

Locating Pins - Tip Shape Selectable

Press Fit

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

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

Material No.	Material	Surface Treatment	Hardness	Tip Shape		
				Round	Diamond	Straight
(1) SKS3 Equivalent	-	-	Treated Hardness: 55~60HRC	LPEJ	LPPEJ	LPDEJ
(2) SKS3 Equivalent	Hard Chrome Plating	-	Treated Hardness: 50~55HRC Plating Hardness: 750HV~	LPEG	LPPEG	LPDEG
(3) S45C Equivalent	-	-	Treated Hardness: 45~50HRC	LPE	LPPE	LPDE
(4) S45C Equivalent	Black Oxide	-	Treated Hardness: 45~50HRC	LPEB	LPPEB	LPDEB
(5) S45C Equivalent	Hard Chrome Plating	-	Treated Hardness: 45~50HRC Plating Hardness: 750HV~	LPER	LPPEP	LPDER
(6) SUS304	-	-	-	LPES	LPPEP	LPDES
(7) SUS304	Hard Chrome Plating	-	Plating Hardness: 750HV~	LPED	LPPEP	LPDED
(8) SUS440C or 13Cr stainless	-	-	Treated Hardness: 50~55HRC	LPEC	LPPEC	LPDEC

Round

- $\ell_1 = R \sqrt{R^2 - \frac{P^2}{4}}$
- $R \geq P/2$
- When $G=P$, add about C0.2 chamfering.

Diamond

- $\ell_3 = \frac{P}{2} / \tan 30^\circ + R - (R/\sin 30^\circ)$
- $R \geq P/2$
- Reference: $\tan 30^\circ = 0.577$, $\sin 30^\circ = 0.5$

Straight

- Reference: $2 \tan 30^\circ = 1.15$
- When $G=P$, add about C0.2 chamfering.

Relief dimension is a reference value.

Polished, centering hole is sometimes not available for SUS304.

SUS440C or 13Cr stainless has an identification groove at any position on D part.

Part Number	Type	Tip Shape	D	D dim. Tolerance m6	D dim. Tolerance p6	P	B	R	G	L	C	ℓ	(W)
(Round) m6	(Round) p6	(Diamond) m6	2	+0.008	+0.012	2.50-6.00(4.00)	2.0-25.0(10.0)	Shape A R=P/2	Shape B G=P	2-6	0.5	0	1.2
LPEJ	LPPEJ	LPDEJ	3	+0.002	+0.006	3.50-8.00	2.0-25.0(10.0)			3-11			
LPEG	LPPEG	LPDEG	4	+0.012	+0.020	4.50-9.00	2.0-25.0(10.0)	Shape C R=P/2	Shape B G=P	3(4)-14	1	1.8	2.2
LPE	LPPE	LPDE	5	+0.004	+0.012	5.50-10.00	2.0-30.0(10.0)			5-15			
LPEB	LPPEB	LPDEB	6	+0.015	+0.024	6.50-12.00	2.0-40.0(12.0)	Shape C R=P/2	Shape B G=P	5(6)-16	1.5	3.5	4
LPER	LPPEP	LPDER	8	+0.006	+0.015	8.00-15.00	2.0-40.0(15.0)			5(10)-20			
LPES	LPPEP	LPDES	10	+0.018	+0.029	11.00-20.00	3.0-50.0(20.0)	Shape C R=P/2	Shape B G=P	6(10)-24	2	5	7
LPED	LPPEP	LPDED	12	+0.007	+0.018	13.00-20.00	3.0-50.0(20.0)			6(10)-24			
LPEC	LPPEC	LPDEC	16	+0.021	+0.035	17.00-27.00	5.0-50.0(20.0)	Shape C R=P/2	Shape B G=P	8(15)-32	3	2	9
			20	+0.021	+0.022	21.00-30.00	5.0-50.0(20.0)			10(15)-40			

P, B, L dimensions in () are for Diamond Shape.

Ordering Example: LPEA5 - P10.0 - B12.0 - R6 - G12 - L15
LPPEJB10 - P15.0 - B27.0 - R6 - G12 - L10

D	Round Shape Unit Price								Diamond Shape Unit Price							
	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless
6																
6T																
8																
10																
10T																
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12T																
16																
16T																
20																
20T																

D	Round Shape Unit Price								Diamond Shape Unit Price							
	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless
2																
3																
4																
5																
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10																
12																
16																
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Alterations

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)

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

Features: The tip shape is selectable from three types. To be mounted from back using bolts. Improved maintainability compared to Press Fit Type.

