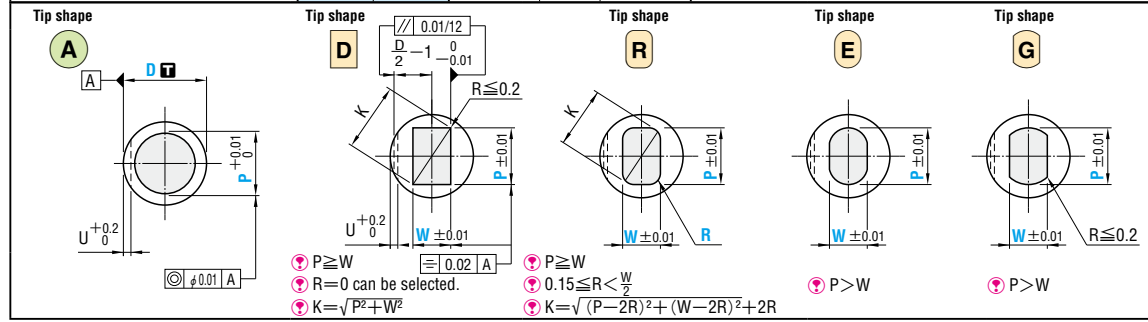


PUNCHES WITH KEY GROOVES

—TiCN COATING—



Type	Shank diameter D Tolerance	M A	Catalog No.			The tip shape can be selected from Tip shape A~G in the figure below.
			Type	Tip shape	Tip length B	
	Dm5	Equivalent to SKH51 61~64HRC Surface 3000HV Powdered high-speed steel 64~67HRC Surface 3000HV	H-SHK	A	S	
			H-PK	D	L	
	D+0.005/0	Equivalent to SKH51 61~64HRC Surface 3000HV Powdered high-speed steel 64~67HRC Surface 3000HV	AH-SHK	E	X	
			AH-PK	G		



Type	Tip shape	Tip length	D	L						0.01mm increments			T	B	U Key groove depth	
										A	D R E G	R				
				min.	P	max.	P-Kmax.	P-Wmin.	R							
(Dm5) H-SHK H-PK	S	3	40	50	60	70	80	1.00~	2.99	—	—	0.15 ≤ R < W/2 T > 5.0	8	0.5		
		4	40	50	60	70	80	1.00~	3.99	3.97	1.00					
		5	40	50	60	70	80	2.00~	4.99	4.97	1.20					
		6	40	50	60	70	80	2.00~	5.99	5.97	1.50					
		8	(40)	50	60	70	80	90	100	3.00~	7.99				7.97	2.00
		10	(40)	50	60	70	80	90	100	3.00~	9.99				9.97	2.50
	L	3	—	50	60	70	80	1.00~	2.99	—	—					
		4	—	50	60	70	80	1.00~	3.99	3.97	2.00					
		5	—	50	60	70	80	2.00~	4.99	4.97	2.00					
		6	—	50	60	70	80	2.00~	5.99	5.97	2.00					
		8	—	50	60	70	80	90	100	3.00~	7.99		7.97	2.50		
		10	—	50	60	70	80	90	100	3.00~	9.99		9.97	2.50		
X	3	—	50	60	70	80	1.20~	2.99	—	—						
	4	—	50	60	70	80	1.20~	3.99	3.97	2.00						
	5	—	60	70	80	—	2.00~	4.99	4.97	3.50						
	6	—	60	70	80	—	2.00~	5.99	5.97	3.50						
	8	—	60	70	80	90	100	3.00~	7.99	7.97	5.00					
	10	—	60	70	80	90	100	3.00~	9.99	9.97	5.00					
AH-SHK AH-PK	13	—	60	70	80	90	100	6.00~	12.99	12.97	5.00					
	16	—	60	70	80	90	100	10.00~	15.99	15.97	4.00					

Ⓛ (40) → B=8 If the full length is (40), the tip length is 8mm in all cases.
 Ⓧ If no key groove is required, select T dimension that is the same as the full length L.

