Locating Pins / Bushings for Locating Pins

Locating Pins

Standard Pins Suitable for Positioning of Workpieces and Fixtures

Product Name	High Hardness Stainless Steel Large Head Tapered / Sphere Large Head / Large Flat Head	High Hardness Stainless Steel Small Head, Tapered / Straight, Tapered, Sphere
Page	1569~1573	1574

Large Head / Tapered

Press Fit / Tapped / Threaded / Screw Mounted / Set Screw — 1575~1584

Large Head / Sphere

Press Fit / Tapped / Threaded / Set Screw — 1585~1592

Large Head / Flat

Press Fit / Tapped / Threaded — 1593~1600

Large Head / Round Tapered

Press Fit / Tapped / Threaded — 1601~1604

Large Head / Others

Press Fit / Tapped / Threaded — 1605~1618

Small Head / Tapered

Press Fit / Tapped / Set Screw — 1619~1624

Small Head / Sphere

Press Fit / Tapped / Set Screw — 1625~1630

Small Head / Flat

Press Fit / Tapped — 1631~1636

Small Head / Round Tapered

Press Fit / Tapped — 1637, 1638

Small Head / Others

- Plastic, Small Head/Workpiece Insertion Pins - — 1639, 1640

Straight / Tapered Sphere

Press Fit / Tapped — 1641, 1642

Shouldered / Tapered Sphere

Press Fit / Tapped / Set Screw — 1643~1650

Others / Special

Screw Mounted / Pilot / Large Screw Mounted / Eccentric	Flanged Flat, Mounted / Height Adjusting Blocks / Grippers / Plate Pins	Air Vent Pin / Plastic, Small Diameter, Screw Mounted
1651, 1652	1652~1654	1655, 1656

Small Diameter Locating Pin

Locating Pins for Very Small Workpiece

High Hardness Stainless Steel Straight	High Hardness Stainless Steel Small Head
1657	1658

Straight	Small Head	Shouldered, Press Fit	Shouldered, Threaded	With Shoulder Seat	Height Adjusting / Plastic
1659	1660	1661	1662	1663	1664, 1656

Feed Pins

Locating Pins Suitable for Thick Plates and Guiding

Solid	Shouldered
1665	1666

Support Pins

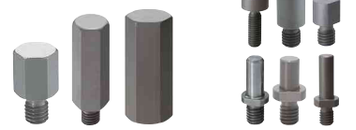
Locating Pins Available for Adjustment in Vertical and Horizontal Directions

Round, Stepped / Stepped, Configurable — 1667, 1668

Round, Tip Shape Selectable / Hex, Stepped — 1669, 1670

Height Adjusting Pins

Locating Pins Suitable for Adjustment in Vertical Direction



- Hex Threaded/Hex Tapped - — 1671, 1672

Round, Wrench Flats Threaded / Shouldered, Tapped	Round, Wrench Flats Tapped
1673	1674

Bushings for Locating Pins

Bushings Suitable for Accuracy Management and Abrasion Resistance

Press Fit / Round Counterbored	Round, Tip Set Screw	Height Adjusting Pins, Others	Straight / Flanged
1675	1676	1677, 1678	1679~1682

Retaining	Oval	Copper Alloy	Ceramic	No Lubrication Straight / Flanged	Round Flange	Square Flange	Compact Flange
1683	1684	1685	1686	1686	1687	1687	1688

Locating Pins for Fixtures

Locating Pins for Welding Fixtures

Standard Grade, Shouldered	Standard Grade, No Shoulder	Precision Grade, Shouldered	Precision Grade, No Shoulder	Configurable, Shouldered / No Shoulder
1689, 1690	1691, 1692	1693, 1694	1695, 1696	1697, 1698

Standard Grade, Short Set Screw	Standard Grade, Long Head	Standard Grade, Screw Mounted	Standard Grade, Round Edge	Standard Grade, Bullet Nose	Square Head	Oval	Alumina Coated Pins	Height Adjusting Pins
1699, 1700	1701	1702	1703	1704	1705	1706	1707	1708

Features of "High Hardness Stainless Steel" - New Material for Locating Pins

MISUMI's new material is "Corrosion Resistant", "Hard", and "Economical"

High Corrosion Resistance

* Reference: Antirust Performance Comparison Test

■Salt Water Spray Testing Method (Conforms to JIS Z2371)

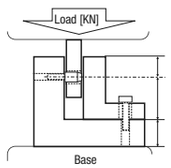
	High Hardness Stainless Steel	EN 1.4305 Equiv.	EN 1.4301 Equiv.	EN 1.4125 Equiv.	EN 1.2510 Equiv.
Before Test					
48hr					
96hr					

■Result: High Hardness Stainless Steel has corrosion resistance equivalent to that of EN 1.4305 Equiv.

High Hardness and Strength

■Shearing Testing Method

Locating Pins (same size as JPBB8-10) are set on the fixtures and a load is applied with Universal Tester to measure the shearing load.



Material	Shear Load	Hardness
High Hardness Stainless Steel	42KN	35HRC~
EN 1.2510 Equiv.	65KN	60~63HRC
EN 1.4301 Equiv.	27KN	10~20HRC
EN 1.4125 Equiv.	56KN	50~55HRC

1.6 times stronger than SUS304!

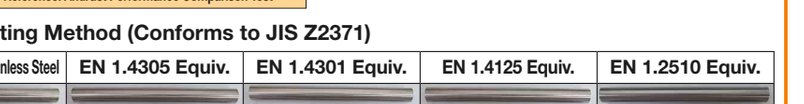
High Hardness Stainless Steel INFORMATION

- Note that High Hardness Stainless Steel contains Mn and dissolves by acid.
- High Hardness Stainless Steel is weakly magnetic (magnetic permeability: 1.10 ≤ μs < 1.15).

List of Various Shapes for New "High Hardness Stainless Steel" Products

Locating Pins

Diameter: Min. 2Ø ~ Max. 10Ø



Product Name	Large Head Tapered, Configurable	Configurable Taper Angle / D and P Selectable Tolerance	Sphere Large Head, Configurable
Page	1569	1570	1571

Configurable Taper Angle, D and P Selectable Tolerance	Large Flat Head, Configurable	Small Head Tapered, Configurable	Straight, Tapered, Sphere
1572	1573	1574	1574

Small Diameter Locating Pin

Diameter: Min. 0.5Ø ~ Max. 7Ø

Product Name	Straight	Small Head
Page	1657	1658

Technical Data on Locating Pins

① Recommended Tightening Torque for Locating Pins Screw Type

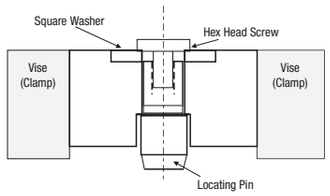
For Threaded/Tapped Locating Pins, the recommended torque (reference) is determined by our testing method.
Tightening with the torque greater than the recommended value may cause damage. Be sure to tighten the pins with the torque smaller than recommended.

■Recommended Torque Testing Method

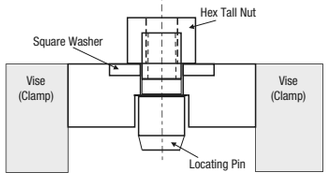
Locating Pins are set on the fixtures and the torque of Strength Class 10.9 is applied to nuts and screws. When the period of 24 hours elapses after tightening, no damage was confirmed.

- Using locking materials or lock washers on threads may cause excessive tightening force that is greater than the torque to be applied. The recommended torque cannot be applied at the above case.

Tap Testing Fixture Diagram



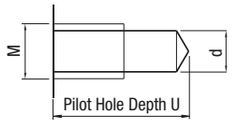
Thread Testing Fixture Diagram



■List of Recommended Tightening Torque

Strength Class	10.9
Unit	kgf · cm
M	Tightening Torque
M 3	147
M 4	333
M 5	676
M 6	1156
M 8	2803
M10	5557
M12	9702
M14	15484
M16	24108
M18	33124
M20	46942

② Locating Pins Tapped Depth



List of Tapped Pilot Hole

Thread Dia.	M2	M2.6	M3	M4	M5	M6	M8	M10
Pilot Hole Dia. d	1.8	2.3	2.6	3.4	4.3	5.1	6.9	8.6
Pilot Hole Depth U	8	8.5	9.5	12	14.5	17	21	24

- Pilot hole depth is for reference.

Strength of the under-head part will be decreased when the length of locating pin mounting shank is shorter than pilot hole depth U.

Change Data on Locating Pins for Fixtures

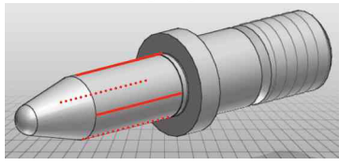
Alterations for wear grooves (MK) newly added

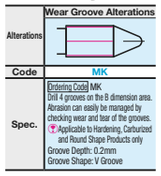
To meet the customers' request!

We do not know when to replace because we cannot manage abrasion properly...

<Alteration Details>
Add 4 grooves of 0.2 mm deep onto the insertion guide (B dimension) area.
Usage wear can be tracked and the accuracy of the fixture can be retained easily.

Wear Groove Image Figure * The red line indicates a groove.





* Not applicable to some products.

B dimension is selectable from 2 mm

To meet the customers' request!

We want to make insertion/extraction easier...

<Details>
Selectable lower limit for the insertion guide (B dimension) area has been expanded from **5mm** to **2mm**.Easy insertion and extraction.
* Not applicable to some products.

Reduced Shoulder Surface Finish Relief

To meet the customers' request!

The groove is so large that the workpiece gets stuck on shoulder...

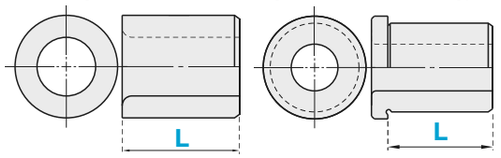
<Details>
As same as Precision Type, Standard Grade has been modified to R0.2 and Slot Width 0.5 to 1 mm (right figure).
* Applicable to all Shouldered Type.

Surface Finish Relief

Change/Technical Data on Bushings for Locating Pins

Expanded Configurable Type L Configurable Range

Expanded L Configurable Range for Configurable, Straight/Shouldered Type!
It can be configured at 1 mm increment according to the thickness of the mounting part.



■L Configurable Range

Conventional Range

12.0~60.0

* Straight O.D. Ø15

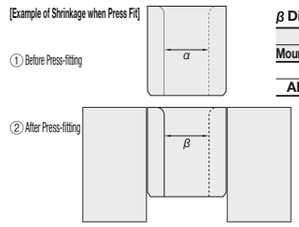
Expanded Range

5.0~60.0

Reduced I.D. of Bushings for Locating Pins

Bushings for Locating Pins shrink when being Press Fit.
The degree of shrinkage varies depending on the materials used for the mounting part and the D dimension tolerance of bushings.

[Example of Shrinkage when Press Fit]



β Dimension (Mounting Hole H7)

Mounting Material	D dim. Tolerance m6	D dim. Tolerance p6
Steel	α×99.93%	α×99.90%
Aluminum	α×99.96%	α×99.93%

- The above data is not applicable to Thin Wall Type (P.1679~1682). The above data is for reference.

Locating Pins
Selection Table

■Locating Pin Types

Standard Locating Pins available in various shapes and materials. We offer economical in-stock products and dimension-configurable products for each shape.

Insertion Guide (Tip) Classification			How to Mount						
Shape		Type	Press Fit	Tapped	Threaded	Circumference Groove	Notched	Set Screw Flat	Screw Mounted
Large Head	Tapered	Round	P.1569, 1575, 1581	P.1569, 1577, 1581	P.1569, 1579, 1581	P.1624	P.1624	P.1624	P.1584
		Diamond							
	Sphere	Round	P.1571, 1585, 1591	P.1571, 1587, 1591	P.1571, 1589, 1591	P.1630	P.1630	P.1630	-
		Diamond							
	Flat	Round	P.1573, 1593, 1599	P.1573, 1595, 1599	P.1573, 1597, 1599	-	-	-	-
	Round Tapered	Round	P.1601, 1603	P.1601, 1603	P.1601, 1603	-	-	-	-
	Others	Round	P.1605~	P.1606~	P.1607~	-	-	-	-
		Diamond							
Small Head	Tapered	Round	P.1574, 1619, 1623	P.1574, 1621, 1623	-	P.1624	P.1624	P.1624	-
		Diamond							
	Sphere	Round	P.1625, 1629	P.1627, 1629	-	P.1630	P.1630	P.1630	-
		Diamond							
	Flat	Round	P.1631, 1635	P.1633, 1635	-	-	-	-	-
	Round Tapered	Round	P.1637	P.1637	-	-	-	-	-
	Others	Round	P.1639	P.1640	-	-	-	-	-
		Diamond							
Straight	Tapered	Round	P.1574, 1641	P.1574, 1641	-	-	-	-	-
	Sphere	Round	P.1574, 1642	P.1574, 1642	-	-	-	-	-
Shouldered	Tapered	Round	P.1643, 1646, 1650	P.1644, 1646, 1650	P.1645, 1650	P.1649	P.1649	P.1649	-
Others	Various	-	P.1654	P.1654, 1655	P.1655	-	-	-	P.1651~

Locating Pins for Welding Fixtures / Bushings for Locating Pins
Selection Table

■Type of Locating Pins for Welding Fixtures

Locating Pins for the automotive industry and welding fixtures. These have a better shock-resistant performance than standard Locating Pins and are suitable for positioning of sheet metal.

Shape	Tip Shape	Mounting Part Shape							
		Threaded		Tapped		Circumference Groove		Notched	
		Shouldered	No Shoulder	Shouldered	No Shoulder	Shouldered	No Shoulder	Shouldered	No Shoulder
Standard (Round, Diamond)	Taper R	P.1689	P.1691	P.1702	P.1702	P.1689	P.1691	-	-
	Selection (Tapered, Taper R)	P.1690	P.1692	-	-	P.1690	P.1692	P.1700	P.1700
Round Edge (Round, Diamond)	Selection (Tapered, Taper R)	P.1703	P.1703	-	-	P.1703	P.1703	-	-
Bullet Nose (Round, Diamond)	Selection (Tapered, Taper R)	P.1704	P.1704	P.1704	P.1704	P.1704	P.1704	-	-
Diamond Shape	Selection (Tapered, Taper R)	P.1705	P.1705	-	-	P.1705	P.1705	-	-
Oval	Selection (Tapered, Taper R)	P.1706	P.1706	-	-	P.1706	P.1706	-	-

■Type of Bushings for Locating Pins

Bushings used together with Locating Pins and Slot Pins for Inspection Components. We offer economical in-stock products and made-to-order products with configurable length.

Shape	Type					
	Standard	Thin Wall	Retaining	Oval	No Lubrication	Copper Alloy
Straight	P.1679, 1680	P.1679, 1680	P.1683	-	P.1686	P.1685
Shouldered	P.1681, 1682	P.1681, 1682	P.1683	P.1684	P.1686	P.1685
Flanged	P.1687	-	-	P.1684	-	-

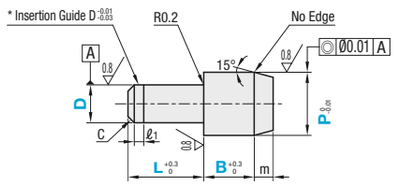
Locating Pins - High Hardness Stainless Steel Large Head, Tapered
Press Fit / Tapped / Threaded

Features: Large Head Tapered with each dimension configurable. We reduced the price drastically compared to the conventional products.

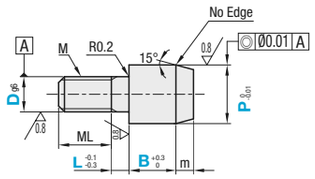
Material	Hardness	Pin Shape	Press Fit m6	Press Fit p6	Tapped g6	Threaded g6
High Hardness Stainless Steel	35HRC~	Round	AFPBA	AFPBPA	AFPBTA	AFPNA
		Diamond	AFPBD	AFPBPD	AFPBTD	AFPND

6.3 ▽ (0.8 ▽)

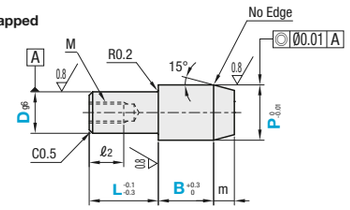
• Press Fit



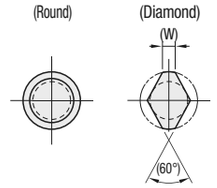
• Threaded



• Tapped



(Round) (Diamond)



Press Fit

Part Number Type	D	d dim. Tolerance m6	d dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	ℓ1	(W)	Unit Price Round Shape AFPBA AFPBPA	Unit Price Diamond Shape AFPBD AFPBPD
<Round> AFPBA (m6) AFPBPA (p6) <Diamond> AFPBD (m6) AFPBPD (p6)	2	+0.008 +0.002	+0.012 +0.006	2.50~ 8.00	3(4)~16	1.0~15.0	0.5	0.5	0	1.2		
	3			3.50~ 8.00					1	1.5		
	4	+0.012 +0.004	+0.02 +0.012	4.50~ 8.00			1	1		1.8		
	5			5.50~ 8.00				2		2.2		
	6			6.50~10.00				3		3		
	8	+0.015 +0.006	+0.024 +0.015	8.50~10.00	4(5)~16		1.5			3.5		

(P) L dimension in ( ) is applicable to Diamond Shape. (P) When L=3, C=0.5 and ℓ1=1.

Tapped

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	M (Coarse)	*Recommended Tightening Torque N·cm	ℓ2	Unit Price Round Shape AFPBTA	Unit Price Diamond Shape AFPBTD
AFPBTA (Round) AFPBTD (Diamond)	6	-0.004 -0.012	6.50~10.00	6(9)~16	1.0~15.0	3	3	3	147	5		
	8	-0.005 -0.014	8.50~10.00	8(12)~16		3	3.5	4	333	6		

(P) L dimension in ( ) is applicable to Diamond Shape. (P) Note the strength of under-head part. ☞P.1566 (P) 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.

Threaded

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ML	M (Coarse)	*Recommended Tightening Torque N·cm	m	(W)	Unit Price Round Shape AFPNA	Unit Price Diamond Shape AFPND
AFPNA (Round) AFPND (Diamond)	3	-0.002 -0.008	3.50~ 8.00	3~10	1.0~15.0	4.5	3	147	0.5	1.5		
	4	-0.004 -0.012	4.50~ 8.00			6	4	333	1	1.8		
	5		5.50~ 8.00			7.5	5	676	2	2.2		
	6		6.50~10.00			9	6	1156	3	3		
	8	-0.005 -0.014	8.50~10.00	4~10		12	8	2803		3.5		

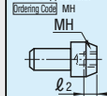
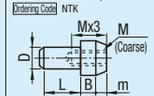
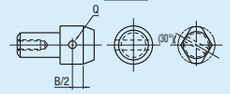
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

	Part Number Type	D		P		L		B
Standard	AFPBA	8	-	P9.02	-	L10	-	B3.2
Threaded	AFPNA	6	-	P8.00	-	L5	-	B4.0
Tapped	AFPBTA	8	-	P9.01	-	L12	-	B6.4

Alterations

Part Number		P		L		B		(MH, NTK, LAC)
AFPBPA8	-	P9.05	-	L12	-	B6.4	-	MH

Alterations	Tapping	Removal Tap	Wrench Hole Machining
Code	MH	NTK	LAC
Spec.	Adds a tapped hole. Ordering Code MH	Removes a removal tap hole. Ordering Code NTK	Machines wrench holes. Ordering Code LAC
			
	(P) Applicable when D≥6 (P) B≥ℓ2+4 ⊗ Applicable to Press Fit only. ⊗ Combination with NTK is not available.	(P) Effective tap length of D depends on B dimension specifiable range. (P) When L+B+m≤Mx3, the tapped holes go through. (P) When L+B+m≤Mx5, the pilot holes for tapping may go through. (P) Applicable only when D≥6. ⊗ Combination with MH is not available.	(P) Orientation between Diamond Shape Head and Wrench Hole is arbitrary.

D	MH (Coarse)	ℓ2
6	M3	4
8	M4	6

D	M (Coarse)	B
6	3	1.0~4.5
8	4	1.0~5.9

D	Applicable Dimensions B
6	5.0~
8	

Wrench Hole Dimensions P	Q
6.50~10.00	2

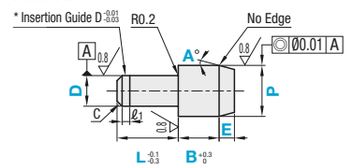
Locating Pins - High Hardness Stainless Steel Large Head, Tapered
Configurable Taper Angle, D and P Selectable Tolerance

Features: Stainless Steel Large Head Tapered excellent in corrosion resistance and hardness. Selectable tolerance on both ends and tapered dimensions.

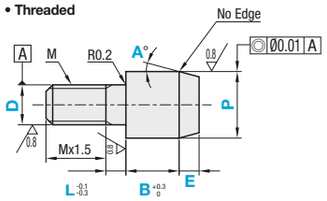
Material	Hardness	Pin Shape	Press Fit	Tapped	Threaded
High Hardness Stainless Steel	35HRC~	Round	AKFA	AKFTA	AKFNA
		Diamond	AKFD	AKFTD	AKFND

6.3 ▽ (0.8 ▽)

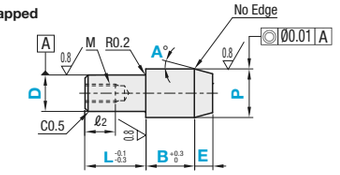
• Press Fit



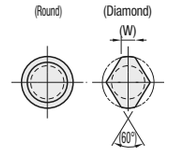
• Threaded



• Tapped



(Round) (Diamond)



Tolerance Selection

D or P	Standard Grade M	P	G	H	S
	m6	p6	g6	h7	-
2.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010	0 -0.01
3.01 ~ 6.00	+0.012 +0.004	+0.02 +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	

(P) P-2EtanA≥0.73 (Tip dia. Ø0.73 or more)
Reference: tan15°=0.267 tan30°=0.577 tan45°=1 tan60°=1.732

Press Fit

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	C	(W)	ℓ1	Unit Price Round Shape AKFA	Unit Price Diamond Shape AKFD
AKFA (Round) AKFD (Diamond)	M P G H	S M P G H	2	2.50~ 8.00	3(4)~16	1.0~10.0	0.5~5.0	15 30 45 60	0.5	1.2	0		
			3	3.50~ 8.00						1.5			
			4	4.50~ 8.00					1	1.8	1		
			5	5.50~ 8.00						2.2			
			6	6.50~10.00						3			
			8	8.50~10.00	4(5)~16				1.5	3.5			

(P) L dimension in ( ) is applicable to Diamond Shape. (P) When L=3, C=0.5 and ℓ1=1.

Tapped

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	(W)	M (Coarse)	*Recommended Tightening Torque N·cm	ℓ2	Unit Price Round Shape AKFTA	Unit Price Diamond Shape AKFTD
AKFTA (Round) AKFTD (Diamond)	M P G H	S M P G H	6	6.50~10.00	6(9)~16	1.0~10.0	0.5~5.0	15 30 45 60	3	M3	147	5		
			8	8.50~10.00	8(12)~16				3.5	M4	333	6		

(P) Note the strength of under-head part. ☞P.1566 (P) L dimension in ( ) is applicable to Diamond Shape. (P) 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.

Threaded

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	M (Coarse)	*Recommended Tightening Torque N·cm	(W)	Unit Price Round Shape AKFNA	Unit Price Diamond Shape AKFND
AKFNA (Round) AKFND (Diamond)	M P G H	S M P G H	3	3.50~ 8.00	3~10	1.0~10.0	0.5~5.0	15 30 45 60	M3	147	1.5		
			4	4.50~ 8.00					M4	333	1.8		
			5	5.50~ 8.00					M5	676	2.2		
			6	6.50~10.00					M6	1156	3		
			8	8.50~10.00	4~10				M8	2803	3.5		

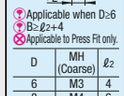
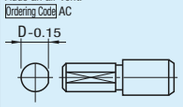
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number Type	D Tol.	P Tolerance	D		P		L		B		E		A
AKFA	M	S	6	-	P10.00	-	L6	-	B3.0	-	E5.0	-	A30

Alterations

Part Number		P		L		B		E		A		(MH, AC)
AKFAMS6	-	P10.00	-	L6	-	B3.0	-	E5.0	-	A30	-	MH

Alterations	Tapping	Air Vent
Code	MH	AC
Spec.	Adds a tapped hole. Ordering Code MH	Adds an air vent. Ordering Code AC
		
	(P) Applicable when D≥6 (P) B≥ℓ2+4 ⊗ Applicable to Press Fit only.	⊗ Not applicable to Threaded. (P) It has a relief groove.

D	MH (Coarse)	ℓ2
6	M3	4
8	M4	6

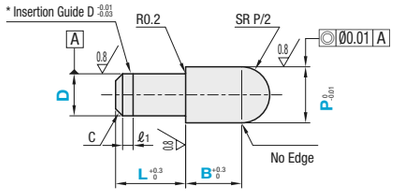
Locating Pins - High Hardness Stainless Steel Sphere Large Head
Press Fit / Tapped / Threaded

Features: Sphere Large Head with each dimension configurable. We reduced the price drastically compared to the conventional products.

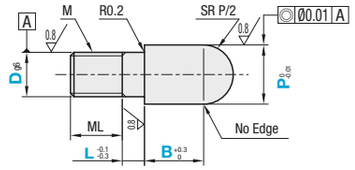
Material	Hardness	Pin Shape	Press Fit m6	Press Fit p6	Tapped g6	Threaded g6
High Hardness Stainless Steel	35HRC~	Round	AFPQA	AFPQPA	AFPQTA	AFPQNA
		Diamond	AFPQD	AFPQPD	AFPQTD	AFPQND

6.3 (0.8)

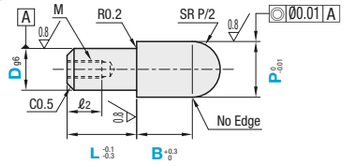
• Press Fit

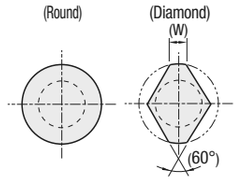


• Threaded



• Tapped





Press Fit

Part Number Type	D	D Tol. m6	D Tol. p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	ℓ1	(W)	Unit Price Round Shape AFPQA AFPQPA	Unit Price Diamond Shape AFPQD AFPQPD
<Round> AFPQA (m6) AFPQPA (p6)	2	+0.008 +0.002	+0.012 +0.006	2.50~ 8.00	3(4)~16	1.0~15.0	0.5	0	1.2		
	3			3.50~ 8.00				1	1.5		
	4	+0.012 +0.004	+0.020 +0.012	4.50~ 8.00			1		1.8		
<Diamond> AFPQA (m6) AFPQPD (p6)	5			5.50~ 8.00					2.2		
	6			6.50~10.00					3		
	8	+0.015 +0.006	+0.024 +0.015	8.50~10.00	4(5)~16				3.5		

L dimension in ( ) is applicable to Diamond 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.

Tapped

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	* Recommended Tightening Torque N·cm	ℓ2	(W)	Unit Price Round Shape AFPQTA	Unit Price Diamond Shape AFPQTD
AFPQTA (Round) AFPQTD (Diamond)	6	-0.004 -0.012	6.50~10.00	6(9)~16	2.0~15.0	M3	147	5	3		
	8	-0.005 -0.014	8.50~10.00	8(12)~16		M4	333	8	3.5		

Please confirm pilot hole depth on P.1566. Holes may go through. L dimension in ( ) is applicable to Diamond Shape. Note the strength of under-head part. P.1566
* 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.

Threaded

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	* Recommended Tightening Torque N·cm	ML	(W)	Unit Price Round Shape AFPQNA	Unit Price Diamond Shape AFPQND
AFPQTA (Round) AFPQND (Diamond)	3	-0.002 -0.008	3.50~8.00	3~10	1.0~15.0(10.0)	M3	147	4.5	1.5		
	4	-0.004 -0.012	4.50~8.00			M4	333	6	1.8		
	5		5.50~8.00		1.0~15.0(12.0)	M5	676	7.5	2.2		
	6		6.50~10.00			M6	1156	9	3		
	8	-0.005 -0.014	8.50~10.00	4~10	1.0~15.0	M8	2803	12	3.5		

PLB dimension in ( ) is applicable to Diamond Shape. When L=3, C=0.5, ℓ1=1.
* 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.

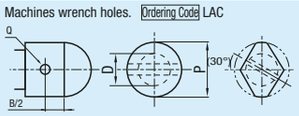
Ordering Example

	Part Number Type	D	-	P	-	L	-	B
Press Fit	AFPQA	4	-	P5.00	-	L5	-	B2.5
Tapped	AFPQTA	6	-	P10.00	-	L10	-	B5.0
Threaded	AFPQNA	8	-	P10.00	-	L8	-	B7.5

Alterations

Part Number		P		L		B		(LAC)
AFPQTA6	-	P10.00	-	L10	-	B5	-	LAC

Alteration	Wrench Hole Machining
Code	LAC
Spec.	Machines wrench holes. Ordering Code LAC



Orientation between Diamond Shape Head and Wrench Hole is arbitrary.

D	Applicable Dimensions B
6	5.0~
8	

Wrench Hole Dimensions P	Q
6.50~10.00	2

Locating Pins - High Hardness Stainless Steel Sphere Large Head
D and P Selectable Tolerance

Features: Stainless Steel Sphere Large Head excellent in corrosion resistance and hardness. Selectable tolerance on both ends.

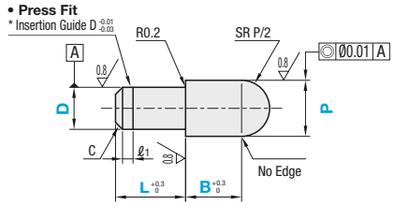
Material	Hardness	Pin Shape	Press Fit	Tapped	Threaded
High Hardness Stainless Steel	35HRC~	Round	AKFQA	AKFQTA	AKFQNA
		Diamond	AKFQD	AKFQTD	AKFQND

6.3 (0.8)

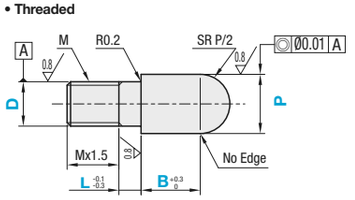
Tolerance Selection

D or P	Standard Grade M	P	G	H	S
	m6	p6	g6	h7	-
2.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010	0 -0.01
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	

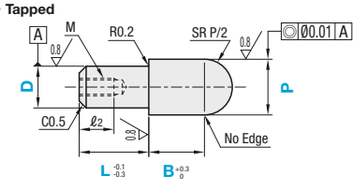
• Press Fit

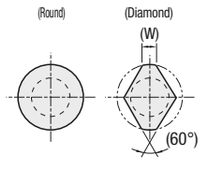


• Threaded



• Tapped





Press Fit

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	(W)	ℓ1	Unit Price Round Shape AKFQA	Unit Price Diamond Shape AKFQD
AKFQA (Round) AKFQD (Diamond)	M P G H	S M P G H	2	2.50~8.00	3(4)~16	1.0~15.0	0.5	1.2	0		
			3	3.50~8.00				1.5			
			4	4.50~8.00			1	1.8	1		
			5	5.50~8.00				2.2			
			6	6.50~10.00				3			
			8	8.50~10.00	4(5)~16			3.5			

L dimension in ( ) is applicable to Diamond 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.

Tapped

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	(W)	M (Coarse)	* Recommended Tightening Torque N·cm	ℓ2	Unit Price Round Shape AKFQTA	Unit Price Diamond Shape AKFQTD
AKFQTA (Round) AKFQTD (Diamond)	M P G H	S M P G H	6	6.50~10.00	6(9)~16	2.0~15.0	3	M3	147	5		
			8	8.50~10.00	8(12)~16	2.0~15.0	3.5	M4	333	8		

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.
* 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.

Threaded

Part Number Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	(W)	M	* Recommended Tightening Torque N·cm	Unit Price Round Shape AKFQNA	Unit Price Diamond Shape AKFQND
AKFQNA (Round) AKFQND (Diamond)	M P G H	S M P G H	3	3.50~8.00	3~10	1.0~15.0(10.0)	1.5	3	147		
			4	4.50~8.00			1.8	4	333		
			5	5.50~8.00		1.0~15.0(12.0)	2.2	5	676		
			6	6.50~10.00			3	6	1156		
			8	8.50~10.00	4~10	1.0~15.0	3.5	8	2803		

PLB dimension in ( ) is applicable to Diamond Shape. When L=3, C=0.5, ℓ1=1.
* 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	D Tol.	P Tolerance	D	-	P	-	L	-	B
	AKFQA	M	S	6	-	P8.00	-	L8	-	B6.0

Alterations

Part Number		P		L		B		(AC)
AKFQAMS6	-	P8.0	-	L8	-	B6.0	-	AC

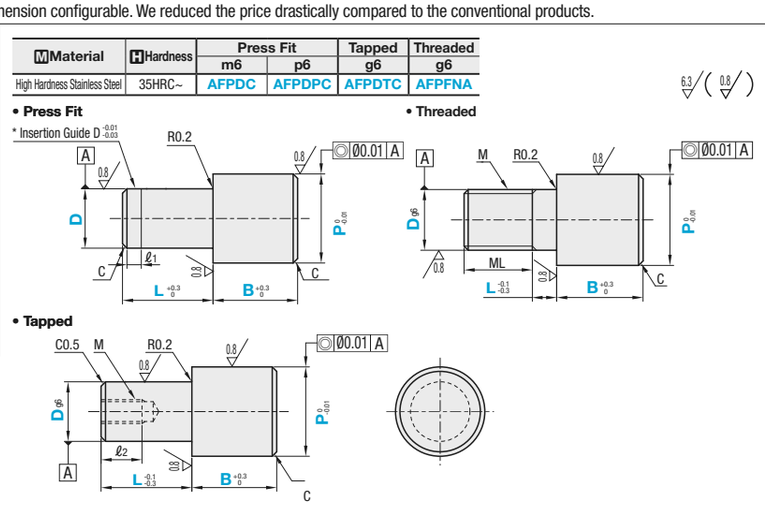
Alterations	Air Vent
Code	AC
Spec.	Adds an air vent. Ordering Code AC

Not applicable to Threaded.
It has a relief groove.

Locating Pins - High Hardness Stainless Steel Large Flat Head
Press Fit / Tapped / Threaded

Features: Large Flat Head with each dimension configurable. We reduced the price drastically compared to the conventional products.

Material	Hardness	Press Fit m6	Press Fit p6	Tapped g6	Threaded g6
High Hardness Stainless Steel	35HRC~	AFPDC	AFPDPC	AFPDTC	AFPFNA



Press Fit

Part Number Type	D	d dim. Tolerance m6	d dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ℓ1	C	Unit Price AFPDC AFPDPC
AFPDC (m6) AFPDPC (p6)	2	+0.008 +0.002	+0.012 +0.006	2.50~8.00	3~16	2.0~15.0	0	0.5	
	3			3.50~8.00			1		
	4	+0.012 +0.004	+0.02 +0.012	4.50~8.00				1	
	5			5.50~8.00					
	6			6.50~10.00					
	8	+0.015 +0.006	+0.024 +0.015	8.50~10.00					

When L=3, C=0.5, ℓ1=1.

Tapped

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Recommended Tightening Torque N·cm	ℓ2	C	Unit Price AFPDTC
AFPDTC	6	-0.004 -0.012	6.50~10.00	6~16	2.0~15.0	M3	147	5	1	
	8	-0.005 -0.014	8.50~10.00	8~16		M4	333	6	1.5	

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.

Threaded

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	M (Coarse)	*Recommended Tightening Torque N·cm	ML	Unit Price AFPFNA
AFPFNA	3	-0.002 -0.008	3.50~8.00	3~10	2.0~15.0	0.5	M3	147	4.5	
	4	-0.004 -0.012	4.50~8.00			1	M4	333	6	
	5		5.50~8.00				M5	676	7.5	
	6		6.50~10.00				M6	1156	9	
	8	-0.005 -0.014	8.50~10.00	4~10			M8	2803	12	

When L=3, C=0.5, ℓ1=1.
* 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	D	-	P	-	L	-	B
Press Fit	AFPDC	6	-	P8.97	-	L12	-	B3.5
Tapped	AFPDTC	8	-	P9.25	-	L15	-	B8.6
Threaded	AFPFNA	5	-	P7.80	-	L8	-	B4.0

Alterations

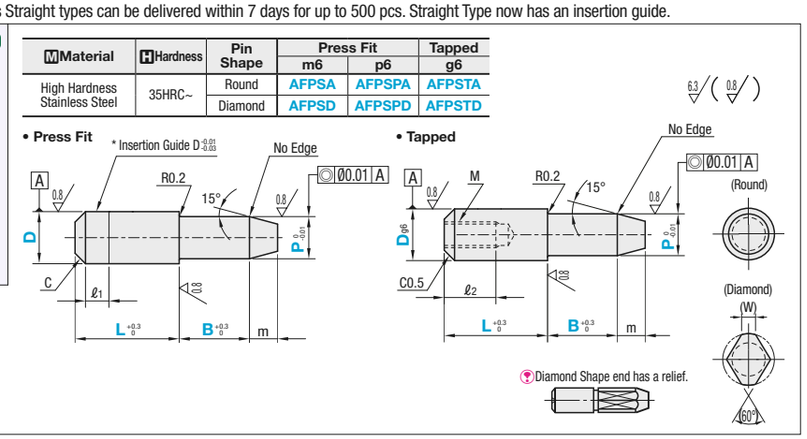
Part Number		P	-	L	-	B	-	(CN, RAC, LAC)
AFPDTC6	-	P8.00	-	L9	-	B5.0	-	CN

Alterations Code	C Chamfered Size CN	Hex Socket Machining RAC	Wrench Hole Machining LAC
Spec.	C0.5 or less Changes C Chamfering at P dimension part to 0.5 or less. ⊗Not applicable to D dimension part.	Machines hex sockets. Ordering Code RAC E, S D: L (Tapped only) ~ / B ~ / E / S 6: 10~ / 8.0~ / 2 / 3 8: 10~ / 12.5~ / 2.5 / 4 ⊗Combination with LAC is not available.	Machines wrench holes. Ordering Code LAC Q, B/2 D: Applicable Dim. B / Wrench Hole Dimensions P / Q 6: 8.0~ / 6.50~10.00 / 2 8: 9.0~ ⊗Combination with RAC is not available.

Locating Pins - High Hardness Stainless Steel Small Head, Tapered / Straight, Tapered, Sphere
Press Fit / Tapped

Features: Small Head Tapered / Various Straight types can be delivered within 7 days for up to 500 pcs. Straight Type now has an insertion guide.

Material	Hardness	Pin Shape	Press Fit m6	Press Fit p6	Tapped g6
High Hardness Stainless Steel	35HRC~	Round	AFPSA	AFPSPA	AFPSTA
		Diamond	AFPSD	AFPSPD	AFPSTD



Tolerance Selection

D	m6	p6	g6
3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008
4~6	+0.012 +0.004	+0.02 +0.012	-0.004 -0.012
8,10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014

Press Fit

Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	ℓ1	(W)	Unit Price Round Shape AFPSA AFPSPA	Unit Price Diamond Shape AFPSD AFPSPD
<Round> AFPSA (m6) AFPSPA (p6)	3	1.00(2.00)~ 3.00	3(4)~10	2.0~10.0	0.5	0.5	1	1		
	4	2.00~ 4.00			1	1				
	5	2.00~ 5.00				2		1.2		
<Diamond> AFPSD (m6) AFPSPD (p6)	6	2.00~ 6.00		2.0~12.0				1.5		
	8	2.00(3.00)~ 8.00		2.0~15.0		3		1.8		
	10	6.00~10.00	4(5)~10	2.0~20.0				2.2		

P dimension in ( ) is applicable to Diamond Shape.

Tapped

Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	M (Coarse)	*Recommended Tightening Torque N·cm	ℓ2	Unit Price Round Shape AFPSTA	Unit Price Diamond Shape AFPSTD
AFPSTA (Round) AFPSTD (Diamond)	6	4.00~ 6.00	8(9)~12	2.0~12.0	2	1.5	M3	147	5		
	8	6.00~ 8.00	11(12)~16	2.0~15.0	3	1.8	M4	333	6		
	10	7.00~10.00	11(12)~20	3.0~20.0		2.2	M5	676	8		

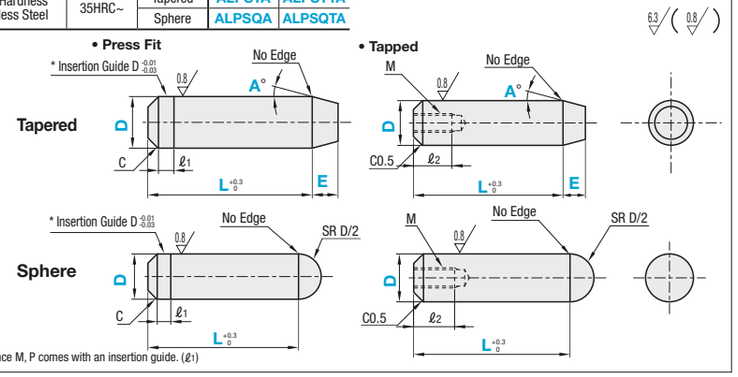
L dimension in ( ) is applicable to Diamond Shape. Note the strength of under-head part. ☞P.1566 Please confirm pilot hole depth on ☞P.1566. Holes may go through.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞P.2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number		P	-	L	-	B
Type	D					
AFPSA	8	P6.01	-	L8	-	B5.3

Material	Hardness	Shape	Type Press Fit	Type Tapped
High Hardness Stainless Steel	35HRC~	Tapered	ALPSTA	ALPSTTA
		Sphere	ALPSQA	ALPSQTA

D-2EtanA≥0.73 (Tip Diameter Ø0.73 or more)
Reference: tan15°≈0.267 tan30°≈0.577 tan45°≈1 tan60°≈1.732



Press Fit

Part Number Type	D Tol.	D	L 0.1mm Increment	E (Taper only) 0.1mm Increment	A Selection	C	ℓ1	Unit Price Tapered ALPSTA	Unit Price Sphere ALPSQA
ALPSTA (Tapered) ALPSQA (Sphere)	M (m6) P (p6) G (g6) H (h7)	3	3.0~40.0	0.5~10.0	15 30 45 60	0.5	1		
		4				1			
		5							
		6							
		8							
		10							

Tapped

Part Number Type	D Tol.	D	L 0.1mm Increment	E (Taper only) 0.1mm Increment	A Selection	M (Coarse)	*Recommended Tightening Torque N·cm	ℓ2	Unit Price Tapered ALPSTTA	Unit Price Sphere ALPSQTA
ALPSTTA (Tapered) ALPSQTA (Sphere)	M (m6) P (p6) G (g6) H (h7)	6	10.0~40.0	0.5~10.0	15 30 45 60	M3	147	5		
		8	15.0~40.0			M4	333	6		
		10				M5	676	8		

*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			L	-	E	-	A
Type	D Tol.	D					
ALPSTA	M	6	L14.0	-	E2.5	-	A30

Locating Pins - Large Head, Tapered

Press Fit

Spec.Change
Printed in Purple

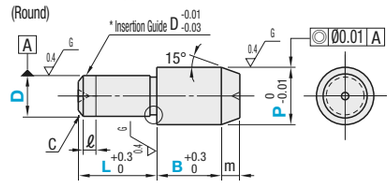
Features: Tapered Head Standard Type. Press Fit. Economical and there is a variety of selections to choose from. Same day shipping available.

RoHS

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable D Tolerance and Shape	P Configurable Type	P Configurable D Tolerance and Shape	P, L, B Configurable Type	P, L, B Configurable D Tolerance and Shape
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	<Round> BB (m6) BPB (p6)	JP	<Round> BA (m6) BPA (p6)	FP	<Round> BA (m6) BPA (p6) BG (g6)
②	EN 1.2510 Equiv.	Hard Chrome Plating: Plating Thickness 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJP		GJP		GFP	
③	EN 1.2510 Equiv.	-	-	BJP		BJP		BFP	
④	EN 1.4301 Equiv.*	-	-	SJP	<Diamond> DB (m6) DPB (p6)	SJP	<Diamond> BD (m6) BPD (p6)	SFP	<Diamond> BD (m6) BPD (p6) DG (g6)
⑤	EN 1.4301 Equiv.	Hard Chrome Plating: Plating Thickness 3μm or more	Plating Hardness: 750HV ~	HJP	(Round only)	HJP	(Round only)	HFP	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJP		CJP		CFP	

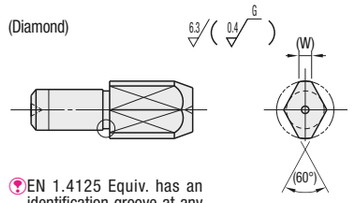
*For P Selectable Type, it is EN 1.4301 Equiv. equivalent.

(Round)



* The insertion guide is applicable to tolerance p6 only.

(Diamond)



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.

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.

P Selectable

Type	D Tolerance and Shape	D	d dim. Tolerance m6	d dim. Tolerance p6	P Selection	L	B	C	m	ℓ	(W)
JP GJP BJP SJP HJP CJP	<Round> BB (m6) BPB (p6) <Diamond> DB (m6) DPB (p6) Applicable when D≥2	1	+0.008 +0.002	+0.012 +0.006	2	3	3	0.1	0.5	0	-
		2			3 4	4		0.5	1		1.2
		3			4 5 6	5	5		2	1	1.5
		4	+0.012 +0.004	+0.020 +0.012	5 6		6	1	3		1.8
		5			6 8	10					2.2
		6			8 10		8				3
		8	+0.015 +0.006	+0.024 +0.015	10 12 13			1.5	4		3.5
		10			12 13 15	15	10	2			4
		12	+0.018 +0.007	+0.029 +0.018	13 15 16						5
		13			15 16	22				2	5.5
		16			20 25			3	5		7
		20	+0.021 +0.008	+0.035 +0.022	25 30	30	15				9

P Configurable

Type	D Tolerance and Shape	D	d dim. Tolerance m6	d dim. Tolerance p6	P 0.01mm Increment	L	B	C	m	ℓ	(W)
JP GJP BJP SJP HJP CJP	<Round> BA (m6) BPA (p6) <Diamond> BD (m6) BPD (p6) Applicable when D≥2	1	+0.008 +0.002	+0.012 +0.006	1.20~2.50	3	3	0.1	0.5	0	-
		2			2.50~4.00	4		0.5	1		1.2
		3			3.50~6.00	5	5		2	1	1.5
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00	10	6	1	3		1.8
		5			5.50~8.00						2.2
		6			6.50~10.00		8				3
		8	+0.015 +0.006	+0.024 +0.015	9.00~13.00	15		1.5	4		3.5
		10			11.00~15.00		10	2			4
		12	+0.018 +0.007	+0.029 +0.018	13.00~16.00						5
		13			14.00~18.00	22				2	5.5
		16			17.00~25.00			3	5		7
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	30	15				9

P, L, B Configurable

Type	D Tolerance and Shape	D	d dim. Tolerance m6	d dim. Tolerance p6	d dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	ℓ	(W)
FP GFP BFP SFP HFP CFP	<Round> BA (m6) BPA (p6) BG (g6) <Diamond> BD (m6) BPD (p6) DG (g6)	1	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	1.20(1.50)~2.50	2, 3	1.0~5.0	0.1	0.5	0	0.6
		2				2.50~4.00	2~6	1.0~10.0	0.5	1		1.2
		3				3.50~6.00	3~6	1.0~10.0		2	1	1.5
		4	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	4.50~7.00	4~8	1.0~10.0	1	3		1.8
		5				5.50~8.00	5~10	1.0~10.0				2.2
		6				6.50~10.00	6~12	1.0~12.0				3
		8	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	9.00~13.00	8~16	1.0~15.0	1.5	4		3.5
		10				11.00~15.00	10~20	3.0~20.0				4
		12	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	13.00~16.00	12~24	3.0~20.0	2			5
		13				14.00~18.00	13~26	5.0~20.0			2	5.5
		16				17.00~25.00	16~32	5.0~20.0		5		7
		20	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020	22.00~30.00	20~40	5.0~20.0	3			9

P dimension in ( ) is applicable to Diamond Shape.

Ordering Example

Part Number	Type	D Tol. Shape	D		P		L		B
	JP	BB	6	-	10				
	JP	BD	8	-	11.98				
	FP	BA	10	-	P12.02	-	L10	-	B3.2
	FP	BD	12	-	P13.97	-	L12	-	B5

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPBB JPBPB	②Hard EN 1.2510 Equiv. GJPBB GJPBPB	③EN 1.2510 Equiv. BJPBB BJPBPB	④EN 1.4301 Equiv. SJPBB SJPBPB	⑤Hard EN 1.4301 Equiv. HJPBB HJPBPB	⑥EN 1.4125 Equiv. CJPBB CJPBPB	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPDB JPDPB	②Hard EN 1.2510 Equiv. GJPDB GJPDPB	③EN 1.2510 Equiv. BJPDB BJPDPB	④EN 1.4301 Equiv. SJPDB SJPDPB	⑤Hard EN 1.4301 Equiv. HJPDB HJPDPB	⑥EN 1.4125 Equiv. CJPDB CJPDPB
1							-	-	-	-	-	-
2												
3												
4												
5												
6												
8												
10												
12												
13												
16												
20												

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPBA JPBPA	②Hard EN 1.2510 Equiv. GJPBA GJPBPA	③EN 1.2510 Equiv. BJPBA BJPBPA	④EN 1.4301 Equiv. SJPBA SJPBPA	⑤Hard EN 1.4301 Equiv. HJPBA HJPBPA	⑥EN 1.4125 Equiv. CJPBA CJPBPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPBD JPBPD	②Hard EN 1.2510 Equiv. GJPBD GJPBPD	③EN 1.2510 Equiv. BJPBD BJPBPD	④EN 1.4301 Equiv. SJPBD SJPBPD	⑤Hard EN 1.4301 Equiv. HJPBD HJPBPD	⑥EN 1.4125 Equiv. CJPBD CJPBPD
1							-	-	-	-	-	-
2											-	
3											-	
4											-	
5											-	
6											-	
8											-	
10											-	
12											-	
13											-	
16											-	
20											-	

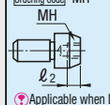
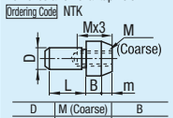
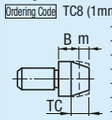
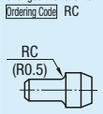
P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPBA FPBPA FPBG	②Hard EN 1.2510 Equiv. GFPBA GFPBPA GFPBG	③EN 1.2510 Equiv. BFPBA BFPBPA BFPBG	④EN 1.4301 Equiv. SFPBA SFPBPA SFPBG	⑤Hard EN 1.4301 Equiv. HFPBA HFPBPA HFPBG	⑥EN 1.4125 Equiv. CFPBA CFPBPA CFPBG	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPBD FPBPD FPDG	②Hard EN 1.2510 Equiv. GFPBD GFPBPD GFPDG	③EN 1.2510 Equiv. BFPBD BFPBPD BFPDG	④EN 1.4301 Equiv. SFPBD SFPBPD SFPDG	⑤Hard EN 1.4301 Equiv. HFPBD HFPBPD HFPDG	⑥EN 1.4125 Equiv. CFPBD CFPBPD CFPDG
1												
2												
3												
4												
5												
6												
8												
10												
12												
13												
16												
20												

Alterations

Part Number - P - L - B - (MH, NTK, TC, RC)
FPBPA10 - P11.01 - L12 - B6.4 - TC6

Alterations are not available for P Selectable Type.

Alterations Code	Tapping MH	Removal Tap NTK	Length of Tapered Point TC	Sphere Tip RC
Spec.	Adds a tapped hole. Ordering Code MH  Applicable when D≥6 B≥ℓ2+4	Removes a removal tap hole. Ordering Code NTK 	Changes the m dimension. Ordering Code TC8 (1mm increment) 	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2

D	M (Coarse)	B
6	3	1.0~4.5
8	4	1.0~5.9
10, 12	5	3.0~8.6
13~20	8	5.0~15.2

D	MH (Coarse)	ℓ2
6	M3	4
8~13	M4	6
16, 20	M6	9

D	TC	D	TC
1	1~2	8	5~16
2	2~5	10	5~22
3	3~9	12	5~22
4	4~11	13	
5	4~11	16	6~23
6	4~13	20	

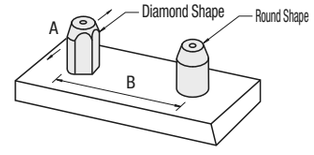
Combination with NTK is not available.

P, L, B Dimension Configurable Type Applicable only when D≥6.
Combination with MH, TC is not available.
Effective tap length of D depends on B dimension specifiable range.
When L+B+m≤Mx3, the tapped holes go through.
When L+B+m≤Mx5, the pilot holes for tapping may go through.

B+m≥TC+2 (Straight Section min. 2mm)
Applicable when P≥2.00.
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)
Combination with NTK is not available.

Example

The combination of Round and Diamond Shapes enables to locate accurately in A direction, and to absorb hole pitch errors of the mating hole in B direction.



Locating Pins - Large Head, Tapered

Tapped

Spec.Change Printed in Purple

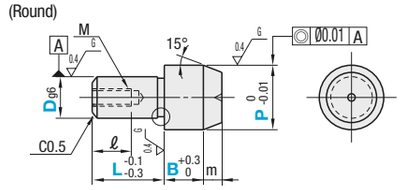
Features: Large Head, Tapered with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

RoHS

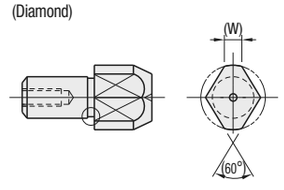
Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	BTB (Round) DTB (Diamond)	JP	BTA (Round) BTD (Diamond)	FP	BTA (Round) BTD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJP		GJP		GFP	
③	EN 1.2510 Equiv.	-	-	-		BJP (Round only)		-	
④	EN 1.4301 Equiv.*	-	-	SJP		SJP		SFP	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HJP		-		HFP	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJP		CJP		CFP	

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.

(Round)



(Diamond)



6.3 (0.4 G)

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

Relief dimension is a reference value.

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	m	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ
JP GJP SJP HJP CJP	BTB (Round) DTB (Diamond)	6	-0.004 -0.012	8 10	10	8	3	3	M3	147	5
		6T		8 10					M2.6	-	4
		8	-0.005 -0.014	10 12 13	15		4	3.5	M5	676	8
		8T		10 12 13					M4	333	6
		10		12 13 15		10		4	M5	676	8
		12	-0.006 -0.017	13 15 16				5			
		13		15 16	22			5.5	M8	2803	12
		16		20 25			5	7			
		20	-0.007 -0.020	25 30	30	15		9			

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	m	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ
JP GJP BJP SJP CJP	BTA (Round) BTD (Diamond)	5	-0.004 -0.012	5.50~8.00	10	6	3	2.2	M2	-	3
		6		6.50~10.00		8		3	M3	147	5
		6T		6.50~10.00					M2.6	-	4
		8	-0.005 -0.014	9.00~13.00	15		4	3.5	M5	676	8
		8T		9.00~13.00		10			M4	333	6
		10		11.00~15.00				4	M5	676	8
		12	-0.006 -0.017	13.00~16.00				5			
		13		14.00~18.00	22			5.5	M8	2803	12
		16		17.00~25.00			5	7			
		20	-0.007 -0.020	22.00~30.00	30	15		9			

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ
FP GFP SFP HFP CFP	BTA (Round) BTD (Diamond)	5	-0.004 -0.012	5.50~8.00	5(9)~10	2.0~12.0	3	2.2	M2	-	3
		6		6.50~10.00	6(9)~12			3	M3	147	5
		6T							M2.6	-	4
		8	-0.005 -0.014	9.00~13.00	8(12)~16	2.0~15.0	4	3.5	M5	676	8
		8T			6(12)~16				M4	333	6
		10		11.00~15.00	10(12)~20	3.0~20.0		4	M5	676	8
		10T			6(12)~16				M4	333	6
		12	-0.006 -0.017	13.00~16.00	12~24	3.0~20.0		5	M5	676	8
		12T			8(12)~18				M4	333	6
		13		14.00~18.00	13(14)~26	5.0~20.0		5.5	M8	2803	10
		13T			8(14)~20				M6	1156	9
		16		17.00~25.00	16~32	5.0~20.0	5	7	M8	2803	12
		16T			10(14)~24				M6	1156	9
		20	-0.007 -0.020	22.00~30.00	20~40	5.0~20.0		9	M8	2803	12
		20T			12(18)~30				M6	1156	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 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.
* 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	-	P	-	L	-	B
	JP	BTB	6	-	8				
	JP	BTA	10	-	12.10				
	FP	BTA	10	-	P11.01	-	L12	-	B6.4

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPBTB	②Hard EN 1.2510 Equiv. GJPBTB	④EN 1.4301 Equiv. SJPBTB	⑤Hard EN 1.4301 Equiv. HJPBTB	⑥EN 1.4125 Equiv. CJPBTB	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPDTB	②Hard EN 1.2510 Equiv. GJPDTB	④EN 1.4301 Equiv. SJPDTB	⑤Hard EN 1.4301 Equiv. HJPDTB	⑥EN 1.4125 Equiv. CJPDTB
6										
6T										
8										
8T										
10										
12										
13										
16										
20										

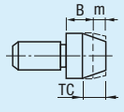
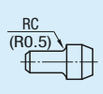
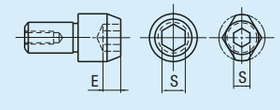
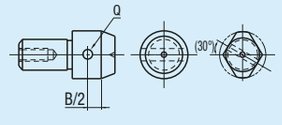
P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPBTA	②Hard EN 1.2510 Equiv. GJPBTA	③EN 1.2510 Equiv. BJPBTA	④EN 1.4301 Equiv. SJPBTA	⑥EN 1.4125 Equiv. CJPBTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPBTD	②Hard EN 1.2510 Equiv. GJPBTD	③EN 1.2510 Equiv. BJPBTD	④EN 1.4301 Equiv. SJPBTD	⑥EN 1.4125 Equiv. CJPBTD
5							-	-		
6								-		
6T								-		
8								-		
8T								-		
10								-		
12								-		
13								-		
16								-		
20								-		

P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPBTA	②Hard EN 1.2510 Equiv. GFPBTA	④EN 1.4301 Equiv. SFPBTA	⑤Hard EN 1.4301 Equiv. HFPBTA	⑥EN 1.4125 Equiv. CFPBTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPBTD	②Hard EN 1.2510 Equiv. GFPBTD	④EN 1.4301 Equiv. SFPBTD	⑤Hard EN 1.4301 Equiv. HFPBTD	⑥EN 1.4125 Equiv. CFPBTD
5										
6										
6T										
8										
8T										
10										
10T										
12										
12T										
13										
13T										
16										
16T										
20										
20T										

Alterations Part Number - P - L - B - (TC, RC, RAC, LAC)
FPBTA10 - P11.01 - L12 - B6.4 - TC6

Alterations	Length of Tapered Point	Sphere Tip	Hex Socket Machining	Wrench Hole Machining
				
Code	**TC**	**RC**	**RAC**	**LAC**
Spec.	Changes the m dimension. Ordering Code TC8 (1mm increment) D / TC: 5 / 4~13; 6 / 4~13; 8 / 5~16; 10 / 5~22; 12 / 5~22; 13 / 5~22; 16 / 6~23; 20 / 6~23 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) ⊗Not applicable to P Selectable Type. ⊗Combination with RAC and LAC is not available.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2 ⊗Not applicable to P Selectable Type. ⊗Combination with RAC and LAC is not available.	Machines hex sockets. Ordering Code RAC D / Applicable Dimensions P / L / B / Hex Hole Dimensions E / S: 5: 6.00~ / 8~ / 6.0~ / 2 / 2 6 6T: 6.50 (8.00)~ / 10~ / 6.0~ / 2 / 3 8 8T: 9.00 (10.00)~ / 10~ / 10.0~ / 2.5 / 4 10 10T: 11.00 (12.00)~ / 12~ / 10.0~ / 3 / 5 12 12T: 13.00~ / 12~ / 12.0~ / 4 / 6 13 13T: 14.00~ / 15~ / 15.0~ / 4 / 6 16 16T: 17.00~ / 16~ / 15.0~ / 5 / 8 20 20T: 22.00~ / 20~ / 15.0~ / 5 / 8 P dimension in ( ) is applicable to Diamond Shape. Applicable to P, L, B Dimension Configurable Type only. ⊗Combination with TC, RC, LAC is not available.	Machines wrench holes. Ordering Code LAC D / Applicable Dimensions B: 5: 5.0~ 6 6T: 5.0~ 8 8T: 5.0~ 10 10T: 5.0~ 12 12T: 5.0~ 13 13T: 5.0~ 16 16T: 10.0~ 20 20T: 10.0~ Wrench Hole Dimensions: P / Q: 5.50~9.99 / 2; 10.00~16.99 / 3.5; 17.00~ / 5 Orientation between Diamond Shape Head and Wrench Hole is arbitrary. ⊗Combination with TC, RC, RAC is not available.

Locating Pins - Large Head, Tapered

Threaded

Spec.Change
Printed in Purple

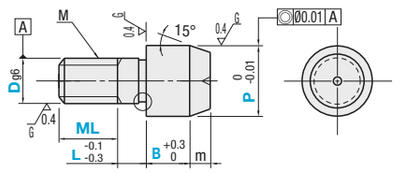
Features: Large Head, Tapered, Press Fit + Lock Nut Shape. Improved maintainability compared to the press fit type.

RoHS

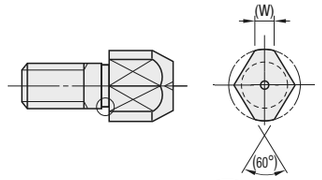
Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code	P, L, B, ML Configurable Type	P, L, B, ML Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPN	BB (Round)	JPN	A (Round) D (Diamond)	FPN	A (Round) D (Diamond)	FPNL	A (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating: Plating Thickness 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-		GJPN		GFPN		GFPNL	
③	EN 1.2510 Equiv.	-	-	-		-		BFPN		-	
④	EN 1.4301 Equiv.*	-	-	SJPN		SJPN		SFPN		SFPNL	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating: Plating Thickness 3µm or more	Plating Hardness: 750HV ~	-		HJPN		HFPN		-	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPN		CJPN		CFPN		CFPNL	

*For P Selectable Type, it is EN 1.4301 Equiv. equivalent.

(Round)



(Diamond)



EN 1.4125 Equiv. has an identification groove at any position on D part.
When L<Pitchx2, the incomplete threaded portion (Pitchx2) is included in ML.
Coarse Thread Pitch Dims. P.2292

Relief dimension is a reference value.

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	ML	M (Coarse)	*Tightening Torque N·cm	m	(W)
JPN SJPN CJPN	BB (Round)	3	-0.002 -0.008	3.5 4 4.5 5 6	2	5	4.5	3	147	2	1.5
		4	-0.004 -0.012	4.5 5 6 7		6	6	4	333	3	1.8
		5		6 7 8	3		7.5	5	676		2.2
		6		7 8 9 10		8	9	6	1156		3
		8	-0.005 -0.014	9 10 11 12 13	5		12	8	2803	4	3.5
		10		11 12 13		10	15	10	5557		4

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	ML	M (Coarse)	*Tightening Torque N·cm	m	(W)
JPN GJPN SJPN HJPN CJPN	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2	5	4.5	3	147	2	1.5
		4	-0.004 -0.012	4.50~7.00		6	6	4	333	3	1.8
		5		5.50~8.00	3		7.5	5	676		2.2
		6		6.50~10.00		8	9	6	1156		3
		8	-0.005 -0.014	9.00~13.00	5		12	8	2803	4	3.5
		10		11.00~15.00		10	15	10	5557		4
		12	-0.006 -0.017	13.00~18.00	8		18	12	9702		5
		16		17.00~25.00			24	16	24108	5	7
		20	-0.007 -0.020	22.00~30.00	10	15	30	20	46942		9

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ML	M (Coarse)	*Tightening Torque N·cm	m	(W)
FPN GFPN BFPN SFPN HFPN CFPN	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2~6	1.0~10.0	4.5	3	147	2	1.5
		4	-0.004 -0.012	4.50~7.00	2~8	1.0~10.0	6	4	333	3	1.8
		5		5.50~8.00	3~10	1.0~10.0	7.5	5	676		2.2
		6		6.50~10.00	3~10	1.0~12.0	9	6	1156		3
		8	-0.005 -0.014	9.00~13.00	5~10	1.0~15.0	12	8	2803	4	3.5
		10		11.00~15.00	5~15	3.0~20.0	15	10	5557		4
		12	-0.006 -0.017	13.00~18.00	8~15	3.0~20.0	18	12	9702	5	5
		16		17.00~25.00	8~20	5.0~20.0	24	16	24108		7
		20	-0.007 -0.020	22.00~30.00	10~20	5.0~20.0	30	20	46942		9

P, L, B, ML Configurable

Thread length (ML) is configurable between Mx1 ~ Mx3 (max.).

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ML 1mm Increment	M (Coarse)	*Tightening Torque N·cm	m	(W)
FPNL GFPNL SFPNL CFPNL	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2~6	1.0~10.0	3~9	3	147	2	1.5
		4	-0.004 -0.012	4.50~7.00	2~8	1.0~10.0	4~12	4	333	3	1.8
		5		5.50~8.00	3~10	1.0~10.0	5~15	5	676		2.2
		6		6.50~10.00	3~10	1.0~12.0	6~18	6	1156		3
		8	-0.005 -0.014	9.00~13.00	5~10	1.0~15.0	8~24	8	2803	4	3.5
		10		11.00~15.00	5~15	3.0~20.0	10~30	10	5557		4
		12	-0.006 -0.017	13.00~18.00	8~15	3.0~20.0	12~30	12	9702	5	5
		16		17.00~25.00	8~20	5.0~20.0	16~40	16	24108		7
		20	-0.007 -0.020	22.00~30.00	10~20	5.0~20.0	20~40	20	46942		9

* 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	-	ML
Type	Shape	D						
JPN	A	3	-	5.20				
FPN	A	5	-	P6.00	-	L5	-	B4.0
FPNL	A	8	-	P9.51	-	L8	-	B4.0 - ML8

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPNBB	④EN 1.4301 Equiv. SJPNBB	⑥EN 1.4125 Equiv. CJPNBB
3			
4			
5			
6			
8			
10			

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPNA	②Hard EN 1.2510 Equiv. GJPNA	④EN 1.4301 Equiv. SJPNA	⑤Hard EN 1.4301 Equiv. HJPNA	⑥EN 1.4125 Equiv. CJPNA	Diamond Shape ①EN 1.2510 Equiv. Hardened JPND	②Hard EN 1.2510 Equiv. GJPND	④EN 1.4301 Equiv. SJPND	⑤Hard EN 1.4301 Equiv. HJPND	⑥EN 1.4125 Equiv. CJPND
3										
4										
5										
6										
8										
10										
12										
16										
20										

P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPNA	②Hard EN 1.2510 Equiv. GFPNA	③EN 1.2510 Equiv. BFPNA	④EN 1.4301 Equiv. SFPNA	⑤Hard EN 1.4301 Equiv. HFPNA	⑥EN 1.4125 Equiv. CFPNA	Diamond Shape ①EN 1.2510 Equiv. Hardened FPND	②Hard EN 1.2510 Equiv. GFPND	③EN 1.2510 Equiv. BFPND	④EN 1.4301 Equiv. SFPND	⑤Hard EN 1.4301 Equiv. HFPND	⑥EN 1.4125 Equiv. CFPND
3												
4												
5												
6												
8												
10												
12												
16												
20												

P, L, B, ML Configurable (Unit price in the table is when MX1≤ML<MX1.5. For price calculation, refer to the table on the right.)

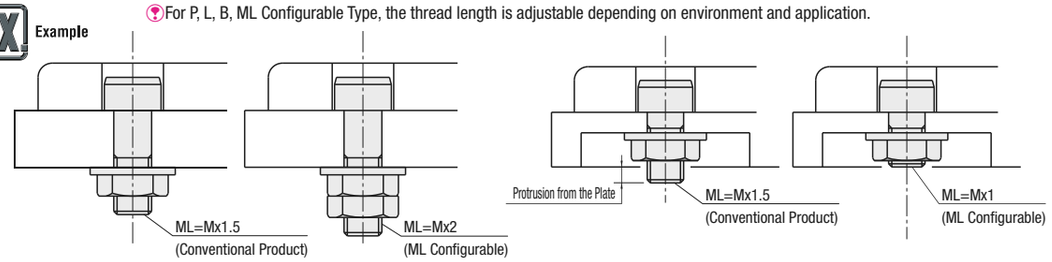
D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPNLA	②Hard EN 1.2510 Equiv. GFPNLA	④EN 1.4301 Equiv. SFPNLA	⑥EN 1.4125 Equiv. CFPNLA	Diamond Shape ①EN 1.2510 Equiv. Hardened FPNLD	②Hard EN 1.2510 Equiv. GFPNLD	④EN 1.4301 Equiv. SFPNLD	⑥EN 1.4125 Equiv. CFPNLD
3								
4								
5								
6								
8								
10								
12								
16								
20								

Price of P, L, B, ML Configurable Type
Price is determined by length of ML.

ML	Unit Price
Mx1 ≤ML<Mx1.5	Unit Price in the Table
Mx1.5≤ML<Mx2	Unit Price in the Table x 1.05
Mx2 ≤ML<Mx2.5	Unit Price in the Table x 1.1
Mx2.5≤ML≤Mx3	Unit Price in the Table x 1.15

For P, L, B, ML Configurable Type, the thread length is adjustable depending on environment and application.

Example



Locating Pins - Large Head, Tapered

Configurable Taper Angle, D and P Selectable Tolerance

Spec.Change
Printed in Purple

Features: Large Head, Tapered, with the configurable dimension for each part. Configurable tolerance on both ends and tapered dimensions.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped	Type: Threaded	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KF	KFT	KFN	A (Round)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKF	GKFT	GKFN	
③	EN 1.2510 Equiv.	-	-	BKF	BKFT	BKFN (Round only)	
④	EN 1.4301 Equiv.	-	-	SKF	SKFT	SKFN	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HKF	HKFT	HKFN	D (Diamond)
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKF	CKFT	-	

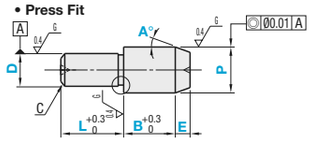
R0.2
When D<3 a=0.5 d=D-0.1
When D≥3 a=1.0 d=D-0.2
Relief dimension is a reference value.

Tolerance Selection

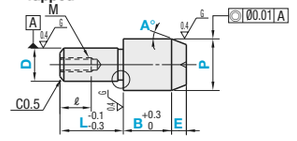
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 ~ 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 ~ 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 ~ 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			

The unit price of Precision Type is the price of Standard Type multiplied by 1.1.
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

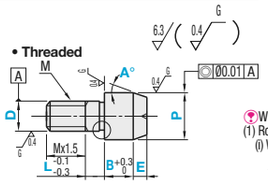
• Press Fit



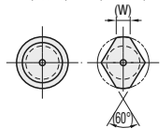
• Tapped



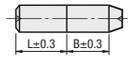
• Threaded



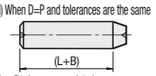
(Round) (Diamond)



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

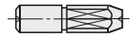


(ii) When D=P and tolerances are the same



(L+B) is general tolerance.

(2) Diamond Shape has a relief.



Round Type with the same diameter 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)
KF, GKF*, BKF, SKF, HKF*, CKF	A (Round)	M, P, G, H, *A, *B	S, M, P, G, H, *A, *B	1	~~1.88~2.88~~ (1.88~2.88)	2, 3	2.0~5.0	0.5~10.0	15	0.1	0.6
				2	2.00~4.00	2~6	2.0~10.0			0.5	1.2
				3	3.00~6.00	3~6	2.0~10.0				1.5
				4	4.00~7.00	4~8	2.0~10.0		30	1	1.8
				5	5.00~8.00	5~10	2.0~10.0				2.2
				6	6.00~10.00	6~12	2.0~12.0				3
				8	8.00~13.00	8~16	2.0~15.0		45	1.5	3.5
				10	10.00~15.00	10~20	3.0~20.0			2	4
				12	12.00~16.00	12~24	3.0~20.0		60		5
				13	13.00~18.00	13~26	5.0~20.0				5.5
				16	16.00~25.00	16~32	5.0~20.0			3	7
	D (Diamond)			20	20.00~30.00	20~40	5.0~20.0				9

P dimension in ( ) is applicable to Diamond Shape. Hard Chrome Plating products are not available for * marked Precision Grade (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
KFT, GKFT, BKFT, SKFT, HKFT, CKFT	A (Round)	M, P, G, H	S, M, P, G, H	5	5.00~8.00	5(9)~10	2.0~10.0	0.5~10.0	15	2.2	M2	-	3
				6	6.00~10.00	6(9)~12	2.0~12.0			3	M3	147	5
				6T							M2.6	-	4
				8	8.00~13.00	8(12)~16	2.0~15.0			3.5	M5	676	8
				8T		6(12)~16					M4	333	6
				10	10.00~15.00	10(12)~20	3.0~20.0		30	4	M5	676	8
				10T		6(12)~16					M4	333	6
				12	12.00~16.00	12~24	3.0~20.0		45	5	M5	676	8
				12T		8(12)~18					M4	333	6
				13	13.00~18.00	13(14)~26	5.0~20.0		60	5.5	M8	2803	10
				13T		8(14)~20					M6	1156	9
				16	16.00~25.00	16~32	5.0~20.0			7	M8	2803	12
				16T		10(14)~24					M6	1156	9
				20	20.00~30.00	20~40	5.0~20.0			9	M8	2803	12
	D (Diamond)			20T		12(18)~30					M6	1156	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".)
Note the strength of under-head part. P.1566 L dimension in ( ) is applicable to Diamond Shape. 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.

Threaded

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	M (Coarse)	*Tightening Torque N·cm	(W)
KFN, GKFN*, BKFN, SKFN, HKFN*	A (Round)	M, P, G, H, *A, *B	S, M, P, G, H, *A, *B	3	3.50~6.00	2~6	2.0~10.0	0.5~10.0	15	M 3	147	1.5
				4	4.50~7.00	2~8	2.0~10.0			M 4	333	1.8
				5	5.50~8.00	3~10	2.0~10.0		30	M 5	676	2.2
				6	6.50~10.00	3~10	2.0~12.0			M 6	1156	3
				8	9.00~13.00	5~10	2.0~15.0			M 8	2803	3.5
				10	11.00~15.00	5~15	3.0~20.0		45	M10	5557	4
				12	13.00~18.00	8~15	3.0~20.0			M12	9702	5
				16	17.00~25.00	8~20	5.0~20.0		60	M16	24108	7
	D (Diamond)			20	22.00~30.00	10~20	5.0~20.0			M20	46942	9

Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B).
* 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 Tol.	D	-	P	-	L	-	B	-	E	-	A
KF	A	M	S	6	-	P10.00	-	L6	-	B3.0	-	E5.0	-	A30
GKFT	A	G	S	10T	-	P13.00	-	L6	-	B4.0	-	E10.0	-	A15
SKFN	D	G	B	12	-	P15.00	-	L12	-	B5.0	-	E7.0	-	A45

Precision Grade Price
When A and B tolerance is selected, multiply the unit price below by 1.1.
Example of Price Calculation
KFAAB10-P11.05-L12-B5.5-E5.0-A30

Press Fit

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFA	②Hard EN 1.2510 Equiv. GKFA	③EN 1.2510 Equiv. BKFA	④EN 1.4301 Equiv. SKFA	⑤Hard EN 1.4301 Equiv. HKFA	⑥EN 1.4125 Equiv. CKFA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFD	②Hard EN 1.2510 Equiv. GKFD	③EN 1.2510 Equiv. BKFD	④EN 1.4301 Equiv. SKFD	⑤Hard EN 1.4301 Equiv. HKFD	⑥EN 1.4125 Equiv. CKFD
1												
2												
3												
4												
5												
6												
8												
10												
12												
13												
16												
20												

Tapped

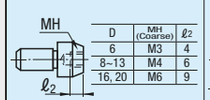
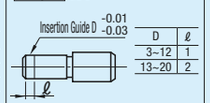
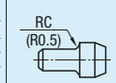
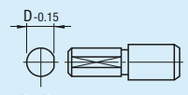
D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFTA	②Hard EN 1.2510 Equiv. GKFTA	③EN 1.2510 Equiv. BKFTA	④EN 1.4301 Equiv. SKFTA	⑤Hard EN 1.4301 Equiv. HKFTA	⑥EN 1.4125 Equiv. CKFTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFTD	②Hard EN 1.2510 Equiv. GKFTD	③EN 1.2510 Equiv. BKFTD	④EN 1.4301 Equiv. SKFTD	⑤Hard EN 1.4301 Equiv. HKFTD	⑥EN 1.4125 Equiv. CKFTD
5												
6												
6T												
8												
8T												
10												
10T												
12												
12T												
13												
13T												
16												
16T												
20												
20T												

Threaded

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFNA	②Hard EN 1.2510 Equiv. GKFNA	③EN 1.2510 Equiv. BKFNA	④EN 1.4301 Equiv. SKFNA	⑤Hard EN 1.4301 Equiv. HKFNA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFND	②Hard EN 1.2510 Equiv. GKFND	③EN 1.2510 Equiv. BKFND	④EN 1.4301 Equiv. SKFND	⑤Hard EN 1.4301 Equiv. HKFND
3								-		
4								-		
5								-		
6								-		
8								-		
10								-		
12								-		
16								-		
20								-		

Alterations

Part Number	-	P	-	L	-	B	-	E	-	A	-	(MH···etc.)
KFAMS6	-	P10.00	-	L6	-	B3.0	-	E5.0	-	A30	-	GDC

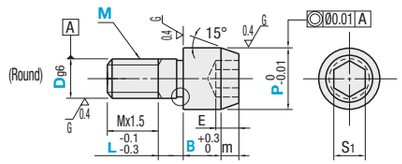
Alterations Code	Tapping MH	Insertion Guide GDC	Sphere Tip RC	Air Vent AC
Spec.	Adds a tapped hole. Ordering Code MH  D | MH (Coarse) | ℓ2: 6 | M3 | 4; 8~13 | M4 | 6; 16, 20 | M6 | 9 Applicable when D≥6 B≥ℓ2+4 Not applicable to Tapped.	Adds the insertion guide. Ordering Code GDC  D | ℓ: 3~12 | 1; 13~20 | 2 Not applicable when D≤2 Not applicable to Threaded.	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2	Adds an air vent. Ordering Code AC  Not applicable to Threaded.

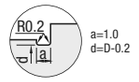
Locating Pins - Large Head, Tapered
Threaded, Hex Socket

Features: Hex Socket is attached to the tip of Large Head, Tapered, Threaded. It is easy to mount as you can stop the head rotation.

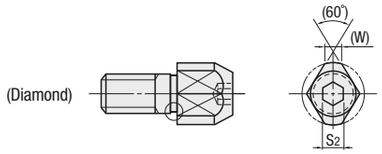
RoHS

Material No.	M Material	S Surface Treatment	H Hardness	Type	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FPNS	A (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GFPNS	
③	EN 1.2510 Equiv.	-	-	BFPNS	
④	EN 1.4301 Equiv.	-	-	SFPNS	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HFPNS	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFPNS	





Relief dimension is a reference value.



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

When M<D, the incomplete threaded portion (Pitchx2) is included in Mx1.5.

Tapped and Threaded Recommended Tightening Torque (Reference)

M (Coarse)	Tightening Torque N·cm
M3	147
M4	333
M5	676
M6	1156
M8	2803
M10	5557
M12	9702
M16	24108
M20	46942

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.

Part Number			P	L	B	M	m	(W)	S_1	S_2	E
Type	Shape	D	0.01mm Increment	1mm Increment	0.1mm Increment	(Coarse)					
FPNS GFPNS BFPNS SFPNS HFPNS CFPNS	A (Round)	3	-0.002 -0.008	6.00~6.50	2~6	3.5~10.0	3	2	-	3	-	2
		4	-0.004 -0.012	6.50~7.00	2~8	2.5~10.0	3 4	3	-			
		5		6.50~8.00	3~10	2.5~10.0	3 4 5		-			
		6		6.50(8.00)~10.00	3~10	2.5~12.0	4 5 6		3		3	
	D (Diamond) Applicable when D≥6	8	-0.005 -0.014	9.00(10.00)~13.00	5~10	3.0~15.0	4 5 6 8	4	3.5	4	4	2.5
		10		11.00(12.00)~15.00	5~15	4.5~20.0	5 6 8 10		4	5	5	3
		12	-0.006 -0.017	13.00~18.00	8~15	6.0~20.0	6 8 10 12		5	6	6	4
		16		17.00~25.00	8~20	8.0~20.0	8 10 12 16		7	8	8	5
		20	-0.007 -0.020	22.00~30.00	10~20	8.0~20.0	10 12 16 20	5	9			

P dimension in ( ) is applicable to Diamond Shape. When M dimension is not specified, D=M.

Ordering Example

Part Number										
Type	Shape	D	-	P	-	L	-	B	-	M
FPNS	A	10	-	P12.00	-	L5	-	B5.0		
GFPNS	D	16	-	P19.50	-	L14	-	B10.0	-	M12

Alterations

Part Number								
FPNSA8	-	P10.00	-	L10	-	B10.0	-	M6 - NNC

Alterations	Relief
Code	NNC
Spec.	Adds a relief at the thread end. Undercut length is approx. Pitchx2. Not applicable to D=M.

D	Unit Price Round Shape						Unit Price Diamond Shape					
	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.2510 Equiv.	④EN 1.4301 Equiv.	⑤Hard EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.2510 Equiv.	④EN 1.4301 Equiv.	⑤Hard EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.
	FPNSA	GFPNSA	BFPNSA	SFPNSA	HFPNSA	CFPNSA	FPNSD	GFPNSD	BFPNSD	SFPNSD	HFPNSD	CFPNSD
3							-	-	-	-	-	-
4							-	-	-	-	-	-
5							-	-	-	-	-	-
6												
8												
10												
12												
16												
20												

Locating Pins - Large Head, Tapered
Screw Mounted, Standard / Compact

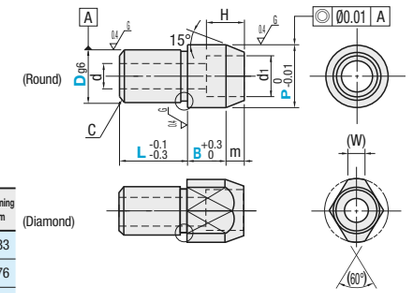
Spec.Change Printed in Purple

Features: Large Head, Tapered. The hollow area is a screw hole. Improved maintainability compared to the press fit type.

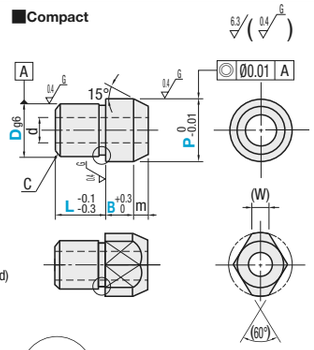
RoHS

Material No.	M Material	S Surface Treatment	H Hardness	Standard		Compact	Shape Code
				P Configurable	P, L, B Configurable	P, L, B Configurable	
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPT	FPT	FPTC	MA (Round) MD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-	GFPT	-	
③	EN 1.2510 Equiv.	-	-	-	BFPT	-	
④	EN 1.4301 Equiv.	-	-	SJPT	SFPT	SFPTC	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	-	HFPT	-	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPT	CFPT	-	

Standard



Compact



Relief dimension is a reference value.

Applicable Screws

D	g6	d	d1	H	Applicable Screw M	Tightening N·cm
10	-0.005 -0.014	4.5	8	5	M4	333
12	-0.006 -0.017	5.5	9.5	6.5	M5	676
13		6.6	11	7.5	M6	1156
16		9	14	10	M8	2803
20	-0.007 -0.020					

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

Standard, P Configurable

Part Number			P	L	B	C	m	(W)
Type	Shape	D	0.01mm Increment					
JPT SJPT CJPT	MA (Round) MD (Diamond)	10	14.00~17.00	15	10	2	4	4
		12	15.00~18.00					5
		13	17.00~20.00	22				5.5
		16	20.00~27.00			3	5	7
		20	23.00~30.00	30	15			9

Standard, P, L, B Configurable

Part Number			P	L	B	C	m	(W)
Type	Shape	D	0.01mm Increment	1mm Increment	0.1mm Increment			
FPT GFPT BFPT SFPT HFPT CFPT	MA (Round) MD (Diamond)	10	14.00~17.00	5~20	4.0~20.0	2	4	4
		12	15.00~18.00	6~24	7.0~20.0			5
		13	17.00~20.00	6~26	8.0~20.0			5.5
		16	20.00~27.00	7~32	8.0~20.0	3	5	7
		20	23.00~30.00	8~40	8.0~20.0			9

When L<D, C dimension (chamfered) is 0.5.

