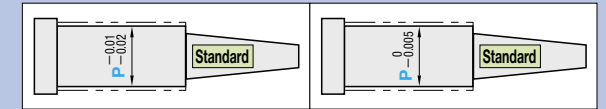



ONE-STEP CORE PINS


— TIP LAPPED • SHAFT DIAMETER (P) DESIGNATION • SHAFT DIAMETER TOLERANCE $\begin{matrix} -0.01 \\ 0.02 \end{matrix}$ / $\begin{matrix} 0 \\ -0.005 \end{matrix}$ TYPE—



Ⓜ Non JIS material definition is listed on P.1351 - 1352



RoHS



Enlarged photograph of tip

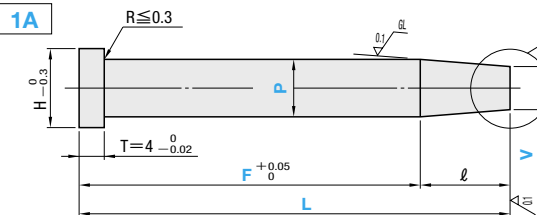
M	Part Number		
	Type	Step	Shape
T Shaft diameter · V · A	L-CPDB-	1A	Not processed
		1B	C
		1C	G T
SKH51 equivalent 58~60HRC Shaft diameter tolerance P $\begin{matrix} -0.005 \\ 0 \end{matrix}$ V · A tolerance ± 0.01	L-CPHB-	1D	R
		1E	B

Ⓜ The tip of this product is lapped around the entire periphery.

Ⓜ When [Step] 1E, A tolerance is ± 0.02 .

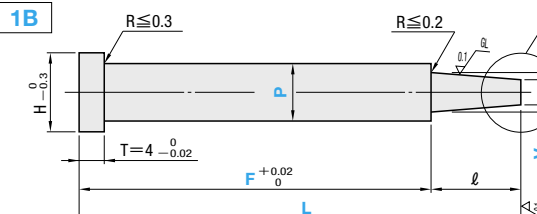
Step type selected from 1A~1E below

1A



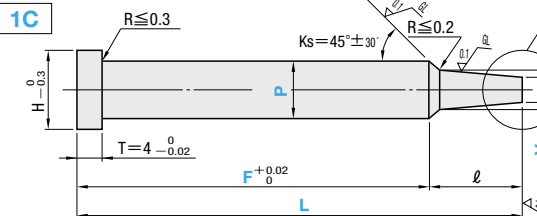
$l \geq 1.0 + \alpha$

1B



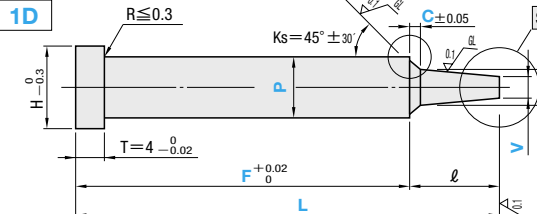
$l \geq 1.0 + \alpha$

1C



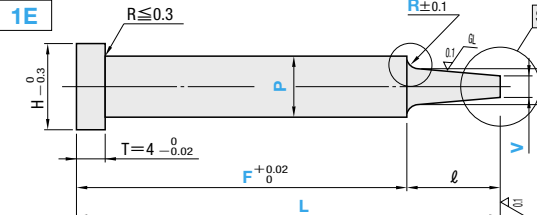
$l \geq \frac{P-A}{2} + 1.0 + \alpha$
When AC code is used
 $l \geq \frac{P-A}{2 \tan AC} + 1.0 + \alpha$

1D



$l \geq C + 1.0 + \alpha$
 $C = \frac{P-A}{2}$ [Step] 1C

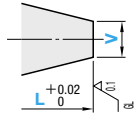
1E



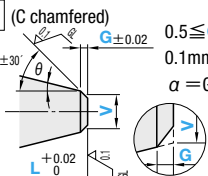
Tolerance A is ± 0.02
 $l \geq R + 1.0 + \alpha$

Shape (Tip shape: V is dimension before tip processing.)

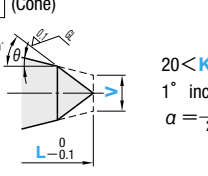
(Not processed) Ⓜ Designation of the shape is unnecessary when tip processing is not required. $\alpha = 0$



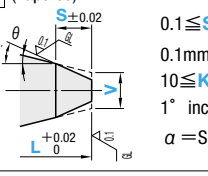
C (C chamfered)
 $45^\circ \pm 30'$
 $0.5 \leq G < V/2$
0.1mm increments
 $\alpha = G$ $\theta < 45^\circ$



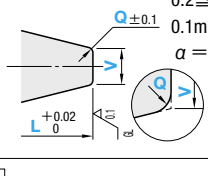
G (Cone)
 $K \pm 30'$
 $20 < K \leq 60$
1° increments
 $\alpha = \frac{V}{2 \tan K}$ $\theta < K$



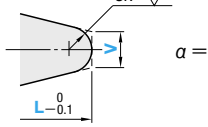
T (Tapered)
 $K \pm 30'$
 $0.1 \leq S < \frac{V}{2 \tan K}$
0.1mm increments
 $10 \leq K \leq 45$
1° increments
 $\alpha = S$ $\theta < K$



R (R chamfered)
 $0.2 \leq Q < V/2$
0.1mm increments
 $\alpha = Q$



B (Spherical processed)
 $\alpha = V/2$



Ⓜ Refer to the [Shape] drawing for L tolerance Ⓜ The l dimension face and the tip face are lapped. (Calculation of tip gradient θ [P.1315])

Part Number	L	P	F	A	V	C · R	Tip size (K · S · G · Q)
L-CPDB-1A 5	58.00	P4.86	F40.00		V4.50		
L-CPHB-1A 5	58.00	P4.86	F40.00		V4.50		

