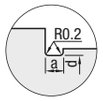
Locating Pins - Small Head, Tapered

Configurable Taper Angle, D and P Selectable Tolerance

Spec.Change
Printed in Purple

Features: Small Head, Tapered, with each dimension configurable. Selectable tolerance on both ends and tapered dimensions.

Material No.	M Material	S Surface Treatment	H Hardness	Press Fit Type	Press Fit Shape Code	Tapped Type	Tapped Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFS	A (Round) / D (Diamond)	KFST	A (Round) / D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFS		GKFST	
④	EN 1.4301 Equiv.	-	-	SKFS		SKFST	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HKFS		HKFST	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFS		CKFST	



When P<3: a=0.5, d=P-0.1
When P≥3: a=1.0, d=P-0.2

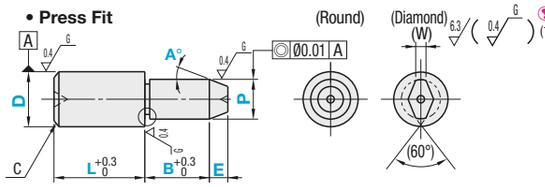
Relief dimension is a reference value.

Tolerance Selection

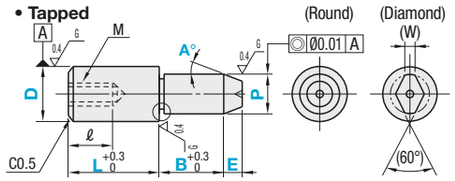
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 / +0.002	+0.012 / +0.006	-0.002 / -0.008	0 / -0.010	0 / -0.01	+0.005 / 0	0 / -0.005
3.01 ~ 6.00	+0.012 / +0.004	+0.020 / +0.012	-0.004 / -0.012	0 / -0.012			
6.01 ~ 10.00	+0.015 / +0.006	+0.024 / +0.015	-0.005 / -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 off 1s JPY digit.)
Hard Chrome Plating products are not available for Precision Grade Tolerance.
EN 1.4125 Equiv. has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for EN 1.4301 Equiv.
P-2EtanA≥0.73 (Tip dia. Ø0.73 or more)
Reference: tan15°≈0.267 tan30°≈0.577 tan45°=1 tan60°≈1.732

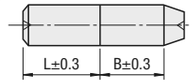
• Press Fit



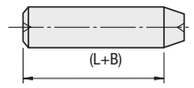
• Tapped



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

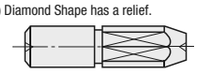


(ii) When D=P and tolerances are the same



(L+B) is general tolerance.

(2) Diamond Shape has a relief.



Straight Tapered Type for which D=P is standardized is available. ☞P.1641

Press Fit

Part Number Type	Shape	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	C	(W)	Unit Price Round Shape ① KFSA	② GKFSA	④ SKFSA	⑤ HKFSA	⑥ CKFSA	Unit Price Diamond Shape ① KFSD	② GKFSD	④ SKFSD	⑤ HKFSD	⑥ CKFSD
KFS GKFS * SKFS HKFS * CKFS	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	0.5 ~ 10.0	15 / 30 / 45 / 60	0.3	-						-	-	-	-	-
				3	1.00(2.00)~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	3										
				16	10.00~16.00	16~32	5.0~20.0				4										
				20	13.00~20.00	20~40	5.0~20.0				5										

Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B). P dimension in ( ) is applicable to Diamond Shape.

Tapped

Part Number Type	Shape	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price Round Shape ① KFSTA	② GKFSTA	④ SKFSTA	⑤ HKFSTA	⑥ CKFSTA	Unit Price Diamond Shape ① KFSTD	② GKFSTD	④ SKFSTD	⑤ HKFSTD	⑥ CKFSTD
KFST GKFST SKFST HKFST CKFST	A (Round) / D (Diamond)	M P G H	S M P G H	5	3.00~5.00	8~10	2.0~10.0	0.5 ~ 10.0	15 / 30 / 45 / 60	1.2	M2	-	3									-	-
				6	4.00~6.00	8(9)~12	2.0~12.0			1.5	M3	147	5										
				6T							M2.6	-	4										
				8	6.00~8.00	11(12)~16	2.0~15.0			1.8	M5	676	8										
				8T							M4	333	6										
				10	7.00~10.00	11(12)~20	3.0~20.0			2.2	M5	676	8										
				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	2803	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. Pins of D dimension with T have one size smaller thread diameter and larger wall thickness. (Actual D dimension is the number without "T".)
Note the strength of under-head part. ☞P.1566 Please confirm pilot hole depth on ☞P.1566. Holes may go through.
*Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞P. 2297 (10.9). Not applicable when using locking materials or lock washers.