Compact

Part Number			P	L	B	C	m	(W)
Type	Shape	D	0.01mm Increment	1mm Increment	0.1mm Increment			
FPTC SFPTC	MA (Round) MD (Diamond)	10	11.00~15.00	5~14	3.0~16.0	0.5	2	4
		12	13.00~17.00	6~15	3.0~18.0			5
		13	14.00~18.00	6~16	3.0~20.0			5.5
		16	17.00~21.00	7~18	3.0~20.0		3	7
		20	21.00~25.00	8~20	3.0~20.0			9

Ordering Example

Part Number										
Type	Shape	D	-	P	-	L	-	B		
JPT	MA	10	-	14.00						
FPT	MA	10	-	P14.00	-	L15	-	B6.0		
FPTC	MA	12	-	P13.00	-	L6	-	B3.0		

Standard, P Configurable

D	Unit Price Round Shape			Unit Price Diamond Shape		
	①EN 1.2510 Equiv. Hardened	④EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.	①EN 1.2510 Equiv. Hardened	④EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.
	JPTMA	SJPTMA	CJPTMA	JPTMD	SJPTMD	CJPTMD
10						
12						
13						
16						
20						

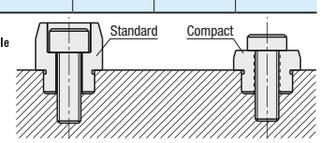
Standard, P, L, B Configurable

D	Unit Price Round Shape						Unit Price Diamond Shape					
	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.2510 Equiv.	④EN 1.4301 Equiv.	⑤Hard EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.2510 Equiv.	④EN 1.4301 Equiv.	⑤Hard EN 1.4301 Equiv.	⑥EN 1.4125 Equiv.
	FPTMA	GFPTMA	BFPTMA	SFPTMA	HFPTMA	CFPTMA	FPTMD	GFPTMD	BFPTMD	SFPTMD	HFPTMD	CFPTMD
10												
12												
13												
16												
20												

Compact

D	Unit Price Round Shape		Unit Price Diamond Shape	
	①EN 1.2510 Equiv. Hardened	④EN 1.4301 Equiv.	①EN 1.2510 Equiv. Hardened	④EN 1.4301 Equiv.
	FPTCMA	SFPTCMA	FPTCMD	SFPTCMD
10				
12				
13				
16				
20				

Example



Although the screw heads protrude from Compact Type pin, head diameter P and height B are configurable to even smaller dimensions.

Locating Pins - Sphere Large Head

Press Fit

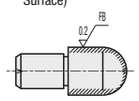
Spec.Change
Printed in Purple

■**Features:** The Sphere Head can prevent the mating material from being scratched even when you insert by sliding horizontally against the pin end.

Material No.	Material	Surface Treatment	Hardness	P Selectable		P Configurable		P, L, B Configurable	
				Type	D Tolerance and Shape	Type	D Tolerance and Shape	Type	D Tolerance and Shape
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPQ	<Round> B (m6) PB (p6)	JPQ	<Round> A (m6) PA (p6)	FPQ	<Round> A (m6) PA (p6)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	-		GJPQ		GFPQ	
③	EN 1.4301 Equiv.*	-	-	SJPQ		SJPQ		SFPQ	
④	EN 1.4301 Equiv.	Hard Chrome Plating	-	-		HJPQ (Round only)		HFPQ	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPQ		CJPQ	<Diamond> D (m6) PD (p6)	CFPQ	<Diamond> D (m6) PD (p6)
⑥	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	-		MJPQ		MFPQ	
⑦	EN 1.2510 Equiv.	Hard Chrome Plating + Buffing	Treated Hardness: 50 ~ 55HRC	-		-		MGFPQ	
⑧	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	-		MCJPQ		MCFPQ	

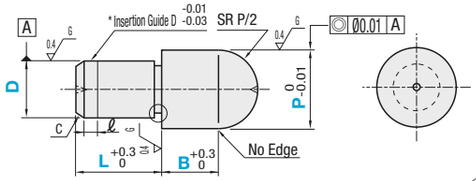
*For P Selectable Type, it is EN 1.4301 Equiv. equivalent.
Ⓟ Hard Chrome Plating: Plating Thickness 3μm or more, Plating Hardness 750HV ~

Ⓟ Buffed at ▨ part only. (Except Diamond Cut Surface)

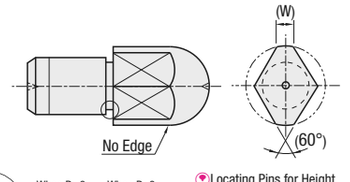


The boundary between Sphere part and B dimension is indistinct.

(Round)



(Diamond)



* The insertion guide is applicable to tolerance p6 only.
Ⓟ 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.
Ⓟ When the P dimension is small, a centering hole will cause the sphere section to become small.

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.

Ⓟ Locating Pins for Height Adjusting with shorter B fixed dimension is also available.
P.1660

■**P Selectable**

Part Number: Type	D Tolerance and Shape	D	D Tol. m6	D Tol. p6	P Selection	L	B	C	ℓ
JPQ SJPQ CJPQ	<Round> B (m6) PB (p6)	1	+0.008 +0.002	+0.012 +0.006	2	3	3	0.1	0
		2			3 4	4		0.5	
		3			4 5 6	5	5		1
		4	+0.012 +0.004	+0.020 +0.012	5 6 7		6	1	
		5			6 7 8	10			
		6			7 8 9 10		8		
		8	+0.015 +0.006	+0.024 +0.015	9 10 11 12	15		1.5	
		10			12 13		10	2	

■**P Configurable**

Part Number: Type	D Tolerance and Shape	D	D Tol. m6	D Tol. p6	P 0.01mm Increment	L	B	C	ℓ	(W)
JPQ GJPQ SJPQ HJPQ CJPQ (Buff Finished) MJPQ MCJPQ	<Round> A (m6) PA (p6) <Diamond> D (m6) PD (p6)	1	+0.008 +0.002	+0.012 +0.006	1.50~2.50	3	3	0.1	0	-
		2			2.50~4.00	4		0.5		1.2
		3			3.50~6.00	5	5		1	1.5
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00		6	1		1.8
		5			5.50~8.00	10				2.2
		6			6.50~10.00		8			3.0
		8	+0.015 +0.006	+0.024 +0.015	9.00~13.00	15		1.5		3.5
		10			11.00~15.00		10	2		4.0
		12	+0.018 +0.007	+0.029 +0.018	13.00~16.00					5.0
		13			14.00~18.00	22			2	5.5
		16			17.00~25.00			3		7.0
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	30	15			9.0

Ⓟ Applicable when D≥2
Ⓟ Applicable when D≥5.

■**P, L, B Configurable**

Part Number: Type	D Tolerance and Shape	D	D Tol. m6	D Tol. p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	ℓ	(W)
FPQ GFPQ SFPQ HFPQ CFPQ (Buff Finished) MFPQ MGFPQ MCFPQ	<Round> A (m6) PA (p6) <Diamond> D (m6) PD (p6)	1	+0.008 +0.002	+0.012 +0.006	1.50~2.50	2,3	2.0~5.0	0.1	0	-
		2			2.50~4.00	2~6	2.0~10.0	0.5		1.2
		3			3.50~6.00	3~6	2.0~10.0		1	1.5
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00	4~8	2.0~10.0	1		1.8
		5			5.50~8.00	5~10	2.0~10.0			2.2
		6			6.50~10.00	6~12	2.0~12.0			3.0
		8	+0.015 +0.006	+0.024 +0.015	9.00~13.00	8~16	2.0~15.0	1.5		3.5
		10			11.00~15.00	10~20	3.0~20.0	2		4.0
		12	+0.018 +0.007	+0.029 +0.018	13.00~16.00	12~24	3.0~20.0			5.0
		13			14.00~18.00	13~26	5.0~20.0	3	2	5.5
		16			17.00~25.00	16~32	5.0~20.0			7.0
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	20~40	5.0~20.0			9.0

Ⓟ Applicable when D≥2
Ⓟ Applicable when D≥5.

Ordering Example

Part Number										
Type	D Tol. Shape	D		P		L		B		
JPQ	A	4	-	5.00						
FPQ	A	4	-	P5.00	-	L5	-	B2.5		
MFPQ	PA	12	-	P15.98	-	L12	-	B5.5		

■**P Selectable**

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQB JPQPB	③EN 1.4301 Equiv. SJPQB SJPQPB	⑤EN 1.4125 Equiv. CJPQB CJPQPB
1			
2			
3			
4			
5			
6			
8			
10			

■**P Configurable**

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQA JPQPA	②Hard EN 1.2510 Equiv. GJPQA GJPQPA	③EN 1.4301 Equiv. SJPQA SJPQPA	④Hard EN 1.4301 Equiv. HJPQA HJPQPA	⑤EN 1.4125 Equiv. CJPQA CJPQPA	⑥EN 1.2510 Equiv. Hardened + Buffed MJPQA MJPQPA	⑧EN 1.4125 Equiv. + Buffed MCJPQA MCJPQPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPQD JPQPD	②Hard EN 1.2510 Equiv. GJPQD GJPQPD	③EN 1.4301 Equiv. SJPQD SJPQPD	④Hard EN 1.4301 Equiv. HJPQD HJPQPD	⑤EN 1.4125 Equiv. CJPQD CJPQPD	⑥EN 1.2510 Equiv. Hardened + Buffed MJPQD MJPQPD	⑧EN 1.4125 Equiv. + Buffed MCJPQD MCJPQPD
1						-	-	-	-	-	-	-	-	-
2						-	-				-		-	-
3						-	-				-		-	-
4						-	-				-		-	-
5											-			
6											-			
8											-			
10											-			
12											-			
13											-			
16											-			
20											-			

■**P, L, B Configurable**

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPQA FPQPA	②Hard EN 1.2510 Equiv. GFPQA GFPQPA	③EN 1.4301 Equiv. SFPQA SFPQPA	④Hard EN 1.4301 Equiv. HFPQA HFPQPA	⑤EN 1.4125 Equiv. CFPQA CFPQPA	⑥EN 1.2510 Equiv. Hardened + Buffed MFPQA MFPQPA	⑦Hard EN 1.2510 Equiv. + Buffed MGFPQA MGFPQPA	⑧EN 1.4125 Equiv. + Buffed MCFPQA MCFPQPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPQD FPQPD	②Hard EN 1.2510 Equiv. GFPQD GFPQPD	③EN 1.4301 Equiv. SFPQD SFPQPD	④Hard EN 1.4301 Equiv. HFPQD HFPQPD	⑤EN 1.4125 Equiv. CFPQD CFPQPD	⑥EN 1.2510 Equiv. Hardened + Buffed MFPQD MFPQPD	⑦Hard EN 1.2510 Equiv. + Buffed MGFPQD MGFPQPD	⑧EN 1.4125 Equiv. + Buffed MCFPQD MCFPQPD
1						-	-	-	-	-	-	-	-	-	-	-
2						-	-	-					-	-	-	-
3						-	-	-					-	-	-	-
4						-	-	-					-	-	-	-
5																
6																
8																
10																
12																
13																
16																
20																

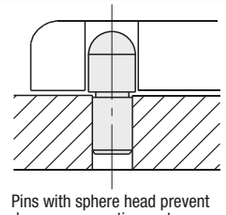
Alterations

Part Number	-	P	-	L	-	B	-	(RC)
FPQA4	-	P6.50	-	L5	-	B2.5	-	RC

⊗Alterations are not available for P Selectable Type.

	Sphere Tip
Alteration	RC (R0.5)
Code	RC
Spec.	Changes the relief to R0.5. Ordering Code RC Ⓟ Applicable when P-D≥2

Example



Pins with sphere head prevent damages on mating parts.

Locating Pins - Sphere Large Head

Tapped

Spec.Change Printed in Purple

Features: Sphere Large Head with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

(Buff Finished)

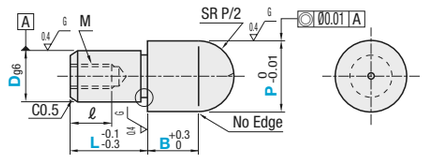
RoHS

Material No.	M Material	S Surface Treatment	H Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPQT	BB (Round)	JPQT	A (Round) D (Diamond)	FPQT	A (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	-		GJPQT		GFPQT	
③	EN 1.4301 Equiv.*	-	-	SJPQT		SJPQT		SFPQT	
④	EN 1.4301 Equiv.	Hard Chrome Plating	-	-		-		HFPQT	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPQT		CJPQT		CFPQT	
⑥	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	-		MJPQT		MFPQT	
⑦	EN 1.2510 Equiv.	Hard Chrome Plating + Buffed	Treated Hardness: 50 ~ 55HRC	-		-		MGFPQT	
⑧	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	-		MCJPQT		MCFPQT	

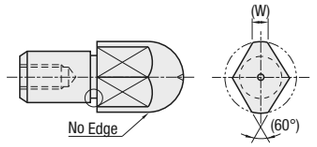
*For P Selectable Type, it is EN 1.4301 Equiv. equivalent.

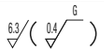
Hard Chrome Plating: Plating Thickness 3μm or more, Plating Hardness 750HV ~

(Round)



(Diamond)





Relief dimension is a reference value.

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

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	M (Coarse)	*Tightening Torque N·cm	ℓ
JPQT SJPQT CJPQT	BB (Round)	6	-0.004 -0.012	7 8 9 10	10	8	M3	147	5
		8	-0.005 -0.014	9 10 11 12 13	15	10	M5	676	8
		10		11 12 13 15					
		12	-0.006 -0.017	15 16					
		16		18 19 20 24 25	22		M8	2803	12

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	M (Coarse)	*Tightening Torque N·cm	ℓ	(W)
JPQT GJPQT SJPQT CJPQT (Buff Finished) MJPQT MCJPQT	A (Round) D (Diamond)	5	-0.004 -0.012	5.50~8.00	10	6	M2	-	3	2.2
		6		6.50~10.00		8	M3	147	5	3
		6T					M2.6	-	4	
		8	-0.005 -0.014	9.00~13.00	15		M5	676	8	3.5
		8T					M4	333	6	
		10		11.00~15.00		10	M5	676	8	4
		12	-0.006 -0.017	13.00~16.00						5
		13		14.00~18.00	22		M8	2803	10	5.5
		16		17.00~25.00					12	7
		20	-0.007 -0.020	22.00~30.00	30	15				9

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	ℓ	(W)
FPQT GFPQT SFPQT HFPQT CFPQT (Buff Finished) MFPQT MGFPQT MCFPQT	A (Round) D (Diamond)	5	-0.004 -0.012	5.50~8.00	5(9)~10	2.0~10.0	M2	-	3	2.2
		6		6.50~10.00	6(9)~12	2.0~12.0	M3	147	5	3
		6T					M2.6	-	4	
		8	-0.005 -0.014	9.00~13.00	8(12)~16	2.0~15.0	M5	676	8	3.5
		8T			6(12)~16		M4	333	6	
		10		11.00~15.00	10(12)~20	3.0~20.0	M5	676	8	4
		10T			6(12)~16		M4	333	6	
		12	-0.006 -0.017	13.00~16.00	12~24	3.0~20.0	M5	676	8	5
		12T			8(12)~18		M4	333	6	
		13		14.00~18.00	13(14)~26	5.0~20.0	M8	2803	10	5.5
		13T			8(14)~20		M6	1156	9	
		16		17.00~25.00	16~32	5.0~20.0	M8	2803	12	7
		16T			10(14)~24		M6	1156	9	
		20	-0.007 -0.020	22.00~30.00	20~40	5.0~20.0	M8	2803	12	9
		20T			12(18)~30		M6	1156	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 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.

* 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
JPQTA6	-	10.0				
MFPQTA6	-	P10.00	-	L10	-	B5.0

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQTBB	③EN 1.4301 Equiv. SJPQTBB	⑤EN 1.4125 Equiv. CJPQTBB
6			
8			
10			
12			
16			

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQTA	②Hard EN 1.2510 Equiv. GJPQTA	③EN 1.4301 Equiv. SJPQTA	⑤EN 1.4125 Equiv. CJPQTA	⑥EN1.2510Equiv. Hardened+Buffed MJPQTA	⑧EN 1.4125 Equiv.+ Buffed MCJPQTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPQTD	②Hard EN 1.2510 Equiv. GJPQTD	③EN 1.4301 Equiv. SJPQTD	⑤EN 1.4125 Equiv. CJPQTD	⑥EN1.2510Equiv. Hardened+Buffed MJPQTD	⑧EN 1.4125 Equiv.+ Buffed MCJPQTD
5												
6												
6T												
8												
8T												
10												
12												
13												
16												
20												

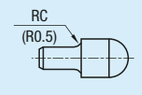
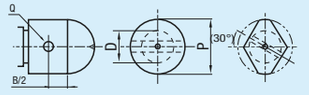
P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPQTA	②Hard EN 1.2510 Equiv. GFPQTA	③EN 1.4301 Equiv. SFPQTA	④Hard EN 1.4301 Equiv. HFPQTA	⑤EN 1.4125 Equiv. CFPQTA	⑥EN1.2510Equiv. Hardened+Buffed MFPQTA	⑦Hard EN 1.2510 Equiv.+Buffed MGFPQTA	⑧EN 1.4125 Equiv.+ Buffed MCFPQTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPQTD	②Hard EN 1.2510 Equiv. GFPQTD	③EN 1.4301 Equiv. SFPQTD	④Hard EN 1.4301 Equiv. HFPQTD	⑤EN 1.4125 Equiv. CFPQTD	⑥EN1.2510Equiv. Hardened+Buffed MFPQTD	⑦Hard EN 1.2510 Equiv.+ Buffed MGFPQTD	⑧EN 1.4125 Equiv.+ Buffed MCFPQTD
5												-				
6																
6T																
8																
8T																
10																
10T																
12																
12T																
13																
13T																
16																
16T																
20																
20T																

Alterations

Part Number	-	P	-	L	-	B	-	(RC, LAC)
FPQTA6	-	P10.00	-	L10	-	B5	-	RC

Alterations are not available for P Selectable Type. Combination with RC and LAC is not available.

Alteration	Sphere Tip	Wrench Hole Machining
		
Code	RC	LAC
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2	Machines wrench holes. Ordering Code LAC Orientation between Diamond Shape Head and Wrench Hole is arbitrary.

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

Wrench Hole Dimensions P	Q
5.50~9.99	2
10.00~16.99	3.5
17.00~	5

Locating Pins - Sphere Large Head

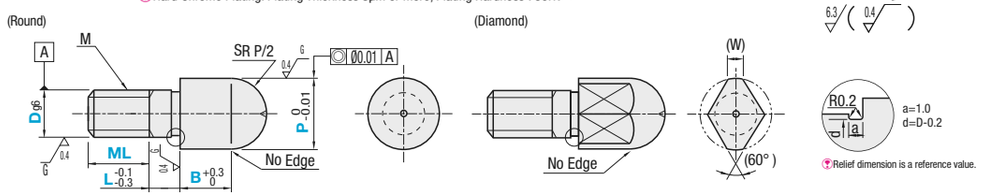
Threaded

Spec.Change
Printed in Purple

Features: Sphere Large Head, Press Fit + Lock Nut Type. Improved maintainability compared to the press fit type.

Material No.	Material	Surface Treatment	Hardness	Type				Shape Code	
				P Selectable	P Configurable	P, L, B Configurable	P, L, B, ML Configurable	P Selectable	Except P Selectable
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPQN	JPQN	FPQN	FPQNL	BB (Round)	A (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	-	GJPQN	GFPQN	GFPQNL		
③	EN 1.4301 Equiv.*	-	-	SJPQN	SJPQN	SFPQN	SFPQNL		
④	EN 1.4301 Equiv.	Hard Chrome Plating	-	-	-	HFPQN (Round only)	-		
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPQN	-	CFPQN	CFPQNL		
⑥	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	-	-	MFPQN	-		
⑦	EN 1.2510 Equiv.	Hard Chrome Plating + Buffed	Treated Hardness: 50 ~ 55HRC	-	-	MGFPQN	MGFPQNL		
⑧	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	-	-	MCFPQN	MCFPQNL		

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.
Hard Chrome Plating: Plating Thickness 3μm or more, Plating Hardness 750HV ~



Relief dimension is a reference value.

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

Locating Pins for Height Adjusting with shorter B fixed dimension is also available. P.1660

Ordering Example

Part Number	-	P	-	L	-	B	-	ML
JPQNBB3	-	5						
FPQNA16	-	P18.00	-	L12	-	B7.5		
SFPQNLA10	-	P11.97	-	L5	-	B5.0	-	ML12

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	M (Coarse)	* Tightening Torque N·cm	ML
JPQN SJPQN CJPQN	BB (Round)	3	-0.002 -0.008	4 5 6	2	5	M3	147	4.5
		4	-0.004 -0.012	5 6 7		6	M4	333	6
		5		6 7 8	3		M5	676	7.5
		6		7 8 9 10		8	M6	1156	9
		8	-0.005 -0.014	9 10 11 12 13	5		M8	2803	12
		10		11 12 13 15		10	M10	5557	15
		12	-0.006 -0.017	15 16	8		M12	9702	18

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	M (Coarse)	* Tightening Torque N·cm	ML	(W)
JPQN GJPQN SJPQN	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2	5	M3	147	4.5	1.5
		4	-0.004 -0.012	4.50~7.00		6	M4	333	6	1.8
		5		5.50~8.00	3		M5	676	7.5	2.2
		6		6.50~10.00		8	M6	1156	9	3
		8	-0.005 -0.014	9.00~13.00	5		M8	2803	12	3.5
		10		11.00~15.00		10	M10	5557	15	4
		12	-0.006 -0.017	13.00~18.00	8		M12	9702	18	5
		16		17.00~25.00			M16	24108	24	7
		20	-0.007 -0.020	22.00~30.00	10	15	M20	46942	30	9

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	* Tightening Torque N·cm	ML	(W)
FPQN GFPQN SFPQN HFPQN CFPQN (Buff Finished) MFPQN MGFPQN MCFPQN Applicable when D≥5.	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2~6	2.0~10.0	M3	147	4.5	1.5
		4	-0.004 -0.012	4.50~7.00	2~8	2.0~10.0	M4	333	6	1.8
		5		5.50~8.00	3~10	2.0~10.0	M5	676	7.5	2.2
		6		6.50~10.00	3~10	2.0~12.0	M6	1156	9	3
		8	-0.005 -0.014	9.00~13.00	5~10	2.0~15.0	M8	2803	12	3.5
		10		11.00~15.00	5~15	3.0~20.0	M10	5557	15	4
		12	-0.006 -0.017	13.00~18.00	8~15	3.0~20.0	M12	9702	18	5
		16		17.00~25.00	8~20	5.0~20.0	M16	24108	24	7
		20	-0.007 -0.02	22.00~30.00	10~20	5.0~20.0	M20	46942	30	9

P, L, B, ML Configurable

Thread length (ML) is configurable between Mx1 ~ Mx3 (max.).

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ML 1mm Increment	M (Coarse)	* Tightening Torque N·cm	(W)
FPQNL GFPQNL SFPQNL CFPQNL (Buff Finished) MGFPQNL MCFPQNL Applicable when D≥5.	A (Round) D (Diamond)	3	-0.002 -0.008	3.50~6.00	2~6	2.0~10.0	3~9	M3	147	1.5
		4	-0.004 -0.012	4.50~7.00	2~8	2.0~10.0	4~12	M4	333	1.8
		5		5.50~8.00	3~10	2.0~10.0	5~15	M5	676	2.2
		6		6.50~10.00	3~10	2.0~12.0	6~18	M6	1156	3
		8	-0.005 -0.014	9.00~13.00	5~10	2.0~15.0	8~24	M8	2803	3.5
		10		11.00~15.00	5~15	3.0~20.0	10~30	M10	5557	4
		12	-0.006 -0.017	13.00~18.00	8~15	3.0~20.0	12~30	M12	9702	5
		16		17.00~25.00	8~20	5.0~20.0	16~40	M16	24108	7
		20	-0.007 -0.02	22.00~30.00	10~20	5.0~20.0	20~40	M20	46942	9

* 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.

P Selectable

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened JPQNBB	③ EN 1.4301 Equiv. SJPQNBB	⑤ EN 1.4125 Equiv. CJPQNBB
3			
4			
5			
6			
8			
10			
12			

P Configurable

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened JPQNA	② Hard EN 1.2510 Equiv. GJPQNA	③ EN 1.4301 Equiv. SJPQNA	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened JPQND	② Hard EN 1.2510 Equiv. GJPQND	③ EN 1.4301 Equiv. SJPQND
3						
4						
5						
6						
8						
10						
12						
16						
20						

P, L, B Configurable

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened FPQNA	② Hard EN 1.2510 Equiv. GFPQNA	③ EN 1.4301 Equiv. SFPQNA	④ Hard EN 1.4301 Equiv. HFPQNA	⑤ EN 1.4125 Equiv. CFPQNA	⑥ EN 1.2510 Equiv. Hardened + Buffed MFPQNA	⑦ Hard EN 1.2510 Equiv. + Buffed MGFPQNA	⑧ EN 1.4125 Equiv. + Buffed MCFPQNA	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened FPQND	② Hard EN 1.2510 Equiv. GFPQND	③ EN 1.4301 Equiv. SFPQND	④ Hard EN 1.4301 Equiv. HFPQND	⑤ EN 1.4125 Equiv. CFPQND	⑥ EN 1.2510 Equiv. Hardened + Buffed MFPQND	⑦ Hard EN 1.2510 Equiv. + Buffed MGFPQND	⑧ EN 1.4125 Equiv. + Buffed MCFPQND
3						-	-	-				-		-	-	-
4						-	-	-				-		-	-	-
5												-				
6												-				
8												-				
10												-				
12												-				
16												-				
20												-				

P, L, B, ML Configurable

Price is determined by ML length. See the table below.

D	Unit Price Round Shape ① EN 1.2510 Equiv. Hardened FPQNLA	② Hard EN 1.2510 Equiv. GFPQNLA	③ EN 1.4301 Equiv. SFPQNLA	⑤ EN 1.4125 Equiv. CFPQNLA	⑦ Hard EN 1.2510 Equiv. + Buffed MGFPQNLA	⑧ EN 1.4125 Equiv. + Buffed MCFPQNLA	Unit Price Diamond Shape ① EN 1.2510 Equiv. Hardened FPQNLD	② Hard EN 1.2510 Equiv. GFPQNLD	③ EN 1.4301 Equiv. SFPQNLD	⑤ EN 1.4125 Equiv. CFPQNLD	⑦ Hard EN 1.2510 Equiv. + Buffed MGFPQNLD	⑧ EN 1.4125 Equiv. + Buffed MCFPQNLD
3					-	-					-	-
4					-	-					-	-
5												
6												
8												
10												
12												
16												
20												

Price of P, L, B, ML Configurable Type

Price is determined by ML length.

ML	Unit Price
Mx1 ≤ML<Mx1.5	Unit Price in the Table
Mx1.5≤ML<Mx2	Unit Price in the Table x 1.05
Mx2 ≤ML<Mx2.5	Unit Price in the Table x 1.1
Mx2.5≤ML≤Mx3	Unit Price in the Table x 1.15

Alterations

Part Number	-	P	-	L	-	B	-	ML	-	(RC, LAC)
SFPQNLA6	-	P10.00	-	L10	-	B5	-	ML10	-	RC

Alteration	Sphere Tip	Wrench Hole Machining
	RC (R0.5)	Q, B/2, (30°)
Code	RC	LAC
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2	Machines wrench holes. Ordering Code LAC Applicable when D≥6 Orientation between Diamond Shape Head and Wrench Hole is arbitrary.

D	B Applicable Dimension
6	5.0~
8	
10	
12	
16	
20	

Wrench Hole Dimensions P	Q
6.50~9.99	2
10.00~16.99	3.5
17.00~	5

Locating Pins - Sphere Large Head

D and P Selectable Tolerance

Spec.Change Printed in Purple

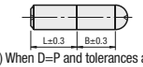
Features: Sphere Large Head with each dimension configurable. Selectable tolerance on both ends.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped	Type: Threaded	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFQ	KFQT	KFQN	A (Round)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GKFQ	GKFQT	GKFQN	A (Round)
③	EN 1.4301 Equiv.	-	-	SKFQ	SKFQT (Round only)	SKFQN	A (Round)
④	EN 1.4301 Equiv.	Hard Chrome Plating	-	HKFQ	-	-	A (Round)
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFQ	CKFQT (Round only)	CKFQN	A (Round)
⑦	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	MKFQ	-	-	D (Diamond)
⑧	EN 1.2510 Equiv.	Hard Chrome Plating + Buffed	Treated Hardness: 50 ~ 55HRC	MGKFQ	MGKFQT	MGKFQN	D (Diamond)
⑨	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	-	MCKFQT	-	D (Diamond)

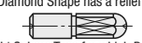
Hard Chrome Plating: Plating Thickness 3μm or more, Plating Hardness 750HV ~

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.



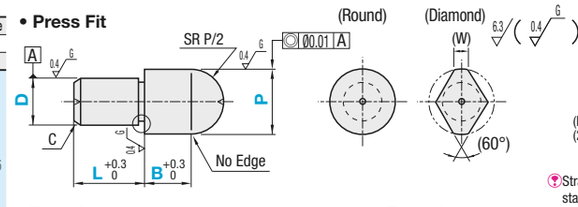
Straight Sphere Type for which D=P is standardized is available. P.1642

Tolerance Selection

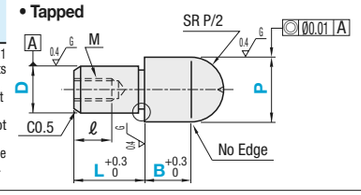
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 ~ 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 ~ 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 ~ 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 in 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.
When the P dimension is small, a centering hole will cause the sphere section to become small.

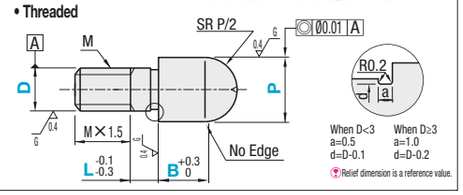
• Press Fit



• Tapped



• Threaded



Relief dimension is a reference value.

Press Fit

Part Number: Type	Shape	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	1.00~2.50	2-3	2.0~5.0	0.1	-
				2	2.00~4.00	2~6	2.0~10.0	0.5	1.2
				3	3.00~6.00	3~6	2.0~10.0		1.5
				4	4.00~7.00	4~8	2.0~10.0	1	1.8
				5	5.00~8.00	5~10	2.0~10.0		2.2
				6	6.00~10.00	6~12	2.0~12.0		3.0
				8	8.00~13.00	8~16	2.0~15.0	1.5	3.5
				10	10.00~15.00	10~20	3.0~20.0	2	4.0
				12	12.00~16.00	12~24	3.0~20.0		5.0
				13	13.00~18.00	13~26	5.0~20.0	3	5.5
				16	16.00~25.00	16~32	5.0~20.0		7.0
				20	20.00~30.00	20~40	5.0~20.0		9.0

Hard Chrome Plating and buffed products are not available for * marked Precision Grade (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	(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	2.0~10.0	2.2	M2	-	3
				6	6.00~10.00	6(9)~12	2.0~12.0	3	M3	147	5
				6T					M2.6	-	4
				8	8.00~13.00	8(12)~16	2.0~15.0	3.5	M5	676	8
				8T		6(12)~16			M4	333	6
				10	10.00~15.00	10(12)~20	3.0~20.0	4	M5	676	8
				10T		6(12)~16			M4	333	6
				12	12.00~16.00	12~24	3.0~20.0	5	M5	676	8
				12T		8(12)~18			M4	333	6
				13	13.00~18.00	13(14)~26	5.0~20.0	5.5	M8	2803	10
				13T		8(14)~20			M6	1156	9
				16	16.00~25.00	16~32	5.0~20.0	7	M8	2803	12
				16T		10(14)~24			M6	1156	9
				20	20.00~30.00	20~40	5.0~20.0	9	M8	2803	12
				20T		12(18)~30			M6	1156	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 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.
* 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.

Threaded

Part Number: Type	Shape	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	3.50~6.00	2~6	2.0~10.0	1.5	M 3	147
				4	4.50~7.00	2~8	2.0~10.0	1.8	M 4	333
				5	5.50~8.00	3~10	2.0~10.0	2.2	M 5	676
				6	6.50~10.00	3~10	2.0~12.0	3	M 6	1156
				8	9.00~13.00	5~10	2.0~15.0	3.5	M 8	2803
				10	11.00~15.00	5~15	3.0~20.0	4	M10	5557
				12	13.00~18.00	8~15	3.0~20.0	5	M12	9702
				16	17.00~25.00	8~20	5.0~20.0	7	M16	24108
				20	22.00~30.00	10~20	5.0~20.0	9	M20	46942

Hard Chrome Plating and buffed products are not available for Precision Grade* (Precision Grade A and B).
* 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		
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.
Example of Price Calculation: KFQAMA10-P11.05-L12-B5.5

Press Fit

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFQA	②Hard EN 1.2510 Equiv. GKFQA	③EN 1.4301 Equiv. SKFQA	④Hard EN 1.4301 Equiv. HKFQA	⑤EN 1.4125 Equiv. CKFQA	⑦EN 1.2510 Equiv. Hardened + Buffed MKFQA	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFQD	②Hard EN 1.2510 Equiv. GKFQD	③EN 1.4301 Equiv. SKFQD	④Hard EN 1.4301 Equiv. HKFQD	⑤EN 1.4125 Equiv. CKFQD	⑦EN 1.2510 Equiv. Hardened + Buffed MKFQD	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQD
1						-	-	-	-	-	-	-	-	-
2						-	-						-	-
3						-	-						-	-
4						-	-						-	-
5														
6														
8														
10														
12														
13														
16														
20														

Tapped

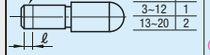
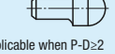
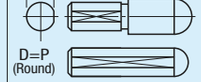
D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFQTA	②Hard EN 1.2510 Equiv. GKFQTA	③EN 1.4301 Equiv. SKFQTA	⑤EN 1.4125 Equiv. CKFQTA	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQTA	⑨EN 1.4125 Equiv. + Buffed MCKFQTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFQTD	②Hard EN 1.2510 Equiv. GKFQTD	③EN 1.4301 Equiv. SKFQTD	⑤EN 1.4125 Equiv. CKFQTD	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQTD	⑨EN 1.4125 Equiv. + Buffed MCKFQTD
5								-	-	-		
6									-	-		
6T									-	-		
8									-	-		
8T									-	-		
10									-	-		
10T									-	-		
12									-	-		
12T									-	-		
13									-	-		
13T									-	-		
16									-	-		
16T									-	-		
20									-	-		
20T									-	-		

Threaded

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened KFQNA	②Hard EN 1.2510 Equiv. GKFQNA	③EN 1.4301 Equiv. SKFQNA	⑤EN 1.4125 Equiv. CKFQNA	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQNA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened KFQND	②Hard EN 1.2510 Equiv. GKFQND	③EN 1.4301 Equiv. SKFQND	⑤EN 1.4125 Equiv. CKFQND	⑧Hard EN 1.2510 Equiv. + Buffed MGKFQND
3					-		-			-
4					-		-			-
5							-			
6							-			
8							-			
10							-			
12							-			
16							-			
20							-			

Alterations

Part Number									
KFQAMS6	-	P8.0	-	L8	-	B6.0	-	RC	(GDC, RC, AC)

Alterations	Insertion Guide	Sphere Tip	Air Vent
Code	GDC	RC	AC
Spec.	Adds the insertion guide. Ordering Code GDC  D: 3~12 ℓ: 1; 13~20 ℓ: 2. Not applicable when D≤2. Not applicable to Threaded.	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2	Adds an air vent. Ordering Code AC  Not applicable to Threaded.

Locating Pins - Large Flat Head

Press Fit

Spec.Change Printed in Purple

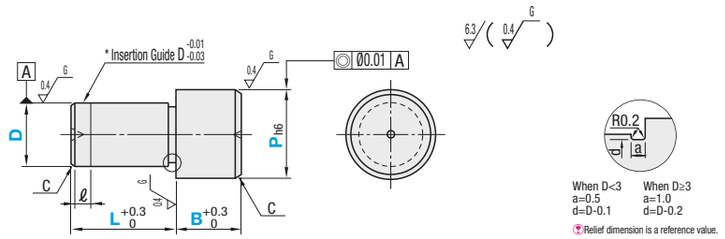
Features: Flat Head Type. Suitable if the mating side has limited space.

(Alteration CN)

RoHS

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable D Tol.	P Configurable Type	P Configurable D Tol.	P, L, B Configurable Type	P, L, B Configurable D Tol.
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	DA (m6)	JP	DC (m6)	FP	DC (m6)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJP		GJP		GFP	
③	EN 1.2510 Equiv.	-	-	BJP		BJP		BFP	
④	EN 1.4301 Equiv.*	-	-	SJP		SJP		SFP	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HJP	DPA (p6)	HJP	DPC (p6)	HFP	DPC (p6)
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJP		CJP		CFP	

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



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.

* The insertion guide is applicable to tolerance p6 only.

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 Dim. Tolerance Table

P	h6
1.50~3.00	0 -0.006
3.01~6.00	0 -0.008
6.01~10.00	0 -0.009
10.01~18.00	0 -0.011
18.01~30.00	0 -0.013

P Selectable

Part Number Type	D Tol.	D	d dim. Tolerance m6	d dim. Tolerance p6	P Selection	L	B	ℓ	C
JP GJP BJP SJP HJP CJP	DA (m6)	1	+0.008 +0.002	+0.012 +0.006	2	3	2	0	0.1
		2			3	4			0.5
		3			5	5	3	1	1
		4	+0.012 +0.004	+0.020 +0.012	6, 8				
		5			8	8	4		
		6			8, 10	10	5		
	DPA (p6)	8	+0.015 +0.006	+0.024 +0.015	12	12	6	2	1.5
		10			12, 14	16	10		2
		12	+0.018 +0.007	+0.029 +0.018	16	20	20		
		13			18	22	22		
		16			25	24	25		3
		20	+0.021 +0.008	+0.035 +0.022	30	32	30		

P Configurable

Part Number Type	D Tol.	D	d dim. Tolerance m6	d dim. Tolerance p6	P 0.01mm Increment	L	B	ℓ	C
JP GJP BJP SJP HJP CJP	DC (m6)	1	+0.008 +0.002	+0.012 +0.006	1.50~2.50	3	2	0	0.1
		2			2.50~4.00	4			0.5
		3			3.50~6.00	5	3	1	1
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00				
		5			5.50~8.00	8	4		
		6			6.50~10.00	10	5		
	DPC (p6)	8	+0.015 +0.006	+0.024 +0.015	9.00~13.00	12	6	2	1.5
		10			11.00~15.00	16	10		2
		12	+0.018 +0.007	+0.029 +0.018	13.00~16.00	20	20		
		13			14.00~18.00	22	22		
		16			17.00~25.00	24	25		3
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	32	30		

P, L, B Configurable

Part Number Type	D Tol.	D	d dim. Tolerance m6	d dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ℓ	C
FP GFP BFP SFP HFP CFP	DC (m6)	1	+0.008 +0.002	+0.012 +0.006	1.50~2.50	2, 3	2.0~5.0	0	0.1
		2			2.50~4.00	2~6	2.0~10.0		0.5
		3			3.50~6.00	3~6	2.0~10.0	1	1
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00	4~8	2.0~10.0		
		5			5.50~8.00	5~10	2.0~10.0		
		6			6.50~10.00	6~12	2.0~12.0		
	DPC (p6)	8	+0.015 +0.006	+0.024 +0.015	9.00~13.00	8~16	2.0~15.0	2	1.5
		10			11.00~15.00	10~20	3.0~20.0		2
		12	+0.018 +0.007	+0.029 +0.018	13.00~16.00	12~24	3.0~20.0		
		13			14.00~18.00	13~26	5.0~20.0		
		16			17.00~25.00	16~32	5.0~20.0		3
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	20~40	5.0~20.0		

Ordering Example

Part Number										
Type	D Tol.	D	-	P	-	L	-	B		
JP	DA	8	-	12						
SJP	DPC	10	-	14.01						
CFP	DC	12	-	P15.97	-	L12	-	B3.5		

P Selectable

D	①EN 1.2510 Equiv. Hardened JPDA JPDPA	②Hard EN 1.2510 Equiv. GJPDA GJPDPA	③EN 1.2510 Equiv. BJPDA BJPDPA	④EN 1.4301 Equiv. SJPDA SJPDPA	⑤Hard EN 1.4301 Equiv. HJPDA HJPDPA	⑥EN 1.4125 Equiv. CJPDA CJPDPA
	Unit Price					
1						
2						
3						
4						
5						
6						
8						
10						
12						
13				-		
16						
20				-		-

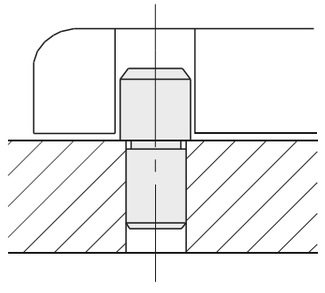
P Configurable

D	①EN 1.2510 Equiv. Hardened JPDC JPDPC	②Hard EN 1.2510 Equiv. GJPDC GJPDPC	③EN 1.2510 Equiv. BJPDC BJPDPC	④EN 1.4301 Equiv. SJPDC SJPDPC	⑤Hard EN 1.4301 Equiv. HJPDC HJPDPC	⑥EN 1.4125 Equiv. CJPDC CJPDPC
	Unit Price					
1						
2						
3						
4						
5						
6						
8						
10						
12						
13						
16						
20						

P, L, B Configurable

D	①EN 1.2510 Equiv. Hardened FPDC FPDPC	②Hard EN 1.2510 Equiv. GFPDC GFPDPC	③EN 1.2510 Equiv. BFPDC BFPDPC	④EN 1.4301 Equiv. SFPDC SFPDPC	⑤Hard EN 1.4301 Equiv. HFPDC HFPDPC	⑥EN 1.4125 Equiv. CFPDC CFPDPC
	Unit Price					
1						
2						
3						
4						
5						
6						
8						
10						
12						
13						
16						
20						

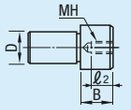
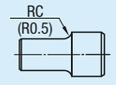
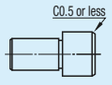
Example



Alterations

Part Number									(MH, RC, CN)
JPDPC12	-	14.01						-	MH
BFPDC6	-	P8.00	-	L9	-	B5.0	-		CN

Alterations are not available for P Selectable Type.

Alterations	Tapping	Sphere Tip	C Chamfered Size
			
Code	MH	RC	CN
Spec.	Adds a tapped hole. Ordering Code MH. Applicable when D≥12.	Changes the relief to R0.5. Ordering Code RC. Applicable when P-D≥2	Changes C Chamfering at P dimension part to 0.5 or less. Not applicable to D dimension part. Applicable when D≥3.

D	MH (Coarse)	ℓ2
12	M4	6
13		
16	M6	9
20		

B≥ℓ2+4

Locating Pins - Large Flat Head

Tapped

Spec.Change
Printed in Purple

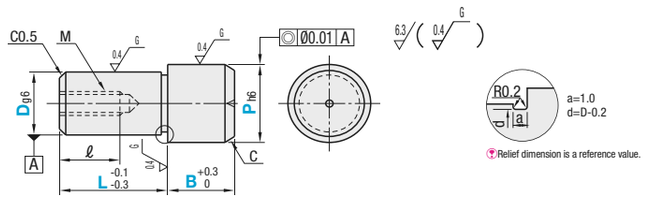
■**Features:** Large Flat Head with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

(Alteration CN)

RoHS

Material No.	Material	Surface Treatment	Hardness	Type		
				P Selectable	P Configurable	P, L, B Configurable
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPDTA	JPDTC	FPDTC
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPDTA	GJPDTC	GFPDTC
③	EN 1.2510 Equiv.	-	-	-	-	BFPDTC
④	EN 1.4301 Equiv.*	-	-	SJPDTA	-	SFPDTC
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPDTA	-	-

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



Relief dimension is a reference value.

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

■**P Dim. Tolerance Table**

P	h6
5.50~6.00	0 -0.008
6.01~10.00	0 -0.009
10.01~18.00	0 -0.011
18.01~30.00	0 -0.013

■**P Selectable**

Part Number Type	D	D dim. Tolerance g6	P Selection	L	B	M (Coarse)	*Tightening Torque N·cm	ℓ	C
JPDTA GJPDTA SJPDTA CJPDTA	6	-0.004 -0.012	8, 10	10	5	M3	147	5	1
	8	-0.005 -0.014	12	12	6	M5	676	8	1.5
	10		12, 14	16	10				2
	12	-0.006 -0.017	16	20	20				
	13		18	22	22	M8	2803	12	3
	16		25	24	25				
	20	-0.007 -0.020	30	32	30				

■**P Configurable**

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	M (Coarse)	*Tightening Torque N·cm	ℓ	C
JPDTC GJPDTC	5	-0.004 -0.012	5.50~8.00	8	4	M2	-	3	1
	6		6.50~10.00	10	5	M3	147	5	
	6T					M2.6	-	4	
	8	-0.005 -0.014	9.00~13.00	12	6	M5	676	8	1.5
	8T					M4	333	6	
	10		11.00~15.00	16	10	M5	676	8	2
	12	-0.006 -0.017	13.00~16.00	20	20				
	13		14.00~18.00	22	22	M8	2803	12	3
	16		17.00~25.00	24	25				
	20	-0.007 -0.020	22.00~30.00	32	30				

■**P, L, B Configurable**

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	ℓ	C
FPDTC GFPDTC BFPDTC SFPDTC	5	-0.004 -0.012	5.50~8.00	5~10	2.0~10.0	M2	-	3	1
	6		6.50~10.00	6~12	2.0~12.0	M3	147	5	
	6T					M2.6	-	4	
	8	-0.005 -0.014	9.00~13.00	8~16	2.0~15.0	M5	676	8	1.5
	8T			6~16		M4	333	6	
	10		11.00~15.00	10~20	3.0~20.0	M5	676	8	2
	10T			6~16		M4	333	6	
	12	-0.006 -0.017	13.00~16.00	12~24	3.0~30.0	M5	676	8	3
	12T			8~18		M4	333	6	
	13		14.00~18.00	13~26	5.0~30.0	M8	2803	12	
	13T			8~20		M6	1156	9	
	16		17.00~25.00	16~32	5.0~35.0	M8	2803	12	
	16T			10~24		M6	1156	9	
	20	-0.007 -0.020	22.00~30.00	20~40	5.0~40.0	M8	2803	12	
	20T			12~30		M6	1156	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".)

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	-	P	-	L	-	B
JPDTA10	-	14				
JPDTC10	-	14.25				
FPDTC12T	-	P14.25	-	L18	-	B8.6

■**P Selectable**

D	Unit Price			
	①EN 1.2510 Equiv. Hardened JPDTA	②Hard EN 1.2510 Equiv. GJPDTA	④EN 1.4301 Equiv. SJPDTA	⑥ EN 1.4125 Equiv. CJPDTA
6				
8				
10				
12				-
13			-	-
16				-
20			-	-

■**P Configurable**

D	Unit Price	
	①EN 1.2510 Equiv. Hardened JPDTC	②Hard EN 1.2510 Equiv. GJPDTC
5		
6		
6T		
8		
8T		
10		
12		
13		
16		
20		

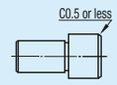
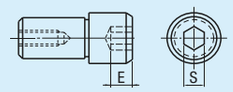
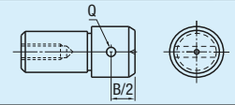
■**P, L, B Configurable**

D	Unit Price			
	①EN 1.2510 Equiv. Hardened FPDTC	②Hard EN 1.2510 Equiv. GFPDTC	③EN 1.2510 Equiv. BFPDTC	④EN 1.4301 Equiv. SFPDTC
5				
6				
6T				
8				
8T				
10				
10T				
12				
12T				
13				
13T				
16				
16T				
20				
20T				

Alterations

Part Number	-	P	-	L	-	B	-	(RC, CN, RAC, LAC)
SFPDTC8	-	P10.00		L8		B5.0	-	CN

Alterations are not available for P Selectable Type.

Alterations	Sphere Tip	C Chamfered Size	Hex Socket Machining	Wrench Hole Machining
				
Code	RC	CN	RAC	LAC
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2 Combination with RAC and LAC is not available.	Changes C Chamfering at P dimension part to 0.5 or less. Not applicable to D dimension part.	Machines hex sockets. Ordering Code RAC Applicable to P, L, B Dimension Configurable Type only. Combination with RC and LAC is not available.	Machines wrench holes. Ordering Code LAC Applicable to P, L, B Dimension Configurable Type only. Combination with RC and RAC is not available.

RAC

D	Applicable Dimensions L	Applicable Dimensions B	Hex Hole Dimensions E	Hex Hole Dimensions S
5	8~	8.0~	2	2
6 6T	10~	8.0~	2	3
8 8T	10~	12.5~	2.5	4
10 10T	12~	13.0~	3	5
12 12T	12~	16.0~	4	6
13 13T	15~	19.0~		
16 16T	16~	20.0~	5	8
20 20T	20~	20.0~		

LAC

D	Applicable Dimensions B
5	8.0~
6 6T	8.0~
8 8T	9.0~
10 10T	9.0~
12 12T	9.0~
13 13T	14.0~
16 16T	15.0~
20 20T	15.0~

Wrench Hole Dimensions

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

Locating Pins - Large Flat Head

Threaded

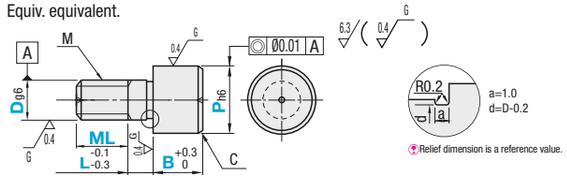
Spec.Change Printed in Purple

Features: Large Flat Head, Press Fit + Lock Nut Type. Improved maintainability compared to the press fit type.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type			
				P Selectable	P Configurable	P, L, B Configurable	P, L, B, ML Configurable
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPFNB	JPFNA	FPFNA	FPFNLA
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-	GJPFNA	GFPFNA	GFPFNLA
③	EN 1.2510 Equiv.	-	-	-	BJPFNA	BFPFNA	-
④	EN 1.4301 Equiv.*	-	-	SJPFNB	SJPFNA	SFPFNA	SFPFNLA
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPFNB	-	CFPFNA	CFPFNLA

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



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

Relief dimension is a reference value.

P Dim. Tolerance Table

P	h6
3.50~6.00	0 -0.008
6.01~10.00	0 -0.009
10.01~18.00	0 -0.011
18.01~30.00	0 -0.013

P Selectable

Part Number Type	D	D dim. Tolerance g6	P Selection	L	B	C	M (Coarse)	*Tightening Torque N·cm	ML
JPFNB SJPFNB CJPFNB	3	-0.002 -0.008	4 5 6	2	3	0.5	M3	147	4.5
	4	-0.004 -0.012	5 6 8		4	1	M4	333	6
	5		6 8 9	3			M5	676	7.5
	6		8 9 10		5		M6	1156	9
	8	-0.005 -0.014	9 10 12 13	5	6	1.5	M8	2803	12

P Configurable

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	C	M (Coarse)	*Tightening Torque N·cm	ML
JPFNA GJPFNA BJPFNA SJPFNA	3	-0.002 -0.008	3.50~6.00	2	3	0.5	M3	147	4.5
	4	-0.004 -0.012	4.50~7.00		4	1	M4	333	6
	5		5.50~8.00	3			M5	676	7.5
	6		6.50~10.00		5		M6	1156	9
	8	-0.005 -0.014	9.00~13.00	5	6	1.5	M8	2803	12
	10		11.00~15.00		10	2	M10	5557	15
	12	-0.006 -0.017	13.00~16.00	8	20		M12	9702	18
	16		17.00~25.00		25	3	M16	24108	24
	20	-0.007 -0.020	22.00~30.00	10	30		M20	46942	30

P, L, B Configurable

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	M (Coarse)	*Tightening Torque N·cm	ML
FPFNA GFPFNA BFPFNA SFPFNA CFPFNA	3	-0.002 -0.008	3.50~6.00	2~6	3.0~10.0	0.5	M3	147	4.5
	4	-0.004 -0.012	4.50~7.00	2~8	4.0~10.0	1	M4	333	6
	5		5.50~8.00	3~10	4.0~10.0		M5	676	7.5
	6		6.50~10.00	3~10	4.0~12.0		M6	1156	9
	8	-0.005 -0.014	9.00~13.00	5~10	5.0~15.0	1.5	M8	2803	12
	10		11.00~15.00	5~15	6.0~20.0	2	M10	5557	15
	12	-0.006 -0.017	13.00~16.00	8~15	6.0~20.0		M12	9702	18
	16		17.00~25.00	8~20	7.0~20.0	3	M16	24108	24
	20	-0.007 -0.020	22.00~30.00	10~20	10.0~20.0		M20	46942	30

P, L, B, ML Configurable Thread length (ML) is configurable between Mx1 ~ Mx3 (max.).

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ML 1mm Increment	C	M (Coarse)	*Tightening Torque N·cm
FPFNLA GFPFNLA SFPFNLA CFPFNLA	3	-0.002 -0.008	3.50~6.00	2~6	3.0~10.0	3~9	0.5	M3	147
	4	-0.004 -0.012	4.50~7.00	2~8	4.0~10.0	4~12	1	M4	333
	5		5.50~8.00	3~10	4.0~10.0	5~15		M5	676
	6		6.50~10.00	3~10	4.0~12.0	6~18		M6	1156
	8	-0.005 -0.014	9.00~13.00	5~10	5.0~15.0	8~24	1.5	M8	2803
	10		11.00~15.00	5~15	6.0~20.0	10~30	2	M10	5557
	12	-0.006 -0.017	13.00~16.00	8~15	6.0~20.0	12~30		M12	9702
	16		17.00~25.00	8~20	7.0~20.0	16~40	3	M16	24108
	20	-0.007 -0.020	22.00~30.00	10~20	10.0~20.0	20~40		M20	46942

*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	-	ML
JPFNA3	-	5.20						
FPFNA5	-	P7.80	-	L8	-	B4.0		
FPFNLA8	-	P10.00	-	L5	-	B5.0	-	ML8

P Selectable

D	Unit Price ①EN 1.2510 Equiv. Hardened JPFNB	④EN 1.4301 Equiv. SJPFNB	⑥EN 1.4125 Equiv. CJPFNB
3			
4			
5			
6			
8			

P Configurable

D	Unit Price ①EN 1.2510 Equiv. Hardened JPFNA	②Hard EN 1.2510 Equiv. GJPFNA	③EN 1.2510 Equiv. BJPFNA	④EN 1.4301 Equiv. SJPFNA
3				
4				
5				
6				
8				
10				
12				
16				
20				

P, L, B Configurable

D	Unit Price ①EN 1.2510 Equiv. Hardened FPFNA	②Hard EN 1.2510 Equiv. GFPFNA	③EN 1.2510 Equiv. BFPFNA	④EN 1.4301 Equiv. SFPFNA	⑥EN 1.4125 Equiv. CFPFNA
3					
4					
5					
6					
8					
10					
12					
16					
20					

P, L, B, ML Configurable (Unit price in the table is when Mx1≤ML<Mx1.5. For price calculation, refer to the table on the right.)

D	Unit Price ①EN 1.2510 Equiv. Hardened FPFNLA	②Hard EN 1.2510 Equiv. GFPFNLA	④EN 1.4301 Equiv. SFPFNLA	⑥EN 1.4125 Equiv. CFPFNLA
3				
4				
5				
6				
8				
10				
12				
16				
20				

Price of Threaded P, L, B, ML Configurable Type

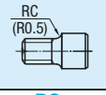
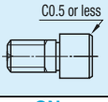
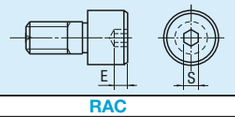
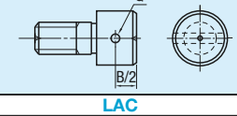
Price is determined by ML length.

ML	Unit Price
Mx1 ≤ML<Mx1.5	Unit Price in the Table
Mx1.5≤ML<Mx2	Unit Price in the Table x 1.05
Mx2 ≤ML<Mx2.5	Unit Price in the Table x 1.1
Mx2.5≤ML<Mx3	Unit Price in the Table x 1.15

Alterations

Part Number	-	P	-	L	-	B	-	ML	-	(RC, CN, RAC, LAC)
FPFNA10	-	P12.00	-	L5	-	B9.0			-	LAC

Alterations are not available for P Selectable Type.

Alterations	Sphere Tip	C Chamfered Size	Hex Socket Machining	Wrench Hole Machining
				
Code	RC	CN	RAC	LAC
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2 Combination with RAC and LAC is not available.	Changes C Chamfering at P dimension part to 0.5 or less.	Machines hex sockets. Ordering Code RAC	Machines wrench holes. Ordering Code LAC

Hex Socket Machining:

D	Applicable Dim. B	Hex Hole Dimensions E	S
6	8.0~	2	3
8	12.5~	2.5	4
10	13.0~	3	5
12	16.0~	4	6
16	20.0~	5	8
20	20.0~		

Applicable when D≥6
Applicable to P, L, B Dimension Configurable Type only.
Combination with RC and LAC is not available.

Wrench Hole Machining:

D	Applicable Dim. B	Wrench Hole Dimensions P	Q
6	8.0~	6.50~9.99	2
8	9.0~	10.00~16.99	3.5
10	9.0~	17.00~	5
12	9.0~		
16	15.0~		
20	15.0~		

Applicable when D≥6
Applicable to P, L, B Dimension Configurable Type only.
Combination with RC and RAC is not available.

Locating Pins - Large Flat Head

D and P Selectable Tolerance

Spec.Change
Printed in Purple

Features: Large Flat Head with each dimension configurable. Selectable tolerance on both ends.

(Alteration CN)

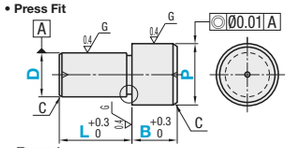
RoHS

Material No.	Material	Surface Treatment	Hardness	Type		
				Press Fit	Tapped	Threaded
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFFA	KFFTA	KFFNA
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFFA	GKFFTA	GKFFNA
③	EN 1.2510 Equiv.	-	-	BKFFA	BKFFTA	-
④	EN 1.4301 Equiv.	-	-	SKFFA	SKFFTA	SKFFNA
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFFA	CKFFTA	-

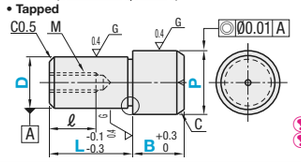
■Tolerance Selection

D or P	Standard Grade					Precision Grade	
	M	P	G	H	S	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			

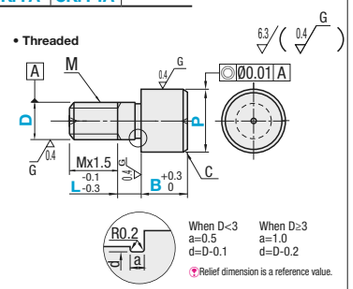
• Press Fit



• Tapped



• Threaded



Relief dimension is a reference value.

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.

■Press Fit

Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	Unit Price Standard Grade ① KFFA	② GKFFA	③ BKFFA	④ SKFFA	⑤ CKFFA
KFFA GKFFA* BKFFA SKFFA CKFFA	M P G H *A *B	S M P G H *A *B	1	1.50~2.50	2, 3	2.0~5.0	0.1					
			2	2.50~4.00	2~6	2.0~10.0	0.5					
			3	3.50~6.00	3~6	2.0~10.0	1					
			4	4.50~7.00	4~8	2.0~10.0						
			5	5.50~8.00	5~10	2.0~10.0						
			6	6.50~10.00	6~12	2.0~12.0						
			8	9.00~13.00	8~16	2.0~15.0	1.5					
			10	11.00~15.00	10~20	3.0~20.0	2					
			12	13.00~16.00	12~24	3.0~30.0						
			13	14.00~18.00	13~26	5.0~30.0						
			16	17.00~25.00	16~32	5.0~35.0	3					
			20	22.00~30.00	20~40	5.0~40.0						

⊗Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B).

■Tapped

Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	ℓ	C	Unit Price ① KFFTA	② GKFFTA	③ BKFFTA	④ SKFFTA	⑤ CKFFTA
KFFTA GKFFTA BKFFTA SKFFTA CKFFTA	M P G H	S M P G H	6	6.50~10.00	6~12	2.0~12.0	M3	147	5	1					
			6T				M2.6	-	4						
			8	9.00~13.00	8~16	2.0~15.0	M5	676	8	1.5					
			8T		6~12		M4	333	6						
			10	11.00~15.00	10~20	3.0~20.0	M5	676	8	2					
			10T		6~16		M4	333	6						
			12	13.00~16.00	12~24	3.0~30.0	M5	676	8						
			12T		8~18		M4	333	6						
			13	14.00~18.00	13~26	5.0~30.0	M8	2803	10	3					
			13T		8~20		M6	1156	9						
			16	17.00~25.00	16~32	5.0~35.0	M8	2803	12						
			16T		10~24		M6	1156	9						
			20	22.00~30.00	20~40	5.0~40.0	M8	2803	12						
			20T		12~30		M6	1156	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".)
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.

■Threaded

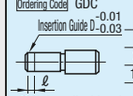
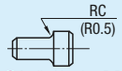
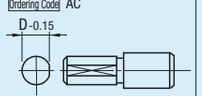
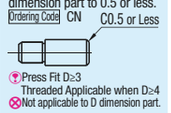
Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	M (Coarse)	*Tightening Torque N·cm	Unit Price Standard Grade ① KFFNA	② GKFFNA	④ SKFFNA
KFFNA GKFFNA* SKFFNA	M P G H *A *B	S M P G H *A *B	3	3.50~6.00	2~6	3.0~10.0	0.5	M3	147			
			4	4.50~7.00	2~8	4.0~10.0	1	M4	333			
			5	5.50~8.00	3~10	4.0~10.0		M5	676			
			6	6.50~10.00	3~10	4.0~12.0		M6	1156			
			8	9.00~13.00	5~10	5.0~15.0	1.5	M8	2803			
			10	11.00~15.00	5~15	6.0~20.0	2	M10	5557			
			12	13.00~18.00	8~15	6.0~20.0		M12	9702			
			16	17.00~25.00	8~20	7.0~20.0	3	M16	24108			
			20	22.00~30.00	10~20	10.0~20.0		M20	46942			

⊗Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B).
* 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 (KFFA) - D Tol. (M) - P Tol. (S) - D (6) - P (P8.00) - L (L8) - B (B6.0)

Alterations: Part Number - P - L - B - (GDC, RC, AC, CN)
KFFAMS6 - P8.0 - L8 - B6.0 - RC

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

Alterations Code	Insertion Guide GDC	Sphere Tip RC	Air Vent AC	C Chamfered Size CN
Spec.	Adds the insertion guide. Ordering Code GDC  D: 3~12 ℓ: 1; 13~20 ℓ: 2 ⊗Not applicable when D≤2	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2	Adds an air vent. Ordering Code AC 	Changes C Chamfering at P dimension part to 0.5 or less. Ordering Code CN  Press Fit D≥3 Threaded Applicable when D≥4 ⊗Not applicable to D dimension part.

Locating Pins - Large Flat Head

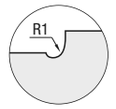
Side Locating

Features: Grinding undercut shape and the pin material have been changed to give higher immunity against breaking for lateral load applications.

RoHS

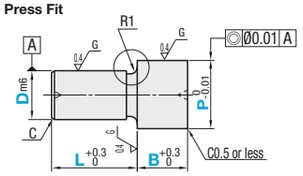
Material No.	Material	Surface Treatment	Hardness	Type		
				Press Fit	Tapped	Threaded
①	EN 1.7242 Equiv.	-	Carburized 55HRC~ (Depth: 0.7 ~ 0.8)	FPYT	FPYTM	FPYN
②	EN 1.4301 Equiv.	-	-	SFPYT	SFPYTM	SFPYN

Surface Finish Relief

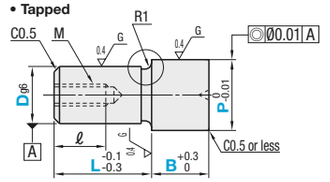


6.3 (0.4 G)

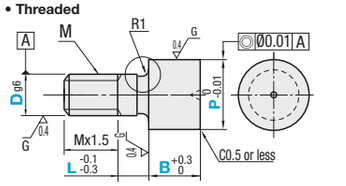
• Press Fit



• Tapped



• Threaded



■Press Fit

Part Number Type	D	D dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	Unit Price ①EN 1.7242 Equiv. Carburized FPYT	②EN 1.4301 Equiv. SFPYT
FPYT SFPYT	6	+0.012 +0.004	10.00~13.00	6~12	2.0~15.0	1		
	8	+0.015 +0.006	12.00~15.00	8~16	3.0~20.0	1.5		
	10		14.00~16.00	10~20	3.0~30.0	2		
	12	+0.018 +0.007	16.00~18.00	12~24	5.0~30.0			
	13		17.00~20.00	13~26	5.0~30.0			
	16		20.00~25.00	16~32	5.0~35.0	3		
	20	+0.021 +0.008	24.00~30.00	20~40	5.0~40.0			

■Tapped

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price ①EN 1.7242 Equiv. Carburized FPYTM	②EN 1.4301 Equiv. SFPYTM
FPYTM SFPYTM	6	-0.004 -0.012	10.00~13.00	9~12	2.0~15.0	M2.6	-	4		
	8	-0.005 -0.014	12.00~15.00	12~16	3.0~20.0	M4	333	6		
	10		14.00~16.00	12~20	3.0~30.0	M5	676	8		
	12	-0.006 -0.017	16.00~18.00	12~24	5.0~30.0					
	13		17.00~20.00	16~26	5.0~30.0	M8	2803	12		
	16		20.00~25.00	16~32	5.0~35.0					
	20	-0.007 -0.020	24.00~30.00	20~40	5.0~40.0					

Note the strength of under-head part. ☞ P.1566
* 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.

■Threaded

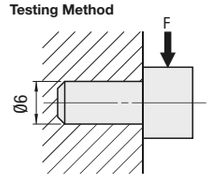
Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	Unit Price ①EN 1.7242 Equiv. Carburized FPYN	②EN 1.4301 Equiv. SFPYN
FPYN SFPYN	6	-0.004 -0.012	10.00~13.00	3~10	2.0~15.0	M6	1156		
	8	-0.005 -0.014	12.00~15.00	5~10	3.0~15.0	M8	2803		
	10		14.00~16.00	5~15	3.0~20.0	M10	5557		
	12	-0.006 -0.017	16.00~18.00	8~15	5.0~20.0	M12	9702		
	16		20.00~25.00	8~20	5.0~20.0	M16	24108		
	20	-0.007 -0.020	24.00~30.00	10~20	5.0~20.0	M20	46942		

* 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
FPYT10 - P15.00 - L15 - B10.0

■Static Shear Failure Data

Testing Method



Material	Static Yield Load (KN)	
	Relief	R1
Carburized EN 1.7242 Equiv.	18.8	21.3

Values are for reference, not guaranteed.

Locating Pins - Large Head, Round Tapered

Press Fit / Tapped / Threaded

Spec.Change
Printed in Purple

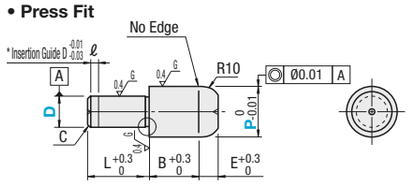
Features: Small boundary between insertion guide and locating parts ("No Edge" in diagram) prevents damage of locating target. Buff finished products with enhanced appearance and slide are also available.

(Buff Finished)

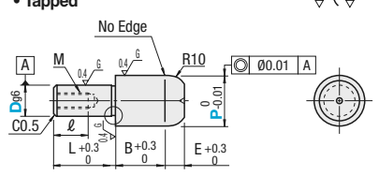
RoHS

Material No.	Material	Surface Treatment	Hardness	Type	D Tolerance and Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPRB	B (Press Fit, m6) PB (Press Fit, p6) TB (Tapped) NB (Threaded)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPRB	
③	EN 1.4301 Equiv.	-	-	SJPRB	
④	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPRB	
⑤	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	MJPRB	

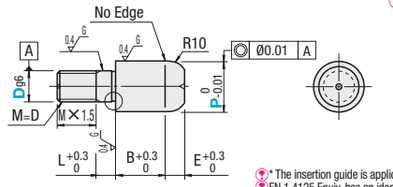
• Press Fit



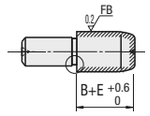
• Tapped



• Threaded



Buffed at ▨ part only.



The boundary between B and E dimensions is indistinct.

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

* The insertion guide is applicable to tolerance p6 only.
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.
Relief dimension is a reference value.

Ordering Example

Part Number				
Type	Shape	D		P
JPRB	B	10	-	12
MJPRB	TB	12	-	16

Press Fit

Part Number			d dim. Tolerance		P Selection	L	B	C	E	ℓ
Type	Shape Code	D	m6	p6						
JPRB GJPRB SJPRB CJPRB (Buff Finished) MJPRB Applicable when D≥5.	B (m6) PB (p6)	2	+0.008 +0.002	+0.012 +0.006	3 4	4	3	0.5	3	0
		3			4 5 6	5	5			1
		4	+0.012 +0.004	+0.020 +0.012	5 6		6	1	4	
		5			6 8	10				
		6			8 10		8			
		8	+0.015 +0.006	+0.024 +0.015	10 12 13	15		1.5	5	
		10			12 13 15		10	2		
		12	+0.018 +0.007	+0.029 +0.018	13 15 16				6	
		13			15 16	22				2
		16			20 25			3	7	
		20	+0.021 +0.008	+0.035 +0.022	25 30	30	15			

Tapped

Part Number			D dim. Tolerance g6	P Selection	L	B	E	M (Coarse)	*Tightening Torque N·cm	ℓ
Type	Shape Code	D								
JPRB GJPRB SJPRB CJPRB (Buff Finished) MJPRB	TB	6	-0.016	8 10	10	8	5	M3	147	5
		6T		8 10				M2.6	-	4
		8	-0.019	10 12 13	15			M5	676	8
		8T		10 12 13				M4	333	6
		10		12 13 15		10	6	M5	676	8
		12	-0.023	13 15 16						
		13		15 16	22			M8	2803	12
		16		20 25			7			
		20	-0.027	25 30	30	15				

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 portion. 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.

Threaded

Part Number			D dim. Tolerance g6	P Selection	L	B	E	M (Coarse)	*Tightening Torque N·cm
Type	Shape Code	D							
JPRB GJPRB SJPRB CJPRB (Buff Finished) MJPRB Applicable when D≥5.	NB	3	-0.01	4 5 6	5	5	3	M3	147
		4	-0.016	5 6		6	4	M4	333
		5		6 8	10			M5	676
		6		8 10		8	5	M6	1156
		8	-0.019	10 12 13	15			M8	2803
		10		12 13 15		10	6	M10	5557
		12	-0.023	13 15 16				M12	9702
		16		20 25	22		7	M16	24108
		20	-0.027	25 30	30	15		M20	46942

*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.

Press Fit

D	Unit Price				
	①EN 1.2510 Equiv. Hardened JPRBB JPRBPB	②Hard EN 1.2510 Equiv. GJPRBB GJPRBPB	③EN 1.4301 Equiv. SJPRBB SJPRBPB	④EN 1.4125 Equiv. CJPRBB CJPRBPB	⑤EN 1.2510 Equiv. Hardened + Buffed MJPRBB MJPRBPB
2					-
3					-
4					-
5					
6					
8					
10					
12					
13					
16					
20					

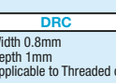
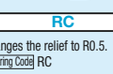
Threaded

D	Unit Price				
	①EN 1.2510 Equiv. Hardened JPRBNB	②Hard EN 1.2510 Equiv. GJPRBNB	③EN 1.4301 Equiv. SJPRBNB	④EN 1.4125 Equiv. CJPRBNB	⑤EN 1.2510 Equiv. Hardened + Buffed MJPRBNB
3					-
4					-
5					
6					
8					
10					
12					
16					
20					

Tapped

D	Unit Price				
	①EN 1.2510 Equiv. Hardened JPRBTB	②Hard EN 1.2510 Equiv. GJPRBTB	③EN 1.4301 Equiv. SJPRBTB	④EN 1.4125 Equiv. CJPRBTB	⑤EN 1.2510 Equiv. Hardened + Buffed MJPRBTB
6					
6T					
8					
8T					
10					
12					
13					
16					
20					

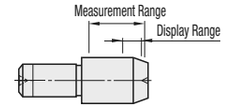
Alterations Part Number - P - (DRC, RC)
JPRBB10 - 12 - RC

Alteration	Screwdriver Slot	Sphere Tip
		
Code	DRC	RC
Spec.	Width 0.8mm Depth 1mm Applicable to Threaded only.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2

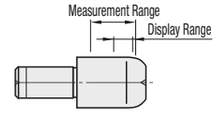
Surface Shape Measurement Result (Reference)

<Test Name> Surface Shape Measurement
<Measuring Instrument> Tokyo Seimitsu SURFCOM1800D-22
<Sample> (a) JPBB8-12 (**P.1575** Large Head, Tapered)
(b) JPRBB8-12 (Large Head, Round Tapered Non Buff Finished)
(c) MJPRBB8-12 (Large Head, Round Tapered Buff Finished Product)
<Test Conditions> • Measurement Length 12mm
• Measurement Pitch 0.001mm
• Measurement Speed 0.6mm/S

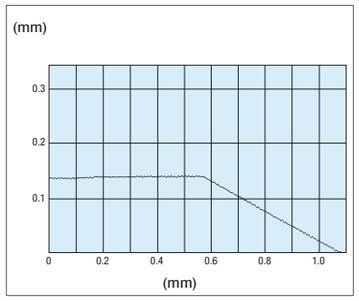
<Measuring Part>
Sample (a)



Sample (b) (c)

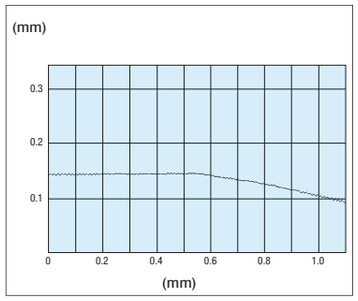


Measurement Results <Sample (a)>



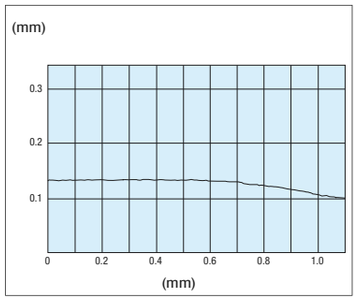
Conventional Tapered Type: The edge remains.

Measurement Results <Sample (b)>



Round Tapered Type: No edge.

Measurement Results <Sample (c)>



Buffed Finished: No edge and the surface is smooth.

Locating Pins - Large Head, Round Tapered

D and P Tolerance, Taper R Selectable

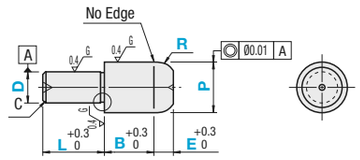
Spec.Change
Printed in Purple

Features: Small boundary between insertion guide and locating parts ("No Edge" in diagram) prevents damage of locating target. Buff finished products with enhanced appearance and slide are also available.

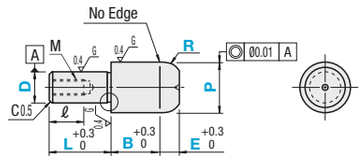
Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped	Type: Threaded
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFPBA	KFPBT	KFPBNA
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFPBA	GKFPBT	GKFPBNA
③	EN 1.4301 Equiv.	-	-	SKFPBA	SKFPBT	SKFPBNA
④	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFPBA	CKFPBT	CKFPBNA
⑤	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	MKFPBA	MKFPBT	MKFPBNA
⑥	EN 1.2510 Equiv.	Hard Chrome Plating + Buffed Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	MGKFPBA	MGKFPBT	MGKFPBNA
⑦	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	MCKFPBA	MCKFPBT	-

6.3 (0.4 G)

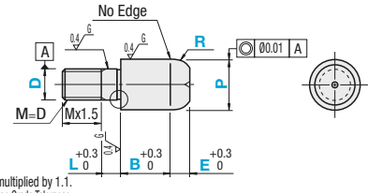
• Press Fit



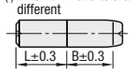
• Tapped



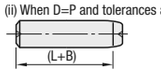
• Threaded



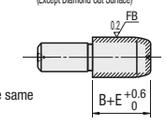
When D=P, no relief is applied.
(i) When D=P and tolerances are different



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



Buffed at ////// part only. (Except Diamond Cut Surface)



The boundary between B and E dimensions is indistinct.

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.

Tolerance Selection

D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
2.00	+0.008	+0.012	-0.002	0			
3.00	+0.002	+0.006	-0.008	-0.010			
3.01	+0.012	+0.020	-0.004	0			
6.00	+0.004	+0.012	-0.012	-0.012			
6.01	+0.015	+0.024	-0.005	0	0	+0.005	0
10.00	+0.006	+0.015	-0.014	-0.015	-0.01	0	-0.005
10.01	+0.018	+0.029	-0.006	0			
18.00	+0.007	+0.018	-0.017	-0.018			
18.01	+0.021	+0.035	-0.007	0			
30.00	+0.008	+0.022	-0.020	-0.021			

The unit price of Precision Type is the price of Standard Type multiplied by 1.1.
Hard Chrome Plating and buff finished products are not available in 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.

Press Fit

Part Number: Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.5mm Increment	E 0.5mm Increment	R Selection	C
KFPBA, GKFPBA*, SKFPBA, CKFPBA (Buff Finished), MKFPBA*, MGKFPBA*, MCKFPBA*	M P G H *A *B	S M P G H *A *B	2	2.00~4.00	4~10	2.0~10.0	1.0~20.0	5 10 15 20 25 30 35 40	0.5
			3	3.00~6.00	5~12	2.0~10.0			
			4	4.00~7.00	5~12	2.0~10.0			1
			5	5.00~8.00	5~12	2.0~10.0			
			6	6.00~10.00	5~12	3.0~12.0			
			8	8.00~13.00	8~15	3.0~14.0			1.5
			10	10.00~15.00	8~15	3.0~16.0			
			12	12.00~16.00	10~18	3.0~18.0			2
			13	13.00~18.00	12~20	3.0~20.0			
			16	16.00~25.00	14~25	3.0~20.0			3
			20	20.00~30.00	18~32	3.0~20.0			

Configurable range depends on P dimension. Confirm "Details of E Dimension and R Dimension Range" in the table.
Applicable when D≥5.
Hard Chrome Plating and buffed products are not available for * marked Precision Grade (Precision Grade A and B).

Tapped

Part Number: Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.5mm Increment	E 0.5mm Increment	R Selection	M (Coarse)	*Tightening Torque N·cm	ℓ
KFPBT, GKFPBT, SKFPBT, CKFPBT (Buff Finished), MKFPBT, MGKFPBT, MCKFPBT	M P G H	S M P G H	6	6.00~10.00	6~12	3.0~12.0	1.0~20.0	5 10 15 20 25 30 35 40	M3	147	5
			6T		6~10				M2.6	-	4
			8	8.00~13.00	8~16	3.0~14.0			M5	676	8
			8T		6~12				M4	333	6
			10	10.00~15.00	10~20	3.0~16.0			M5	676	8
			10T		6~16				M4	333	6
			12	12.00~16.00	12~24	3.0~18.0			M5	676	8
			12T		8~18				M4	333	6
			13	13.00~18.00	13~26	3.0~20.0			M8	2803	10
			13T		8~20				M6	1156	9
			16	16.00~25.00	16~32	3.0~20.0			M8	2803	12
			16T		10~24				M6	1156	9
			20	20.00~30.00	20~40	3.0~20.0			M8	2803	12
			20T		12~30				M6	1156	9

Configurable range depends on P dimension. Confirm "Details of E Dimension and R Dimension Range" in the table.
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.

Threaded

Part Number: Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.5mm Increment	E 0.5mm Increment	R Selection	M (Coarse)	*Tightening Torque N·cm
KFPBNA, GKFPBNA*, SKFPBNA, CKFPBNA (Buff Finished), MKFPBNA*, MGKFPBNA*	M P G H *A *B	S M P G H *A *B	3	3.50~6.00	2~6	2.0~10.0	1.0~20.0	5 10 15 20 25 30 35 40	M3	147
			4	4.50~7.00	2~8	2.0~10.0			M4	333
			5	5.50~8.00	3~10	2.0~10.0			M5	676
			6	6.50~10.00	3~10	3.0~12.0			M6	1156
			8	9.00~13.00	5~10	3.0~14.0			M8	2803
			10	11.00~15.00	5~15	3.0~16.0			M10	5557
			12	13.00~18.00	8~15	3.0~18.0			M12	9702
			16	17.00~25.00	8~20	3.0~20.0			M16	24108
			20	22.00~30.00	10~20	3.0~20.0			M20	46942

Configurable range depends on P dimension. Confirm "Details of E Dimension and R Dimension Range" in the table.
Applicable when D≥5.
Hard Chrome Plating and buffed products are not available for * marked Precision Grade (Precision Grade A and B).
*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.

Details of E and R Dimension Range

P 0.01mm Increment	E 0.5mm Increment	R Selection
2.00~4.00	1.0~2.0	5 10
4.01~8.00	2.5~4.0	10 15
8.01~12.00	4.5~7.0	10 15 20
12.01~16.00	5.0~10.0	15 20 25
16.01~20.00	5.0~15.0	20 25 30
20.01~25.00	5.0~15.0	25 30 35
25.01~30.00	5.0~20.0	30 35 40

Ordering Example

Part Number: Type	D Tol.	P Tolerance	D	P	L	B	E	R
MGKFPBA	M	S	10	P12.00	L10	B4.0	E6.0	R20

Press Fit

D	Unit Price ① KFPBA	② GKFPBA	③ SKFPBA	④ CKFPBA	⑤ MKFPBA	⑥ MGKFPBA	⑦ MCKFPBA
2					-	-	-
3					-	-	-
4					-	-	-
5							
6							
8							
10							
12							
13							
16							
20							

Threaded

D	Unit Price ① KFPBNA	② GKFPBNA	③ SKFPBNA	④ CKFPBNA	⑤ MKFPBNA	⑥ MGKFPBNA
3					-	-
4					-	-
5						
6						
8						
10						
12						
16						
20						

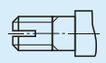
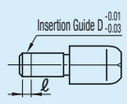
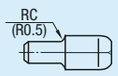
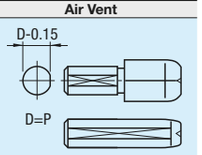
Tapped

D	Unit Price ① KFPBT	② GKFPBT	③ SKFPBT	④ CKFPBT	⑤ MKFPBT	⑥ MGKFPBT	⑦ MCKFPBT
6							
6T							
8							
8T							
10							
10T							
12							
12T							
13							
13T							
16							
16T							
20							
20T							

Precision Grade Price
When A and B tolerance is selected, multiply the unit price below by 1.1.
Example of Price Calculation
KFPBAAB10-P12.00-L10-B5.0-E5.0-R15

Alterations

Part Number	P	L	B	E	R	(DRC, GDC, RC, AC)
KFPBAMA12	P14.00	L10	B3.5	E5.0	R15	RC

Alteration	Screwdriver Slot	Insertion Guide	Sphere Tip	Air Vent
				
Code	DRC	GDC	RC	AC
Spec.	Width 0.8mm Depth 1mm Applicable to Threaded only.	Adds the insertion guide. Ordering Code GDC Not applicable to D=2. Not applicable to Threaded. (D 3~12 ℓ 1; D 13~20 ℓ 2)	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2	Adds an air vent. Ordering Code AC Not applicable to Threaded.

