


FREE SPECIFIED ONE-STEP CORE PINS

—NO COATING · TiCN COATING—

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




RoHS

Part Number	M	HRC	P		L		F		A · V	
			No coating	TiCN Coating	No coating	TiCN Coating	[Step] 1A	[Step] 1B · 1C · 1D · 1E	No coating	TiCN Coating
F-CPDB	SKD61 equivalent	48~52	-0.01 -0.02	+0.02 0	When Shape G Shape B 0 -0.1	+0.05 0	+0.02 0	*±0.015	±0.02	
F-CPHB	SKH51 equivalent	58~60	0 -0.005	+0.02 0		+0.05 0	+0.02 0	*±0.01	—	

※ When [Step] 1E, A±0.02

■ Guide for TiCN Coating

- TiCN coating, applied through PVD (physical vapor deposition), features excellent abrasion and corrosion resistance properties, and improves mold-release performance.
- Hardness 3000HV~
- Coating thickness 2~5μm
- Color Blue-gray

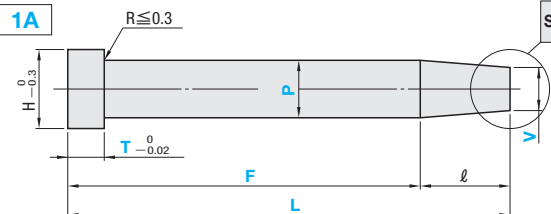


- Coating made on the tip and shaft.

Ⓜ The dimensions and tolerances shown in the drawings are the values after the product is coated.
 Ⓜ The thickness of coating layer may be slightly inconsistent around the tip corners.

Step type selected from 1A~1E below

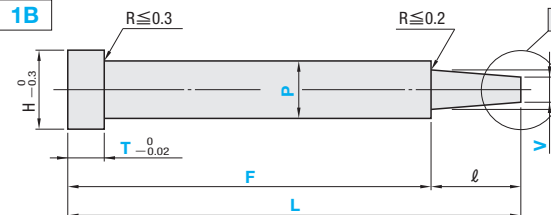
1A



Shape Select a tip shape from the drawings on the right.

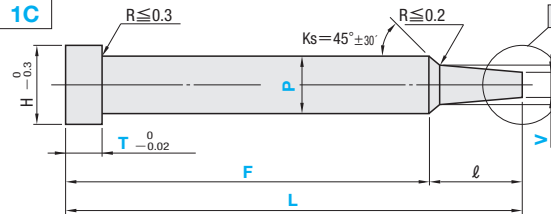
Ⓜ $l \geq 0.5 + \alpha$

1B



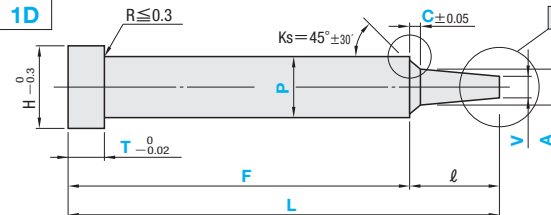
Ⓜ $l \geq 0.7 + \alpha$

1C



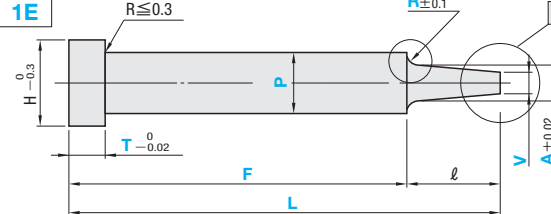
Ⓜ $l \geq \frac{P-A}{2} + 0.5 + \alpha$
(When AC code is used)
 $l \geq \frac{P-A}{2 \tan AC} + 0.5 + \alpha$

1D



Ⓜ $l \geq C + 0.5 + \alpha$

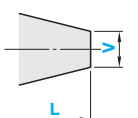
1E



Ⓜ $l \geq R + 0.5 + \alpha$

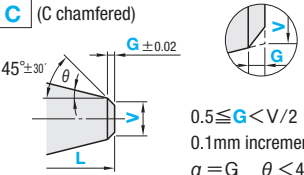
Shape (Tip shape: V is dimension before tip processing.)

(Not processed) Ⓜ Designation of the shape is unnecessary when tip processing is not required.



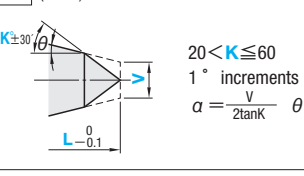
$\alpha = 0$

C (C chamfered)



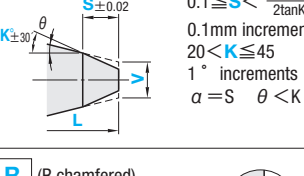
$0.5 \leq G < V/2$
0.1mm increments
 $\alpha = G \quad \theta < 45^\circ$

G (Cone)



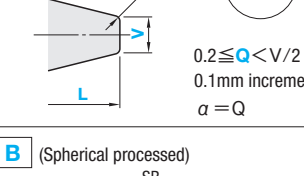
$20 < K \leq 60$
1° increments
 $\alpha = \frac{V}{2 \tan K} \quad \theta < K$

