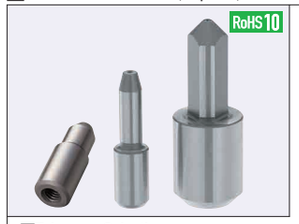
# Locating Pins - Small Head, Tapered

## Configurable Taper Angle / D and P Selectable Tolerance

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

**Features:** Small Head, Tapered, with each dimension configurable. The tolerances on both ends and the tapered dimensions are also configurable.




| Material No. | M Material | S Surface Treatment | H Hardness | Press Fit Type | Press Fit Shape Code | Tapped Type | Tapped Shape Code |
|---|---|---|---|---|---|---|---|
| (1) | SKS3 Equivalent | - | Treated Hardness: 60~63HRC | KFS | A (Round) | KFST | A (Round) |
| (2) | SKS3 Equivalent | Hard Chrome Plating Plating Thickness: 3μm or more | Treated Hardness: 50~55HRC Plating Hardness: 750HV~ | GKFS | A (Round) | GKFST | A (Round) |
| (4) | SUS304 | - | - | SKFS | D (Diamond) | SKFST | D (Diamond) |
| (5) | SUS304 | Hard Chrome Plating Plating Thickness: 3μm or more | Plating Hardness: 750HV~ | HKFS | D (Diamond) | HKFST | D (Diamond) |
| (6) | SUS440C Equivalent | - | Treated Hardness: 50~55HRC | CKFS | D (Diamond) | CKFST | D (Diamond) |

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

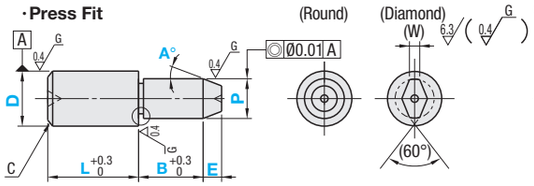
Relief dimension is a reference value.

### Tolerance Selection

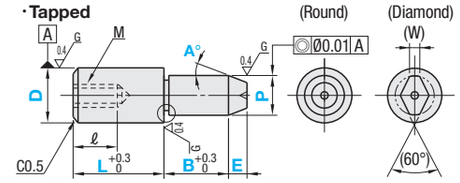
| D or P | Standard Grade M | P | G | H | S | Precision Grade A | B |
|---|---|---|---|---|---|---|---|
| | m6 | p6 | g6 | h7 | - | - | - |
| 1.00 ~ 3.00 | +0.008 +0.002 | +0.012 +0.006 | -0.002 -0.008 | 0 -0.010 | 0 -0.01 | +0.005 0 | 0 -0.005 |
| 3.01 ~ 6.00 | +0.012 +0.004 | +0.020 +0.012 | -0.004 -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.
Hard Chrome Plating products are not available with Precision Grade Tolerance.
SUS440C Equivalent has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for SUS304.
P-2EtanA≥0.73 (Tip dia. Ø0.73 or more)
Reference: tan15°≈0.267 tan30°≈0.577
tan45°=1 tan60°≈1.732

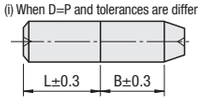
### ·Press Fit



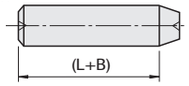

### ·Tapped




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

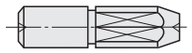



(ii) When D=P and tolerances are the same




(L+B) is general tolerance.

(2) Diamond Shape has a relief.



Straight Tapered Type for which D=P is standardized is also available. P.1689

### 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 | 2~5 | 2.0~10.0 | 0.5 ~ 10.0 | 15 30 45 60 | 0.3 | - | | | | | | - | - | - | - | - |
| | | | | 3 | 1.00(2.00)~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 (Precision Grade A and B).

### 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 | 2.0~15.0(10.0) | 0.5 ~ 10.0 | 15 30 45 60 | 1.2 | M2 | - | 3 | | | | | | | | | - | - |
| | | | | 6 | 4.00~6.00 | 8(9)~17 | 2.0~15.0 | | | 1.5 | M3 | 147 | 5 | | | | | | | | | | |
| | | | | 6T | | | | | | | M2.6 | - | 4 | | | | | | | | | | |
| | | | | 8 | 6.00~8.00 | 11(12)~21 | 2.0~30.0(15.0) | | | 1.8 | M5 | 676 | 8 | | | | | | | | | | |
| | | | | 8T | | | | | | | M4 | 333 | 6 | | | | | | | | | | |
| | | | | 10 | 7.00~10.00 | 11(12)~23 | 3.0~30.0(25.0) | | | 2.2 | M5 | 676 | 8 | | | | | | | | | | |
| | | | | 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.
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.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.

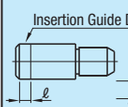
Ordering Example

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

Alterations

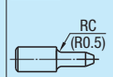
| Part Number | - | P | - | L | - | B | - | E | - | A | - | (GDC, RC, AC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KFSAGS10 | - | P8.00 | - | L10 | - | B8.0 | - | E3.0 | - | A30 | - | RC |

| 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 |

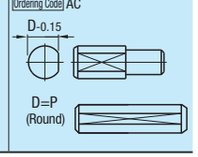



| D | ℓ |
|---|---|
| 3~6 | 1 |
| 8~20 | 2 |

Not applicable when D≤2




Applicable when D-P≥2.