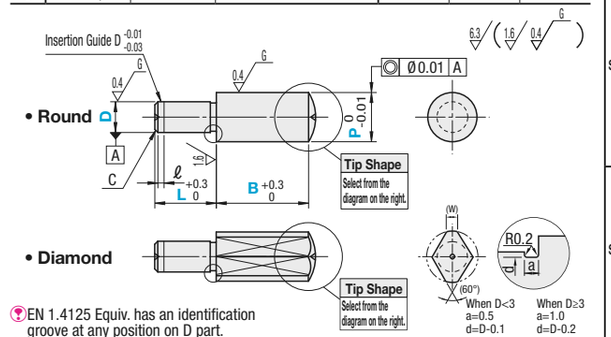
Locating Pins - Tip Shape Selectable

Press Fit

Spec.Change Printed in Purple

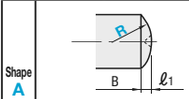
Features: The tip shape is selectable from three types. Highly customizable with each dimension configurable. Press Fit.

Material No.	Material	Surface Treatment	Hardness	Round		Diamond
				d dim. Tolerance m6	d dim. Tolerance p6	d dim. Tolerance m6
①	EN 1.2510 Equiv.	-	Treated Hardness: 55 ~ 60HRC	LPEJ	LPPEJ	LPDEJ
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPEG	LPPEG	LPDEG
③	EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC	LPE	LPPE	LPDE
④	EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LPEB	LPPEB	LPDEB
⑤	EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	LPER	LPPER	LPDER
⑥	EN 1.4301 Equiv.	-	-	LPES	LPPES	LPDES
⑦	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPED	LPPED	LPDED
⑧	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LPEC	LPPEC	LPDEC

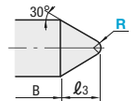


EN 1.4125 Equiv. has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for EN 1.4301 Equiv.

Tip Shape

Shape A

ℓ1=R-√(R²-P²/4)
R≥P/2

Shape B
G≤P
When G=P, add about C0.2 chamfering.

Shape C

R≤P/2
Reference:tan30°≈0.577 sin30°=0.5

Part Number			D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	B 0.1mm Increment	R 1mm Increment A Shape, C Shape only	G 1mm Increment B Shape only	L 1mm Increment	C	ℓ	(W)
Type													
(Round) m6	(Round) p6	(Diamond) m6	Tip Shape										
LPEJ	LPPEJ	LPDEJ	A	2	+0.008	+0.012	2.50~4.00	2.0~25.0(10.0)	Shape A R≥P/2	Shape B G≤P	2~6	0.5	0	1.2
LPEG	LPPEG	LPDEG		3	+0.002	+0.006	3.50~6.00	2.0~25.0(10.0)			3~6			1.5
LPE	LPPE	LPDE		4	+0.012 +0.004	+0.020 +0.012	4.50~9.00	2.0~25.0(10.0)			4~8	1	1	1.8
LPEB	LPPEB	LPDEB	B	5			5.50~10.00	2.0~30.0(10.0)			5~10			2.2
LPER	LPPER	LPDER		6			6.50~12.00	2.0~40.0(12.0)			6~12			3
LPES	LPPES	LPDES	C	8	+0.015	+0.024	9.00~15.00	2.0~40.0(15.0)			8~16	1.5		3.5
LPED	LPPED	LPDED		10	+0.006	+0.015	11.00~20.00	3.0~50.0(20.0)			10~20	2		4
LPEC	LPPEC	LPDEC		12	+0.018	+0.029	13.00~20.00	3.0~50.0(20.0)			12~24			5
				16	+0.007	+0.018	17.00~25.00	5.0~50.0(20.0)			16~32	3	2	7
				20	+0.021 +0.008	+0.035 +0.022	21.00~30.00	5.0~50.0(20.0)			20~40			9

B dimension in ( ) is for Diamond Shape.

Ordering Example

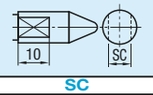
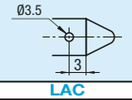
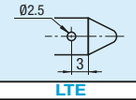
Part Number	P	B	R	G	L
LPEA5	P10.00	B12.0	R6		L5
LPPEJB10	P15.00	B27.0		G12	L10

D	Round Shape Unit Price								Diamond Shape Unit Price							
	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.1191 Equiv.	④EN 1.1191 Equiv. Black Oxide	⑤Hard EN 1.1191 Equiv.	⑥EN 1.4301 Equiv.	⑦Hard EN 1.4301 Equiv.	⑧EN 1.4125 Equiv.	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.1191 Equiv.	④EN 1.1191 Equiv. Black Oxide	⑤Hard EN 1.1191 Equiv.	⑥EN 1.4301 Equiv.	⑦Hard EN 1.4301 Equiv.	⑧EN 1.4125 Equiv.
	LPEJ LPPEJ	LPEG LPPEG	LPE LPPE	LPEB LPPEB	LPER LPPER	LPES LPPES	LPED LPPED	LPEC LPPEC	LPDEJ	LPDEG	LPDE	LPDEB	LPDER	LPDES	LPDED	LPDEC
2																
3																
4																
5																
6																
8																
10																
12																
16																
20																

Alterations

Part Number - P - B - R - G - L - (SC, LAC, LTE)
LPEA5 - P10.0 - B12.0 - R6 - L5 - LTE

Alterations are not available in Diamond Shape.

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)
			
Code	SC	LAC	LTE
Spec.	SC=1mm Increment When B≤11, adds wrench flats on the tip. P-3≤SC≤P-1, SC≥D	Adds a Ø3.5 hole. Applicable when B≥10 and P≥8.	Adds a Ø2.5 hole. Applicable when B≥8 and 7≤P≤15.

Locating Pins - Tip Shape Selectable

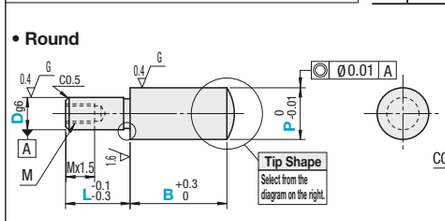
Tapped (Large Head / Straight)

Spec.Change Printed in Purple

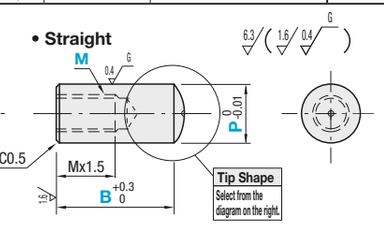
Features: The tip shape is selectable from three types. To be mounted from back using bolts. Improved maintainability compared to the press fit type.

Material No.	Material	Surface Treatment	Hardness	Round	Diamond	Straight
①	EN 1.2510 Equiv.	-	Treated Hardness: 55 ~ 60HRC	LPGJ	LPDGJ	LPCJ
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPGG	LPDGG	LPCG
③	EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC	LPG	LPDG	LPC
④	EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LPGB	LPDGB	LPCB
⑤	EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	LPGR	LPDGR	LPCR
⑥	EN 1.4301 Equiv.	-	-	LPGS	LPDGS	LPCS
⑦	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPGD	-	LPCD
⑧	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LPGC	LPDGC	LPCC

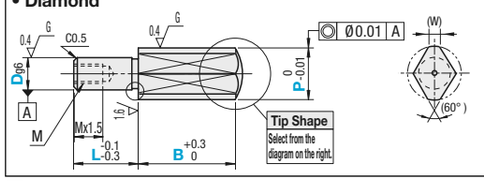
• Round



• Straight



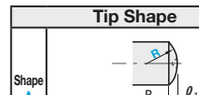
• Diamond



Relief dimension is a reference value.

EN 1.4125 Equiv. of Round Type and Diamond Type has an identification groove at any position on D part.

Tip Shape

Shape A

R≥P/2
ℓ1=R-√(R²-P²/4)

Shape B

G≤P
ℓ2= P-G / 2tan30° Reference: 2tan30°≈1.15
When G=P, add about C0.2 chamfering.

Shape C

R≤P/2
ℓ3= P/2 / tan30°+ R - (R/sin30°)
Reference:tan30°≈0.577 sin30°=0.5

Large Head

Part Number				D	D dim. Tolerance g6	P 0.01mm Increment	B 0.1mm Increment	R 1mm Increment A Shape, C Shape only	G 1mm Increment B Shape only	L 1mm Increment	M (Coarse)	* Tightening Torque N·cm	(W)
Type		Tip Shape											
(Round)	(Diamond)												
LPGJ	LPDGJ	A		6	-0.004	6.50~12.00	2.0~40.0(12.0)	Shape A R≥P/2	Shape B G≤P	6~12	M3	147	3
LPGG	LPDGG			6T	-0.012						M2.6	-	
LPG	LPDG			8	-0.005	9.00~15.00	2.0~40.0(15.0)			8~16	M4	333	3.5
LPGB	LPDGB	B		10	-0.014	11.00~20.00	3.0~50.0(20.0)			10(12)~20	M5	676	4
LPGR	LPDGR	C		10T						6(12)~16	M4	333	
LPGS	LPDGS			12	-0.006	13.00~20.00	3.0~50.0(20.0)			12~24	M5	676	5
LPGD				12T	-0.017					8(12)~18	M4	333	
LPGC	LPDGC			16		17.00~25.00	5.0~50.0(20.0)			16~32	M8	2803	7
				16T						10(14)~24	M6	1156	
				20	-0.007	21.00~35.00	5.0~50.0(20.0)			20~40	M8	2803	9
				20T	-0.020					12(18)~30	M6	1156	

Pins of D dimension with T have one size smaller thread diameter and larger wall thickness. (Actual D dimension is the number without "T".)
B dimensions in ( ) and L dimensions in ( ) are for Diamond Shape. 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.

D	Round Shape Unit Price								Diamond Shape Unit Price							
	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.1191 Equiv.	④EN 1.1191 Equiv. Black Oxide	⑤Hard EN 1.1191 Equiv.	⑥EN 1.4301 Equiv.	⑦Hard EN 1.4301 Equiv.	⑧EN 1.4125 Equiv.	①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.1191 Equiv.	④EN 1.1191 Equiv. Black Oxide	⑤Hard EN 1.1191 Equiv.	⑥EN 1.4301 Equiv.	⑦Hard EN 1.4301 Equiv.	⑧EN 1.4125 Equiv.
	LPGJ	LPGG	LPG	LPGB	LPGR	LPGS	LPGD	LPGC	LPDGJ	LPDGG	LPDG	LPDGB	LPDGR	LPDGS	-	LPDGC
6																
6T																
8																
10																
10T																
12																
12T																
16																
16T																
20																
20T																

Straight

Part Number			P 0.1mm Increment	B 0.1mm Increment	R 1mm Increment A Shape, C Shape only	G 1mm Increment B Shape only	Unit Price							
Type	Tip Shape	M					①EN 1.2510 Equiv. Hardened	②Hard EN 1.2510 Equiv.	③EN 1.1191 Equiv.	④EN 1.1191 Equiv. Black Oxide	⑤Hard EN 1.1191 Equiv.	⑥EN 1.4301 Equiv.	⑦Hard EN 1.4301 Equiv.	⑧EN 1.4125 Equiv.
							LPCJ	LPCG	LPC	LPCB	LPCR	LPCS	LPCD	LPCC
LPCJ	A	3	6.0~10.0	10.0~25.0	Shape A R≥P/2	Shape B G≤P								
LPCG		4	7.0~12.0	11.0~25.0										
LPC		5	8.0~16.0	13.0~30.0										
LPCB	B	6	9.0~20.0	15.0~40.0										
LPCR		8	11.0~20.0	19.0~50.0										
LPCS	C	10	14.0~20.0	23.0~50.0										
LPCD		12	18.0~25.0	28.0~60.0										
LPCC		16	22.0~30.0	35.0~60.0										
		20	26.0~30.0	44.0~60.0										

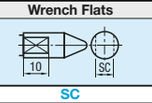
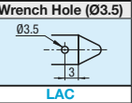
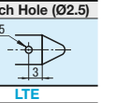
Ordering Example

Part Number	P	B	R	G	L
LPGA6	P10.0	B25.0	R6		L6
LPGB10	P16.0	B50.0		G13	L16
LPCA6	P10.0	B25.0	R6		

Alterations

Part Number - P - B - R - G - L - (SC, LAC, LTE)
LPCA6 - P10.0 - B25.0 - R6 - LAC

Alterations are not available in Diamond Shape.

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)
			
Code	SC	LAC	LTE
Spec.	SC=1mm Increment For Round Type: P-3≤SC≤P-1, SC≥D For Straight: M+3≤SC≤P-1 When B≤11, adds wrench flats on the tip.	Adds a Ø3.5 hole. Applicable when B≥10 and P≥8.	Adds a Ø2.5 hole. Applicable when B≥8 and 7≤P≤15.

Locating Pins - Tip Shape Selectable

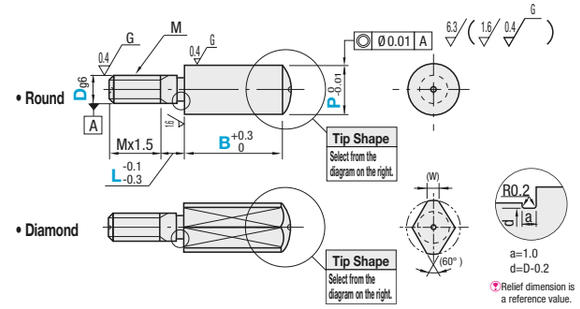
Threaded

Spec.Change Printed in Purple

Features: Tip shape is selectable and L=0 is available.

(Alteration SC)

Material No.	Material	Surface Treatment	Hardness	Round	Diamond
①	EN 1.2510 Equiv.	-	Treated Hardness: 55 ~ 60HRC	LPAJ	LPDAJ
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPAG	LPDAG
③	EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC	LPA	LPDA
④	EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LPAB	LPDAB
⑤	EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	LPAR	LPDAR
⑥	EN 1.4301 Equiv.	-	-	LPAS	LPDAS
⑦	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPAD	LPDAD
⑧	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LPAC	-



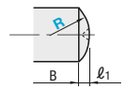
Relief dimension is a reference value.

When L<Pitchx2, the incomplete threaded portion (Pitchx2) is included in Mx1.5. Coarse Thread Pitch Dims. P.2292

Fully Threaded Type of L=0 w/o Pilot is available. P.1609

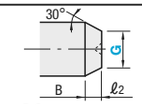
Tip Shape

Shape A



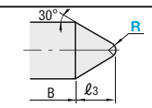
- ℓ1=R-√(R²-P²/4)
- R≥P/2

Shape B



- ℓ2≥ (P-G)/2tan30° Reference: 2tan30°≈1.15
- G≤P
- When G=P, add about C0.2 chamfering.

Shape C



- ℓ3≥ P/2 / tan30°+ R - (R/sin30°)
- R≤P/2

Reference:tan30°≈0.577 sin30°=0.5

Part Number																		
Type		Tip Shape	D	D dim. Tolerance g6	P 0.01mm Increment	B 0.1mm Increment	R 1mm Increment A Shape, C Shape only	G 1mm Increment B Shape only	L 1mm Increment	M (Coarse)	* Tightening Torque N·cm	(W)
(Round)	(Diamond)											
LPAJ	LPDAJ	A	3	-0.002 -0.008	5.00~ 6.00	5.0~25.0(10.0)	Shape A R≥P/2	Shape B G≤P	0~10	M3	147	1.5
LPAG	LPDAG		4	-0.004 -0.012	5.00~ 9.00	5.0~25.0(10.0)				M4	333	1.8
LPA	LPDA		5		6.00~10.00	5.0~30.0(10.0)				M5	676	2.2
LPAB	LPDAB		6		8.00~12.00	5.0~40.0(12.0)				M6	1156	3
LPAR	LPDAR	B	8	-0.005 -0.014	10.00~15.00	5.0~40.0(15.0)				M8	2803	3.5
LPAS	LPDAS		10		12.00~20.00	5.0~50.0(20.0)	Shape C R≤P/2			M10	5557	4
LPAD	LPDAD	C	12	-0.006	16.00~20.00	5.0~50.0(20.0)				M12	9702	5
LPAC			16	-0.017	18.00~24.00	5.0~50.0(20.0)				M16	24108	7
			20	-0.007 -0.020	22.00~30.00	5.0~50.0(20.0)				M20	46942	9

(B dimension in ( ) is for Diamond 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.

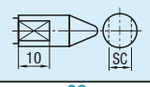
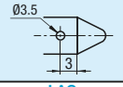
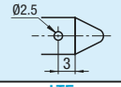
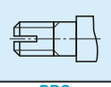
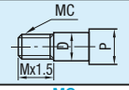
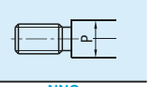
Ordering Example

Part Number	-	P	-	B	-	R	-	G	-	L
LPAA5	-	P10.00	-	B12.0	-	R6			-	L5
LPAJB10	-	P15.00	-	B17.0			-	G10	-	L10

D	Round Shape Unit Price								Diamond Shape Unit Price							
	①EN 1.2510 Equiv. Hardened LPAJ	②Hard EN 1.2510 Equiv. LPAG	③EN 1.1191 Equiv. LPA	④EN 1.1191 Equiv. Black Oxide LPAB	⑤Hard EN 1.1191 Equiv. LPAR	⑥EN 1.4301 Equiv. LPAS	⑦Hard EN 1.4301 Equiv. LPAD	⑧EN 1.4125 Equiv. LPAC	①EN 1.2510 Equiv. Hardened LPDAJ	②Hard EN 1.2510 Equiv. LPDAG	③EN 1.1191 Equiv. LPDA	④EN 1.1191 Equiv. Black Oxide LPDAB	⑤Hard EN 1.1191 Equiv. LPDAR	⑥EN 1.4301 Equiv. LPDAS	⑦Hard EN 1.4301 Equiv. LPDAD
3															
4															
5															
6															
8															
10															
12															
16															
20															

Alterations

Part Number	-	P	-	B	-	R	-	G	-	L	-	(SC, DRC···etc.)
LPAA5	-	P10.00	-	B12.0	-	R6			-	L5	-	MC3

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)	Screwdriver Slot	Thread Dia.	Relief
						
Code	SC	LAC	LTE	DRC	MC	NNC
Spec.	SC=1mm Increment When B≤11, adds wrench flats on the tip. Not applicable to Diamond Shape. P-3≤SC≤P-1, SC≥D	Adds a Ø3.5 hole. Applicable when B≥10 and P≥8. Not applicable to Diamond Shape.	Adds a Ø2.5 hole. Applicable when B≥8 and 7≤P≤15. Not applicable to Diamond Shape.	Width 0.8mm Depth 1mm	D/3≤M<D Mmin3 Ordering Code MC4 The incomplete threaded portion (Pitchx2) is included.	Adds a relief at the thread end. Applicable when L=0.

Locating Pins - Tip Shape Selectable

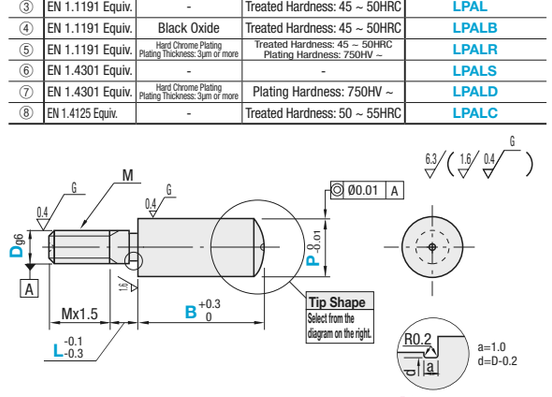
Tip Length Configurable - Threaded

Spec.Change Printed in Purple

Features: While it is same shape as conventional Tip Shape Selectable Type (A, C shape only), its configurable range is different. Overall length of insertion guide, R length and tapered section length are configurable.

(Alteration SC) (Alteration NNC)

Material No.	Material	Surface Treatment	Hardness	Type
①	EN 1.2510 Equiv.	-	Treated Hardness: 55 ~ 60HRC	LPALJ
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPALG
③	EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC	LPAL
④	EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LPALB
⑤	EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	LPALR
⑥	EN 1.4301 Equiv.	-	-	LPALS
⑦	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPALD
⑧	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LPALC



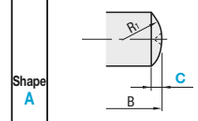
Relief dimension is a reference value.

When L<Pitchx2, the incomplete threaded portion (Pitchx2) is included in Mx1.5. Coarse Thread Pitch Dims. P.2292

Fully Threaded Type of L=0 w/o Pilot is available. P.1609

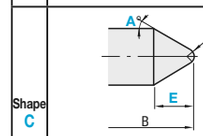
Tip Shape

Shape A



- B-C≥2
- R1= P²/8C + C/2

Shape C



- B-E≥2
- R2= PcosA-2EsinA / 2-2sinA

Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707
cos15°≈0.967 cos30°=1.155 cos45°=1.414

Part Number																		
Type		Tip Shape	D	D dim. Tolerance g6	P 0.01mm Increment	B 0.1mm Increment	C 1mm Increment Shape A only	A Selection Shape C only	E 1mm Increment Shape C only	L 1mm Increment	M (Coarse)	* Tightening Torque N·cm
LPALJ			3	-0.002 -0.008	5.00~6.00	5.0~30.0					M3	147
LPALG			4	-0.004 -0.012	5.00~9.00	5.0~30.0					M4	333
LPAL		A	5		6.00~10.00	5.0~35.0					M5	676
LPALB			6		8.00~12.00	5.0~45.0					M6	1156
LPALR			8	-0.005 -0.014	10.00~15.00	5.0~45.0					M8	2803
LPALS		C	10		12.00~20.00	5.0~55.0	Shape A 1≤C≤P/2	Shape C 15 30 45	Shape C 3~28	0~10	M10	5557
LPALD			12	-0.006 -0.017	16.00~20.00	5.0~55.0					M12	9702
LPALC			16		18.00~24.00	5.0~60.0					M16	24108
			20	-0.007 -0.020	22.00~30.00	5.0~60.0					M20	46942

Configurable range depends on P dimension. Confirm "Details of E Dimension Configurable Range" in the table below.

* 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	-	B	-	C	-	A	-	E	-	L
LPALJA10	-	P12.00	-	B6.5	-	C5					-	L0
LPALC16	-	P20.00	-	B7.0			-	A15	-	E10	-	L5

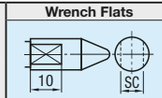
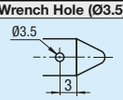
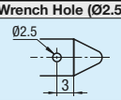
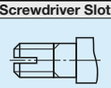
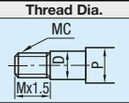
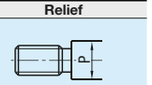
Details of E Dimension Configurable Range

P	E 1mm Increment		
	A 15	A 30	A 45
5.00~ 8.00	4~6	3	-
8.01~12.00	6~12	4,5	3
12.01~16.00	8~16	5~9	4,5
16.01~20.00	10~20	7~12	5~7
20.01~25.00	12~24	8~15	6~9
25.01~30.00	14~28	10~18	7~11

D	Unit Price							
	①EN 1.2510 Equiv. Hardened LPALJ	②Hard EN 1.2510 Equiv. LPALG	③EN 1.1191 Equiv. LPAL	④EN 1.1191 Equiv. Black Oxide LPALB	⑤Hard EN 1.1191 Equiv. LPALR	⑥EN 1.4301 Equiv. LPALS	⑦Hard EN 1.4301 Equiv. LPALD	⑧EN 1.4125 Equiv. LPALC
3								
4								
5								
6								
8								
10								
12								
16								
20								

Alterations

Part Number	-	P	-	B	-	C	-	A	-	E	-	L	-	(SC, DRC···etc.)
LPALBA8	-	P10.00	-	B5.0	-	C3					-	L0	-	NNC

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)	Screwdriver Slot	Thread Dia.	Relief
						
Code	SC	LAC	LTE	DRC	MC	NNC
Spec.	SC=1mm Increment When B-C or B-E≤11, adds wrench flats on the tip. P-3≤SC≤P-1,SC≥D	Adds a Ø3.5 hole. Applicable when B-C or B-E≥10, P≥8	Adds a Ø2.5 hole. Applicable when B-C or B-E≥8, 7≤P≤15	Width 0.8mm Depth 1mm	Changes the thread diameter to MC. D/3≤MC<D MC≥3 Ordering Code MC4 The incomplete threaded portion (Pitchx2) is included.	Adds a relief at the thread end. Applicable when L=0.

Locating Pins - Tip Shape Selectable

Full Threaded

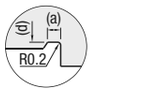
Spec.Change
Printed in Purple

■Features: Screw-fitting type without pilot. Costs for hole machining on fixtures can be reduced.

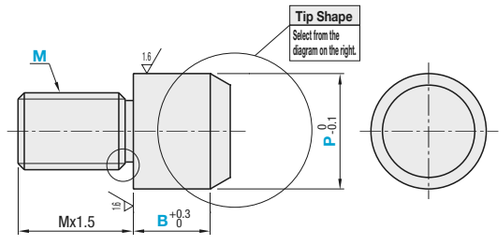
(Alteration LAC)

RoHS

Material No.	M Material	S Surface Treatment	H Hardness	Type
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPNG
②	EN 1.2510 Equiv.	Hard Chrome Plating: Plating Thickness 3μm or more	Treated Hardness: 50 ~ 55HRC / Plating Hardness: 750HV ~	GJPNG
③	EN 1.2510 Equiv.	-	-	BJPNG
④	EN 1.4301 Equiv.	-	-	SJPNG

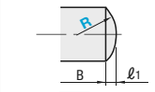


M	(a)	(d)
3	1.3	2.2
4	1.8	2.9
5	2	3.7
6	2.5	4.4
8	3.1	6
10	3.7	7.7
12	4.4	9.4
16	5	13
20	6.3	16.4



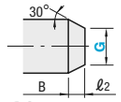
Tip Shape

Shape A



ℓ1=R-√(R²-P²/4)

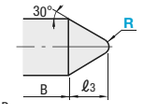
Shape B



ℓ2=(P-G)/(2tan30°) Reference: 2tan30°≈1.15

When G=P, add about C0.2 chamfering.

Shape C



ℓ3=P/2 / tan30°+ R - (R/sin30°)
Reference: tan30°≈0.577 sin30°=0.5

Above dimensions are for reference, not guaranteed.

There is no center hole.

Part Number Type	Tip Shape	M (Coarse)	* Tightening Torque N·cm	P 0.1mm Increment	B 0.1mm Increment	R 1mm Increment (A Shape, C Shape only)	G 1mm Increment (B Shape only)	Unit Price ① EN 1.2510 Equiv. Hardened JPNG	② Hard EN 1.2510 Equiv. GJPNG	③ EN 1.2510 Equiv. BJPNG	④ EN 1.4301 Equiv. SJPNG
JPNG GJPNG BJPNG SJPNG	A B C	3	147	3.5~6.0	1.0~10.0	Shape A R≥P/2	Shape B G≤P				
		4	333	4.5~7.0							
		5	676	5.5~8.0							
		6	1156	6.5~10.0	1.0~12.0						
		8	2803	9.0~13.0	1.0~15.0						
		10	5557	11.0~15.0	3.0~20.0	Shape C R≤P/2					
		12	9702	13.0~18.0							
		16	24108	17.0~25.0	5.0~20.0						
		20	46942	22.0~30.0							

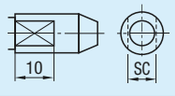
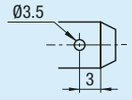
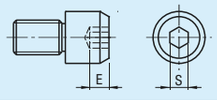
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number	-	P	-	B	-	R	-	G
JPNGA3	-	P4	-	B2	-	R2		
JPNGB5	-	P6	-	B3			-	G3

Alterations

Part Number	-	P	-	B	-	R	-	G	-	(SC, LAC, RAC)
JPNGA3	-	P6	-	B2	-	R3			-	SC5

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Hex Socket Machining
			
Code	SC	LAC	RAC
Spec.	SC=1mm Increment Ordering Code SC5 When B≤11, adds wrench flats on the tip. P-3≤SC≤P-1, SC≥M	Adds a Ø3.5 hole. Ordering Code LAC Applicable when B≥10 and P≥8.	Machines hex sockets. Ordering Code RAC3 Applicable to Shape B with M≥6 only.

G	B	S Specifiable Range
4~5	10~	2, 2.5
6~7		2, 2.5, 3, 4
8~9		2, 2.5, 3, 4, 5
10~30	10~12.9	2, 2.5, 3, 4, 5, 6
	13~	2, 2.5, 3, 4, 5, 6, 8

S	E
2	2
2.5	2
3	2
4	2.5
5	3
6	4
8	5

Marker Pins

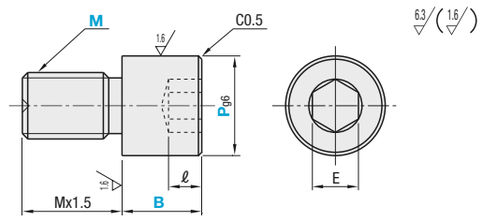
Hex Socket, Flathead Slot

■Features: Hex hole enables easy mounting with a hex wrench.

■Hex Socket

RoHS

M Material	S Surface Treatment	H Hardness	Type
EN 1.1191 Equiv.	-	-	JPLR
	Electroless Nickel Plating	-	JPLRM
	-	Treated Hardness: 50 ~ 55HRC	JPLRK
EN 1.4301 Equiv.	-	-	JPLRS



■P Dim. Tolerance

P	g6
5.0~6.0	-0.004 -0.012
6.1~10.0	-0.005 -0.014
10.1~15.0	-0.006 -0.017

Part Number Type	M (Coarse)	* Tightening Torque N·cm	P 0.1mm Increment	B 0.1mm Increment	ℓ	E	Unit Price JPLR	JPLRM	JPLRK	JPLRS
JPLR JPLRM JPLRK JPLRS	3	147	5.0~6.0	6.5~10.0	2	2				
	4	333	5.0~7.0	6.5~10.0	2	2.5				
	5	676	6.0~8.0	6.5~10.0	2	3				
	6	1156	6.5~10.0	6.5~12.0	2	3				
	8	2803	8.5~12.0	7.5~12.0	2.5	4				
	10	5557	10.5~15.0	8.5~12.0	3	5				

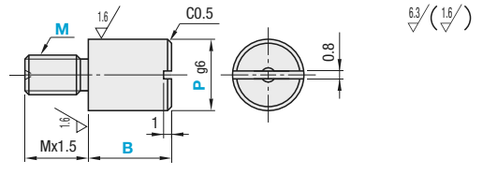
Note that pins with small thread diameter have thin under-head part.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

■Features: Flathead slot enables easy mounting with a screwdriver.

■Flathead Slot

RoHS

M Material	S Surface Treatment	H Hardness	Type
EN 1.1191 Equiv.	-	-	JPLB
	Electroless Nickel Plating	-	JPLBM
	-	Treated Hardness: 50 ~ 55HRC	JPLBK
EN 1.4301 Equiv.	-	-	JPLBS



■P Dim. Tolerance

P	g6
3.0~6.0	-0.004 -0.012
6.1~10.0	-0.005 -0.014
10.1~15.0	-0.006 -0.017

Part Number Type	M (Coarse)	* Tightening Torque N·cm	P 0.1mm Increment	B 0.1mm Increment	Unit Price JPLB	JPLBM	JPLBK	JPLBS
JPLB JPLBM JPLBK JPLBS	2	-	3.0~5.0	5.0~10.0			-	
	3	147	3.5~6.0	2.0~10.0				
	4	333	4.5~7.0	2.0~10.0				
	5	676	5.5~8.0	2.0~10.0				
	6	1156	6.5~10.0	2.0~12.0				
	8	2803	8.5~12.0	2.0~12.0				
	10	5557	10.5~15.0	2.0~12.0				

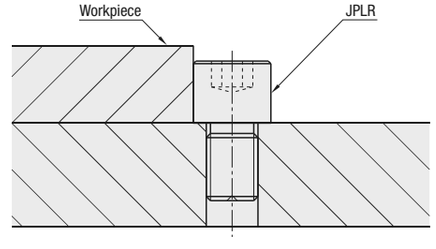
Note that pins with small thread diameter have thin under-head part.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number	-	P	-	B	
JPLR6	-	P8.5	-	B6.5	(Hex Socket)
JPLB8	-	P9.5	-	B3.2	(Flathead Slot)

Example

Use as guides for workpiece hitting on the side when shear load is not applied.



Locating Pins - Large Head, Bullet Nose, Compact

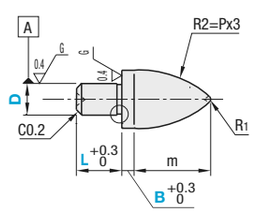
Press Fit, Threaded

Spec.Change
Printed in Purple

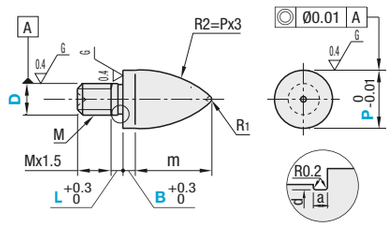
Features: R shape at insertion guide enables smooth insertion of workpiece. Compact Type with specifiable shorter L dimension.

Material No.	Material	Surface Treatment	Hardness	Type	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FPCH	A (Press Fit, m6) PA (Press Fit, p6) NA (Threaded)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GFPCH	
③	EN 1.2510 Equiv.	-	-	BFPCH	
④	EN 1.4301 Equiv.	-	-	SFPCH	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HFPCH	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFPCH	

• Press Fit



• Threaded



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.

$m=\sqrt{(3P-R_1)^2-\left(\frac{5P}{2}\right)^2}+R_1$

m dimension is the value before grinding.
Centering holes may shorten the actual length.

Polished, centering hole is sometimes not available for EN 1.4301 Equiv.
Locating Pins for Height Adjusting with shorter B fixed dimension is also available. P.1660

RoHS

Press Fit

Type	Shape Code	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	R_1
FPCH GFPCH BFPCH SFPCH HFPCH CFPCH	A (m6) PA (p6)	2	+0.008 +0.002	+0.012 +0.006	3.00~4.00	2~10	1.0~5.0	1
		3			3.50~6.00			
		4	+0.012 +0.004	+0.020 +0.012	4.50~7.00			
		5			5.50~8.00	3~10		
		6			6.50~10.00			
		8	+0.015 +0.006	+0.024 +0.015	8.50~13.00			
		10			10.50~15.00			2

Threaded

Type	Shape Code	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	R_1	M (Coarse)	*Tightening Torque N·cm
FPCH GFPCH BFPCH SFPCH HFPCH CFPCH	NA	3	-0.002 -0.008	3.50~6.00	2~10	1.0~5.0	1	M3	147
		4	-0.004 -0.012	4.50~7.00				M4	333
		5		5.50~8.00	3~10			M5	676
		6		6.50~10.00				M6	1156
		8	-0.005 -0.014	9.00~13.00				M8	2803
		10		11.00~15.00			2	M10	5557

* 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	-	P	-	L	-	B
FPCH	A	3	-	P4.20	-	L6	-	B2.0
SFPCH	PA	5	-	P6.00	-	L4	-	B3.5

Press Fit

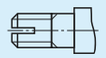
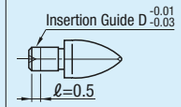
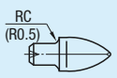
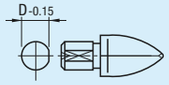
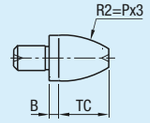
D	Unit Price ①EN 1.2510 Equiv. Hardened FPCHA FPCHPA	②Hard EN 1.2510 Equiv. GFPCHA GFPCHPA	③EN 1.2510 Equiv. BFPCHA BFPCHPA	④EN 1.4301 Equiv. SFPCHA SFPCHPA	⑤Hard EN 1.4301 Equiv. HFPCHA HFPCHPA	⑥EN 1.4125 Equiv. CFPCHA CFPCHPA
2						
3						
4						
5						
6						
8						
10						

Threaded

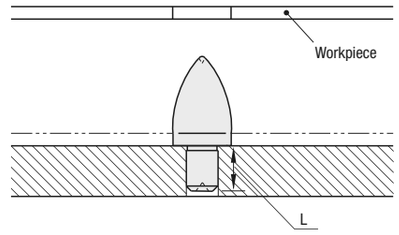
D	Unit Price ①EN 1.2510 Equiv. Hardened FPCHNA	②Hard EN 1.2510 Equiv. GFPCHNA	③EN 1.2510 Equiv. BFPCHNA	④EN 1.4301 Equiv. SFPCHNA	⑤Hard EN 1.4301 Equiv. HFPCHNA	⑥EN 1.4125 Equiv. CFPCHNA
3						
4						
5						
6						
8						
10						

Alterations

Part Number	-	P	-	L	-	B	-	(DRC, GDC, RC, AC, TC)
CFPCHPA3	-	P4.00	-	L4	-	B1.0	-	AC

Alterations	Screwdriver Slot	Insertion Guide	Sphere Tip	Air Vent	Tip Length
					
Code	DRC	GDC	RC	AC	TC
Spec.	Width 0.8mm Depth 1mm Applicable to Threaded only. Applicable when B≥2.0.	Adds the insertion guide. Ordering Code GDC Not applicable when L=2. Not applicable to D=2. Not applicable to Threaded.	Changes the relief to R0.5. Ordering Code RC Applicable when P-D≥2 Not applicable when L=2.	Adds an air vent. Ordering Code AC Not applicable to Threaded. Applicable when L≥4 or B≥4.0.	Changes tip length. Ordering Code TC5 (1mm Increment) P/2≤TC≤P

Example



Designed to be used in limited spaces.

Tip radius R enables smooth insertion of workpiece.
Space-saving compact type with shorter mounting part (L dimension).

Locating Pins - Large Head, Tapered
Plastic Tip

Features: Plastic material bonded to the tip of insertion guide prevents workpiece from being scratched.

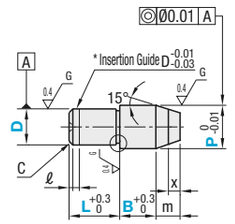
Material No.	Pin		Head	Type	D Tolerance and Shape Code
	M Material	H Hardness	M Plastic Material		
①	EN 1.2510 Equiv.	Treated Hardness: 60 ~ 63HRC	MC Nylon	JPPH	B (Press Fit, m6)
②	EN 1.4301 Equiv.	-		SJPPH	PB (Press Fit, p6)
③	EN 1.4125 Equiv.	Treated Hardness: 50 ~ 55HRC		CJPPH	TA (Tapped, g6)
					NA (Threaded, g6)

Features of MC Nylon P.2-953

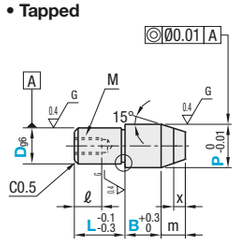
EN 1.4125 Equiv. has an identification groove at any position on D part.

6.3/(0.4/ G)

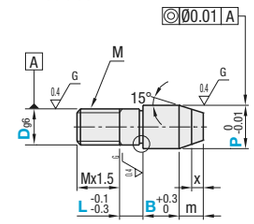
• Press Fit



• Tapped



• Threaded



* The insertion guide is applicable to tolerance p6 only.

Relief dimension is a reference value.

RoHS

Press Fit

Part Number: Type	Shape Code	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	x	ℓ	Unit Price ①EN 1.2510 Equiv. Hardened JPPHB JPPHPB	②EN 1.4301 Equiv. SJPPHB SJPPHPB	③EN 1.4125 Equiv. CJPPHB CJPPHPB
JPPH SJPPH CJPPH	B (m6) PB (p6)	5	+0.012	+0.020	5.50~8.00	5~10	2.0~10.0	1	5	4	1			
		6	+0.004	+0.012	6.50~10.00	6~12	2.0~12.0							
		8	+0.015	+0.024	9.00~13.00	8~16	2.0~15.0	1.5						
		10	+0.006	+0.015	11.00~15.00	10~20	3.0~20.0	2						
		12	+0.018	+0.029	13.00~16.00	12~24								
		13	+0.007	+0.018	14.00~18.00	13~26								
		16			17.00~25.00	16~32	5.0~20.0	3	6	5	2			
		20	+0.021 +0.008	+0.035 +0.022	22.00~30.00	20~40								

Tapped

Part Number: Type	Shape Code	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	x	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price ①EN 1.2510 Equiv. Hardened JPPHTA	②EN 1.4301 Equiv. SJPPHTA	③EN 1.4125 Equiv. CJPPHTA
JPPH SJPPH CJPPH	TA	5	-0.004	5.50~8.00	5~10	2.0~10.0	5	4	M2	-	3			
		6	-0.012	6.50~10.00	6~12	2.0~12.0			M3	147	5			
		8	-0.005	9.00~13.00	8~16	2.0~15.0								
		10	-0.014	11.00~15.00	10~20	3.0~20.0			M5	676	8			
		12	-0.006	13.00~16.00	12~24									
		13	-0.017	14.00~18.00	13~26									
		16		17.00~25.00	16~32	5.0~20.0	6	5	M6	2803	9			
		20	-0.007 -0.020	22.00~30.00	20~40									

When D=5, L+B≥Mx4+1 When D≥6, L+B≥Mx3+1

* 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.

Threaded

Part Number: Type	Shape Code	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	x	M (Coarse)	*Tightening Torque N·cm	Unit Price ①EN 1.2510 Equiv. Hardened JPPHNA	②EN 1.4301 Equiv. SJPPHNA	③EN 1.4125 Equiv. CJPPHNA
JPPH SJPPH CJPPH	NA	5	-0.004	5.50~8.00	3~10	2.0~10.0	5	4	M5	676			
		6	-0.012	6.50~10.00	3~10	2.0~12.0			M6	1156			
		8	-0.005	9.00~13.00	5~10	2.0~15.0			M8	2803			
		10	-0.014	11.00~15.00	5~15	3.0~20.0			M10	5557			
		12	-0.006	13.00~16.00	8~15				M12	9702			
		16	-0.017	17.00~25.00	8~20	5.0~20.0	6	5	M16	24108			
		20	-0.007 -0.020	22.00~30.00	10~20				M20	46942			

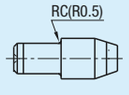
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number: Type	Shape	D	P	L	B
JPPH	B	8	P10.00	L10	B5.5
CJPPH	TA	16	P25.00	L22	B13.0

Alterations

Part Number	P	L	B	(RC)
SJPPHB10	P15.00	L12	B6.4	RC

Alteration Code	Sphere Tip
Spec.	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2

Locating Pins
Plastic, Large Head

Features: Plastic Locating Pins which prevent workpiece damages.

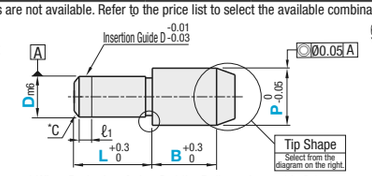
RoHS

Type: P Configurable	Type: P, L, B Configurable	Fixed Part	Head Shape	M Material	Operating Ambient Temperature
JP	FJP	Z (Press Fit) Y (Tapped)	A (Tapered) FA (Flat) Q (Sphere)	Polyacetal (Black)	-45~95°C
MJP	MFP			MC Nylon (Blue)	-40~120°C
DJP	DFP			Conductive MC Nylon CDR2 (Black)	-40~120°C
JKP	FKP			PEEK (Natural Ivory)	-50~250°C

Characteristics of Polyacetal, MC Nylon, Conductive MC Nylon, PEEK P.2-953, 954 (For Polyacetal and MC Nylon, refer to Standard Grade.)

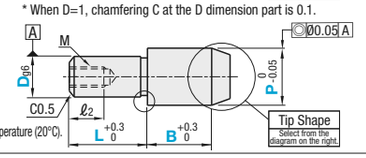
Some combinations are not available. Refer to the price list to select the available combination.

• Press Fit



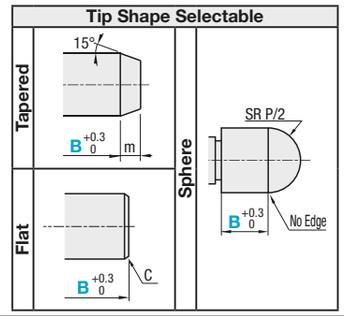
* When D=1, chamfering C at the D dimension part is 0.1.

• Tapped



The outer diameter tolerance is the result of measurement at room temperature (20°C).

Tip Shape Selectable



P Configurable

Part Number: Type	Fixed Part	Head Shape	D	D dim. Tolerance m6	D dim. Tolerance g6	P 0.01mm Increment	L Press Fit	L Tapped	B	C	m	ℓ1	M (Coarse)	ℓ2
JP	Z (Press Fit) Y (Tapped) Applicable when D≥6	A (Tapered) FA (Flat) Q (Sphere)	1	+0.008 +0.002	-	1.50~2.50	3	-	3	0.3	0.5	0	-	-
			2			2.50~4.00	4			0.5	1			
MJP			3			3.50~6.00	5		5		2	1		
			4	+0.012 +0.004		4.50~7.00			6	1	3			
DJP			5			5.50~8.00	10							
			6		-0.004 -0.012	6.50~10.00		10	8				M3	5
JKP			8	+0.015	-0.005	9.00~13.00	15	15		1.5	4		M5	8
			10	+0.006	-0.014	11.00~15.00			10	2			M5	8

P, L, B Configurable

Part Number: Type	Fixed Part	Head Shape	D	D dim. Tolerance m6	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment: Press Fit	L 1mm Increment: Tapped	B 0.1mm Increment	C	m	ℓ1	M (Coarse)	ℓ2
FJP	Z (Press Fit) Y (Tapped) Applicable when D≥6	A (Tapered) FA (Flat) Q (Sphere)	1	+0.008 +0.002	-	1.50~2.50	2,3	-	2.0~5.0	0.3	0.5	0	-	-
			2			2.50~4.00	2~6		2.0~10.0	0.5	1			
MFP			3			3.50~6.00	3~6		2.0~10.0		2	1		
			4	+0.012 +0.004		4.50~7.00	4~8		2.0~10.0	1	3			
DFP			5			5.50~8.00	5~10		2.0~10.0					
			6		-0.004 -0.012	6.50~10.00	6~12	6~12	2.0~12.0				M3	5
FKP			8	+0.015	-0.005	9.00~13.00	8~16	8~16	2.0 (3.0)~15.0	1.5	4		M5	8
			10	+0.006	-0.014	11.00~15.00	10~20	10~20	3.0 (4.0)~20.0	2			M5	8

B dimension of Flat is in ( ).

Ordering Example

Part Number: Type	Fixed Part	Head Shape	D	P	L	B
JP	Z	A	8	10.00		
FJP	Y	Q	10	P12.00	L12	B7.0

Alterations

Part Number	P	L	B	(HSC)
JKPYA6	8.00			HSC
FKPYFA10	P13.00	L18	B5.0	HSC

Alteration Code	Threaded Insert
Spec.	Adds a threaded insert on Tapped. D6:M3 D8, 10:M5 Ordering Code HSC

Press Fit

D	Tapered Unit Price: JPZA	MJPZA	DJPZA	JKPZA	FJPZA	MFPZA	DFPZA	FKPZA	Flat Unit Price: JPZFA	MJPZFA	DJPZFA	JKPZFA	FJPZFA	MFPZFA	DFPZFA	FKPZFA	Sphere Unit Price: JPZQ	MJPZQ	DJPZQ	JKPZQ	FJPZQ	MFPZQ	DFPZQ	FKPZQ
1				-																				
2				-																				
3				-																				
4				-																				
5				-																				
6				-																				
8				-																				
10				-																				

Tapped

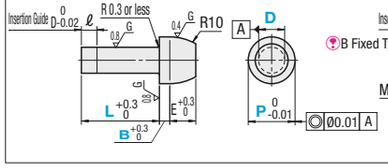
D	Tapered Unit Price: JPYA	MJPYA	DJPYA	JKPYA	FJPYA	MFPYA	DFPYA	FKPYA	Flat Unit Price: JPYFA	MJPYFA	DJPYFA	JKPYFA	FJPYFA	MFPYFA	DFPYFA	FKPYFA	Sphere Unit Price: JPYQ	MJPYQ	DJPYQ	JKPYQ	FJPYQ	MFPYQ	DFPYQ	FKPYQ
6	-			-				-	-			-				-	-							
8	-			-				-	-			-				-	-							
10	-			-				-	-			-				-	-							

Locating Pins
Pilot Pins

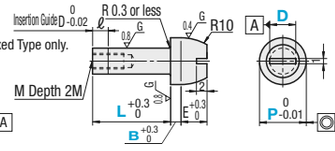
Features: Insert it to prevent deviation in pitch for locating.

Material	Hardness	B Fixed		B Configurable		
		Press Fit	Tapped, Flathead Slot	Press Fit	Tapped	
					Without Flathead Slot	Flathead Slot
EN 1.2510 Equiv.	Treated Hardness: 60 ~ 63HRC	HPST	HPSTM	HPSF	HPSFS	HPSFM
EN 1.4301 Equiv.	-	SHPST	SHPSTM	SHPSF	-	SHPSFM
EN 1.4125 Equiv.	Treated Hardness: 50 ~ 55HRC	CHPST	CHPSTM	CHPSF	CHPSFS	CHPSFM

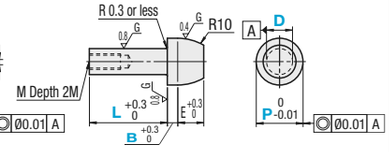
• Press Fit



• Tapped, Flathead Slot



• Tapped, Without Flathead Slot



B Fixed, Standard, Tapped

Part Number Type		D	D dim. Tolerance	L Selection	P 0.01mm Increment	B	E	ℓ	M (Coarse)	*Tightening Torque N·cm	Unit Price HPST	SHPST	CHPST	HPSTM	SHPSTM	CHPSTM
Standard	Tapped Flathead Slot	1	+0.012 +0.007	12	1.50~3.00	1	3	3	-	-				-	-	-
HPST	HPSTM	2		12	2.50~4.00		4							-	-	-
SHPST	SHPSTM	3		12 15	4.00~6.00	2								-	-	-
CHPST	CHPSTM	4		12 15	5.00~7.00		5							-	-	-
	(P)Applicable when D≥5.	5		12 15	6.00~8.00				M3	147						
		6		12 15	7.00~9.00		6									
		8		15 18	9.00~13.00	3			M4	333						
		10		15 18	11.00~15.00				M5	676						

B Configurable, Press Fit

Part Number Type	D	D dim. Tolerance	L Selection	P 0.01mm Increment	B 0.01mm Increment	E	ℓ	Unit Price HPSF	SHPSF	CHPSF
HPSF SHPSF CHPSF	1	+0.012 +0.007	3 4 5 6 8 10 12	1.50~3.00	1.00~5.00	3	1			
	2		4 5 6 8 10 12	2.50~4.00	1.00~10.00	4				
	3		5 6 8 10 12 15	4.00~6.00	1.00~10.00					
	4		5 6 8 10 12 15	5.00~7.00	1.00~10.00	5				
	5		5 6 8 10 12 15	6.00~8.00	1.00~10.00					
	6		6 8 10 12 15	7.00~10.00	1.00~12.00	6				
	8		8 10 12 15	9.00~13.00	1.00~15.00					
	10		10 12 15 18	11.00~15.00	1.00~20.00					

B Configurable, Tapped

Part Number Type		D	D dim. Tolerance g6	L Selection	P 0.01mm Increment	B 0.01mm Increment	E	M (Coarse)	*Tightening Torque N·cm	Unit Price HPSFS	CHPSFS	HPSFM	SHPSFM	CHPSFM
Without Flathead Slot	Flathead Slot	5	-0.004 -0.012	6 8 10 12 15	6.00~8.00	1.00~10.00	5	M3	147					
HPSFS	HPSFM	6		6 8 10 12 15	7.00~10.00	1.00~12.00	6							
	SHPSFM	8	-0.005 -0.014	8 10 12 15 18	9.00~13.00	1.00~15.00		M4	333					
CHPSFS	CHPSFM	10		10 12 15 18	11.00~15.00	1.00~20.00		M5	676					

* 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	-	L	-	P	-	B
HPST5	-	15	-	P7.20		
HPSF4	-	10	-	P5.05	-	B1.20

Alterations

Part Number	-	L	-	P	-	(BC)
HPSTM5	-	15	-	P7.20	-	BC3.5

Alteration	Code	Spec.		
B Dimension	BC	BC=0.1mm Increment 1≤BC≤BC max Ordering Code BC3.5 (P)Applicable to B Fixed Type only.	D	BC max
			1, 2	3.0
			3	4.0
			4, 5	5.0
			6	6.0
			8, 10	7.0

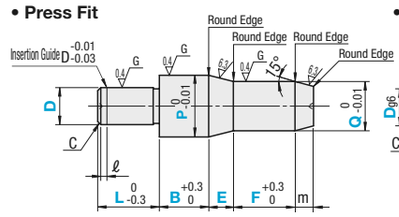
Locating Pins
Double Stepped

Features: Suitable for positioning workpieces with different hole diameters.

Material	Surface Treatment	Hardness	Press Fit		Tapped
			D Tolerance m6	D Tolerance p6	D Tolerance g6
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	WPM	WPP	WPG
EN 1.4301 Equiv.	-	-	SWPM	-	SWPG
EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HWPM	HWPP	HWPG

D	m6	p6	g6
2, 3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008
4~6	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012
8, 10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014
12, 16	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017
20	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020

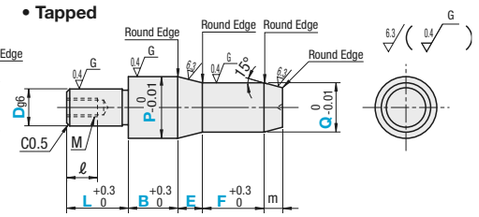
• Press Fit



(P)P>Q

Q-2tan15°≤0.73

• Tapped



tan15°≈0.267

Press Fit

Part Number Type	D	P 0.01mm Increment	Q 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	F 0.1mm Increment	m	C	ℓ	Unit Price WPM WPP	SWPM	HWPM HWPP
D Tolerance m6 WPM SWPM HWPM	2	2.00~4.00	1.00~3.00	2~6	2.0~6.0	1.0~3.0	2.0~6.0	1	0.3	0			
D Tolerance p6 WPP HWPP	3	3.00~6.00	1.00~5.00	3~6	2.0~10.0	1.0~5.0	2.0~10.0	2	0.5				
	4	4.00~7.00	2.00~6.00	4~8	2.0~15.0	1.0~8.0	2.0~15.0						
	5	5.00~8.00	2.00~7.00	5~10	2.0~20.0	1.0~10.0	2.0~20.0	3	1	1			
	6	6.00~10.00	2.00~9.00	6~12									
	8	8.00~13.00	3.00~12.00	8~16					1.5				
	10	10.00~15.00	3.00~14.00	10~20	3.0~20.0		3.0~20.0	4	2	2			
	12	12.00~16.00	5.00~15.00	12~24									
	16	16.00~25.00	10.00~24.00	16~32	5.0~20.0		5.0~20.0	5	3				
	20	20.00~30.00	13.00~29.00	20~40									

(P)P>Q

Tapped

Part Number Type	D	P 0.01mm Increment	Q 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	F 0.1mm Increment	m	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price WPG	SWPG	HWPG
D Tolerance g6 WPG SWPG HWPG	6	6.00~10.00	2.00~9.00	6~12	2.0~20.0	1.0~10.0	2.0~20.0	3	M3	147	5			
	8	8.00~13.00	3.00~12.00	8~16				4	M4	333	8			
	10	10.00~15.00	3.00~14.00	10~20	3.0~20.0		3.0~20.0		M5	676				
	12	12.00~16.00	5.00~15.00	12~24										
	16	16.00~25.00	10.00~24.00	16~32	5.0~20.0		5.0~20.0	5	M8	2803	12			
	20	20.00~30.00	13.00~29.00	20~40										

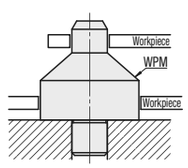
(P)P>Q (P)Note the strength of under-head part. ☞ P1566

* 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.

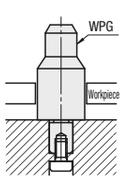
Ordering Example

Part Number	-	P	-	Q	-	L	-	B	-	E	-	F
SWPM5	-	P7.30	-	Q5.01	-	L10	-	B10.5	-	E5.2	-	F7.8
HWPG16	-	P20.02	-	Q15.30	-	L18	-	B12.3	-	E3.1	-	F5.0

Example



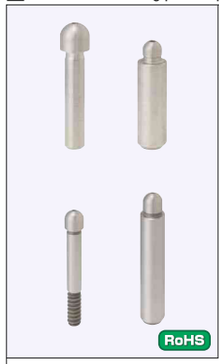
Applicable to different hole diameters.
(Suitable for reducing number of tooling changes.)



Small diameter (Q dimension) can be used as the insertion guide.

Locating Pins for Height Adjusting

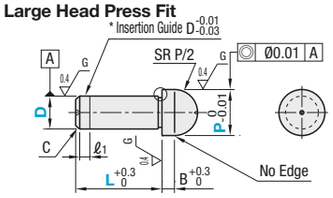
■Features: Locating pins for printed circuit boards. B dimension is fixed short for thin boards. Reasonably priced.



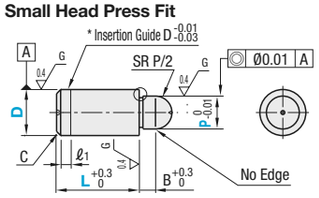
RoHS

Material No.	Material	Surface Treatment	Hardness	Large Head		Small Head	
				Press Fit	Threaded	Press Fit	Tapped
①	EN 1.4301 Equiv.	-	-	SFPLA (m6) SFPLP (p6)	SFPLN	SFPMA (m6) SFPMP (p6)	SFPMT
②	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFPLA (m6) CFPLP (p6)	CFPLN	CFPMA (m6) CFPMP (p6)	-

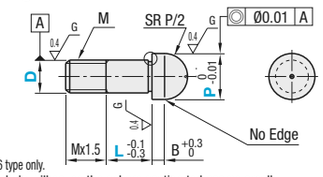
• Large Head Press Fit



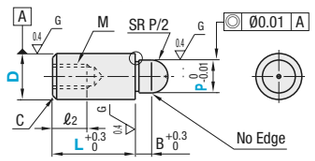
• Small Head Press Fit



• Large Head Threaded



• Small Head Tapped



Relief dimension is a reference value.

* The insertion guide is applicable to tolerance m6 and p6 type only.
When the P dimension is small, a centering hole will cause the sphere section to become small.

■Large Head Press Fit

Type	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B	C	ℓ1	Unit Price ①EN 1.4301 Equiv. SFPLA SFPLP	Unit Price ②EN 1.4125 Equiv. CFPLA CFPLP
SFPLA (m6) SFPLP (p6) CFPLA (m6) CFPLP (p6)	1	+0.008 +0.002	+0.012 +0.006	1.50~2.00	2~10	1	0.1	0		
	2			2.50~4.00	2~15		0.2			
	3			3.50~6.00	3~15	2		1		

■Large Head Threaded

Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B	M (Coarse)	* Tightening Torque N·cm	Unit Price ①EN 1.4301 Equiv. SFPLN	Unit Price ②EN 1.4125 Equiv. CFPLN
SFPLN CFPLN	2	-0.002 -0.008	2.50~4.00	2~12	1	M2	-		
	3		3.50~6.00		2	M3	147		

■Small Head Press Fit

Type	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B	C	ℓ1	Unit Price ①EN 1.4301 Equiv. SFPMA SFPMP	Unit Price ②EN 1.4125 Equiv. CFPMA CFPMP
SFPMA (m6) SFPMP (p6) CFPMA (m6) CFPMP (p6)	2	+0.008 +0.002	+0.012 +0.006	1.00~1.95	2~15	1	0.3	0		
	3			1.50~2.95	3~15		0.5	1		
	4	+0.012 +0.004	+0.020 +0.012	2.50~4.00	3~20	2	1			
	5									
	6									

■Small Head Tapped

Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B	C	M (Coarse)	* Tightening Torque N·cm	ℓ2	Unit Price ①EN 1.4301 Equiv. SFPMT
SFPMT	5	-0.004 -0.012	2.50~4.00	10~20	2	0.5	M2	-	3	
	6						M3	147	5	

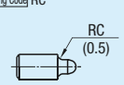
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number	Type	D		P		L
	SFPLN	2	-	P2.90	-	L8
	CFPMA	6	-	P3.95	-	L15

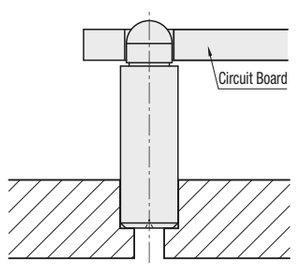
Alterations

Part Number		P		L		(RC)
SFPMT5	-	P2.95	-	L10	-	RC

Alteration	Stem R Alteration
Code	RC
Spec.	Changes the relief to R0.5. Ordering Code RC  Applicable when D-P≥2.

Example

The tip is made spherical to prevent PCB damage, and the B dim. is kept short to prevent from going through.



Locating Pins - Large Head, Tapered

Nonmagnetic

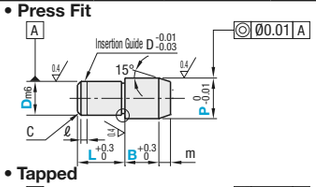
■Features: Nonmagnetic (Aluminum) Locating Pins. Does not magnetically affect the surroundings.

RoHS

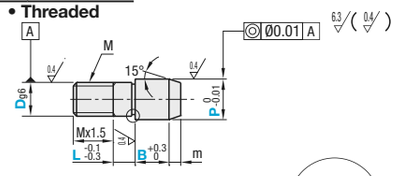
Material	Surface Treatment	Tip Shape	Type Press Fit	Type Tapped	Type Threaded
EN AW-2017 Equiv.	Clear Anodize	Round	AFPMA	AFPMTA	AFPMNA
		Diamond	AFPMD	AFPMTD	AFPMND

Threads are prone to be crushed due to the soft material. Refer to the recommended tightening torque in the table for mounting.

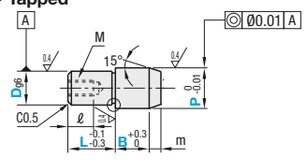
• Press Fit



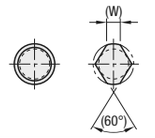
• Threaded



• Tapped



(Round) (Diamond)



Relief dimension is a reference value.

■Press Fit

Type	D	d dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	(W)	ℓ	Unit Price AFPMA	Unit Price AFPMD
AFPMA AFPMD Diamond Shape is applicable when D≥2.	1	+0.008 +0.002	1.50~2.50	2, 3	1.0~5.0	0.1	0.5	-	0		-
	2		2.50~4.00	2~6	1.0~10.0	0.5	1	1.2			
	3		3.50~6.00	3~6	1.0~10.0		2	1.5	1		
	4	+0.012 +0.004	4.50~7.00	4~8	1.0~10.0	1	3	1.8			
	5		5.50~8.00	5~10	1.0~10.0			2.2			
	6		6.50~10.00	6~12	1.0~12.0			3			
	8	+0.015 +0.006	9.00~13.00	8~16	1.0~15.0	1.5	4	3.5			
	10		11.00~15.00	10~20	3.0~20.0			4			
	12	+0.018 +0.007	13.00~16.00	12~24	3.0~20.0	2		5			
	13		14.00~18.00	13~26	5.0~20.0			5.5	2		
	16		17.00~25.00	16~32	5.0~20.0	3	5	7			

■Tapped

Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	ℓ	M (Coarse)	Recommended Tightening Torque (kgf·cm)	Unit Price AFPMTA	Unit Price AFPMTD
AFPMTA AFPMTD	6	-0.004 -0.012	6.50~10.00	6(9)~12	2.0~12.0	3	3	5	M3	6.25		
	8	-0.005	9.00~13.00	8(12)~16	2.0~15.0	4	3.5	8	M5	10		
	10	-0.014	11.00~15.00	10(12)~20	3.0~20.0		4					
	12	-0.006	13.00~16.00	12~24	3.0~20.0		5					
	13	-0.017	14.00~18.00	13(14)~26	5.0~20.0		5.5	10	M8	22.5		
	16		17.00~25.00	16~32	5.0~20.0	5	7	12				

L dimension in ( ) is applicable to Diamond Shape. Recommended tightening torque is reference value.

■Threaded

Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	M (Coarse)	Recommended Tightening Torque (kgf·cm)	Unit Price AFPMNA	Unit Price AFPMND
AFPMNA AFPMND	3	-0.002 -0.008	3.50~6.00	2~6	1.0~10.0	2	1.5	3	5		
	4	-0.004 -0.012	4.50~7.00	2~8	1.0~10.0	3	1.8	4	7		
	5		5.50~8.00	3~10	1.0~10.0		2.2	5	8.75		
	6		6.50~10.00	3~10	1.0~12.0		3	6	17.5		
	8	-0.005	9.00~13.00	5~10	1.0~15.0	4	3.5	8	18.75		
	10	-0.014	11.00~15.00	5~15	3.0~20.0		4	10	27.5		
	12	-0.006	13.00~18.00	8~15	3.0~20.0		5	12	92.5		
	16	-0.017	17.00~25.00	8~20	5.0~20.0	5	7	16	100		

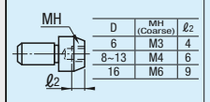
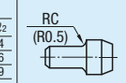
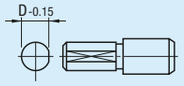
Recommended tightening torque is reference value.

Ordering Example

Part Number		P		L		B
AFPMA6	-	P8.50	-	L6	-	B3.0

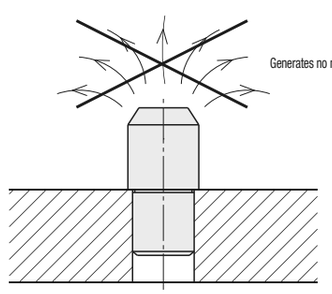
Alterations

Part Number		P		L		B		(MH, RC, AC)
AFPMTA10	-	P12.00	-	L15	-	B6.0	-	AC

Alterations	Tapping	Stem R Alteration	Air Vent
Code	MH	RC	AC
Spec.	Adds a tapped hole. Ordering Code MH  D / MH (Coarse) / ℓ2: 6 / M3 / 4; 8~13 / M4 / 6; 16 / M6 / 9 Applicable when D≥6 B≥ℓ2+4 Not applicable to Tapped.	Changes the relief to R0.5. Ordering Code RC  Applicable when P-D≥2	Adds an air vent. Ordering Code AC  Not applicable to Threaded.

Example

Since made of nonmagnetic metal, usable around small workpieces and the inside of the measuring instruments without magnetic effects.



Generates no magnetic force.

Locating Pins - Small Head, Tapered

Press Fit

Spec.Change
Printed in Purple

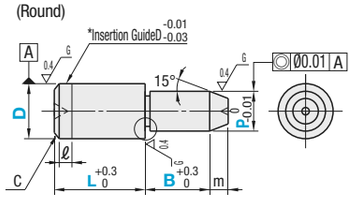
Features: Tapered Head Standard Type. Press Fit. Economical and there is a variety of selections to choose from. Same day shipping available.

RoHS

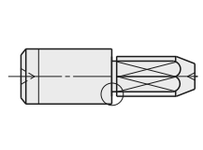
Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable D Tolerance and Shape Code	P Configurable Type	P Configurable D Tolerance and Shape Code	P, L, B Configurable Type	P, L, B Configurable D Tolerance and Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	<Round> SB (m6) SPB (p6)	JP	<Round> SA (m6) SPA (p6)	FP	<Round> SA (m6) SPA (p6)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJP		GJP		GFP	
③	EN 1.2510 Equiv.	-	-	BJP		BJP		BFP	
④	EN 1.4301 Equiv.*	-	-	SJP	<Diamond> DS (m6) DPS (p6)	SJP	<Diamond> SD (m6) SPD (p6)	SFP	<Diamond> SD (m6) SPD (p6)
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HJP		HJP		HFP	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJP		CJP		CFP	

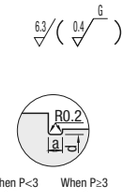
* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.

(Round)



(Diamond)





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

*For the insertion guide, tolerance m6 and p6 are both applicable.

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.

Relief dimension is a reference value.

P Selectable

Part Number Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P Selection	L	B	C	m	ℓ	(W)
JP GJP BJP SJP HJP CJP	<Round> SB (m6) SPB (p6)	2	+0.008	+0.012	1 2	4	2	0.3	0.5	0	-
		3	+0.002	+0.006	1 2 3	5	3	0.5		1	1.0
		4	+0.012	+0.020	2 3 4			1	1		1.0
		5	+0.004	+0.012	2 3 4 5	10	5		2		1.2
		6			2 3 4 5 6						1.5
	<Diamond> DS (m6) DPS (p6) Applicable when D≥4.	8	+0.015	+0.024	3 4 5 6 8	15	6	1.5	3	2	1.8
		10	+0.006	+0.015	3 4 5 6 8 10		8	2			2.2
		12	+0.018	+0.029	5 6 8 10 12				4		2.5
		13	+0.007	+0.018	6 8 10 12 13	22					3
		16			10 12 13 14 15 16		10	3			4
		20	+0.021 +0.008	+0.035 +0.022	13 14 15 16 20	30					5

P Configurable

Part Number Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L	B	C	m	ℓ	(W)
JP GJP BJP SJP HJP CJP	<Round> SA (m6) SPA (p6)	2	+0.008	+0.012	1.00~2.00	4	2	0.3	0.5	0	-
		3	+0.002	+0.006	1.00~3.00	5	3	0.5		1	1.0
		4	+0.012	+0.020	2.00~4.00			1	1		1.0
		5	+0.004	+0.012	2.00~5.00	10	5		2		1.2
		6			2.00~6.00						1.5
	<Diamond> SD (m6) SPD (p6) Applicable when D≥4.	8	+0.015	+0.024	3.00~8.00	15	6	1.5	3	2	1.8
		10	+0.006	+0.015	3.00~10.00		8	2			2.2
		12	+0.018	+0.029	5.00~12.00				4		2.5
		13	+0.007	+0.018	6.00~13.00	22					3
		16			10.00~16.00		10	3			4
		20	+0.021 +0.008	+0.035 +0.022	13.00~20.00	30					5

P, L, B Configurable

Part Number Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	ℓ	(W)
FP GFP BFP SFP HFP CFP	<Round> SA (m6) SPA (p6)	2	+0.008	+0.012	1.00~2.00	2~4	2.0~10.0	0.3	0.5	0	-
		3	+0.002	+0.006	1.00(2.00)~3.00	3~6	2.0~10.0	0.5		1	1.0
		4	+0.012	+0.020	2.00~4.00	4~8	2.0~10.0		1		
		5	+0.004	+0.012	2.00~5.00	5~10	2.0~10.0	1	2		1.2
		6			2.00~6.00	6~12	2.0~12.0				1.5
	<Diamond> SD (m6) SPD (p6) Applicable when D≥3.	8	+0.015	+0.024	3.00~8.00	8~16	2.0~15.0	1.5	3	2	1.8
		10	+0.006	+0.015	3.00~10.00	10~20	3.0~20.0	2			2.2
		12	+0.018	+0.029	5.00~12.00	12~24	3.0~20.0		4		2.5
		13	+0.007	+0.018	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	+0.021 +0.008	+0.035 +0.022	13.00~20.00	20~40	5.0~20.0				5

P dimension in ( ) is applicable to Diamond Shape.

Ordering Example

Part Number										
Type	Shape	D	-	P	-	L	-	B		
JP	SB	5	-	3						
JP	SD	6	-	2.01						
FP	SA	8	-	P6.01	-	L8	-	B5.3		
FP	SPD	10	-	P5.97	-	L12	-	B3.5		

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPSB JPSPB	②Hard EN 1.2510 Equiv. GJPSB GJPSPB	③EN 1.2510 Equiv. BJPSB BJPSPB	④EN 1.4301 Equiv. SJPSB SJPSPB	⑤Hard EN 1.4301 Equiv. HJPSB HJPSPB	⑥EN 1.4125 Equiv. CJPSB CJPSPB	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPDS JPDPS	②Hard EN 1.2510 Equiv. GJPDS GJPDPS	③EN 1.2510 Equiv. BJPDS BJPDPS	④EN 1.4301 Equiv. SJPDS SJPDPS	⑤Hard EN 1.4301 Equiv. HJPDS HJPDPS	⑥EN 1.4125 Equiv. CJPDS CJPDPS
2							-	-	-	-	-	-
3							-	-	-	-	-	-
4												
5												
6												
8												
10												
12												
13												
16												
20												

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPSA JPSPA	②Hard EN 1.2510 Equiv. GJPSA GJPSPA	③EN 1.2510 Equiv. BJPSA BJPSPA	④EN 1.4301 Equiv. SJPSA SJPSPA	⑤Hard EN 1.4301 Equiv. HJPSA HJPSPA	⑥EN 1.4125 Equiv. CJPSA CJPSPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPSD JPSPD	②Hard EN 1.2510 Equiv. GJPSD GJPSPD	③EN 1.2510 Equiv. BJPSD BJPSPD	④EN 1.4301 Equiv. SJPSD SJPSPD	⑤Hard EN 1.4301 Equiv. HJPSD HJPSPD	⑥EN 1.4125 Equiv. CJPSD CJPSPD
2							-	-	-	-	-	-
3							-	-	-	-	-	-
4												
5												
6												
8												
10												
12												
13												
16												
20												

P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPSA FPSPA	②Hard EN 1.2510 Equiv. GFPSA GFPSPA	③EN 1.2510 Equiv. BFPSA BFPSPA	④EN 1.4301 Equiv. SFPSA SFPSPA	⑤Hard EN 1.4301 Equiv. HFPSA HFPSPA	⑥EN 1.4125 Equiv. CFPSA CFPSPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPSD FPSPD	②Hard EN 1.2510 Equiv. GFPSD GFPSPD	③EN 1.2510 Equiv. BFPSD BFPSPD	④EN 1.4301 Equiv. SFPSD SFPSPD	⑤Hard EN 1.4301 Equiv. HFPSD HFPSPD	⑥EN 1.4125 Equiv. CFPSD CFPSPD
2							-	-	-	-	-	-
3												
4												
5												
6												
8												
10												
12												
13												
16												
20												

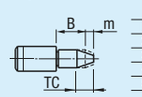
Alterations

Part Number										
FPSPA10	-	P8.52	-	L12	-	B6.4	-	TC7		

Alterations are not available for P Selectable Type.

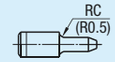
Example

Alterations Code	Length of Tapered Point TC	Sphere Tip RC
Spec.	Changes the m dimension. Ordering Code TC8 (1mm increment)	Changes the relief to R0.5. Ordering Code RC

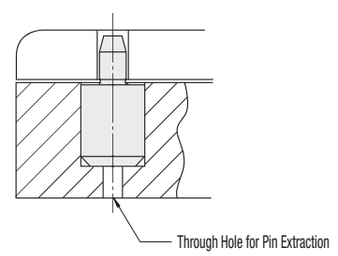


D	TC
2	1
3	1~3
4	2~5
5	3~7
6	3~9
8	4~13
10	4~16
12	4~20
13	4~21
16	5~22
20	

B+m≥TC+2 (Straight Part min. 2mm)
Applicable when P≥2.00. 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)



Applicable when D-P≥2.



Locating Pins - Small Head, Tapered

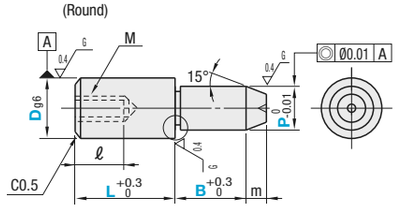
Tapped

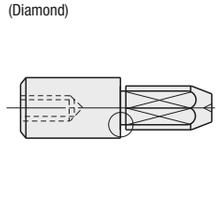
Spec.Change Printed in Purple

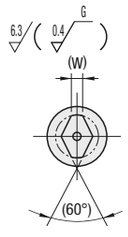
Features: Small Head, Tapered with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

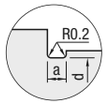
Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPS	TB (Round)	JPS	TA (Round) TD (Diamond)	FPS	TA (Round) TD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-		GJPS		GFPS	
④	EN 1.4301 Equiv.*	-	-	SJPS		SJPS		SFPS	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	-		-		HFPS	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPS		-		CFPS	

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.









a=1.0
d=P-0.2
Relief dimension is a reference value.

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

RoHS

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	m	M (Coarse)	*Tightening Torque N·cm	ℓ
JPS SJPS CJPS	TB (Round)	6	-0.004 -0.012	4 5	10	5	2	M3	147	5
		8	-0.005 -0.014	6 7	15	6	3	M5	676	8
		10		7 8 9 10		8				
		12	-0.006 -0.017	8 9 10 11 12						

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	m	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ
JPS GJPS SJPS	TA (Round) TD (Diamond)	5	-0.004 -0.012	3.00~5.00	10	5	2	1.2	M2	-	3
		6		4.00~6.00				1.5	M3	147	5
		6T							M2.6	-	4
		8	-0.005 -0.014	6.00~8.00	15	6	3	1.8	M5	676	8
		8T							M4	333	6
		10		7.00~10.00		8		2.2	M5	676	8
		12		7.00~12.00				2.5			
		13	-0.006 -0.017	8.00~13.00	22		4	3	M8	2803	12
		16		10.00~16.00		10		4			
		20	-0.007 -0.020	13.00~20.00	30			5			

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	(W)	M (Coarse)	*Tightening Torque N·cm	ℓ
FPS GFPS SFPS HFPS CFPS	TA (Round) TD (Diamond)	5	-0.004 -0.012	3.00~5.00	8~10	2.0~10.0	2	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	-0.005 -0.014	6.00~8.00	11(12)~16	2.0~15.0	3	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
		10T			8(12)~16				M4	333	6
		12	-0.006 -0.017	7.00~12.00	12~24	3.0~20.0		2.5	M5	676	8
		12T			8(12)~18				M4	333	6
		13		8.00~13.00	13(14)~26	5.0~20.0	4	3	M8	2803	10
		13T			10(14)~20				M6	1156	9
		16		10.00~16.00	16~32	5.0~20.0		4	M8	2803	12
		16T			10(14)~24				M6	1156	9
		20	-0.007 -0.020	13.00~20.00	20~40	5.0~20.0		5	M8	2803	12
		20T			12(18)~30				M6	1156	9

(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.
Pins of D dimension with T have one size smaller thread diameter and larger wall thickness. (Actual D dimension is the number without "T".)
* 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.

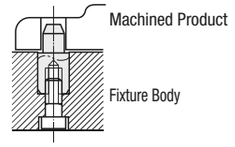
Ordering Example

Part Number	Type	Shape	D	-	P	-	L	-	B
	JPS	TA	6	-	P4.50				
	FPS	TA	10	-	P8.52	-	L12	-	B6.4

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPSTB	④EN 1.4301 Equiv. SJPSTB	⑥EN 1.4125 Equiv. CJPSTB
6			
8			
10			
12			

Example



P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPSTA	②Hard EN 1.2510 Equiv. GJPSTA	④EN 1.4301 Equiv. SJPSTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPSTD	②Hard EN 1.2510 Equiv. GJPSTD	④EN 1.4301 Equiv. SJPSTD
5						
6						
6T						
8						
8T						
10						
12						
13						
16						
20						

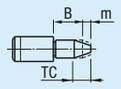
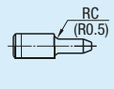
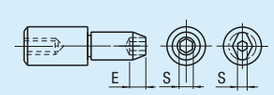
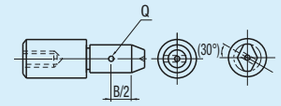
P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPSTA	②Hard EN 1.2510 Equiv. GFPSTA	④EN 1.4301 Equiv. SFPSTA	⑤Hard EN 1.4301 Equiv. HFPSTA	⑥EN 1.4125 Equiv. CFPSTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPSTD	②Hard EN 1.2510 Equiv. GFPSTD	④EN 1.4301 Equiv. SFPSTD	⑤Hard EN 1.4301 Equiv. HFPSTD	⑥EN 1.4125 Equiv. CFPSTD
5							-			
6										
6T										
8										
8T										
10										
10T										
12										
12T										
13										
13T										
16										
16T										
20										
20T										

Alterations

Part Number	-	P	-	L	-	B	-	(TC, RC, RAC, LAC)
FPSTA10	-	P8.52	-	L12	-	B6.4	-	TC7

⊗Alterations are not available for P Selectable Type.

Alterations	Length of Tapered Point	Sphere Tip	Hex Socket Machining	Wrench Hole Machining
				
Code	**TC**	**RC**	**RAC**	**LAC**
Spec.	Changes the m dimension. Ordering Code TC8 (1mm increment) D / TC: 5 3~7; 6 3~9; 8 4~13; 10 4~16; 12 4~20; 13 4~21; 16 5~22; 20 5~22 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) ⊗Combination with RAC and LAC is not available.	Changes the relief to R0.5 Ordering Code RC Applicable when D-P≥2. ⊗Combination with LAC is not available.	Machines hex sockets. Ordering Code RAC D / Applicable Dimensions P / L / B / Hex Hole Dimensions E / S: 8 8T: 6.50~ / 13~ / 6.0~ / 2 / 3 10 10T: 7.00~ / 2 / 3 12 12T: 7.00~ / 15~ / 2.5 / 4 13 13T: 9.00~ / 15~ / 2.5 / 4 16 16T: 10.00~ / 17~ / 3 / 5 20 20T: 13.00~ / 22~ / 4 / 6 Applicable to P, L, B Dimension Configurable Type only. Round Shape is applicable to D≥8, and Diamond Shape to D≥10. ⊗Combination with TC, LAC is not available.	Machines wrench holes. Ordering Code LAC D / Applicable Dimensions P / B / Wrench Hole Dimensions P / Q: 8 8T: 6.00~ / 5.0~ / 6.00~9.99 / 2 10 10T: 7.00(8.00)~ / 10.00~15.99 / 3.5 12 12T: 7.00(8.00)~ / 16.00~ / 5 13 13T: 8.00~ 16 16T: 10.00~ 20 20T: 13.00~ / 10.0~ ( ) is applicable to Diamond Shape. Round Shape is applicable to D≥8, and Diamond Shape to D≥10. Orientation between Diamond Shape Head and Wrench Hole is arbitrary. ⊗Combination with TC, RC, RAC is not available.

Locating Pins - Small Head, Tapered

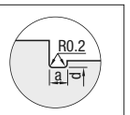
Configurable Taper Angle, D and P Selectable Tolerance

Spec.Change Printed in Purple

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

RoHS

Material No.	Material	Surface Treatment	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)	KFST	A (Round)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFS	A (Round)	GKFST	A (Round)
④	EN 1.4301 Equiv.	-	-	SKFS	D (Diamond)	SKFST	D (Diamond)
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HKFS	D (Diamond)	HKFST	D (Diamond)
⑥	EN 1.4125 Equiv.	-	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

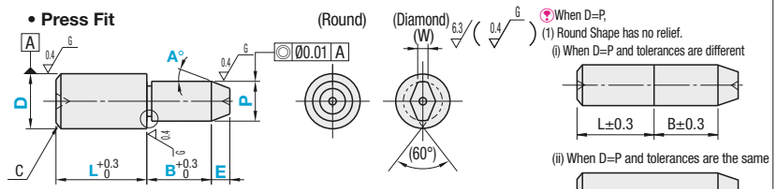
Relief dimension is a reference value.

Tolerance Selection

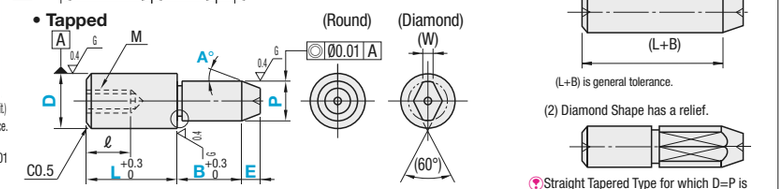
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 ~ 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 ~ 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 ~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

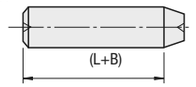


• Tapped



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										
				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 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.

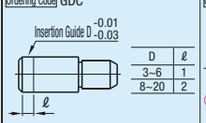
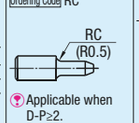
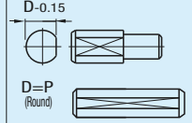
Ordering Example

Part Number	-	P	-	L	-	B	-	E	-	A
Type Shape D Tol. P Tolerance D										
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 Code	Insertion Guide GDC	Sphere Tip RC	Air Vent AC
Spec.	Adds the insertion guide. Ordering Code GDC  D: 3~6 ℓ=1; 8~20 ℓ=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

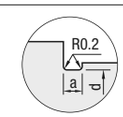
Set Screw

Spec.Change Printed in Purple

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

RoHS

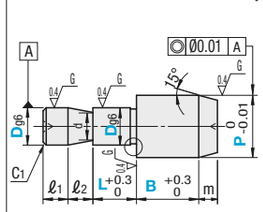
Material No.	Material	Surface Treatment	Hardness	Type Circumference Groove	Type Notched	Type Set Screw Flat	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPGT	JPCT	JPDT	S (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC 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

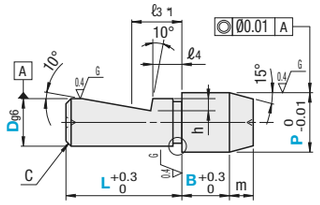
Relief dimension is a reference value.

