

Locating Pins (Selectable Pilot Shape) with Threaded Shank

with Threaded Shank

Locating Pins – Selectable Pilot Shape with Threaded Shank

Alteration SC

Round

Diamond

Material No.	Round	Diamond	Material	Surface Treatment	Hardness
(1)	LP AJ	LPDAJ	O1 Tool Steel Equivalent	—	Treated Hardness: 55–60 HRC min.
(2)	LPAG	LPDAG	O1 Tool Steel Equivalent	Hard Chrome Plating	Hardness: 50–55 HRC min. Plating Hardness 750 HV min.
(3)	LPA	LPDA	1045 Carbon Steel Equivalent	—	Treated Hardness: 45–50 HRC min.
(4)	LPAB	—	1045 Carbon Steel Equivalent	Black Oxide	Treated Hardness: 45–50 HRC min.
(5)	LPAR	—	1045 Carbon Steel Equivalent	Hard Chrome Plating	Treated Hardness: 45–50 HRC min. Plating Hardness 750 HV min.
(6)	LPAS	LPDAS	304 Stainless Steel Equivalent	—	—
(7)	LPAD	LPDAD	304 Stainless Steel Equivalent	Hard Chrome Plating	Plating Hardness 750 HV min.
(8)	LPAC	—	440C or 420 Stainless Steel	—	Treated Hardness: 50–55 HRC min.

Tip Shape

A Shape

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

B Shape

$\ell_2 = \frac{P-G}{2 \tan 30^\circ}$ Reference: $2 \tan 30^\circ = 1.15$
 $G \leq P$
 When $G=P$, add about C0.2 chamfering.

C Shape

$\ell_3 = P - 2 \tan 30^\circ + R - (R/\sin 30^\circ)$
 $R \leq P/2$
 Reference: $\tan 30^\circ = 0.577$ $\sin 30^\circ = 0.5$

① When $L < \text{Pitch} \times 2$, the incomplete thread portion (Pitch x 2) is included in $M \times 1.5$. Coarse Thread Pitch Diameter **P.4010**

② Fully Threaded Type of $L=0$ without Pilot is available. **P.1614**

Type	Part Number	Tip Shape	D	D Tolerance g6	P		R		G		L	M	(W)
					0.01 mm Increment	0.1 mm Increment	1 mm Increment	1 mm Increment	1 mm Increment	(Coarse)			
Round	Diamond	A	3	-0.002 -0.008	4.00–8.00	3.5–25.0 (10.0)	A Shape R \geq P/2	B Shape Only	0–10	M3	1.5		
LP AJ	LPDAJ	A	4	-0.004	5.00–9.00	3.5–25.0 (10.0)	A Shape R \geq P/2	B Shape Only	0–10	M4	1.8		
LPAG	LPDAG		5	-0.012	6.00–10.00	3.5–30.0 (10.0)				M5	2.2		
LPA	LPDA		6	-0.005	7.00–12.00	3.5–40.0 (12.0)				M6	3		
LPAB	—		8	-0.014	9.00–15.00	3.5–40.0 (15.0)				M8	3.5		
LPAR	—		10	-0.017	11.00–20.00	5.0–50.0 (20.0)				M10	4		
LPAS	LPDAS	C	12	-0.006	13.00–20.00	5.0–50.0 (20.0)	C Shape R \leq P/2	B Shape Only	0–10	M12	5		
LPAD	LPDAD		16	-0.017	17.00–27.00	5.0–50.0 (20.0)				M16	7		
LPAC	—		20	-0.007 -0.020	21.00–30.00	5.0–50.0 (20.0)				M20	9		

① B dimension in () is for the Diamond Type.
 * The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on MISUMI 2019 catalog P.4015). * Not applicable when using locking adhesives or lock washers.

Part Number Example

Part Number - P - B - R - G - L

LPA A5 - P10.00 - B12.0 - R6 - L5

LPA B10 - P15.00 - B17.0 - R6 - G10 - L10

Part Number Alterations

Part Number - P - B - R - G - L - (SC, DRC...etc.)

LPA A5 - P10.0 - B12.0 - R6 - L5 - MC3

Alterations	Wrench Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)	Screwdriver Slot	Thread Diameter	Relief
Code	SC	LAC	LTE	DRC	MC	NNC
Spec.	SC=1 mm Increment ① When B \leq 11, adds width across flats on the tip. ② Not applicable to Diamond Shape. ③ P-3 \leq SC \leq P-1, SC \geq D	Adds a Ø3.5 hole. ① Applicable when B \geq 10 P \geq 8. ② Not applicable to Diamond Shape.	Adds a Ø2.5 hole. ① Applicable when B \geq 8 7 \leq P \leq 15. ② Not applicable to Diamond Shape.	Width 0.8mm Depth 1 mm	D/3 \leq M<D Mmin3 Ordering Code: MC4 ① The incomplete threaded portion (Pitch x 2) is included.	Adds a relief at the thread end. ① Applicable when L=0.