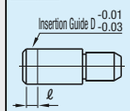
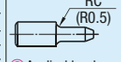
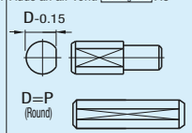
Ordering Example

Part Number											
Type	Shape	D Tol.	P Tolerance	D	- P -	L -	B -	E -	A
KFS	A	G	S	10	- P8.00 -	L10 -	B8.0 -	E3.0 -	A30

Alterations

Part Number	- P -	L -	B -	E -	A -	(GDC, RC, AC)
KFSAGS10	- P8.00 -	L10 -	B8.0 -	E3.0 -	A30 -	RC

Precision Grade Price
When A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation
KFSAAB10-P5.01-L15-B3.5-E5.0-A45

Alterations	Insertion Guide	Sphere Tip	Air Vent
Code	GDC	RC	AC
Spec.	Adds the insertion guide. Ordering Code GDC  D / ℓ: 3~6 / 1; 8~20 / 2. Not applicable when D≤2	Changes the relief to R0.5. Ordering Code RC  Applicable when D-P≥2.	Adds an air vent. Ordering Code AC 

Locating Pins - Large/Small Head, Tapered

Set Screw

Spec.Change
Printed in Purple

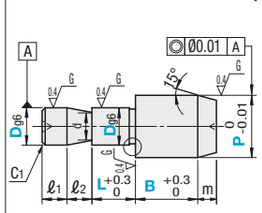
Features: Large Head/Small Head, Tapered, Set Screws. Selectable from Circumference Groove/Notched/Set Screw Flat Shape.

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	JPGT	JPCT	JPDT	S (Round) / D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPGT	GJPCT	GJPDT	
③	EN 1.4301 Equiv.	-	-	SJPGT	-	SJPDT	
④	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HJPGT	HJPCT	-	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPGT	CJPCT	CJPDT	

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

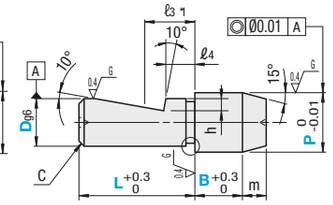
Relief dimension is a reference value.

• Circumference Groove Shape



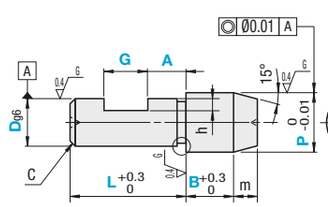
EN 1.4125 Equiv. has an identification groove at any position on D part.

• Notch Shape

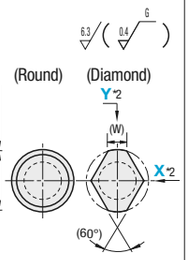


*1 ℓ3 is the recommended dimension of the position of set screw tip.

• Set Screw Flat Shape

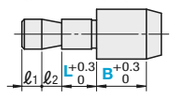


L>A+G+1

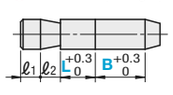


*2 Select set screw position X or Y for Notched Diamond Type and Set Screw Flat Diamond Type.

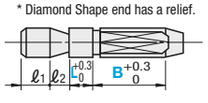
When D<P (Large Head)



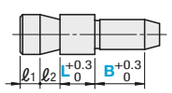
When D=P (Straight)



* Diamond Shape end has a relief.



When D>P (Small Head)



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	m	C1	(W) When D<P	When D≥P
JPGT GJPGT SJPGT HJPGT CJPGT	S (Round) / D (Diamond)	6	-0.004 -0.012	2.00~10.00	3~12	2.0~20.0	4.5	5	5	3	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	4	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		5	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

Pins of D dimension with S are for space-saving with shorter mounting parts (L and ℓ1). (Actual D dimension is the number without "S".)

Notch Shape, Set Screw Flat Shape

Part Number Type (Notched)	Type (Set Screw Flat)	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	m	Applicable Set Screw	*Tightening Torque N·cm	(W) When D<P	When D≥P
JPCT GJPCT HJPCT CJPCT	JPDT GJPDT SJPDT CJPDT	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	5.5	2.5	1.0	1	3	M4	333	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	4	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	Applicable to Diamond Shape Type only.								5	2.5
			16		10.00~25.00	15~35			2.0~28.0		10.5	5.5	2.0	3	5	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

Applicable set screw sizes in the table are the recommended values for Notched Shape.
*Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number	- P -	L -	B -	G -	A -	Flat Position
JPGTS10	- P12.00 -	L6 -	B3.5			
JPDTD10	- P10.05 -	L22 -	B7.5 -	G5 -	A14.3 -	X

Circumference Groove Shape

D	Unit Price Round Shape ① JPGTS	② GJPGTS	③ SJPGTS	④ HJPGTS	⑤ CJPGTS	Unit Price Diamond Shape ① JPGTD	② GJPGTD	③ SJPGTD	④ HJPGTD	⑤ CJPGTD
6										
6S										
8										
8S										
10										
10S										
12										
12S										
16										
16S										
20										

Notch Shape

D	Unit Price Round Shape ① JPCTS	② GJPCTS	④ HJPCTS	⑤ CJPCTS	Unit Price Diamond Shape ① JPCTD	② GJPCTD	④ HJPCTD	⑤ CJPCTD
6								
8								
10								
12								
16								
20								

Set Screw Flat Shape

D	Unit Price Round Shape ① JPDTS	② GJPDTS	③ SJPDTS	⑤ CJPDTS	Unit Price Diamond Shape ① JPDTD	② GJPDTD	③ SJPDTD	⑤ CJPDTD
6								
8								
10								
12								
16								
20								