Order	Catalog No.	L	P	W	R (R only)	T
	H-SHKEL16	70	P12.00	W6.00		T20.1
	AH-SHKAS3	40	P1.80			T13.0

Days to Ship **Quotation**

Alterations Catalog No. — L(LC-LCT) — P(PC) — W(WC) — R — T — (BC-KC-LKC, etc.)
 H-SHKEL16 — LC68 — P12.00 — W6.00 — T20.5 — LKC

Alteration	Code	A	D R E G	1Code
Alterations to tip	PC WC	Tip dimension change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.)	Tip dimension change $WC \geq \frac{P-W_{min}}{2} \geq 1.00$ 0.01 mm increments ⊗ Cannot be used for tip X.	
	BC	Tip length change $2 \leq BC \leq B_{max}$ 0.1 mm increments Ⓣ Full length L must be at least 25mm longer than tip length BC.	Tip length change $2 \leq BC \leq B_{max}$ 0.1 mm increments Ⓣ Full length L must be at least 30mm longer than tip length BC.	
	SC	Lapping of tip Ⓣ P dimension tolerance and increment are the same. The base material is finished before coating is applied. ⊗ R=0 cannot be selected for the tip D corner.		Quotation
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments Ⓣ $PRC \leq (P-0.2)/2$ ⊗ Cannot be combined with PCC-GC.		
	PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1 mm increments Ⓣ $PCC \leq (P-0.2)/2$ ⊗ Cannot be combined with PRC-GC.		
	GC	$20^\circ \leq GC < 90^\circ$ 1° increments Tip length $B \geq f+2$ $f = P/2 \times \tan(90^\circ - GC)$ Ⓣ If combined with SC, tip edges are rounded. ⊗ Cannot be combined with LKC-LCT-PRC-PCC.		
Others	PKC	Tip tolerance change $P \pm 0.01 \rightarrow +0.005$ 0 Ⓣ (P dimension can be selected in 0.001 mm increments.) ⊗ Cannot be used for D16.	Tip tolerance change $P-W \pm 0.01 \rightarrow +0.01$ 0 ⊗ Cannot be used for D16.	

Alteration	Code	A	D R E G	1Code								
Alterations to full length	LC	Full length change $25+B(BC) \leq LC < L$ 0.1 mm increments Ⓣ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length-25mm). (If combined with LKC, 0.01 mm increments can be selected.)	Full length change $30+B(BC) \leq LC < L$ 0.1 mm increments Ⓣ If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length-30mm).									
	LCT	T dimension tolerance and full length changes are processed using a single code. The allowable range of change, increment, ordering process, and notes (Ⓣ) are the same as for LC.	Full length tolerance change $T \pm 0.05 \rightarrow -0.02$									
	LKC	Full length tolerance change $L \pm 0.3 \rightarrow +0.05$ 0										
Others	KC		Key flat position change 90° 180° 1° increments	Quotation								
	NKC		No key flat									
	KD		Key groove position change 90° 180° 1° increments									
	WKD	Ⓣ Addition of double key grooves in parallel	Ⓣ Double key grooves in parallel. Can be combined with KD.									
	UK	Key groove depth change ⊗ Cannot be used for D3.	<table border="1"> <tr><td>D</td><td>UK</td></tr> <tr><td>4-5</td><td>0.7</td></tr> <tr><td>6</td><td>1.2</td></tr> <tr><td>8-16</td><td>1.7</td></tr> </table>	D	UK	4-5	0.7	6	1.2	8-16	1.7	
	D	UK										
4-5	0.7											
6	1.2											
8-16	1.7											
TKC	T dimension tolerance change $T \pm 0.05 \rightarrow -0.02$ 0											
SKC	Single key shaft on flank $D/2 - 0.5 \rightarrow -0.01$ Ⓣ $D4-6 P \leq D-1.2 W \leq D-1.2$ (Machining width 0.5) Ⓣ $D8- P \leq D-2.2 W \leq D-2.2$ (Machining width 1) ⊗ Cannot be used for D3. ⊗ Cannot be combined with KC-KD-WKD.											

P Price **Quotation**