Locating Pins (Selectable Pilot Shape & Length) with Threaded Shank

with Threaded Shank

Locating Pins – Selectable Pilot Shape & Length, with Threaded Shank

Alteration NNC

Alteration SC

Material No.	Type	Material	Surface Treatment	Hardness
(1)	LPALJ	O1 Tool Steel Equivalent	—	Treated Hardness: 55–60 HRC min.
(2)	LPALG	O1 Tool Steel Equivalent	Hard Chrome Plating	Hardness: 50–55 HRC min. Plating Hardness 750 HV min.
(3)	LPAL	1045 Carbon Steel Equivalent	—	Treated Hardness: 45–50 HRC min.
(4)	LPALB	1045 Carbon Steel Equivalent	Black Oxide	Treated Hardness: 45–50 HRC min.
(5)	LPALR	1045 Carbon Steel Equivalent	Hard Chrome Plating	Treated Hardness: 45–50 HRC min. Plating Hardness 750 HV min.
(6)	LPALS	304 Stainless Steel Equivalent	—	—
(7)	LPALD	304 Stainless Steel Equivalent	Hard Chrome Plating	Plating Hardness 750 HV min.
(8)	LPALC	440C or 420 Stainless Steel	—	Treated Hardness: 50–55 HRC min.

Tip Shape

A Shape

$B-C \geq 2$
 $R_1 = \frac{P^2}{8C} + \frac{C}{2}$

C Shape

$B-E \geq 2$
 $R_2 = \frac{P \cos A - 2E \sin A}{2 - 2 \sin A}$
 Reference: $\sin 15^\circ = 0.259$
 $\sin 30^\circ = 0.5$
 $\sin 45^\circ = 0.707$
 $\cos 15^\circ = 0.967$
 $\cos 30^\circ = 1.155$
 $\cos 45^\circ = 1.414$

① When $L < \text{Pitch} \times 2$, the incomplete thread portion (Pitch x 2) is included in $M \times 1.5$. Coarse Thread Pitch Diameter **P.4010**

② Fully Threaded Type of $L=0$ without Pilot is available. **P.1614**

Type	Part Number	Tip Shape	D	D Tolerance g6	P		B		C		A	E	L	M
					0.01 mm Increment	0.1 mm Increment	1 mm Increment	1 mm Increment	1 mm Increment	Shape C Only				
LPALJ	LPALG	A	3	-0.002 -0.008	4.00–8.00	5.0–30.0	A Shape 1 \leq C \leq P/2	C Shape 15 30 45	C Shape 3–28	0–10	M3			
LPAL	LPALB		4	-0.004 -0.012	5.00–9.00	5.0–30.0						M4		
LPALR	LPALS		5	-0.005 -0.014	6.00–10.00	5.0–35.0						M5		
LPALD	LPALC		6	-0.007 -0.020	7.00–12.00	5.0–45.0						M6		
			8	-0.006 -0.017	9.00–15.00	5.0–45.0						M8		
		10	-0.007 -0.020	11.00–20.00	5.0–55.0	M10								
		12	-0.007 -0.020	13.00–20.00	5.0–55.0	M12								
		16	-0.007 -0.020	17.00–27.00	5.0–60.0	M16								
		20	-0.007 -0.020	21.00–30.00	5.0–60.0	M20								

* The tightening torque (ref. value) for hardened products is strength class 8.8. (See technical data on MISUMI 2019 catalog P.4015).
 * Not applicable when using locking adhesives or lock washers.

Part Number Example

Part Number - P - B - C - A - E - L

LPALJA10 - P12.00 - B6.5 - C5 - A15 - E10 - L0

LPALC16 - P20.00 - B7.0 - A15 - E10 - L5

Part Number Alterations

Part Number - P - B - C - A - E - L - (SC, DRC...etc.)

LPALBA8 - P10.0 - B5.0 - C3 - L0 - NNC

Details of E Dimension Configurable Range

P	E 1 mm 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

Alterations	Width Across Flats	Wrench Hole (Ø3.5)	Wrench Hole (Ø2.5)	Screwdriver Slot	Thread Diameter	Undercut
Code	SC	LAC	LTE	DRC	MC	NNC
Spec.	SC=1 mm Increment ① When B-C or B-E \leq 11, adds width across flats on the tip. ② P-3 \leq SC \leq P-1, SC \geq D	Adds a Ø3.5 hole. ① B-C or B-E \geq 10 Applicable when P \geq 8.	Adds a Ø2.5 hole. ① B-C or B-E \geq 8 Applicable when 7 \leq P \leq 15.	Width 0.8mm Depth 1 mm	Changes the thread diameter to MC. ① D/3 \leq MC<D ② MC \geq 3 Ordering Code: MC4 ③ The incomplete threaded portion (Pitch x 2) is included.	Adds an Undercut at the thread end. ① Applicable when L=0.