Locating Pins - Hardened Stainless Steel - Straight

- Pressfit / Tapped -

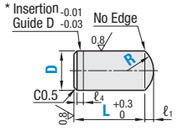
Features: Straight Type with the dia. configurable in 0.01mm increments has been newly added to the Hardened Stainless Steel Locating Pin product line-up.

RoHS10

Material	Hardness	Tip Shape	Type	
			Press Fit	Tapped
Hardened Stainless Steel	35HRC~	R	APSFR	APSTFR
		Tapered	APST	APSTT
		Taper R	APSTR	APSTTR

6.3 (0.8)

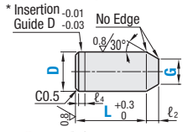
Pressfit Tip Shape: R



ℓ1=R√(R2−D²/4)

Tapped

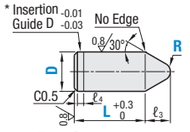
Tip Shape: Tapered



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

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

Tip Shape: Tapered R



ℓ3=D/2÷tan30°+R-(R÷sin30°)

Reference:tan30°≈0.577 sin30°=0.5

Dimensions not specified in Tapped Type drawings are the same as those of Press Fit Type.

* D Tolerance g6/h7 has no insertion guide. (ℓ4)

Tolerance

D or P	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
10.01–18.00	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	0 -0.018
18.01–25.50	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020	0 -0.021

Press fit

Part Number Type	D Tolerance	D 0.01mm Increment	L 0.1mm Increment	R 1mm Increment R, Taper R	G 1mm Increment Tapered	ℓ4
APSFR(R) APST(Tapered) APSTR(Taper R)	M(m6) P(p6) G(g6) H(h7)	3.01–5.00	3.0–60.0	R	Tapered G≤D	1
		5.01–7.99		R≥D/2		
		8.00–10.99		Taper R R≤D/2		
		11.00–14.99	11.0–60.0			
		15.00–17.99				
		18.00–25.50				

D≤L≤10D

Part Number Example

Part Number	-	D	-	L	-	R	-	G
APSFRM	-	D6.25	-	L14.0	-	R6	-	
APSTTP	-	D3.30	-	L25.0				G3

Tapped

Part Number Type	D Tolerance	D 0.01mm Increment	L 0.1mm Increment	R 1mm Increment R, Taper R	G 1mm Increment Tapered	M (Corse)	*Tightening Torque N-cm
APSTFR(R) APSTT(Tapered) APSTTR(Taper R)	M(m6) P(p6) G(g6) H(h7)	6.01–7.99	10–60	R R≥D/2	Tapered G≤D	M3	147
		8.00–10.99	15–60			M4	333
		11.00–14.99		Taper R R≤D/2		M5	676
		15.00–17.99	17–60			M6	1156
		18.00–25.50					

* Tightening torque will be within Strength Class of 10.9. *Not applicable when using locking adhesives or lock washers.

Locating Pins - Hardened Stainless Steel - Shouldered

- Tapered Pressfit / Tapped/ Threaded -

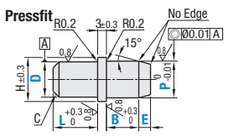
Features: Shouldered, Tapered Type has been newly added to the Hardened Stainless Steel Locating Pin product line-up.

RoHS10

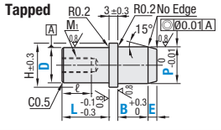
Material	Hardness	Pin Shape	Press Fit m6	Press Fit p6	Press Fit g6	Press Fit h7	Tapped g6	Tapped h7	Threaded g6	Threaded h7
Hardened Stainless Steel	35HRC~	Round	APJA	APJPA	APJGA	APJHA	APUA	APUHA	APNA	APNHA
		Diamond	APJD	APJPD	APJGD	APJHD	APUD	APUHD	APND	APNHD

When the diameter exceeds Ø10, the center hardness may become 30HRC or more.

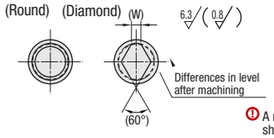
Pressfit



Tapped

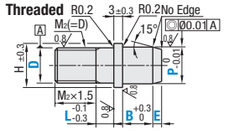


(Round) (Diamond)



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

Threaded



When L<Pitchx2, Mx1.5 includes incomplete thread(Pitchx2).

When B+E>20mm, the P dim. tolerance is 0-0.02.

P-2EtanA≥0.73(Tip DiameterØ0.73 or more)

Reference: tan15°≈0.267 tan30°≈0.577 tan45°=1 tan60°≈1.732

Tolerance

D or P	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
10.01–18.00	+0.018 +0.007	+0.029 +0.018	-0.006 -0.017	0 -0.018
18.01–25.50	+0.021 +0.008	+0.035 +0.022	-0.007 -0.020	0 -0.021

Press fit

Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E Not specified	E 0.1mm Increment	C	H	(W)
<Round> APJA(m6) APJPA(p6) APJGA(g6) APJHA(h7) <Diamond> APJD(m6) APJPD(p6) APJGD(g6) APJHD(h7)	3	2.00–4.00	3(4)–16	1.0(2.0)–15.0	2.0	0.5–10.0	0.5	6	1
	4				3.0		1		1.2
	5	3.00–6.00			3.0			8	1.5
	6				3.0				1.8
	7	3.00–7.00			3.0			9	
	8	5.00–9.00	4(5)–16		4.0		1.5	11	2.2
	9				4.0				
	10	6.00–11.00	5–25	1.0–30.0 (2.0)–(20.0)	4.0		2	13	3
	11				4.0				
	12	7.00–13.00			4.0			15	3.2
	13		13–25		4.0				
	15	7.00–15.00	15–25		4.0			17	3.5
	16	13.00–17.00	16–25		4.0			19	4
	18	15.00–19.00	18–27		4.0		3	21	
	20	16.00–21.00	20–30		4.0			23	5
	22	18.00–23.00	22–31		4.0			25	

dimension and B dimension in ( ) are applicable to Diamond Shape.