Material No.	Material	Surface Treatment	Hardness	Tip Shape		
				Round	Diamond	Straight
(1) SKS3 Equivalent	-	-	Treated Hardness: 55~60HRC	LPGJ	LPDGJ	LPCJ
(2) SKS3 Equivalent	Hard Chrome Plating	-	Treated Hardness: 50~55HRC Plating Hardness: 750HV~	LPGG	LPDGG	LPCG
(3) S45C Equivalent	-	-	Treated Hardness: 45~50HRC	LPGB	LPDGB	LPCB
(4) S45C Equivalent	Black Oxide	-	Treated Hardness: 45~50HRC	LPGR	LPDGR	LPCR
(5) S45C Equivalent	Hard Chrome Plating	-	Treated Hardness: 45~50HRC Plating Hardness: 750HV~	LPGS	LPDGS	LPCS
(6) SUS304	-	-	-	LPGD	LPDGS	LPCD
(7) SUS304	Hard Chrome Plating	-	Plating Hardness: 750HV~	LPGC	LPDGC	LPCD
(8) SUS440C or 13Cr stainless	-	-	Treated Hardness: 50~55HRC	LPGC	LPDGC	LPCD

Round

- $\ell_1 = R \sqrt{R^2 - \frac{P^2}{4}}$
- $R \geq P/2$

Straight

- Reference: $2 \tan 30^\circ = 1.15$
- When $G=P$, add about C0.2 chamfering.

Diamond

- $\ell_3 = \frac{P}{2} / \tan 30^\circ + R - (R/\sin 30^\circ)$
- $R \geq P/2$
- Reference: $\tan 30^\circ = 0.577$, $\sin 30^\circ = 0.5$

Relief dimension is a reference value.

Polished, centering hole is sometimes not available for SUS304.

SUS440C or 13Cr stainless of Round Type and Diamond Type has an identification groove at any position on D part.

Part Number	Type	Tip	D	D dim. Tolerance p6	P	B	R	G	L	M	Tightening Torque N·cm	(W)
(Round) m6	(Diamond) m6	6	+0.008	+0.012	2.50-6.00(4.00)	2.0-25.0(10.0)	Shape A R=P/2	Shape B G=P	2-6	M3	98	3
LPGJ	LPDGJ	6T	-0.004	-0.004	6.50-12.00	2.0-40.0(12.0)			3-11			
LPGG	LPDGG	8	+0.012	+0.020	4.50-9.00	2.0-25.0(10.0)	Shape C R=P/2	Shape B G=P	3(4)-14	M5	461	4
LPGB	LPDGB	10T	-0.014	-0.014	11.00-20.00	3.0-50.0(20.0)			5-15			
LPGR	LPDGR	12	+0.015	+0.024	6.50-12.00	2.0-40.0(12.0)	Shape C R=P/2	Shape B G=P	5(6)-16	M5	461	5
LPGS	LPDGS	12T	-0.006	-0.017	13.00-20.00	3.0-50.0(20.0)			5(10)-20			
LPGD	LPDGS	16	+0.018	+0.029	11.00-20.00	3.0-50.0(20.0)	Shape C R=P/2	Shape B G=P	6(10)-24	M6	784	7
LPGC	LPDGC	16T	-0.007	-0.020	17.00-27.00	5.0-50.0(20.0)			6(10)-24			
		20	+0.021	+0.022	21.00-30.00	5.0-50.0(20.0)	Shape C R=P/2	Shape B G=P	8(15)-32	M6	784	9
		20T	-0.007	-0.020	21.00-30.00	5.0-50.0(20.0)			10(15)-40			

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. P1618. Please confirm pilot hole depth on P1618. Holes may go through.

* The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on P.2365.) Not applicable when using locking materials or lock washers.

D	Round Shape Unit Price								Diamond Shape Unit Price							
	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless	(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless
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6T																
8																
10																
10T																
12																
12T																
16																
16T																
20																
20T																

Part Number	Type	Tip Shape	M	P	B	R	G	Unit Price								
								(1)Treated SKS3	(2)Hard SKS3	(3)S45C	(4)S45C Black Oxide	(5)Hard S45C	(6)SUS304	(7)Hard SUS304	(8)SUS440C or 13Cr stainless	
LPCJ	LPDGJ	A	3	6.0-10.0	10.0-25.0	Shape A R=P/2	Shape B G=P									
LPCG	LPDGG	A	4	7.0-12.0	11.0-25.0											
LPCB	LPDGB	B	5	8.0-16.0	13.0-30.0	Shape C R=P/2	Shape B G=P									
LPCR	LPDGR	B	6	9.0-20.0	15.0-40.0											
LPCS	LPDGS	C	8	11.0-20.0	19.0-50.0	Shape C R=P/2	Shape B G=P									
LPCD	LPDGS	C	10	14.0-20.0	23.0-50.0											
LPCD	LPDGS	C	12	18.0-25.0	28.0-60.0	Shape C R=P/2	Shape B G=P									
LPCD	LPDGS	C	16	22.0-30.0	35.0-60.0											
LPCD	LPDGS	C	20	26.0-30.0	44.0-60.0	Shape C R=P/2	Shape B G=P									
LPCD	LPDGS	C	20	26.0-30.0	44.0-60.0											

Please confirm pilot hole depth on P1618. Holes may go through. The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on P.2365.) Not applicable when using locking agents or spring washers.

Ordering Example: LPGA6 - P10.0 - B25.0 - R6 - G13 - L16
LPCEB10 - P10.0 - B25.0 - R6 - G13 - L16

Alterations: LPGA6 - P10.0 - B25.0 - R6 - (SC, LAC, LTE) - LAC

Alterations

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 only when B≥10 and P≥8.	Adds a Ø2.5 hole. Applicable only when B≥8 and 7≤P≤15.