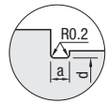

# Locating Pins - Large/Small Head, Tapered

## Set Screw

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

**Features:** Large Head/Small Head, Tapered, Set Screw Type. Selectable from Circumference Groove, Notched and Set Screw Flat Shapes.

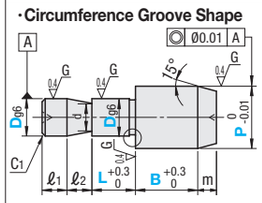
| Material No. | M Material | S Surface Treatment | H Hardness | Type: Circumference Groove | Type: Notched | Type: Set Screw Flat | Shape Code |
|---|---|---|---|---|---|---|---|
| (1) | SKS3 Equivalent | - | Treated Hardness: 60~63HRC | JPGT | JPCT | JPDT | S (Round) |
| (2) | SKS3 Equivalent | Hard Chrome Plating Plating Thickness: 3μm or more | Treated Hardness: 50~55HRC Plating Hardness: 750HV~ | GJPGT | GJPCT | GJPDT | S (Round) |
| (3) | SUS304 | - | - | SJPGT | - | SJPDT | D (Diamond) |
| (4) | SUS304 | Hard Chrome Plating Plating Thickness: 3μm or more | Plating Hardness: 750HV~ | HJPGT | HJPCT | - | D (Diamond) |
| (5) | SUS440C Equivalent | - | Treated Hardness: 50~55HRC | CJPGT | CJPCT | CJPDT | D (Diamond) |



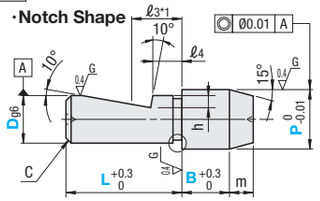

When D (P) ≥ 3 a=1.0 d=D(P)-0.2
When D(P)<3 a=0.5 d=D(P)-0.1

Relief dimension is a reference value.

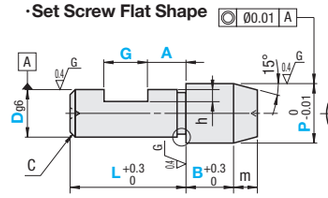
### ·Circumference Groove Shape

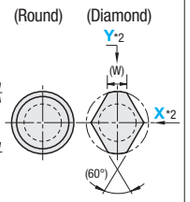



### ·Notch Shape



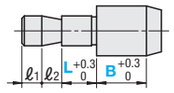

### ·Set Screw Flat Shape



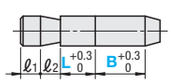




SUS440C Equivalent has an identification groove at any position on D part.
*1. ℓ3 is the recommended dimension of the position of set screw tip.
L>A+G+1

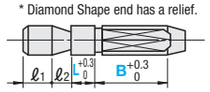
When D<P (Large Head)



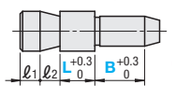

When D=P (Straight)




* Diamond Shape end has a relief.




When D>P (Small Head)




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

SUS304 may not be polished and may have no centering hole.

### Circumference Groove Shape

| Part Number Type | | 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 | (W) 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 | 2.0~20.0(15.0) | 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 | 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 | | 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 |

B dimension in ( ) is applicable to Diamond Shape. Pins having "S" inserted after the D dimension are of space-saving type with mounting parts (L and ℓ1) shortened. (Actual D dimension is the number without "S".)

### Notch Shape, Set Screw Flat Shape

| Part Number Type (Notched) | (Set Screw Flat) | | 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 | (W) 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 Applicable to Diamond Shape Type only. | 5.5 | 2.5 | 1.0 | 1 | 3 | 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 | 4 | M5 | 676 | 3.5 | 1.8 |
| | | | 10 | | 5.00~15.00 | 15~25 | 5.0~30.0(25.0) | | 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 | 15~35 | 5.0~30.0 | | 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 |

B dimension in ( ) is applicable to Diamond Shape. Applicable set screw sizes in the table are the recommended values for Notched 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.

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 |

### 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 | | | | | | | | |

### Circumference Groove Shape

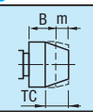
| D | Unit Price Round Shape (1) JPGTS | (2) GJPGTS | (3) SJPGTS | (4) HJPGTS | (5) CJPGTS | Unit Price Diamond Shape (1) JPGTD | (2) GJPGTD | (3) SJPGTD | (4) HJPGTD | (5) CJPGTD |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | | | | | | | | | | |
| 6S | | | | | | | | | | |
| 8 | | | | | | | |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

Alterations

| Part Number | - | P | - | L | - | B | - | (TC) |
|---|---|---|---|---|---|---|---|---|
| JPGTS10 | - | P12.00 | - | L6 | - | B7.5 | - | TC6 |

| Alterations | Length of Tapered Point |
|---|---|
| Code | TC |
| Spec. | Changes the m dimension. Ordering Code TC8 (1mm increment) |

B+m≥TC+2 (Straight Section min. 2mm)
P/2 - TC x tan15° (≈0.27) > 0.5 (Tip Ø1.0min.)
B dimension changes when TC is specified.
(Changed B dimension = B+m-TC)




| D | TC |
|---|---|
| 6 | 4~13 |
| 8 | 5~16 |
| 10 12 | 5~22 |

| D | TC |
|---|---|
| 13 | 5~22 |
| 16 20 | 6~23 |