Tapped

Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E Not specified	E 0.1mm Increment	M1 (Corse)	*Tightening Torque N·cm	H	I	(W)
<Round> APUA(g6) APUHA(h7) <Diamond> APUD(g6) APUHD(h7)	6	3.00–6.00	6(9)–16	2.0–30.0(20.0)	2.0	0.5–10.0	M3	147	8	5	1.8
	8	5.00–9.00	8(12)–16		3.0		M4	333	11	6	2.2
	10	6.00–11.00	10(12)–20		3.0		M5	676	13	8	3
	12	7.00–13.00	12–25		3.0				15		3.2
	13	8.00–14.00	13–25		4.0		M6	1156	16	9	3.5
	16	13.00–17.00	17–25		4.0				19		4
	20	16.00–23.00	17(18)–30		4.0				25	12	6

L dimension and B dimension in ( ) are applicable to Diamond Shape. Note the strength of under–head part (technical data page). Please confirm pilot hole depth (technical data page). Holes may go through.

* Tightening torque will be within Strength Class of 10.9. *Not applicable when using locking adhesives or lock washers.

Threaded

Part Number Type	D	P 0.01mm Increment	L 1mm Increment	B 0.1mm Increment	E Not specified	E 0.1mm Increment	M2 (Corse)	*Tightening Torque N·cm	H	(W)
<Round> APNA(g6) APNHA(h7) <Diamond> APND(g6) APNHD(h7)	3	2.00–4.00	0–10	1.0(2.0)–15.0	1.0	0.5–10.0	M3	147	6	1
	4				1.0		M4	333		1.2
	5	3.00–6.00			2.0		M5	676	8	1.5
	6				2.0		M6	1156		1.8
	8	5.00–9.00			3.0		M8	2803	11	2.2
	10	6.00–11.00	0–20	1.0–30.0 (2.0)–(20.0)	3.0		M10	5557	13	3
	12	7.00–13.00			3.0		M12	9702	15	3.2
	16	13.00–17.00			4.0		M16	24108	19	4
	20	16.00–23.00			5.0		M20	46942	25	6

B dimension in ( ) are applicable to Diamond Shape. For full thread shape, specify L dimension 0 and alteration NNC.

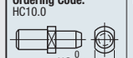
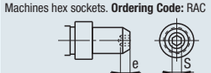
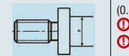
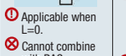
* Tightening torque will be within Strength Class of 10.9. *Not applicable when using locking adhesives or lock washers.

Part Number Example

Part Number	-	P	-	L	-	B	-	E
E not specified APUA6	-	P4.01	-	L8	-	B5.0		
E specified APUA6	-	P4.01	-	L8	-	B5.0	-	E5.0

Part Number Alterations

Part Number	-	P	-	L	-	B	-	E	-	(HC/ RAC/ LAC/ TBA/ NNC)
APNA6	-	P4.88	-	L8	-	B3.5	-	B3.5	-	HC7.0-TBA2.0

Alterations	Wrench Flats Alteration	Hex Socket Machining	Wrench Hole	Shoulder Thickness	Undercut	Change Shoulder Size
Code	HC	RAC	LAC	TBA	NNC	TBH
Spec.	**Ordering Code:** HC10.0  HC=0.5mm Increment HC>D HC>P	Machines hex sockets. **Ordering Code:** RAC  S+3≤P-2xEx tan15°(≈0.27) Values in ( ) are applicable to Tapped Type. Combination with LAC is not available.	Machines wrench holes. **Ordering Code:** LAC  Diamond Shape Hole is drilled on the diamond head vertically but with arbitrary orientation of its diamond surfaces against those of the diamond head. Applicable when D≥6 Combination with RAC is not available.	Changes the Shoulder Thickness dimension. **Ordering Code:** TBA2.5 1.0~10.0 (0.1mm increment) Shoulder Thickness Tolerance: ±0.05 Applicable when D≥4.	Add undercut at end of thread. **Ordering Code:** NNC  Applicable when L=0. Cannot combine with RAC.	Change shoulder Size(H). **Ordering Code:** TBH10 (0.5 mm Increment) D+0.5<TBH<H P+0.5<TBH<H  Tolerance for the shoulder size is +/-0.3 mm.

D	Applicable Dimensions B	Hex Hole Dimensions S	Hex Hole Dimensions e
8~9	7.0(12.0)~	4	2.5
10~11	8.0(13.0)~	5	3
12~16	9.0(13.0)~	6	4
17~19	9.0(13.0)~	6	4
20~25	9.0(13.0)~	6	4

P	Applicable Dimension B	Wrench Hole Dims. Q
5.50~9.99	5.0~9.9	2
	10.0~30.0	2.5
10.00~	5.0~7.9	2
	8.0~11.9	2.5
	12.0~30.0	3.5