• Circumference Groove Shape



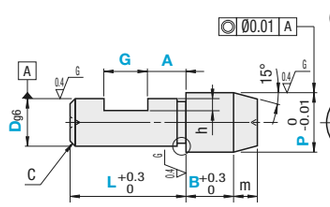
EN 1.4125 Equiv. has an identification groove at any position on D part.

• Notch Shape

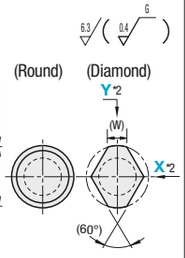


*1 ℓ3 is the recommended dimension of the position of set screw tip.

• Set Screw Flat Shape

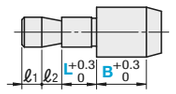


L>A+G+1

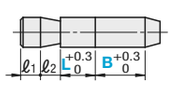


*2 Select set screw position X or Y for Notched Diamond Type and Set Screw Flat Diamond Type.

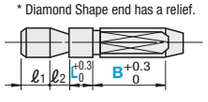
When D<P (Large Head)



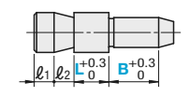
When D=P (Straight)



* 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	(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		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	(W) When D≥P
JPCT	JPDT	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
GJPCT	GJPDT		8	-0.005	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
HJPCT	SJPDT		10	-0.014	5.00~15.00	15~25			2.0~16.0					2		M6	1156	4	2.2
CJPCT	CJPDT		12	-0.006	5.00~16.00	15~25			2.0~20.0									5	2.5
			16	-0.017	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								

Locating Pins - Sphere Small Head

Press Fit

Spec.Change Printed in Purple

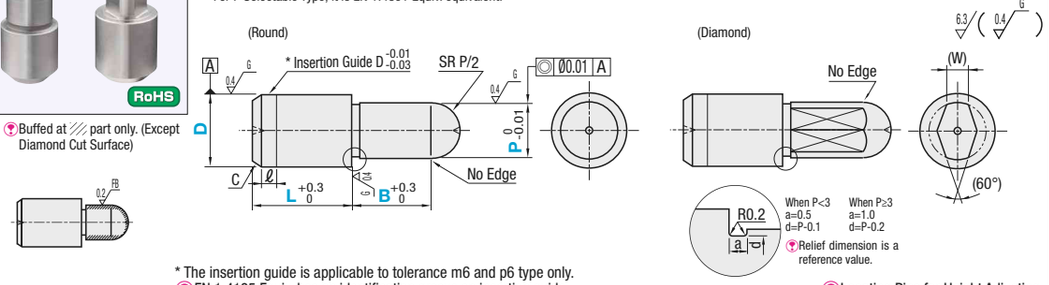
Features: The Sphere Head can prevent the mating material from being scratched even when you insert by sliding horizontally against the pin end.

RoHS

Buffed at // part only. (Except Diamond Cut Surface)

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable D Tolerance and Shape	P Configurable Type	P Configurable D Tolerance and Shape	P, L, B Configurable Type	P, L, B Configurable D Tolerance and Shape
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPQ	<Round> SB (m6) SPB (p6)	JPQ	<Round> SA (m6) SPA (p6)	FPQ	<Round> SA (m6) SPA (p6)
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	-		GJPQ (Round only)		GFPQ	
③	EN 1.4301 Equiv.*	-	-	SJPQ		SJPQ		SFPQ	
④	EN 1.4301 Equiv.	Hard Chrome Plating	-	-		-	<Diamond> SD (m6) SPD (p6)	HFPQ	<Diamond> SD (m6) SPD (p6)
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-		CJPQ		CFPQ	
⑥	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	-		MJPQ		MFPQ	

Hard Chrome Plating: Plating Thickness 3μm or more, Plating Hardness 750HV ~
* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



* The insertion guide is applicable to tolerance m6 and p6 type only.
EN 1.4125 Equiv. has an identification groove on insertion guide.
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.

Locating Pins for Height Adjusting with shorter B fixed dimension is also available. P.1660

P Selectable

Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P Selection	L	B	C	ℓ
JPQ SJPQ	<Round> SB (m6) SPB (p6)	2	+0.008 +0.002	+0.012 +0.006	1 1.5	4	2	0.3	0
		3			2	5	3	0.5	1
		4	+0.012 +0.004	+0.020 +0.012	2 3				
		5			2 3 4	10	5	1	
		6			2 3 4 5				

P Configurable

Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L	B	C	ℓ	(W)
JPQ GJPQ SJPQ CJPQ (Buff Finished) MJPQ Applicable when D≥5 and P≥5.	<Round> SA (m6) SPA (p6)	2	+0.008 +0.002	+0.012 +0.006	1.00~2.00	4	2	0.3	0	-
		3			1.00~3.00	5	3	0.5	1	1.0
		4	+0.012 +0.004	+0.020 +0.012	2.00~4.00			1		1.2
		5			2.00~5.00	10	5			1.5
		6			2.00~6.00					1.8
	<Diamond> SD (m6) SPD (p6) Applicable when D≥4.	8	+0.015 +0.006	+0.024 +0.015	3.00~8.00	15	6	1.5	2	2.2
		10			3.00~10.00		8	2		2.5
		12	+0.018 +0.007	+0.029 +0.018	5.00~12.00					3
		13			6.00~13.00	22				4
		16			10.00~16.00		10	3		5
		20	+0.021 +0.008	+0.035 +0.022	13.00~20.00	30				

P, L, B Configurable

Type	D Tolerance and Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	ℓ	(W)
FPQ GFPQ SFPQ HFPQ CFPQ (Buff Finished) MFPQ Applicable when D≥5 and P≥5.	<Round> SA (m6) SPA (p6)	2	+0.008 +0.002	+0.012 +0.006	1.00~2.00	2~4	2.0~10.0	0.3	0	-
		3			1.00~3.00	3~6	2.0~10.0	0.5	1	1.0
		4	+0.012 +0.004	+0.020 +0.012	2.00~4.00	4~8	2.0~10.0	1		1.2
		5			2.00~5.00	5~10	2.0~10.0			1.5
		6			2.00~6.00	6~12	2.0~12.0			1.8
	<Diamond> SD (m6) SPD (p6) Applicable when D≥4.	8	+0.015 +0.006	+0.024 +0.015	3.00~8.00	8~16	2.0~15.0	1.5	2	2.2
		10			3.00~10.00	10~20	3.0~20.0	2		2.5
		12	+0.018 +0.007	+0.029 +0.018	5.00~12.00	12~24	3.0~20.0			3
		13			6.00~13.00	13~26	5.0~20.0			4
		16			10.00~16.00	16~32	5.0~20.0	3		5
		20	+0.021 +0.008	+0.035 +0.022	13.00~20.00	20~40	5.0~20.0			

Ordering Example

Part Number: Type | Shape | D - P - L - B

JPQ SA 4 - 2.01

FPQ SA 4 - P2.01 - L6 - B5.5

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQSB JPQSPB	③EN 1.4301 Equiv. SJPQSB SJPQSPB
2		
3		
4		
5		
6		

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQSA JPQSPA	②Hard EN 1.2510 Equiv. GJPQSA GJPQSPA	③EN 1.4301 Equiv. SJPQSA SJPQSPA	⑤EN 1.4125 Equiv. CJPQSA CJPQSPA	⑥EN 1.2510 Equiv. Hardened + Buffed MJPQSA MJPQSPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPQSD JPQSPD	②Hard EN 1.2510 Equiv. GJPQSD GJPQSPD	③EN 1.4301 Equiv. SJPQSD SJPQSPD	⑤EN 1.4125 Equiv. CJPQSD CJPQSPD	⑥EN 1.2510 Equiv. Hardened + Buffed MJPQSD MJPQSPD
2					-	-	-	-	-	-
3					-	-	-	-	-	-
4					-		-			-
5							-			
6							-			
8							-			
10							-			
12							-			
13							-			
16							-			
20							-			

P, L, B Configurable

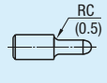
D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPQSA FPQSPA	②Hard EN 1.2510 Equiv. GFPQSA GFPQSPA	③EN 1.4301 Equiv. SFPQSA SFPQSPA	④Hard EN 1.4301 Equiv. HFPQSA HFPQSPA	⑤EN 1.4125 Equiv. CFPQSA CFPQSPA	⑥EN 1.2510 Equiv. Hardened + Buffed MFPQSA MFPQSPA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPQSD FPQSPD	②Hard EN 1.2510 Equiv. GFPQSD GFPQSPD	③EN 1.4301 Equiv. SFPQSD SFPQSPD	④Hard EN 1.4301 Equiv. HFPQSD HFPQSPD	⑤EN 1.4125 Equiv. CFPQSD CFPQSPD	⑥EN 1.2510 Equiv. Hardened + Buffed MFPQSD MFPQSPD
2						-	-	-	-	-	-	-
3						-	-	-	-	-	-	-
4						-						-
5												
6												
8												
10												
12												
13												
16												
20												

Alterations

Part Number - P - L - B - (RC)

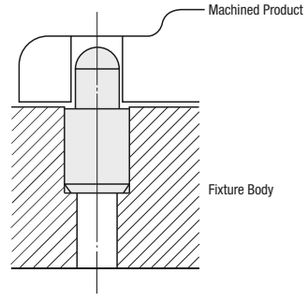
FPQSA4 - P2.00 - L6 - B5.5 - RC

Alterations are not available for P Selectable Type.

Alteration Code	Sphere Tip RC
Spec.	Changes the relief to R0.5. Ordering Code RC  Applicable when D-P≥2.

Example

Pins with sphere head prevent damages on mating parts.



Locating Pins - Sphere Small Head

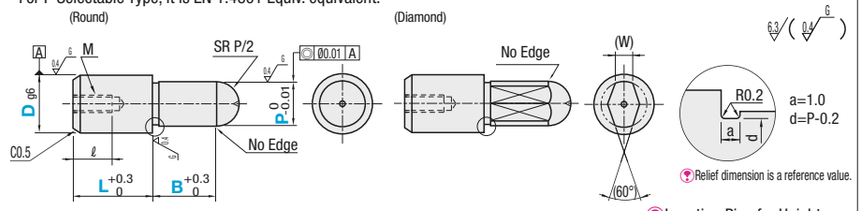
Tapped

Spec.Change
Printed in Purple

Features: Sphere Small Head with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPQS	TB (Round)	JPQS	TA (Round) TD (Diamond)	FPQS	TA (Round) TD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-		GJPQS		GFPQS	
③	EN 1.4301 Equiv.*	-	-	-		SJPQS		SFPQS	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-		CJPQS		CFPQS	

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



EN 1.4125 Equiv. has an identification groove at any position on D part.
When the P dimension is small, a centering hole will cause the sphere section to become small.

Locating Pins for Height Adjusting with shorter B fixed dimension is also available. P.1660

P Selectable

Part Number Type	Shape	D	D dim. Tolerance g6	P Selection	L	B	M (Coarse)	* Tightening Torque N·cm	ℓ
JPQS	TB (Round)	6	-0.004 -0.012	4 5	10	5	M3	147	5
		8	-0.005 -0.014	6 7	15	6	M5	676	8
		10	-0.006 -0.017	7 8		8			
		13		8 10	22		M8	2803	12
		16		10		10			

P Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	M (Coarse)	* Tightening Torque N·cm	ℓ	(W)
JPQS GJPQS SJPQS CJPQS	TA (Round) TD (Diamond)	5	-0.004 -0.012	3.00~5.00	10	5	M2	-	3	1.2
		6		4.00~6.00			M3	147	5	1.5
		6T					M2.6	-	4	
		8	-0.005 -0.014	6.00~8.00	15	6	M5	676	8	1.8
		8T					M4	333	6	
		10	-0.006 -0.017	7.00~10.00		8	M5	676	8	2.2
		12		7.00~12.00						2.5
		13		8.00~13.00	22		M8	2803	12	3
		16		10.00~16.00		10				4
		20	-0.007 -0.020	13.00~20.00	30					5

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	* Tightening Torque N·cm	ℓ	(W)
FPQS GFPQS SFPQS CFPQS	TA (Round) TD (Diamond)	5	-0.004 -0.012	3.00~5.00	8~10	2.0~10.0	M2	-	3	1.2
		6		4.00~6.00	8(9)~12	2.0~12.0	M3	147	5	1.5
		6T					M2.6	-	4	
		8	-0.005 -0.014	6.00~8.00	11(12)~16	2.0~15.0	M5	676	8	1.8
		8T					M4	333	6	
		10		7.00~10.00	11(12)~20	3.0~20.0	M5	676	8	2.2
		10T			8(12)~16		M4	333	6	
		12	-0.006 -0.017	7.00~12.00	12~24		M5	676	8	2.5
		12T			8(12)~18		M4	333	6	
		13		8.00~13.00	13(14)~26	5.0~20.0	M8	2803	10	3
		13T			10(14)~20		M6	1156	9	
		16		10.00~16.00	16~32		M8	2803	12	4
		16T			10(14)~24		M6	1156	9	
		20	-0.007 -0.020	13.00~20.00	20~40		M8	2803	12	5
		20T			12(18)~30		M6	1156	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 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.
* 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

JPQSTA6 - 4.00

FPQSTA6 - P4.00 - L10 - B5.5

P Selectable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQSTB
6	
8	
10	
13	
16	

P Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPQSTA	②Hard EN 1.2510 Equiv. GJPQSTA	③EN 1.4301 Equiv. SJPQSTA	⑤EN 1.4125 Equiv. CJPQSTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPQSTD	②Hard EN 1.2510 Equiv. GJPQSTD	③EN 1.4301 Equiv. SJPQSTD	⑤EN 1.4125 Equiv. CJPQSTD
5								
6								
6T								
8								
8T								
10								
12								
13								
16								
20								

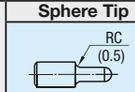
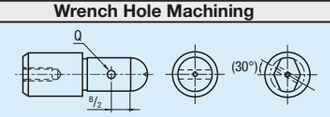
P, L, B Configurable

D	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPQSTA	②Hard EN 1.2510 Equiv. GFPQSTA	③EN 1.4301 Equiv. SFPQSTA	⑤EN 1.4125 Equiv. CFPQSTA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPQSTD	②Hard EN 1.2510 Equiv. GFPQSTD	③EN 1.4301 Equiv. SFPQSTD	⑤EN 1.4125 Equiv. CFPQSTD
5								
6								
6T								
8								
8T								
10								
10T								
12								
12T								
13								
13T								
16								
16T								
20								
20T								

Alterations Part Number - P - L - B - (RC, LAC)

FPQSTA6 - 4.00 - 10 - B5.5 - RC

Alterations are not available for P Selectable Type. Combination of RC and LAC is not available.

Alterations	Sphere Tip	Wrench Hole Machining
		
Code	**RC**	**LAC**
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when D-P≥2.	Machines wrench holes. Ordering Code LAC

D	Applicable Dimensions 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 to D≥10.
Orientation between Diamond Shape Head and Wrench Hole is arbitrary.

Locating Pins - Sphere Small Head

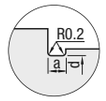
D and P Selectable Tolerance

Spec.Change Printed in Purple

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

RoHS

Material No.	Material	Surface Treatment	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 Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFQS	GKFQST	
③	EN 1.4301 Equiv.	-	-	SKFQS	SKFQST	
④	EN 1.4125 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.

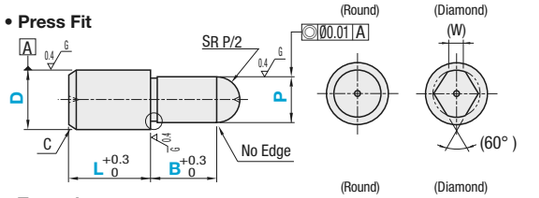
EN 1.4125 Equiv. has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for EN 1.4301 Equiv.
When the P dimension is small, a centering hole will cause the sphere section to become small.

Tolerance Selection

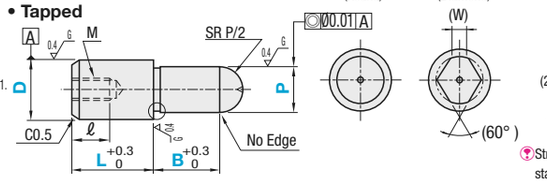
D or P	Standard Grade M (m6)	P (p6)	G (g6)	H (h7)	S	Precision Grade A	B
1.00 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012			
6.01 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 18.00	+0.018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

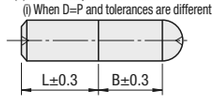
• Press Fit



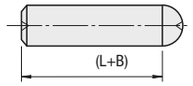
• Tapped



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

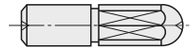


(ii) When D=P and tolerances are the same



(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: ①EN 1.2510 Equiv. Hardened KFQSA	②Hard EN 1.2510 Equiv. GKFQSA	③EN 1.4301 Equiv. SKFQSA	EN 1.4125 Equiv. CKFQSA	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened KFQSD	②Hard EN 1.2510 Equiv. GKFQSD	③EN 1.4301 Equiv. SKFQSD	EN 1.4125 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: ①EN 1.2510 Equiv. Hardened KFQSTA	②Hard EN 1.2510 Equiv. GKFQSTA	③EN 1.4301 Equiv. SKFQSTA	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened KFQSTD	②Hard EN 1.2510 Equiv. GKFQSTD	③EN 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	147	5						
				8	6.00~8.00	11(12)~16	2.0~15.0	1.8									
				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									
				16	10.00~16.00	16~32	5.0~20.0	4	M8	2803	10 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.
* 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

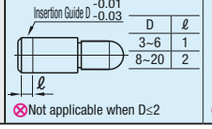
Part Number: Type	Shape	D Tol.	P Tolerance	D	P	L	B
KFQS	A	G	S	10 -	P8.00 -	L10 -	B8.0

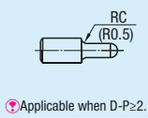
Alterations

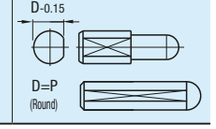
Part Number	P	L	B	(GDC, RC, AC)
KFQSAGS10 -	P8.00 -	L10 -	B8.0 -	RC

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

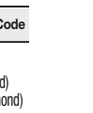
Set Screw

Spec.Change Printed in Purple

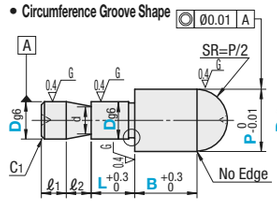
Features: Sphere Large Head/Small Head - Set Screws. Selectable from Circumference Groove / Notched / Set Screw Flat Shape.

RoHS

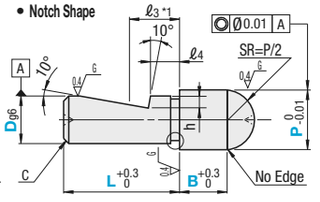
Material No.	Material	Surface Treatment	Hardness	Type: Circumference Groove	Type: Notched	Type: Set Screw Flat	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPGQ	JPCQ	JPDQ	S (Round) D (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPGQ	GJPCQ	-	
③	EN 1.4301 Equiv.	-	-	SJPGQ	SJPCQ	-	
④	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPGQ	-	-	



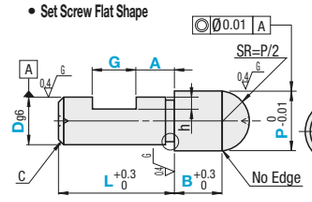
• Circumference Groove Shape

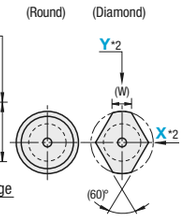


• Notch Shape



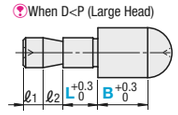
• Set Screw Flat Shape



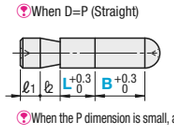


EN 1.4125 Equiv. has an identification groove at any position on D part. *1. ℓ3 is the recommended dimension of the position of set screw tip. L>G+A+1

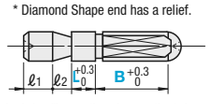
When D<P (Large Head)



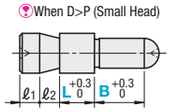
When D=P (Straight)



* Diamond Shape end has a relief.

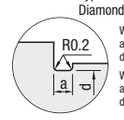


When D>P (Small Head)



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

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	*Tightening Torque N·cm	(W) When D<P	(W) When D≥P
(Notched) JPCQ GJPCQ SJPCQ	(Set Screw Flat) JPDQ	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	1	M4	333	3	1.5
	S (Round) D (Diamond)	8	-0.005 -0.014	5.00~13.00	14~22			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	Applicable to Diamond Shape Type only.							5	2.5
		16		10.00~25.00	24~35			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

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

Circumference Groove Shape

D	Unit Price Round Shape: ①EN 1.2510 Equiv. Hardened JPGQS	②Hard EN 1.2510 Equiv. GJPGQS	③EN 1.4301 Equiv. SJPGQS	④EN 1.4125 Equiv. CJPGQS	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened JPGQD	②Hard EN 1.2510 Equiv. GJPGQD	③EN 1.4301 Equiv. SJPGQD	④EN 1.4125 Equiv. CJPGQD
6								
6S								
8								
8S								
10								
10S								
12								
12S								
16								
16S								
20								

Notch Shape

D	Unit Price Round Shape: ①EN 1.2510 Equiv. Hardened JPCQS	②Hard EN 1.2510 Equiv. GJPCQS	③EN 1.4301 Equiv. SJPCQS	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened JPCQD	②Hard EN 1.2510 Equiv. GJPCQD	③EN 1.4301 Equiv. SJPCQD
6						
8						
10						
12						
16						
20						

Set Screw Flat Shape

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

Ordering Example

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

Locating Pins - Small Flat Head

Press Fit

Spec.Change
Printed in Purple

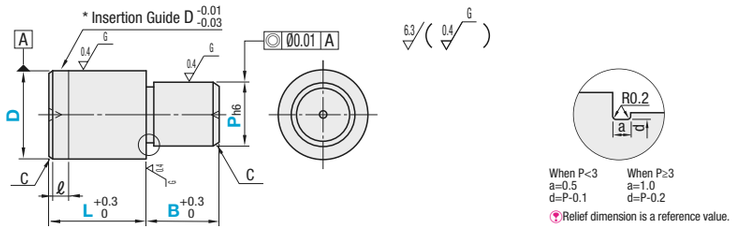
Features: Flat Head Type. Suitable if the mating side has limited space.

(Alteration CN)

RoHS

Material No.	Material	Surface Treatment	Hardness	Type			D Tolerance Code
				P Selectable	P Configurable	P, L, B Configurable	
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPDB	JPDS	FPDS	C (m6) PC (p6)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-	GJPDS	GFPDS	
③	EN 1.2510 Equiv.	-	-	-	-	BFPDS	
④	EN 1.4301 Equiv.*	-	-	SJPDB	SJPDS	SFPDS	
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	-	HJPDS	-	
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-	-	CFPDS	

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



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.

* The insertion guide is applicable to tolerance p6 only.
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 Dim. Tolerance Table

P	h6
1.50~3.00	0 -0.006
3.01~6.00	0 -0.008
6.01~10.00	0 -0.009
10.01~18.00	0 -0.011
18.01~20.00	0 -0.013

Ordering Example

Part Number	-	P	-	L	-	B
JPDSC4	-	2.55				
FPDSC4	-	P2.01	-	L6	-	B5.5

P Selectable

D	Unit Price	
	①EN 1.2510 Equiv. Hardened JPDBC JPDBPC	④EN 1.4301 Equiv. SJPDBC SJPDBPC
3		
4		
5		
6		
8		
10		
16		

P Selectable

Part Number: Type	D Tol.	D	D dim. Tolerance m6	D dim. Tolerance p6	P Selection	L	B	ℓ	C
JPDB SJPDB	C (m6) PC (p6)	3	+0.008 +0.002	+0.012 +0.006	2	5	3	1	0.1
		4	+0.012 +0.004	+0.020 +0.012	2 3				0.5
		5			2 3 4	8			
		6			3 4 5	10	4		
		8	+0.015 +0.006	+0.024 +0.015	4 5 6	12		2	1
		10			5 6 7 8	16	5		
		16	+0.018 +0.007	+0.029 +0.018	10 13	22	12		3

P Configurable

Part Number: Type	D Tol.	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L	B	ℓ	C
JPDS GJPDS SJPDS HJPDS	C (m6) PC (p6)	2	+0.008 +0.002	+0.012 +0.006	1.50~2.00	4	3	0	0.1
		3			1.50~3.00	5		1	
		4	+0.012 +0.004	+0.020 +0.012	2.00~4.00				0.5
		5			2.00~5.00	8			
		6			2.00~6.00	10	4		
		8	+0.015 +0.006	+0.024 +0.015	3.00~8.00	12		2	1
		10			3.00~10.00	16	5		
		12	+0.018 +0.007	+0.029 +0.018	5.00~12.00	20	6		1.5
		13			6.00~13.00	22	10		2
		16			10.00~16.00		12		3
		20	+0.021 +0.008	+0.035 +0.022	13.00~20.00	30	20		

P Configurable

D	Unit Price				
	①EN 1.2510 Equiv. Hardened JPDSC JPDSPC	②Hard EN 1.2510 Equiv. GJPDSC GJPDSPC	④EN 1.4301 Equiv. SJPDSC SJPDSPC	⑤Hard EN 1.4301 Equiv. HJPDSC HJPDSPC
2				
3				
4				
5				
6				
8				
10				
12				
13				
16				
20				

P, L, B Configurable

Part Number: Type	D Tol.	D	D dim. Tolerance m6	D dim. Tolerance p6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	ℓ	C
FPDS GFPDS BFPDS SFPDS CFPDS	C (m6) PC (p6)	2	+0.008 +0.002	+0.012 +0.006	1.50~2.00	2~4	3.0~10.0	0	0.1
		3			1.50~3.00	3~6	3.0~10.0	1	
		4	+0.012 +0.004	+0.020 +0.012	2.00~4.00	4~8	4.0~10.0		0.5
		5			2.00~5.00	5~10	4.0~10.0		
		6			2.00~6.00	6~12	4.0~12.0		
		8	+0.015 +0.006	+0.024 +0.015	3.00~8.00	8~16	6.0~15.0	2	1
		10			3.00~10.00	10~20	6.0~20.0		
		12	+0.018 +0.007	+0.029 +0.018	5.00~12.00	12~24	6.0~20.0		1.5
		13			6.00~13.00	13~26	6.0~20.0		2
		16			10.00~16.00	16~32	7.0~20.0		3
		20	+0.021 +0.008	+0.035 +0.022	13.00~20.00	20~40	7.0~20.0		

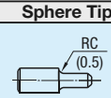
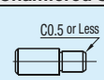
P, L, B Configurable

D	Unit Price				
	①EN 1.2510 Equiv. Hardened FPDSC FPDSPC	②Hard EN 1.2510 Equiv. GFPDSC GFPDSPC	③EN 1.2510 Equiv. BFPDSC BFPDSPC	④EN 1.4301 Equiv. SFPDSC SFPDSPC	⑥EN 1.4125 Equiv. CFPDSC CFPDSPC
2					
3					
4					
5					
6					
8					
10					
12					
13					
16					
20					

Alterations

Part Number	-	P	-	L	-	B	-	(RC, CN)
FPDSC4	-	P2.00	-	L6	-	B5.5	-	RC

Alterations are not available for P Selectable Type.

Alterations	Sphere Tip	C Chamfered Size
		
Code	RC	CN
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when D-P≥2.	Changes C Chamfering at P dimension part to 0.5 or less. Ordering Code CN Not applicable to D dimension part. Applicable when D≥8.

Locating Pins - Small Flat Head

Tapped

Spec.Change
Printed in Purple

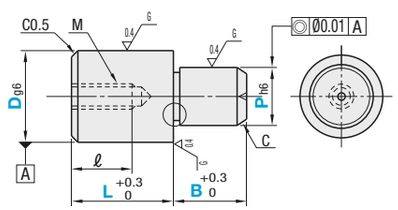
Features: Small Flat Head with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

(Alteration CN)

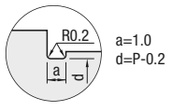
RoHS

Material No.	Material	Surface Treatment	Hardness	Type		
				P Selectable	P Configurable	P, L, B Configurable
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPDSTB	JPDSTC	FPDSTC
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-	-	GFPDSTC
④	EN 1.4301 Equiv.*	-	-	SJPDSTB	-	SFPDSTC
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-	CJPDSTC	CFPDSTC

* For P Selectable Type, it is EN 1.4301 Equiv. equivalent.



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



a=1.0
d=P-0.2

Relief dimension is a reference value.

P Dim. Tolerance Table

P	h6
4.00~6.00	0 -0.008
6.01~10.00	0 -0.009
10.01~18.00	0 -0.011
18.01~20.00	0 -0.013

P Selectable

Part Number Type	D	D dim. Tolerance g6	P Selection	L	B	M (Coarse)	* Tightening Torque N·cm	ℓ	C
JPDSTB SJPDSTB	6	-0.004 -0.012	4	10	3	M3	147	5	0.5
	8	-0.005 -0.014	6	12	4	M4	333	6	1
	10		8	16	5	M5	676	8	
	12	-0.006 -0.017	10	20	6				1.5
	16		10 14	24	10	M8	2803	12	3

P Configurable

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L	B	M (Coarse)	* Tightening Torque N·cm	ℓ	C
JPDSTC CJPDSTC	6	-0.004 -0.012	4.00~6.00	10	3	M3	147	5	0.5
	6T					M2.6	-	4	
	8	-0.005 -0.014	6.00~8.00	12	4	M4	333	6	1
	10		7.00~10.00	16	5	M5	676	8	
	12	-0.006 -0.017	7.00~12.00	20	6				1.5
	13		8.00~13.00	22	10	M8	2803	12	2
	16		10.00~16.00	24	10				3
	20	-0.007 -0.020	13.00~20.00	32	20				

P, L, B Configurable

Part Number Type	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M (Coarse)	* Tightening Torque N·cm	ℓ	C
FPDSTC GFPDSTC SFPDSTC CFPDSTC	6	-0.004 -0.012	4.00~6.00	8~12	2.0~12.0	M3	147	5	0.5
	6T					M2.6	-	4	
	8	-0.005 -0.014	6.00~8.00	11~16	2.0~15.0	M4	333	6	1
	10		7.00~10.00	11~20	3.0~20.0	M5	676	8	
	10T			8~16		M4	333	6	
	12	-0.006 -0.017	7.00~12.00	12~24	3.0~20.0	M5	676	8	1.5
	12T			8~18		M4	333	6	
	13		8.00~13.00	13~26	5.0~20.0	M8	2803	10	2
	13T			10~20		M6	1156	9	
	16		10.00~16.00	16~32	5.0~20.0	M8	2803	12	3
	16T			10~24		M6	1156	9	
	20	-0.007 -0.020	13.00~20.00	20~40	5.0~20.0	M8	2803	12	
	20T			12~30		M6	1156	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".)
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	-	P	-	L	-	B
JPDSTC6	-	4.00				
FPDSTC6	-	P4.00	-	L10	-	B5.5

P Selectable

D	Unit Price	
	①EN 1.2510 Equiv. Hardened JPDSTB	④EN 1.4301 Equiv. SJPDSTB
6		
8		
10		
12		
16		

P Configurable

D	Unit Price	
	①EN 1.2510 Equiv. Hardened JPDSTC	⑥EN 1.4125 Equiv. CJPDSTC
6		
6T		
8		
10		
12		
13		
16		
20		

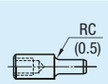
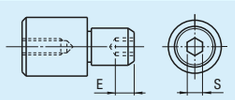
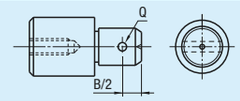
P, L, B Configurable

D	Unit Price			
	①EN 1.2510 Equiv. Hardened FPDSTC	②Hard EN 1.2510 Equiv. GFPDSTC	④EN 1.4301 Equiv. SFPDSTC	⑥EN 1.4125 Equiv. CFPDSTC
6				
6T				
8				
10				
10T				
12				
12T				
13				
13T				
16				
16T				
20				
20T				

Alterations

Part Number	-	P	-	L	-	B	-	(RC, CN, RAC, LAC)
FPDSTC6	-	P4.00	-	L10	-	B5.5	-	RC

⊗Alterations are not available for P Selectable Type.

Alterations	Sphere Tip	C Chamfered Size	Hex Socket Machining	Wrench Hole Machining
				
Code	RC	CN	RAC	LAC
Spec.	Changes the relief to R0.5. Ordering Code RC Applicable when D-P≥2. ⊗Combination with LAC is not available.	Changes C Chamfering at P dimension part to 0.5 or less. Ordering Code CN ⊗Not applicable to D dimension part. Applicable when D≥8.	Machines hex sockets. Ordering Code RAC D / Applicable Dimensions P / B / Hex Hole Dimensions E / S 8 / 7.00~ / 9.0~ / 2 / 3 10 10T / 8.00~ 12 12T / 11.00~ / 10.0~ / 2.5 / 4 13 13T / 14.00~ / 3 / 5 16 16T / 15.00~ / 4 / 6 20 20T Applicable when D≥8. Applicable to P, L, B Dimension Configurable Type only. ⊗Combination with LAC is not available.	Machines wrench holes. Ordering Code LAC D / Applicable Dimensions B / Wrench Hole Dimensions P / Q 8 / 8.0~ / 6.00~9.99 / 2 10 10T / 10.00~15.99 / 3.5 12 12T / 16.00~ / 5 13 13T / 9.0~ 16 16T 20 20T / 10.0~ Applicable when D≥8. Applicable to P, L, B Dimension Configurable Type only. ⊗Combination with RC and RAC is not available.

Locating Pins - Small Flat Head

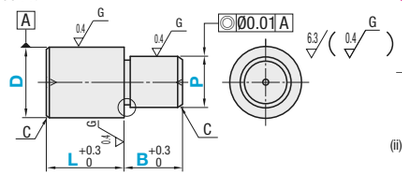
D and P Selectable Tolerance

Spec.Change
Printed in Purple

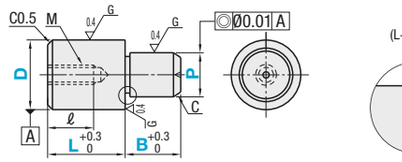
Features: Small Flat Head with each dimension configurable. Selectable tolerance on both ends.

Material No.	Material	Surface Treatment	Hardness	Type	
				Press Fit	Tapped
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFFSA	KFFSTA
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFFSA	GKFFSTA
③	EN 1.2510 Equiv.	-	-	BKFFSA	BKFFSTA
④	EN 1.4301 Equiv.	-	-	SKFFSA	SKFFSTA
⑤	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	HKFFSA	-
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFFSA	CKFFSTA

• Press Fit

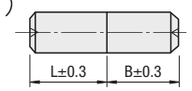


• Tapped

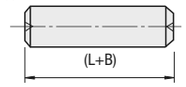


When D=P,
It does not have a relief.

(i) When D=P and tolerances are different



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



(L+B) is general tolerance.

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 1.4125 Equiv. has an identification groove at any position on D part.
Polished, centering hole is sometimes not available for EN 1.4301 Equiv.

Tolerance Selection

D or P	Standard Grade					Precision Grade	
	M	P	G	H	S	A	B
	m6	p6	g6	h7	-	-	-
1.50 ~ 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 ~ 30.00	+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 in Precision Grade Tolerance.

Press Fit

Part Number: Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C
KFFSA GKFFSA* BKFFSA SKFFSA HKFFSA* CKFFSA	M P G H *A *B	S M P G H *A *B	2	1.50~2.00	2~4	2.0~10.0	0.1
			3	1.50~3.00	3~6	2.0~10.0	
			4	2.00~4.00	4~8	2.0~10.0	0.5
			5	2.00~5.00	5~10	2.0~10.0	
			6	2.00~6.00	6~12	4.0~12.0	
			8	3.00~8.00	8~16	6.0~15.0	1
			10	3.00~10.00	10~20	6.0~20.0	
			12	5.00~12.00	12~24	6.0~20.0	1.5
			13	6.00~13.00	13~26	6.0~20.0	2
			16	10.00~16.00	16~32	7.0~20.0	3
			20	13.00~20.00	20~40	7.0~20.0	

Hard Chrome Plating products are not available in Precision Grade* (precision tolerance).

Tapped

Part Number: Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	M	*Tightening Torque N·cm	ℓ	C
KFFSTA GKFFSTA BKFFSTA SKFFSTA CKFFSTA	M P G H	S M P G H	6	4.00~6.00	8~12	4.0~12.0	M3	147	5	0.5
			6T				M2.6	-	4	
			8	6.00~8.00	11~16	6.0~15.0	M5	676	8	1
			8T				M4	333	6	
			10	7.00~10.00	11~20	6.0~20.0	M5	676	8	1.5
			12	7.00~12.00	12~24	6.0~20.0				
			13	8.00~13.00	13~26	6.0~20.0	M8	2803	10	2
			16	10.00~16.00	16~32	7.0~20.0			12	3
			20	13.00~20.00	20~40	7.0~20.0				

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		D Tol.		P Tolerance	D		P		L		B
KFFSA		G		S	10	-	P8.00	-	L10	-	B8.0

Precision Grade Price
When A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation
KFFSAAA10-P8.00-L13-B15.1

Press Fit

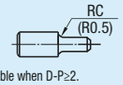
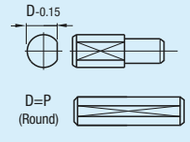
D	Unit Price Standard Grade					
	①EN 1.2510 Equiv. Hardened KFFSA	②Hard EN 1.2510 Equiv. GKFFSA	③EN 1.2510 Equiv. BKFFSA	④EN 1.4301 Equiv. SKFFSA	⑤Hard EN 1.4301 Equiv. HKFFSA	⑥EN 1.4125 Equiv. CKFFSA
2						
3						
4						
5						
6						
8						
10						
12						
13						
16						
20						

Tapped

D	Unit Price Standard Grade				
	①EN 1.2510 Equiv. Hardened KFFSTA	②Hard EN 1.2510 Equiv. GKFFSTA	③EN 1.2510 Equiv. BKFFSTA	④EN 1.4301 Equiv. SKFFSTA	⑥EN 1.4125 Equiv. CKFFSTA
6					
6T					
8					
8T					
10					
12					
13					
16					
20					

Alterations

Part Number		P		L		B		(GDC, RC, AC, CN)
KFFSAGS10	-	P8.00	-	L10	-	B8.0	-	RC

Alterations Code	Insertion Guide GDC	Stem R Alteration RC	Air Vent AC	C Chamfered Size CN
Spec.	Adds the insertion guide. Ordering Code GDC 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 	Changes C Chamfering at P dimension part to 0.5 or less. Ordering Code CN Standard D≥4 Tapped D≥8 Not applicable to D dimension part.

Locating Pins - Small Head, Round Tapered

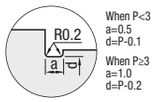
Spec.Change Printed in Purple

Features: R on the joint area makes it easier to insert/extract compared to the tapered type.

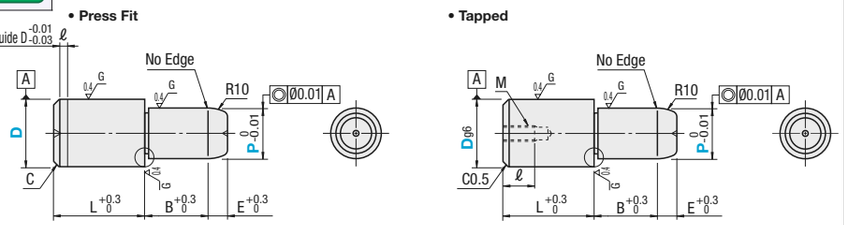
(Buff Finished)

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit (m6)	Type: Press Fit (p6)	Type: Tapped
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPRSB	JPRSPB	JPRSTB
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPRSB	GJPRSPB	-
③	EN 1.4301 Equiv.	-	-	SJPRSB	SJPRSPB	SJPRSTB
④	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPRSB	CJPRSPB	-



Relief dimension is a reference value.



* The insertion guide is applicable to tolerance m6 and p6 type only.
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.

Press Fit

Part Number: Type	Part Number: D	D dim. Tolerance: m6	D dim. Tolerance: p6	P Selection	L	B	C	ℓ	E	Unit Price: ① JPRSB JPRSPB	② GJPRSB GJPRSPB	③ SJPRSB SJPRSPB	④ CJPRSB CJPRSPB
m6	p6	3	0.01	0	2 3	5	3	0.5	1	3					
		4	0.02	0	2 3 4										
		5			2 3 4 5	10	5	1							
		6			3 4 5 6					4					
JPRSB GJPRSB SJPRSB CJPRSB	JPRSPB GJPRSPB SJPRSPB CJPRSPB	8	0.02	0	4 5 6 8	15	6	1.5		5					
		10			6 8 10		8	2							
		12	0.03	0	8 10 12				2	6					
		13			12 13	22									
		16			12 13 14 15 16		10	3		7					
		20	0.03	0.1	15 16 20	30									

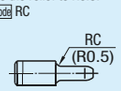
Tapped

Part Number: Type	Part Number: D	D dim. Tolerance g6	P Selection	L	B	E	M (Coarse)	* Tightening Torque N·cm	ℓ	Unit Price: ① JPRSTB	③ SJPRSTB
JPRSTB SJPRSTB	6	-0.016	4 5 6	10	5	5	M3	147	5		
	6T		4 5 6				M2.6	-	4		
	8	-0.019	6 8	15	6		M4	333	6		
	8T		6 8				M3	147	5		
	10		8 10				M5	676	8		
	12	-0.023	8 10 12		8	6					
	13		12 13	22			M8	2803	12		
	16		12 13 14 15 16		10	7					
	20	-0.027	15 16 20	30							

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 (JPRSB) D (10) - P (6)

Alterations: Part Number (JPRSB10) - P (6) - (RC)

Alterations	Sphere Tip
Code	RC
Spec.	Changes the relief to R0.5. Ordering Code RC  Applicable when D-P≥2.

Locating Pins - Small Head, Round Tapered

D and P Tolerance, Taper R Selectable

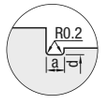
Spec.Change Printed in Purple

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

(Buff Finished)

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFPSA	KFPST
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFPSA	GKFPST
③	EN 1.4301 Equiv.	-	-	SKFPSA	SKFPST
④	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFPSA	CKFPST
⑤	EN 1.2510 Equiv.	Buffing	Treated Hardness: 60 ~ 63HRC	MKFPSA	MKFPST
⑥	EN 1.2510 Equiv.	Hard Chrome Plating + Buffed Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	MGKFPSA	-
⑦	EN 1.4125 Equiv.	Buffing	Treated Hardness: 50 ~ 55HRC	MCKFPSA	-

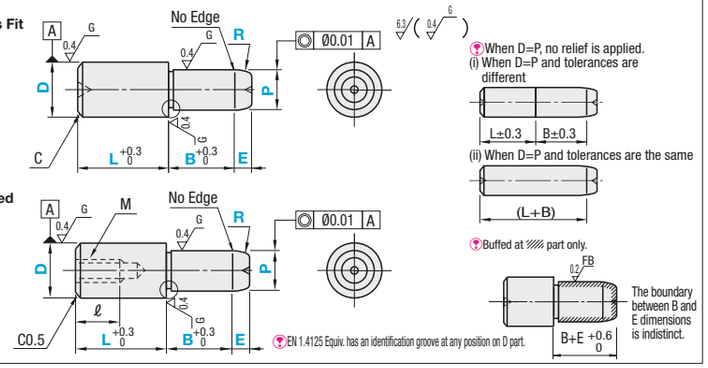


Relief dimension is a reference value.

Tolerance Selection

D or P	Standard Grade M: m6	P: p6	G: g6	H: h7	S	Precision Grade A	B
2.00 ~ 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 ~ 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 and buffed products are not available for Precision Grade Tolerance.



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

Press Fit

Part Number: Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.5mm Increment	E 0.5mm Increment	R Selection	C	Unit Price: ① KFPSA	② GKFPSA	③ SKFPSA	④ CKFPSA	⑤ MKFPSA	⑥ MGKFPSA	⑦ MCKFPSA
KFPSA GKFPSA * SKFPSA CKFPSA (Buff Finished) MKFPSA * MGKFPSA * MCKFPSA *	M P G H *A *B	S M P G H *A *B	3	2.00~3.00	3~8	2.0~10.0	1.0~15.0	5 10 15 20 25 30	0.5					-	-	-
			4	2.00~4.00	4~12	2.0~10.0			1					-	-	-
			5	2.00~5.00	5~12	2.0~10.0										
			6	2.00~6.00	5~12	3.0~12.0										
			8	3.00~8.00	8~15	3.0~14.0			1.5							
			10	3.00~10.00	8~15	3.0~16.0			2							
			12	5.00~12.00	10~18	3.0~18.0										
			13	6.00~13.00	12~20	3.0~20.0										
			16	10.00~16.00	14~25	3.0~20.0			3							
			20	13.00~20.00	18~32	3.0~20.0										

Applicable when D≥5 and P≥5.
Configurable range depends on P dimension. Confirm "Details of E Dimension and R Dimension Range" in the table.
Hard Chrome Plating and buffed products are not available for * marked Precision Grade Tolerance.

Precision Grade Price When A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation: KFPSAAB10-P8.00-L8-B3.0-E3.0-R10

Tapped

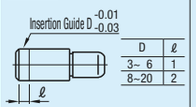
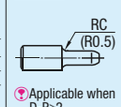
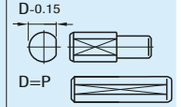
Part Number: Type	D Tol. Selection	P Tolerance Selection	D	P 0.01mm Increment	L 1mm Increment	B 0.5mm Increment	E 0.5mm Increment	R Selection	M (Coarse)	* Tightening Torque N·cm	ℓ	Unit Price: ① KFPST	② GKFPST	③ SKFPST	④ CKFPST	⑤ MKFPST
KFPST GKFPST SKFPST CKFPST (Buff Finished) MKFPST	M P G H	S M P G H	6	4.00~6.00	8~12	3.0~12.0	1.0~15.0	5 10 15 20 25 30	M3	147	5					
			6T						M2.6	-	4					
			8	6.00~8.00	11~16	3.0~14.0			M5	676	8					
			8T						M4	333	6					
			10	7.00~10.00	11~20	3.0~16.0			M5	676	8					
			10T		8~16				M4	333	6					
			12	7.00~12.00	12~24	3.0~18.0			M5	676	8					
			12T		8~18				M4	333	6					
			13	8.00~13.00	13~26	3.0~20.0			M8	2803	10					
			13T		10~20				M6	1156	9					
			16	10.00~16.00	16~32	3.0~20.0			M8	2803	12					
			16T		10~24				M6	1156	9					
			20	13.00~20.00	20~40	3.0~20.0			M8	2803	12					
			20T		12~30				M6	1156	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".)
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.

Precision Grade PriceWhen A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation: KFPSAAB10-P8.00-L8-B3.0-E3.0-R10

Ordering Example: Part Number = Type (MKFPSA) D Tol. (M) P Tolerance (S) D (16) - P (P12.00) - L (L14) - B (B4.0) - E (E5.0) - R (R15)

Alterations: Part Number (KFPSAMA12) - P (P7.00) - L (L10) - B (B3.0) - E (E3.0) - R (R10) - (GDC, RC, AC) (RC)

Alterations	Insertion Guide	Sphere Tip	Air Vent
Code	GDC	RC	AC
Spec.	Adds the insertion guide. Ordering Code GDC  D: 3~6 ℓ=1; 8~20 ℓ=2	Changes the relief to R0.5. Ordering Code RC  Applicable when D-P≥2	Adds an air vent. Ordering Code AC 

Details of E and R Dimension Range

P 0.01mm Increment	E 0.5mm Increment	R Selection
2.00~4.00	1.0~2.0	5 10
4.01~8.00	2.5~4.0	10 15
8.01~12.00	4.5~7.0	10 15 20
12.01~16.00	5.0~10.0	15 20 25
16.01~20.00	5.0~15.0	20 25 30

Locating Pins
Plastic, Small Head

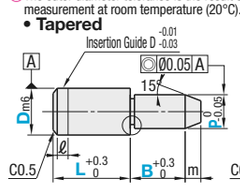
Features: Plastic Locating Pins which prevent workpiece damages.

Type		Head Shape	Material	Operating Ambient Temperature
P Configurable	P, L, B Configurable			
JPZS	FJPZS	A (Tapered) FA (Flat) Q (Sphere)	Polyacetal (Black)	-45~ 95°C
MJPZS	MFPZS		MC Nylon (Blue)	-40~120°C
DJPZS	DFPZS		Conductive MC Nylon CDR2 (Black)	-40~120°C
JKPZS	FKPZS		PEEK (Natural Ivory)	-50~250°C

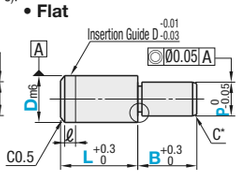
- Some combinations are not available. Refer to the price list to select the available combination.
- The outer diameter tolerance is the result of measurement at room temperature (20°C).
- Characteristics of Polyacetal, MC Nylon, Conductive MC Nylon, PEEK P953, 954 (For Polyacetal and MC Nylon, refer to Standard Grade.)

6.3

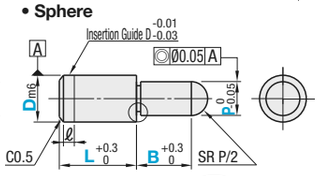
• Tapered



• Flat



• Sphere



P	C*
1.00~2.50	0.3
2.51~4.00	0.5
4.01~10.00	1

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

■P Configurable

Part Number Type	Head Shape Selection	D	D dim. Tolerance m6	P 0.01mm Increment	L	B
JPZS MJPZS DJPZS JKPZS	A (Tapered) Q (Sphere)	2	+0.008 +0.002	1.00~2.00	4	2
		3		1.00~3.00	5	3
		4	+0.012 +0.004	2.00~4.00		
		5		2.00~5.00	10	5
		6		2.00~6.00		
		8	+0.018 +0.007	3.00~8.00	15	6
		10		3.00~10.00		8

■P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment
FJPZS MFPZS DFPZS FKPZS	A (Tapered) FA (Flat) Q (Sphere)	2	+0.008 +0.002	1.00~2.00	2~4	2.0~10.0
		3		1.00~3.00	3~6	2.0~10.0
		4	+0.012 +0.004	2.00~4.00	4~8	2.0~10.0
		5		2.00~5.00	5~10	2.0~10.0
		6		2.00~6.00	6~12	2.0~12.0
		8	+0.018 +0.007	3.00~8.00	8~16	2.0~15.0
		10		3.00~10.00	10~20	3.0~20.0

D	m	ℓ
2	0.5	0
3		
4	1	1
5	2	
6		
8	3	
10		

Ordering Example

Part Number	-	P	-	L	-	B
MFPZSQ6	-	P5.50	-	L10	-	B5.0

■P Configurable

D	Unit Price							
	Tapered				Sphere			
	JPZSA	MJPZSA	DJPZSA	JKPZSA	JPZSQ	MJPZSQ	DJPZSQ	JKPZSQ
2					-			-
3					-			-
4					-			-
5					-			-
6					-			-
8					-			-
10					-			-

■P, L, B Configurable

D	Unit Price											
	Tapered				Flat				Sphere			
	FJPZSA	MFPZSA	DFPZSA	FKPZSA	FJPZSFA	MFPZSFA	DFPZSFA	FKPZSFA	FJPZSQ	MFPZSQ	DFPZSQ	FKPZSQ
2												
3												
4												
5												
6												
8												
10												

Pusher Pins
Straight / Small Head

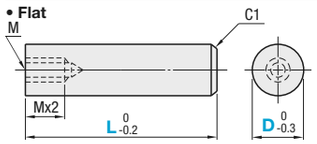
Features: Plastic pin used as the Workpiece Holder.

■Straight

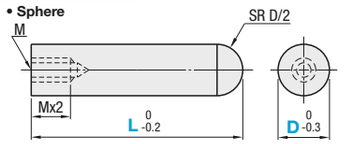
Type				Material	Operating Ambient Temperature
Flat	Sphere	Taper R	Tapered		
PPFJ	PPRJ	PPQJ	PPTJ	Polyacetal (White)	-45~95°C
PEPFJ	PEPRJ	PEPQJ	PEPTJ	PEEK (Natural Ivory)	-50~250°C
PMPFJ	PMPRJ	PMPQJ	-	Conductive MC Nylon CDR2 (Black)	-40~120°C

Characteristics of Polyacetal, PEEK, Conductive MC Nylon P953, 954

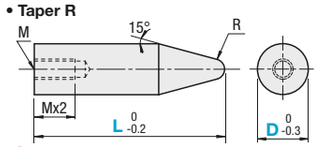
• Flat



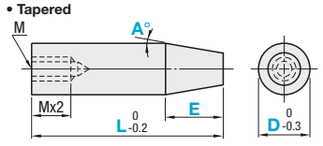
• Sphere



• Taper R



• Tapered



25

- When L<20, the thread length is Mx1.5.
- D-2EtanA≥1.0 (Tip dia. Ø1.0 or more)

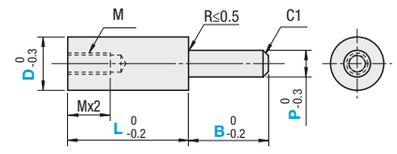
Part Number Type	D	L 0.5mm Increment Flat, Sphere	L 0.5mm Increment Taper R	M (Coarse)	R
Flat PPFJ PEPFJ PMPFJ / Sphere PPRJ PEPRJ PMPRJ / Taper R PPQJ PEPQJ PMPQJ	6	10.0~100.0	14.0~100.0	3	1
	8	12.0~100.0	18.0~100.0	4	1.5
	10	13.0~100.0	20.0~100.0		2
	12	16.0~100.0	26.0~100.0	5	
	15	19.0~100.0	34.0~100.0	6	
	20	20.0~100.0	40.0~100.0		3
	25		50.0~100.0		

Part Number Type	D	L 0.5mm Increment	E 0.5mm Increment	A 1° Increment	M (Coarse)
Tapered PPTJ PEPTJ	6	14.0~100.0	5.0≤E≤40 and E≤L-Mx3	1~45	3
	8	18.0~100.0			4
	10	20.0~100.0			
	12				5
	15				
	20				6
	25				

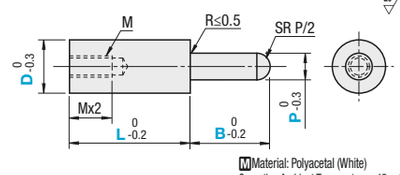
D	Unit Price																					
	L10.0~59.5										L60.0~100.0											
	PPFJ	PPRJ	PPQJ	PPTJ	PEPFJ	PEPRJ	PEPQJ	PEPTJ	PMPFJ	PMPRJ	PMPQJ	PPFJ	PPRJ	PPQJ	PPTJ	PEPFJ	PEPRJ	PEPQJ	PEPTJ	PMPFJ	PMPRJ	PMPQJ
6																						
8																						
10																						
12																						
15																						
20																						
25																						

■Small Head

PPFS (Flat)



PPRS (Sphere)



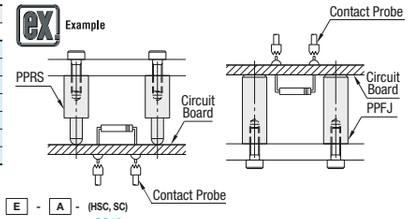
25

- When L<20, the thread length is Mx1.5.

Material: Polyacetal (White)
Operating Ambient Temperature: -45 ~ 95°C

Part Number Type	D	P 0.5mm Increment	L 0.5mm Increment	B 0.5mm Increment	M (Coarse)	Unit Price L10.0~59.5	Unit Price L60.0~100.0
PPFS (Flat)	6	3.0~6.0	10.0~100.0	3.0~20.0 B≥P/2+1	3		
	8	4.0~8.0	11.0~100.0		4		
	10	5.0~10.0					
	12	6.0~12.0	13.0~100.0		5		
PPRS (Sphere)	15	8.0~15.0			6		
	20	10.0~20.0	14.0~100.0				
	25	13.0~25.0					

Example



Ordering Example

■Straight

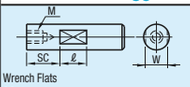
Part Number	-	L	-	E	-	A
PPFJ10	-	40.0				
PPTJ12	-	40.0	-	E10	-	A5

■Small Head

Part Number	-	P	-	L	-	B
PPFS6	-	P3.0	-	L50.5	-	B10.5

Alterations

Part Number	-	L	-	E	-	A	-	(HSC, SC)
PPFJ10	-	40.0					-	SC15

Alterations	Threaded Insert	Wrench Flats
Code	HSC	SC
Spec.	Adds threaded insert to M part. Ordering Code HSC D6 :M3 D8~10 :M4 D12 :M5 D15~25 :M6	 Wrench Flats SC: 1mm increment SC+ℓ+D/2≤L SC>Mx3 Ordering Code SC15

D	W	ℓ
6	5	8
8	7	
10	8	
12	10	10
15	13	
20	17	
25	22	

Locating Pins - Straight, Tapered

Press Fit / Tapped

Spec.Change Printed in Purple

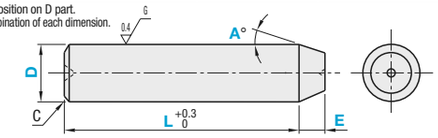
Features: We made the shorter lead time and lower cost possible by narrowing down the tolerance and dimensions.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type	
				Press Fit	Tapped
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	LPSTA	LPSTTA
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GLPSTA	GLPSTTA
③	EN 1.2510 Equiv.	-	-	BLPSTA	-
④	EN 1.4301 Equiv.	-	-	SLPSTA	SLPSTTA
⑤	EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HLPSTA	HLPSTTA
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CLPSTA	-

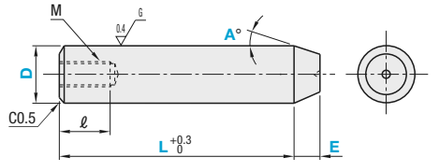
EN 1.4125 Equiv. has an identification groove at any position on D part.
It may not come with the center hole depending on the combination of each dimension.

• Press Fit



6.3 (0.4 G)

• Tapped



Tolerance Selection

D	Standard Grade			
	M	P	G	H
	m6	p6	g6	h7
1~3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010
4~6	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012
8, 10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015

D-2EtanA≥0.73 (Tip Diameter Ø0.73 or more)
Reference: tan15°≈0.267 tan30°≈0.577 tan45°≈1 tan60°≈1.732

Press Fit

Part Number Type	D Tol.	D	L 0.1mm Increment	E 0.1mm Increment	A Selection	C	Unit Price ①EN 1.2510 Equiv. Hardened LPSTA	②Hard EN 1.2510 Equiv. GLPSTA	③EN 1.2510 Equiv. BLPSTA	④EN 1.4301 Equiv. SLPSTA	⑤Hard EN 1.4301 Equiv. HLPSTA	⑥EN 1.4125 Equiv. CLPSTA
LPSTA GLPSTA BLPSTA SLPSTA HLPSTA CLPSTA	M (m6) P (p6) G (g6) H (h7)	1	3.0~10.0	0.5~10.0	15 30 45 60	0.1						
		2	3.0~20.0			0.5						
		3										
		4				1						
		5	5.0~30.0									
		6										
		8	5.0~40.0			1.5						
		10				2						

Tapped

Part Number Type	D Tol.	D	L 0.1mm Increment	E 0.1mm Increment	A Selection	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price ①EN 1.2510 Equiv. Hardened LPSTTA	②Hard EN 1.2510 Equiv. GLPSTTA	④EN 1.4301 Equiv. SLPSTTA	⑤Hard EN 1.4301 Equiv. HLPSTTA
LPSTTA GLPSTTA SLPSTTA HLPSTTA	M (m6) P (p6) G (g6) H (h7)	5	10.0~30.0	0.5~10.0	15 30 45 60	M2	-	3				
		6				M3	147	5				
		8	15.0~40.0			M5	676	8				
		10										

* 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.

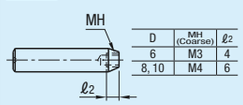
Ordering Example

Part Number Type	D Tol.	D	L	E	A
LPSTA	M	6	L14.0	E2.5	A30
GLPSTTA	G	8	L29.3	E8.3	A15

Alterations

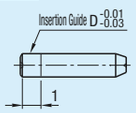
Part Number - L - E - A - (MH, GDC, AC···etc.)
LPSTAP6 - L18.5 - E4.0 - A45 - AC

Alterations	Tapping	Insertion Guide	Air Vent	Dual Tolerance
Code	MH	GDC	AC	DKM / DKP / DKG / DKH
Spec.	Adds a tapped hole. Ordering Code MH	Adds the insertion guide. Ordering Code GDC	Adds an air vent. Ordering Code AC	Changes outer diameter tolerance by ℓ1 distance. Ordering Code DKM18 (When changing ℓ1=18 to m6.)

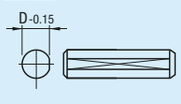


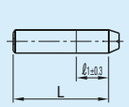
D	MH (Coarse)	ℓ2
6	M3	4
8, 10	M4	6

D-2EtanA≥M+2
Applicable when D≥6 L+E≥ℓ2+8
Not applicable to Tapped.



Not applicable when D≤2





2≤ℓ1<L
No relief groove.

D	Tolerance Code			
	DKM	DKP	DKG	DKH
	m6	p6	g6	h7
1~3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010
4~6	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012
8, 10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015

Locating Pins - Straight, Sphere

Press Fit / Tapped

Spec.Change Printed in Purple

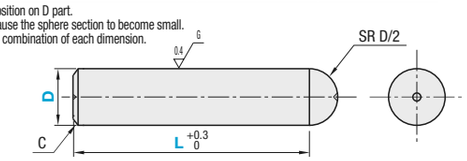
Features: The Sphere Head can prevent the mating side from being scratched. Selectable tolerance with each dimension configurable.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type	
				Press Fit	Tapped
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	LPSQA	LPSQTA
②	EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GLPSQA	GLPSQTA
③	EN 1.2510 Equiv.	-	-	BLPSQA	BLPSQTA
④	EN 1.4301 Equiv.	-	-	SLPSQA	SLPSQTA
⑤	EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HLPSQA	HLPSQTA
⑥	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CLPSQA	CLPSQTA

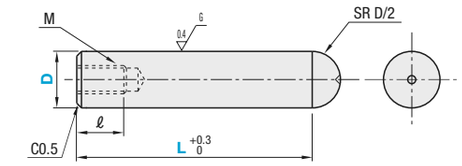
EN 1.4125 Equiv. has an identification groove at any position on D part.
When the D dimension is small, a centering hole will cause the sphere section to become small.
It may not come with the center hole depending on the combination of each dimension.

• Press Fit



6.3 (0.4 G)

• Tapped



Tolerance Selection

D	Standard Grade			
	M	P	G	H
	m6	p6	g6	h7
1~3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010
4~6	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012
8, 10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015

Press Fit

Part Number Type	D Tol.	D	L 0.1mm Increment	C	Unit Price ①EN 1.2510 Equiv. Hardened LPSQA	②Harda EN 1.2510 Equiv. GLPSQA	③EN 1.2510 Equiv. BLPSQA	④EN 1.4301 Equiv. SLPSQA	⑤Hard EN 1.4301 Equiv. HLPSQA	⑥EN 1.4125 Equiv. CLPSQA
LPSQA GLPSQA BLPSQA SLPSQA HLPSQA CLPSQA	M (m6) P (p6) G (g6) H (h7)	1	3.0~10.0	0.1						
		2	3.0~20.0	0.5						
		3								
		4		1						
		5	5.0~30.0							
		6								
		8	5.0~40.0	1.5						
		10		2						

Tapped

Part Number Type	D Tol.	D	L 0.1mm Increment	M (Coarse)	*Tightening Torque N·cm	ℓ	Unit Price ①EN 1.2510 Equiv. Hardened LPSQTA	②Hard EN 1.2510 Equiv. GLPSQTA	③EN 1.2510 Equiv. BLPSQTA	④EN 1.4301 Equiv. SLPSQTA	⑤Hard EN 1.4301 Equiv. HLPSQTA	⑥EN 1.4125 Equiv. CLPSQTA
LPSQTA GLPSQTA BLPSQTA SLPSQTA HLPSQTA CLPSQTA	M (m6) P (p6) G (g6) H (h7)	5	10.0~30.0	M2	-	3						
		6		M3	147	5						
		8	15.0~40.0	M5	676	8						
		10										

* 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.

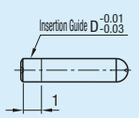
Ordering Example

Part Number Type	Tolerance	D	L
LPSQA	M	6	L14.0
BLPSQTA	G	8	L29.3

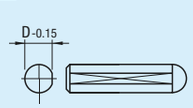
Alterations

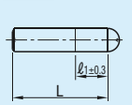
Part Number - L - (GDC, AC···etc.)
LPSQAP6 - L18.5 - AC

Alterations	Insertion Guide	Air Vent	Dual Tolerance
Code	GDC	AC	DKM/DKP/DKG/DKH
Spec.	Adds the insertion guide. Ordering Code GDC	Adds an air vent. Ordering Code AC	Changes outer diameter tolerance by ℓ1 distance. Ordering Code DKM18 (When changing ℓ1=18 to m6.)



Not applicable when D≤2





2≤ℓ1<L
No relief groove.

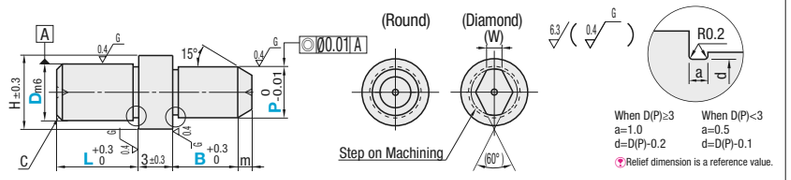
D	Tolerance Code			
	DKM	DKP	DKG	DKH
	m6	p6	g6	h7
1~3	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010
4~6	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0 -0.012
8, 10	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015

Locating Pins - Shouldered
Tapered Press Fit

Features: Shouldered Standard Tapered Head. You can adjust the height of the locating target.

RoHS

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape Code	P Configurable Type	P Configurable Shape Code	P, L, B Configurable Type	P, L, B Configurable Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	JB (Round) DJ (Diamond)	JP	JA (Round)	FP	JA (Round) JD (Diamond)
③	EN 1.4301 Equiv.	-	-	SJP		-		SFP	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-		-		CFP	



A machining step remains on the shoulder top for Diamond Shape.

Relief dimension is a reference value.

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

P Selectable

Part Number Type	Shape	D	D dim. Tolerance m6	P Selection	L	B	C	m	H	(W)	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPJB	Unit Price Round Shape ③EN 1.4301 Equiv. SJPJB	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPDJ	Unit Price Diamond Shape ③EN 1.4301 Equiv. SJPDJ
JP SJP	JB (Round) DJ (Diamond) Applicable when D≥3.	2	+0.008 +0.002	1 2	4	2	0.5	0.5	6	-			-	-
		3		2 3 4	5	3	1	1		1.0				
		4	+0.012 +0.004	2 3 4 5						1.2				
		5		3 4 5 6	10	5		2	8	1.5				
		6		4 5 6						1.8				
		8	+0.015 +0.006	5 6 8	15	6	1.5	3	11	2.2				
		10		8 10		8	2		13	3				
		12	+0.018 +0.007	8 10 12					15	3.2				
		13		8 10 12 13	22			4	16	3.5				
		16		13 14 15 16		10	3		19	4				
		20	+0.021 +0.008	16 20	30			5	23	5.5				

P Configurable

Part Number Type	Shape	D	D dim. Tolerance m6	P 0.01mm Increment	L	B	C	m	H	(W)	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPJA
JP	JA (Round)	2	+0.008 +0.002	1.00~2.00	4	2	0.5	0.5	6	-	
		3		2.00~4.00	5	3	1	1		1.0	
		4	+0.012 +0.004	2.00~5.00						1.2	
		5		3.00~6.00	10	5	1	2	8	1.5	
		6		4.00~7.00						1.8	
		8	+0.015 +0.006	5.00~9.00	15	6	1.5	3	11	2.2	
		10		7.00~11.00		8	2		13	3	
		12	+0.018 +0.007	7.00~12.00					15	3.2	
		13		8.00~13.00	22			4	16	3.5	
		16		13.00~16.00		10	3		19	4	
		20	+0.021 +0.008	16.00~20.00	30			5	23	5.5	

P, L, B Configurable

Part Number Type	Shape	D	D dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	C	m	H	(W)	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPJA	Unit Price Round Shape ③EN 1.4301 Equiv. SFPJA	Unit Price Round Shape ⑤EN 1.4125 Equiv. CFPJA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPJD	Unit Price Diamond Shape ③EN 1.4301 Equiv. SFPJD	Unit Price Diamond Shape ⑤EN 1.4125 Equiv. CFPJD
FP SFP CFP	JA (Round) JD (Diamond) Applicable when D≥3.	2	+0.008 +0.002	1.00~2.00	2~4	2.0~10.0	0.5	0.5	6	-				-	-	-
		3		2.00~4.00	3~6	2.0~10.0		1		1.0						
		4	+0.012 +0.004	2.00~5.00	4~8	2.0~10.0	1			1.2						
		5		3.00~6.00	5~10	2.0~10.0		2	8	1.5						
		6		4.00~7.00	6~12	2.0~12.0				1.8						
		8	+0.015 +0.006	5.00~9.00	8~16	2.0~15.0	1.5	3	11	2.2						
		10		7.00~11.00	10~20	3.0~20.0	2		13	3						
		12	+0.018 +0.007	7.00~12.00	12~24	3.0~20.0		4	15	3.2						
		13		8.00~13.00	13~26	5.0~20.0			16	3.5						
		16		13.00~16.00	16~32	5.0~20.0	3		19	4						
		20	+0.021 +0.008	16.00~20.00	20~40	5.0~20.0		5	23	5.5						

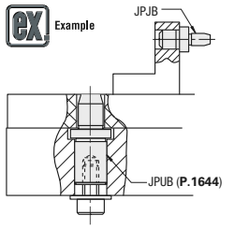
Ordering Example

Part Number	Type	Shape	D	-	P	-	L	-	B
JP JB 6 - 4									
JP JA 8 - 5.04									
FP JD 12 - P11.97 - L12 - B5.5									

Alterations

Part Number	-	P	-	L	-	B	-	(HC, TC, RC)
FPJA6	-	P4.01	-	L8	-	B3.5	-	HC7.0

Alterations	Wrench Flats Alteration	Length of Tapered Point	Sphere Tip
Code	HC	TC	RC
Spec.	HC -0.1 (0) HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the m dimension. Ordering Code TC8 (1mm increment) B+m≥TC+2 (Straight Section min. 2mm) Applicable when P≥2.00. 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)	Changes the relief to R0.5. Ordering Code RC When H-P≥2



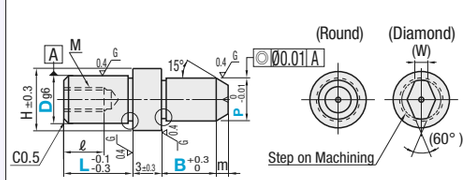
Locating Pins - Shouldered
Tapered, Tapped

Spec.Change Printed in Purple

Features: Shouldered with the shape designed to be mounted from back using bolts. Improved maintainability compared to the press fit type.

RoHS

Material No.	Material	Surface Treatment	Hardness	P Selectable Type	P Selectable Shape	P Configurable Type	P Configurable Shape	P, L, B Configurable Type	P, L, B Configurable Shape
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JP	UB (Round) DU (Diamond)	JP	UA (Round) UD (Diamond)	FP	UA (Round) UD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	-		-		GFP	
③	EN 1.4301 Equiv.	-	-	SJP		-		SFP	



A machining step remains on the shoulder top for Diamond Shape.

Relief dimension is a reference value.

D	Tolerance g6	m	H	(W)	L	M (Coarse)	Tightening Torque N·cm
5	-0.004 -0.012	2	8	1.5	3	M2	-
6				1.8	5	M3	147
6T					4	M2.6	-
8	-0.005 -0.014	3	11	2.2	8	M5	676
8T					6	M4	333
10			13	3	8	M5	676
10T					6	M4	333
12			15	3.2	8	M5	676
12T					6	M4	333
13	-0.006 -0.017	4	16	3.5	10	M8	2803
13T					9	M6	1156
16			19	4	12	M8	2803
16T					9	M6	1156
20	-0.007 -0.020	5	23	5.5	12	M8	2803
20T					9	M6	1156

*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.

P Selectable

Part Number Type	Shape	D	P Selection	L	B	Unit Price Round Shape ①EN 1.2510 Spin Hardened JPUB	Unit Price Round Shape ③EN 1.4301 Equiv. SJPUB	Unit Price Diamond Shape ①EN 1.2510 Spin Hardened JPDU	Unit Price Diamond Shape ③EN 1.4301 Equiv. SJPDU
JP SJP	UB (Round) DU (Diamond)	5	3 4 5 6	10	5				-
		6	4 5 6						
		6T							
		8	5 6 8	15	6				
		8T							
		10	8 10		8				
		12	8 10 12						
		13	8 10 12 13	22					
		16	13 14 15 16		10				
		20	16 20	30					

P Configurable

Part Number Type	Shape	D	P 0.01mm Increment	L	B	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened JPUA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened JPUD
JP	UA (Round) UD (Diamond)	5	3.00~6.00	10	5		
		6	4.00~7.00				
		6T					
		8	5.00~9.00	15	6		
		8T					
		10	7.00~11.00		8		
		12	7.00~12.00				
		13	8.00~13.00	22			
		16	13.00~16.00		10		
		20	16.00~20.00	30			

P, L, B Configurable

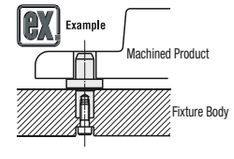
Part Number Type	Shape	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	Unit Price Round Shape ①EN 1.2510 Equiv. Hardened FPUA	Unit Price Round Shape ②Hard EN 1.2510 Equiv. GFPUA	Unit Price Round Shape ③EN 1.4301 Equiv. SFPUA	Unit Price Diamond Shape ①EN 1.2510 Equiv. Hardened FPUD	Unit Price Diamond Shape ②Hard EN 1.2510 Equiv. GFPUD	Unit Price Diamond Shape ③EN 1.4301 Equiv. SFPUD
FP GFP SFP	UA (Round) UD (Diamond)	5	3.00~6.00	5~10	2.0~10.0						
		6	4.00~7.00	6(9)~12							
		6T									
		8	5.00~9.00	8(12)~16	2.0~12.0						
		8T									
		10	7.00~11.00	10(12)~20	2.0~15.0						
		10T		8(12)~16							
		12	7.00~12.00	12~24	3.0~20.0						
		12T		8(12)~18							
		13	8.00~13.00	13(14)~26	3.0~20.0						
		13T		10(14)~20							
		16	13.00~16.00	16~32	5.0~20.0						
		16T		10(14)~24							
		20	16.00~20.00	20~40	5.0~20.0						
		20T		12(18)~30							

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 dimension in ( ) is applicable to Diamond Shape. Notes on the strength of under-head part. ☞ P.1566 Please confirm pilot hole depth on ☞ P.1566. Holes may go through.

Ordering Example

Part Number	-	P	-	L	-	B
JPUB8	-	6				
JPUA6	-	4.02				
FPUA6	-	P4.01	-	L8	-	B3.5



Alterations

Part Number	-	P	-	L	-	B	-	(HC, TC, RC, RAC, LAC)
FPUA6	-	P4.01	-	L8	-	B3.5	-	HC7.0

⊗Alterations are not available for P Selectable Type.

Alterations	Wrench Flats Alteration	Length of Tapered Point	Sphere Tip	Hex Socket Machining	Wrench Hole Machining
Code	HC	TC	RC	RAC	LAC
Spec.	HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the m dimension. Ordering Code TC8 (1mm increment) B+m≥TC+2 (Straight Part 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) ⊗Combination with RAC and LAC is not available.	Changes the relief to R0.5. Ordering Code RC When H-P≥2 ⊗Combination with LAC is not available.	Machines hex sockets. Ordering Code RAC Applicable to P, L, B Dimension Configurable Type only. Round Shape is applicable to D≥8, and Diamond Shape to D≥10. When D=8, it is applicable to P≥6. ⊗Combination with TC and LAC is not available	Machines wrench holes. Ordering Code LAC Round Shape is applicable to D≥8 and P≥6, and Diamond Shape to D≥10 and P≥8. Orientation between Diamond Shape Head and Wrench Hole is arbitrary. ⊗Combination with TC, RC, RAC is not available.

D	Applicable Dimensions Internal Thread P	Internal Thread L	Internal Thread B	Threaded P	Threaded B	Hex Hole Dimensions E	Hex Hole Dimensions S
8 8T	6.00~	13~	6.0~	6.50~	3.5~	2	3
10 10T	7.00~	13~		7.00~			
12 12T	7.00~	13~		7.00~			
13 13T	9.00~	15~		-	-	2.5	4
16 16T	13.00~	17~		13.00~	4.5~	3	5
20 20T	16.00~	20~		16.00~	6.0~	4	6

D	Applicable Dimensions B	P	Q
8 8T	5.0~	6.00~9.99	2
10 10T		10.00~16.99	3.5
12 12T		17.00~	5
13 13T			
16 16T			
20 20T	10.0~		

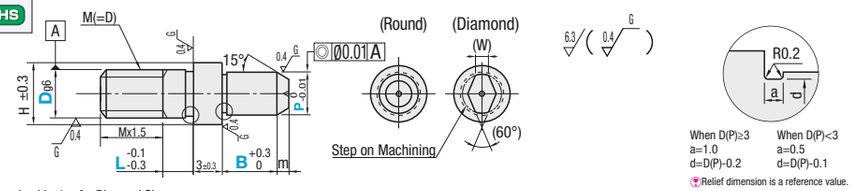
Locating Pins - Shouldered
Tapered, Threaded

Spec.Change Printed in Purple

Features: Shouldered, Press Fit + Lock Nut Type. Improved maintainability compared to the press fit type.

RoHS

Material No.	Material	Surface Treatment	Hardness	P Configurable		P, L, B Configurable	
				Round	Diamond	Round	Diamond
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPTNA	JPTND	FPTNA	FPTND
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GJPTNA	GJPTND	GFPTNA	GFPTND



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.

A machining step remains on the shoulder top for Diamond Shape.

P Configurable

Part Number Type	D	D Tolerance g6	P 0.01mm Increment	L	B	m	H	(W)	M (Coarse)	* Tightening Torque N·cm	Unit Price ① EN 1.2510 Equiv. Hardened JPTNA	Round Shape ② Hard EN 1.2510 Equiv. GJPTNA	Unit Price ① EN 1.2510 Equiv. Hardened JPTND	Diamond Shape ② Hard EN 1.2510 Equiv. GJPTND
(Round) JPTNA GJPTNA (Diamond) JPTND GJPTND	3	-0.002 -0.008	2.00~4.00	2	5	1	6	1	M 3	147				
	4	-0.004 -0.012	2.00~5.00	3	6	2	8	1.2	M 4	333				
	5		3.00~6.00					1.5	M 5	676				
	6		4.00~7.00		8			1.8	M 6	1156				
	8	-0.005	5.00~9.00	5		3	11	2.2	M 8	2803				
	10	-0.014	7.00~11.00		10		13	3	M10	5557				
	12	-0.006	7.00~12.00	8		4	15	3.2	M12	9702				
	16	-0.017	13.00~16.00				19	4	M16	24108				
	20	-0.007 -0.020	16.00~20.00	10	15	5	23	5.5	M20	46942				

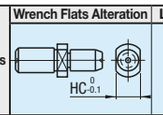
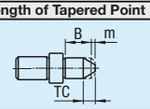
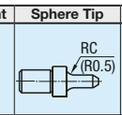
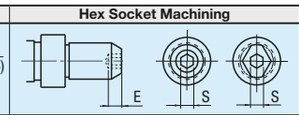
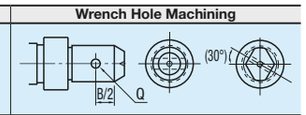
P, L, B Configurable

Part Number Type	D	D Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	m	H	(W)	M (Coarse)	* Tightening Torque N·cm	Unit Price ① EN 1.2510 Equiv. Hardened FPTNA	Round Shape ② Hard EN 1.2510 Equiv. GFPTNA	Unit Price ① EN 1.2510 Equiv. Hardened FPTND	Diamond Shape ② Hard EN 1.2510 Equiv. GFPTND
(Round) FPTNA GFPTNA (Diamond) FPTND GFPTND	3	-0.002 -0.008	2.00~4.00	2~6	2.0~10.0	1	6	1	M 3	147				
	4	-0.004 -0.012	2.00~5.00	2~8	2.0~10.0	2	8	1.2	M 4	333				
	5		3.00~6.00	3~10	2.0~10.0			1.5	M 5	676				
	6		4.00~7.00	3~10	2.0~12.0			1.8	M 6	1156				
	8	-0.005	5.00~9.00	5~10	2.0~15.0	3	11	2.2	M 8	2803				
	10	-0.014	7.00~11.00	5~15	3.0~20.0		13	3	M10	5557				
	12	-0.006	7.00~12.00	8~15	3.0~20.0		15	3.2	M12	9702				
	16	-0.017	13.00~16.00	8~20	5.0~20.0	4	19	4	M16	24108				
	20	-0.007 -0.020	16.00~20.00	10~20	5.0~20.0	5	23	5.5	M20	46942				

* 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
JPTNA8 - 6.00
FPTNA6 - P4.01 - L8 - B3.5

Alterations: Part Number - P - L - B - (HC, TC, RC, RAC, LAC)
FPTNA6 - P4.01 - L8 - B3.5 - HC7.0

Alterations	Wrench Flats Alteration	Length of Tapered Point	Sphere Tip	Hex Socket Machining	Wrench Hole Machining
					
Code	HC	TC	RC	RAC	LAC
Spec.	HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the m dimension. Ordering Code TC8 (1mm increment) D: 6, 8, 10, 12 — TC: 3~11, 4~14, 4~18, 4~20 D: 13, 16, 20 — TC: 5~22, 6~23 B+m≥TC+2 (Straight Part 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) Combination with RAC and LAC is not available.	Changes the relief to R0.5. Ordering Code RC When H-P≥2 Combination with LAC is not available.	Machines hex sockets. Ordering Code RAC D: 8 8T, 10 10T, 12 12T, 13 13T, 16 16T, 20 20T Applicable Dimensions — Internal Thread P: 6.00~, 7.00~, 7.00~, 9.00~, 13.00~, 16.00~ — L: 13~, 13~, 13~, 15~, 17~, 20~ — B: 6.0~ Threaded P: 6.50~, 7.00~, 7.00~, -, 13.00~, 16.00~ — B: 3.5~, -, 4.5~, 6.0~ Hex Hole Dimensions E: 2, 2.5, 3, 4 — S: 3, 4, 5, 6 Applicable to P, L, B Dimension Configurable Type only. Round Shape is applicable to D≥8, and Diamond Shape to D≥10. When D=8, it is applicable to P≥6. Combination with TC and LAC is not available	Machines wrench holes. Ordering Code LAC D: 8 8T, 10 10T, 12 12T, 13 13T, 16 16T, 20 20T — Applicable Dimensions B: 5.0~, 10.0~ P: 6.00~9.99: Q=2; 10.00~16.99: Q=3.5; 17.00~: Q=5 Round Shape is applicable to D≥8 and P≥6, and Diamond Shape to D≥10 and P≥8. Orientation between Diamond Shape Head and Wrench Hole is arbitrary. Combination with TC, RC, RAC is not available.

Locating Pins - Shouldered
Taper Angle, D and P Selectable Tolerance

Spec.Change Printed in Purple

Features: Shouldered with each dimension configurable.

