00~13.00	13(14)~26	5.0~20.0	3	M8	1911	10						
				16	10.00~16.00	16~32	5.0~20.0	4			12						
				20	13.00~20.00	20~40	5.0~20.0	5									

L dimension in ( ) is applicable to Diamond Shape. Note the strength of under-head part. P.1566 Please confirm pilot hole depth on P.1566. Holes may go through.
* The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on P. 2297.) Not applicable when using locking materials or lock washers.

Ordering Example

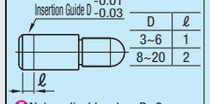
Part Number										
Type	Shape	D Tol.	P Tolerance	D	-	P	-	L	-	B
KFQS	A	G	S	10	-	P8.00	-	L10	-	B8.0

Alterations

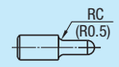
Part Number	-	P	-	L	-	B	-	(GDC, RC, AC)
KFQSAGS10	-	P8.00	-	L10	-	B8.0	-	RC

Precision Grade Price
When A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation
KFQSAAB5-P3.50-L7-B5.5

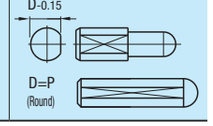
Alterations	Insertion Guide	Sphere Tip	Air Vent
Code	GDC	RC	AC
Spec.	Adds the insertion guide. Ordering Code GDC	Changes the relief to R0.5. Ordering Code RC	Adds an air vent. Ordering Code AC



Not applicable when D≤2



Applicable when D-P≥2.



Locating Pins - Sphere Large/Small Head

Set Screw

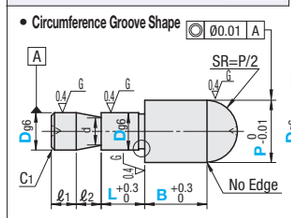
Spec.Change
Printed in Purple

Features: Sphere Large Head/Small Head - Set Screws. Selectable from Circumference Groove / Notched / Set Screw Flat Shape.

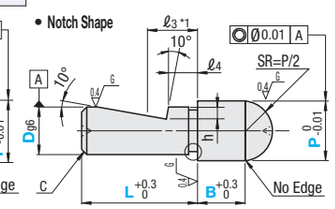
RoHS10

Material No.	M Material	S Surface Treatment	H Hardness	Type: Circumference Groove	Type: Notched	Type: Set Screw Flat	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPGQ	JPCQ	JPDQ	S (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPGQ	GJPCQ	-	
③	EN 1.4301 Equiv.	-	-	SJPGQ	SJPCQ	-	
④	EN 1.4037 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPGQ	-	-	

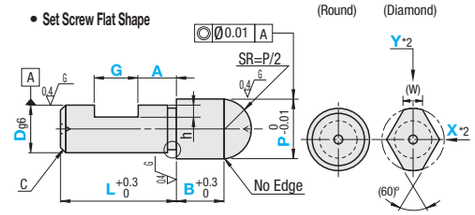
• Circumference Groove Shape



• Notch Shape

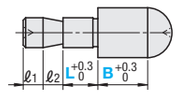


• Set Screw Flat Shape

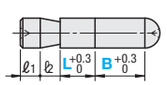


EN 1.4037 Equiv. has an identification groove at any position on D part. *1. ℓ3 is the recommended dimension of the position of set screw tip. L>G+A+1

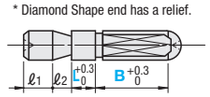
When D<P (Large Head)



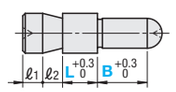
When D=P (Straight)



* Diamond Shape end has a relief.

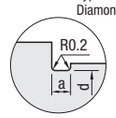


When D>P (Small Head)



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

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



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

The spherical head may be polished.
Relief dimension is a reference value.

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		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		10	8		2	5	2.5
		12S			5~24			4		0.5		
		16		10.00~25.00	8~32	5.0~20.0	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

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	(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	3~9	2.0~8.0	X Y Applicable to Diamond Shape Type only.	5.5	2.5	1	1	M4	3	1.5
		8	-0.005 -0.014	5.00~13.00	14~22			2.0~12.0		7.5	3.5	1.2	1.5	M5	3.5	1.8
		10		5.00~15.00	15~25			2.0~16.0					2	M6	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			2.0~28.0		10.5	5.5	2	3	M8	7	4
		20	-0.007 -0.020	13.00~30.00	27~40			2.0~36.0		13.5	8.5				9	5

Applicable set screws in the table are the recommended sizes for Notch Shape.

Circumference Groove Shape

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened JPGQS	② Hard EN 1.2510 Equiv. GJPGQS	③ EN 1.4301 Equiv. SJPGQS	④ EN 1.4037 Equiv. CJPGQS	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened JPGQD	② Hard EN 1.2510 Equiv. GJPGQD	③ EN 1.4301 Equiv. SJPGQD	④ EN 1.4037 Equiv. CJPGQD
6								
6S								
8								
8S								
10								
10S								
12								
12S								
16								
16S								
20								

Set Screw Flat Shape

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened JPDQS	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened JPDQD
6		
8		
10		
12		
16		
20		

Notch Shape

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened JPCQS	② Hard EN 1.2510 Equiv. GJPCQS	③ EN 1.4301 Equiv. SJPCQS	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened JPCQD	② Hard EN 1.2510 Equiv. GJPCQD	③ EN 1.4301 Equiv. 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