T (Tapered)



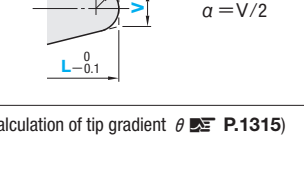
$0.1 \leq S < \frac{V}{2 \tan K}$
0.1mm increments
 $20 < K \leq 45$
1° increments
 $\alpha = S \quad \theta < K$

R (R chamfered)



$0.2 \leq Q < V/2$
0.1mm increments
 $\alpha = Q$

B (Spherical processed)



$\alpha = V/2$

(Calculation of tip gradient θ Ⓜ P.1315)

H	Part Number		0.01mm increments			0.1mm increments	0.01mm increments		0.1mm increments	ℓmax.
	Type	Step Shape No.	L	P	F	T	A	Vmin.	C · R	
3	F-CPDB F-CPHB	1A	20.00~120.00	1.00~1.50	$F \geq T + 10$	$1.5 \leq T \leq 20.0$ (When HF-CPDB1 is selected) $T \geq 4.0$	$P > A \geq V$	0.50	$C < \frac{P-A}{2}$ $0.1 \leq C \leq 4.0$ (Available for [Step] 1D only)	20.00
4				1.00~2.00				0.70		25.00
5				1.50~2.50				1.00		30.00
6				2.00~3.00				1.50		35.00
7				2.50~3.50				2.00		40.00
8				3.50~5.00				2.50		50.00
9	4.50~6.00	3.00								
10	5.50~7.00	3.50								
11	6.50~8.00	4.00								
15	7.50~10.00	4.50								
18	9.50~13.00	5.00	50.00							
21	12.50~16.00	5.00								
25	30.00~120.00	16.50~20.00		$F \geq T + 24$						

Order Part Number — L — P — F — T — A — V — C · R — Tip size (K · S · G · Q)

F-CPHB1DB15 — 80.00 — P9.70 — F60.00 — T10.5 — A8.00 — V6.00 — C0.3

HF-CPDB1DB8 — 50.00 — P4.60 — F40.00 — T8.2 — A3.80 — V3.00 — C0.3

Days to Ship Quotation **P** Price Quotation

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

HF-CPDB1EG9 — 38.00 — P5.70 — F29.00 — T10.0 — A3.00 — V2.50 — R0.3 — K45 — HC8.0

Alterations	Code	Spec.	1Code
	KC	Single flat cutting $P/2 \leq KC < H/2$	Quotation
	WKC	Two flats cutting $P/2 \leq WKC < H/2$	
	KAC KBC	Varied width parallel flats cutting $P/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$	
	RKC	Two flats (right angled) cutting $P/2 \leq RKC < H/2$	
	DKC	Three flats cutting $P/2 \leq DKC < H/2$	
	SKC	Four flats cutting $P/2 \leq SKC < H/2$	
	KGC	Two flats (angled) cutting $P/2 \leq KGC < H/2$ $0 < AG < 360$ $AG = 1^\circ$ increments	
	KTC	Three flats cutting at 120° $P/2 \leq KTC < H/2$	

About Designation Unit for Key Flat Cutting
 (1) To align the key flat with the shaft diameter
 Unit of designation 0.005mm increments possible
 (2) To designate arbitrary key flat dimensions
 Unit of designation 0.1mm

Alterations	Code	Spec.	1Code
	HC	Head diameter change $HC = 0.1$ mm 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.	Quotation
	HCC	Head diameter change (precision) $HCC = 0.1$ mm increments $P + 0.5 \leq HCC < H - 0.3$	
	TRN	Relief under the head (No need for plate chamfering)	
	TRC	Changes the head R from R0.3 or lower to R0.3~0.5.	
	NHC	Numbering on the head How to order Ⓜ P.442 Ⓜ Available when $H \geq 2$ Ⓜ Combination with SKC not available.	
	RR	Changes R (normally 0.2 or less) to R0.3~0.5 (Improves strength) Ⓜ Available for [Step] 1B/1C/1D Ⓜ [Step] 1B · 1C : $P - A \geq 1.0$ Ⓜ [Step] 1D : $C \geq 0.5$	
	RE	R shape alteration(enlargement) $RE = 0.5$ mm increments Ⓜ $0.5 \leq RE \leq 2.0$ Ⓜ F tolerance is $^{+0.05}$ Ⓜ Available for [Step] 1E only	
	AC	Changes the standard angle($Ks = 45^\circ$) $AC = 1^\circ$ increments $30 \leq AC \leq 60$ Ⓜ Available for [Step] 1C · 1D Ⓜ Combination with RR not available. Ⓜ [Step] 1D : $C \leq 1.0, A + 2(C \times \tan AC) < P$	
	GVC	Gas vent machining $GS \cdot GB = 1$ mm increments Ⓜ Available when $P \geq 200$ Ⓜ $2 \leq GS \leq 10$ $GS + 2 \leq GB \leq 30$ Fmin. $\leq F - GB$ How to order Ⓜ P.442	

Steps-Type Round Core Pins