RoHS

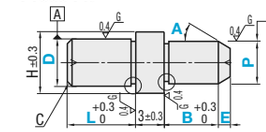
Material No.	Material	Surface Treatment	Hardness	Type		
				Press Fit	Tapped	Threaded
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	KFHA	KFHTA	KFHNA
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GKFHA	GKFHTA	GKFHNA
③	EN 1.4301 Equiv.	-	-	SKFHA	SKFHTA	SKFHNA
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CKFHA	CKFHTA	CKFHNA

Tolerance Selection

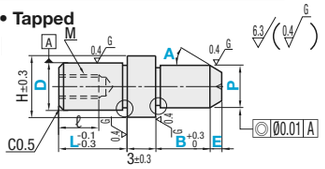
D or P	Standard Grade M	P	G	H	S	Precision Grade A	B
	m6	p6	g6	h7	-	-	-
1.00 ~ 3.00	+0.008 +0.002	+0.012 +0.006	-0.002 -0.008	0 -0.010			
3.01 ~ 6.00	+0.012 +0.004	+0.020 +0.012	-0.004 -0.012	0			
6.01 ~ 10.00	+0.015 +0.006	+0.024 +0.015	-0.005 -0.014	0 -0.015	0 -0.01	+0.005 0	0 -0.005
10.01 ~ 18.00	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	0 -0.018			
18.01 ~ 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.)
EN 1.4125 Equiv. has an identification groove at any position on D part.

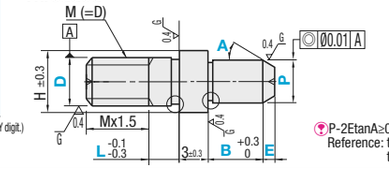
• Press Fit



• Tapped



• Threaded



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.

P-2EtanA≥0.73 (Tip dia. Ø0.73 or more)
Reference: tan15°≈0.267, tan30°≈0.577, tan45°=1, tan60°≈1.732

Press Fit

Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	C	H	Unit Price ① KFHA	② GKFHA	③ SKFHA	⑤ CKFHA
KFHA GKFHA* SKFHA CKFHA	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	0.5	6				
			3	2.00~3.00	3~6	2.0~10.0								
			4	2.00~5.00	4~8	2.0~10.0			1	8				
			5	3.00~6.00	5~10	2.0~10.0								
			6	4.00~7.00	6~12	2.0~12.0								
			8	5.00~9.00	8~16	2.0~15.0			1.5	11				
			10	7.00~11.00	10~20	3.0~20.0			2	13				
			12	7.00~12.00	12~24	3.0~20.0				15				
			13	8.00~13.00	13~26	5.0~20.0				16				
			16	13.00~16.00	16~32	5.0~20.0			3	19				
			20	16.00~20.00	20~40	5.0~20.0				23				

Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B).

Tapped

Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	H	M (Coarse)	* Tightening Torque N·cm	ℓ	Unit Price ① KFHTA	② GKFHTA	③ SKFHTA	⑤ CKFHTA
KFHTA GKFHTA SKFHTA CKFHTA	M P G H	S M P G H	6	4.00~7.00	6~12	2.0~10.0	0.5~10.0	15 30 45 60	8	M3	147	5				
			6T							M2.6	-	4				
			8	5.00~9.00	8~16	2.0~12.0			11	M5	676	8				
			8T							M4	333	6				
			10	7.00~11.00	10~20	2.0~15.0			13	M5	676	8				
			12	7.00~12.00	12~24	3.0~20.0			15							
			13	8.00~13.00	13~26	3.0~20.0			16			10				
			16	13.00~16.00	16~32	5.0~20.0			19	M8	2803	12				
			20	16.00~20.00	20~40	5.0~20.0			23							

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.

Threaded

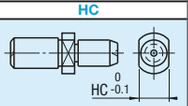
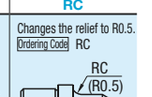
Part Number Type	D Tolerance	P Tolerance	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	A Selection	H	M (Coarse)	* Tightening Torque N·cm	Unit Price ① KFHNA	② GKFHNA	③ SKFHNA	⑤ CKFHNA
KFHNA GKFHNA* SKFHNA CKFHNA	M P G H ·A ·B	S M P G H ·A ·B	3	2.00~4.00	2~6	2.0~10.0	0.5~10.0	15 30 45 60	6	M 3	147				
			4	2.00~5.00	2~8	2.0~10.0				M 4	333				
			5	3.00~6.00	3~10	2.0~10.0			8	M 5	676				
			6	4.00~7.00	3~10	2.0~12.0				M 6	1156				
			8	5.00~9.00	5~10	2.0~15.0			11	M 8	2803				
			10	7.00~11.00	5~15	3.0~20.0			13	M10	5557				
			12	7.00~12.00	8~15	3.0~20.0			15	M12	9702				
			16	13.00~16.00	8~20	5.0~20.0			19	M16	24108				
			20	16.00~20.00	10~20	5.0~20.0			23	M20	46942				

Hard Chrome Plating products are not available for * marked Precision Grade (Precision Grade A and B).
* 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.

Precision Grade Price
When A, B tolerance is selected, multiply by 1.1 to the above unit price.
Example of Price Calculation: KFHNAAB16-P13.97-L12-B5.5

Alterations: Part Number - P - L - B - E - A - (HC, RC)
KFHAMS6 - P6.00 - L6 - B3.0 - E5.0 - A30 - RC

Ordering Example: Part Number — Type - D Tol. - P Tolerance - D - P - L - B - E - A
KFHA - M - S - 6 - P6.00 - L6 - B3.0 - E5.0 - A30

Alterations	Wrench Flats Alteration	Sphere Tip
Code	HC	RC
Spec.	 HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the relief to R0.5. Ordering Code RC  Applicable when H-P≥2.

Locating Pins - Shouldered

Tapered, Shoulder Thickness Configurable

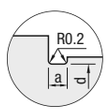
Spec.Change Printed in Purple

Features: Shoulder thickness of the Shouldered Type configurable at 0.5 mm increment.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped	Type: Threaded	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FPJ	FPU	FPN	AT (Round) DT (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GFPJ	GFPU	GFPN	
③	EN 1.4301 Equiv.	-	-	SFPJ	SFPU	SFPN	
④	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HFPJ (Round only)	-	HFPN	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFPJ	CFPU	CFPN	

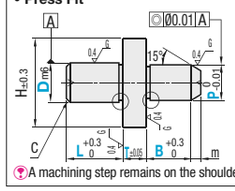
EN 1.4125 Equiv. has an identification groove on D part.



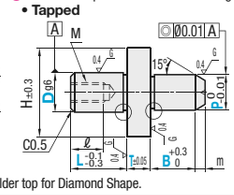
When D(P)≥3: a=1.0, d=D(P)-0.2
When D(P)<3: a=0.5, d=D(P)-0.1

Relief dimension is a reference value.

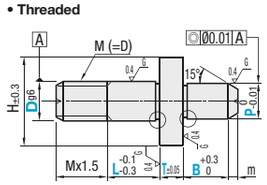
• Press Fit

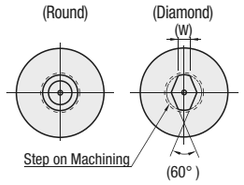


• Tapped



• Threaded





6.3 (0.4 6)

A machining step remains on the shoulder top for Diamond Shape.

Press Fit

Part Number: Type	Shape	D	D dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.5mm Increment	H	C	m	(W)	Unit Price Round Shape: ① FPJAT	② GFPJAT	③ SFPJAT	④ HFPJAT	⑤ CFPJAT	Unit Price Diamond Shape: ① FPJDT	② GFPJDT	③ SFPJDT	④ HFPJDT	⑤ CFPJDT
FPJ GFPJ SFPJ HFPJ CFPJ	AT (Round) DT (Diamond)	2	+0.008 +0.002	1.00~2.00	2~4	2.0~10.0	1.0~10.0	7	0.5	0.5	-						-	-	-	-	-
		3		2.00~4.00	3~6	2.0~10.0		8		1	1.0									-	
		4		2.00~5.00	4~8	2.0~10.0		9			1.2									-	
		5	+0.012 +0.004	3.00~6.00	5~10	2.0~10.0		10	1	2	1.5									-	
		6		4.00~7.00	6~12	2.0~12.0		11			1.8									-	
		8	+0.015 +0.006	5.00~9.00	8~16	2.0~15.0		13	1.5	3	2.2									-	
		10		7.00~11.00	10~20	3.0~20.0		15	2		3									-	
		12	+0.018 +0.007	7.00~12.00	12~24	3.0~20.0		17			3.2									-	
		13		8.00~13.00	13~26	5.0~20.0		18		4	3.5									-	
		16		13.00~16.00	16~32	5.0~20.0		21	3		4									-	
		20	+0.021 +0.008	16.00~20.00	20~40	5.0~20.0		25		5	5.5									-	

Tapped

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.5mm Increment	H	m	(W)	M Coarse	*Tightening N·cm	ℓ	Unit Price Round Shape: ① FPUAT	② GFPUAT	③ SFPUAT	④ HFPUAT	⑤ CFPUAT	Unit Price Diamond Shape: ① FPUDT	② GFPUDT	③ SFPUDT	④ HFPUDT	⑤ CFPUDT
FPU GFPU SFPU HFPU CFPU	AT (Round) DT (Diamond)	5	-0.004 -0.012	3.00~ 6.00	7~10	2.0~10.0	1.0~10.0	10	2	1.5	M2	-	3				-					-	
		6		4.00~ 7.00	6(9)~12			11		1.8	M3	147	5				-					-	
		8	-0.005 -0.014	5.00~ 9.00	8(12)~16	2.0~12.0		13	3	2.2							-					-	
		10		7.00~11.00	10(12)~20	2.0~15.0		15		3	M5	676	8				-					-	
		12	-0.006 -0.017	7.00~12.00	12~24	3.0~20.0		17		3.2							-					-	
		13		8.00~13.00	13(14)~26	3.0~20.0		18	4	3.5							-					-	
		16		13.00~16.00	16~32	5.0~20.0		21		4	M8	2803	10				-					-	
		20	-0.007 -0.028	16.00~20.00	20~40	5.0~20.0		25	5	5.5			12				-					-	

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.
* 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.

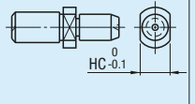
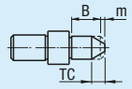
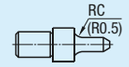
Threaded

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.5mm Increment	H	m	(W)	*Tightening N·cm	Unit Price Round Shape: ① FPNAT	② GFPNAT	③ SFPNAT	④ HFPNAT	⑤ CFPNAT	Unit Price Diamond Shape: ① FPNDT	② GFPNDT	③ SFPNDT	④ HFPNDT	⑤ CFPNDT
FPN GFPN SFPN HFPN CFPN	AT (Round) DT (Diamond)	3	-0.002 -0.008	2.00~4.00	2~6	2.0~10.0	1.0~10.0	8	1	1.0	147										
		4	-0.004 -0.012	2.00~5.00	2~8	2.0~10.0		9		1.2	333										
		5		3.00~6.00	3~10	2.0~10.0		10	2	1.5	676										
		6		4.00~7.00	3~10	2.0~12.0		11		1.8	1156										
		8	-0.005	5.00~9.00	5~10	2.0~15.0		13		2.2	2803										
		10	-0.014	7.00~11.00	5~15	3.0~20.0		15	3	3	5557										
		12	-0.006	7.00~12.00	8~15	3.0~20.0		17		3.2	9702										
		16	-0.017	13.00~16.00	8~20	5.0~20.0		21	4	4	24108										
		20	-0.007 -0.028	16.00~20.00	10~20	5.0~20.0		25	5	5.5	46942										

* 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) - P - L - B - T
FPJ AT 10 - P8.03 - L10 - B4.0 - T5.0

Alterations: Part Number - P - L - B - T - (HC, TC, RC, TKC)
FPJAT8 - P5.03 - L9 - B6.3 - T8.5 - RC

Alterations Code	Wrench Flats Alteration HC	Length of Tapered Point TC	Sphere Tip RC	Shoulder Thickness Tolerance TKC
Spec.	 HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the m dimension. Ordering Code TC8 (1mm increment)  D TC: 2 1; 3 2~5; 4 2~7; 5 3~9 — D TC: 6 3~11; 8 4~14; 10 4~18; 12 4~20 — D TC: 13 5~22; 16 5~22; 20 6~23 B+m≥TC+2 (Straight Section min. 2mm) Applicable when P≥2.00. 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)	Changes the relief to R0.5. Ordering Code RC  Applicable when H-P≥2.	T is Shoulder Thickness Tolerance: ±0.05 +0.02 0 Ordering Code TKC

Locating Pins - Shouldered

Tapered - Shoulder Diameter and Thickness Configurable

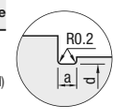
Spec.Change Printed in Purple

Features: You can specify the Shoulder thickness at 0.1 mm increment and the Shoulder diameter at 0.5 mm increment for the Shouldered type.

RoHS

Material No.	Material	Surface Treatment	Hardness	Type: Press Fit	Type: Tapped	Type: Threaded	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FPJ	FPU	FPN	ATD (Round) DTD (Diamond)
②	EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GFPJ	GFPU	GFPN	
③	EN 1.4301 Equiv.	-	-	SFPJ	SFPU	SFPN	
④	EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HFPJ	HFPU	HFPN	
⑤	EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFPJ	CFPU	CFPN	

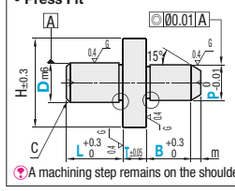
EN 1.4125 Equiv. has an identification groove on D part.



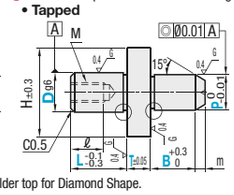
When D(P)≥3: a=1.0, d=D(P)-0.2
When D(P)<3: a=0.5, d=D(P)-0.1

Relief dimension is a reference value.

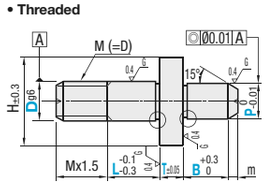
• Press Fit

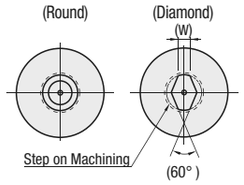


• Tapped



• Threaded





6.3 (0.4 6)

A machining step remains on the shoulder top for Diamond Shape.

Press Fit

Part Number: Type	Shape	D	D dim. Tolerance m6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.1mm Increment	H 0.5mm Increment	C	m	(W)	Unit Price Round Shape: ① FPJATD	② GFPJATD	③ SFPJATD	④ CFPJATD	Unit Price Diamond Shape: ① FPJDTD	② GFPJDTD	③ SFPJDTD	④ CFPJDTD
FPJ GFPJ SFPJ CFPJ	ATD (Round) DTD (Diamond)	2	+0.008 +0.002	1.00~2.00	2~4	2.0~10.0	1.0~15.0	5.0~10.0	0.5	0.5	-					-	-	-	-
		3		2.00~4.00	3~6	2.0~10.0		6.0~12.0		1	1.0								
		4		2.00~5.00	4~8	2.0~10.0		7.0~13.0			1.2								
		5	+0.012 +0.004	3.00~6.00	5~10	2.0~10.0		8.0~14.0	1	2	1.5								
		6		4.00~7.00	6~12	2.0~12.0		9.0~15.0			1.8								
		8	+0.015 +0.006	5.00~9.00	8~16	2.0~15.0		11.0~17.0	1.5	3	2.2								
		10		7.00~11.00	10~20	3.0~20.0		13.0~19.0	2		3								
		12	+0.018 +0.007	7.00~12.00	12~24	3.0~20.0		13.0~20.0			3.2								
		13		8.00~13.00	13~26	5.0~20.0		15.0~21.0		4	3.5								
		16		13.00~16.00	16~32	5.0~20.0		18.0~24.0	3		4								
		20	+0.021 +0.008	16.00~20.00	20~40	5.0~20.0		21.0~27.0		5	5.5								

Tapped

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.1mm Increment	H 0.5mm Increment	m	(W)	M Coarse	*Tightening Torque N·cm	ℓ	Unit Price Round Shape: ① FPUATD	② GFPUATD	③ SFPUATD	④ HFPUATD	⑤ CFPUATD	Unit Price Diamond Shape: ① FPUDTD	② GFPUDTD	③ SFPUDTD	④ HFPUDTD	⑤ CFPUDTD
FPU GFPU SFPU HFPU CFPU	ATD (Round) DTD (Diamond)	5	-0.004 -0.012	3.00~ 6.00	7~10	2.0~10.0	1.0~15.0	8.0~14.0	2	1.5	M2	-	3									-
		6		4.00~ 7.00	6(9)~12			9.0~15.0		1.8	M3	147	5									
		8	-0.005	5.00~ 9.00	8(12)~16	2.0~12.0		11.0~17.0		2.2												
		10	-0.014	7.00~11.00	10(12)~20	2.0~15.0		13.0~19.0	3	3	M5	676	8									
		12	-0.006 -0.017	7.00~12.00	12~24	3.0~20.0		13.0~20.0		3.2												
		13		8.00~13.00	13(14)~26	3.0~20.0		15.0~21.0	4	3.5			10									
		16		13.00~16.00	16~32	5.0~20.0		18.0~24.0		4	M8	2803	12									
		20	-0.007 -0.028	16.00~20.00	20~40	5.0~20.0		21.0~27.0	5	5.5												

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.
* 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.

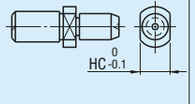
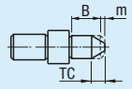
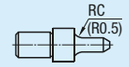
Threaded

Part Number: Type	Shape	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	T 0.1mm Increment	H 0.5mm Increment	m	(W)	*Tightening N·cm	Unit Price Round Shape: ① FPNATD	② GFPNATD	③ SFPNATD	④ HFPNATD	⑤ CFPNATD	Unit Price Diamond Shape: ① FPNDTD	② GFPNDTD	③ SFPNDTD	④ HFPNDTD	⑤ CFPNDTD
FPN GFPN SFPN HFPN CFPN	ATD (Round) DTD (Diamond)	3	-0.002 -0.008	2.00~4.00	2~6	2.0~10.0	1.0~15.0	6.0~12.0	1	1.0	147										
		4	-0.004 -0.012	2.00~5.00	2~8	2.0~10.0		7.0~13.0		1.2	333										
		5		3.00~6.00	3~10	2.0~10.0		8.0~14.0	2	1.5	676										
		6		4.00~7.00	3~10	2.0~12.0		9.0~15.0		1.8	1156										
		8	-0.005	5.00~9.00	5~10	2.0~15.0		11.0~17.0		2.2	2803										
		10	-0.014	7.00~11.00	5~15	3.0~20.0		13.0~19.0	3	3	5557										
		12	-0.006	7.00~12.00	8~15	3.0~20.0		13.0~20.0		3.2	9702										
		16	-0.017	13.00~16.00	8~20	5.0~20.0		18.0~24.0	4	4	24108										
		20	-0.007 -0.028	16.00~20.00	10~20	5.0~20.0		21.0~27.0	5	5.5	46942										

* 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) - P - L - B - T - H
FPU ATD 12 - P9.98 - L15 - B5.5 - T12 - H13

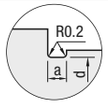
Alterations: Part Number - P - L - B - T - H - (HC, TC, RC, TKC)
GFPJATD12 - P8.50 - L20 - B10.0 - T13.0 - H16.0 - RC

Alterations Code	Wrench Flats Alteration HC	Length of Tapered Point TC	Sphere Tip RC	Shoulder Thickness Tolerance TKC
Spec.	 HC=0.5mm Increment HC>D HC>P Ordering Code HC10.0	Changes the m dimension. Ordering Code TC8 (1mm increment)  D TC: 2 1; 3 2~5; 4 2~7; 5 3~9 — D TC: 6 3~11; 8 4~14; 10 4~18; 12 4~20 — D TC: 13 5~22; 16 5~22; 20 6~23 B+m≥TC+2 (Straight Section min. 2mm) Applicable when P≥2.00. 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)	Changes the relief to R0.5. Ordering Code RC  Applicable when H-P≥2.	T is Shoulder Thickness Tolerance: ±0.05 +0.02 0 Ordering Code TKC

Locating Pins - Shouldered
Set Screw

Features: Shouldered Set Screws. Selectable from Circumference Groove/Notched/Set Screw Flat Shape.

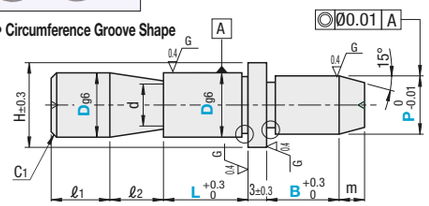
Material No.	M Material	S Surface Treatment	H Hardness	Type: Circumference Groove	Type: Notched	Type: Set Screw Flat	Shape Code
①	EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPGJ	JPCJ	JPDJ	S (Round) D (Diamond)



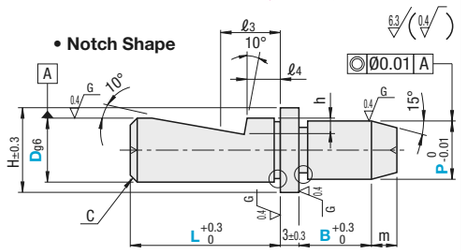
When D(P)≥3 a=1.0 d=D(P)-0.2
When D(P)<3 a=0.5 d=D(P)-0.1

Relief dimension is a reference value.

• Circumference Groove Shape

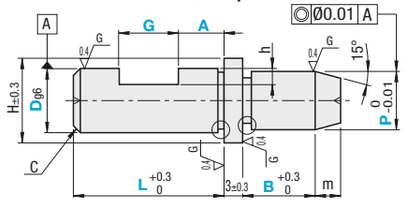


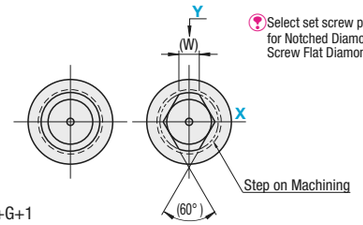
• Notch Shape



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

• Set Screw Flat Shape





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

A machining step remains on the shoulder top for Diamond Shape.

L>A+G+1

Circumference Groove Shape

Part Number: Type	Shape Code	D	D dim. Tolerance g6	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	d	ℓ1	ℓ2	C1	m	H	(W): When D<P	(W): When D≥P
JPGJ	S (Round) D (Diamond)	6	-0.004 -0.012	2.00~6.00	3~12	2.0~20.0	4.5	5	5	1	3	8	3	1.5
		6S			2~12			2		0.5				
		8	-0.005 -0.014	3.00~8.00	4~16		6.5	6	6	1.5		11	3.5	1.8
		8S			3~16			3		0.5				
		10		3.00~10.00	5~20	3.0~20.0	8	8	8	2	4	13	4	2.2
		10S			4~20			3		0.5				
		12	-0.006 -0.017	5.00~12.00	6~24		10	8		2		15	5	2.5
		12S			5~24			4		0.5				
		16		10.00~16.00	8~32	5.0~20.0	14	8		3	5	19	7	4
		16S			7~32			4		0.5				
		20	-0.007 -0.020	13.00~20.00	10~40		18	8		3		23	9	5

Pins of D dimension with S are for space-saving with shorter mounting parts (L and ℓ1).

Notch Shape, Set Screw Flat Shape

Part Number: Type		Shape Code	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	H	Applicable Set Screw	*Tightening Torque N·cm	(W): When D<P	(W): When D≥P
(Notched) JPCJ	(Set Screw Flat) JPDJ	S (Round) D (Diamond)	6	-0.004 -0.012	5.00~7.00	12~20	5.0~20.0	3~9	2.0~8.0	X Y (Diamond Applicable to Shape only)	5.5	2.5	1	1	3	8	M4	333	3	1.5
			8	-0.005 -0.014	5.00~9.00	14~22			2.0~12.0		7.5	3.5	1.2	1.5	4	11	M5	676	3.5	1.8
			10		5.00~11.00	15~25			2.0~16.0					2		13	M6	1156	4	2.2
			12	-0.006 -0.017	5.00~12.00	15~25			2.0~20.0							15			5	2.5
			16		10.00~16.00	24~35			2.0~28.0		10.5	5.5	2	3	5	19	M8	2803	7	4
			20	-0.007 -0.020	13.00~20.00	27~40			2.0~36.0		13.5	8.5				23			9	5

Applicable set screws in the table are the recommended sizes for Notch 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
JPGJS10	-	P9.05	-	L6	-	B3.5						
JPCJD8	-	P5.05	-	L20	-	B10.1	-	G5	-	A8.2	-	X

Circumference Groove Shape

D	Unit Price Round Shape: ①EN 1.2510 Equiv. Hardened JPGJS	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened JPGJD
6		
6S		
8		
8S		
10		
10S		
12		
12S		
16		
16S		
20		

Notch Shape

D	Unit Price Round Shape: ①EN 1.2510 Equiv. Hardened JPCJS	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened JPCJD
6		
8		
10		
12		
16		
20		

Set Screw Flat Shape

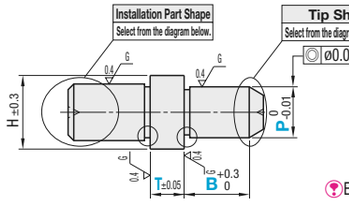
D	Unit Price Round Shape: ①EN 1.2510 Equiv. Hardened JPDJS	Unit Price Diamond Shape: ①EN 1.2510 Equiv. Hardened JPDJD
6		
8		
10		
12		
16		
20		

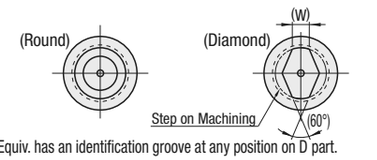
Locating Pins - Shouldered
Tip Shape Selectable

Spec.Change Printed in Purple

Features: The tip shape and the fixed shape of the Shouldered type are selectable from three types respectively.

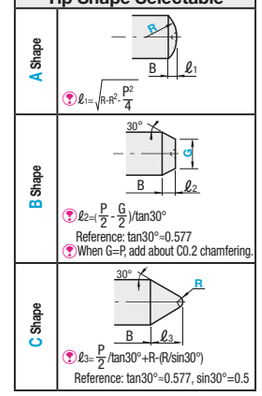
M Material	S Surface Treatment	H Hardness	Type	Mounting Shape	Material Code
①EN 1.2510 Equiv.	-	Treated Hardness: 55 ~ 60HRC	LP (Round) LPD (Diamond)	M (Press Fit) U (Tapped) X (Threaded)	J
②EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~			G
③EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC or more			Y
④EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC or more			B
⑤EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~			R
⑥EN 1.4301 Equiv.	-	-			S
⑦EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~			D
⑧EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC			C





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

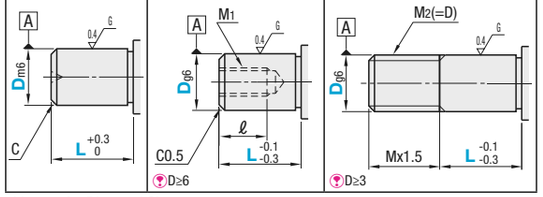
Tip Shape Selectable



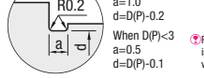
D	C	H	(W)	M1 Coarse	*Tightening Torque M·cm	ℓ
2	0.5	7	-	-	-	-
3		8	1			
4		9	1.2			
5	1	10	1.5			
6		11	1.8	M3	147	5
8	1.5	13	2.2			
10	2	15	3	M5	676	8
12		17	3.2			
16	3	21	4	M8	2803	12
20		25	5.5			

*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.

Mounting Shape Selection



A machining step remains on the shoulder top for Diamond Shape.



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.

Part Number: Type	Mounting Shape	Material Code	Tip Shape	D	P 0.01mm Increment	B 0.1mm Increment	R 1mm Increment: A Shape, C Shape only	G 1mm Increment: B Shape only	L 1mm Increment	T 0.5mm Increment
LP (Round) LPD (Diamond) Applicable when D≥3.	M (Press Fit) U (Tapped) (D≥6) X (Threaded) (D≥3)	J G Y B R S D C	A B C	2	2.50~4.00	2.0~25.0	Shape A R≥P/2 Shape C R≤P/2	Shape B G≤P	2~6	1.0~10.0
				3	3.50~6.00	2.0~25.0(10.0)			3~6	
				4	3.50~7.00	2.0~25.0(10.0)			4~8	
				5	4.00~8.00	2.0~30.0(10.0)			5~10	
				6	5.00~10.00	2.0~40.0(12.0)			6(10)~12	
				8	6.00~11.00	2.0~40.0(15.0)			8(14)~16	
				10	8.00~13.00	3.0~50.0(20.0)			10(14)~20	
				12	10.00~15.00	3.0~50.0(20.0)			12(14)~24	
				16	13.00~18.00	5.0~50.0(20.0)			16~32	
				20	16.00~22.00	5.0~50.0(20.0)			20~40	

B dimensions in ( ) and L dimensions in ( ) are for Diamond Shape.

Ordering Example

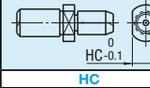
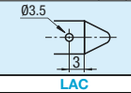
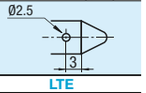
Part Number	-	P	-	B	-	R	-	G	-	L	-	T
Type		Fixed Part		Material		Tip		D				
LP	U	J		B	8	-	P10.00	-	B10.0		-	G8	-	L14	-	T2.0
LPD	X	J		A	10	-	P11.98	-	B5.0	-	R10		-	L10	-	T5.0

* Price in the table is for Installation Shape Selectable **M**.
Shape **U:** (Price in the Table) x 1.10Shape **X:** (Price in the Table) x 1.20

D	Round Shape Mounting Shape M Unit Price: ①EN 1.2510 Equiv. Hardened LPMJ	②Hard EN 1.2510 Equiv. LPMG	③EN 1.1191 Equiv. LPMY	④EN 1.1191 Equiv. Black Oxide LPMB	⑤Hard EN 1.1191 Equiv. LPMR	⑥EN 1.4301 Equiv. LPMS	⑦Hard EN 1.4301 Equiv. LPMD	⑧EN 1.4125 Equiv. LPMC	Diamond Shape Mounting Shape M Unit Price: ①EN 1.2510 Equiv. Hardened LPDMJ	②Hard EN 1.2510 Equiv. LPDMG	③EN 1.1191 Equiv. LPDMY	④EN 1.1191 Equiv. Black Oxide LPDMB	⑤Hard EN 1.1191 Equiv. LPDMR	⑥EN 1.4301 Equiv. LPDMS	⑦Hard EN 1.4301 Equiv. LPDMD	⑧EN 1.4125 Equiv. LPDMC
2									-	-	-	-	-	-	-	-
3																
4																
5																
6																
8																
10																
12																
16																
20																

Alterations

Part Number	-	P	-	B	-	R	-	G	-	L	-	T	-	(HC, LAC, LTE)
LPMJA6	-	P10.00	-	B10.0	-	R6		-	G6	-	L6	-	T3.0	-	LAC

Alterations	Wrench Flats Alteration	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)
			
Code	HC	LAC	LTE
Spec.	HC=0.5mm Increment ◎HC>D HC>P Ordering Code HC10.0	Adds a Ø3.5 hole. ◎Applicable when B≥10 and P>8. ⊗Not applicable to Diamond Shape.	Adds a Ø2.5 hole. ◎Applicable when B≥8 and 7≤P≤15. ⊗Not applicable to Diamond Shape.

Locating Pins

Screw Mounted / Pilot / Large Screw Mounted

Spec.Change Printed in Purple

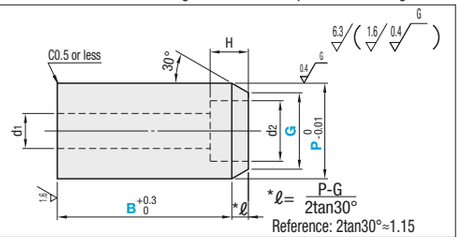
Features: The pin body is secured by the bolts. You can use it for areas where you cannot use tapped screws since the bolt can be tightened from the top of the insertion guide.

Screw Mounted

RoHS

Material	Surface Treatment	Hardness	Type
EN 1.1191 Equiv.	-	Treated Hardness: 45 ~ 50HRC	LPZ
EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LPZB
EN 1.1191 Equiv.	Hard Chrome Plating	Treated Hardness: 45 ~ 50HRC	LPZR
EN 1.4301 Equiv.	-	-	LPZS
EN 1.4301 Equiv.	Hard Chrome Plating	-	LPZH
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LPZC

Hard Chrome Plating: Plating Thickness 3µm / Plating Hardness 750HV ~



$*\ell = \frac{P-G}{2\tan 30°}$

Reference: 2tan30°≈1.15

Part Number Type	No.	P 0.01mm Increment	B 0.1mm Increment	G 1mm Increment	d1	d2	H	Applicable Screw	*Tightening Torque N·cm	Unit Price LPZ	LPZB	LPZR	LPZS	LPZH	LPZC
LPZ LPZS LPZB LPZH LPZR LPZC	3	11.00~15.00	10.0~25.0	9≤G<P	3.5	6.5	4	M3	147						
	4	12.00~20.00	10.0~25.0	10≤G<P	4.5	8	5	M4	333						
	5	14.00~20.00	10.0~30.0	12≤G<P	5.5	9.5	6	M5	676						
	6	15.00~25.00	12.0~40.0	13≤G<P	6.5	11	7	M6	1156						
	8	18.00~25.00	14.0~50.0	16≤G<P	9	14	9	M8	2803						

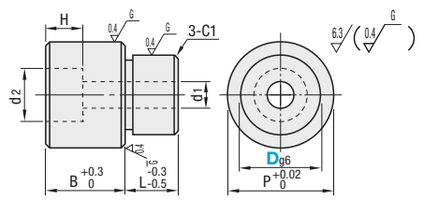
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Pilot

RoHS

Material	Surface Treatment	Hardness	Type
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPMA
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GJPMA
EN 1.4301 Equiv.	-	-	SJPMA
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPMA

Hard Chrome Plating: Plating Thickness 3µm / Plating Hardness 750HV ~



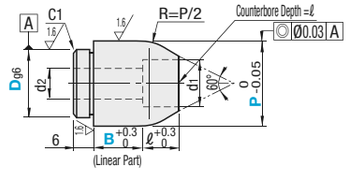
Part Number Type	Dg6		P	d1	d2	H	B	L	Applicable Screw	*Tightening Torque N·cm	Unit Price JPMA	GJPMA	SJPMA	CJPMA
JPMA GJPMA SJPMA CJPMA	6	-0.004 -0.012	10	3.5	6.5	4	10	5	M3	147				
	8	-0.005 -0.014	12	4.5	8	5			M4	333				
	10		15	5.5	9.5	6			M5	676				
	12	-0.006 -0.017	16	6.5	11	7			M6	1156				
	15		20	6.5	11	7	15	10						
	16			9	14	9			M8	2803				
	20	-0.007 -0.020	30	11	17.5	11			M10	5557				
	25			14	20	13			M12	9702				

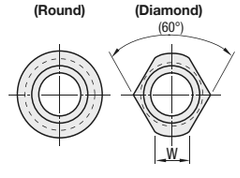
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Large Screw Mounted

RoHS

Material	Surface Treatment	Hardness	Shape	Type B Selectable	Type B Configurable
EN 1.7220 Equiv.	-	Treated Hardness: 35 ~ 40HRC	Round	LBNA	LBNFA
			Diamond	LBND	-





Part Number Type	Dg6		P 0.1mm Increment	B Selection	B 1mm Increment	ℓ	W	d1	d2	Applicable Screw	*Tightening Torque N·cm	Unit Price LBNA	LBND	LBNFA
LBNA (Round) LBND (Diamond) LBNFA (Round)	16	-0.023	22.0~24.9	5 10 15 20	-	7.5	7	11	6.6	M6	1156			-
	20	-0.027	25.0~29.9		5~20	11	10	14	9	M8	2803			
			30.0~37.9			13		17.5	11	M10	5557			
			38.0~39.9			16	12	20	14	M12	9702			
			40.0~49.9			20	16							
			50.0~59.9			25	20							
	30		60.0~80.0			35	28							

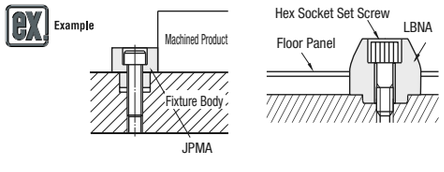
D dimension 16 is applicable to LBNA and LBND only.

* 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	-	B	-	G	
LPZ5	-	P16.00	-	B25.5	-	G15	(Screw Mounted)
JPMA15							(Pilot)
LBNA20	-	P30.0	-	B10			(Large Screw Mounted)

Example



Locating Pins

Eccentric / Flanged Flat

Spec.Change Printed in Purple

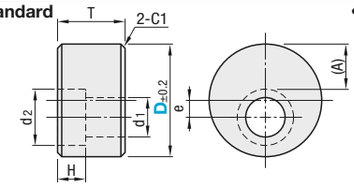
Features: Locating Pins used when the hole location differs in the mounting area and the locating area. Use them by securing the flange with the bolts.

Eccentric

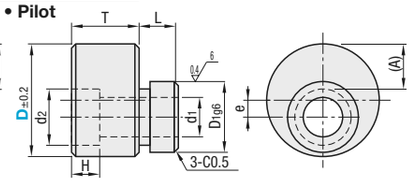
RoHS

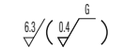
Material	Surface Treatment	Hardness	Type Standard	Type Pilot
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPEA	JPEIA
EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC / Plating Hardness: 750HV ~	GJPEA	-
EN 1.4301 Equiv.	-	-	SJPEA	SJPEIA
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPEA	CJPEIA

• Standard



• Pilot





Part Number Type	D	d1	d2	T	H	Applicable Screw	*Tightening Torque N·cm	e	(A)	D1	D1g6	L	Unit Price Standard JPEA	GJPEA	SJPEA	CJPEA	Pilot JPEIA	SJPEIA	CJPEIA
Standard JPEA GJPEA SJPEA CJPEA / Pilot JPEIA SJPEIA CJPEIA	10	3.5	6.5	6	4	M3	147	1	2.75	-	-	-					-	-	-
	12	4.5	8	8	5	M4	333	1.2	3.2	8	-0.006 -0.017	8							
	16	5.5	9.5	10	6	M5	676	2	5.25	8		8							
	20	6.5	11	12	7	M6	1156	2.5	7	11	-0.007 -0.020	10							
	25	9	14	16	9	M8	2803	3.5	9	14		12							
	32	11	17.5	20	11	M10	5557	5	12.25	17	-0.009 -0.025	15							
	40	14	20	24	13	M12	9702	7	17	20		18							

* 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.

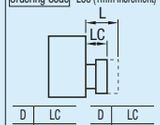
Ordering Example

Part Number
JPEA32
SJPEIA25

Alterations	Wrench Hole	Pilot Cut
Code	LAC	LC
Spec.	Machines wrench holes. Selection: 45°, 135° Ordering Code LAC45	Cuts the pilot section. Ordering Code LC8 (1mm Increment)

D	Wrench Hole Dia.	ℓ
16, 20	3.5	3
25, 32, 40	5	6

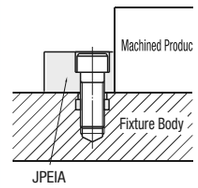
Only 1 hole can be specified.



D	LC	D	LC
12	6~7	25	8~11
16	6~7	32	10~14
20	6~9	40	12~17

Applicable to Pilot only.

Example



• Easy eccentric adjustment due to the presence of a pilot.

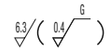
Alterations Ordering Example

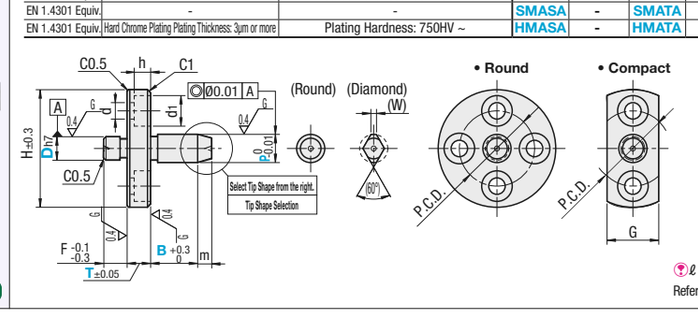
Part Number	-	(LAC, LC)
JPEIA20	-	LAC45

Flanged Flat

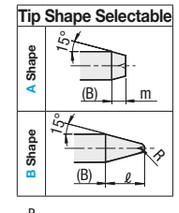
RoHS

Material	Surface Treatment	Hardness	Round Flange Round	Round Flange Diamond	Compact Flange Round	Compact Flange Diamond
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	MASA	MASD	MATA	MATD
EN 1.4301 Equiv.	-	-	SMASA	-	SMATA	-
EN 1.4301 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	HMASA	-	HMATA	-





Tip Shape Selectable



ℓ = P/2 / tan15° + R - (R / sin15°)

Reference: tan15°≈0.267, sin15°≈0.259

Part Number Type	Round Flange	Compact Flange	Tip Shape	Dh7		P 0.01mm Increment	B 0.1mm Increment	T 0.1mm Increment	F	H	G	P, C, D	d	d1	h	m	R	(W)
MASA MASD SMASA HMASA / MATA MATD SMATA HMATA	MASA MASD	MATA MATD	A	5	0 -0.012	3.00~5.00	3.0~10.0	5.0~10.0	5	25	11	16	3.5	6.5	3.5	3	1	1.5
				6		4.00~7.00	3.0~12.0											1.8
	SMASA	SMATA		8	0 -0.015	6.00~9.00	3.0~15.0	7.0~15.0	5	36	16	24	5.5	9.5	5.5	4	1.5	2.2
				10		7.00~11.00	4.0~20.0										2	3
	HMASA	HMATA	B	12	0 -0.018	8.00~12.00	4.0~20.0										3	3.2
				16		13.00~16.00	5.0~20.0	11.0~20.0	10	54	24	37	9	14	9	5	4	4
				20	0 -0.021	16.00~20.00	5.0~20.0										5	5.5

Ordering Example

Part Number	-	P	-	B	-	T
MASAA8	-	P6.50	-	B7.5	-	T8.2

Round Flange

D	Unit Price MASA	MASD	SMASA	HMASA
5				
6				
8				
10				
12				
16				
20				

Compact Flange

D	Unit Price MATA	MATD	SMATA	HMATA
8				
10				
12				
16				
20				

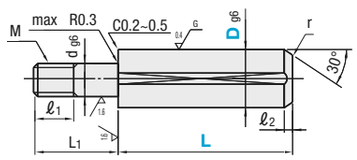
For Compact Flange Type, D dimension 5, 6 are not applicable.

Locating Pins
Air Vent, Threaded / Tapped

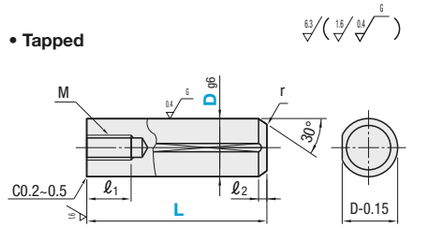
Features: Air vent enables easy insertion of pins.

Material	Hardness	Type	
		Threaded	Tapped
EN 1.3505 Equiv.	Treated Hardness: 45 ~ 50HRC	LPN	LPT
EN 1.4301 Equiv.	-	SLPN	SLPT
EN 1.4125 Equiv.	Treated Hardness: 50 ~ 55HRC	CLPN	CLPT

• Threaded



• Tapped



Threaded

Part Number			L						L1	dg6		M (Coarse)	Tightening Torque N·cm	ℓ1	ℓ2	r	Unit Price		
Type	D dim. Tolerance g6																LPN	SLPN	CLPN
LPN SLPN CLPN	5	-0.004 -0.012	10	12	15	20	25	30	12	3	-0.002 -0.008	M3	147	7	1	1			
	6		10	12	15	20	25	30	15	4	-0.004 -0.012	M4	333	10					
	8	-0.005 -0.014	10	12	15	20	25	30		5		M5	676		1.5	1.5			
	10				15	20	25	30	20	6		M6	1156	15					
	12	-0.006 -0.017			15	20	25	30							2	2			

L=10, 12 are applicable to SLPN and CLPN only.
* 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.

Tapped

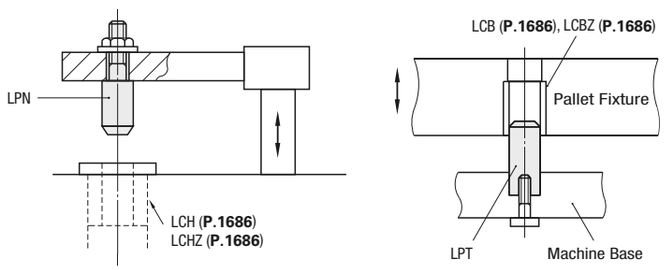
Part Number			L						M (Coarse)	Tightening Torque N·cm	ℓ1	ℓ2	r	Unit Price		
Type	D dim. Tolerance g6													LPT	SLPT	CLPT
LPT SLPT CLPT	5	-0.004 -0.012	10	12	15	20	25	30	M3	147	6	1	1			
	6		10	12	15	20	25	30	M4	333	8					
	8	-0.005 -0.014		12	15	20	25	30	M5	676		1.5	1.5			
	10					20	25	30	M6	1156	10					
	12	-0.006 -0.017				20	25	30				2	2			

ℓ1=6 only when D=6, L=10. The pilot hole for tapping 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	-	L
LPN5	-	15
LPT6	-	20

Example



Locating Pins
Plastic, Small Diameter / Plastic, Screw Mounted

Features: Having a metal core, it is less prone to be broken when used for side locating. Characteristic of Resin P.2-953, 954

Plastic, Small Diameter

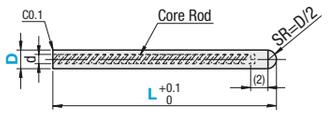
Part Number		Material
Insertion Guide Shape, Tolerance	Material Code	
SNS (Sphere, Standard Tolerance)	BB	Bakelite (Black)
SNP (Sphere, Selectable Tolerance)	PM	Polyacetal (White)
SPS (Flat, Standard Tolerance)	EC	Conductive MC Nylon CDR6 (Black)
SNSH (Small Head, Standard Tolerance)	PK	PEEK (Natural Ivory)

Some combinations are not available. Refer to the price list to select the available combination.
Core rod material is EN 1.4301 Equiv.
There is a flat part of Ø0.2 or below at the tip of Straight, Sphere and Small Head Type.
MC Nylon of flat is not available.
The outer diameter tolerance is the result of measurement at room temperature (20°C).

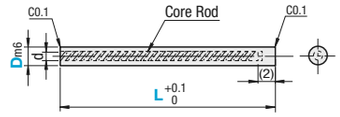
d	K
0.4	8.5
0.7	10
1.0	16

• Core Rod Length
Straight, Sphere: The smaller of the followings. L-(D/2+(2) or the value of row K in the table above
Straight, Flat: The smaller of the followings. L-(2) or the value of row K in the table above
Small Head: The smaller of the followings. (L+B)-(P/2+(2)) or the value of row K in the table above

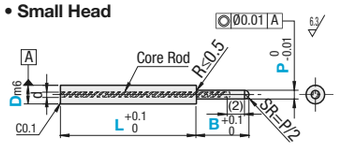
• Straight, Sphere



• Straight, Flat



• Small Head



Sphere, Flat, Standard Tolerance

Part Number		D 0.1mm Increment	D dim. Tolerance m6	L 0.5mm Increment	d	Unit Price						
Insertion Guide Shape	Material Code					SNSBB	SNSPM	SNSEC	SNSPK	SPSBB	SPSPM	SPSPK
SNS (Sphere)	BB PM EC (Sphere only) PK	1.0~2.0	+0.008 +0.002	5.0~20.0	0.7							
SPS (Flat)		2.1~3.0			1.0							

Sphere, Selectable Tolerance

Part Number			D 0.01mm Increment	L 0.1mm Increment	d	Unit Price			
Insertion Guide Shape	Material Code	D Tolerance				SNPBB	SNPPM	SNPEC	SNPPK
SNP	BB PM EC PK	M (m6) G (g6) H (h7)	1.00~2.00	5.0~20.0	0.7			-	
			2.01~3.00		1.0			-	

Small Head, Standard Tolerance

Part Number		D 0.1mm Increment	D dim. Tolerance m6	L 0.1mm Increment	P 0.1mm Increment	B 0.1mm Increment	d	Unit Price			
Insertion Guide Shape	Material Code							SNSHBB	SNSHPM	SNSHEC	SNSHPK
SNSH	BB PM EC PK	1.1~2.0	+0.008 +0.002	5.0~18.5	1.0~1.9 (D>P)	1.5~10.0 (B-P/2≥1.0)	0.4	-			-
		2.1~3.0			1.0~2.9 (D>P)		0.7	-			-

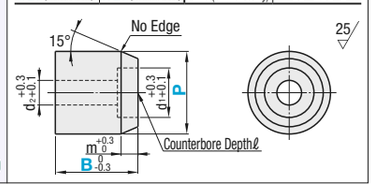
When D≤2, L+B≤15 When D>2, L+B≤20

Ordering Example

Part Number	-	D	-	L	-	P	-	B
SPSBB	-	D1.5	-	L7.5				
SNSHPM	-	D1.5	-	L10.0	-	P1.0	-	B1.5

Plastic, Screw Mounted

Type		Material	Operating Ambient Temperature
JPAJ (Standard Grade)	FPAJ (Precision Grade)	Polyacetal (White)	-45~95°C
JPEAJ (Standard Grade)	FPEAJ (Precision Grade)	PEEK (Natural Ivory)	-50~250°C



Ordering Example

Part Number	-	P	-	B
JPAJ3	-	P8	-	B15

Part Number		P (Standard Grade)		P (Precision Grade)		B 1mm Increment	m	d1	d2	ℓ	Applicable Screw	Unit Price			
Type	No.	1mm Increment	Tolerance	0.1mm Increment	Tolerance							JPAJ	JPEAJ	FPAJ	FPEAJ
JPAJ FPAJ JPEAJ FPEAJ	3	8~10	0 -0.2	8.0~10.0	0 -0.05	10~25	2	6.5	3.5	4.5	M3				
	4	10~12		10.0~12.0		15~35	3	8.0	4.5	5.5	M4				
	5	12~16		12.0~16.0		15~50	4	9.5	5.5	6.5	M5				

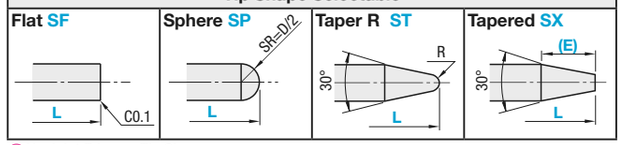
Characteristics of Polyacetal and PEEK P.2-953, 954

Small Diameter Locating Pins - High Hardness Stainless Steel
Solid

Features: Locating Pins for Micromachining less than Ø3. Corrosion-resistant and rigid. Suitable for locating Base, etc.

Material	Hardness	TYPE			
		Flat	Sphere	Taper R	Tapered
High Hardness Stainless Steel	35HRC~	SFKKS	SPKKS	STKKS	SXKKS

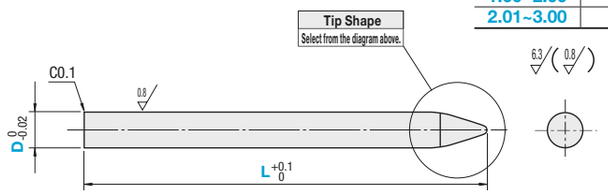
Tip Shape Selectable



No Joint Edge on Tip Shape

R Part Dimension

D	R
1.00~2.00	0.2
2.01~3.00	0.4



Chamfering of mounting portion and change of tolerance are available as alterations.

RoHS

Part Number				D	L	E (Taper only)
				0.01mm Increment	0.1mm Increment	0.5mm Increment
Flat	Sphere	Taper R	Tapered			
SFKKS	SPKKS	STKKS	SXKKS	1.00~2.00	3.0~30.0	0.5~2.5
				2.01~3.00	3.0~30.0	0.5~2.5

For Taper R Type, L-1≥1.85D-2.75R For Tapered, L≥E+1 D≥E

Ordering Example

Part Number	D	L	E	
SPKKS	D1.51	L20.2		(Sphere)
SXKKS	D2.28	L10.5	E2	(Tapered)

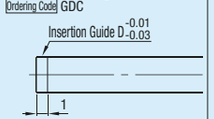
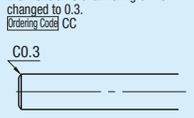
D	Unit Price	
	Flat	Sphere
	SFKKS	SPKKS
1.00~2.00		
2.01~3.00		

D	Unit Price	
	Taper R Type	Tapered
	STKKS	SXKKS
1.00~2.00		
2.01~3.00		

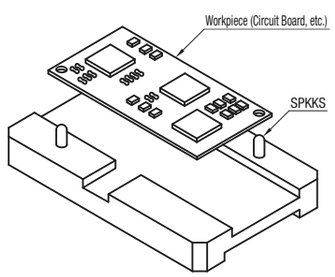
Alterations

Part Number	D	L	E		(GDC, CC)	
SFKKS	D1.51	L10.0		-	CC	(Flat)
SXKKS	D2.01	L20.0	E1.5	-	GDC	(Tapered)

Combination of GDC and CC is not available.

Alterations Code	Insertion Guide GDC	C Chamfered Size CC
Spec.	Adds the insertion guide. Ordering Code GDC  Machines one side only for Flat Type. Applicable to D≥2.01, L≥5.0	D dimension C chamfering 0.1 is changed to 0.3. Ordering Code CC  Applicable to D≥1.50

Example

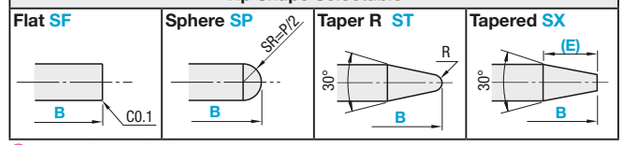


Small Diameter Locating Pins - High Hardness Stainless Steel
Small Head

Features: Useful for attachment as you can change the mounting side diameter and the locating side diameter. We reduced the price drastically compared to the conventional products.

Material	Hardness	TYPE			
		Flat	Sphere	Taper R	Tapered
High Hardness Stainless Steel	35HRC~	SFSKKS	SPSKKS	STSKKS	SXSKKS

Tip Shape Selectable



No Joint Edge on Tip Shape

R Part Dimension

D	R
1.01~2.00	0.2
2.01~3.00	0.4

Chamfering of mounting portion and change of tolerance are available as alterations.

RoHS

Part Number	D	L	P	B	E
	0.01mm Increment	0.1mm Increment	0.01mm Increment	0.1mm Increment	0.5mm Increment
Flat SFSKKS Sphere SPSKKS	0.51~1.00	3.0~20.0	0.50~0.99 (D>P)	1.5~5.0 (B-P/2≥1.0)	
	1.01~2.00	3.0~20.0	0.50~1.99 (D>P)	1.5~10.0 (B-P/2≥1.0)	
	2.01~3.00	3.0~20.0	1.00~2.99 (D>P)	1.5~10.0 (B-P/2≥1.0)	
Taper R STSKKS	1.01~2.00	3.0~20.0	0.50~1.99 (D>P)	1.5~10.0 (B-P/2≥1.0)	0.5~2.5
Tapered SXSKKS	2.01~3.00	3.0~20.0	1.00~2.99 (D>P)	1.5~10.0 (B-P/2≥1.0)	0.5~2.5

For Taper R: B-1≥1.85P-2.75R For Tapered: B≥E+1, P≥E

Ordering Example

Part Number	D	L	P	B	E	
SPSKKS	D1.50	L10.0	P0.90	B1.5		(Sphere)
SXSKKS	D1.50	L10.0	P1.20	B2.0	E0.5	(Tapered)

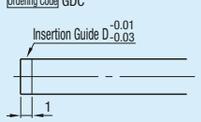
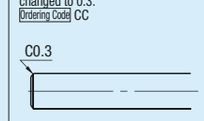
D	Unit Price	
	Flat	Sphere
	SFSKKS	SPSKKS
0.51~2.00		
2.01~3.00		

D	Unit Price	
	Taper R Type	Tapered
	STSKKS	SXSKKS
1.01~2.00		
2.01~3.00		

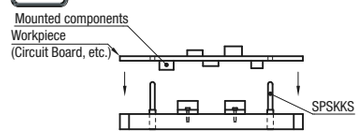
Alterations

Part Number	D	L	P	B	E		(GDC, CC)	
SFSKKS	D2.50	L20.0	P2.00	B5.0		-	CC	(Flat)
SXSKKS	D2.50	L20.0	P2.00	B5.0	E1.5	-	GDC	(Tapered)

Combination of GDC and CC is not available.

Alterations Code	Insertion Guide GDC	C Chamfered Size CC
Spec.	Adds the insertion guide. Ordering Code GDC  Applicable to D≥2.01, L≥5.0	D dimension C chamfering 0.1 is changed to 0.3. Ordering Code CC  Applicable to D≥1.50

Example



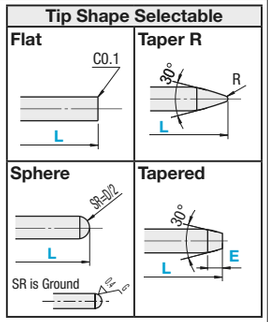
Small Diameter Locating Pin
Straight

Features: Locating pins with Ø3 or less pin diameter. Selectable from 4 types of tip shape.

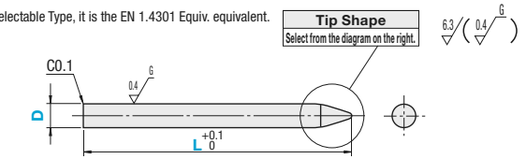
Material	Hardness	Type											
		L Selectable			L Configurable				L Configurable and Tolerance Selectable			
		Flat	Sphere	Tapered	Flat	Sphere	Taper R	Tapered	Flat	Sphere	Taper R	Tapered
SK95 (ISO-TC90 Equiv.)	Treated Hardness: 50 ~ 59HRC	SFKT	SPKT	SXKT	SFST	SPST	STST	SXST	SFFPT	SPPT	STPT	SXFPT
*EN 1.4301 Equiv.	-	SFKS	SPKS	SXKS	SFSS	SPSS	STSS	SXSS	SFPS	SPPS	STPS	SXFPS
EN 1.4125 Equiv.	Treated Hardness: 50 ~ 55HRC	-	-	-	SFSXC	SPSXC	STSXC	SXSXC	SFPXC	SPPXC	STPXC	SXFPXC
EN 1.4301 Equiv. (SR Parts Polished)	-	-	-	-	-	SPSSG	-	-	-	-	-	-
Bt 1.2344 Equiv. (SR Parts Polished)	Treated Hardness: 40 ~ 52HRC	-	-	-	-	SPSDG	-	-	-	-	-	-

* For L Selectable Type, it is the EN 1.4301 Equiv. equivalent.

Tip Shape Selectable



Tip Shape
Select from the diagram on the right.



L Selectable

Part Number	D	d dim. Tolerance	L Selection	E
Flat: SFKT SFKS / Sphere: SPKT SPKS / Tapered: SXKT SXKS	1	0 -0.005	3 4 5 6 10	0.5
	1.5		5 6 8	
	2		5 6 8 10 12 15	
	3		5 6 8 10 12 15	1

L Configurable

Part Number	D 0.1mm Increment	d dim. Tolerance	L 0.5mm Increment	E 0.5mm Increment	R
Flat: SFST SFSS SFSXC / Sphere: SPST SPSS SPSXC SPSSG SPSDG / Taper R: STST STSS STSXC / Tapered: SXST SXSS SXSXC	1.0~2.0	0 -0.005	3.0~30.0	0.5~2.5	0.2
	2.1~3.0				0.4

For Taper R, L-1≥(Dx1.85)-(Rx2.75) For Tapered, L≥E+1 D≥E

L Configurable and Tolerance Selectable

Part Number: Type	D Tolerance	D 0.01mm Increment	L 0.1mm Increment	E 0.5mm Increment	R
Flat: SFFPT SFPS SFPXC / Sphere: SPPT SPPS SPPXC / Taper R: STPT STPS STPXC / Tapered: SXFPT SXFPS SXFPXC	P +0.005 0	0.50~1.00	3.0~30.0	0.5~2.5	-
	Q ±0.002	1.01~2.00			0.2
	R 0 -0.005	2.01~3.00			0.4
	H 0 -0.01				

For Taper R, L-1≥(Dx1.85)-(Rx2.75) For Tapered, L≥E+1 D≥E

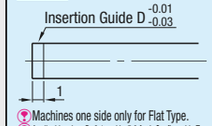
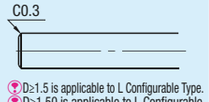
Ordering Example

L Selectable
Part Number - D - L
SPKS - D1 - L5

L Configurable
Part Number - D - L - E
SPST - D1.5 - L8.5 (Sphere)
SXST - D1.5 - L5.0 - E1.0 (Tapered)

L Configurable and Tolerance Selectable
Part Number: Type, D Tol. - D - L - E
SPPT P - D0.55 - L5.0 (Sphere)
SXFPT P - D2.82 - L5.0 - E2.5 (Tapered)

Alterations Part Number - D - L - E - (GDC, CC)
SFST - D2.0 - L10 - CC
⊗Combination of GDC and CC is not available. ⊗Not applicable to L Selectable Type.

Alterations Code	Insertion Guide GDC	C Chamfered Size CC
Spec.	Adds the insertion guide. Ordering Code GDC  ⓨMachines one side only for Flat Type. ⓨApplicable when D≥2.1 and L≥5.0 for L Configurable Type. ⓨApplicable when D≥2.01 and L≥5.0 for L Configurable and Tolerance Selectable Type.	D dimension C chamfering 0.1 is changed to 0.3. Ordering Code CC  ⓨD≥1.5 is applicable to L Configurable Type. ⓨD≥1.50 is applicable to L Configurable and Tolerance Type.

L Selectable

D	Unit Price: Flat SFKT	Flat SFKS	Sphere SPKT	Sphere SPKS	Tapered SXKT	Tapered SXKS
1						
1.5						
2						
3						

L Configurable

D	Unit Price: Flat SFST	Flat SFSS	Flat SFSXC	Sphere SPST	Sphere SPSS	Sphere SPSXC	Sphere SPSSG	Sphere SPSDG	Taper R Type STST	Taper R Type STSS	Taper R Type STSXC	Tapered SXST	Tapered SXSS	Tapered SXSXC
1.0~2.0														
2.1~3.0														

L Configurable and Tolerance Selectable

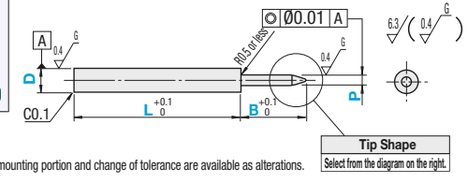
D	Unit Price: Flat SFFPT	Flat SFPS	Flat SFPXC	Sphere SPPT	Sphere SPPS	Sphere SPPXC	Taper R Type STPT	Taper R Type STPS	Taper R Type STPXC	Tapered SXFPT	Tapered SXFPS	Tapered SXFPXC
0.50~1.00			-			-	-	-	-	-	-	-
1.01~2.00												
2.01~3.00												

Small Diameter Locating Pin
Small Head

Small Head / Press Fit

Material	Hardness	Type											
		L Selectable	L Configurable				L Configurable and Tolerance Selectable						
		Sphere	Flat	Sphere	Taper R	Tapered	Flat	Sphere	Taper R	Tapered			
SK95 (ISO-TC90 Equiv.)	50~58HRC	SPKHT	SFSHT	SPSHT	STSHT	SXSHT	SFPHT	SPPHT	STPHT	SXPHT			
EN 1.4301 Equiv.	-	SPKHS	SFSHS	SPSHS	STSHS	SXSHS	SFPHS	SPPHS	STPHS	SXPHS			
EN 1.4125 Equiv.	50~55HRC	-	SFSHC	SPSHC	STSHC	SXSHC	SHPHC	SPPHC	STPHC	SXPHC			
EN 1.2344 Equiv. (SR Parts Polished)	40~52HRC	-	-	SPSHDG	-	-	-	-	-	-			
Bt 1.4301 Equiv. (SR Parts Polished)	-	-	-	SPSHSG	-	-	-	-	-	-			

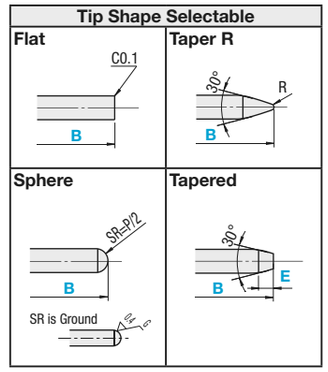
ⓨMaterial code SG and DG are applicable to L Configurable Type of Sphere only.
ⓨL Selectable Type is applicable to Sphere only.



ⓨChamfering of mounting portion and change of tolerance are available as alterations.

Tip Shape
Select from the diagram on the right.

Tip Shape Selectable



L Selectable

Part Number	D	D dim. Tolerance	L Selection	P	P Dim. Tolerance	B
SPKHT	2	0 -0.005	3 5 10	0.95	0 -0.01	2
SPKHS	3		3 8 10	1.95		4

L Configurable

Part Number	D 0.1mm Increment	d dim. Tolerance	L 0.5mm Increment	P 0.1mm Increment	P Dim. Tolerance	B 0.5mm Increment	E 0.5mm Increment	R
Flat: SFSHT SFSHS SFSHC / Sphere: SPSHT SPSHS SPSHC SPSHDG SPSHSG / Taper R: STSHT STSHS STSHC / Tapered: SXSHT SXSHS SXSHC	1.0~2.0	0 -0.005	3.0~20.0	0.9~1.9 (D>P)	0 -0.01	1.5~10.0 (B-P/2≥1.0)	0.5~2.5	0.2
	2.1~3.0			1.9~2.9 (D>P)				0.4

For Taper R Type, B-1≥1.85P-2.75R For Tapered: B≥E+1, P≥E

L Configurable and Tolerance Selectable

Part Number: Type	D Tolerance	P Tolerance	D 0.01mm Increment	L 0.1mm Increment	P 0.01mm Increment	B 0.1mm Increment	E 0.5mm Increment	R
Flat: SFPHT SFPHS SFPHC / Sphere: SPPHT SPPHS SPPHC / Taper R: STPHT STPHS STPHC / Tapered: SXPHT SXPHS SXPHC	P +0.005 0	P +0.005 0	0.51~1.00	3.0~20.0	0.50~0.99 (D>P)	1.5~5.0 (B-P/2≥1.0)	0.5~2.5	-
	Q ±0.002	Q ±0.002	1.01~2.00		0.50~1.99 (D>P)			0.2
	R 0 -0.005	R 0 -0.005				1.5~10.0 (B-P/2≥1.0)		
	H 0 -0.01	H 0 -0.01	2.01~3.00		1.00~2.99 (D>P)			0.4

For Taper R Type, B-1≥1.85P-2.75R For Tapered: B≥E+1, P≥E

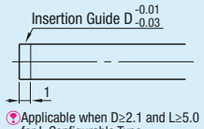
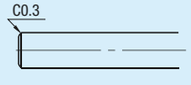
Ordering Example

L Selectable
Part Number - D - L
SPKHT - D2 - L5

L Configurable
Part Number - D - L - P - B - E
SPSHS - D1.5 - L10.0 - P0.9 - B1.5 (Sphere)
SXSHT - D1.5 - L10.0 - P1.2 - B2.0 - E1.0 (Tapered)

L Configurable and Tolerance Selectable
Part Number: Type, D Tol., P Tol. - D - L - P - B - E
SPPHT Q R - D1.50 - L10.1 - P0.95 - B5.3 (Sphere)
SXPHS P P - D1.50 - L10.0 - P1.20 - B3.0 - E1.0 (Tapered)

Alterations Part Number - D - L - P - B - E - (GDC, CC)
SFSHT - D2.5 - L20 - P2.0 - B5.0 - GDC
⊗Combination of GDC and CC is not available. ⊗Alterations are not applicable to L Selectable Type.

Alterations Code	Insertion Guide GDC	C Chamfered Size CC
Spec.	Adds the insertion guide. Ordering Code GDC  ⓨApplicable when D≥2.1 and L≥5.0 for L Configurable Type. ⓨApplicable when D≥2.01 and L≥5.0 for L Configurable and Tolerance Selectable Type.	D dimension C chamfering 0.1 is changed to 0.3. Ordering Code CC  ⓨD≥1.5 is applicable to L Configurable Type. ⓨD≥1.50 is applicable to L Configurable and Tolerance Type.

L Selectable

D	Unit Price: Sphere SPKHT	Sphere SPKHS
2		
3		

L Configurable

D	Unit Price: Flat SFSHT	Flat SFSHS	Flat SFSHC	Sphere SPSHT	Sphere SPSHS	Sphere SPSHSG	Sphere SPSHDG	Sphere SPSHC	Taper R Type STSHT	Taper R Type STSHS	Taper R Type STSHC	Tapered SXSHT	Tapered SXSHS	Tapered SXSHC
1.0~2.0														
2.1~3.0														

L Configurable and Tolerance Selectable

D	Unit Price: Flat SFPHT	Flat SFPHS	Flat SFPHC	Sphere SPPHT	Sphere SPPHS	Sphere SPPHC	Taper R Type STPHT	Taper R Type STPHS	Taper R Type STPHC	Tapered SXPHT	Tapered SXPHS	Tapered SXPHC
0.51~1.00			-			-	-	-	-	-	-	-
1.01~2.00												
2.01~3.00												

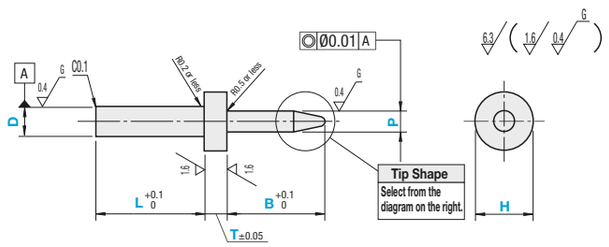
Small Diameter Locating Pin

Shouldered, Press Fit

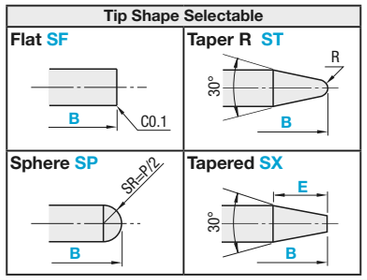
Shouldered, Press Fit

RoHS

Material	Hardness	Type							
		Standard Tolerance				Tolerance Selection			
		Flat	Sphere	Taper R	Tapered	Flat	Sphere	Taper R	Tapered
SK95 (ISO-TC90 Equiv.)	50~58HRC	SFSST	SPSST	STSST	SXSST	SFPST	SPPST	STPST	-
EN 1.4301 Equiv.	-	SFSSS	SPSSS	STSSS	SXSSS	SFPSS	SPPSS	-	SXPSS



Tip Shape Selectable



Standard Tolerance

Part Number	D	d dim. Tolerance m6	L 0.5mm Increment	P 0.1mm Increment	P Dimension Tolerance	B 0.5mm Increment	H 0.1mm Increment	T 0.5mm Increment	E 0.5mm Increment (Taper only)	R
Flat Sphere Taper R Tapered SFSST SPSST STSST SXSST SFSSS SPSSS STSSS SXSSS	1	+0.008 +0.002	2.0~5.0	1.0~2.9	0 -0.01	1.0~10.0	1.1~3.0	1.0~10.0	0.5~5.0	0.2
	2		4.0~10.0	1.0~4.0		1.0~30.0	2.1~7.0	1.0~20.0		0.2
	3		6.0~10.0	1.5~6.0			3.1~8.0			0.3
	4	+0.012 +0.004	8.0~10.0	2.0~7.0			4.1~9.0			0.4

(P<H (D<H (For Sphere, B-1≥P/2 (For Taper R Type, B-1≥1.85P-2.75R (For Tapered: B≥E+1, P≥E

Tolerance Selectable

Part Number TYPE	D Tolerance	P Tolerance	D	L 0.1mm Increment	P 0.01mm Increment	B 0.1mm Increment	H 0.01mm Increment	T 0.1mm Increment	E 0.5mm Increment (Taper only)	R	M
Flat Sphere Taper R Tapered SFPST SPSST STPST SXPSS SFPSS SPPSS	P +0.005 0	P +0.005 0	2	0 1.0~10.0	1.00~4.00	1.0~30.0	2.10~7.00	1.0~20.0	0.5~5.0	0.2	M2
	Q ±0.002	Q ±0.002	3		1.50~6.00		3.10~8.00			0.2	M3
	R 0 -0.005	R 0 -0.005	4		2.00~7.00		4.10~9.00			0.4	M4

(P<H (D<H (For Sphere, B-1≥P/2 (For Taper R Type, B-1≥1.85P-2.75R (For Tapered: B≥E+1, P≥E

Standard Tolerance

D	Unit Price							
	Flat (SFSS□)		Sphere (SPSS□)		Taper R (STSS□)		Tapered (SXSS□)	
	SFSST	SFSSS	SPSST	SPSSS	STSST	STSSS	SXSST	SXSSS
1								
2								
3								
4								

Tolerance Selectable

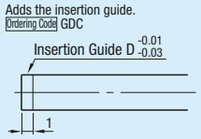
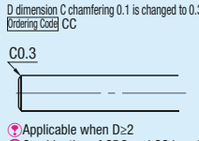
D	Unit Price							
	Flat (SFPS□)		Sphere (SPPS□)		Taper R (STPS□)		Tapered (SXPS□)	
	SFPST	SFPSS	SPPST	SPPSS	STPST	STPSS	SXPST	SXPSS
1						-	-	
2						-	-	
3						-	-	
4						-	-	

Ordering Example

Part Number	L	P	B	H	T	E
SXSSS4	L10.0	P6.2	B5.0	H8.0	T3.0	E3.0
SPPSTPP2	L8.0	P2.0	B4.0	H3.5	T5.0	

Alterations

Part Number - L - P - B - H - T - E - (GDC, CC)
SFSST3 - L6.0 - P3.0 - B6.0 - H5.0 - T2.0 - CC

Alterations Code	Insertion Guide GDC	C Chamfered Size CC
Spec.	Adds the insertion guide. Ordering Code GDC  (Applicable to D≥3, L≥8.0	D dimension C chamfering 0.1 is changed to 0.3. Ordering Code CC  (Applicable when D≥2 ⊗Combination of GDC and CC is not available.

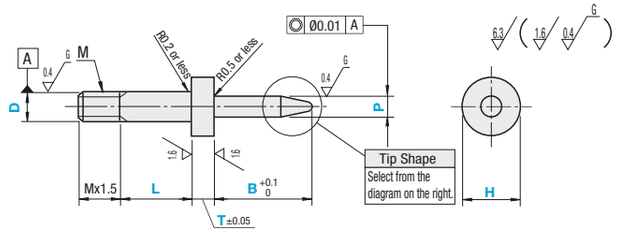
Small Diameter Locating Pin

Shouldered, Threaded

Shouldered, Threaded

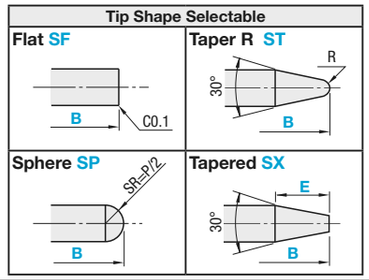
RoHS

Material	Hardness	Type						
		Standard Tolerance				Tolerance Selection		
		Flat	Sphere	Taper R	Tapered	Flat	Sphere	Taper R
SK95 (ISO-TC90 Equiv.)	50~58HRC	SFSNT	SPSNT	STSNT	SXSNT	-	SPPNT	STPNT
EN 1.4301 Equiv.	-	SFSNS	SPSNS	STSNS	SXSNS	SFPNS	SPPNS	STPNS



(When L=0, an undercut will be added at the neck of the thread.

Tip Shape Selectable



Standard Tolerance

Part Number	D	D dim. Tolerance	L 0.5mm Increment	P 0.1mm Increment	P Dimension Tolerance	B 0.5mm Increment	H 0.1mm Increment	T 0.5mm Increment	E 0.5mm Increment (Taper only)	R	M
Flat Sphere Taper R Tapered SFSNT SPSNT STSNS SXSNT SFSNS SPSNS STSNT SXSNS	2	0 -0.005	0 1.0~10.0	1.0~4.0	0 -0.01	1.0~30.0	2.1~7.0	1.0~20.0	0.5~5.0	0.2	M2
	3			1.5~6.0			3.1~8.0			0.3	M3
	4			2.0~7.0			4.1~9.0			0.4	M4

(P<H (D<H (For Sphere, B-1≥P/2 (For Taper R Type, B-1≥1.85P-2.75R (For Tapered: B≥E+1, P≥E

Tolerance Selectable

Part Number TYPE	D Tolerance	P Tolerance	D	L 0.1mm Increment	P 0.01mm Increment	B 0.1mm Increment	H 0.01mm Increment	T 0.1mm Increment	E 0.5mm Increment (Taper only)	R
Flat Sphere Taper R SFPNS SPPNT STPNT SPPNS STPNS	P +0.005 0	P +0.005 0	1	2.0~ 5.0	1.00~2.90	1.0~10.0	1.10~3.00	1.0~10.0	0.5~5.0	0.2
	Q ±0.002	Q ±0.002	2	4.0~10.0	1.00~4.00	1.0~30.0	2.10~7.00	1.0~20.0		0.2
	R 0 -0.005	R 0 -0.005	3	6.0~10.0	1.50~6.00		3.10~8.00			0.3
			4	8.0~10.0	2.00~7.00		4.10~9.00			0.4

(P<H (D<H (For Sphere, B-1≥P/2 (For Taper R Type, B-1≥1.85P-2.75R (For Tapered: B≥E+1, P≥E

Ordering Example

Part Number	L	P	B	H	T	E
SPSNT3	L3.5	P2.5	B10.5	H4.2	T5.5	
SXPNSQR2	L2.0	P3.2	B8.0	H4.00	T3.0	E3.0

Standard Tolerance

D	Unit Price							
	Flat (SFSN□)		Sphere (SPSN□)		Taper R (STSN□)		Tapered (SXSN□)	
	SFSNT	SFSNS	SPSNT	SPSNS	STSNT	STSNS	SXSNT	SXSNS
2								
3								
4								

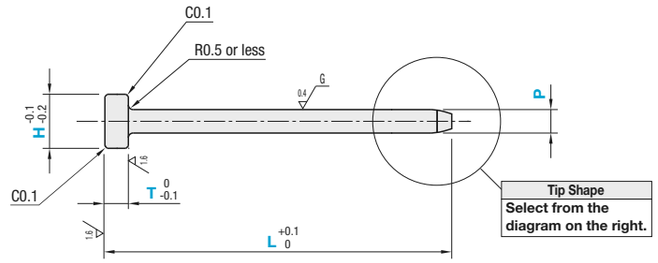
Tolerance Selectable

D	Unit Price							
	Flat (SFPN□)		Sphere (SPPN□)		Taper R (STPN□)		Tapered (SXPN□)	
	SFPNT	SFPNS	SPPNT	SPPNS	STPNT	STPNS	SXPNT	SXPNS
2	-						-	-
3	-						-	-
4	-						-	-

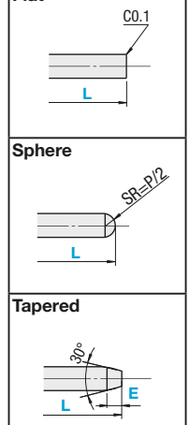
Small Diameter Locating Pin

With Shoulder Seat

Material	Part Number		
	Insertion Guide Shape	Tolerance	Material Code
EN 1.4301 Equiv.	SF (Flat) SP (Sphere) SX (Tapered)	SZ (Standard Tolerance) PZ (Selectable Tolerance)	S



Tip Shape Selectable



Standard Tolerance

Part Number TYPE			P 0.1mm Increment	P Dim. Tolerance	L 0.5mm Increment	T 1mm Increment	H	E 0.5mm Increment
Flat	Sphere	Tapered						
SFSZS	SPSZS	SXSZS	1.0~1.3	0 -0.01	13.0~30.0	3~5	2	0.5
			1.4~2.5				4	0.5~1.5
			2.6~3.5				6	0.5~2.5

(L-T≥10 (For Tapered, P≥E

Tolerance Selectable

Part Number TYPE			P Tolerance	P 0.01mm Increment	L 0.1mm Increment	T 0.1mm Increment	H 0.1mm Increment	E 0.5mm Increment
Flat	Sphere	Tapered						
SFPZS	SPPZS	SXPZS	P +0.005 0	1.00~1.40	13.0~30.0	3.0~5.0	2.0~3.0	0.5
			Q ±0.002	1.41~2.50			2.0~4.0	0.5~1.5
			R 0 -0.005	2.51~3.50			3.0~8.0	0.5~2.5

(L-T≥10 (P+0.5≤H (For Tapered, P≥E

Ordering Example

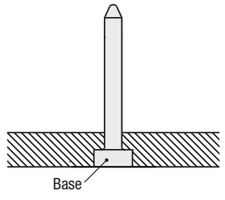
Standard Tolerance

Part Number	-	P	-	L	-	T	-	E	
SPSZS	-	P1.5	-	L18.5	-	T3			(Sphere)
SXSZS	-	P2.5	-	L20.0	-	T4	-	E1.5	(Tapered)

Tolerance Selectable

Part Number		-	P	-	L	-	T	-	H	-	E	
Type	P Tolerance											
SPPZS	P	-	P1.55	-	L15.0	-	T3.2	-	H3.8			(Sphere)
SXPZS	Q	-	P1.00	-	L19.0	-	T4.5	-	H2.5	-	E0.5	(Tapered)

Example



Shoulder is provided to prevent pin extraction.

Standard Tolerance

P	Unit Price		
	Flat SFSZS	Sphere SPSZS	Tapered SXSZS
1.0~1.3			
1.4~2.5			
2.6~3.5			

Tolerance Selectable

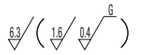
P	Unit Price		
	Flat SFPZS	Sphere SPPZS	Tapered SXPZS
1.00~1.40			
1.41~2.50			
2.51~3.50			

Small Diameter Height Adjusting Pins / Small Diameter Plunging Locating Pins

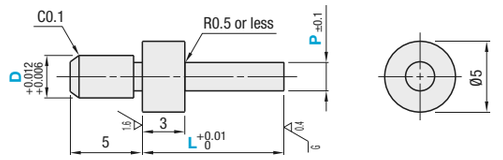
Features: Small Diameter Height Adjusting Pins achievable accuracy in height tolerance is 1/100. Suitable for locating of circuit board in vertical direction.

Small Diameter Height Adjusting Pins

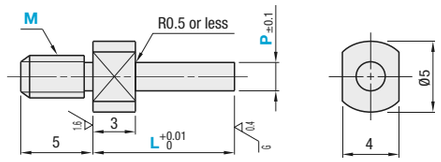
Part Number		Material
Press Fit	Threaded	
SFHH	SFNN	EN 1.4301 Equiv.



Press Fit



Threaded



Press Fit

Part Number TYPE	D	L 0.01mm Increment	P 0.5mm Increment	Unit Price
SFHH	3	5.00~15.00	1.0~3.0	

Threaded

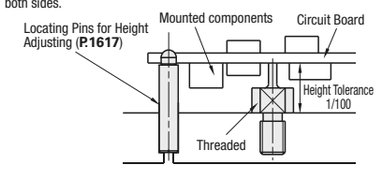
Part Number TYPE	M (Coarse)	L 0.01mm Increment	P 0.5mm Increment	Unit Price
SFNN	3	5.00~15.00	1.0~3.0	

Ordering Example

Part Number	-	L	-	P	
SFHH3	-	L9.98	-	P2.0	(Press Fit)
SFNN3	-	L6.50	-	P2.5	(Threaded)

Example

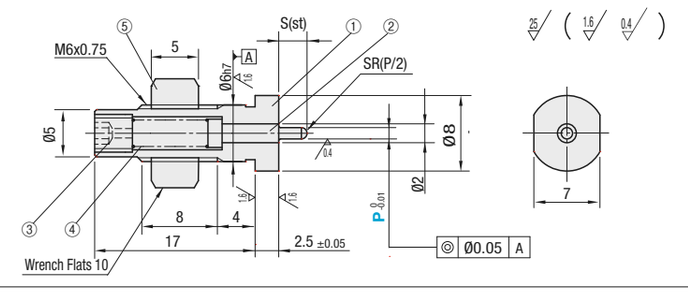
Suitable for supporting a circuit board with components installed on both sides.



Features: Small Dia. Pin Units with spring-retained stroking pins.

Small Diameter Plunging Locating Pins

Part Number	① Main Body Material	② Pin Material	③ Plug Material	④ Spring Material	⑤ Nut Material
DSDP	EN 1.4301 Equiv.	EN 1.4301 Equiv. (Sliding Section: Fluorine Coating)	EN 1.4301 Equiv.	EN 1.4301 (WPB) Equiv.	EN 1.4301 Equiv.



