

Locating Pins - Tip Shape Selectable

Press Fit

Locating Pins - Tip Shape Selectable

Tapped (Large Head / Straight)

■ 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	SKS3 Equivalent	-	Treated Hardness: 55 ~ 60HRC	LPEJ	LPPEJ	LPDEJ
②	SKS3 Equivalent	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPEG	LPPEG	LPDEG
③	S45C Equivalent LPEJ (LPEJ)	S45C Equivalent LPEJ (LPEJ)	Treated Hardness: 45 ~ 50HRC	LPE	LPPE	LPDE
④	S45C Equivalent LPPEJ (LPPEJ)	S45C Equivalent LPPEJ (LPPEJ)	Black Oxide	LPPEB	LPPEB	LPDEB
⑤	S45C Equivalent LPPEB (LPPEB)	S45C Equivalent LPPEB (LPPEB)	Treated Hardness: 45 ~ 50HRC	LPPEB	LPPEB	LPDEB
⑥	SUS304	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC	LPPEB	LPPEB	LPDEB
⑦	SUS304	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPED	LPPEB	LPDED
⑧	SUS400C Equivalent	-	Treated Hardness: 50 ~ 55HRC	LPEC	LPPEC	LPDEC

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

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

• Tip Shape
 Shape A: $\ell_1 = R \sqrt{\frac{P^2}{4}}$
 Shape B: $\ell_2 = \frac{P}{2 \tan 30^\circ}$ Reference: $2 \tan 30^\circ = 1.15$
 Shape C: $\ell_3 = \frac{P}{2} / \tan 30^\circ + R - (R/\sin 30^\circ)$

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	2.50-4.00	2.0-25.0(10.0)			2-6	0.5	0	1.2
LPEJ	LPPEJ	LPDEJ	3	+0.002	+0.006	3.50-6.00	2.0-25.0(10.0)			3-6			1.5
LPEG	LPPEG	LPDEG	4	+0.012	+0.020	4.50-9.00	2.0-25.0(10.0)	Shape A		4-8			1.8
LPE	LPPE	LPDE	5	+0.004	+0.012	5.50-10.00	2.0-30.0(10.0)	R=P/2		5-10	1		2.2
LPPEB	LPPEB	LPDEB	6	+0.015	+0.024	6.50-12.00	2.0-40.0(12.0)		Shape B	6-12		1	3
LPPEB	LPPEB	LPDEB	8	+0.015	+0.024	9.00-15.00	2.0-40.0(15.0)		G=P	8-16	1.5		3.5
LPPEB	LPPEB	LPDEB	10	+0.006	+0.015	11.00-20.00	3.0-50.0(20.0)	Shape C		10-20	2		4
LPPEB	LPPEB	LPDEB	12	+0.018	+0.029	13.00-20.00	3.0-50.0(20.0)	R=P/2		12-24			5
LPPEB	LPPEB	LPDEB	16	+0.007	+0.018	17.00-25.00	5.0-50.0(20.0)			16-32			7
LPPEB	LPPEB	LPDEB	20	+0.021	+0.035	21.00-30.00	5.0-50.0(20.0)			20-40	3	2	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							
	①SKS3 Hardened	②Hard SKS3	③S45C	④S45C Black Oxide	⑤Hard S45C	⑥SUS304	⑦Hard SUS304	⑧SUS400C	①SKS3 Hardened	②Hard SKS3	③S45C	④S45C Black Oxide	⑤Hard S45C	⑥SUS304	⑦Hard SUS304	⑧SUS400C
2																
3																
4																
5																
6																
8																
10																
12																
16																
20																

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

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)
	Code	SC	LAC
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.