H	Part Number				0.01mm increments				0.1mm increments		l_{max}											
	Type	Step	Shape	No.	L		F		A	Vmin.		C	R									
3	Shaft diameter tolerance $\begin{matrix} -0.01 \\ -0.02 \end{matrix}$	1A	Designation is unnecessary when tip processing is not required.	1.5	100.00	12.00	10.00	10.00	Refer to the [Step] drawing	No designation necessary for A	1.00	Only [Step] 1D designated $C < \frac{P-A}{2}$ and $0.50 \leq CVC \leq 1.00$ Ⓜ When CVC code is used	Only [Step] 1E designated $R < \frac{P-A}{2}$ and $R \geq 0.2$	A $\times 6$ and $l \leq 30$								
4				2											1.50~1.99							
5				2.5											2.00~2.49							
6	3	2.50~2.99																				
7	3.5	3.00~3.49																				
8	4	3.50~3.99																				
8	Shaft diameter tolerance $\begin{matrix} -0.005 \\ 0 \end{matrix}$	1D	Designation is unnecessary when tip processing is not required.	4.5	120.00	12.00	10.00	Refer to the [Step] drawing	No designation necessary for A	1.50	Only [Step] 1D designated $C < \frac{P-A}{2}$ and $0.50 \leq CVC \leq 1.00$ Ⓜ When CVC code is used	Only [Step] 1E designated $R < \frac{P-A}{2}$ and $R \geq 0.2$	A $\times 6$ and $l \leq 30$									
5				5										4.00~4.49								
6				6										4.50~4.99								
9	L-CPHB-	1E	Designation is unnecessary when tip processing is not required.	5.5										120.00	12.00	10.00	Refer to the [Step] drawing	No designation necessary for A	2.00	Only [Step] 1D designated $C < \frac{P-A}{2}$ and $0.50 \leq CVC \leq 1.00$ Ⓜ When CVC code is used	Only [Step] 1E designated $R < \frac{P-A}{2}$ and $R \geq 0.2$	A $\times 6$ and $l \leq 30$
6				6																		

P Price **Quotation**

Alterations

Part Number — L — P — F — A — V(VC) — C(CVC) — R(RE) — Tip size (K · S · G · Q) — (KC · WKC...etc.)

L-CPDB-1EC6 — 50.00 — P5.70 — F40.00 — A5.00 — V3.10 — RE1.5 — G1.0 — HC8.0

L-CPHB-1EC6 — 50.00 — P5.70 — F40.00 — A5.00 — V3.10 — RE1.5 — G1.0 — HC8.0

Alteration details [P.441]

Alterations	Code	Spec.	1Code	Alterations	Code	Spec.	1Code
	KC	Single flat cutting $P/2 \leq KC < H/2$			TC	Head thickness change $TC = 0.1$ mm increments $1.5 \leq TC < 4$ (Dimensions L and F remain unchanged.) $4 - TC \leq L_{max} - L$	
	WKC	Two flats cutting $P/2 \leq WKC < H/2$	About Designation Unit for Key Flat Cutting		TRN	Relief under the head (No need for plate chamfering)	
	KAC	Varied width parallel flats cutting $P/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$			NHC	Numbering on the head How to order [P.442] Ⓜ Combination with SKC not available.	
	RKC	Two flats (right angled) cutting $P/2 \leq RKC < H/2$	(1) To align the key flat with the shaft diameter Unit of designation 0.005mm increments possible		RR	Changes R (normally 0.2 or less) to R0.3~0.5. (Strength has been improved) [Designation method] RR Ⓜ Available for [Step] 1B/1C/1D Ⓜ $P-A \geq 1.0$ When [Step] 1D, $C \geq 0.5$	
	DKC	Three flats cutting $P/2 \leq DKC < H/2$			AC	Changes the standard angle ($K_s = 45^\circ$) AC=1° increments Ⓜ Available for [Step] 1C/1D Ⓜ $30 \leq AC \leq 60$ Ⓜ Combination with CVC · RR not available Ⓜ When [Step] 1D, $C \leq 1.0, A + 2(C \times \tan AC) < P$	
	SKC	Four flats cutting $P/2 \leq SKC < H/2$	(2) To designate arbitrary key flat dimensions Unit of designation 0.1mm		CVC	C dimension can be designated at 0.01mm increments. Ⓜ $0.50 \leq CVC \leq 1.00$ Ⓜ Available for [Step] 1D Ⓜ $CVC < (P-A)/2$ Ⓜ Combination with AC not available.	
	KGC	Two flats (angled) cutting $P/2 \leq KGC < H/2$ $0 < AG < 360$ $AG = 1^\circ$ increments			VC	Vmin. is enlarged. VC=0.01mm increments Ⓜ $l \leq A \times 5, l \leq 25$ ($P \times 5$ for [Step] 1A) Ⓜ $P > A \geq VC$ Ⓜ Regarding No.=2~3, 4, 5 and 5, Vmin. is the machining limit, and VC cannot be used.	
	KTC	Three flats cutting at 120° $P/2 \leq KTC < H/2$			RE	R shape alteration (enlargement) RE=0.5mm increments Ⓜ $0.5 \leq RE \leq 2.0$ Ⓜ F tolerance is ± 0.05 Ⓜ Available for [Step] 1E	
	HC	Head diameter change HC=0.1mm increments $P \leq HC < H$ Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft.			GVC	Gas vent machining GS · GB=1mm increments Ⓜ Available when $P \geq 2.00$ Ⓜ $2 \leq GS \leq 10$ $GS + 2 \leq GB \leq 30$ Ⓜ Fmin. $\leq F - GB$ How to order [P.442]	