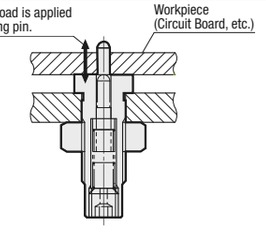
Part Number	P 0.01mm Increment	S	Load (N) min.	Load (N) max.	Unit Price
DSDP	1.00~1.50	3.0	0.2	0.48	
	1.51~1.99	4.5	0.2	0.64	

Ordering Example

Part Number	-	P
DSDP	-	P1.70

Example

The pin will sink when load is applied on spring-loaded locating pin.



Feed Pins
Solid

Spec.Change Printed in Purple

Features: Length of tapered part can be configurable depending on the applications or environment.

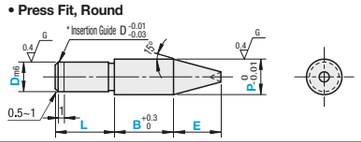
Press Fit

Material	Surface Treatment	Hardness	Press Fit Round	Press Fit Triangle
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FESM	FESMT
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFESM	-
EN 1.4301 Equiv.	-	-	SFESM	-
EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HFESM	HFESMT
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFESM	-

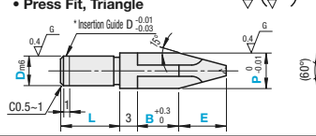
- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)

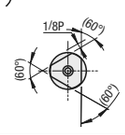
* No Insertion Guide for D2 Press Fit.

• Press Fit, Round



• Press Fit, Triangle





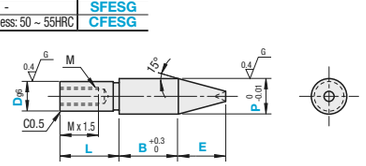
Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4301 Equiv. Hard Chrome Plating	Round EN 1.4125 Equiv.	Triangle EN 1.2510 Equiv.	Triangle EN 1.4301 Equiv. Hard Chrome Plating
(Round) FESM GFESM SFESM HFESM CFESM / (Triangle) FESMT HFESMT	2	2.50~5.00	2~6	2.0~10.0	0.5~10.0							
	3	3.50~5.00	3~6	2.0~10.0								
	4	4.50~7.00	4~8	2.0~10.0								
	5	5.50~8.00	5~10	2.0~10.0								
	6	6.50~10.00	6~12	2.0~12.0								
	8	9.00~13.00	8~16	2.0~15.0								
	10	10.00~13.00	10~20	2.0~20.0								

Tapped

Material	Surface Treatment	Hardness	Tapped Round
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FESG
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFESG
EN 1.4301 Equiv.	-	-	SFESG
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFESG

- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)

• Tapped, Round



Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	M (Coarse)	* Tightening Torque N·cm	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4125 Equiv.
(Round) FESG GFESG SFESG CFESG	6	6.50~10.00	6~12	2.0~12.0	0.5~10.0	M3	147				
	8	9.00~13.00	8~16	2.0~15.0		M4	333				
	10	10.00~13.00	10~20	3.0~20.0		M5	676				

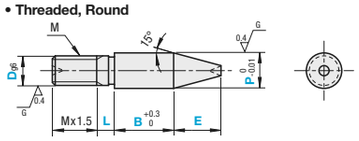
Note the strength of under-head part. ☞ P.1566 Please confirm pilot hole depth on ☞ P. 1566. Holes may go through.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Threaded

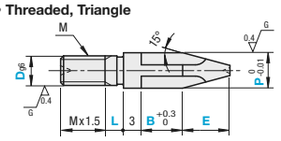
Material	Surface Treatment	Hardness	Threaded Round	Threaded Triangle
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FEPS	FEPST
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFEPS	-
EN 1.4301 Equiv.	-	-	SFEPS	SFEPST
EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HFEPS	-
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFEPS	CFEPST

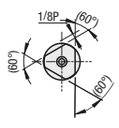
- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)
- When 0≤L<Pitch x 2, the incomplete threaded portion is included in M x 1.5.

• Threaded, Round



• Threaded, Triangle





Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	M (Coarse)	* Tightening Torque N·cm	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4301 Equiv. Hard Chrome Plating	Round EN 1.4125 Equiv.	Triangle EN 1.2510 Equiv.	Triangle EN 1.4301 Equiv.	Triangle EN 1.4125 Equiv.
(Round) FEPS GFEPS SFEPS HFEPS CFEPS / (Triangle) FEPST SFEPST CFEPST	3	3.50~ 6.00	0~12	2.0~10.0	0.5~10.0	M3	147								
	4	4.50~ 7.00		2.0~10.0		M4	333								
	5	5.50~ 8.00		2.0~10.0		M5	676								
	6	6.50~10.00		2.0~12.0		M6	1156								
	8	9.00~13.00		2.0~15.0		M8	2803								
	10	10.00~13.00		2.0~20.0		M10	5557								

* 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	-	E
FESM4	-	P5.00	-	L6	-	B5.0	-	E3.0
GFESG8	-	P9.50	-	L10	-	B10.0	-	E5.5
FEPS3	-	P3.50	-	L3	-	B6.0	-	E2.0

Alterations are applicable to Threaded only.

Alterations	Screwdriver Slot	Relief
Code	DRC	NNC
Spec.	Width 0.8mm Depth 1mm Ordering Code DRC	Adds a relief at the thread end. Ordering Code NNC Applicable when L=0.

Alterations

Part Number	-	P	-	L	-	B	-	E	(DRC, NNC)
FEPS3	-	P3.50	-	L3	-	B6.0	-	E2	- DRC

Feed Pins
Shouldered

Spec.Change Printed in Purple

Features: Locating Pins with the longer tapered area. The Shoulder supports the workpiece so that it will not damage the base.

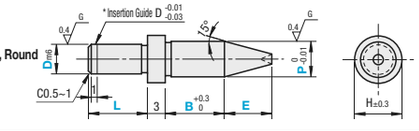
Press Fit

Material	Surface Treatment	Hardness	Press Fit Round
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FEPM
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFEPM
EN 1.4301 Equiv.	-	-	SFEPM
EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HFEPM
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFEPM

- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)

* No Insertion Guide for D2 Press Fit.

• Press Fit, Round



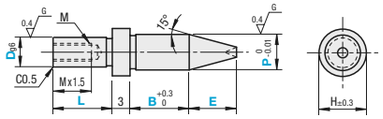
Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	H	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4301 Equiv. Hard Chrome Plating	Round EN 1.4125 Equiv.
(Round) FEPM GFEPM SFEPM HFEPM CFEPM	2	2.00~3.00	2~6	2.0~10.0	0.5~10.0	5					
	3	2.00~5.00	3~6	2.0~10.0		6					
	4	2.00~5.00	4~8	2.0~10.0							
	5	3.00~7.00	5~10	2.0~10.0		8					
	6	4.00~7.00	6~12	2.0~12.0							
	8	5.00~9.00	8~16	2.0~15.0		11					
	10	6.00~11.00	10~20	2.0~20.0		13					

Tapped

Material	Surface Treatment	Hardness	Tapped Round
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FEPG
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFEPG
EN 1.4301 Equiv.	-	-	SFEPG
EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HFEPG
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-

- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)

• Tapped, Round



Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	H	M (Coarse)	* Tightening Torque N·cm	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4301 Equiv. Hard Chrome Plating	Round EN 1.4125 Equiv.
(Round) FEPG GFEPG SFEPG HFEPG	6	4.00~7.00	6~12	2.0~12.0	0.5~10.0	8	M3	147					
	8	5.00~9.00	8~16	2.0~15.0		11	M4	333					
	10	6.00~11.00	10~20	3.0~20.0		13	M5	676					

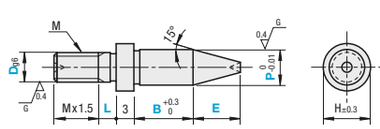
Note the strength of under-head part. ☞ P.1566 Please confirm pilot hole depth on ☞ P. 1566. Holes may go through.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Threaded

Material	Surface Treatment	Hardness	Threaded Round
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	FEPN
EN 1.2510 Equiv.	Hard Chrome Plating	Treated Hardness: 50 ~ 55HRC	GFEPN
EN 1.4301 Equiv.	-	-	SFEPN
EN 1.4301 Equiv.	Hard Chrome Plating	Plating Hardness: 750HV ~	HFEPN
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CFEPN

- Hard Chrome Plating with Thickness of 3µm or more
- P-2Etan15°≥0.73 (Tip Dia. Ø0.73 or more. Reference: tan15°≈0.267)
- When 0≤L<Pitch x 2, the incomplete threaded portion is included in M x 1.5.

• Threaded, Round

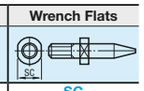


Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E 0.1mm Increment	H	M (Coarse)	* Tightening Torque N·cm	Unit Price Round EN 1.2510 Equiv.	Round EN 1.2510 Equiv. Hard Chrome Plating	Round EN 1.4301 Equiv.	Round EN 1.4301 Equiv. Hard Chrome Plating	Round EN 1.4125 Equiv.
(Round) FEPN GFEPN SFEPN HFEPN CFEPN	3	2.00~5.00	0~12	2.0~10.0	0.5~10.0	6	M3	147					
	4	2.00~5.00		2.0~10.0			M4	333					
	5	3.00~7.00		2.0~10.0		8	M5	676					
	6	4.00~7.00		2.0~12.0			M6	1156					
	8	5.00~9.00		2.0~15.0		11	M8	2803					
	10	6.00~11.00		2.0~20.0		13	M10	5557					

* 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	-	E
FEPM5	-	P3.50	-	L5	-	B6.0	-	E4.0
SFEPG6	-	P5.00	-	L10	-	B10.0	-	E2.0
FEPN3	-	P2.01	-	L6	-	B6.0	-	E2.0

Alterations	Screwdriver Slot	Relief	Wrench Flats
			
Code	DRC	NNC	SC
Spec.	Width 0.8mm Depth 1mm Ordering Code DRC Applicable to Threaded only.	Adds a relief at the thread end. Ordering Code NNC Applicable when L=0. Applicable to Threaded only.	SC=1mm Increment SC>D SC>P Ordering Code SC10

Alterations

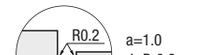
Part Number	-	P	-	L	-	B	-	E	(DRC, NNC, SC)
FEPN3	-	P2.01	-	L6	-	B6.0	-	E2	- DRC

Support Pins
Stepped

Features: Locating Pins with the Broad Specifiable Range of Height. Height adjustment and Round/Diamond locating in the horizontal direction are possible.

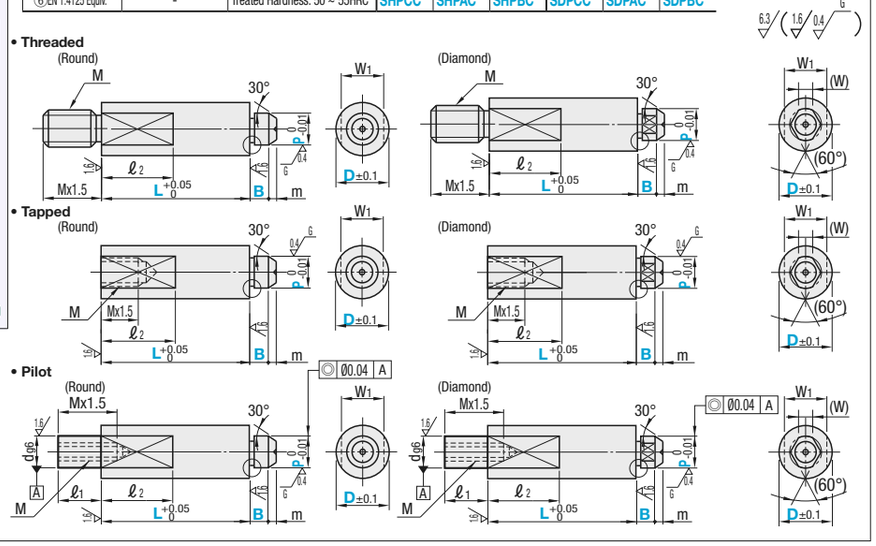
RoHS

M Material	S Surface Treatment	H Hardness	Round			Diamond		
			Threaded	Tapped	Pilot	Threaded	Tapped	Pilot
①EN 1.1191 Equiv.	Black Oxide	-	SHPCB	SHPAB	SHPBB	SDPCB	SDPAB	-
②EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	SHPCR	SHPAR	SHPBR	-	SDPAR	SDPBR
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	SHPCHB	SHPAHB	SHPBHB	SDPCHB	-	SDPBHB
④EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	-	SHPAHR	SHPBHR	-	-	SDPBHR
⑤EN 1.4301 Equiv.	-	-	SHPCSU	SHPASU	SHPBSU	SDPCSU	SDPASU	SDPBSU
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	SHPCC	SHPAC	SHPBC	SDPCC	SDPAC	SDPBC



a=1.0
d=P-0.2

Relief dimension is a reference value.



Part Number Type	D	L 0.01mm Increment	P 0.01mm Increment	B Selection	m	d	M (Coarse)	*Tightening Torque N·cm	ℓ1	W1	(W)	ℓ2
Threaded <Round> SHPCB SHPCR SHPCHB SHPCSU SHPCC	6	10.00~50.00	3.00~4.00	2 3 4 5	1	-	M3	147	-	5	1.0	8
	8		3.00~6.00							7	1.5	
Tapped <Round> SHPAB SHPAR SHPAHB SHPAHR SHPASU SHPAC	10	20.00~80.00			2	6			6	8	1.5	
	12		4.00~8.00			8	M5	676		10	1.8	10
Pilot <Round> SHPBB SHPBR SHPBHB SHPBHR SHPBSU SHPBC	15		4.00~10.00		3	10			9	13	2.2	
	20		5.00~10.00			12	M8	2803		17	2.5	
<Diamond> SDPCB SDPCHB SDPCSU SDPCC	25		8.00~15.00			16	M10	5557	10	20	3	
Tapped <Diamond> SDPAB SDPAR SDPASU SDPAC												
Pilot <Diamond> SDPBR SDPBHB SDPBHR SDPBSU SDPBC												

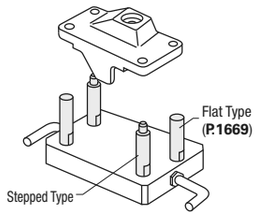
Pilot Type is not available for D6, D8. Note the strength of undercut part for Internal Thread and Pilot. P.1566

* 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	-	L	-	P	-	B
SHPAR10	-	L20.01	-	P4.05	-	B5
SDPCSU20	-	L50.00	-	P8.00	-	B3

Example



Round Shape

D	Unit Price Threaded						Unit Price Internal Thread						Unit Price Pilot					
	① SHPCB	② SHPCR	③ SHPCHB	④ SHPCHR	⑤ SHPCSU	⑥ SHPCC	① SHPAB	② SHPAR	③ SHPAHB	④ SHPAHR	⑤ SHPASU	⑥ SHPAC	① SHPBB	② SHPBR	③ SHPBHB	④ SHPBHR	⑤ SHPBSU	⑥ SHPBC
6				-									-	-	-	-	-	-
8				-									-	-	-	-	-	-
10				-														
12				-														
15				-														
20				-														
25				-														

Diamond Shape

D	Unit Price Threaded						Unit Price Internal Thread						Unit Price Pilot					
	① SDPCB	② SDPCR	③ SDPCHB	④ SDPCHR	⑤ SDPCSU	⑥ SDPCC	① SDPAB	② SDPAR	③ SDPAHB	④ SDPAHR	⑤ SDPASU	⑥ SDPAC	① SDPBB	② SDPBR	③ SDPBHB	④ SDPBHR	⑤ SDPBSU	⑥ SDPBC
6		-		-		-		-		-		-		-		-		-
8		-		-		-		-		-		-	-	-	-	-	-	-
10		-		-		-		-		-		-						
12		-		-		-		-		-		-						
15		-		-		-		-		-		-						
20		-		-		-		-		-		-						
25		-		-		-		-		-		-						

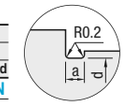
Support Pins
Stepped, Configurable

Spec.Change
Printed in Purple

Features: Each dimension of Stepped Support Pins is configurable.

RoHS

M Material	S Surface Treatment	H Hardness	Type					
			Straight			Shouldered		
			Press Fit	Tapped	Threaded	Press Fit	Tapped	Threaded
①EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	SHFJ	SHFU	SHFN	-	SHXU	SHXN
②EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	GSHFJ	GSHFU	GSHFN	GSHXJ	-	-
③EN 1.4301 Equiv.	-	-	SSHFJ	SSHFU	SSHFN	-	-	SSHXN
⑤EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CSHFJ	CSHFU	CSHFN	CSHXJ	CSHXU	CSHXN



a=1.0
d=D(P)-0.2

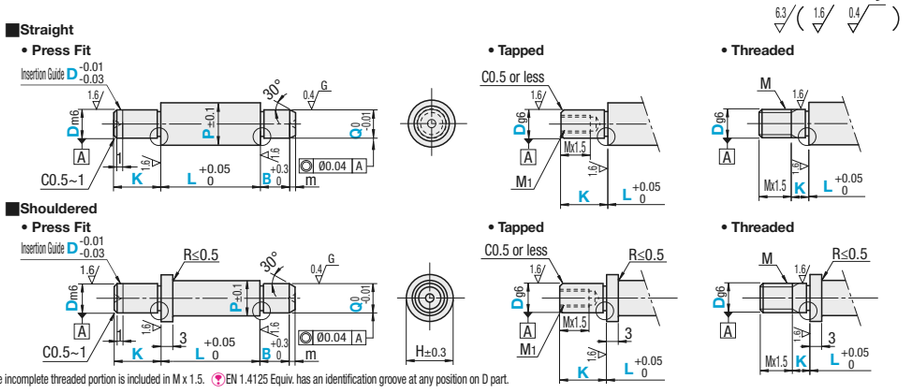
Relief dimension is a reference value.

D	H	M (Coarse)	M1 (Coarse)	m
3	6	M3	-	1
4		M4		
5	8	M5		
6		M6	M3	2
8	11	M8	M4	
10	13	M10	M5	3
12	15	M12		

◆Tapped and Threaded Recommended Tightening Torque (Reference)

M (Coarse)	Tightening Torque N · cm
M3	147
M4	333
M5	676
M6	1156
M8	2803
M10	5557
M12	9702

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.



Q≤P-1 When K<Pitch x 2, the incomplete threaded portion is included in M x 1.5. EN 1.4125 Equiv. has an identification groove at any position on D part.

Press Fit

Part Number Type	D	P 0.1mm Increment Straight	P 0.1mm Increment Shouldered	Q 0.01mm Increment	K 1mm Increment	L 0.01mm Increment	B 0.1mm Increment	Unit Price Straight ① SHFJ	② GSHFJ	③ SSHFJ	⑤ CSHFJ	Unit Price Shouldered ② GSHXJ	⑤ CSHXJ
Straight Shouldered SHFJ GSHFJ GSHXJ SSHFJ CSHFJ CSHXJ	3	3.5~6.0	3.0~5.0	2.00~5.00	3~6	10.00~60.00	2.0~5.0						
	4	4.5~7.0	3.0~5.0	2.00~6.00	4~8	10.00~60.00	2.0~10.0						
	5	5.5~8.0	3.0~7.0	2.00~7.00	5~10	10.00~60.00	2.0~10.0						
	6	6.5~10.0	5.0~7.0	4.00~9.00	6~12	10.00~80.00	2.0~12.0						
	8	9.0~13.0	5.0~8.0	4.00~12.00	8~16	10.00~80.00	2.0~15.0						
	10	11.0~15.0	6.0~11.0	5.00~14.00	10~20	10.00~100.00	2.0~20.0						
	12	13.0~16.0	6.0~13.0	5.00~15.00	12~24	10.00~100.00	2.0~20.0						

Tapped

Part Number Type	D	P 0.1mm Increment Straight	P 0.1mm Increment Shouldered	Q 0.01mm Increment	K 1mm Increment	L 0.01mm Increment	B 0.1mm Increment	Unit Price Straight ① SHFU	② GSHFU	③ SSHFU	⑤ CSHFU	Unit Price Shouldered ① SHXU	⑤ CSHXU
Straight Shouldered SHFU SHXU GSHFU SSHFU CSHFU CSHXU	6	6.5~10.0	5.0~7.0	4.00~9.00	6~12	10.00~80.00	2.0~12.0						
	8	9.0~13.0	5.0~9.0	4.00~12.00	8~16	10.00~80.00	2.0~15.0						
	10	11.0~15.0	6.0~11.0	5.00~14.00	10~20	10.00~100.00	2.0~20.0						
	12	13.0~16.0	6.0~13.0	5.00~15.00	12~24	10.00~100.00	2.0~20.0						

Threaded

Note the strength of under-head part. P.1566

Part Number Type	D	P 0.1mm Increment Straight	P 0.1mm Increment Shouldered	Q 0.01mm Increment	K 1mm Increment	L 0.01mm Increment	B 0.1mm Increment	Unit Price Straight ① SHFN	② GSHFN	③ SSHFN	⑤ CSHFN	Unit Price Shouldered ① SHXN	③ SSHXN	⑤ CSHXN
Straight Shouldered SHFN SHXN GSHFN SSHFN SSHXN CSHFN CSHXN	3	3.5~6.0	3.0~5.0	2.00~5.00	0~6	10.00~60.00	2.0~5.0							
	4	4.5~7.0	3.0~5.0	2.00~6.00	0~8	10.00~60.00	2.0~10.0							
	5	5.5~8.0	3.0~7.0	2.00~7.00	0~10	10.00~60.00	2.0~10.0							
	6	6.5~10.0	5.0~7.0	4.00~9.00	0~12	10.00~80.00	2.0~12.0							
	8	9.0~13.0	5.0~9.0	4.00~12.00	0~16	10.00~80.00	2.0~15.0							
	10	11.0~15.0	6.0~11.0	5.00~14.00	0~20	10.00~100.00	2.0~20.0							
	12	13.0~16.0	6.0~13.0	5.00~15.00	0~24	10.00~100.00	2.0~20.0							

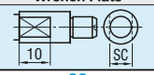
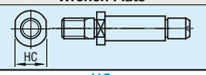
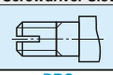
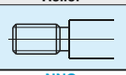
The dispersion of L dimension should be within 0.02 for same orders.

Ordering Example

Part Number	-	P	-	Q	-	K	-	L	-	B
SHFJ5	-	P6.0	-	Q4.50	-	K5	-	L30.55	-	B3.2

Alterations

Part Number	-	P	-	Q	-	K	-	L	-	B	-	(SC, HC, DRC, NNC)
SHXU10	-	P8.5	-	Q5.00	-	K10	-	L80.00	-	B6.7	-	HC12

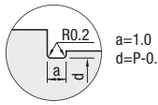
Alterations	Wrench Flats	Wrench Flats	Screwdriver Slot	Relief
				
Code	SC	HC	DRC	NNC
Spec.	SC=1mm Increment SC>D Ordering Code SC8 For Tapped, SC≥M1+3 Applicable to Straight only.	HC=1mm Increment HC>P HC>D Ordering Code HC10 Applicable to Shouldered only.	Width 0.8mm, Depth 1mm Ordering Code DRC Applicable to Threaded only.	Adds a relief at the thread end. Ordering Code NNC Applicable when K=0. Applicable to Threaded only.

Support Pins
Tip Shape Selectable

Features: With Wrench Flats. Upper locating is possible by selecting Tip Shape.

Material	Surface Treatment	Hardness	Threaded	Tapped	Pilot
①EN 1.1191 Equiv.	Black Oxide	-	LSPC	LSPA	LSPB
②EN 1.1191 Equiv.	Hard Chrome Plating	-	LSPRC	LSPAR	LSPBR
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	LSPHBC	LSPAHB	LSPBHB
④EN 1.1191 Equiv.	Hard Chrome Plating	Treated Hardness: 45 ~ 50HRC	LSPHRC	LSPAHR	LSPBHR
⑤EN 1.4301 Equiv.	-	-	LSPSUC	LSPASU	LSPBSU
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	LSPSCC	LSPASC	LSPBSC

Hard Chrome Plating: Plating Hardness: 750HV ~, Plating Thickness: 3μm or more

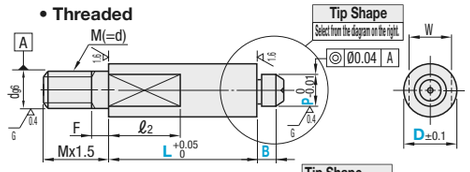


a=1.0
d=P-0.2

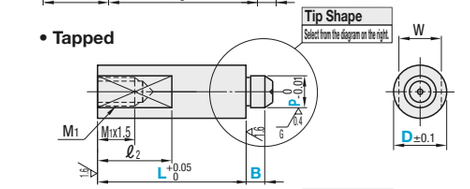
Relief dimension is a reference value.

6.3 (1.6) (0.4) G

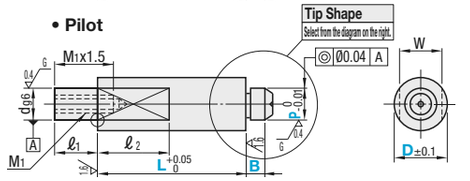
• Threaded



• Tapped

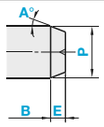


• Pilot



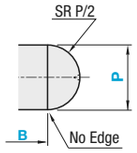
Tip Shape Selectable

Shape A

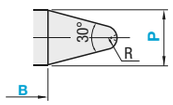


D-2EtanA≥0.73 (Tip Diameter Ø0.73 or more)
Reference:tan15°=0.267 tan30°=0.577
tan45°=1 tan60°=1.732

Shape B



Shape C



◆Tapped, Threaded Recommended Tightening Torque (Reference)

M (Coarse)	Tightening Torque N·cm
M3	147
M4	333
M5	676
M6	1156
M8	2803
M10	5557
M12	9702
M16	24108
M20	46942

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.

Part Number Type	Tip Shape	D	L 0.01mm Increment	P 0.01mm Increment	B 0.1mm Increment	E 0.1mm Increment (Shape A only)	A Selection (Shape A only)	R (Shape C)	d	M (Coarse)	F	M1 (Coarse)	ℓ1	W	ℓ2
Threaded Tapped Pilot		6	10.00~50.00	3.00~4.00	2.0~12.0	0.5~10.0	15 30 45 60	1	3	3	1.5	M3	-	5	8
LSPC LSPA LSPB		8		3.00~6.00	2.0~15.0				5	5	2			7	
LSPRC LSPAR LSPBR	A	10	20.00~80.00	4.00~8.00	2.0~20.0			1.5	6	6	3		6	8	10
LSPHBC LSPAHB LSPBHB	B	12		4.00~10.00	2.0~20.0				8	8	4	M5		10	
LSPHRC LSPAHR LSPBHR	C	15		5.00~10.00	2.0~25.0			2	10	10	5		9	13	10
LSPSUC LSPASU LSPBSU		20		8.00~15.00	2.0~30.0			3	12	12	5	M8		17	
LSPSCC LSPASC LSPBSC		25		10.00~15.00	2.0~30.0			4	16	16	5			20	

For Pilot Type, D dimension 10 or more is available. Note the strength of undercut part for Tapped and Pilot. P.1566

Ordering Example

Part Number	L	P	B	E	A
LSPCA10	L20.01	P4.05	B5	E2.0	A15
LSPBC12	L25.01	P8.00	B10		

D	Unit Price Threaded ① LSPC	② LSPRC	③ LSPHBC	④ LSPHRC	⑤ LSPSUC	⑥ LSPSCC	Unit Price Tapped ① LSPA	② LSPAR	③ LSPAHB	④ LSPAHR	⑤ LSPASU	⑥ LSPASC	Unit Price Pilot ① LSPB	② LSPBR	③ LSPBHB	④ LSPBHR	⑤ LSPBSU	⑥ LSPBSC
6													-	-	-	-	-	-
8													-	-	-	-	-	-
10																		
12																		
15																		
20																		
25																		

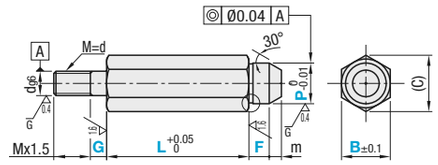
Hex Support Pins
Stepped

Spec.Change Printed in Purple

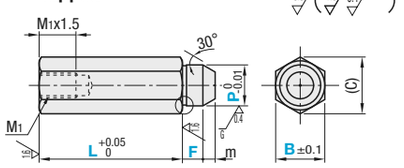
Features: Hex Support Pins with Stepped Tapered Head. Upper locating is possible.

Material	Surface Treatment	Hardness	Type Threaded	Tapped	Pilot
①EN 1.1191 Equiv.	Black Oxide	-	SRPCB	SRPAB	SRPBB
②EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Plating Hardness: 750HV ~	SRPCR	SRPAR	-
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	SRPCHB	SRPAHB	SRPBHB
④EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	SRPCHR	SRPAHR	SRPBHR
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	SRPCC	SRPAC	SRPBC

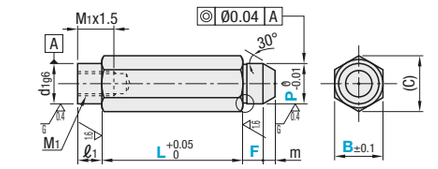
• Threaded



• Tapped



• Pilot



a=1.0
d=P-0.2

Relief dimension is a reference value.

◆Tapped and Threaded Recommended Tightening Torque (Reference)

M (Coarse)	Tightening Torque N·cm
M3	147
M4	333
M5	676
M6	1156
M8	2803
M10	5557
M12	9702
M16	24108
M20	46942

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.

When G<Pitch x2, the incomplete threaded portion (Pitch x2) is included in M x1.5. For Pitch Dia. P.2292

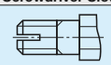
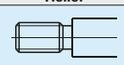
Part Number Type	B	L 0.01mm Increment	P 0.01mm Increment	F 0.1mm Increment	G 1mm Increment Threaded only	m	(C)	d	M (Coarse)	M1 (Coarse)	ℓ1	d1
Threaded Tapped Pilot	6	10.00~50.00	3.00~4.00	2.0~12.0	0 or 2≤G≤dx2	1	6.9	4	M4	M3	-	-
	7		3.00~6.00	2.0~15.0			8.1					
	8	15.00~50.00					9.2	5	M5	M4		
SRPCB SRPAB SRPBB	10	20.00~80.00	4.00~8.00	2.0~20.0		2	11.5			M5	6	8
SRPCR SRPAR	12		4.00~10.00				13.9	6	M6			10
SRPCHB SRPAHB SRPBHB	13		5.00~10.00	2.0~25.0		3	15			M6	8	
SRPCHR SRPAHR SRPBHR	14						16.2					
SRPCC SRPAC SRPBC	17		8.00~15.00	2.0~30.0			19.6	8	M8	M8	9	12
	19						21.9					
	24		10.00~15.00			4	27.7	10	M10		10	16

Pilot is available when B≥10. EN 1.4125 Equiv. is B≥8.

Ordering Example

Part Number	L	P	F	G
Type B				
SRPCB 10	L50.00	P5.98	F3.0	G5
SRPAHB 14	L70.02	P6.00	F5.0	

Alterations: Part Number - L - P - F - G - (DRC, NNC)
SRPCB12 - L30.00 - P4.98 - F3.0 - G0 - NNC

Alterations	Screwdriver Slot	Relief
		
Code	DRC	NNC
Spec.	Machines a screwdriver slot of width 0.8mm and depth 1mm.	Adds a relief at the thread end. Applicable when G=0.

B	Unit Price Threaded ① SRPCB	② SRPCR	③ SRPCHB	④ SRPCHR	⑥ SRPCC	Unit Price Tapped ① SRPAB	② SRPAR	③ SRPAHB	④ SRPAHR	⑥ SRPAC	Unit Price Pilot ① SRPBB	② SRPBR	③ SRPBHB	④ SRPBHR	⑥ SRPBC
6					-					-	-	-	-	-	-
7					-					-	-	-	-	-	-
8											-	-	-	-	-
10												-			
12												-			
13												-			
14												-			
17												-			
19												-			
24												-			

Height Adjusting Pins - Hex
Threaded

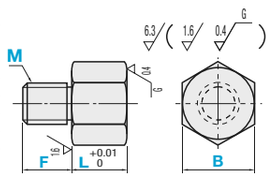
Features: Locating Pins suitable for height adjustment because High Precision and Medium Accuracy can be selected for the tolerance in the height direction. Threaded and Height Configurable.

High Accuracy

RoHS

(Alteration CRC)

Material	Surface Treatment	Hardness	Type: B Fixed F Fixed	Type: B Fixed F Configurable	Type: B Selectable F Fixed
EN 1.7220 Equiv.	-	Treated Hardness: 46 ~ 50HRC	JPRA	JPRAM	JPRFA
	Black Oxide	Treated Hardness: 46 ~ 50HRC	BJPRA	BJPRAM	BJPRFA
	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 46 ~ 50HRC Plating Hardness: 750HV ~	HJPRA	HJPRAM	HJPRFA
EN 1.4301 Equiv.	-	-	SJPRA	SJPRAM	SJPRFA
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPRA	CJPRAM	CJPRFA



* Under-head of "B Fixed and F Configurable Type" is R0.5 or less. Take note of chamfering on the tapped hole.

Part Number: Type	B, F Fixed	B Fixed and F Configurable	B Selectable and F Fixed	M (Coarse)	* Tightening Torque N·cm	L 0.01mm Increment	B: Standard	B: Selection			F: Standard	F: 1mm Increment
	JPRA	JPRAM	JPRFA	3	147	2.00~10.00	6	5			5	3~36 (M≤F≤Mx3)
	BJPRA	BJPRAM	BJPRFA	4	333		7	6			6	
	HJPRA	HJPRAM	HJPRFA	5	676		8	7			8	
	SJPRA	SJPRAM	SJPRFA	6	1156	5.00~30.00	10	8				
	CJPRA	CJPRAM	CJPRFA	8	2803		13	10	12		10	
				10	5557	10.00~50.00	17	12	13	14	12	
				12	9702		19	14	17		15	

* 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.

M (Coarse)	Unit Price: B, F Fixed JPRA	BJPRA	HJPRA	SJPRA	CJPRA	B Fixed and F Configurable JPRAM	BJPRAM	HJPRAM	SJPRAM	CJPRAM	B Selectable and F Fixed JPRFA	BJPRFA	HJPRFA	SJPRFA	CJPRFA
3															
4															
5															
6															
8															
10															
12															

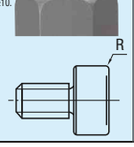
Ordering Example

	Part Number		L		B		F
(Hex, B and F Fixed)	JPRA4	-	10.00				
(Hex, B Fixed and F Configurable)	JPRAM8	-	L15.00			-	F12
(Hex, B Selectable and F Fixed)	JPRFA6	-	20.00	-	8		

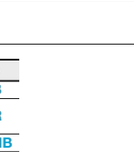
Alterations

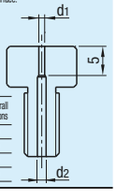
	Part Number		L		B		F		(CRC, EAT)
	JPRA10	-	20.50			-		-	CRC
	HJPRAM10	-	L15.00			-	F18	-	EAT

Alterations	Radius to End Face	Seating Sensor Holes
Code	CRC	EAT
Spec.	Chamfering of workpiece receiving-surface is changed to R1. Hex is R size in the right table. Ordering Code CRC ☞Applicable when L≥15. ☞Hex is applicable to B≥10.	Machines seating sensor holes on the work-receiving surface. Hole diameters are shown in the table below. Ordering Code EAT ☞Applicable when D≥6. ☞Application conditions vary depending on F and L dimensions.



B	R
10	2
12, 13	2.5
14	3
17, 19	4

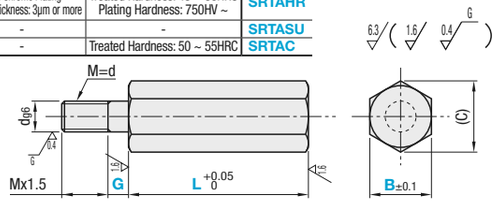




M	Narrow Hole Dia. d1	Through Hole Dia. d2	Applicable Overall Length Conditions
6	1.0	1.5	F+L≤20
8	1.0	2.5	F+L≤30
10	1.5	3.5	F+L≤40
12	1.5	4.5	F+L≤50

Medium Accuracy

Material	Surface Treatment	Hardness	Type
①EN 1.1191 Equiv.	Black Oxide	-	SRTAB
②EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	SRTAR
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	SRTAHB
④EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	SRTAHR
⑤EN 1.4301 Equiv.	-	-	SRTASU
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	SRTAC



Part Number: Type	B	L 0.01mm Increment	G 1mm Increment Threaded only	(C)	d	M (Coarse)	* Tightening Torque N·cm	Unit Price Threaded: ① SRTAB	② SRTAR	③ SRTAHB	④ SRTAHR	⑤ SRTASU	⑥ SRTAC
SRTAB SRTAR SRTAHB SRTAHR SRTASU SRTAC	6	10.00~50.00	0 or 2≤G≤d x 2	6.9	4	M4	333						-
	7			8.1									-
	8	15.00~50.00		9.2	5	M5	676						
	10	20.0 ~80.00		11.5									
	12			13.9									
	13			15	6	M6	1156						
	14			16.2									
	17			19.6									
	19			21.9	8	M8	2803						
	24			27.7	10	M10	5557						

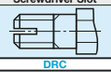
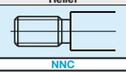
☞EN 1.4125 Equiv. is B≥8.
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number		L		G
Type	B			
SRTAB	8	- L20.00	-	G6

Alterations

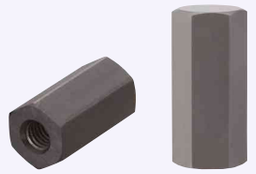
Part Number		L		G		(DRC, NNC)
SRTAB10	-	L30.00	-	G3	-	DRC

Alterations	Screwdriver Slot	Relief
		
Code	DRC	NNC
Spec.	Machines a screwdriver slot of width 0.8mm and depth 1mm.	Adds a relief at the thread end. ☞Applicable when G=0.

Height Adjusting Pins - Hex
Tapped

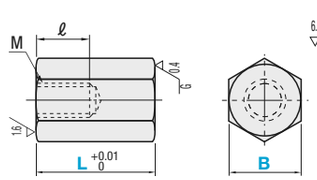
Features: Locating Pins suitable for height adjustment because High Precision and Medium Accuracy can be selected for the tolerance in the height direction. Threaded and Height Configurable.

High Accuracy



RoHS

Material	Surface Treatment	Hardness	Type
EN 1.7220 Equiv.	-	Treated Hardness: 46 ~ 50HRC	JPRM
EN 1.7220 Equiv.	Black Oxide	Treated Hardness: 46 ~ 50HRC	BJPRM
EN 1.7220 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 46 ~ 50HRC Plating Hardness: 750HV ~	HJPRM



Part Number: Type	B	L 0.01mm Increment	M (Coarse)	* Tightening Torque N·cm	ℓ	Unit Price: JPRM	BJPRM	HJPRM
JPRM BJPRM HJPRM	8	16.00~50.00	M5	676	8			
	10	16.00~50.00						
	13	22.00~50.00	M8	2803	12			
	17	22.00~50.00						
	19	22.00~50.00						

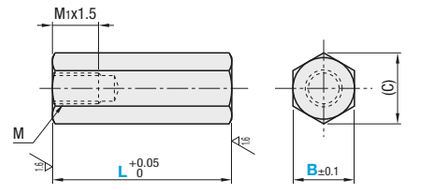
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

Ordering Example

Part Number		L
Type	B	
JPRM8		- 20.00

Medium Accuracy

Material	Surface Treatment	Hardness	Type
①EN 1.1191 Equiv.	Black Oxide	-	SRTBB
②EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	SRTBR
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	SRTBHB
④EN 1.1191 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC Plating Hardness: 750HV ~	SRTBHR
⑤EN 1.4301 Equiv.	-	-	SRTBSU
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	SRTBC



☞When G<Pitch x 2, the incomplete threaded portion (Pitch x 2) is included in M x 1.5. For Pitch Dia. ☞ P2292

Part Number: Type	B	L 0.01mm Increment	G 1mm Increment Threaded only	(C)	d	M (Coarse)	* Tightening Torque N·cm	Unit Price Tapped: ① SRTBB	② SRTBR	③ SRTBHB	④ SRTBHR	⑤ SRTBSU	⑥ SRTBC
SRTBB SRTBR SRTBHB SRTBHR SRTBSU SRTBC	6	10.00~50.00	0 or 2≤G≤d×2	6.9	4	M3	147						-
	7			8.1									-
	8	15.00~50.00		9.2	5	M4	333						
	10	20.0 ~80.00		11.5		M5	676						
	12			13.9	6								
	13			15		M6	1156						
	14			16.2									
	17			19.6	8								
	19			21.9		M8	2803						
	24			27.7	10								

☞EN 1.4125 Equiv. is B≥8.
* 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		L
Type	B	
SRTBSU	12	- L50.00

Height Adjusting Pins - Round, Wrench Flats / Shouldered

Threaded, Tapped

Spec.Change Printed in Purple

Features: Locating Pins for the height direction. O.D. and Height Configurable.

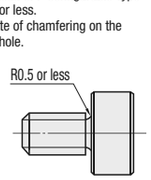
Round, Wrench Flats Threaded

RoHS

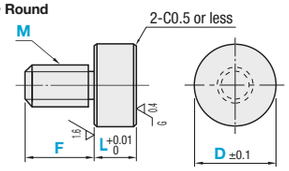
Material	Surface Treatment	Hardness	Type	Ordering Code, Shape Code F Fixed	F Configurable
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPH	AF (Round)	AFM (Round)
	Black Oxide	Treated Hardness: 60 ~ 63HRC	BJPH		
	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	HJPH		
EN 1.4301 Equiv.	-	-	SJPH	AW (Wrench Flats)	AWM (Wrench Flats)
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPH		
EN 1.7242 Equiv.	-	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8)	TJPH		

Some combinations are not available. Refer to the price list to select the available combination.

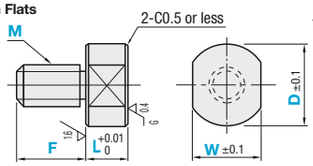
* Under-head of F Configurable Type is R0.5 or less.
Take note of chamfering on the tapped hole.

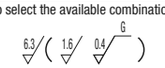


• Round



• Wrench Flats





Part Number Type	Shape Code	M (Coarse)	* Tightening Torque N·cm	L 0.01mm Increment	D 1mm Increment	W 1mm Increment	F Standard	F 1mm Increment
JPH BJPH HJPH SJPH CJPH TJPH	<Round> AF (F Fixed) AFM (F Configurable) <Wrench Flats> AW (F Fixed) AWM (F Configurable)	3	147	2.00~10.00	5~30 (M<D<Mx5)	4~13	5	3~36 (M≤F≤Mx3)
		4	333			5~18	6	
		5	676			6~23	8	
		6	1156	5.00~30.00		7~28		
		8	2803			9~29	10	
		10	5557	10.00~50.00		11~29	12	
		12	9702			13~29	15	

M<W<D
* 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.

Round

M (Coarse)	Unit Price F Fixed JPHAF	BJPHAF	HJPHAF	SJPHAF	CJPHAF	TJPHAF	Unit Price F Configurable JPHAFM	BJPHAFM	HJPHAFM	SJPHAFM	CJPHAFM	TJPHAFM
3						-						
4						-						
5						-						
6						-						
8						-						
10						-						
12						-						

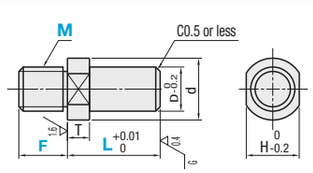
Wrench Flats

M (Coarse)	Unit Price F Fixed JPHAW	BJPHAW	HJPHAW	SJPHAW	CJPHAW	TJPHAW	Unit Price F Configurable JPHAWM	BJPHAWM	HJPHAWM	SJPHAWM	CJPHAWM	TJPHAWM
3												
4												
5												
6												
8												
10												
12												

Shouldered, Threaded

RoHS

Material	Surface Treatment	Hardness	Type F Fixed	F Configurable
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPHA	JPHAM
	Black Oxide	Treated Hardness: 60 ~ 63HRC	BJPHA	BJPHAM
	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	HJPHA	HJPHAM
EN 1.4301 Equiv.	-	-	SJPHA	SJPHAM
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPHA	CJPHAM
EN 1.7242 Equiv.	-	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8)	-	TJPHAM



* Under-head of F Configurable Type is R0.5 or less.
Take note of chamfering on the tapped hole.

Part Number Type	M (Coarse)	* Tightening Torque N·cm	L 0.01mm Increment	F Standard	F 1mm Increment	D	d	T	H
<F Fixed> JPHA BJPHA HJPHA SJPHA CJPHA	<F Configurable> JPHAM BJPHAM HJPHAM SJPHAM CJPHAM TJPHAM	3	147	5.00~10.00	3~36 (M≤F≤Mx3)	3	5	3	3
		4	333	6		4	6		4
		5	676	8		5	8		5
		6	1156	5.00~30.00		6	10		8
		8	2803	10		8	12		10
		10	5557	10.00~50.00		10	14	5	12
		12	9702	15		12	16		14

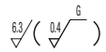
* Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P. 2297 (10.9). Not applicable when using locking materials or lock washers.

M (Coarse)	Unit Price F Fixed JPHA	BJPHA	HJPHA	SJPHA	CJPHA	Unit Price F Configurable JPHAM	BJPHAM	HJPHAM	SJPHAM	CJPHAM	TJPHAM
3											
4											
5											
6											
8											
10											
12											

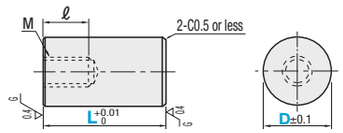
Round, Wrench Flats Tapped

RoHS

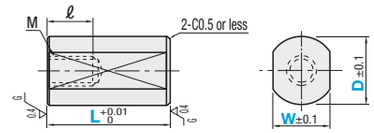
Material	Surface Treatment	Hardness	Round	Wrench Flats
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPHUF	JPHUW
	Black Oxide	Treated Hardness: 60 ~ 63HRC	BJPHUF	BJPHUW
	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	HJPHUF	HJPHUW



• Round



• Wrench Flats



Part Number Type	D	L 0.01mm Increment	W 1mm Increment	M (Coarse)	* Tightening Torque N·cm	ℓ
<Round> JPHUF BJPHUF HJPHUF	<Wrench Flats> JPHUW BJPHUW HJPHUW	6	12.00~30.00	-	M3	147	5
		8	16.00~30.00	-	M5	676	8
		10	16.00~50.00	8~ 9			
		12	16.00~50.00	8~11			
		16	22.00~50.00	11~15	M8	2803	12
		20	22.00~50.00	11~19			

M+2<W<D ☤Wrench flats is D≥10.
* 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.

D	Unit Price Round JPHUF	BJPHUF	HJPHUF	Unit Price Wrench Flats JPHUW	BJPHUW	HJPHUW
6				-	-	-
8				-	-	-
10						
12						
16						
20						

Ordering Example

Part Number - L - D - W - F

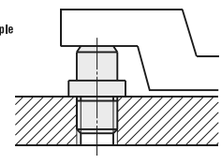
■Round, Wrench Flats Threaded
(Round, F Fixed) JPHAF3 - 5.21 - 6
(Round, F Configurable) JPHAFM3 - L5.21 - D6 - F9

(Wrench Flats, F Fixed) HJPHAW10 - 20 - 15 - W11
(Wrench Flats, F Configurable) HJPHAWM10 - L20.00 - D15 - W11 - F15

■Shouldered, Threaded
(F Fixed) JPHA8 - 14
(F Configurable) JPHAM8 - L14.00 - F10

■Round, Wrench Flats Tapped
(Round) JPHUF6 - 20.00
(Wrench Flats) BJPHUW10 - 17.00 - W8

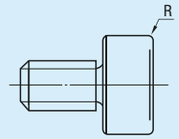
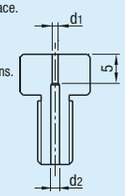
ex. Example



Alterations

Part Number - L - D - W - F - (CRC, EAT)
JPHAF10 - 20.50 - 25 - CRC
HJPHAWM10 - L15.00 - D20 - W20 - F15 - EAT

☤Alterations are applicable to Threaded only.

Alterations Code	Radius to End Face CRC	Seating Sensor Holes EAT
Spec.	Chamfering of workpiece receiving-surface is changed to R1. Ordering Code CRC ⊗No addition of radius to wrench flats. ☤Applicable when L≥15. 	Machines seating sensor holes on the work-receiving surface. Hole diameters are shown in the table below. Ordering Code EAT ☤Applicable when D≥6. ☤Application conditions vary depending on F and L dimensions. 

M	Narrow Hole Dia. d1	Through Hole Dia. d2	Applicable Overall Length Conditions
6	1.0	1.5	F+L≤20
8	1.0	2.5	F+L≤30
10	1.5	3.5	F+L≤40
12	1.5	4.5	F+L≤50

Height Adjusting Pins

Press Fit, Counterbored

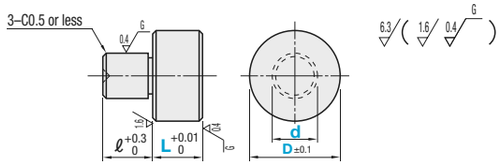
Spec.Change
Printed in Purple

■Features: Locating Pins for the height direction. Press Fit and Counterbored. O.D. and Height Configurable.

■Press Fit

RoHS

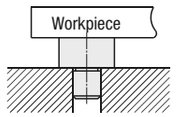
Material	Surface Treatment	Hardness	Type			
			L Configurable		D and L Configurable	
			d dim. Tolerance p6	d dim. Tolerance m6	d dim. Tolerance p6	d dim. Tolerance m6
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPAT	JPAM	JPATF	JPAMF
EN 1.2510 Equiv.	Black Oxide	Treated Hardness: 60 ~ 63HRC	BJPAT	BJPAM	BJPATF	BJPAMF
EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	HJPAT	HJPAM	HJPATF	HJPAMF
EN 1.4301 Equiv.	-	-	SJPAT	SJPAM	SJPATF	SJPAMF
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPAT	CJPAM	CJPATF	CJPAMF



■L Configurable

Part Number Type		d	d dim. Tolerance m6	d dim. Tolerance p6	L 0.01mm Increment	D	ℓ	Unit Price JPAT JPAM	BJPAT BJPAM	HJPAT HJPAM	SJPAT SJPAM	CJPAT CJPAM
d dim. Tolerance p6	d dim. Tolerance m6	3	+0.008 +0.002	+0.012 +0.006	2.00~10.00	6	5					
JPAT	JPAM	4	+0.012 +0.004	+0.020 +0.012		8	6					
BJPAT	BJPAM	5				10	8					
HJPAT	HJPAM	6			5.00~30.00	12						
SJPAT	SJPAM	8	+0.015	+0.024		16	10					
CJPAT	CJPAM	10	+0.006	+0.015	10.00~50.00	18	12					
		12	+0.018 +0.007	+0.029 +0.018		20	15					

Example



■D and L Configurable

Part Number Type		d	d dim. Tolerance m6	d dim. Tolerance p6	L 0.01mm Increment	D 1mm Increment	ℓ	Unit Price JPATF JPAMF	BJPATF BJPAMF	HJPATF HJPAMF	SJPATF SJPAMF	CJPATF CJPAMF
d dim. Tolerance p6	d dim. Tolerance m6	3	+0.008 +0.002	+0.012 +0.006	2.00~10.00	5~30 (d<D<5d)	5					
JPATF	JPAMF	4	+0.012 +0.004	+0.020 +0.012			6					
BJPATF	BJPAMF	5					8					
HJPATF	HJPAMF	6			5.00~30.00							
SJPATF	SJPAMF	8	+0.015	+0.024			10					
CJPATF	CJPAMF	10	+0.006	+0.015	10.00~50.00		12					
		12	+0.018 +0.007	+0.029 +0.018			15					

Height Adjusting Pins

Flat, Tip Set Screw

■Features: With Wrench Flats. Locating is possible by attaching a pin on the tip or by Flat Tip adjustment.

RoHS

◆Tapped, Threaded Recommended Tightening Torque (Reference)

M (Coarse)	Tightening Torque N·cm
M3	147
M4	333
M5	676
M6	1156
M8	2803
M10	5557
M12	9702
M16	24108
M20	46942

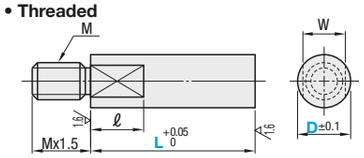
Tightening torque (reference) will be within Strength Class of Tightening Torque on Technical Data ☞ P.2297 (10.9). Not applicable when using locking materials or lock washers.

Material	Surface Treatment	Hardness	Flat			Tip Set Screw Type	
			Threaded	Tapped	Threaded with Pilot	Threaded	Tapped
①EN 1.1191 Equiv.	Black Oxide	-	STPAB	STPBB	STPDB	SPFAB	-
②EN 1.1191 Equiv.	Hard Chrome Plating	-	STPAR	STPBR	STPDR	-	-
③EN 1.1191 Equiv.	Black Oxide	Treated Hardness: 45 ~ 50HRC	STPAHB	STPBHB	STPDHB	-	-
④EN 1.1191 Equiv.	Hard Chrome Plating	Treated Hardness: 45 ~ 50HRC	STPAHR	STPBHR	STPDHR	-	-
⑤EN 1.4301 Equiv.	-	-	STPASU	STPBSU	STPDSU	-	SPFBSU
⑥EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	STPAC	STPBC	STPDC	-	-

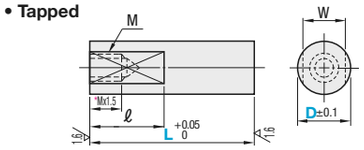
Hard Chrome Plating: Plating Hardness 750HV ~, Plating Thickness 3µm or more

■Flat

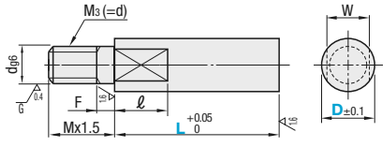
• Threaded



• Tapped



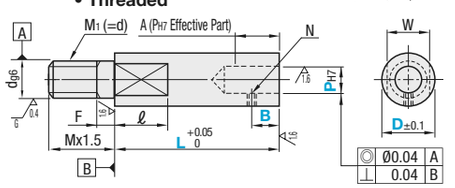
• Threaded with Pilot



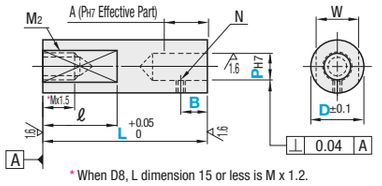
* When D8, L dimension 15 or less is M x 1.2.

■Tip Set Screw

• Threaded



• Tapped



* When D8, L dimension 15 or less is M x 1.2.

The dispersion of L dimension should be within 0.02 for same orders.

■Flat

Part Number Type			D	L 0.01mm Increment	M (Coarse)	d	M3 (Coarse)	F	W	ℓ
Threaded	Tapped	Pilot								
STPAB	STPBB	STPDB	6	10.00~50.00	M3	3	M3	1.5	5	8
STPAR	STPBR	STPDR	8		M5	5	M5	2	7	
STPAHB	STPBHB	STPDHB	10	20.00~80.00		6	M6	3	8	
STPAHR	STPBHR	STPDHR	12			8	M8	4	10	
STPASU	STPBSU	STPDSU	15		M8	10	M10	5	13	10
STPAC	STPBC	STPDC	20			12	M12		17	

■Tip Set Screw

Part Number Type		D	L 0.01mm Increment	P Selection	B 0.5mm Increment	d	F	M1 (Coarse)	W	ℓ	A	M2 (Coarse)	N (Coarse)	Unit Price Tip Set Screw Threaded ① SPFAB	Threaded ⑤ SPFASU	Tapped ① SPFBB	Tapped ⑤ SPFBSU
Threaded	Tapped																
SPFAB	SPFBSU	12	20.00 (30.00)~80.00	6	4.0~6.0	8	4	M8	10	10	10	M5	M3		-	-	
		15	20.00 (40.00)~80.00	8	5.0~10.0	10	5	M10	13	10	15	M8	M4		-	-	
		20	25.00 (45.00)~80.00	10 12	5.0~15.0	12	5	M12	17	10	20	M8	M4		-	-	
		25	30.00 (50.00)~80.00	12 16	5.0~19.0	16	5	M16	20	12	24	M10	M4		-	-	
		30	35.00 (65.00)~80.00	16 20	5.0~23.0	20	6	M20	24	18	28	M16	M4		-	-	

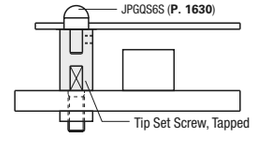
L dimension in ( ) is applicable to Tapped.

Ordering Example

Part Number - L - P - B

STPAB10 - L20.03 (Flat)
SPFAB12 - L20.01 - P6 - B5 (Tip Set Screw)

Example

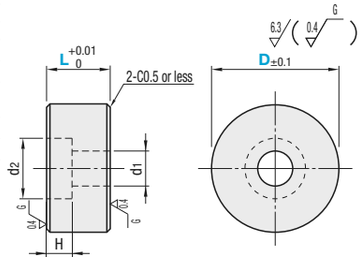


D	Unit Price Threaded ① STPAB	② STPAR	③ STPAHB	④ STPAHR	⑤ STPASU	⑥ STPAC	Unit Price Tapped ① STPBB	② STPBR	③ STPBHB	④ STPBHR	⑤ STPBSU	⑥ STPBC	Unit Price Threaded with Pilot ① STPDB	② STPDR	③ STPDHB	④ STPDHR	⑤ STPDSU	⑥ STPDC
6																		
8																		
10																		
12																		
15																		
20																		

■Counterbored

RoHS

Material	Surface Treatment	Hardness	Type	
			L Configurable	D and L Configurable
EN 1.2510 Equiv.	-	Treated Hardness: 60 ~ 63HRC	JPHU	JPHUZ
EN 1.2510 Equiv.	Black Oxide	Treated Hardness: 60 ~ 63HRC	BJPHU	BJPHUZ
EN 1.2510 Equiv.	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	HJPHU	HJPHUZ
EN 1.4301 Equiv.	-	-	SJPHU	SJPHUZ
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	CJPHU	CJPHUZ



■L Configurable

Part Number Type	No.	L 0.01mm Increment	D	d1	d2	H	Applicable Screw	*Tightening Torque N·cm	Unit Price JPHU	BJPHU	HJPHU	SJPHU	CJPHU
JPHU	3	6.00~15.00	12	3.5	6.5	4	M3	147					
BJPHU	4	7.00~20.00	13	4.5	8	5	M4	333					
HJPHU	5	8.00~20.00	15	5.5	9.5	6	M5	676					
SJPHU	6	9.00~25.00	20	6.5	11	7	M6	1156					
CJPHU	8	11.00~30.00	30	9	14	9	M8	2803					

■D and L Configurable

Part Number Type	No.	L 0.01mm Increment	D 1mm Increment	d1	d2	H	Applicable Screw	*Tightening Torque N·cm	Unit Price JPHUZ	BJPHUZ	HJPHUZ	SJPHUZ	CJPHUZ
JPHUZ	3	6.00~15.00	10~15	3.5	6.5	4	M3	147					
BJPHUZ	4	7.00~20.00	12~20	4.5	8	5	M4	333					
HJPHUZ	5	8.00~20.00	15~20	5.5	9.5	6	M5	676					
SJPHUZ	6	9.00~25.00	15~25	6.5	11	7	M6	1156					
CJPHUZ	8	11.00~30.00	18~30	9	14	9	M8	2803					

* 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 - L

JPAT8 - 15.00 (Press Fit, L Configurable)
JPHU3 - 10.00 (Counterbored, L Configurable)

Part Number - L - D

JPATF8 - 15.00 - 12 (Press Fit, D and L Configurable)
JPHUZ5 - 10.00 - 20 (Counterbore, D and L Configurable)

Height Adjusting Pins

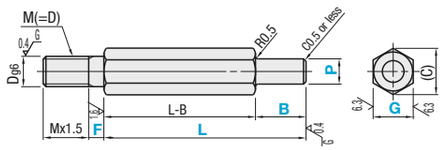
Hex Small Head / Height Adjusting Pins / Height Adjusting Caps

Features: Small Head Height Adjusting Pins are useful if the receiving surface is limited. Height Adjusting Pins support deflection by the workpiece weight.

Height Adjusting Pins

RoHS

Material	Hardness	Type
EN 1.7220 Equiv.	Treated Hardness: 46 ~ 50HRC	JPSRA



L	Tolerance
5.00~50.00	+0.01 0
50.01~100.00	+0.02 0

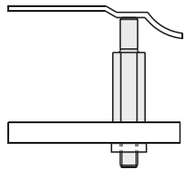
Part Number Type	G	L 0.01mm Increment	P 0.5mm Increment	B 0.1mm Increment	F 1mm Increment	D(M)	(C)	Unit Price
JPSRA	8	5.00~50.00	3.0~5.0	2.0~30.0 (B≤P x4.0)	2 ~ 4 or 0	5	9.2	
	10	5.00~60.00	4.0~6.0		2 ~ 5 or 0		11.5	
	13	5.00~80.00	4.0~8.0		2 ~ 6 or 0	8	15.0	
	17	10.00~80.00	5.0~10.0		2 ~ 8 or 0		19.6	
	19	10.00~100.00	5.0~12.0		2 ~ 10 or 0		21.9	

When F=0, a relief will be added at the neck of thread.

Ordering Example: Part Number - L - P - B - F
JPSRA17 - L12.00 - P8.0 - B3.5 - F4

Example

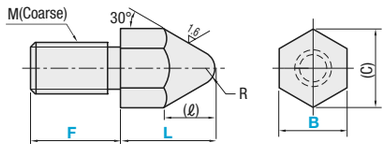
Use it in places with limited space to support.



Height Adjusting Pins

RoHS

Material	Surface Treatment	Hardness	Type
EN 1.7220 Equiv.	-	Treated Hardness: 46 ~ 50HRC	JPTU
	Black Oxide	Treated Hardness: 46 ~ 50HRC	BJPTU
	Hard Chrome Plating Plating Thickness: 3μm or more	Treated Hardness: 46 ~ 50HRC Plating Hardness: 750HV ~	HJPTU
EN 1.4301 Equiv.	-	-	SJPTU



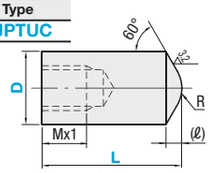
Part Number Type	B	L 1mm Increment	F 1mm Increment	M (Coarse)	*Tightening Torque N·cm	R	(ℓ)	(C)	Unit Price JPTU	BJPTU	HJPTU	SJPTU
JPTU BJPTU HJPTU SJPTU	10	10~30	6~18	M6	1156	4	6	11.5				
	13	10~32	8~24	M8	2803	6	7	15.0				
	17	15~50				7	10	19.6				
	19	15~50				9	10	21.9				

* 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.

Height Adjusting Caps

RoHS

Material	Operating Ambient Temperature	Type
Polyacetal (Black)	-45 ~ 95°C	JPTUC



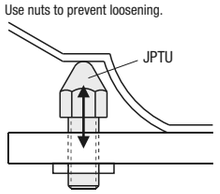
Part Number Type	D	L 1mm Increment	M (Coarse)	*Tightening Torque N·cm	R	(ℓ)	Unit Price JPTUC
JPTUC	6	10~30	M3	147	3	1	
	7				3		
	8	15~50	M5	676	4		
	10				5	2	
	13	20~60	M8	2803	6	3	

*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.

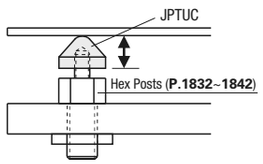
Ordering Example: Part Number - L - F
JPTU10 - L15 - F8
JPTUC13 - 25

Example

Supports the Deflection by the Tare of Workpiece
Use nuts to prevent loosening.



Supports the Deflection by the Tare of Workpiece



Holders for Locating Pins

Standard, Compact Flange

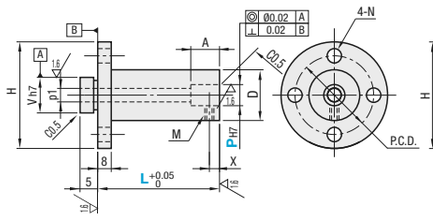
Features: Use in combination with Locating Pins Set Screw Type (P.1624, etc.) and Internal Thread Type (P.1577, etc.) enables locating at higher position.

Standard

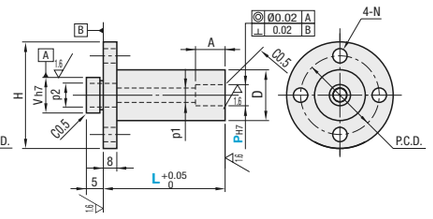
RoHS

Material	Surface Treatment	Set Screw Mounted	Screw Mounted
EN 1.1191 Equiv.	Black Oxide	M-LPHT	M-LPHB

• Set Screw Mounted



• Screw Mounted



Set Screw Mounted and Screw Mounted

Part Number Type	P	L 0.1mm Increment	D	V	p1	p2	*A	M (Coarse)	*Tightening Torque N·cm	X	N	P.C.D.	H	Unit Price Min. L ~ 100.0	L100.1~150.0	L150.1~200.0
(Set Screw Mounted) M-LPHT (Screw Mounted) M-LPHB	6	20.0~100.0	12	12	3.5	6.5	10	M3	147	4.5	4.5	30	39		-	-
	8	25.0~100.0	15	15	5.5	9.5	15	M4	333	5					-	-
	10	30.0~100.0	17				16			7	5.5	34	44		-	-
	12		18				20								-	-
	13	40.0~150.0	20	20	9	14	22				6.5	43	53			-
	16		27				24									-
	20	45.0~200.0	32				32					49	63			

* When using with Locating Pins, L dimension (under-head length) ≤A dimension (shown above).
* 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.

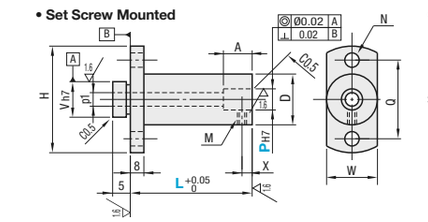
Compact Flange

RoHS

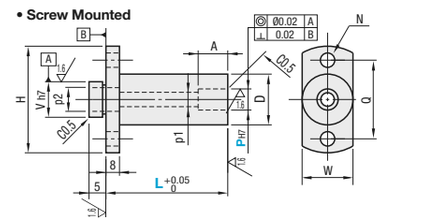
Material	Surface Treatment	Set Screw Mounted	Screw Mounted
EN 1.1191 Equiv.	Black Oxide	LPHT	LPHB

When P dimension 6~12 with L>100, concentricity is Ø0.05 and L dimension tolerance is +0.1 0.

• Set Screw Mounted



• Screw Mounted



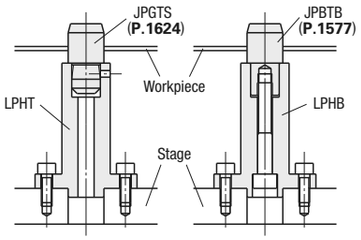
Set Screw Mounted and Screw Mounted

Part Number Type	P	L 0.1mm Increment	D	V	*p1	p2	*A	M (Coarse)	*Tightening Torque N·cm	X	N	Q	H	W	Unit Price Min. L ~ 100.0	L100.1~150.0	L150.1~200.0
(Set Screw Mounted) LPHT (Screw Mounted) LPHB	6	20.0~150.0	12	12	3.5	6.5	10	M3	147	4.5	4.5	30	39	13			-
	8	25.0~150.0	15	15	5.5	9.5	15	M4	333	5				16			-
	10	30.0~150.0	17				16			7	5.5	34	44	18			-
	12		18				20							19			-
	13	40.0~150.0	20	20	9	14	22				6.5	43	53	21			-
	16		27				24							28			-
	20	45.0~200.0	32				32					49	63	33			

* When using with Locating Pins, L dimension (under-head length) ≤A dimension (shown above). * For P=6, p1 of L>100 is 5; for P=8, 10 and 12, p1 of L>100 is 7.
* 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 - L
LPHT8 - L30.0

Example



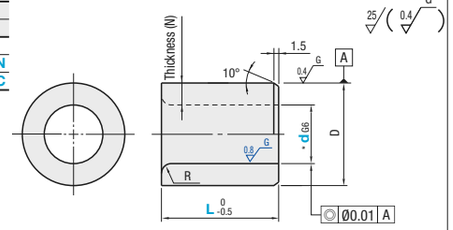
Bushings for Locating Pins

Straight, Standard / Thin Wall

Spec.Change
Printed in Purple

■Standard

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	60HRC~	JBA	JBAM
EN 1.2510 Equiv.	Electroless Nickel Plating	60HRC~	JBAN	JBAMN
EN 1.4125 Equiv.	-	50HRC~	JBAC	JBAMC



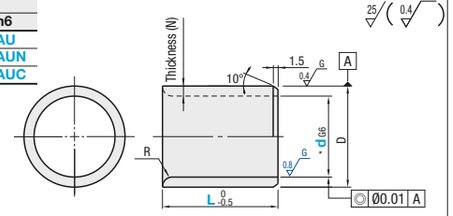
Tolerance of d dimension 2 ~ 6 of electroless nickel plated products is H7.
For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

Part Number: Type	d	D Tolerance: No Surface Treatment		D Tolerance: Electroless Nickel Plating		L Selection	Thickness (N)	R	D	D Tolerance: p6	D Tolerance: m6	Unit Price: JBA JBAM	Unit Price: JBAN JBAMN	Unit Price: JBAC JBAMC
	2	G6	+0.008 +0.002	H7	+0.010 0	5 6 7 8 10 12	1.5	0.8	5	+0.020 +0.012	+0.012 +0.004			
	3						2		7					
(p6)	4		+0.012 +0.004		+0.012 0	5 6 7 8 10 12 15 *16 20	2	1	8	+0.024 +0.015	+0.015 +0.006			
JBA	5					5 6 7 8 10 12 15 16 20	2.5		10					
JBAN	6					5 6 7 8 10 12 15 16 20 25	2		12					
JBAC	8		+0.014 +0.005	G6	+0.014 +0.005		2	2	12	+0.029 +0.018	+0.018 +0.007			
	10					6 7 8 10 12 15 16 20 25 30	2.5		15					
(m6)	12					8 10 12 15 16 20 25 30	3		18					
JBAM	13		+0.017 +0.006		+0.017 +0.006	10 12 *15 16 20 *25 30	4.5		22					
JBAMN	15					12 15 16 20 *25 30	5		25	+0.035 +0.022	+0.021 +0.008			
JBAMC	16					12 15 16 20 25 30	5		26					
	20		+0.020 +0.007		+0.020 +0.007		5	3	30					
	25					16 20 25 30 *35	5		35	+0.042 +0.026	+0.025 +0.009			

⊗L dimension with * is not applicable to JBAMC.

■Thin Wall

Material	Surface Treatment	Hardness	Type p6	Type m6
SUJ2 or SKS3 Equiv.	-	58HRC~	JBAUP	JBAU
SUJ2 or SKS3 Equiv.	Electroless Nickel Plating	58HRC~	JBAUNP	JBAUN
EN 1.4125 Equiv.	-	50HRC~	JBAUCP	JBAUC



Tolerance of d dimension 3 ~ 6 of electroless nickel plated products is H7.
For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

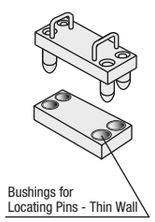
Part Number: Type	d	D Tolerance: No Surface Treatment		D Tolerance: Electroless Nickel Plating		L Selection	Thickness (N)	R	D	D Tolerance: p6	D Tolerance: m6	Unit Price: JBAU JBAUP	Unit Price: JBAUN JBAUNP	Unit Price: JBAUC JBAUCP
	3	G6	+0.008 +0.002	H7	+0.010 0	5 6 8 10 12	1	0.5	5	+0.020 +0.012	+0.012 +0.004			
(p6)	4		+0.012 +0.004		+0.012 0	5 6 8 10 12 15 16			6					
JBAUP	5					5 6 8 10 12 15 16 20			7	+0.024 +0.015	+0.015 +0.006			
JBAUNP	6								8					
JBAUCP	8		+0.014 +0.005	G6	+0.014 +0.005	6 8 10 12 15 16 20			10					
	10						1.5		13					
(m6)	12					8 10 12 15 16 20			15	+0.029 +0.018	+0.018 +0.007			
JBAU	13		+0.017 +0.006		+0.017 +0.006	10 12 *15 16 20	2	1	17					
JBAUN	15					10 12 15 16 20			19					
JBAUC	16					10 12 15 16 20 25	2.5		21	+0.035 +0.022	+0.021 +0.008			
	20		+0.020 +0.007		+0.020 +0.007	12 15 16 20 25	3	2	26					
	25					20 25			31	+0.042 +0.026	+0.025 +0.009			

⊗L dimension with * is not applicable to JBAUN.

Ordering Example

Part Number	-	L
JBAC12	-	10
JBAUN8	-	8

Example



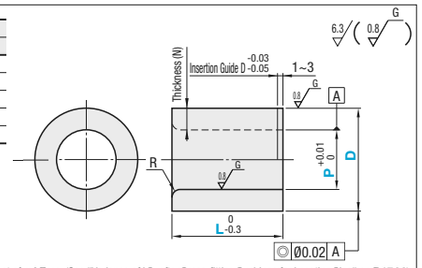
Bushings for Locating Pins - Thin Wall

Bushings for Locating Pins

Configurable, Straight, Standard / Thin Wall

■Standard

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBAFP	JBAF
EN 1.2510 Equiv.	Black Oxide	56~60HRC	JBAFBP	JBAFB
EN 1.2510 Equiv.	Electroless Nickel Plating	56~60HRC	JBAFMP	JBAFM
EN 1.4301 Equiv.	-	-	JBAFSP	JBAFS
EN 1.4125 Equiv.	-	50~55HRC	JBAFCP	JBAFC



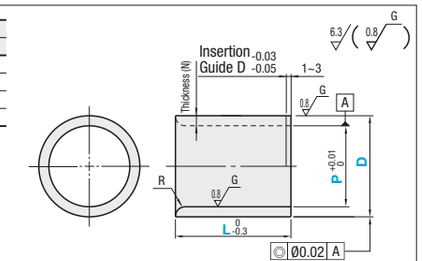
For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

Part Number: Type	D	D Tolerance: p6	D Tolerance: m6	P 0.01mm Increment	L 0.1mm Increment	Thickness (N)	R	Unit Price: JBAF JBAFP	Unit Price: JBAFB JBAFBP	Unit Price: JBAFM JBAFMP	Unit Price: JBAFS JBAFSP	Unit Price: JBAFC JBAFCP
(p6)	5	+0.020 +0.012	+0.012 +0.004	2.00~2.50	5.0~6.0	1.25~1.50	0.8					
JBAFP	7	+0.024 +0.015	+0.015 +0.006	2.00~3.50	5.0~8.0	1.75~2.50						
JBAFBP	8			3.00~4.50	5.0~13.0		1.0					
JBAFMP	10			4.00~6.50	5.0~20.0	1.75~3.00						
JBAFSP	12			6.00~8.50								
JBAFCP	15	+0.029 +0.018	+0.018 +0.007	8.00~10.50		2.25~3.50	2.0					
	18			10.00~12.50		2.75~4.00						
(m6)	20			12.00~13.50	5.0~40.0	3.25~4.00						
JBAF	22			12.00~13.50		4.25~5.00						
JBAFB	25	+0.035 +0.022	+0.021 +0.008	13.00~15.50		4.75~6.00						
JBAFM	26			15.00~16.50		4.75~5.50						
JBAFS	30			16.00~20.50	5.0~60.0	4.75~7.00	3.0					
JBAFC	35	+0.042 +0.026	+0.025 +0.009	20.00~25.00		5.00~7.50						

L≤Px2.5 when P≤3.59 L≤Px3.0 when P≥3.60 For (D-P)/2≤2, R≤2

■Thin Wall

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBAUFP	JBAUF
EN 1.2510 Equiv.	Black Oxide	56~60HRC	JBAUFBP	JBAUFB
EN 1.2510 Equiv.	Electroless Nickel Plating	56~60HRC	JBAUFMP	JBAUFM
EN 1.4125 Equiv.	-	50~55HRC	JBAUFCP	JBAUFC



For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

Part Number: Type	D	D Tolerance: p6	D Tolerance: m6	P 0.01mm Increment	L 0.1mm Increment	Thickness (N)	R	Unit Price: JBAUF JBAUFP	Unit Price: JBAUFB JBAUFBP	Unit Price: JBAUFM JBAUFMP	Unit Price: JBAUFC JBAUFCP
	7	+0.024 +0.015	+0.015 +0.006	3.51~5.00	5.0~8.0	1.00~1.74	0.5				
	8			4.51~6.00	5.0~13.0						
	9			4.51~6.50		1.25~2.24					
(p6)	10			6.51~8.00	5.0~20.0	1.00~1.74					
JBAUFP	11	+0.029 +0.018	+0.018 +0.007	8.00~9.00		1.00~1.50					
JBAUFBP	12			8.51~9.00		1.50~1.74					
JBAUFMP	13			8.51~10.00		1.50~2.24					
JBAUFCP	14			9.00~11.00		1.50~2.50					
	15			10.51~12.00		1.50~2.24					
(m6)	17			10.51~13.00		2.00~3.24	1.0				
JBAUF	18			12.51~14.00		2.00~2.74					
JBAUFB	20	+0.035 +0.022	+0.021 +0.008	13.51~15.00	5.0~40.0	2.50~3.24					
JBAUFM	22			13.51~17.00		2.50~4.24					
JBAUFC	25			15.51~19.00		3.00~4.74					
	26			16.51~20.00		3.00~4.74					
	30			20.51~24.00		3.00~4.74	1.5				
	35	+0.042 +0.026	+0.025 +0.009	25.01~29.00	5.0~60.0	3.00~4.99					

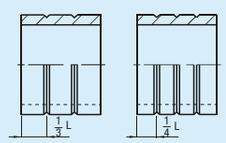
L≤Px2.5 when P≤3.59 L≤Px3.0 when P≥3.60

Ordering Example

Part Number	-	P	-	L
JBAF10	-	P4.00	-	L8.5
JBAUFC10	-	P8.00	-	L15.0

Alterations

Part Number	-	P	-	L	-	(RS)
JBAFP20	-	P12.00	-	L20.0	-	RS

Alteration	Code	Spec.
Loctite Adhesive Groove Machining When L≤13.0 When L>13.0 	RS	Adds a Loctite adhesive groove. Number of O.D. Grooves ・When L≤13.0 → 2 lines ・When L>13.0 → 3 lines Ordering Code RS When D≤13, D-P≥3 When D≥14, D-P≥4 ⊗Not applicable to Thin Wall Type. ⊗Not applicable to L<9.0.

Bushings for Locating Pins

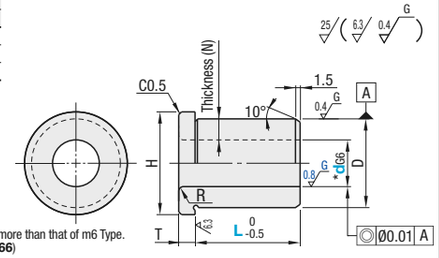
Shouldered, Standard / Thin Wall

Spec.Change
Printed in Purple

■Standard

RoHS

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	60HRC~	JBH	JBHM
EN 1.2510 Equiv.	Electroless Nickel Plating	60HRC~	JBHN	JBHMN
EN 1.4125 Equiv.	-	50HRC~	JBHC	JBHMC



Tolerance of d dimension 2 ~ 6 of electroless nickel plated products is H7.
For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

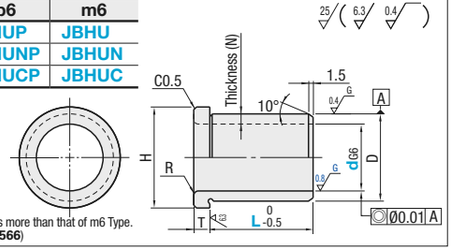
Part Number Type	d	D Tolerance No Surface Treatment		D Tolerance Electroless Nickel Plating		L Selection	Thickness (N)	R	H	T	D	D Tolerance p6	D Tolerance m6	Unit Price JBH JBHM	Unit Price JBHN JBHMN	Unit Price JBHC JBHMC
(p6) JBH JBHN JBHC	2	G6	+0.008 +0.002	H7	+0.010 0	5 6 8 10 12	1.5	0.8	9	2.5	5	+0.020 +0.012	+0.012 +0.004		-	-
	3					5 6 8 *10 12	2		11		7					
	4		+0.012 +0.004		+0.012 0	*5 6 8 10 12 15 *16 20	2	1	12	3	8	+0.024 +0.015	+0.015 +0.006			
	5					5 6 8 10 12 15 16 20	2.5		14		10					
	6					5 6 8 10 12 15 16 20 25	2									
	8		+0.014 +0.005	G6	+0.014 +0.005		2	2	16	4	12	+0.029 +0.018	+0.018 +0.007			
(m6) JBHM JBHMN JBHMC	10					6 8 10 12 15 16 20 25	2.5		19		15					
	12					8 10 12 15 16 20 25 30	3		22		18					
	13		+0.017 +0.006		+0.017 +0.006	10 12 15 16 20 25 30	4.5		26	5	22	+0.035 +0.022	+0.021 +0.008			-
	15					*10 *12 *15 *16 *20 *25 *30	5		30		25					
	16					10 12 15 16 20 25 30	5				26					
	20		+0.020 +0.007		+0.020 +0.007	12 15 16 20 25 30	5	3	35	6	30	+0.042 +0.026	+0.025 +0.009			
	25					16 20 25 *30 35	5		40		35					

⊗L dimension with * is not applicable to JBHMC.

■Thin Wall

RoHS

Material	Surface Treatment	Hardness	Type p6	Type m6
SUJ2 or SKS3 Equiv.	-	58HRC~	JBHUP	JBHU
SUJ2 or SKS3 Equiv.	Electroless Nickel Plating	58HRC~	JBHUNP	JBHUN
EN 1.4125 Equiv.	-	50HRC~	JBHUCP	JBHUC



Tolerance of d dimension 3 ~ 6 of electroless nickel plated products is H7.
For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

Part Number Type	d	D Tolerance No Surface Treatment		D Tolerance Electroless Nickel Plating		L Selection	Thickness (N)	R	H	T	D	D Tolerance p6	D Tolerance m6	Unit Price JBHU JBHUP	Unit Price JBHUN JBHUNP	Unit Price JBHUC JBHUCP
(p6) JBHUP JBHUNP JBHUCP	3	G6	+0.008 +0.002	H7	+0.010 0	6 8 10 12	1	0.5	9	2.5	5	+0.020 +0.012	+0.012 +0.004			
	4		+0.012 +0.004		+0.012 0	6 8 10 12 15 16			10	3	6	+0.024 +0.015	+0.015 +0.006			
	5					6 8 10 12 *15 *16 20			11		7					
	6					6 8 10 12 *15 16 20			12		8					
	8		+0.014 +0.005	G6	+0.014 +0.005	6 8 10 12 *15 16 20			14	4	10	+0.029 +0.018	+0.018 +0.007			
(m6) JBHU JBHUN JBHUC	10					6 8 10 12 15 16 20	1.5		17		13					
	12					8 10 12 15 16 *20			19		15					
	13		+0.017 +0.006		+0.017 +0.006	10 12 15 16 20	2	1	21	5	17	+0.035 +0.022	+0.021 +0.008	-	-	
	15					12 15 16 20			24		19					
	16					12 15 16 20 *25	2.5	2	26		21					
	20		+0.020 +0.007		+0.020 +0.007	12 15 16 20 25	3		31	6	26	+0.042 +0.026	+0.025 +0.009			
	25					20 25			36		31					

⊗L dimension with * is not applicable to JBHUC.