■ 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
				LPGJ	LPDGJ	LPCJ
①	SKS3 Equivalent	-	Treated Hardness: 55 ~ 60HRC	LPGJ	LPDGJ	LPCJ
②	SKS3 Equivalent	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 50 ~ 55HRC Plating Hardness: 750HV ~	LPGG	LPDGG	LPCG
③	S45C Equivalent LPGJ (LPGJ)	S45C Equivalent LPGJ (LPGJ)	Treated Hardness: 45 ~ 50HRC	LPG	LPDG	LPC
④	S45C Equivalent LPDGJ (LPDGJ)	S45C Equivalent LPDGJ (LPDGJ)	Black Oxide	LPGB	LPDGB	LPCB
⑤	S45C Equivalent LPDGJ (LPDGJ)	S45C Equivalent LPDGJ (LPDGJ)	Treated Hardness: 45 ~ 50HRC	LPGB	LPDGB	LPCB
⑥	SUS304	Hard Chrome Plating Plating Thickness: 3µm or more	Treated Hardness: 45 ~ 50HRC	LPGB	LPDGB	LPCB
⑦	SUS304	Hard Chrome Plating Plating Thickness: 3µm or more	Plating Hardness: 750HV ~	LPGR	LPDGR	LPCR
⑧	SUS400C Equivalent	-	Treated Hardness: 50 ~ 55HRC	LPGD	LPDGD	LPCD

• Round
 $\ell_1 = R \sqrt{\frac{P^2}{4}}$
 $R = P/2$

• Straight
 $\ell_2 = \frac{P}{2 \tan 30^\circ}$ Reference: $2 \tan 30^\circ = 1.15$
 Reference: $\tan 30^\circ = 0.577$ $\sin 30^\circ = 0.5$

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

Part Number	Type	Tip Shape	D	D dim. Tolerance p6	P	B	R	G	L	M	* Tightening Torque Ncm	(W)
(Round) LPGJ	(Diamond) LPDGJ		6	-0.004	6.50-12.00	2.0-40.0(12.0)			6-12	M3	147	3
LPGG	LPDGG		8	-0.012	9.00-15.00	2.0-40.0(15.0)			8-16	M4	333	3.5
LPG	LPDG		10	-0.014	11.00-20.00	3.0-50.0(20.0)	Shape A		10(12)-20	M5	676	4
LPGB	LPDGB		12	-0.005	13.00-20.00	3.0-50.0(20.0)	R=P/2		6(12)-16	M4	333	4
LPGB	LPDGB		12	-0.006	17.00-25.00	5.0-50.0(20.0)		Shape B	12-24	M5	676	5
LPGB	LPDGB		16	-0.017	21.00-35.00	5.0-50.0(20.0)	Shape C		8(12)-18	M4	333	5
LPGB	LPDGB		16	-0.017	21.00-35.00	5.0-50.0(20.0)	R=P/2		16-32	M8	2803	7
LPGD	LPDGD		20	-0.007	21.00-35.00	5.0-50.0(20.0)			10(14)-24	M6	1156	7
LPGD	LPDGD		20	-0.020	21.00-35.00	5.0-50.0(20.0)			20-40	M8	2803	9
LPGD	LPDGD		20	-0.020	21.00-35.00	5.0-50.0(20.0)			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".)
 • B dimensions in () and L dimensions in () are for Diamond Shape. • Note the strength of under-head part. • P1566 • Please confirm pilot hole depth on P1566. 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							
	①SKS3 Hardened	②Hard SKS3	③S45C	④S45C Black Oxide	⑤Hard S45C	⑥SUS304	⑦Hard SUS304	⑧SUS440C	①SKS3 Hardened	②Hard SKS3	③S45C	④S45C Black Oxide	⑤Hard S45C	⑥SUS304	⑦Hard SUS304	⑧SUS440C
6																
8																
10																
12																
16																
20																
20T																

Part Number	Type	Tip Shape	M	P	B	R	G	Unit Price								
								①SKS3 Hardened	②Hard SKS3	③S45C	④S45C Black Oxide	⑤Hard S45C	⑥SUS304	⑦Hard SUS304	⑧SUS440C	
LPCJ		A	3	6.0-10.0	10.0-25.0											
LPCG		A	4	7.0-12.0	11.0-25.0											
LPC		A	5	8.0-16.0	13.0-30.0											
LPCB		B	6	9.0-20.0	15.0-40.0											
LPCR		B	8	11.0-20.0	19.0-50.0											
LPCS		C	10	14.0-20.0	23.0-50.0											
LPCD		C	12	18.0-25.0	28.0-60.0											
LPCC		C	16	22.0-30.0	35.0-60.0											
		C	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
 LPGC6 - P10.0 - B25.0 - R6

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)
	Code	SC	LAC
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.