Ordering Example

Part Number	-	L
JBH5	-	8
JBHUN12	-	12

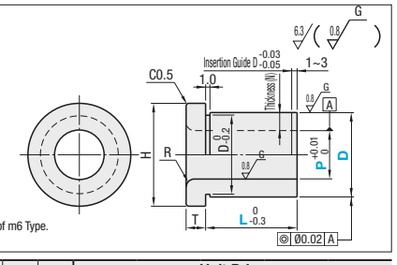
Bushings for Locating Pins

Configurable, Shouldered, Standard / Thin Wall

■Standard

RoHS

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBHFP	JBHF
EN 1.2510 Equiv.	Black Oxide	56~60HRC	JBHFBP	JBHFB
EN 1.2510 Equiv.	Electroless Nickel Plating	56~60HRC	JBHFMP	JBHFM
EN 1.4301 Equiv.	-	-	JBHFSP	JBHFS
EN 1.4125 Equiv.	-	50~55HRC	JBHFCP	JBHFC



For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

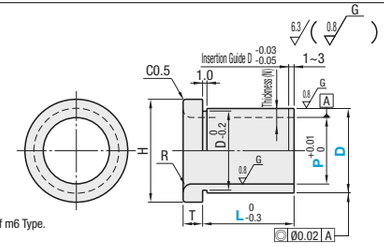
Part Number Type	D	D Tolerance p6	D Tolerance m6	P 0.01mm Increment	L 0.1mm Increment	Thickness (N)	R	H	T	Unit Price JBHF JBHFP	Unit Price JBHFB JBHFBP	Unit Price JBHFM JBHFMP	Unit Price JBHFS JBHFSP	Unit Price JBHFC JBHFCP
(p6) JBHFP JBHFBP JBHFMP JBHFSP JBHFCP	5	+0.029 +0.012	+0.012 +0.004	2.20~2.50	3.0~3.5	1.25~1.50	0.8	9	2.5					
	7	+0.024 +0.015	+0.015 +0.006	2.20~3.50	3.0~6.0	1.75~2.50		11						
	8			3.00~4.50	3.0~10.0		1.0	12	3					
	10			4.00~6.50	3.0~15.0	1.75~3.00		14						
	12	+0.029 +0.018	+0.018 +0.007	6.00~8.50				16						
	15			8.00~10.50		2.25~3.50		19	4					
	18			10.00~12.50		2.75~4.00		22						
(m6) JBHF JBHFB JBHFM JBHFS JBHFC	20	+0.035 +0.022	+0.021 +0.008	12.00~13.50	5.0~35.0	3.25~4.00	2.0	26	5					
	22			12.00~13.50		4.25~5.00								
	25			13.00~15.50		4.75~6.00		30						
	26			15.00~16.50		4.75~5.50								
	30			16.00~20.50	5.0~50.0	4.75~7.00	3.0	35	6					
	35	+0.042 +0.026	+0.025 +0.009	20.00~25.00		5.00~7.50		40						

L+T≤Px2.5 when P≤3.59 L+T≤Px3.0 when P≥3.60

■Thin Wall

RoHS

Material	Surface Treatment	Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBHUFP	JBHUF
EN 1.2510 Equiv.	Black Oxide	56~60HRC	JBHUFBP	JBHUFB
EN 1.2510 Equiv.	Electroless Nickel Plating	56~60HRC	JBHUFMP	JBHUFM
EN 1.4125 Equiv.	-	50~55HRC	JBHUFCP	JBHUFC



For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)

Part Number Type	D	D Tolerance p6	D Tolerance m6	P 0.01mm Increment	L 0.1mm Increment	Thickness (N)	R	H	T	Unit Price JBHUF JBHUFP	Unit Price JBHUFB JBHUFBP	Unit Price JBHUFM JBHUFMP	Unit Price JBHUFC JBHUFCP
(p6) JBHUFP JBHUFBP JBHUFMP JBHUFCP	7	+0.024 +0.015	+0.015 +0.006	3.51~5.00	3.0~6.0	1.00~1.74	0.5	11	2.5				
	8			4.51~6.00	3.0~10.0			12					
	9			4.51~6.50		1.25~2.24		13.5	3				
	10			6.51~8.00		1.00~1.74		14					
	11	+0.029 +0.018	+0.018 +0.007	8.00~9.00	3.0~15.0	1.00~1.50		15					
	12			8.51~9.00		1.50~1.74		16	4				
	13			8.51~10.00	5.0~35.0	1.50~2.24		17					
	14			9.00~11.00		1.50~2.50		18					
	15			10.51~12.00		1.50~2.24		19					
(m6) JBHUF JBHUFB JBHUFM JBHUFC	17	+0.035 +0.022	+0.021 +0.008	10.51~13.00		2.00~3.24	1.0	21	5				
	18			12.51~14.00		2.00~2.74		22					
	20			13.51~15.00		2.50~3.24		26					
	22			13.51~17.00		2.50~4.24							
	25			15.51~19.00		3.00~4.74		30					
	26			16.51~20.00		3.00~4.74							
	30			20.51~24.00		3.00~4.74	1.5	35	6				
	35	+0.042 +0.026	+0.025 +0.009	25.01~29.00	5.0~50.0	3.00~4.99		40					

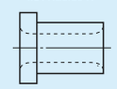
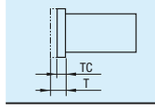
L+T≤Px2.5 when P≤3.59 L+T≤Px3.0 when P≥3.60

Ordering Example

Part Number	-	P	-	L
JBHFM25	-	P14.00	-	L20.0
JBHUFM15	-	P11.00	-	L20.0

Alterations

Part Number	-	P	-	L	-	(RC, TC)
JBHFM12	-	P8.00	-	L12.0	-	RC

Alterations	Code	Spec.
I.D. Radius R 	RC	Machines Radius R on both sides. Thickness 1.5mm or more Size of R will be the same as R on shoulder side with D dimension 10 or more. Ordering Code RC
Shoulder Thickness 	TC	1mm Increment Ordering Code TC4 3≤TC<T O.A.L. becomes short as much as T-TC. Applicable when D≥12.

Bushings for Locating Pins

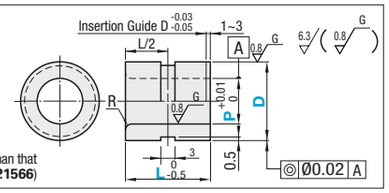
Retaining, Oval

■Retaining

RoHS

M Material	S Surface Treatment	H Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBAFPG	JBAFG
EN 1.2510 Equiv.	Black Oxide	56~60HRC	JBAFBPG	JBAFBG
EN 1.2510 Equiv.	Electroless Nickel Plating	56~60HRC	JBAFMPG	JBAFMG
EN 1.4301 Equiv.	-	-	JBAFSPG	JBAFSG
EN 1.4125 Equiv.	-	50~55HRC	JBAFCPG	JBAFCG

For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)



Part Number Type	D	D Tol. p6	D Tol. m6	P 0.01mm Increment	L 0.1mm Increment	R	Unit Price JBAFPG JBAFG	JBAFBPG JBAFBG	JBAFMPG JBAFMG	JBAFSPG JBAFSG	JBAFCPG JBAFCG
(p6) JBAFPG	8	+0.024 +0.015	+0.015 +0.006	4.00~4.50	10.0~13.0	1.0					
JBAFBPG	10			4.00~6.50							
JBAFMPG	12	+0.029 +0.018	+0.018 +0.007	6.00~8.50	10.0~20.0						
JBAFSPG	15			8.00~10.50							
JBAFCPG	18			10.00~12.50							
	20			12.00~13.50	10.0~40.0	2.0					
(m6) JBAFG	22	+0.035 +0.022	+0.021 +0.008	12.00~13.50							
JBAFBG	25			13.00~15.50							
JBAFMG	26			15.00~16.50							
JBAFSG	30			16.00~20.50							
JBAFCG	35	+0.042 +0.026	+0.025 +0.009	20.00~25.00	12.0~60.0	3.0					

L≤Px3.0

■Shouldered, Retaining

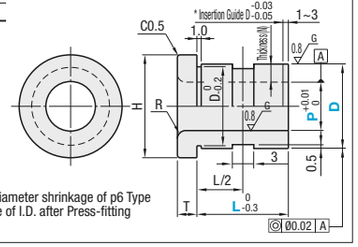
RoHS

M Material	S Surface Treatment	H Hardness	Type p6	Type m6	Type h6
EN 1.2510 Equiv.	-	56~60HRC	JBHFPG	JBHFG	JBHG
	Electroless Nickel Plating	56~60HRC	JBHFMPG	JBHFMG	JBHMG
EN 1.4125 Equiv.	-	50~55HRC	JBHFCPG	JBHFCG	-

D	p6	m6	h6
8	+0.024 +0.015	+0.015 +0.006	-0.009 0
10			
12	+0.029 +0.018	+0.018 +0.007	-0.011 0
15			
18			
20	+0.035 +0.022	+0.021 +0.008	-0.013 0
22			
25			
26			
30			
35	+0.042 +0.026	+0.025 +0.009	-0.016 0

*The insertion guide is not available for D dimension tolerance h6 at D shaft tip.

For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" on **P.1566**)



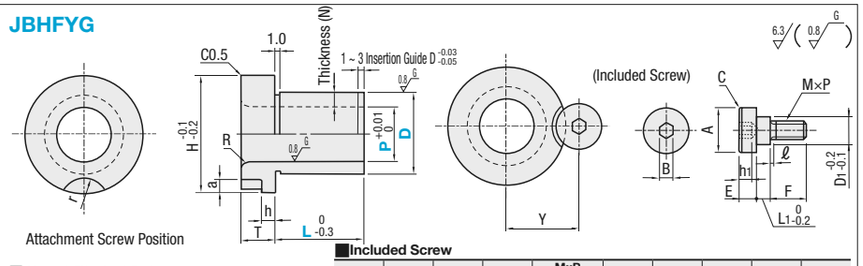
Part Number Type	D	D Tolerance g6	P 0.01mm Increment	L 0.1mm Increment	Thickness (N)	R	H	T	h	a	r	Screw Position Y	Accessory Special Material Screw	Tightening Torque N·cm	Unit Price
JBHFYG	10	-0.019	4.00~6.50	3.0~12.0	1.75~3.00	1	18	7.5	3	3	5.5	12	M4	225	
	12	-0.023	6.00~8.50	10.0~18.0		2	20					13			
	15		8.00~10.50	10.0~30.0	2.25~3.50		23					14.5			
	18		10.00~12.50		2.75~4.00		26					16			
	20	-0.027	12.00~13.50	12.0~35.0	3.25~4.00		28	9	4		7	18	M5	461	
	22		12.00~13.50		4.25~5.00		30					19			
	25		13.00~15.50		4.75~6.00		33					20.5			
	26		15.00~16.50		4.75~5.50		34					21			
	30		16.00~20.50	12.0~50.0	4.75~7.00	3	38					23			

L+T≤Px3.0

■Notched, Retaining

RoHS

JBHFYG



M Material: EN 1.2510 Equiv.
H Hardness: 56 ~ 60HRC
A Accessory: Special Hex Socket Head Cap Screw 1 pc.

■Included Screw

D1	L1	A	E	MxP (Coarse)	F	ℓ	B	h1	C
6	3	10	4	4x0.7	8	1.2	3	3	0.5
8	4	12	4.5	5x0.8	10	1.4	4	3.5	0.5

Part Number Type	D	P 0.01mm Increment	L 0.1mm Increment	R	H	T	Unit Price JBHFPG JBHFG JBHG	JBHFMPG JBHFMG JBHMG	JBHFCPG JBHFCG
(p6) JBHFPG	8	4.00~4.50	8.0~10.0	1.0	12	3			
JBHFMPG	10	4.00~6.50	8.0~15.0		14				
JBHFCPG	12	6.00~8.50			16	4			
(m6) JBHFG	15	8.00~10.50	10.0~35.0	2.0	19				
JBHFMG	18	10.00~12.50			22				
JBHFCG	20	12.00~13.50			26	5			
(h6) JBHG	22	12.00~13.50							
JBHMG	25	13.00~15.50			30				
	26	15.00~16.50							
	30	16.00~20.50	12.0~50.0	3.0	35	6			
	35	20.00~25.00			40				

L+T≤Px3.0

■Features: Economy type is priced up to 74% lower than Standard Type with the tolerance of $^{+0.3}_{+0.1}$ for P Dimension/W Dimension and $^{0}_{-0.2}$ for D Dimension.

■Oval - Compact Flange

■Oval - Compact Flange, Economy

RoHS

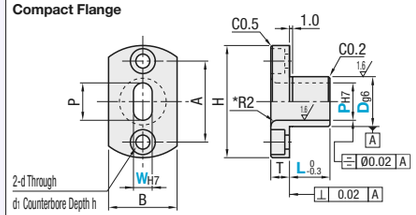
■Compact Flange

M Material	S Surface Treatment	H Hardness	Type
EN 1.2510 Equiv.	-	56~60HRC	JBEH
	Electroless Nickel Plating	56~60HRC	JBEMH

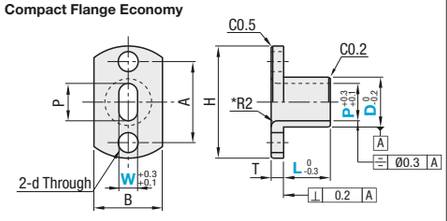
■Compact Flange Economy

M Material	S Surface Treatment	H Hardness	Type
EN 1.1191 Equiv.	-	-	JBFR
	Electroless Nickel Plating	-	JBFM
	-	45~50HRC	JBFK
	Electroless Nickel Plating		JBFN

Compact Flange



Compact Flange Economy



* When thickness is 2mm or less and (D-P)/2≤2, R is 0.5.

■Compact Flange

Part Number Type	D	D Tolerance g6	PH7 0.01mm Increment	WH7 0.01mm Increment	L 1mm Increment	T	H	A	B	d	d1	h	Unit Price JBEH	JBEMH
JBEH JBEMH	10	-0.005 -0.014	4.00~8.00	3.00≤W<P	8~40 L+T≤Px3	5	25	17	12	3.3	6.5	3.5		
	12	-0.006 -0.017	4.00~10.00				28	20	15					
	16		8.00~14.00			6	36	26	22					
	20	-0.007 -0.020	10.00~18.00				40	30	25	4.5	8	4.5		
	25		13.00~22.00				44	34	30					
	30		16.00~25.00			8	56	42	35	6.6	11	6.5		
	35	-0.009 -0.025	18.0~25.00				60	46	40					

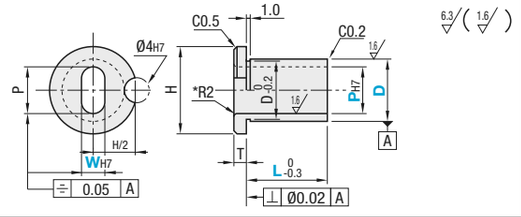
■Compact Flange Economy

Part Number Type	D	P 0.1mm Increment	W 0.1mm Increment	L 1mm Increment	T	H	A	B	d	Unit Price JBFR L≤20	JBFR 21≤L	JBFM L≤20	JBFM 21≤L	JBFK L≤20	JBFK 21≤L	JBFN L≤20	JBFN 21≤L
JBFR JBFM JBFK JBFN	10	4.0~8.0	4.0≤W<P	5~40 L+T≤Px3	3	25	17	12	5								
	12	4.0~10.0				28	20	15									
	15	8.0~13.0				40	30	17	6								
	16	8.0~14.0															
	18	10.0~16.0						20									
	20	10.0~18.0						22									
	25	13.0~22.0			4	44	34	30									
	30	16.0~25.0			5	56	42	35	8								
	35	18.0~25.0				60	46	40									

■Oval - Shouldered (Dowel Pin)

RoHS

M Material	S Surface Treatment	H Hardness	Type p6	Type m6
EN 1.2510 Equiv.	-	56~60HRC	JBPE	JBE
	Electroless Nickel Plating	56~60HRC	JBPEM	JBEM



* When thickness is 2mm or less and (D-P)/2≤2, R is 0.5.

Part Number Type	D	D Tolerance p6	D Tolerance m6	PH7 0.01mm Increment	WH7 0.01mm Increment	L 1mm Increment	T	H	Unit Price JBPE, JBE	JBPEM, JBEM
(p6) JBPE JBPEM	10	+0.024 +0.015	+0.015 +0.006	4.00~8.00	3.00≤W<P	8~40 L+T≤Px3	3	14		
	12	+0.029 +0.018	+0.018 +0.007	4.00~10.00				16		
	16			8.00~14.00				20		
	20	+0.035 +0.022	+0.021 +0.008	10.00~18.00				26		
(m6) JBE JBEM	25			13.00~22.00			5	30		
	30			16.00~25.00				35		
	35	+0.042 +0.026	+0.025 +0.009	18.0~25.00				40		

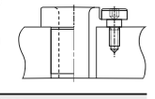
Ordering Example

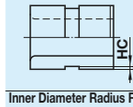
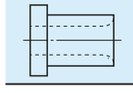
Part Number	P	W	L
JBAFG8	P4.1		L11
JBHG20	P13.0		L20
JBHFYG18	P12.00		L18.0
JBFR10	P6.0	W4.5	L10
JBPE10	P6.8	W4.8	L15

Alterations

Part Number	P	W	L	(HC, RH)
JBAFPG18	P8.00		L15.0	HC
JBFR10	P6.0	W4.5	L10	RH

Example — Notched, Retaining



Alterations	Code	Spec.
Set Screw Groove Depth 	HC	Changes the depth of set screw groove depth from 0.5mm to 1.0mm. Ordering Code HC. Applicable to Retaining Straight only. Applicable to D dimension 18 or more.
Inner Diameter Radius R 	RH	Changes the inner diameter radius R from shoulder side to D dimension end face. Size of R will be the same as R on shoulder side. Ordering Code RH. Applicable to Compact Flange, Economy Type only. (D-P)/2-R≥1.7

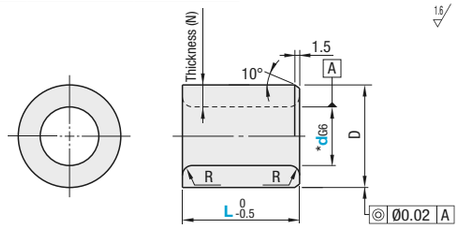
Bushings for Locating Pins
Copper Alloy, Straight / Flanged

Features: Suitable for preventing pin abrasion and rust since it is softer than steel.

Copper Alloy, Straight

RoHS

Material	Type	
	Dp6	Dm6
EN CC762S Equiv. (High-tensile Brass)	JBAD	JBADM



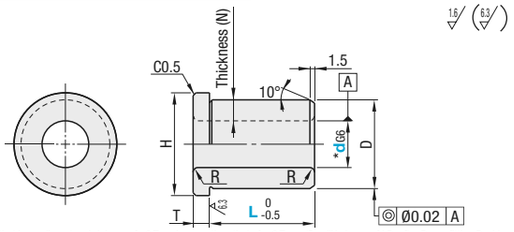
* For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" below.)

Part Number Type	d	D Tolerance		L Selection	Thickness (N)	R	D	D Tolerance p6	D Tolerance m6	Unit Price JBAD	Unit Price JBADM
(Dp6) JBAD	5	G6	+0.012	5 6 8 10 12 15	2.5	0.5	10	+0.024 +0.015	+0.015 +0.006		
	6		+0.004	5 6 8 10 12 15 16	2						
	8		+0.014	5 6 8 10 12 15 16 20	2		12	+0.029 +0.018	+0.018 +0.007		
	10		+0.005	6 8 10 12 15 16 20 25	2.5		15				
	12			8 10 12 15 16 20 25 30	3	1	18				
(Dm6) JBADM	13		+0.017	10 12 15 16 20 25 30	4.5		22	+0.035 +0.022	+0.021 +0.008		
	15		+0.006	12 15 16 20 25 30	5		25				
	16			12 15 16 20 25 30	5		26				
	20		+0.020	12 15 16 20 25 30	5	2	30				
	25		+0.007	16 20 25 30 35	5		35	+0.042 +0.026	+0.025 +0.009		

Copper Alloy, Flanged

RoHS

Material	Type	
	Dp6	Dm6
EN CC762S Equiv. (High-tensile Brass)	JBHD	JBHDM



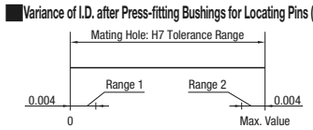
* For hole machining, please note that inner diameter shrinkage of p6 Type is more than that of m6 Type. (See "Variance of I.D. after Press-fitting Bushings for Locating Pins" below.)

Part Number Type	d	D Tolerance		L Selection	Thickness (N)	R	H	T	D	D Tolerance p6	D Tolerance m6	Unit Price JBHD	Unit Price JBHDM
(Dp6) JBHD	5	G6	+0.012	5 6 8 10 12	2.5	0.5	14	3	10	+0.024 +0.015	+0.015 +0.006		
	6		+0.004	5 6 8 10 12 15	2								
	8		+0.014	5 6 8 10 12 15 16 20	2		16	4	12	+0.029 +0.018	+0.018 +0.007		
	10		+0.005	6 8 10 12 15 16 20 25	2.5		19		15				
	12			8 10 12 15 16 20 25 30	3	1	22		18				
(Dm6) JBHDM	13		+0.017	10 12 15 16 20 25 30	4.5		26	5	22	+0.035 +0.022	+0.021 +0.008		
	15		+0.006	12 15 16 20 25 30	5		30		25				
	16			12 15 16 20 25 30	5				26				
	20		+0.020	12 15 16 20 25 30	5	2	35	6	30				
	25		+0.007	16 20 25 30 35	5		40		35	+0.042 +0.026	+0.025 +0.009		

Ordering Example

Part Number	-	L
JBAD6	-	10
JBHDM10	-	20

Variance of I.D. after Press-fitting Bushings for Locating Pins (Reference)



Housing Bore Diameter Tolerance: in Range 1

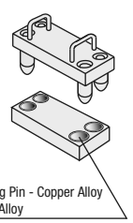
D Tolerance	
m6	p6
99.90%	99.83%

Housing Bore Diameter Tolerance: in Range 2

D Tolerance	
m6	p6
99.99%	99.92%

Data above are not guaranteed but experimental values.

Example



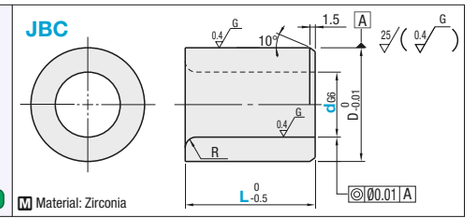
Bushings for Locating Pins
Ceramic / Inner Groove Straight / Shouldered

Features: Bushings for Locating Pins - Ceramics - excel in heat resistance, insulation, and abrasion resistance.

Ceramics

RoHS

JBC



Material: Zirconia

Ordering Example

Part Number	-	L
JBC16	-	20

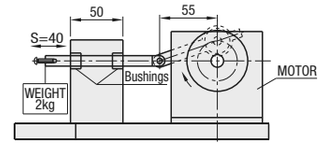
Part Number Type	dG6		L Selection	R	D	Unit Price JBC
JBC	6	+0.012 +0.004	8 10	1	10	
	8	+0.014	10 12	2	12	
	10	+0.005			15	
	12	+0.017 +0.006	10 12 16		18	
	13				22	
	15		16 20		25	
	16				26	
	20	+0.020 +0.007	20	3	30	

Avoid pressing Ceramic Bushing in. It may crack when struck hard. Use of Loctite is recommended.
Strength may degrade when used at the temperature over 100°C for extended durations, or when operating temperature varies from normal to high repeatedly.
For orders larger than indicated quantity, please request a quotation.

Properties

Item	Unit	Part Number JBC
Specific Gravity	g/cm²	6.0
Moisture Absorption Ratio	%	0
Vickers Hardness	HV	1300
Flexural Strength	kg/mm²	100
Linear Expansion Coefficient	x10⁻⁶/°C	10.0
Thermal Conductivity	cal/cm·sec·°C	0.007
Volume Inherent Resistivity	Ω·cm	3x10¹²

Bushings for Locating Pins - Ceramic Abrasion Data



Sample	Inner Diameter (Before Test)	Inner Diameter (After Test)	Difference
Ceramic JBC10-10	10.011	10.012	0.001
Steel JBA10-10	10.008	10.037	0.029

Test Conditions

<Measuring Method>
Apply load on the bush by reciprocating Ø10 round shaft with 40mm stroke with a 2kg weight on the end in the crank mechanism (left diagram).

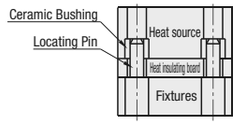
<Measuring Instrument Overview>
- Cranking Speed: 150rpm
- Round Shaft Stroke : 40mm
- Temperature : 25~27°C
- Operation Hours : 60 hours each
- Lubricant: JIS Machine Oil (Tellus 32) * drip-feed every 2 hours
- Ø10 Round Shaft Material: EN 1.1545 Equiv. (No Heat Treatment)

Testing Results

Ceramics excel in abrasion resistance compared to steel. Suitable for long-term use with locating pins insertion and extraction, maintaining an excellent abrasion resistance.

Example

Automotive parts welding machine



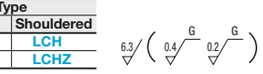
How to Mount: Set a plastic board. Using a plastic hammer, press Ceramic Bushing slightly in.
Circumstance: Set it between heat source and fixtures with high accuracy but transfer minimum heat to fixtures.

Straight

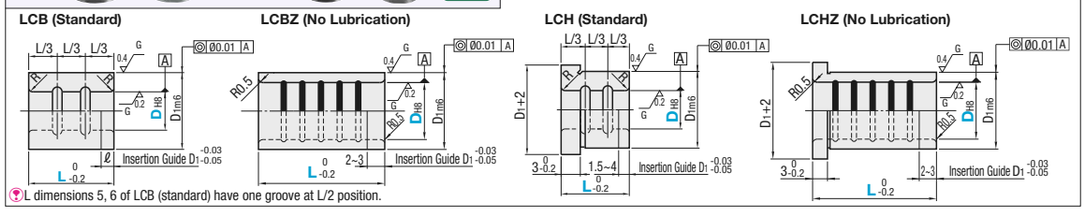
Shouldered

RoHS

Material	Hardness	Type Straight	Type Shouldered
EN 1.3505 Equiv.	58HRC~	LCB	LCH
EN-JL 1040 Equiv. (Special Solid Lubricant)	-	LCBZ	LCHZ



LCB (Standard) / LCBZ (No Lubrication) / LCH (Standard) / LCHZ (No Lubrication)



L dimensions 5, 6 of LCB (standard) have one groove at L/2 position.

Straight

Part Number Type	DH8		L Selection	D1m6	ℓ	R	Unit Price LCB	Unit Price LCBZ
(Standard) LCB (No Lubrication) LCBZ	5	+0.018 0	*5 *6 *8 *10 *12 *16	10 0.021	1.5	0.5		-
	6		6 8 10 *12 *16	12	2			
	8	+0.022 0	8 10 12 16 20	14 0.025	3	1		
	10			16				
	12	+0.027 0	10 12 16 20 25	18		1.2		
	13			22				
	15		16 *20 25 30	25 0.029	4	1.5		
	16		16 20 25 30	26				
	20	+0.033 0		30		2		
	25		20 25 30 35	35 0.034				

L Dimensions marked with * are available for LCB only. For orders larger than indicated quantity, please check with WOS.

Shouldered

Part Number Type	DH8		L Selection	D1m6	ℓ	R	Unit Price LCH	Unit Price LCHZ
(Standard) LCH (No Lubrication) LCHZ	5	+0.018 0	*8 *10 *12 *16	10 0.021	1.5	0.5		-
	6		8 10 *12 *16	12	2			
	8	+0.022 0	8 10 12 16 20	14 0.025	3	1		
	10			16				
	12	+0.027 0	10 12 16 20 25	18		1.2		
	13			22				
	15		16 20 25 30	25 0.029	4	1.5		
	16		16 20 25 30	26				
	20	+0.033 0		30		2		
	25		20 25 30 35	35 0.034				

L Dimensions marked with * are available for LCH only. For orders larger than indicated quantity, please check with WOS.

Ordering Example

Part Number	-	L
LCB10	-	12
LCBZ12	-	20
LCH25	-	30
LCHZ25	-	35

Bushings for Locating Pins

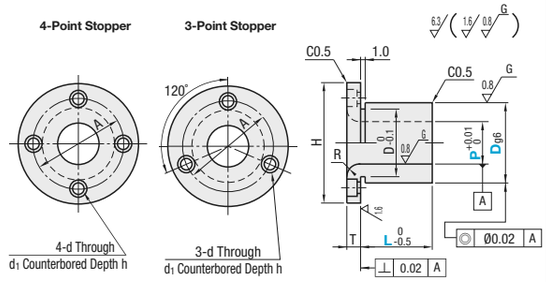
Flanged

Spec.Change
Printed in Purple

■Round Flange RoHS

(Alteration FC)

Material	Surface Treatment	Hardness	Type: P Fixed and L Selectable 4-Point Stopper	P Fixed and L Selectable 3-Point Stopper	P, L Configurable 4-Point Stopper	P, L Configurable 3-Point Stopper
EN 1.2510 Equiv.	-	Treated Hardness: 56 ~ 60HRC	JBY	JBT	JBYF	JBTF
	Black Oxide		-	-	JBYFB	-
	Electroless Nickel Plating		JBYM	-	JBYFM	JBTFM
EN 1.4301 Equiv.	-	-	-	-	JBYFS	-
EN 1.4125 Equiv.	-	Treated Hardness: 50HRC ~	-	-	JBYFC	-



■P Fixed and L Selectable

JBT is available for P dimension with * 1 mark only. ⊗L dimensions marked with *2 are not available for JBYM.

Part Number Type	P	L Selection	R	H	T	Dg6		A	d	d1	h	Unit Price Round Flange JBY	JBYM	JBT
JBY JBYM JBT	5	8 10 12 *2 16	1	25	5	10	-0.005 -0.014	17	3.3	6.5	3.5			-
	*1 6	8 10 12 16												
	*1 8	10 12 16 20	2	28	6	12	-0.006 -0.017	20	4.5	8	4.5			
	*1 10			36		15		26						
	*1 12	12 16 20 25 30				18								
	13	12 16 *2 20 25 *2 30		40		22		30						-
	*1 15	12 16 20 25 30		44		25	-0.007 -0.020	34						
	16	16 20 25 30 35				26								-
	*1 20		3	56	8	30		42	6.6	11	6.5			
	25	20 25 30 *2 35 40		60		35	-0.009 -0.025	46						-

■P and L Configurable

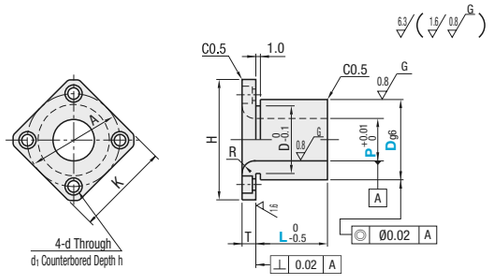
L+T≤Px3.0

Part Number Type	Dg6		P 0.01mm Increment	L 0.1mm Increment	R	H	T	A	d	d1	h	Unit Price Round Flange -4-Point Stopper JBYF	JBYFB	JBYFM	JBYFS	JBYFC	Round Flange -3-Point Stopper JBTF	JBTFM
Round Flanges, 4-Point Stopper JBYF JBYFB JBYFM JBYFS JBYFC	10	-0.005 -0.014	4.00~6.50	5.0~15.0	1	25	5	17	3.3	6.5	3.5							
	12	-0.006 -0.017	6.00~8.50		2	28		20										
	15		8.00~10.50			36	6	26	4.5	8	4.5							
	18		10.00~12.50															
	20	-0.007 -0.020	12.00~13.50	10.0~35.0		40		30										
	22		12.00~13.50															
	25		13.00~15.50			44		34										
Round Flanges, 3-Point Stopper JBTF JBTFM	26		15.00~16.50															
	30	-0.009 -0.025	16.00~20.50	12.0~50.0	3	56	8	42	6.6	11	6.5							
	35		20.00~25.00			60		46										

■Square Flange

RoHS

Material	Surface Treatment	Hardness	Type: P Fixed and L Selectable	P, L Configurable
EN 1.2510 Equiv.	-	Treated Hardness: 56 ~ 60HRC	JBS	JBSF
	Black Oxide		-	JBSFB
	Electroless Nickel Plating		JBSM	JBSFM
EN 1.4301 Equiv.	-	-	-	JBSFS
EN 1.4125 Equiv.	-	Treated Hardness: 50HRC ~	-	JBSFC



■P Fixed and L Selectable

⊗L dimensions marked with * are not available for JBSM.

Part Number Type	P	L Selection	R	H	K	T	Dg6		A	d	d1	h	Unit Price JBS	JBSM
JBS JBSM	8	10 *12 16 20	2	28	22	5	12	-0.006 -0.017	20	3.3	6.5	3.5		
	10			36	28	6	15		26	4.5	8	4.5		
	12	12 16 20 25 30					18							
	15			44	34		25	-0.007 -0.020	34					
	16	16 20 25 30 *35					26							
	20		3	56	44	8	30		42	6.6	11	6.5		
	25	20 25 30 *35 40		60	47		35	-0.009 -0.025	46					

■P and L Configurable

L+T≤Px3.0

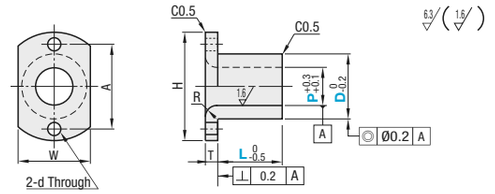
Part Number Type	Dg6		P 0.01mm Increment	L 0.1mm Increment	R	H	K	T	A	d	d1	h	Unit Price JBSF	JBSFB	JBSFM	JBSFS	JBSFC
JBSF JBSFB JBSFM JBSFS JBSFC	10	-0.005 -0.014	4.00~6.50	5.0~15.0	1	25	20	5	17	3.3	6.5	3.5					
	12	-0.006 -0.017	6.00~8.50		2	28	22		20								
	15		8.00~10.50	10.0~35.0		36	28	6	26	4.5	8	4.5					
	18		10.00~12.50														
	20	-0.007 -0.020	12.00~13.50			40	31		30								
	22		12.00~13.50														
	25		13.00~15.50			44	34		34								
	26		15.00~16.50														
	30		16.00~20.50	12.0~50.0	3	56	44	8	42	6.6	11	6.5					
	35	-0.009 -0.025	20.00~25.00			60	47		46								

■Features: Economy type is priced up to 49% lower without D/P Dimensions grinding and with the tolerance of P Dimension $^{+0.3}_{+0.1}$ and D Dimension $^{0}_{-0.2}$.

■Compact Flange Economy

RoHS

Material	Surface Treatment	Hardness	Type
EN 1.1191 Equiv.	-	-	JBOR
	Electroless Nickel Plating	-	JBOM
	-	45~50HRC	JBOK
	Electroless Nickel Plating		JBON

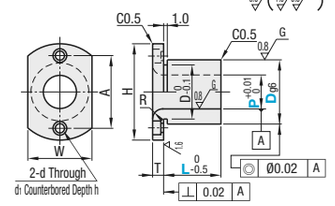


Part Number Type	D	P 0.1mm Increment	L 1mm Increment	R	H	W	T	A	d	Unit Price JBOR L≤20	JBOR 21≤L	JBOM L≤20	JBOM 21≤L	JBOK L≤20	JBOK 21≤L	JBON L≤20	JBON 21≤L
JBOR JBOM JBOK JBON	10	4.0~6.5	5~15	1	25	12	3	17	5		-		-		-		-
	12	6.0~8.5		2	28	15		20			-		-		-		-
	15	8.0~10.5	5~35		40	17		30	6								
	16	9.0~11.5				20											
	18	10.0~12.5															
	20	12.0~13.5				22											
	22	12.0~13.5				25											
	25	13.0~15.5			44	30	4	34									
	26	15.0~16.5															
	30	16.0~20.5	5~50	3	56	35	5	42	8								
	35	20.0~25.0			60	40		46									

■Compact Flange

RoHS

Material	Surface Treatment	Hardness	Type: P Fixed and L Selectable	P, L Configurable
EN 1.2510 Equiv.	-	Treated Hardness: 56 ~ 60HRC	JBN	JBNF
	Black Oxide		-	JBNFB
	Electroless Nickel Plating		JBNM	JBNFM
EN 1.4301 Equiv.	-	-	-	JBNFS
EN 1.4125 Equiv.	-	Treated Hardness: 50 ~ 55HRC	-	JBNFC



■P Fixed and L Selectable

Part Number Type	P	L Selection	R	H	W	T	Dg6		A	d	d1	h	Unit Price JBN	JBNM
JBN JBNM	5	8 10 12 16	1	25	12	5	10	-0.005 -0.014	17	3.3	6.5	3.5		
	6													
	8	10 12 16 20	2	28	15	6	12	-0.006 -0.017	20	4.5	8	4.5		
	10			36	22		15		26					
	12						18							
	13	12 16 20 25 30		40	25		22		30					
	15			44	30		25	-0.007 -0.020	34					
	16	16 20 25 30 35					26							
	20		3	56	35	8	30		42	6.6	11	6.5		
	25	20 25 30 35 40		60	40		35	-0.009 -0.025	46					

■P and L Configurable

L+T≤Px3.0

Part Number Type	P 0.01mm Increment	L 0.1mm Increment	R	H	W	T	A	d	d1	h	Unit Price JBNF	JBNFB	JBNFM	JBNFS	JBNFC
JBNF JBNFB JBNFM JBNFS JBNFC	4.00~6.50	5.0~15.0	1	25	12	5	17	3.3	6.5	3.5					
	6.00~8.50		2	28	15		20								
	8.00~10.50	10.0~35.0		36	22	6	26	4.5	8	4.5					
	10.00~12.50														
	12.00~13.50			40	25		30								
	12.00~13.50														
	13.00~15.50			44	30		34								
	15.00~16.50														
	16.00~20.50	12.0~50.0	3	56	35	8	42	6.6	11	6.5					
	20.00~25.00			60	40		46								

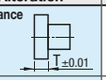
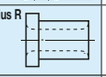
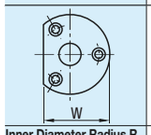
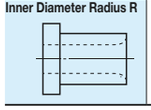
Ordering Example

Part Number	P	L
JBY6	-	12
JBSF20	- P13.00	- L30.0
JBOR10	- P5.0	- L8
JBN10	-	- 10

Alterations

Part Number - P - L - (TKC, RC, FC, RH)

JBNF15 - P10.0 - L10.0 - TKC
JBTF20 - P12.0 - L12.0 - FC

Alteration	Code	Spec.
T Tolerance 	TKC	Changes the T tolerance from general tolerance to ±0.01. Ordering Code TKC ⊗Not applicable to P Fixed Type, L Selectable Type and Compact Flange Economy Type.
I.D. Radius R 	RC	Machines Radius R on both sides. D10···R1 D12~26···R2 D30, 35···R3 Ordering Code RC Applicable to JBNF, JBNFB, JBNFM, JBNFS and JBNFC only
	FC	Cuts one side of flange. Ordering Code FC Applicable to JBTF and JBTFM only D W D W 10 21.5 22 33 12 23 25 35 15 30 26 36 18 30 30 46 20 33 35 49
Inner Diameter Radius R 	RH	Changes the inner diameter radius R from shoulder side to D dimension end face. Size of R will be the same as R on shoulder side. Ordering Code RH Applicable to Compact Flange, Economy Type only. (D-P)/2-R≥1.5

Locating Pins for Fixtures

Standard Grade, Shouldered

Spec.Change Printed in Purple

Features: For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ (for Precision Grade, $^{0}_{-0.01}$ or $^{0}_{-0.02}$), concentricity is 0.03 or 0.05 (for Precision Grade, 0.01 or 0.02). Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

■Threaded RoHS

Type		M Material	H Hardness
ELANA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
ELAND	Diamond		
TELANA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
TELAND	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267

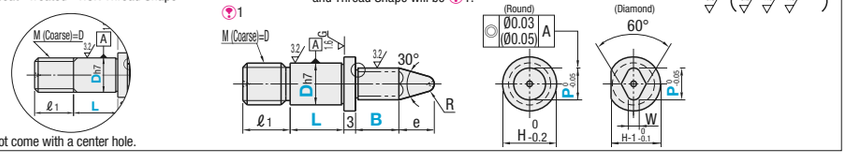
Type		M Material	H Hardness	S Surface Treatment
R-LANA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LAND	Diamond			
D-LANA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-LAND	Diamond			
H-LANA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	TiCN Treatment
H-LAND	Diamond			

Surface Finish Relief: R0.2; $^{0.5}_{1.5}$; $^{-0.05}_{(P-0.15)}$

Ⓟ1 Dicoat® Treated・TiCN Thread Shape

Ⓟ1

Ⓟ Dicoat® Treated / TiCN Treated items will have the ( ) precision and Thread Shape will be Ⓟ1.



6.3 (3.2 1.6 1.6) G

Ⓟe=P/2/tan15°+ R - (R/sin15°)

Ⓟ Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D h7		P Configurable 0.1mm Increment	B Configurable 1mm Increment	L Selection	ℓ1	H	R	W	Unit Price ELANA	ELAND	TELANA	TELAND	R-LANA	R-LAND	D-LANA	D-LAND	H-LANA	H-LAND
Hardened (Round) ELANA / Carburized (Round) TELANA / Hard Chrome (Round) R-LANA / Dicoat (Round) D-LANA / TiCN (Round) H-LANA	6	0 -0.012	3.0~7.0	Ⓟ2~30 (B≤P×4)	5 8 10	6	9	1	1~2										
	8	0 -0.015	3.0~9.0		5 8 10 12 15	10	11	1.5	1~2										
	10		4.5~12.0		(5) (8) 10 12 15	12	13	2	1~3										
	10T		4.5~12.0		(5) (8) 10 12 15	18	13	2	1~3										
(Diamond) ELAND / (Diamond) TELAND / (Diamond) R-LAND / (Diamond) D-LAND / (Diamond) H-LAND	12	0 -0.018	9.0~13.0		(8) 10 12 15 18	15	15	3	4										
	16		13.0~16.0		(10) 12 15 18 20	18	19	4	5										

Ⓦ Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗L dimension in ( ) is not applicable to Diamond Shape, Dicoat® and TiCN treatment.

Ⓟ B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

■Set Screw RoHS

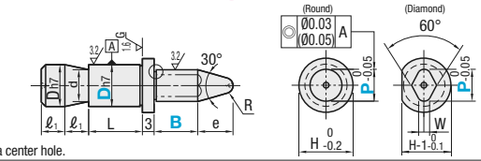
Type		M Material	H Hardness
ELATA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
ELATD	Diamond		
TELATA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TELATD	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267

Type		M Material	H Hardness	S Surface Treatment
R-LATA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LATD	Diamond			
D-LATA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-LATD	Diamond			
H-LATA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	TiCN Treatment
H-LATD	Diamond			

Surface Finish Relief: R0.2; $^{0.5}_{1.5}$; $^{-0.05}_{(P-0.15)}$

Ⓟ Dicoat® Treated / TiCN Treated items will have the ( ) precision.



6.3 (3.2 1.6 1.6) G

Ⓟe=P/2/tan15°+ R - (R / sin15°)

Ⓟ Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D h7		P Configurable 0.1mm Increment	B Configurable 1mm Increment	L	ℓ1	H	d	R	Applicable Set Screw	W	Unit Price ELATA	ELATD	TELATA	TELATD	R-LATA	R-LATD	D-LATA	D-LATD	H-LATA	H-LATD
Hardened (Round) ELATA / Carburized (Round) TELATA / Hard Chrome (Round) R-LATA / Dicoat (Round) D-LATA / TiCN (Round) H-LATA	6	0 -0.012	3.0~7.0	Ⓟ2~30 (B≤P x 4)	8	8	9	4	1	M5	1~2										
	8	0 -0.015	3.0~9.0		8	8	11	5	1.5	M5	1~2										
	10		4.5~12.0		10	8	13	7	2	M6	1~3										
	10T		4.5~12.0		5	8	13	7	2	M6	1~3										
(Diamond) ELATD / (Diamond) TELATD / (Diamond) R-LATD / (Diamond) D-LATD / (Diamond) H-LATD	12	0 -0.018	9.0~13.0		12	10	15	9	3	M8	4										
	16		13.0~16.0		12	10	19	13	4	M8	5										

Ⓦ Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0

Ⓟ B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

Ordering Example

Part Number Type	D		P		B		L
ELANA	8	-	P6.0	-	B15	-	L10
ELATA	10	-	P8.8	-	B10		

Alterations

Part Number Type	D		P		B		L		(KC, KD, SC, MC)
ELANA	6	-	P6.8	-	B14	-	L5	-	SC

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.	Thread Length	Upper Relief Radius Change
Code	MK	KC	KD	SC	MC	FC	RTC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Ⓟ Applicable to Hardening, Carburized and Round Shape Products only Ⓟ When used together with RTC, the groove starts from the area of R value +1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Ⓟ Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Ⓟ H-P≥2 Ⓟ Applicable to Round Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 Ⓟ Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. Ⓟ D/3≤M<D Mmin3 Ⓟ Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 : M≤FC≤Mx3 D12, 16: M≤FC≤Mx2.5 D20 : M≤FC≤Mx2 Ⓟ Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.	Ordering Code RTC1 Changes the relief to the following radius R. Selection R1 R2 R3 Ⓟ RTC≤(H-P)/2 Ⓟ Applicable when B≥5

Locating Pins for Fixtures

Tip Shape Selectable, Standard Grade, Shouldered

Spec.Change Printed in Purple

Features: For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ (for Precision Grade, $^{0}_{-0.01}$ or $^{0}_{-0.02}$), concentricity is 0.03 or 0.05 (for Precision Grade, 0.01 or 0.02). Tip shape is selectable. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

■Threaded

Type		M Material	H Hardness
SELANA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SELAND	Diamond		
TSELANA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSELAND	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan30°=0.577 sin45°=0.707 tan45°=1 sin60°=0.866 tan60°=1.732

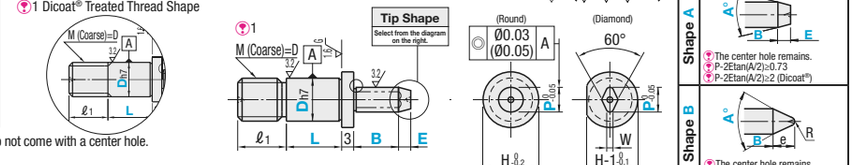
Type		M Material	H Hardness	S Surface Treatment
R-SLANA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SLAND	Diamond			
D-SLANA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-SLAND	Diamond			

Surface Finish Relief: R0.2; $^{0.5}_{1.5}$; $^{-0.05}_{(P-0.15)}$

Ⓟ Dicoat® Treated items will have the ( ) precision and Thread Shape will be Ⓟ1.

Ⓟ1 Dicoat® Treated Thread Shape

Ⓟ1



6.3 (3.2 1.6 1.6) G

Tip Shape Selectable

Shape A: A° B E
Ⓟ The center hole remains.
Ⓟ P-2Etan(A/2)≥0.73
Ⓟ P-2Etan(A/2)≥2 (Dicoat®)

Shape B: A° B e R
Ⓟ The center hole remains.
e=P/2/tan(A/2)+R-(R/sin(A/2))

Ⓟ Dicoat® Treated/TiCN Treated items do not come with a center hole.

Part Number Type	Tip Shape	D h7		P Configurable 0.1mm Increment	B Configurable 1mm Increment	A Selection	E (Shape A) 1mm Increment	L	ℓ1	H	R	W	Unit Price SELANA	SELAND	TSELANA	TSELAND	R-SLANA	R-SLAND	D-SLANA	D-SLAND
Hardened (Round) SELANA / Carburized (Round) TSELANA / Hard Chrome (Round) R-SLANA / Dicoat (Round) D-SLANA	A (Tapered)	6	0 -0.012	3.0~7.0	Ⓟ2~30 (B≤P x 4)	*30	1~10	5 8 10	6	9	1	1~2								
		8	0 -0.015	3.0~9.0		60		5 8 10 12 15	10	11	1.5	1~2								
		10		4.5~12.0		90		(5) (8) 10 12 15	12	13	2	1~3								
		10T		4.5~12.0		120		(5) (8) 10 12 15	18	13	2	1~3								
(Diamond) SELAND / (Diamond) TSELAND / (Diamond) R-SLAND / (Diamond) D-SLAND	B (Taper R)	12	0 -0.018	9.0~13.0				(8) 10 12 15 18	15	15	3	4								
		16		13.0~16.0				(10) 12 15 18 20	18	19	4	5								

Ⓦ Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment.

⊗Angle A*30 is not applicable to Tip Shape B. Select from Standard Grade, Shouldered (**P.1689**). Ⓟ B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

■Set Screw

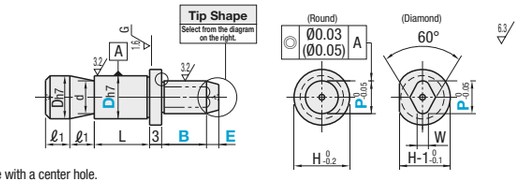
Type		M Material	H Hardness
SELATA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SELATD	Diamond		
TSELATA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSELATD	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan30°=0.577 sin45°=0.707 tan45°=1 sin60°=0.866 tan60°=1.732

Type		M Material	H Hardness	S Surface Treatment
R-SLATA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SLATD	Diamond			
D-SLATA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-SLATD	Diamond			
H-SLATA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	TiCN Treatment
H-SLATD	Diamond			

Surface Finish Relief: R0.2; $^{0.5}_{1.5}$; $^{-0.05}_{(P-0.15)}$

Ⓟ Dicoat® Treated / TiCN Treated items will have the ( ) precision.



6.3 (3.2 1.6 1.6) G

Tip Shape Selectable

Shape A: A° B E
Ⓟ The center hole remains.
Ⓟ P-2Etan(A/2)≥0.73
Ⓟ P-2Etan(A/2)≥2 (Dicoat®, TiCN)

Shape B: A° B e R
Ⓟ The center hole remains.
e=P/2/tan(A/2)+R-(R/sin(A/2))

Ⓟ Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	Tip Shape	D h7		P Configurable 0.1mm Increment	B Configurable 1mm Increment	A Selection	E (Shape A) 1mm Increment	L	ℓ1	H	d	R	Aplicable Set Screw	W	Unit Price SELATA	SELATD	TSELATA	TSELATD	R-SLATA	R-SLATD	D-SLATA	D-SLATD	H-SLATA	H-SLATD
Hardened (Round) SELATA / Carburized (Round) TSELATA / Hard Chrome (Round) R-SLATA / Dicoat (Round) D-SLATA / TiCN (Round) H-SLATA	A (Tapered)	6	0 -0.012	3.0~7.0	Ⓟ2~30 (B≤P x 4)	*30	1~10	8	8	9	4	1	M5	1~2										
		8	0 -0.015	3.0~9.0		60		8	8	11	5	1.5	M5	1~2										
		10		4.5~12.0		90		10	8	13	7	2	M6	1~3										
		10T		4.5~12.0		120		5	8	13	7	2	M6	1~3										
(Diamond) SELATD / (Diamond) TSELATD / (Diamond) R-SLATD / (Diamond) D-SLATD / (Diamond) H-SLATD	B (Taper R)	12	0 -0.018	9.0~13.0				12	10	15	9	3	M8	4										
		16		13.0~16.0				12	10	19	13	4	M8	5										

Ⓦ Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗Angle A*30 is not applicable to Tip Shape B. Select from Standard Grade, Shouldered (**P.1689**).

Ⓟ B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

Ordering Example

Part Number Type	Tip Shape	D		P		B		L		A		E
SELANA	A	16	-	P14.2	-	B21	-	L15	-	A60	-	E2
SELATA	B	8	-	P6.0	-	B15			-	A90		

Alterations

Part Number Type	Tip Shape	D		P		B		L		A		E		(KC, KD, SC, MC)
SELATA	A	6	-	P6.8	-	B14			-	A30	-	E2	-	SC

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.	Thread Length	Upper Relief Radius Change
Code	MK	KC	KD	SC	MC	FC	RTC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Ⓟ Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Ⓟ Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Ⓟ H-P≥2 Ⓟ Applicable to Round Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 Ⓟ Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. Ⓟ D/3≤M<D Mmin3 Ⓟ Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 : M≤FC≤Mx3 D12, 16: M≤FC≤Mx2.5 D20 : M≤FC≤Mx2 Ⓟ Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.	Ordering Code RTC1 Changes the relief to the following radius R. Selection R1 R2 R3 Ⓟ RTC≤(H-P)/2 Ⓟ Applicable when B≥5

Locating Pins for Fixtures

Standard Grade, No Shoulder

Features: For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ (for Precision Grade, $^{0}_{-0.01}$ or $^{0}_{-0.02}$), concentricity is 0.03 or 0.05 (for Precision Grade, 0.01 or 0.02).

Threaded

RoHS

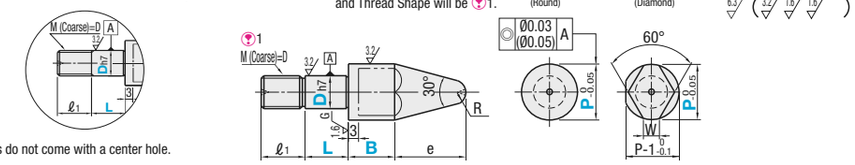
Type		M Material	H Hardness
ELNNA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
ELNND	Diamond		
TELNNA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TELNND	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267

(?)1 Dicoat® Treated / TiCN Thread Shape

Type		M Material	H Hardness	S Surface Treatment
R-LNNA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LNND	Diamond			
D-LNNA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-LNND	Diamond			
H-LNNA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	TiCN Treatment
H-LNND	Diamond			

(?)Dicoat® Treated / TiCN Treated items will have the ( ) precision and Thread Shape will be (?)1.



(?) e=P/2/tan15°+R-(R/sin15°)
(?)Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D	D h7	P Configurable 0.1mm Increment	B Configurable 1mm Increment	L Selection	ℓ1	R	W	Unit Price ELNNA	ELNND	TELNNA	TELNND	R-LNNA	R-LNTD	D-LNNA	D-LNTD	H-LNNA	H-LNND
Hardened (Round) ELNNA	6	0 -0.012	8.0~12.0	(?)2~30	5 8 10	6	3	3									-	-
Carburized (Round) TELNNA	8	0 -0.015	10.0~16.0		5 8 10 12 15	10	4	3.5									-	-
Hard Chrome (Round) R-LNNA	10		12.0~20.0		(5) (8) 10 12 15	12	4	4										
Dicoat (Round) D-LNNA	10T		12.0~20.0		(5) (8) 10 12 15	15	5	5										
TiCN (Round) H-LNNA	12	0 -0.018	14.0~25.0		(8) 10 12 15 18	15	6	6										
(Diamond) ELNND	16		18.0~32.0		(10) 12 15 18 20	18	8	8					-	-	-	-	-	-
(Diamond) TELNND	20	0 -0.021	22.0~35.0		12 15 18 20	22	8	9					-	-	-	-	-	-
(Diamond) R-LNND																		
(Diamond) D-LNND																		
(Diamond) H-LNND																		

⊗L dimension in ( ) is not applicable to Diamond Shape, Dicoat® and TiCN treatment.
(?)B Dimension is selectable from 5 mm ~ for Dicoat® Treated / TiCN Treated Products/Diamond Shape.

Set Screw

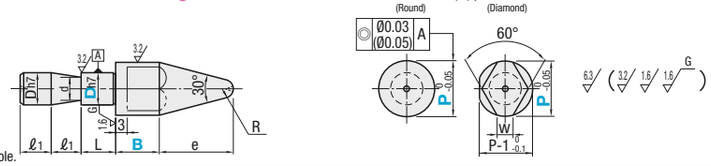
RoHS

Type		M Material	H Hardness
ELNTA	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
ELNTD	Diamond		
TELNTA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TELNTD	Diamond		

Reference:sin15°≈0.259 tan15°≈0.267

Type		M Material	H Hardness	S Surface Treatment
R-LNTA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LNTD	Diamond			
D-LNTA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-LNTD	Diamond			
H-LNTA	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	TiCN Treatment
H-LNTD	Diamond			

(?)Dicoat® Treated / TiCN Treated items will have the ( ) precision.



(?) e=P/2/tan15°+R-(R/sin15°)
(?)Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D	D h7	P Configurable 0.1mm Increment	B Configurable 1mm Increment	L	ℓ1	d	R	Applicable Set Screw	W	Unit Price ELNTA	ELNTD	TELNTA	TELNTD	R-LNTA	R-LNTD	D-LNTA	D-LNTD	H-LNTA	H-LNTD
Hardened (Round) ELNTA	6	0 -0.012	8.0~12.0	(?)2~30	5	8	4	3	M5	3									-	-
Carburized (Round) TELNTA	8	0 -0.015	10.0~16.0		5	8	5	4	M5	3.5									-	-
Hard Chrome (Round) R-LNTA	10		12.0~20.0		10	8	7	4	M6	4										
Dicoat (Round) D-LNTA	10T		12.0~20.0		5	8	7	5	M6	5										
TiCN (Round) H-LNTA	12	0 -0.018	14.0~25.0		12	10	9	6	M8	6										
(Diamond) ELNTD	16		18.0~32.0		12	10	13	8	M8	8					-	-	-	-	-	-
(Diamond) TELNTD	20	0 -0.021	22.0~35.0		12	10	17	8	M8	9					-	-	-	-	-	-
(Diamond) R-LNTD																				
(Diamond) D-LNTD																				
(Diamond) H-LNTD																				

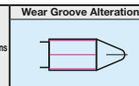
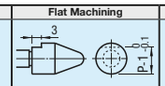
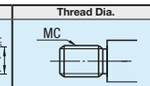
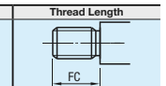
(?)B Dimension is selectable from 5 mm ~ for Dicoat® Treated / TiCN Treated Products / Diamond Shape.

Part Number: Type | D - P - B - L

Type	D	P	B	L	
ELNNA	10	P12.0	B10	L8	(Threaded)
ELNTA	6	P10.0	B15		(Set Screw)

Alterations — Part Number: Type | D - P - B - L - (KC, KD ···etc.)

Type	D	P	B	L		
ELNNA	6	P8.0	B14	L5	-	KD

	Wear Groove Alterations	Flat Position	Flat Machining	Thread Dia.	Thread Length
Alterations					
Code	MK	KC	KD	MC	FC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. (?)Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. (?)Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. (?)Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. (?)D/3≤M<D Mmin3 (?)Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 : M≤FC≤Mx3 D12, 16: M≤FC≤Mx2.5 D20 : M≤FC≤Mx2 (?)Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.

Locating Pins for Fixtures

Tip Shape Selectable, Standard Grade, No Shoulder

Features: For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ (for Precision Grade, $^{0}_{-0.01}$ or $^{0}_{-0.02}$), concentricity is 0.03 or 0.05 (for Precision Grade, 0.01 or 0.02).

Threaded

RoHS

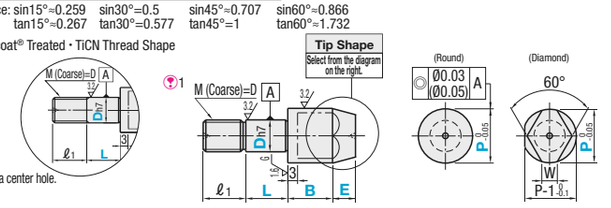
Type		M Material	H Hardness
SELNNA☐	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SELNND☐	Diamond		
TSELNNA☐	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSELNND☐	Diamond		

Reference: sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan30°=0.577 sin45°≈0.707 tan45°=1 sin60°≈0.866 tan60°≈1.732

Type		M Material	H Hardness	S Surface Treatment
D-SLNNA☐	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-SLNND☐	Diamond			

(?)Dicoat® Treated items will have the ( ) precision and Thread Shape will be (?)1.

(?)1 Dicoat® Treated・TiCN Thread Shape



(?)Only the Shape B Dicoat® Treated items do not come with a center hole.

Part Number Type	Tip Shape	D h7	P Configurable 0.1mm Increment	B Configurable 1mm Increment	A Selection	E 1mm Increment	L Selection	ℓ1	R	W	Unit Price SELNNA	SELNND	TSELNNA	TSELNND	D-SNNA	D-SNND
Hardened (Round) SELNNA	A (Tapered)	6 0 -0.012	8.0~12.0	(?)2~30	*30	1~10	5 8 10	6	3	3						
Carburized (Round) TSELNNA		8	10.0~16.0				5 8 10 12 15	10	4	3.5						
Dicoat (Round) D-SLNNA		10 0 -0.015	12.0~20.0		60		(5) (8) 10 12 15	12	4	4						
(Diamond) SELNND		10T	12.0~20.0				(5) (8) 10 12 15	15	5	5						
(Diamond) TSELNND	B (Taper R)	12 0 -0.018	14.0~25.0		90		(8) 10 12 15 18	15	6	6						
(Diamond) D-SLNND		16	18.0~32.0				(10) 12 15 18 20	18	8	8					-	-
		20 0 -0.021	22.0~35.0		120		12 15 18 20	22	8	9					-	-

⊗Angle A*30 is not applicable to Tip Shape B. Select from Standard Grade, No Shoulder (**P.1691**). ⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment.
(?)B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

Set Screw

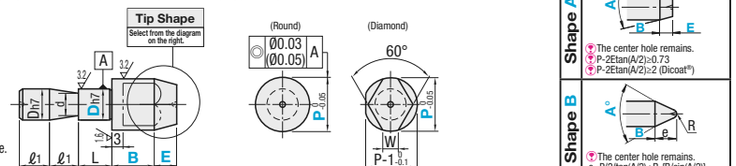
RoHS

Type		M Material	H Hardness
SELNTA☐	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SELNTD☐	Diamond		
TSELNTA☐	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSELNTD☐	Diamond		

Reference: sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan30°=0.577 sin45°≈0.707 tan45°=1 sin60°≈0.866 tan60°≈1.732

Type		M Material	H Hardness	S Surface Treatment
D-SLNTA☐	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-SLNTD☐	Diamond			

(?)Dicoat® Treated items will have the ( ) precision.



(?)Only the Shape B Dicoat® Treated items do not come with a center hole.

Part Number Type	Tip Shape	D h7	P Configurable 0.1mm Increment	B Configurable 1mm Increment	A Selection	E 1mm Increment	L	ℓ1	d	R	Applicable Set Screw	W	Unit Price SELNTA	SELNTD	TSELNTA	TSELNTD	D-SLNTA	D-SLNTD
Hardened (Round) SELNTA	A (Tapered)	6 0 -0.012	8.0~12.0	(?)2~30	*30	1~10	5	8	4	3	M5	3						
Carburized (Round) TSELNTA		8	10.0~16.0				5	8	5	4	M5	3.5						
Dicoat (Round) D-SLNTA		10 0 -0.015	12.0~20.0		60		10	8	7	4	M6	4						
(Diamond) SELNTD		10T	12.0~20.0				5	8	7	5	M6	5						
(Diamond) TSELNTD	B (Taper R)	12 0 -0.018	14.0~25.0		90		12	10	9	6	M8	6						
(Diamond) D-SLNTD		16	18.0~32.0				12	10	13	8	M8	8					-	-
		20 0 -0.021	22.0~35.0		120		12	10	17	8	M8	9					-	-

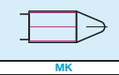
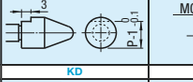
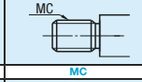
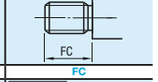
⊗Angle A*30 is not applicable to Tip Shape B. Select from Standard Grade, No Shoulder (**P.1691**).
(?)B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

Part Number: Type | Tip Shape | D - P - B - L - A - E

Type	Tip Shape	D	P	B	L	A	E	
SELNNA	A	16	P18.0	B21	L15	A60	E2	(Threaded)
SELNTA	B	10	P14.0	B10		A60		(Set Screw)

Alterations — Part Number: Type | Tip Shape | D - P - B - L - A - E - (KC, KD ···etc.)

Type	Tip Shape	D	P	B	L	A	E		
SELNTA	A	6	P8.0	B14		A30	E2	-	KD

	Wear Groove Alterations	Flat Position	Flat Machining	Thread Dia.	Thread Length
Alterations					
Code	MK	KC	KD	MC	FC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. (?)Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. (?)Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. (?)Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. (?)D/3≤M<D Mmin3 (?)Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 : M≤FC≤Mx3 D12, 16: M≤FC≤Mx2.5 D20 : M≤FC≤Mx2 (?)Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.

Locating Pins for Fixtures

Precision Grade, Shouldered

Features: For Precision Grade, P Dim. Tolerance is $^{0}_{-0.01}$ or $^{0}_{-0.02}$ (for Standard Grade, $^{0}_{-0.05}$), concentricity is 0.01 or 0.02 (for Standard Grade, 0.03 or 0.05).

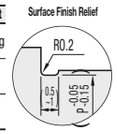
Threaded RoHS

Type		M Material	H Hardness
LANAN	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
LANDN	Diamond		
TLANAN	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TLANDN	Diamond		

Reference: sin15°≈0.259 tan15°≈0.267

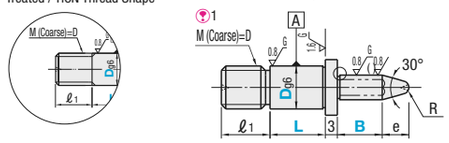
Type		M Material	H Hardness	S Surface Treatment
R-ANAN	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-ANDN	Diamond			
D-ANAN	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-ANDN	Diamond			
H-ANAN	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	TiCN Treatment
H-ANDN	Diamond			

Surface Finish Relief

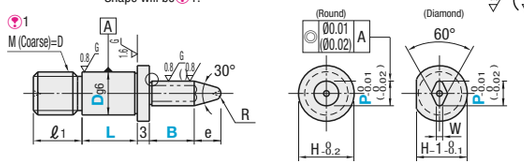


Dicoat® Treated / TiCN items will have the ( ) precision and Thread Shape will be ❡1.

❡1 Dicoat® Treated / TiCN Thread Shape



❡1



❡e=P/2/tan15°+R-(R/sin15°)
❡DicoatR Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D	D g6	P 0.1mm Increment	B 1mm Increment	L Selection	ℓ1	H	R	W	Unit Price LANAN	LANDN	TLANAN	TLANDN	R-ANAN	R-ANDN	D-ANAN	D-ANDN	H-ANAN	H-ANDN
Hardened (Round) Carburized (Round) Hard Chrome (Round) Dicoat (Round) TiCN (Round)	6	-0.004 -0.012	3.0~7.0	❡2~30 (B≤P×4)	5 8 10	6	9	1	1~2										
LANAN TLANAN R-ANAN D-ANAN H-ANAN	8	-0.005 -0.014	3.0~9.0		5 8 10 12 15	10	11	1.5	1~2										
	10		4.5~12.0		(5) (8) 10 12 15	12	13	2	1~3										
	10T		4.5~12.0		(5) (8) 10 12 15	18	13	2	1~3										
(Diamond) (Diamond) (Diamond) (Diamond) (Diamond)	12	-0.006 -0.017	9.0~13.0		(8) 10 12 15 18	15	15	3	4										
LANDN TLANDN R-ANDN D-ANDN H-ANDN	16		13.0~16.0		(10) 12 15 18 20	18	19	4	5										

❡W Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗L dimension in ( ) is not applicable to Diamond Shape, Dicoat® and TiCN treatment.
❡B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

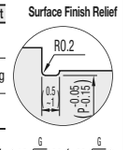
Set Screw RoHS

Type		M Material	H Hardness
LATAN	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
LATDN	Diamond		
TLATAN	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
TLATDN	Diamond		

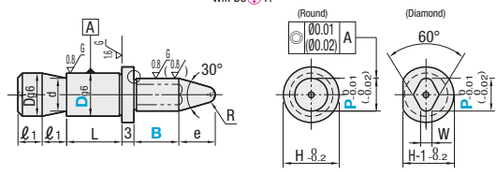
Reference: sin15°≈0.259 tan15°≈0.267

Type		M Material	H Hardness	S Surface Treatment
D-ATAN	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-ATDN	Diamond			
R-ATAN	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-ATDN	Diamond			
H-ATAN	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	TiCN Treatment
H-ATDN	Diamond			

Surface Finish Relief



Dicoat® Treated/TiCN items will have the () precision and Thread Shape will be ❡1.



❡e=P/2/tan15°+R-(R/sin15°)
❡Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number Type	D	D g6	P 0.1mm Increment	B 1mm Increment	L	ℓ1	H	d	R	Applicable Set Screw	W	Unit Price LATAN	LATDN	TLATAN	TLATDN	R-ATAN	R-ATDN	D-ATAN	D-ATDN	H-ATAN	H-ATDN
Hardened (Round) Carburized (Round) Hard Chrome (Round) Dicoat (Round) TiCN (Round)	6	-0.004 -0.012	3.0~7.0	❡2~30 (B≤P×4)	8	8	9	4	1	M5	1~2										
LATAN TLATAN R-ATAN D-ATAN H-ATAN	8	-0.005 -0.014	3.0~9.0		8	8	11	5	1.5	M5	1~2										
	10		4.5~12.0		10	8	13	7	2	M6	1~3										
	10T		4.5~12.0		5	8	13	7	2	M6	1~3										
(Diamond) (Diamond) (Diamond) (Diamond) (Diamond)	12	-0.006 -0.017	9.0~13.0		12	10	15	9	3	M8	4										
LATDN TLATDN R-ATDN D-ATDN H-ATDN	16		13.0~16.0		12	10	19	13	4	M8	5										

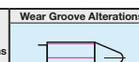
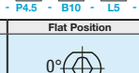
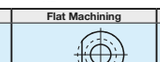
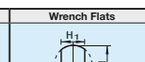
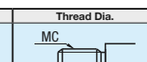
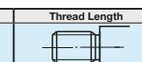
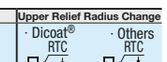
❡W Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0
❡B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

Ordering Example

Part Number	Type	D		P		B		L
LANAN	8		P5.0		B15		L10
LATAN	6		P6.8		B14		

Alterations

Part Number Type	D		P		B		L		(KC, KD, SC, MC)
LANAN	10	-	P4.5	-	B10	-	L5	-	KD

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.	Thread Length	Upper Relief Radius Change
							
Code	MK	KC	KD	SC	MC	FC	RTC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. ❡Applicable to Hardening, Carburized and Round Shape Products only ❡When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. ❡Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. ❡H-P≥2 ❡Applicable to Round Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 ❡Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. ❡D/3≤M<D Mmin3 ❡Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 :M≤FC≤Mx3 D12, 16:M≤FC≤Mx2.5 D20 :M≤FC≤Mx2 ❡Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.	Ordering Code RTC1 Changes the relief to the following radius R. Selection R1 R2 R3 ❡RTC≤(H-P)/2 ❡Applicable when B≥5

Locating Pins for Fixtures

Tip Shape Selectable, Precision Grade, Shouldered

Features: For Precision Grade, P Dim. Tolerance is $^{0}_{-0.01}$ or $^{0}_{-0.02}$ (for Standard Grade, $^{0}_{-0.05}$), concentricity is 0.01 or 0.02 (for Standard Grade, 0.03 or 0.05). Tip shape is selectable.

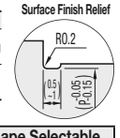
Threaded RoHS

Type		M Material	H Hardness
SLANA☐	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SLAND☐	Diamond		
TSLANA☐	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSLAND☐	Diamond		

Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°=0.577 tan45°=1 tan60°≈1.732

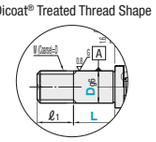
Type		M Material	H Hardness	S Surface Treatment
R-SANA☐	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SAND☐	Diamond			
D-SANA☐	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-SAND☐	Diamond			

Surface Finish Relief

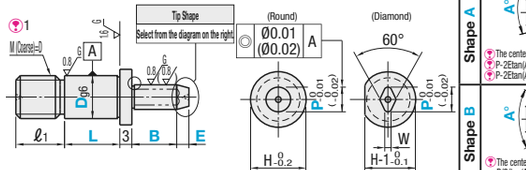


❡Dicoat® Treated items will have the ( ) precision and Thread Shape will be ❡1.

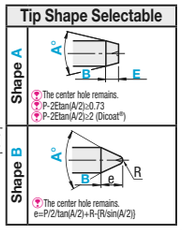
❡1 Dicoat® Treated Thread Shape



❡1



Tip Shape Selectable



❡Only the Shape B Dicoat® Treated items do not come with a center hole.

Part Number Type	Tip Shape	D	D h7	P 0.1mm Increment	B 1mm Increment	L Selection	A Selection	E (Shape A) 1mm Increment	ℓ1	H	R	W	Unit Price SLANA	SLAND	TSLANA	TSLAND	R-SANA	R-SAND	D-SANA	D-SAND
Hardened (Round) Carburized (Round) Hard Chrome (Round) Dicoat (Round)	A (Tapered)	6	-0.004 -0.012	3.0~7.0	❡2~30 (B≤Px4)	5 8 10	*30	1~10	6	9	1	1~2								
SLANA TSLANA R-SANA D-SANA		8	-0.005 -0.014	3.0~9.0		5 8 10 12 15	60		10	11	1.5	1~2								
		10		4.5~12.0		(5) (8) 10 12 15			12	13	2	1~3								
	B (Taper R)	10T		4.5~12.0		(5) (8) 10 12 15	90		18	13	2	1~3								
(Diamond) (Diamond) (Diamond) (Diamond)		12	-0.006 -0.017	9.0~13.0		(8) 10 12 15 18	120		15	15	3	4								
SLAND TSLAND R-SAND D-SAND		16		13.0~16.0		(10) 12 15 18 20			18	19	4	5								

❡W Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment.
⊗Angle A*30 is not applicable to Tip Shape B. Select from Precision Grade, Shouldered (**P.1693**).

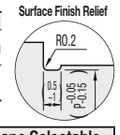
Set Screw RoHS

Type		M Material	H Hardness
SLATA☐	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SLATD☐	Diamond		
TSLATA☐	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSLATD☐	Diamond		

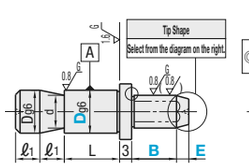
Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°=0.577 tan45°=1 tan60°≈1.732

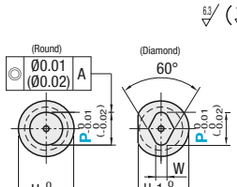
Type		M Material	H Hardness	S Surface Treatment
R-SATA☐	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SATD☐	Diamond			
D-SATA☐	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	DicoatR Treated
D-SATD☐	Diamond			

Surface Finish Relief

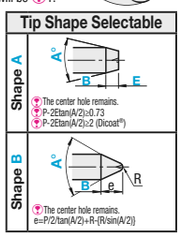


❡Dicoat® Treated items will have the ( ) precision and Thread Shape will be ❡1.





Tip Shape Selectable



❡Only the Shape B DicoatR Treated items do not come with a center hole.

Part Number Type	Tip Shape	D	D h7	P Configurable 0.1mm Increment	B Configurable 1mm Increment	A Selection	E (Shape A) 1mm Increment	L	ℓ1	H	d	R	Applicable Set Screw	W	Unit Price SLATA☐	SLATD☐	TSLATA☐	TSLATD☐	R-SATA☐	R-SATD☐	D-SATA☐	D-SATD☐
Hardened (Round) Carburized (Round) Hard Chrome (Round) Dicoat (Round)	A (Tapered)	6	-0.004 -0.012	3.0~7.0	❡2~30 (B≤Px4)	*30	1~10	8	8	9	4	1	M5	1~2								
SLATA TSLATA R-SATA D-SATA		8	-0.005 -0.014	3.0~9.0		60		8	8	11	5	1.5	M5	1~2								
		10		4.5~12.0				10	8	13	7	2	M6	1~3								
	B (Taper R)	10T		4.5~12.0		90		5	8	13	7	2	M6	1~3								
(Diamond) (Diamond) (Diamond) (Diamond)		12	-0.006 -0.017	9.0~13.0		120		12	10	15	9	3	M8	4								
SLATD TSLATD R-SATD D-SATD		16		13.0~16.0				12	10	19	13	4	M8	5								

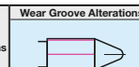
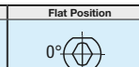
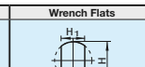
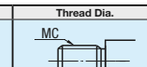
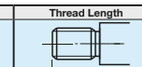
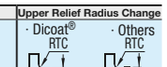
❡W Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗Angle A*30 is not applicable to Tip Shape B. Select from Standard Grade, Shouldered (**P.1693**).
❡B Dimension 5 mm ~ will be selected for Dicoat® Treated / TiCN Treated items.

Ordering Example

Part Number	Type	Tip Shape	D		P		B		L		A		E
SLANA	A	6		P6.8		B14		L8		A30		E2
SLATA	B	8		P7.5		B15				A60		

Alterations

Part Number Type	Tip Shape	D		P		B		L		A		E	(KC, KD, SC, MC)
R-SANA	B	10	-	P4.5	-	B10	-	L5	-	A60	-	-	KD

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.	Thread Length	Upper Relief Radius Change
							
Code	MK	KC	KD	SC	MC	FC	RTC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. ❡Applicable to Hardening, Carburized and Round Shape Products only ❡When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. ❡Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. ❡H-P≥2 ❡Applicable to Round Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 ❡Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. ❡D/3≤M<D Mmin3 ❡Applicable to Threaded only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 :M≤FC≤Mx3 D12, 16:M≤FC≤Mx2.5 D20 :M≤FC≤Mx2 ❡Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.	Ordering Code RTC1 Changes the relief to the following radius R. Selection R1 R2 R3 ❡RTC≤(H-P)/2 ❡Applicable when B≥5

Locating Pins for Fixtures

Precision Grade, No Shoulder

■**Features:** For Precision Grade, P Dim. Tolerance is $^{0}_{-0.01}$ or $^{0}_{-0.02}$ (for Standard Grade, $^{0}_{-0.05}$), concentricity is 0.01 or 0.02 (for Standard Grade, 0.03 or 0.05).

■Threaded

RoHS

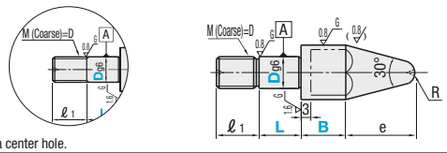
Type		M Material	H Hardness
LNNAN	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
LNNDN	Diamond		
TLNNAN	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TLNNDN	Diamond		

Type		M Material	H Hardness	S Surface Treatment
R-NNAN	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-NNDN	Diamond			
D-NNAN	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-NNDN	Diamond			

Reference: sin15°≈0.259tan15°≈0.267

Ⓨ Dicoat® Treated items will have the ( ) precision and Thread Shape will be Ⓨ1. 6.3 (1.6 G, 0.8, 0.8 G)

Ⓨ1 Dicoat® Treated Thread Shape



Ⓨ e=P/2/tan15°+R-(R/sin15°)
Ⓨ DicoatR Treated items do not come with a center hole.

Part Number Type	Dg6	P 0.1mm Increment	B 1mm Increment	L Selection	ℓ1	R	W	Unit Price LNNAN	LNNDN	TLNNAN	TLNNDN	R-NNAN	R-NNDN	D-NNAN	D-NNDN
Hardened (Round) LNNAN, Carburized (Round) TLNNAN, Hard Chrome (Round) R-NNAN, Dicoat (Round) D-NNAN	6 -0.004 -0.012	8.0~12.0	Ⓨ2~30	5 8 10	6	3	3								
	8 -0.005 -0.014	10.0~16.0		5 8 10 12 15	10	4	3.5								
	10	12.0~20.0		(5) (8) 10 12 15	12	4	4								
	10T	12.0~20.0		(5) (8) 10 12 15	15	5	5								
(Diamond) LNNDN, (Diamond) TLNNDN, (Diamond) R-NNDN, (Diamond) D-NNDN	12 -0.006 -0.017	14.0~25.0		(8) 10 12 15 18	15	6	6								
	16	18.0~32.0		(10) 12 15 18 20	18	8	8					-	-	-	-
	20 -0.007 -0.020	22.0~35.0		12 15 18 20	22	8	9					-	-	-	-

⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment. Ⓨ B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

■Set Screw

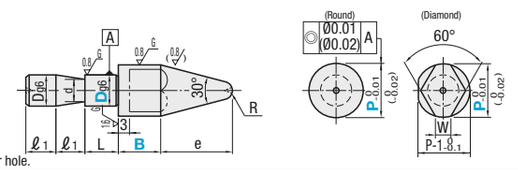
RoHS

Type		M Material	H Hardness
LNTAN	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
LNTDN	Diamond		
TLNTAN	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
TLNTDN	Diamond		

Type		M Material	H Hardness	S Surface Treatment
R-NTAN	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-NTDN	Diamond			
D-NTAN	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-NTDN	Diamond			

Reference: sin15°≈0.259tan15°≈0.267

Ⓨ Dicoat® Treated items will have the ( ) precision. 6.3 (1.6 G, 0.8, 0.8 G)



Ⓨ e=P/2/tan15°+R-(R/sin15°)
Ⓨ Dicoat® Treated items do not come with a center hole.

Part Number Type	Dg6	P 0.1mm Increment	B 1mm Increment	L	ℓ1	d	R	Applicable Set Screw	W	Unit Price LNTAN	LNTDN	TLNTAN	TLNTDN	R-NTAN	R-NTDN	D-NTAN	D-NTDN
Hardened (Round) LNTAN, Carburized (Round) TLNTAN, Hard Chrome (Round) R-NTAN, Dicoat (Round) D-NTAN	6 -0.004 -0.012	8.0~12.0	Ⓨ2~30	5	8	4	3	M5	3								
	8 -0.005 -0.014	10.0~16.0		5	8	5	4	M5	3.5								
	10	12.0~20.0		10	8	7	4	M6	4								
	10T	12.0~20.0		5	8	7	5	M6	5								
(Diamond) LNTDN, (Diamond) TLNTDN, (Diamond) R-NTDN, (Diamond) D-NTDN	12 -0.006 -0.017	14.0~25.0		12	10	9	6	M8	6								
	16	18.0~32.0		12	10	13	8	M8	8					-	-	-	-
	20 -0.007 -0.020	22.0~35.0		12	10	17	8	M8	9					-	-	-	-

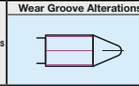
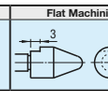
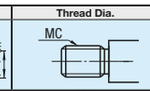
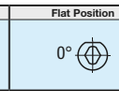
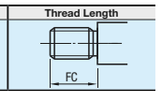
Ⓨ B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

Ordering Example

Part Number									
Type	D		P		B		L		
LNNAN	6	-	P8.0	-	B14	-	L10		
LNTAN	8	-	P12.0	-	B12				

Alterations

Part Number Type	D		P		B		L		(KD, MC)
LNNAN	10	-	P12.0	-	B10	-	L5	-	KD

Alterations	Wear Groove Alterations	Flat Machining	Thread Dia.	Flat Position	Thread Length
					
Code	MK	KD	MC	KC	FC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Ⓨ Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KD Machining on one side. Ⓨ Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. Ⓨ D/3≤M<D Mmin3 Ⓨ Applicable to Threaded only.	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Ⓨ Applicable to Diamond Shape Type only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 :M≤FC≤M×3 D12, 16:M≤FC≤M×2.5 D20 :M≤FC≤M×2 Ⓨ Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.

Locating Pins for Fixtures

Tip Shape Selectable, Precision Grade, No Shoulder

■**Features:** For Precision Grade, P Dim. Tolerance is $^{0}_{-0.01}$ or $^{0}_{-0.02}$ (for Standard Grade, $^{0}_{-0.05}$), concentricity is 0.01 or 0.02 (for Standard Grade, 0.03 or 0.05). Tip shape is selectable.

■Threaded

RoHS

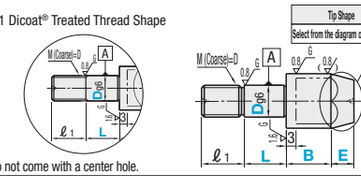
Type		M Material	H Hardness
SLNNA□	Round	EN 1.7220 Equiv.	Hardened 35~40HRC
SLNND□	Diamond		
TSLNNA□	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
TSLNND□	Diamond		

Type		M Material	H Hardness	S Surface Treatment
R-SNNA□	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SNND□	Diamond			
D-SNNA□	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-SNND□	Diamond			

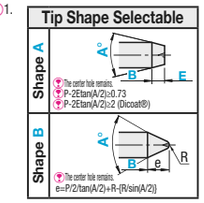
Reference: sin15°=0.259 tan15°=0.267 sin30°=0.5 tan30°=0.577 sin45°=0.707 tan45°=1 sin60°=0.866 tan60°=1.732

Ⓨ Dicoat® Treated items will have the ( ) precision and Thread Shape will be Ⓨ1. 6.3 (1.6 G, 0.8, 0.8 G)

Ⓨ1 Dicoat® Treated Thread Shape



Tip Shape Selectable



Ⓨ Only the Shape B Dicoat® Treated items do not come with a center hole.

Part Number Type	Tip Shape	Dg6	P 0.1mm Increment	B 1mm Increment	A Selection	E 1mm Increment	L Selection	ℓ1	R	W	Unit Price SLNNA□	SLNND□	TSLNNA□	TSLNND□	R-SNNA□	R-SNND□	D-SNNA□	D-SNND□
Hardened (Round) SLNNA, Carburized (Round) TSLNNA, Hard Chrome (Round) R-SNNA, Dicoat (Round) D-SNNA	A (Tapered)	6 -0.004 -0.012	8.0~12.0	Ⓨ2~30	*30	1~10	5 8 10	6	3	3								
		8 -0.005 -0.014	10.0~16.0				5 8 10 12 15	10	4	3.5								
		10	12.0~20.0		60		(5) (8) 10 12 15	12	4	4								
		10T	12.0~20.0				(5) (8) 10 12 15	15	5	5								
(Diamond) SLNND, (Diamond) TSLNND, (Diamond) R-SNND, (Diamond) D-SNND	B (Taper R)	12 -0.006 -0.017	14.0~25.0		90		(8) 10 12 15 18	15	6	6								
		16	18.0~32.0		120		(10) 12 15 18 20	18	8	8					-	-	-	-
		20 -0.007 -0.020	22.0~35.0				12 15 18 20	22	8	9					-	-	-	-

⊗Angle A*30 is not applicable to Tip Shape B. Select from Precision Grade, No Shoulder (**P.1695**). ⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment.
Ⓨ B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

■Set Screw

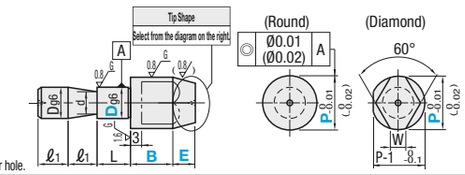
RoHS

Type		M Material	H Hardness
SLNTA□	Round	EN 1.7220 Equiv.	Hardening 35~40HRC
SLNTD□	Diamond		
TSLNTA□	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (depth 0.7 ~ 0.8) / Anti-carburizing on Threads
TSLNTD□	Diamond		

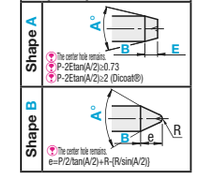
Type		M Material	H Hardness	S Surface Treatment
R-SNTA□	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-SNTD□	Diamond			
D-SNTA□	Round	EN 1.2379 Equiv.	55HRC~ (Surface 3000HV)	DicoatR Treated
D-SNTD□	Diamond			

Reference: sin15°=0.259 tan15°=0.267 sin30°=0.5 tan30°=0.577 sin45°=0.707 tan45°=1 sin60°=0.866 tan60°=1.732

Ⓨ Dicoat® Treated items will have the ( ) precision and Thread Shape will be Ⓨ1. 6.3 (1.6 G, 0.8, 0.8 G)



Tip Shape Selectable



Ⓨ Only the Shape B Dicoat® Treated items do not come with a center hole.

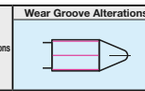
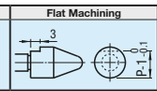
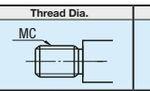
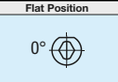
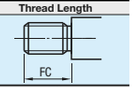
Part Number Type	Tip Shape	Dg6	P 0.1mm Increment	B 1mm Increment	A Selection	E (Shape A) 1mm Increment	L	ℓ1	d	R	Applicable Set Screw	W	Unit Price SLNTA□	SLNTD□	TSLNTA□	TSLNTD□	R-SNTA□	R-SNTD□	D-SNTA□	D-SNTD□
Hardened (Round) SLNTA, Carburized (Round) TSLNTA, Hard Chrome (Round) R-SNTA, Dicoat (Round) D-SNTA	A (Tapered)	6 -0.004 -0.012	8.0~12.0	Ⓨ2~30	*30	1~10	5	8	4	3	M5	3								
		8 -0.005 -0.014	10.0~16.0				5	8	5	4	M5	3.5								
		10	12.0~20.0		60		10	8	7	4	M6	4								
		10T	12.0~20.0				5	8	7	5	M6	5								
(Diamond) SLNTD, (Diamond) TSLNTD, (Diamond) R-SNTD, (Diamond) D-SNTD	B (Taper R)	12 -0.006 -0.017	14.0~25.0		90		12	10	9	6	M8	6								
		16	18.0~32.0		120		12	10	13	8	M8	8					-	-	-	-
		20 -0.007 -0.020	22.0~35.0				12	10	17	8	M8	9					-	-	-	-

⊗Angle A*30 is not applicable to Tip Shape B. Select from Precision Grade, No Shoulder (**P.1695**).
Ⓨ B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

Part Number												
Type	Tip Shape	D		P		B		L		A		E
SLNND	A	6	-	P8.0	-	B14	-	L8	-	A30	-	E2
SLNTA	B	8	-	P12.0	-	B15	-			A60		

Alterations

Part Number Type	Tip Shape	D		P		B		L		A		E		(KD, MC)
D-SNNA	B	10	-	P12.0	-	B10	-	L5	-	A60			-	KD

Alterations	Wear Groove Alterations	Flat Machining	Thread Dia.	Flat Position	Thread Length
					
Code	MK	KD	MC	KC	FC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Ⓨ Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KD Machining on one side. Ⓨ Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. Ⓨ D/3≤M<D Mmin3 Ⓨ Applicable to Threaded only.	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Ⓨ Applicable to Diamond Shape Type only.	Ordering Code FC15 Changes the thread length. FC=1mm Increment D6~10 :M≤FC≤M×3 D12, 16:M≤FC≤M×2.5 D20 :M≤FC≤M×2 Ⓨ Applicable to Threaded only. ⊗Not applicable to Dicoat® and TiCN treatment.

Locating Pins for Fixtures - Precision Grade, Configurable

Shouldered

Features: Precision Grade Pins with wider selection of D/P/B/L/T Dimensions.

■Threaded

RoHS

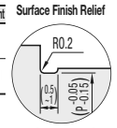
Type		Material	Hardness
Round	Diamond		
FLANA	FLAND	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
FTLANA	FTLAND	EN 1.7242 Equiv.	Carburized Hardness 55HRC~
FSLANA	FSLAND	EN 1.4301 Equiv.	-
FCLANA	FCLAND	EN 1.4125 Equiv.	Treated Hardness 50~55HRC

* Carburized: depth 0.7 ~ 0.8 / Anti-carburizing on Threads

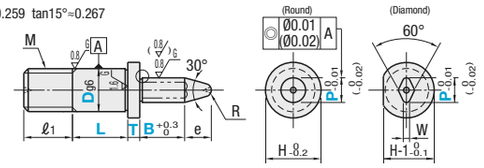
Type		Material	Hardness	Surface Treatment
R-FANA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-FAND	Diamond			
D-FANA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-FAND	Diamond			

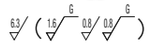
Dicoat® Treated items will have the ( ) precision.

Surface Finish Relief



Reference: sin15≈0.259 tan15°≈0.267





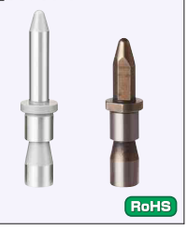
D	g6
3	-0.002 -0.008
4~6	-0.004 -0.012
8, 10	-0.005 -0.014
12, 16	-0.006 -0.017
20	-0.007 -0.020

e=P/2/tan15°+R-(R/sin15°)
Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number / Type	D	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	T 0.1mm Increment	ℓ1	H	R	M (Coarse)	W	Unit Price FLANA	FLAND	FTLANA	FTLAND	FSLANA	FSLAND	FCLANA	FCLAND	R-FANA	R-FAND	D-FANA	D-FAND
	3	3.0~4.0	2.0~16.0	5~10		5	6	1	M3	1~2											-	-
	4	3.0~5.0	2.0~20.0	5~10		6	7	1	M4	1~2											-	-
Hardened (Round) FLANA / Carburized (Round) FLANA / EN 1.4301 Equiv. (Round) FSLANA / EN 1.4125 Equiv. (Round) FCLANA / Hard Chrome (Round) R-FANA / Dicoat (Round) D-FANA	5	3.0~6.0	2.0~24.0	5~10		6	8	1	M5	1~2											-	-
	6	3.0~7.0	2.0~28.0	5~10		6	9	1	M6	1~2												
	8	3.0~9.0	2.0~35.0	5~10	2.0~10.0	10	11	1.5	M8	1~2												
(Diamond) FLAND / (Diamond) FLAND / (Diamond) FSLAND / (Diamond) FCLAND / (Diamond) R-FAND / (Diamond) D-FAND	10	5.0~12.0	3.0~35.0	8~15		12	13	2	M10	2~3												
	12	7.0~13.0	3.0~35.0	10~18		15	15	3	M12	4												
	16	13.0~16.0	5.0~35.0	12~20		18	19	4	M16	5												
	20	16.0~20.0	5.0~35.0	15~20		22	23	4	M20	5									-	-	-	-

B≤Px4 (W) Dimension D≤8: W=2 when P>5.0 D10: W=3 when P>7.0

■Set Screw



RoHS

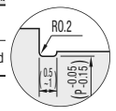
Type		Material	Hardness
Round	Diamond		
FLATA	FLATD	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
FTLATA	FTLATD	EN 1.7242 Equiv.	Carburized Hardness 55HRC~
FSLATA	FSLATD	EN 1.4301 Equiv.	-
FCLATA	FCLATD	EN 1.4125 Equiv.	Treated Hardness 50~55HRC

* Carburized: depth 0.7 ~ 0.8 / Anti-carburizing on Threads

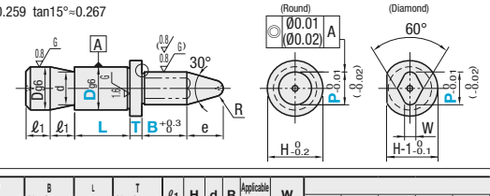
Type		Material	Hardness	Surface Treatment
R-FATA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-FATD	Diamond			
D-FATA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-FATD	Diamond			

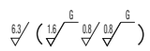
Dicoat® Treated items will have the ( ) precision.

Surface Finish Relief



Reference: sin15≈0.259 tan15°≈0.267





D	g6
6	-0.004 -0.012
8, 10	-0.005 -0.014
12, 16	-0.006 -0.017
20	-0.007 -0.020

e=P/2/tan15°+R-(R/sin15°)
Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number / Type	D	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	T 0.1mm Increment	ℓ1	H	d	R	Applicable Set Screw	W	Unit Price FLATA	FLATD	FTLATA	FTLATD	FSLATA	FSLATD	FCLATA	FCLATD	R-FATA	R-FATD	D-FATA	D-FATD
Hardened (Round) FLATA / Carburized (Round) FLATA / EN 1.4301 Equiv. (Round) FSLATA / EN 1.4125 Equiv. (Round) FCLATA / Hard Chrome (Round) R-FATA / Dicoat (Round) D-FATA	6	3.0~7.0	2.0~28.0	5~10	2.0~10.0	8	9	4	1	M5	1~2												
	8	3.0~9.0	2.0~35.0	5~10		8	11	5	1.5	M5	1~2												
	10	5.0~12.0	3.0~35.0	8~15		8	13	7	2	M6	2~3												
	12	7.0~13.0	3.0~35.0	10~18		10	15	9	3	M6	4												
(Diamond) FLATD / (Diamond) FLATD / (Diamond) FSLATD / (Diamond) FCLATD / (Diamond) R-FATD / (Diamond) D-FATD	16	13.0~16.0	5.0~35.0	10~20		10	19	13	4	M8	5												
	20	16.0~20.0	5.0~35.0	10~20		10	23	17	4	M8	5									-	-	-	-

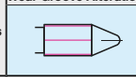
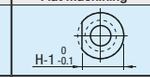
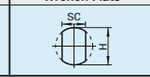
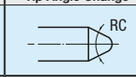
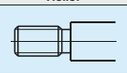
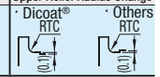
B≤Px4 (W) Dimension D6, D8: W=2 when P>5.0 D10: W=3 when P>7.0

Ordering Example

Part Number	-	P	-	B	-	L	-	T
FLANA6	-	P6.8	-	B10.5	-	L5	-	T3.1
FSLATA12	-	P9.6	-	B21.5	-	L10	-	T5.3

Alterations

Part Number	-	P	-	B	-	L	-	T	-	(KC, KD, SC--etc.)
FLANA6	-	P6.8	-	B10.5	-	L5	-	T3.1	-	SC8
FSLATA12	-	P9.6	-	B21.5	-	L10	-	T5.3	-	SC14

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Tip Angle Change	Relief	Upper Relief Radius Change
							
Code	MK	KC	KD	SC	RC	NNC	RTC
	Drill 4 grooves on the B dimension area. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only When used together with RTC, the groove starts from the area of R value ÷ 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type only. H-P≥2	Ordering Code SC10 Adds wrench flats. SC=1mm Increment SC>D SC>P SC≤H-2 Applicable to Round Shape Type only.	Ordering Code RC60 Changes the tip angle. Selection 60°, 90°, 120°	Ordering Code NNC Adds a relief at the thread end. Not applicable to Set Screw Type. For damage prevention, Dicoat® treatment is not applicable.	Ordering Code RTC1 Changes the relief to the following radius R. Selection R1 R2 R3 RTC≤(H-P)/2 Applicable when B≥5

Locating Pins for Fixtures - Precision Grade, Configurable

No Shoulder

Features: Precision Grade Pins with wider selection of D/P/B/L Dimensions.

■Threaded

RoHS

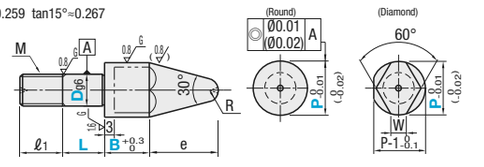
Type		Material	Hardness
Round	Diamond		
FLNNA	FLNND	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
FTLNNA	FTLNND	EN 1.7242 Equiv.	Carburized Hardness 55HRC~
FSLNNA	FSLNND	EN 1.4301 Equiv.	-
FCLNNA	FCLNND	EN 1.4125 Equiv.	Treated Hardness 50~55HRC

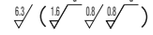
* Carburized: depth 0.7 ~ 0.8 / Anti-carburizing on Threads

Type		Material	Hardness	Surface Treatment
R-FNNA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-FNND	Diamond			
D-FNNA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-FNND	Diamond			

Dicoat® Treated items will have the ( ) precision.

Reference: sin15≈0.259 tan15°≈0.267





D	g6
3	-0.002 -0.008
4~6	-0.004 -0.012
8, 10	-0.005 -0.014
12, 16	-0.006 -0.017
20	-0.007 -0.020

e=P/2/tan15°+R-(R/sin15°)
Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number / Type	D	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	ℓ1	R	M (Coarse)	W	Unit Price FLNNA	FLNND	FTLNNA	FTLNND	FSLNNA	FSLNND	FCLNNA	FCLNND	R-FNNA	R-FNND	D-FNNA	D-FNND
	3	4.0~6.0	2.0~16.0	5~10	5	2	M 3	1.5											-	-
	4	5.0~8.0	2.0~20.0	5~10	6	2	M 4	2											-	-
Hardened (Round) FLNNA / Carburized (Round) FLNNA / EN 1.4301 Equiv. (Round) FSLNNA / EN 1.4125 Equiv. (Round) FCLNNA / Hard Chrome (Round) R-FNNA / Dicoat (Round) D-FNNA	5	6.0~10.0	2.0~24.0	5~10	6	3	M 5	2											-	-
	6	8.0~12.0	2.0~24.0	5~10	6	3	M 6	3												
	8	10.0~16.0	2.0~26.0	5~10	10	4	M 8	3.5												
(Diamond) FLNND / (Diamond) FLNND / (Diamond) FSLNND / (Diamond) FCLNND / (Diamond) R-FNND / (Diamond) D-FNND	10	12.0~20.0	3.0~35.0	8~15	12	4	M10	4												
	12	14.0~25.0	3.0~35.0	10~18	15	6	M12	6												
	16	18.0~32.0	5.0~35.0	12~20	18	8	M16	8									-	-	-	-
	20	22.0~35.0	5.0~35.0	15~20	22	8	M20	9									-	-	-	-

B≤Px4 For Diamond Shape, B dimension 5.0 or more are applicable.

■Set Screw

RoHS

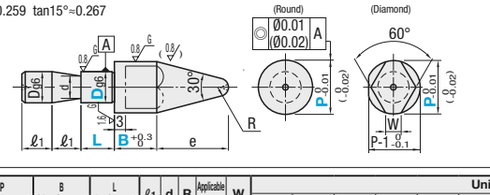
Type		Material	Hardness
Round	Diamond		
FLNTA	FLNTD	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
FTLNTA	FTLNTD	EN 1.7242 Equiv.	Carburized Hardness 55HRC~
FSLNTA	FSLNTD	EN 1.4301 Equiv.	-
FCLNTA	FCLNTD	EN 1.4125 Equiv.	Treated Hardness 50~55HRC

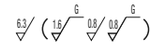
* Carburized: depth 0.7 ~ 0.8 / Anti-carburizing on Threads

Type		Material	Hardness	Surface Treatment
R-FNTA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-FNTD	Diamond			
D-FNTA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-FNTD	Diamond			

Dicoat® Treated items will have the ( ) precision.

Reference: sin15≈0.259 tan15°≈0.267





D	g6
6	-0.004 -0.012
8, 10	-0.005 -0.014
12, 16	-0.006 -0.017
20	-0.007 -0.020

e=P/2/tan15°+R-(R/sin15°)
Dicoat® Treated / TiCN Treated items do not come with a center hole.

Part Number / Type	D	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	ℓ1	d	R	Applicable Set Screw	W	Unit Price FLNTA	FLNTD	FTLNTA	FTLNTD	FSLNTA	FSLNTD	FCLNTA	FCLNTD	R-FNTA	R-FNTD	D-FNTA	D-FNTD
Hardened (Round) FLNTA / Carburized (Round) FLNTA / EN 1.4301 Equiv. (Round) FSLNTA / EN 1.4125 Equiv. (Round) FCLNTA / Hard Chrome (Round) R-FNTA / Dicoat (Round) D-FNTA	6	8.0~12.0	2.0~30.0	5~10	8	4	3	M5	3												
	8	10.0~16.0	2.0~35.0	5~10	8	5	4	M5	3.5												
	10	12.0~20.0	3.0~35.0	8~15	8	7	4	M6	4												
	12	14.0~25.0	3.0~35.0	10~18	10	9	6	M6	6												
(Diamond) FLNTD / (Diamond) FLNTD / (Diamond) FSLNTD / (Diamond) FCLNTD / (Diamond) R-FNTD / (Diamond) D-FNTD	16	18.0~32.0	5.0~35.0	10~20	10	13	8	M8	8									-	-	-	-
	20	22.0~35.0	5.0~35.0	10~20	10	17	8	M8	9									-	-	-	-

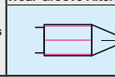
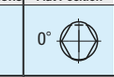
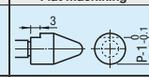
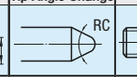
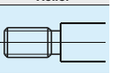
B≤Px4 For Diamond Shape, B dimension 5.0 or more are applicable.

Ordering Example

Part Number	-	P	-	B	-	L
FTLNNA12	-	P14.2	-	B15.1	-	L10
FLNTA10	-	P12.1	-	B10.5	-	L8

Alterations

Part Number	-	P	-	B	-	L	-	(KC, KD, RC, NNC)
FTLNNA12	-	P14.2	-	B15.1	-	L10	-	RC60
FLNTA10	-	P12.1	-	B10.5	-	L8	-	RC120

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Tip Angle Change	Relief
					
Code	MK	KC	KD	RC	NNC
Spec.	Drill 4 grooves on the B dimension area. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type only.	Ordering Code RC60 Changes the tip angle. Selection 60°·90°·120°	Ordering Code NNC Adds a relief at the thread end. Not applicable to Set Screw Type. For damage prevention, Dicoat® treatment is not applicable.

Locating Pins for Fixtures - Standard Grade, Short Set Screw

Circumference Groove

Spec.Change Printed in Purple

Features: Can be used for thin locators due to the short retaining part. For Standard Grade, P Dim. For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ and concentricity is 0.03 or 0.05. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

■Shouldered

RoHS

℗e=P/2/tan15°+R-(R/sin15°)

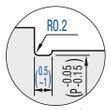
Type		M Material	H Hardness
Circumference Groove	Shape		
ELASA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELASD	Diamond		
TELASA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC- (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TELASD	Diamond		

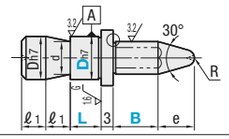
Type		M Material	H Hardness	S Surface Treatment
Circumference Groove	Shape			
D-LASA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-LASD	Diamond			
R-LASA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LASD	Diamond			

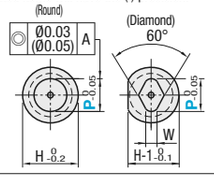
Reference: sin15°≈0.259 tan15°≈0.267

℗Dicoat® Treated items will have the ( ) precision.

Surface Finish Relief







6.3 3.2 1.6 1.6 G

■Circumference Groove Shape

D	ℓ1	d	Applicable Set Screw
6	6	4	M5
8		5	
10		7	
12	8	9	M6
16		13	

Part Number Type	D h7	P 0.1mm Increment	B 1mm Increment	L 1mm Increment	H	R	W	Unit Price ELASA	ELASD	TELASA	TELASD	D-LASA	D-LASD	R-LASA	R-LASD
Hardened (Round) ELASA / Carburized (Round) TELASA / Hard Chrome (Round) R-LASA / Dicoat (Round) D-LASA	6	3.0~7.0	℗2~30 (B≦P×4)	5~10	9	1	1~2								
	8	3.0~9.0			11	1.5	1~2								
	10	4.5~12.0			13	2	1~3								
(Diamond) ELASD / (Diamond) TELASD / (Diamond) R-LASD / (Diamond) D-LASD	12	9.0~13.0			15	3	4								
	16	13.0~16.0			19	4	5								

℗W Dimension D6, D8: W=2 when P>5.0 D10: W=1 when P<5.0, W=2 when 5.0≦P≦7.0, W=3 when P>7.0 ℗B dimension of Dicoat treated products are to be specified from 5mm~

■No Shoulder

RoHS

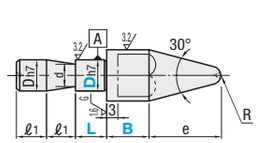
℗e=P/2/tan15°+R-(R/sin15°)

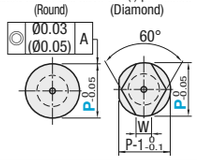
Type		M Material	H Hardness
Circumference Groove	Shape		
ELNSA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELNSD	Diamond		
TELNSA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC- (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TELNSD	Diamond		

Type		M Material	H Hardness	S Surface Treatment
Circumference Groove	Shape			
R-LNSA	Round	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating
R-LNSD	Diamond			
D-LNSA	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Treated
D-LNSD	Diamond			

Reference: sin15°≈0.259 tan15°≈0.267

℗Dicoat® Treated items will have the ( ) precision.





6.3 3.2 1.6 1.6 G

■Circumference Groove Shape

D	ℓ1	d	Applicable Set Screw
6	6	4	M5
8		5	
10		7	
12	8	9	M6
16		13	
20		17	

Part Number Type	D h7	P 0.1mm Increment	B 1mm Increment	L 1mm Increment	R	W	Unit Price ELNSA	ELNSD	TELNSA	TELNSD	R-LNSA	R-LNSD	D-LNSA	D-LNSD
Hardened (Round) ELNSA / Carburized (Round) TELNSA / Hard Chrome (Round) R-LNSA / Dicoat (Round) D-LNSA	6	8.0~12.0	℗2~30	5~10	3	3								
	8	10.0~16.0			4	3.5								
	10	12.0~20.0			4	4								
(Diamond) ELNSD / (Diamond) TELNSD / (Diamond) R-LNSD / (Diamond) D-LNSD	12	14.0~25.0			6	6								
	16	18.0~32.0			8	8					-	-	-	-
	20	22.0~35.0			8	9					-	-	-	-

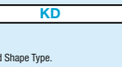
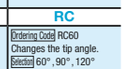
℗B Dimension is selectable from 5 mm ~ for Dicoat® Treated / Diamond Shape.

Ordering Example

Part Number								
Type	D		P		B		L	
ELASA	6	-	P5.0	-	B10	-	L5	
ELNSA	8	-	P12.0	-	B15	-	L8	

Alterations

Part Number		P		B		L		(KC, KD, SC, RTC)
ELASA10	-	P10.0	-	B15	-	L10	-	KD

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Upper Relief Radius Change	Tip Angle Change
		Shouldered / No Shoulder	Shouldered ℗H-P≥2 H-1 0 -0.1 No Shoulder 		・Dicoat® RTC (0.1) ・Others RTC (0.1)	
Code	MK	KC	KD	SC	RTC	RC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. ℗Applicable to Hardening, Carburized and Round Shape Products only ℗When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. ℗Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. ℗Applicable to Round Shape Type.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 ℗Applicable to Round Shape with Shoulder Type only.	Ordering Code RTC2 Changes the relief to the following radius R. Selection R1 R2 R3 ℗Applicable to Shouldered only. ℗RTC≦(H-P)/2 ℗B≧5	Ordering Code RC60 Changes the tip angle. Selection 60° , 90° , 120°

Locating Pins for Fixtures - Standard Grade, Short Set Screw

Tip Shape Selectable, Circumference Groove / Notched

Spec.Change Printed in Purple

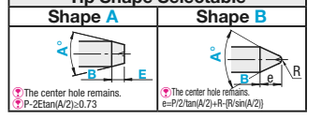
Features: Can be used for thin locators due to the short retaining part. For Standard Grade, P Dim. For Standard Grade, P Dim. Tolerance is $^{0}_{-0.05}$ and concentricity is 0.03 or 0.05. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

■Shouldered

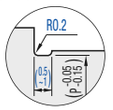
RoHS

Type			M Material	H Hardness
Circumference Groove	Notched	Shape		
ELASA□	ELACA□	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELASD□	ELACD□	Diamond		
TELASA□	TELACA□	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC- (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TELASD□	TELACD□	Diamond		

Tip Shape Selectable

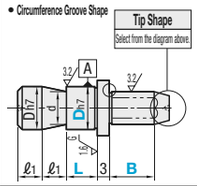


Surface Finish Relief

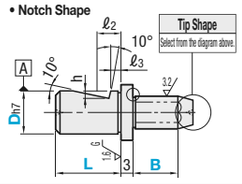


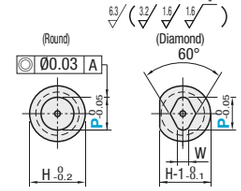
Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°≈0.577 tan45°=1 tan60°≈1.732

• Circumference Groove Shape



• Notch Shape





6.3 3.2 1.6 1.6 G

■Circumference Groove Shape

D	ℓ1	d	Applicable Set Screw
6	6	4	M5
8		5	
10		7	
12	8	9	M6
16		13	

■Notch Shape

D	ℓ2	ℓ3	h	Applicable Set Screw
6	5.5	2.5	1.0	M4
8	7.5	3.5	1.2	M5
10				
12	10.5	5.5	2.0	M6
16				

℗ℓ2 is the recommended dimension of the position of set screw tip.

Part Number Type [Circumference Groove]	[Notched]	Tip Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Circumference Groove Shape 1mm Increment	L Notch Shape Selection	A Selection	E (Shape A) 1mm Increment	H	R	W	Unit Price Circumference Groove ELNSA□	ELNSD□	TELNSA□	TELNSD□	Notched ELNCA□	ELNCD□	TELNCA□	TELNCD□
Hardened (Round) ELNSA / Hardened (Round) TELNSA	Hardened (Round) ELNCA / Carburized (Round) TELNCA	A (Tapered)	6	3.0~7.0	℗2~30 (B≦P×4)	5~10	10 12 16	•30 60 90 120	1~10	9	1	1~2								
			8	3.0~9.0			12 16 19			11	1.5	1~2								
			10	4.5~12.0						13	2	1~3								
(Diamond) ELNSD / (Diamond) TELNSD	(Diamond) ELNCD / (Diamond) TELNCD	B (Taper R)	12	9.0~13.0			12 16 19 20			15	3	4								
			16	13.0~16.0			19 20 25			19	4	5								

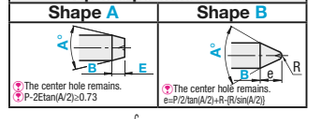
℗W Dimension D6, D8: W=2 when P>5.0 D10: W=1 when P<5.0, W=2 when 5.0≦P≦7.0, W=3 when P>7.0 ⊗Angle A*30 is not applicable to Tip Shape B of Circumference Groove. Select from Circumference Groove Type (**P.1699**).
℗Conventional RC alteration (change of angle) can be substituted with Tip Shape B.

■No Shoulder

RoHS

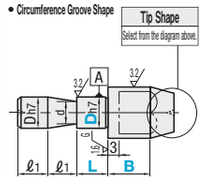
Type			M Material	H Hardness
Circumference Groove	Notched	Shape		
ELNSA□	ELNCA□	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELNSD□	ELNCD□	Diamond		
TELNSA□	TELNCA□	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC- (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TELNSD□	TELNCD□	Diamond		

Tip Shape Selectable

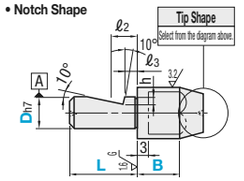


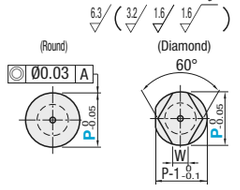
Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°≈0.577 tan45°=1 tan60°≈1.732

• Circumference Groove Shape



• Notch Shape





6.3 3.2 1.6 1.6 G

■Circumference Groove Shape

D	ℓ1	d	Applicable Set Screw
6	6	4	M5
8		5	
10		7	
12	8	9	M6
16		13	
20		17	

■Notch Shape

D	ℓ2	ℓ3	h	Applicable Set Screw
6	5.5	2.5	1.0	M4
8	7.5	3.5	1.2	M5
10				
12	10.5	5.5	2.0	M6
16				
20				

℗ℓ2 is the recommended dimension of the position of set screw tip.

Part Number Type [Circumference Groove]	[Notched]	Tip Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Circumference Groove Shape 1mm Increment	L Notch Shape Selection	A Selection	E (Shape A) 1mm Increment	R	W	Unit Price Circumference Groove ELNSA□	ELNSD□	TELNSA□	TELNSD□	Notched ELNCA□	ELNCD□	TELNCA□	TELNCD□
Hardened (Round) ELNSA / Hardened (Round) TELNSA	Hardened (Round) ELNCA / Carburized (Round) TELNCA	A (Tapered)	6	8.0~12.0	℗2~30	5~10	10 12 16	•30 60 90 120	1~10	3	3								
			8	10.0~16.0			12 16 19			4	3.5								
			10	12.0~20.0			12 16 19			4	4								
(Diamond) ELNSD / (Diamond) TELNSD	(Diamond) ELNCD / (Diamond) TELNCD	B (Taper R)	12	14.0~25.0			12 16 19 20			6	6								
			16	18.0~32.0			19 20 25			8	8								
			20	22.0~35.0			19 20 25			8	9								

⊗Angle A*30 is not applicable to Tip Shape B of Circumference Groove. Select from Circumference Groove Type (**P.1699**). ℗Conventional RC alteration (change of angle) can be substituted with Tip Shape B.
℗B Dimension is selectable from 5 mm ~ for Diamond Shape.

Ordering Example

Part Number												
Type	Tip Shape	D		P		B		L		A		E
ELASA	A	6	-	P5.0	-	B10	-	L5	-	A60	-	E5
ELNCA	B	6	-	P8.0	-	B10	-	L10	-	A60		

Alterations

Part Number		P		B		L		A		E	(KC, KD, SC, RTC)
ELNSAB10	-	P12.8	-	B15	-	L10	-	A60	-		KD

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Upper Relief Radius Change
		Shouldered / No Shoulder	Shouldered ℗H-P≥2 H-1 0 -0.1 No Shoulder		RTC (0.1)
Code	MK	KC	KD	SC	RTC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. ℗Applicable to Hardening, Carburized and Round Shape Products only ℗When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. ℗Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. ℗Applicable to Round Shape Type.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 H1 7 8 11 13 17 ℗Applicable to Round Shape with Shoulder Type only.	Ordering Code RTC2 Changes the relief to the following radius R. Selection R1 R2 R3 ℗Applicable to Shouldered only. ℗RTC≦(H-P)/2 ℗B≧5

Locating Pins for Fixtures - Standard Grade, Long Head

Spec.Change Printed in Purple

Features: Height direction locating is possible by using together with Height Adjusting Washer (listed on our website). Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

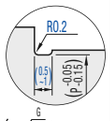
Shouldered

RoHS

Type		M Material	H Hardness
Threaded	Set Screw		
LANAR	LATAR	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLANAR	TLATAR	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

Type		M Material	H Hardness	S Surface Treatment
Threaded	Set Screw			
R-ANAR	R-ATAR	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating

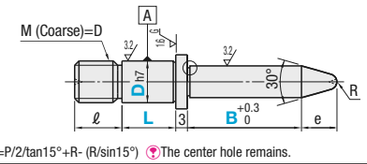
Surface Finish Relief



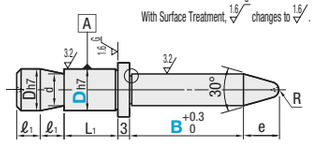
Reference: sin15°≈0.259
tan15°≈0.267

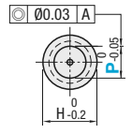
6.3 (3.2 1.6 1.6 G)

• Threaded



• Set Screw





e=P/2/tan15°+R- (R/sin15°) The center hole remains.

Part Number Type	Dh7	P 0.1mm Increment	B 1mm Increment	L Selection	ℓ	L1	ℓ1	H	d	R	Applicable Set Screw	Unit Price LANAR LATAR	TLANAR TLATAR	R-ANAR R-ATAR
Hardened (Threaded) Carburized (Threaded) Hard Chrome (Threaded) LANAR TLANAR R-ANAR	6 (0 -0.012)	5.0~7.0	20~30	5 8 10	6	8	8	9	4	1	M5			
	8	5.0~9.0	20~30	5 8 10 12 15	10	8	8	11	5	1.5	M5			
	10 (0 -0.015)	4.5~12.0	20~40	5 8 10 12 15	12	10	8	13	7	2	M6			
	10T	4.5~12.0	20~40	5 8 10 12 15	18	5	8	13	7	2	M6			
(Set Screw) (Set Screw) (Set Screw) LATAR TLATAR R-ATAR	12 (0 -0.018)	9.0~13.0	30~50	8 10 12 15 18	15	12	10	15	9	3	M8			
	16	13.0~16.0	30~50	10 12 15 18 20	18	12	10	19	13	4	M8			

No Shoulder

RoHS

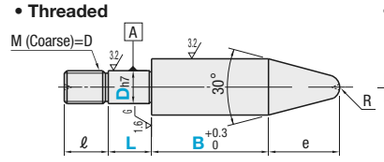
Type		M Material	H Hardness
Threaded	Set Screw		
LNNAR	LNTAR	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLNNAR	TLNTAR	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

Type		M Material	H Hardness	S Surface Treatment
Threaded	Set Screw			
R-NNAR	R-NTAR	EN 1.7220 Equiv.	35~40HRC (Surface 750HV ~)	Hard Chrome Plating

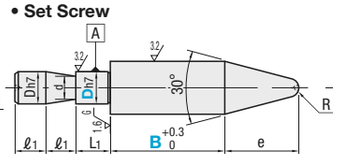
Reference: sin15°≈0.259
tan15°≈0.267

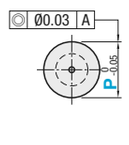
6.3 (3.2 1.6 1.6 G)

• Threaded



• Set Screw





e=P/2/tan15°+ R - (R/sin15°) The center hole remains.

denoted locations for surface treated pins will be .

Part Number Type	Dh7	P 0.1mm Increment	B 1mm Increment	L Selection	ℓ	L1	ℓ1	d	R	Applicable Set Screw	Unit Price LNNAR LNTAR	TLNNAR TLNTAR	R-NNAR R-NTAR
Hardened (Threaded) Carburized (Threaded) Hard Chrome (Threaded) LNNAR TLNNAR R-NNAR	6 (0 -0.012)	8.0~12.0	30~50	5 8 10	6	8	8	4	3	M5			
	8	10.0~16.0		5 8 10 12 15	10	8	8	5	4	M5			
	10 (0 -0.015)	12.0~20.0		5 8 10 12 15	12	10	8	7	4	M6			
	10T	12.0~20.0		5 8 10 12 15	15	5	8	7	5	M6			
(Set Screw) (Set Screw) (Set Screw) LNTAR TLNTAR R-NTAR	12	14.0~25.0		8 10 12 15 18	15	12	10	9	6	M8			
	16 (0 -0.018)	18.0~32.0		10 12 15 18 20	18	12	10	13	8	M8			
	20 (0 -0.021)	22.0~35.0		12 15 18 20	22	12	10	17	8	M8			

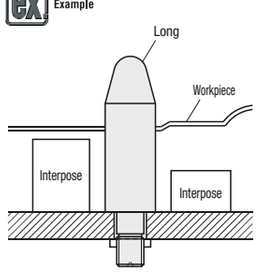
Ordering Example

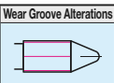
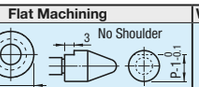
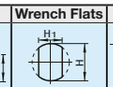
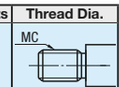
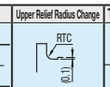
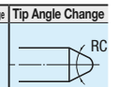
Part Number	-	P	-	B	-	L
LATAR	10	- P7.8	-	B20		
LNNAR	8	- P12.0	-	B40	-	L10

Alterations

Part Number	-	P	-	B	-	L	-	(KD, SC, MC, RTC)
LATAR8		- P6.8	-	B20			-	SC

Example



Alterations	Wear Groove Alterations	Flat Machining	Wrench Flats	Thread Dia.	Upper Relief Radius Change	Tip Angle Change
		Shouldered H-P≥2, H-1-0.1 / No Shoulder 3, P-1-0.1 	H1 H 	MC 	RTC (0.1) 	RC 
Code	MK	KD	SC	MC	RTC	RC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KD Machining on one side.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 23 / H1 7 8 11 13 17 21 Applicable to Shouldered only.	Ordering Code MC8 Changes the thread diameter. D/3≤M<D Mmin3 Applicable to Threaded only.	Ordering Code RTC2 Changes the relief to the following radius R. Selection R1 R2 R3 Applicable to Shouldered only. RTC≤(H-P)/2	Ordering Code RC60 Changes the tip angle. Selection 60°, 90°, 120°

Locating Pins for Fixtures - Standard Grade, Screw Mounted

Spec.Change Printed in Purple

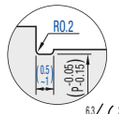
Features: Screw Mounted Pins. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

Shouldered

RoHS

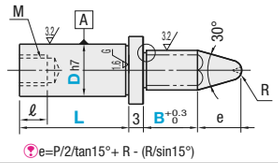
Type Shouldered	Shape	M Material	H Hardness
ELABA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELABD	Diamond		
TELABA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Tapped Part
TELABD	Diamond		

Surface Finish Relief

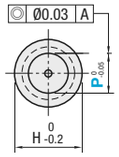


Reference: sin15°≈0.259
tan15°≈0.267

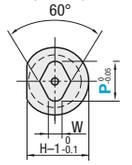
6.3 (3.2 1.6 G)

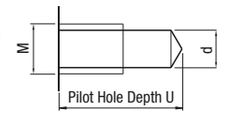


(Round)



(Diamond)





List of Internal Thread Pilot Hole

Thread Dia.	M2	M2.6	M3	M4	M5	M6	M8	M10
Pilot Hole Dia. d	1.8	2.3	2.6	3.4	4.3	5.1	6.9	8.6
Pilot Hole Depth U	8	8.5	9.5	12	14.5	17	21	24

Pilot hole depth is for reference.

e=P/2/tan15°+ R - (R/sin15°)

Part Number Type	Dh7	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	ℓ	H	R	M (Coarse)	W	Unit Price ELABA	ELABD	TELABA	TELABD
Hardened (Round) Carburized (Round) ELABA TELABA	6 (0 -0.012)	3.0~7.0	2.0~35.0 (B≤Px4)	10~16	5	9	1	M3	1~2				
	8	3.0~9.0		12~20	6	11	1.5	M4	1~2				
	10 (0 -0.015)	4.5~12.0		15~20	8	13	2	M5	1~3				
	10T	4.5~12.0		18~20	8	13	2	M6	1~3				
(Diamond) (Diamond) ELABD TELABD	12	7.0~13.0		15~20	8	15	3	M5	4				
	16 (0 -0.018)	13.0~16.0		21~32	12	19	4	M8	5				
	20 (0 -0.021)	16.0~20.0		21~40	12	23	4	M8	5				

W Dimension D6, D8: W=2 when P>5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0

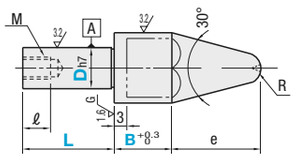
No Shoulder

RoHS

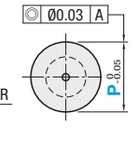
Type No Shoulder	Shape	M Material	H Hardness
ELNBA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
ELNBD	Diamond		
TELNBA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC ~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Tapped Part
TELNBD	Diamond		

6.3 (3.2 1.6 G)

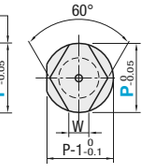
Reference: sin15°≈0.259
tan15°≈0.267

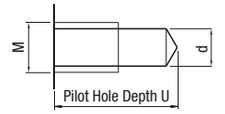


(Round)



(Diamond)





List of Internal Thread Pilot Hole

Thread Dia.	M2	M2.6	M3	M4	M5	M6	M8	M10
Pilot Hole Dia. d	1.8	2.3	2.6	3.4	4.3	5.1	6.9	8.6
Pilot Hole Depth U	8	8.5	9.5	12	14.5	17	21	24

Pilot hole depth is for reference.

e=P/2/tan15°+ R - (R/sin15°)

Part Number Type	Dh7	P 0.1mm Increment	B 0.1mm Increment	L 1mm Increment	ℓ	R	M (Coarse)	W	Unit Price ELNBA	ELNBD	TELNBA	TELNBD
Hardened (Round) Carburized (Round) ELNBA TELNBA	6 (0 -0.012)	8.0~12.0	2.0~35.0 (B≤Px4)	9~16	5	3	M3	3				
	8	10.0~16.0		9~20	6	4	M4	3.5				
	10 (0 -0.015)	12.0~20.0		10~20	8	4	M5	4				
	10T	12.0~20.0		10~24	8	5	M6	4				
(Diamond) (Diamond) ELNBD TELNBD	12	14.0~25.0		10~32	8	6	M5	6				
	16 (0 -0.018)	18.0~32.0		10~40	12	8	M8	8				
	20 (0 -0.021)	22.0~35.0		10~40	12	8	M8	9				

B Dimension is selectable from 5 mm ~ for Diamond Shape.

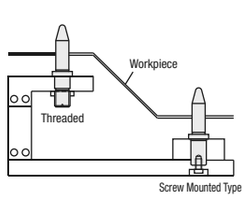
Ordering Example

Part Number	-	P	-	B	-	L
ELABA	8	- P6.8	-	B14.0	-	L10
ELNBA	10	- P14.0	-	B25.0	-	L15

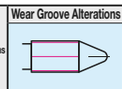
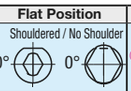
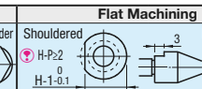
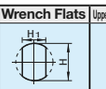
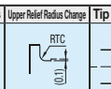
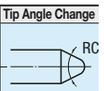
Alterations

Part Number	-	P	-	B	-	L	-	(KC, KD, SC, RTC)
ELABA10		- P7.0	-	B14.0	-	L12	-	KD

Example



Screw Mounted Type

Alterations	Wear Groove Alterations	Flat Position	Flat Machining	Wrench Flats	Upper Relief Radius Change	Tip Angle Change
		Shouldered / No Shoulder 0° 0° 	Shouldered H-P≥2, H-1-0.1 / No Shoulder 3, P-1-0.1 	H1 H 	RTC (0.1) 	RC 
Code	MK	KC	KD	SC	RTC	RC
	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only When used together with RTC, the groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm (±0.05mm) Groove Shape: V Groove (90°)	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19 23 / H1 7 8 11 13 17 21 Applicable to Round Shape with Shoulder Type only.	Ordering Code RTC2 Changes the relief to the following radius R. Selection R1 R2 R3 Applicable to Shouldered only. RTC≤(H-P)/2 B≥5	Ordering Code RC60 Changes the tip angle. Selection 60°, 90°, 120°

Locating Pins for Fixtures - Standard Grade, Round Edge

Tip Shape Selectable

Features: Addition of a radius to the edge makes smooth insertion and extraction of workpiece. For damage prevention, radius is added to upper-lower surface of shoulder.

Shouldered

RoHS

Type			M Material	H Hardness
Threaded	Set Screw	Shape		
RANA	RATA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
RAND	RATD	Diamond		
TRANA	TRATA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TRAND	TRATD	Diamond		

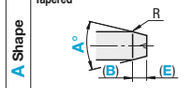
* A30=R10
A60, 90, 120=R3, however, for B Shape, only edge part will be removed as the tip becomes short.

Reference: sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan0°=0.577 sin45°≈0.707 tan45°=1 sin60°≈0.866 tan60°≈1.732

6.3 (3.2) 1.6 G

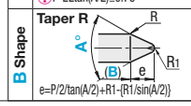
Tip Shape The center hole remains.

A Shape — Tapered



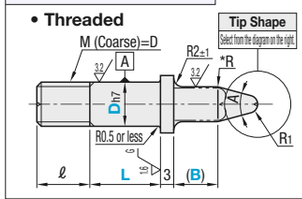
P-2Etan(A/2)≥0.73

B Shape — Taper R

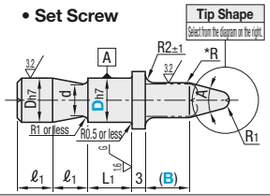


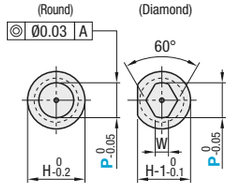
e=P/2/tan(A/2)+R-{R/sin(A/2)}

• Threaded



• Set Screw





Part Number Type [Threaded]	[Set Screw]	Tip Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Selection	A Selection	E (Shape A) 1mm Increment	ℓ	L1	ℓ1	d	Applicable Set Screw	H	R1	W	Unit Price RANA RATA	RAND RATD	TRANA TRATA	TRAND TRATD
Hardened (Round)	Carburized (Round)																			
RANA	TRANA	A	6	3.0~7.0	5~30 (B≤P×4)	5 8 10	30 60 90 120	3~10	6	8	8	4	M5	9	1	1~2				
			8	3.0~9.0		5 8 10 12 15			10	8	8	5	M5	11	1.5	1~2				
			10	4.5~12.0		(5) (8) 10 12 15			12	10	8	7	M6	13	2	1~3				
			10T	4.5~12.0					18	5	8	7	M6	13	2	1~3				
(Diamond)	(Diamond)																			
RNAD	TRNAD	B	12	9.0~13.0		(8) 10 12 15 18			15	12	10	9	M8	15	3	4				
			16	13.0~16.0		(10) 12 15 18 20			18	12	10	13	M8	19	3	5				

W Dimension D6, 8, 10, 10T: W=1 when P<5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗ L dimension in ( ) is not applicable to Diamond Shape.

No Shoulder

RoHS

Type			M Material	H Hardness
Threaded	Set Screw	Shape		
RNNA	RNTA	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
RNND	RNTD	Diamond		
TRNNA	TRNTA	Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
TRNND	TRNTD	Diamond		

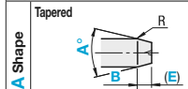
* A30, 60=R10
A90, 120=R3

Reference: sin15°≈0.259 tan15°≈0.267 sin30°=0.5 tan30°=0.577 sin45°≈0.707 tan45°=1 sin60°≈0.866 tan60°≈1.732

6.3 (3.2) 1.6 G

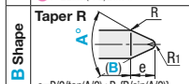
Tip Shape The center hole remains.

A Shape — Tapered



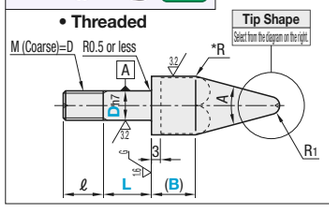
P-2Etan(A/2)≥0.73

B Shape — Taper R

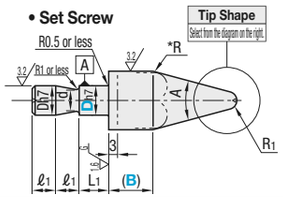


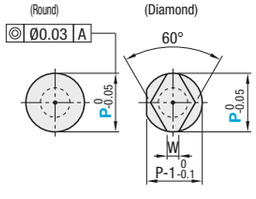
e=P/2/tan(A/2)+R-{R/sin(A/2)}

• Threaded



• Set Screw





Part Number Type [Threaded]	[Set Screw]	Tip Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Selection	A Selection	E (Shape A) 1mm Increment	ℓ	L1	ℓ1	d	Applicable Set Screw	R1	W	Unit Price RNNA RNTA	RNND RNTD	TRNNA TRNTA	TRNND TRNTD
Hardened (Round)	Carburized (Round)																		
RNNA	TRNNA	A	6	9.0~12.0	5~30 (B≤P×3)	5 8 10	30 60 90 120	3~10	6	8	8	4	M5	3	3				
			8	11.0~16.0		5 8 10 12 15			10	8	8	5	M5	3	3.5				
			10	13.0~20.0					12	10	8	7	M6	3	4				
			10T	13.0~20.0					18	5	8	7	M6	5	5				
(Diamond)	(Diamond)																		
RNND	TRNND	B	12	15.0~25.0	5~30 (B≤P×4)	(5) (8) 10 12 15			15	12	10	9	M8	5	6				
			16	19.0~32.0		(8) 10 12 15 18			18	12	10	13	M8	6	8				
			20	23.0~35.0		(10) 12 15 18 20			22	12	10	17	M8	6	9				

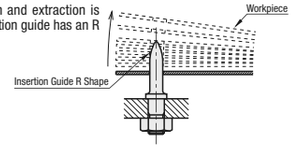
⊗L dimension in ( ) is not applicable to Diamond Shape.

Ordering Example

Part Number	Type	Tip Shape	D		P		B		L		A		E
RANA	A	10	-	P8.8	-	B10	-	L10	-	A30	-	E5
RNTA	B	10	-	P15.0	-	B15	-	L12	-	A60		

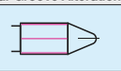
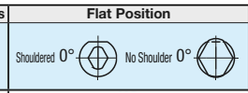
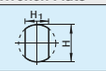
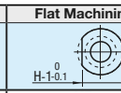
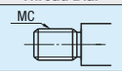
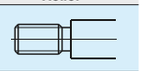
Example

Workpiece insertion and extraction is smooth as the insertion guide has an R shape.



Alterations

Part Number	P	B	L	A	E	(KC, SC)
RNNDA10	P13.8	B10	L10	A60	E5	KC

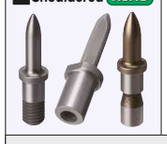
Alterations	Wear Groove Alterations	Flat Position	Wrench Flats	Flat Machining	Thread Dia.	Relief
		 Shouldered 0° No Shoulder 0°				
Code	MK	KC	SC	KD	MC	NNC
Spec.	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only. The groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm Groove Shape: V Groove	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19; H1 7 8 11 13 17. Applicable to Round Shape with Shoulder Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type only. H-P≥2	Ordering Code MC8 Changes the thread diameter. D/3≤M<D Mmin3 Applicable to Threaded only.	Ordering Code NNC Adds a relief at the thread end. Not applicable to Set Screw Type. For damage prevention, Dicoat® treatment is not applicable.

Locating Pins for Fixtures - Standard Grade, Bullet Nose

Part Number Change Printed in Purple

Features: R shape at insertion guide enables smooth insertion of workpiece.

Shouldered RoHS



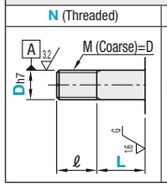
Type	Retaining Part Shape	Shape	M Material	H Hardness
HATA	N (Threaded) T (Set Screw) B (Screw Mounted)	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
HATD		Diamond		
THATA		Round	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads
THATD		Diamond		

Type	Retaining Part Shape	Shape	M Material	H Hardness	S Surface Treatment
D-HATA	N (Threaded) T (Threaded)	Round	EN 1.7220 Equiv.	55HRC~ (Surface 3000HV)	Dicoat® Treated
D-HATD		Diamond			

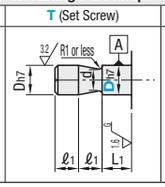
6.3 (3.2) 1.6 G

Retaining Part Shape

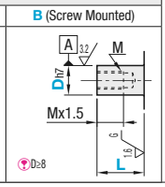
N (Threaded)

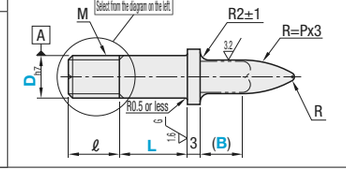


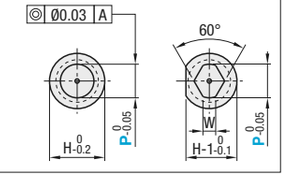
T (Set Screw)



B (Screw Mounted)







Part Number Type	Retaining Part Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Threaded Selection	L Screw Mounted 1mm Increment	ℓ	L1	ℓ1	d	Applicable Set Screw	M (Coarse) Screw Mounted	H	R	W
Hardened (Round) Carburized (Round) Dicoat (Round)															
HATA THATA D-HATA	N (Threaded) T (Set Screw) B (Screw Mounted)	6	3.0~7.0	5~30 (B≤P×3)	5 8 10	-	6	8	8	4	M5	-	9	1	1(2)
		8 0 -0.015	3.0~9.0		5 8 10 12 15	12~20	10	8	8	5	M5	M4	11	1	1(2)
		10	4.5~12.0		(5) (8) 10 12 15	15~30	12	10	8	7	M6	M5	13	1	1~3
		10T	4.5~12.0		(5) (8) 10 12 15	15~30	18	5	8	7	M6	M6	13	1	1~3
(Diamond) (Diamond) (Diamond)															
HATD THATD D-HATD		12 0 -0.018	9.0~13.0		(8) 10 12 15 18	15~30	15	12	10	9	M8	M5	15	1	4
		16	13.0~16.0		(10) 12 15 18 20	20~40	18	12	10	13	M8	M8	19	2	5

W Dimension D6, 8, 10, 10T: W=1 when P<5.0 D10, 10T: W=1 when P<5.0, W=2 when 5.0≤P≤7.0, W=3 when P>7.0 ⊗ L dimension in ( ) is not applicable to Diamond Shape.

D	Unit Price HATAN HATAT	HATDN HATDT	THATAN THATAT	THATDN THATDT	D-HATAN D-HATAT	D-HATDN D-HATDT	HATAB	HATDB	THATAB	THATDB
6							-	-	-	-
8										
10										
10T										
12										
16										

No Shoulder RoHS

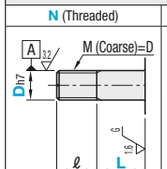
Part Number Type	Retaining Part Shape	Shape	M Material	H Hardness
HNTAX	N (Threaded) T (Set Screw) B (Screw Mounted)	Round	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
HNTD		Diamond		
THNTA		Round	EN 1.7242 Equiv.	Carburized Hardness 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Tapped Part
THNTD		Diamond		

Type	Retaining Part Shape	Shape	M Material	H Hardness	S Surface Treatment
D-HNTA	N (Threaded) T (Set Screw)	Round	EN 1.2379 Equiv.	55HRC ~ (Surface 3000HV)	Dicoat® Process
D-HNTD		Diamond			

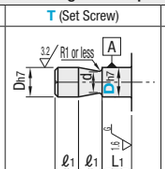
6.3 (3.2) 1.6 G

Retaining Part Shape

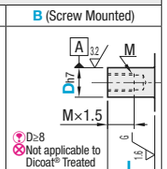
N (Threaded)

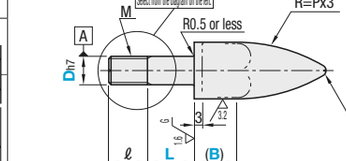


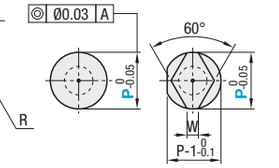
T (Set Screw)



B (Screw Mounted)







Part Number Type	Retaining Part Shape	D h7	P 0.1mm Increment	B 1mm Increment	L Threaded Selection	L Screw Mounted 1mm Increment	ℓ	L1	ℓ1	d	Applicable Set Screw	M (Coarse) Screw Mounted	R	W
Hardened (Round) Carburized (Round) Dicoat (Round)														
HNTAX THNTA D-HNTA	N (Threaded) T (Set Screw) B (Screw Mounted)	6	9.0~12.0	5~30 (B≤P×3)	5 8 10	-	6	8	8	4	M5	-	2	3
		8 0 -0.015	11.0~16.0		5 8 10 12 15	10~20	10	8	8	5	M5	M4	2	3.5
		10	13.0~20.0	5~30 (B≤P×4)	(5) (8) 10 12 15	10~30	12	10	8	7	M6	M5	2	4
		10T					18	5	8	7	M6	M6	2	5
(Diamond) (Diamond) (Diamond)														
HNTD THNTD D-HNTD		12 0 -0.018	15.0~25.0		(8) 10 12 15 18		15	12	10	9	M8	M5	3	6
		16	19.0~32.0		(10) 12 15 18 20	10~32	18			13		M8		8
		20 0 -0.021	23.0~35.0		12 15 18 20	10~40	22			17		M10		9

⊗L dimension in ( ) is not applicable to Diamond Shape and Dicoat® treatment.

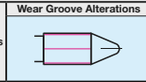
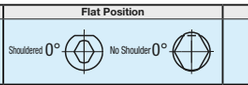
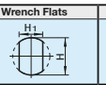
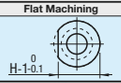
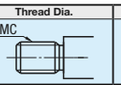
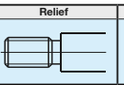
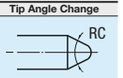
D	Unit Price HNTAXN HNTAXT	HNTDN HNTDT	THNTAN THNTAT	THNTDN THNTDT	D-HNTAN D-HNTAT	D-HNTDN D-HNTDT	HNTAXB	HNTDB	THNTAB	THNTDB
6							-	-	-	-
8										
10										
10T										
12										
16					-	-				
20					-	-				

Ordering Example

Part Number	Type	Retaining Part Shape	D		P		B		L
HATA	N	8	-	P7.8	-	B15	-	L8
HNTAX	T	8	-	P12.0	-	B15		

Alterations

Part Number	P	B	L	(KC, SC)
HATDB8	P4.5	B10	L12	KC

Alterations	Wear Groove Alterations	Flat Position	Wrench Flats	Flat Machining	Thread Dia.	Relief	Tip Angle Change
		 Shouldered 0° No Shoulder 0°					
Code	MK	KC	SC	KD	MC	NNC	RC
Spec.	Drill 4 grooves at B Dimension. The wear and tear of the grooves indicate the degree of wears. Applicable to Hardening, Carburized and Round Shape Products only. The groove starts from the area of R value + 1 mm. Groove Depth: 0.2mm Groove Shape: V Groove	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code SC Adds wrench flats. H 9 11 13 15 19; H1 7 8 11 13 17. Applicable to Round Shape with Shoulder Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type only. H-P≥2	Ordering Code MC8 Changes the thread diameter. D/3≤M<D Mmin3 Applicable to Threaded only.	Ordering Code NNC Adds a relief at the thread end. Not applicable to Set Screw Type. For damage prevention, DicoatR treatment is not applicable.	Ordering Code RC60 Changes the tip angle. Selection 60°, 90°, 120°

Locating Pins for Fixtures - Square Head

Tip Shape Selectable

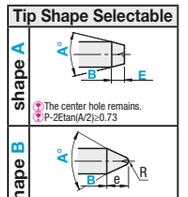
Features: Square Head Locating Pins that secure workpiece at four points. Suitable for use with workpiece insertion and extraction.

■Shouldered

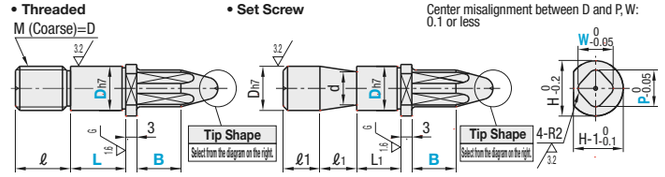
Type		Material	Hardness
Threaded	Set Screw		
LANQN	LATQN	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLANQN	TLATQN	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866
tan15°≈0.267 tan30°=0.577 tan45°=1 tan60°≈1.732

Tip Shape Selectable



• Threaded • Set Screw Center misalignment between D and P, W: 0.1 or less

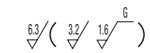


Part Number Type	Tip Shape	D h7		P 0.1mm Increment	W 0.1mm Increment	B 1mm Increment	L Selection	A Selection	E (Shape A) 1mm Increment	L1	ℓ	ℓ1	H	d	R	Applicable Set Screw	Unit Price LANQN LATQN	Unit Price TLANQN TLATQN
Hardened (Threaded) (Set Screw) LANQN LATQN	Carburized (Threaded) (Set Screw) TLANQN TLATQN	A (Tapered)	6	0 -0.012	7.0	5.0~17.0 (W≤P)	5~30 (B≤Wx3)	5 8 10	30 60 90 120	1~10	8	6	8	9	4	1	M5		
			8	0 -0.015	7.0~9.0			5 8 10 12 15			8	10	8	11	5	1.5	M5		
			10		7.0~11.0			8 10 12 15			10	12	8	13	7	2	M6		
		B (Taper R)	10T		7.0~11.0						5	18	8	13	7	2	M6		
			12	0 -0.018	9.0~13.0			10 12 15 18			12	15	10	15	9	3	M8		
			16		13.0~17.0			12 15 18 20			12	18	10	19	13	4	M8		

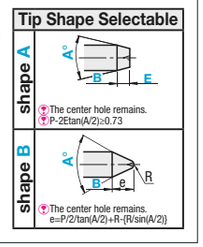
■No Shoulder

Type		Material	Hardness
Threaded	Set Screw		
LNNQN	LNTQN	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLNNQN	TLNTQN	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

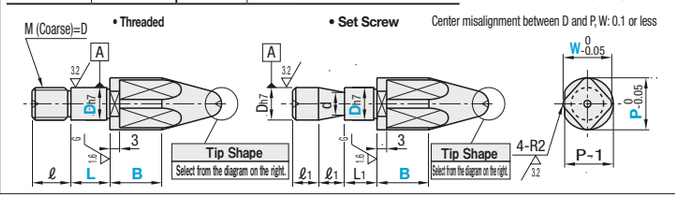
Reference: sin15°≈ 0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866
tan15°≈ 0.267 tan30°=0.577 tan45°=1 tan60°≈1.732



Tip Shape Selectable



• Threaded • Set Screw Center misalignment between D and P, W: 0.1 or less



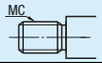
Part Number Type	Tip Shape	D h7		P 0.1mm Increment	W 0.1mm Increment	B 1mm Increment	L Selection	A Selection	E (Shape A) 1mm Increment	L1	ℓ	ℓ1	d	R	Applicable Set Screw	Unit Price LNNQN LNTQN	Unit Price TLNNQN TLNTQN
Hardened (Threaded) (Set Screw) LNNQN LNTQN	Carburized (Threaded) (Set Screw) TLNNQN TLNTQN	A (Tapered)	6	0 -0.012	9.0~12.0	5.0~30.0 (W≤P)	5~30 (B≤Wx3)	5 8 10	30 60 90 120	1~10	8	6	8	4	3	M5		
			8	0 -0.015	11.0~16.0			5 8 10 12 15				10	8	5	4	M5		
			10		13.0~20.0			8 10 12 15			10	12	8	7	4	M6		
		B (Taper R)	10T		13.0~20.0						5	15	8	7	4	M6		
			12	0 -0.018	15.0~25.0			10 12 15 18			12	15	10	9	6	M8		
			16		19.0~32.0			12 15 18 20				18	10	13	8	M8		

Ordering Example

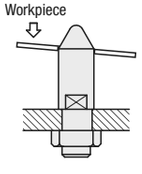
Part Number												
Type	Tip Shape	D		P		W		B		L		A		E
LANQN	A	6	-	P7.0	-	W5.0	-	B15	-	L8	-	A30	-	E8
LNNQN	B	8		P12.0	-	W10.0	-	B18	-	L8		A60		

Alterations

Part Number - P - W - B - L - A - E - (KC, MC, RTC)
LNNQNA8 - P12.0 - W5.0 - B10 - L8 - A30 - E5 - KC

Alterations	Flat Position	Thread Dia.	Upper Relief Radius Change
	Shouldered / No Shoulder		
Code	KC	MC	RTC
Spec.	Ordering Code KC Changes the flat position to 90° from the standard position 0°.	Ordering Code MC8 Changes the thread diameter. D/3<M<D M min 3 Applicable to Threaded only.	Ordering Code RTC0.2 Changes R1 to R of the Selection below. Selection 0.2 R2 R3 RTC≤(H-P)/2 Applicable to Shouldered only.

Example — Suitable for Use with Sloping Workpieces.



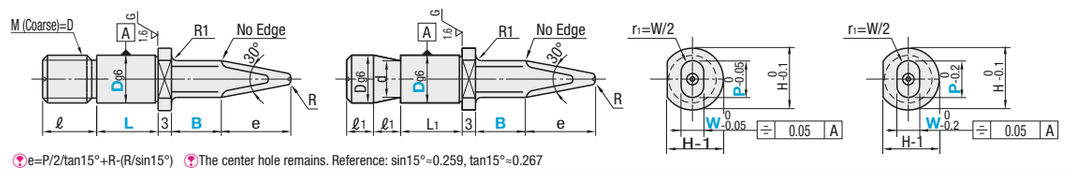
Locating Pins for Fixtures - Oval, Precision/Standard Grade

Features: P and W dimensions are configurable in 0.1mm increment for better fit to the size of oval holes machined on workpieces. Tolerances of P and W dimensions are $^{0}_{-0.05}$ for Precision Type and $^{0}_{-0.2}$ for Standard Type.

■Shouldered

Type: Oval, Precision Grade Threaded	Oval, Precision Grade Set Screw	Oval, Standard Grade Threaded	Oval, Standard Grade Set Screw	Material	Hardness
LNLANF	LNLATF	NLANF	NLATF	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLNLANF	TLNLATF	TNLANF	TNLATF	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

• Threaded • Set Screw • Precision Grade • Standard Grade



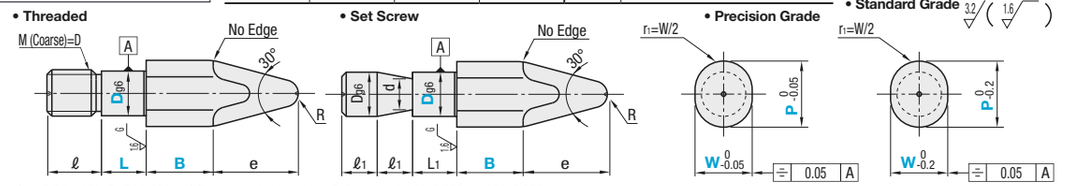
e=P/2/tan15°+R-(R/sin15°) The center hole remains. Reference: sin15°≈0.259, tan15°≈0.267

Part Number Type	Dg6		P 0.1mm Increment	W 0.1mm Increment	B 1mm Increment	L Selection	L1	L	ℓ1	H	d	R	Applicable Set Screw	Unit Price LNLANF LNLATF	Unit Price TLNLANF TLNLATF	Unit Price NLANF NLATF	Unit Price TNLANF TLNLATF
Precision Grade (Threaded Hardening) (Set Screw Hardening) LNLANF LNLATF (Threaded Carburizing) (Set Screw Carburizing) TLNLANF TLNLATF	Standard Grade (Threaded Hardening) (Set Screw Hardening) NLANF NLATF (Threaded Carburizing) (Set Screw Carburizing) TNLANF TNLATF	6	-0.004 -0.012	5.0~9.0	3.0~17.0 (P≥W+2.0)	5~30 Standard Grade (B≤Wx4) Precision Grade (B≤Wx3)	5 8	8	6	8	9	4	1	M5				
		8	-0.005 -0.014	5.0~11.0			5 12 15	8	10	8	11	5	1.5	M5				
		10		7.0~13.0			10 12 15	10	12	8	13	7	2	M6				
		12	-0.006 -0.017	9.0~15.0			12 15 18	12	15	10	15	9	3	M6				
		16		13.0~19.0			15 18 20	12	18	10	19	13	4	M8				

■No Shoulder

Type: Oval, Precision Grade Threaded	Oval, Precision Grade Set Screw	Oval, Standard Grade Threaded	Oval, Standard Grade Set Screw	Material	Hardness
LNLNNF	LNLNTF	NLNNF	NLNTF	EN 1.7220 Equiv.	Treated Hardness 35~40HRC
TLNLNNF	TLNLNTF	TNLNNF	TNLNTF	EN 1.7242 Equiv.	Carburized Treated Hardness: 55HRC~ (Depth: 0.7 ~ 0.8) / Anti-carburizing on Threads

• Threaded • Set Screw • Precision Grade • Standard Grade



e=P/2/tan15°+R-(R/sin15°) The center hole remains. Reference: sin15°≈0.259, tan15°≈0.267

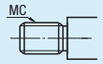
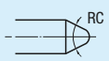
Part Number Type	Dg6		P 0.1mm Increment	W 0.1mm Increment	B 1mm Increment	L Selection	L1	L	ℓ1	d	R	Applicable Set Screw	Unit Price LNLNNF LNLNTF	Unit Price TLNLNNF TLNLNTF	Unit Price NLNNF NLNTF	Unit Price TNLNNF TNLNTF
Precision Grade (Threaded Hardening) (Set Screw Hardening) LNLNNF LNLNTF (Threaded Carburizing) (Set Screw Carburizing) TLNLNNF TLNLNTF	Standard Grade (Threaded Hardening) (Set Screw Hardening) NLNNF NLNTF (Threaded Carburizing) (Set Screw Carburizing) TNLNNF TNLNTF	6	-0.004 -0.012	10.0~12.0	D+2≤W≤P-2	5~30 Standard Grade (B≤Wx4) Precision Grade (B≤Wx3)	5 8	8	6	8	4	3	M5				
		8	-0.005 -0.014	12.0~16.0			5 12 15	8	10	8	5	3	M5				
		10		14.0~20.0			10 12 15	10	12	8	7	3	M6				
		12	-0.006 -0.017	16.0~24.0			12 15 18	12	15	10	9	5	M8				
		16		20.0~32.0			15 18 20	12	18	10	13	6	M8				

Ordering Example

Part Number									
Type	D		P		W		B		L
NLANF	10	-	P11.8	-	W9.8	-	B10	-	L10
LNLNNF	8	-	P12.0	-	W10.0	-	B15	-	L12

Alterations

Part Number - P - W - B - L - (KC, MC, RTC)
NLANF10 - P7.8 - W5.8 - B5 - L10 - KC

Alterations	Flat Position	Thread Dia.	Upper Relief Radius Change	Tip Angle Change
	Shouldered 0°	MC 	RTC	RC 
Code	KC	MC	RTC	RC
Spec.	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Shouldered Type only.	Ordering Code MC8 Changes the thread diameter. D/3<M<D M min 3 Applicable to Threaded only.	Ordering Code RTC0.2 Changes R1 to R of the Selection below. Selection 0.2 R2 R3 RTC≤(H-P)/2 Applicable to Shouldered Type only.	Ordering Code RC60 Changes the tip angle. Selection 60°, 90°, 120°

Alumina Coated Pins

Spec.Change
Printed in Purple

Locating Pins for Fixtures Height Adjusting Pins

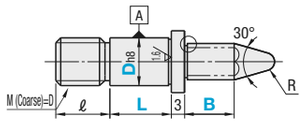
Features: Suitable for spot welding since alumina coating excels in abrasion resistance and insulation. Polishing Relief Groove is smaller than the conventional products to avoid a workpiece getting stuck.

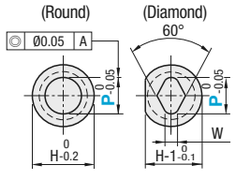
Alumina Coated Pins

RoHS

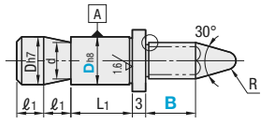
Threaded	Set Screw	Shape	Material	Surface Treatment	Hardness
Z-LANA	Z-LATA	Round	Special Stainless (KCF (Special Stainless Steel))	Alumina Coating	Approx. 1300HV (Inside: Approx. 200HV)
Z-LAND	Z-LATD	Diamond			

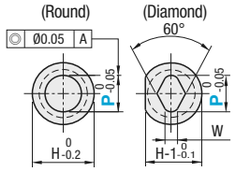
• Threaded



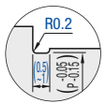


• Set Screw





Surface Finish Relief



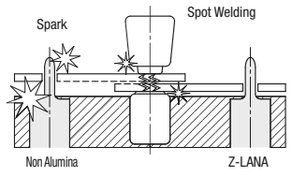
Part Number: Type	Dh8	P 0.1mm Increment	B 1mm Increment	L Selection	ℓ	L1	ℓ1	H	d	R	Applicable Set Screw	W	Unit Price: Z-LANA Z-LATA	Unit Price: Z-LAND Z-LATD
Threaded (Round) Z-LANA / Set Screw (Round) Z-LATA / (Diamond) Z-LAND / (Diamond) Z-LATD	8 (0 -0.022)	3.0~ 9.0	5~30 (B≤Px4)	5 12 15	10	8	8	11	5	1.5	M5	1~2		
	10 (0 -0.022)	5.0~12.0		10 12 15	12	10	8	13	7	2	M6	2~3		
	10T (0 -0.022)	5.0~12.0		10 12 15	18	5	8	13	7	2	M6	2~3		
	12 (0 -0.027)	9.0~13.0		12 15 18	15	12	10	15	9	3	M8	4		
	16 (0 -0.027)	13.0~16.0		15 18 20	18	12	10	19	13	4	M8	5		

W Dimension D8: W=2 when P>5.0 D10, 10T: W=3 when P>7.0

Ordering Example

Part Number				
Type	D	P	B	L
Z-LANA	10	P7.8	B6	L10
Z-LATD	10	P11.5	B20	

Example



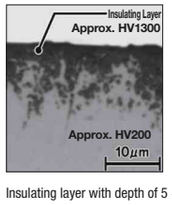
Suited for locating pins in spot welding.
Pins prevent current from causing sparks during welding.
Prevents pin wear from sparks and reduces the causes of positioning problems and workpiece appearance degradations.

Alterations

Part Number	P	B	L	(SC, RC ··· etc.)
Z-LANA8	P7.8	B10	L12	SC

Alterations	Flat Position	Flat Machining	Wrench Flats	Tip Angle Change	Thread Dia.	Upper Relief Radius Change
	Shouldered / No Shoulder	Shouldered H-P≥2 / No Shoulder				
Code	KC	KD	SC	RC	MC	RTC
Spec.	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. Applicable to Round Shape Type only.	Ordering Code SC Adds wrench flats. H: 11 13 15 19 H1: 8 11 13 17 Applicable to Round Shape Type only.	Ordering Code RC6 Changes the tip angle. Selection 60°, 90°, 120°	Ordering Code MC8 Changes the thread diameter. D/3<M<DM min 3 Applicable to Threaded only.	Ordering Code RTC0.2 Changes R1 to R of the Selection below. Selection R1 R2 R3 RTC≤(H-P)/2

Alumina Coated Pin (Material: KCF (Special Stainless Steel)) Cross Section View



Insulating layer with depth of 5 ~ 10μm (approx. HV1300) is formed.
Alumina coating excels in abrasion resistance and insulation compared to metal coating.
*Contacts with pointed objects may cause conduction.

Characteristic Comparison (Reference)

	Special Stainless KCF (Special Stainless Steel) (Alumina Coated)	Stainless EN 1.4301 Equiv.	Ceramic A1203	Nylon	Bakelite (Paper Base)	Bakelite (Cloth Base)
Natural Resistance (Ω)	$2x10^8$	$72x10^{-6}$	10^{14}	$5x10^{12}$	10^{10}	10^{12}
Insulation Breakdown Voltage (V)	150	-	10^4	$1.9x10^4$	-	-
Tensile Strength (MPa)	421	520	-	88	80	100
Elongation (%)	10	40	-	50	2	2
Flexural Strength (MPa)	-	-	350	103	180	160
Vickers Hardness (HV)	Front 1300 Inside 200	200	1400	-	-	-
Insulation Properties	○	×	◎	◎	◎	◎
Heat Resistance	○	○	◎	×	△	△
Machinability	○	○	×	○	○	○
Cost	○	◎	×	○	○	○

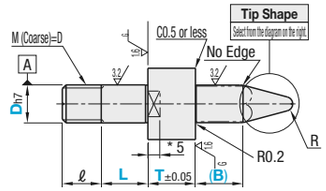
Features: Locating of workpiece in both vertical and horizontal directions is possible.

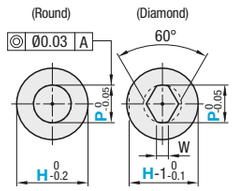
Threaded

RoHS

Type	Shape	Material	Hardness
HUPNA	Round	EN 1.7220 Equiv.	Hardened 35~40HRC
HUPND	Diamond		
THUPNA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
THUPND	Diamond		

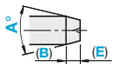
Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°=0.577 tan45°=1 tan60°≈1.732





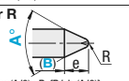
Tip Shape The center hole remains.

A Shape — Tapered



P-2Etan(A/2)≥0.73

B Shape — Taper R



e=P/2/tan(A/2)+R-{R/sin(A/2)}

* For T 5.0 ~ 7.0, detent width is 3mm. For T 7.1 ~ 20.0, detent width is 5mm.
* No relief at P dimension.
* For Diamond Shape, a step of 0.25 max. will be engraved at the bottom of P dimension.

Part Number: Type	Tip Shape	Dh7	P 0.1mm Increment	B 1mm Increment	L Selection	T 0.1mm Increment	H 1mm Increment	A Selection	E (Shape A) 1mm Increment	ℓ	R	W	Unit Price: HUPNA	HUPND	THUPNA	THUPND
Hardened (Round) HUPNA / Carburized (Round) THUPNA / (Diamond) HUPND / (Diamond) THUPND	A (Tapered)	6 (0 -0.012)	3.0~7.0	2~50 (B≤Px4)	5 8 10	5.0~20.0	9~20	30	1~15	6	1	1~2				
			7.1~12.0				9~20			6	3	3				
		8 (0 -0.015)	3.0~9.0		5 8 10 12 15		11~20			10	1.5	1~2				
			9.1~16.0				11~20			10	4	3.5				
		10 (0 -0.015)	4.5~12.0				13~25	60		12	2	1~3				
			12.1~20.0		(5) (8) 10 12 15		13~25			12	4	4				
	B (Taper R)	10T (0 -0.015)	4.5~12.0				13~25			18	2	1~3				
			12.1~20.0		(5) (8) 10 12 15		13~25	90		18	5	5				
		12 (0 -0.018)	9.0~14.0				15~30			15	3	4				
			14.1~25.0		(8) 10 12 15 18		15~30	120		15	6	6				
		16 (0 -0.018)	13.0~18.0				19~35			18	4	5				
			18.1~32.0		(10) 12 15 18 20		19~35			18	8	8				

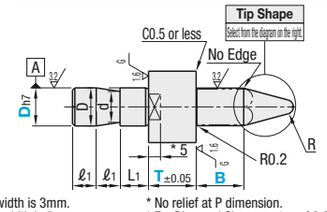
W Dimension D6, D8: W=2 when P>5.0 D10, D10T: W=1 when P<5.0, W=3 when P>7.0 L dimension in ( ) is applicable to Round Shape only. P+2≤H≤Px5

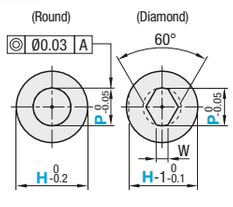
Set Screw

RoHS

Type	Shape	Material	Hardness
HUPTA	Round	EN 1.7220 Equiv.	Hardened 35~40HRC
HUPTD	Diamond		
THUPTA	Round	EN 1.7242 Equiv.	Carburized 55HRC~ (Depth: 0.7 ~ 0.8) Anti-carburizing on Threads
THUPTD	Diamond		

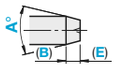
Reference: sin15°≈0.259 sin30°=0.5 sin45°≈0.707 sin60°≈0.866 tan15°≈0.267 tan30°=0.577 tan45°=1 tan60°≈1.732





Tip Shape The center hole remains.

A Shape — Tapered



P-2Etan(A/2)≥0.73

B Shape — Taper R

e=P/2/tan(A/2)+R-{R/sin(A/2)}

* For T 5.0 ~ 7.0, detent width is 3mm. For T 7.1 ~ 20.0, detent width is 5mm.
* No relief at P dimension.
* For Diamond Shape, a step of 0.25 max. will be engraved at the bottom of P dimension.

Part Number: Type	Tip Shape	Dh7	P 0.1mm Increment	B 1mm Increment	L Selection	T 0.1mm Increment	H 1mm Increment	A Selection	E (Shape A) 1mm Increment	L1	ℓ1	d	R	Applicable Set Screw	W	Unit Price: HUPTA	HUPTD	THUPTA	THUPTD
Hardened (Round) HUPTA / Carburized (Round) THUPTA / (Diamond) HUPTD / (Diamond) THUPTD	A (Tapered)	6 (0 -0.012)	3.0~7.0	2~50 (B≤Px4)	5 8 10	5.0~20.0	9~20	30	1~15	8	8	4	1	M5	1~2				
			7.1~12.0				9~20			6	8	4	3	M5	3				
		8 (0 -0.015)	3.0~9.0		5 8 10 12 15		11~20			8	8	5	1.5	M5	1~2				
			9.1~16.0				11~20			8	8	5	4	M5	3.5				
		10 (0 -0.015)	4.5~12.0				13~25	60		10	8	7	2	M6	1~3				
			12.1~20.0		(5) (8) 10 12 15		13~25			10	8	7	4	M6	4				
	B (Taper R)	10T (0 -0.015)	4.5~12.0				13~25			5	8	7	2	M6	1~3				
			12.1~20.0		(5) (8) 10 12 15		13~25	90		5	8	7	5	M6	5				
		12 (0 -0.018)	9.0~14.0				15~30			12	10	9	3	M8	4				
			14.1~25.0		(8) 10 12 15 18		15~30	120		12	10	9	6	M8	6				
		16 (0 -0.018)	13.0~18.0				19~35			12	10	13	4	M8	5				
			18.1~32.0		(10) 12 15 18 20		19~35			12	10	13	8	M8	8				

W Dimension D6, D8: W=2 when P>5.0 D10, D10T: W=1 when P<5.0, W=3 when P>7.0 L dimension in ( ) is applicable to Round Shape only. P+2≤H≤Px5

Ordering Example

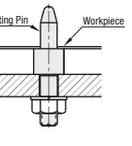
Part Number									
Type	Tip Shape	D	P	B	L	T	H	A	E
HUPNA	A	10	P4.8	B10	L10	T20.0	H20	A60	E5

Alterations

Part Number									(KC, KD, SC, MC)	
HUPTAB10	P6.0	B10		L10.0	T10.0	H15	A30		KD	(Set Screw Shape B)

Alterations	Flat Position	Flat Machining	Wrench Flats	Thread Dia.
Code	KC	KD	SC	MC
Spec.	Ordering Code KC Changes the flat position to 90° from the standard position 0°. Applicable to Diamond Shape Type only.	Ordering Code KD Machining on one side. For T5.0 ~ 7.0: 3mm For T7.1 ~ 20.0: 5mm Applicable to Round Shape Type only.	Ordering Code SC10 Adds wrench flats. SC=1mm Increment SC>D SC>P SC≤H-2 Applicable to Round Shape Type only.	Ordering Code MC8 Changes the thread diameter. D/3≤M<D M min3 Relief at thread end is available. Applicable to Threaded only.

Example



Locating of workpiece in both vertical and horizontal directions is possible.