

KEY FLAT SHANK SHOULDER PUNCHES

—NORMAL · TiCN COATING—



Type	Shank diameter D tolerance	M H	Catalog No.			The tip shape can be selected from Tip shape A~G in the figure below.
			Type	Tip shape	Tip length	
—Normal— RoHS	D ⁺ 0.005 0		Equivalent to SKD 11 60~63HRC	G—SP	A	<p>The tip end of a TiCN coating punch is ground before the coating is applied.</p>
			Equivalent to SKH51 61~64HRC	G—SH	D	
			Powdered high-speed steel 64~67HRC	G—PH	R	
			Equivalent to SKH51 61~64HRC Surface 3000HV	TiCN coating GH—SH	E	
			Powdered high-speed steel 64~67HRC Surface 3000HV	TiCN coating GH—PH	G	

Tip shape	Tip shape	Tip shape	Tip shape	Tip shape
A	D	R	E	G
<p>When D=3~6 D/2 -0.5 -0.01</p> <p>⊙ φ0.01 A</p>	<p>When D=3~6 D/2 -0.5 -0.01</p> <p>⊙ φ0.01 A</p>	<p>⊙ φ0.01 A</p>	<p>⊙ φ0.01 A</p>	<p>⊙ φ0.01 A</p>
<ul style="list-style-type: none"> P ≥ W R=0 can be selected. K = √(P² + W²) 	<ul style="list-style-type: none"> W ± 0.01 ⊙ φ0.01 A 	<ul style="list-style-type: none"> P ≥ W 0.15 ≤ R < W/2 K = √(P - 2R)² + (W - 2R)² + 2R 	<ul style="list-style-type: none"> P > W 	<ul style="list-style-type: none"> P > W

Type	Tip shape	Tip length	D	L										B	H					
				0.01mm increments																
				A	D	R	E	G	R											
G—SP G—SH G—PH —TiCN coating— GH—SH GH—PH	S	3	40	50	60	70	80	90	100	1.00	~	1.80					5			
		4	40	50	60	70	80	90	100	1.00	~	2.80	3.97	2.80	1.00		7			
		5	40	50	60	70	80	90	100	2.00	~	3.80	4.97	3.80	1.20		8			
		6	40	50	60	70	80	90	100	2.00	~	4.80	5.97	4.80	1.50		9			
		8	(40)	50	60	70	80	90	100	3.00	~	5.80	7.97	5.80	2.00		11			
		10	(40)	50	60	70	80	90	100	3.00	~	7.80	9.97	7.80	2.50		13			
		13	(40)	50	60	70	80	90	100	6.00	~	10.80	12.97	10.80	3.00		16			
		16	(40)	50	60	70	80	90	100	10.00	~	13.80	15.97	13.80	4.00		19			
		20	(40)	50	60	70	80	90	100	13.00	~	17.80	19.97	17.80	5.00		23			
		25	(40)	50	60	70	80	90	100	18.00	~	22.80	24.97	22.80	6.00		28			
	L R E G	L	3	40	50	60	70	80	90	100	1.00	~	1.80					5		
			4	50	60	70	80	90	100	1.00	~	2.80	3.97	2.80	2.00		7			
			5	50	60	70	80	90	100	2.00	~	3.80	4.97	3.80	2.00		8			
			6	50	60	70	80	90	100	2.00	~	4.80	5.97	4.80	2.00		9			
			8	50	60	70	80	90	100	3.00	~	5.80	7.97	5.80	2.50		11			
			10	50	60	70	80	90	100	3.00	~	7.80	9.97	7.80	2.50		13			
			13	50	60	70	80	90	100	6.00	~	10.80	12.97	10.80	3.00		16			
			16	60	70	80	90	100	10.00	~	13.80	15.97	13.80	4.00		19				
			20	60	70	80	90	100	13.00	~	17.80	19.97	17.80	5.00		23				
			25	60	70	80	90	100	18.00	~	22.80	24.97	22.80	6.00		28				
			X	X	3	50	60	70	80	90	100	1.20	~	1.80						5
					4	50	60	70	80	90	100	1.20	~	2.80	3.97	2.80	2.00		7	
					5	60	70	80	90	100	2.00	~	3.80	4.97	3.80	3.50		8		
					6	60	70	80	90	100	2.00	~	4.80	5.97	4.80	3.50		9		
					8	60	70	80	90	100	3.00	~	5.80	7.97	5.80	5.00		11		
10	60	70			80	90	100	3.00	~	7.80	9.97	7.80	5.00		13					
13	60	70			80	90	100	6.00	~	10.80	12.97	10.80	5.00		16					
16	70	80			90	100	10.00	~	13.80						19					
20	70	80			90	100	13.00	~	17.80						23					
25	70	80			90	100	18.00	~	22.80						28					

Ⓛ (40) → B=8 If full length is (40), tip length is 8mm in all cases.
 Ⓛ Ⓜ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ : P·K > D - 0.05 → t=0 If P·K > D - 0.05 for a shaped punch, D = 0.01 (press-in lead) is not included.
 Ⓜ Ⓝ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ : D=3~6 → a=0.5 When D dimension is 3~6, a dimension is 0.5mm.
 Ⓜ Ⓝ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ : D=8~25 → a=1 When D dimension is 8~25, a dimension is 1mm.

Alteration	Code	A	D R E G	1Code	Alterations to full length	
						Alterations to tip
Alterations to tip	PC WC	Tip dimension change PC ≥ Pmin. 0.01mm increments For TiCN coating, PC > Pmin./2 > 1.00 (If combined with PKC, 0.001mm increments can be selected.)	Tip dimension change PC ≥ P·Wmin. ≥ 0.80 0.01mm increments For TiCN coating type: PC ≥ P·Wmin. ≥ 1.00 WC ≥ 2 Cannot be used for tip X.			
	BC	Tip length change 2 ≤ BC ≤ Bmax. 0.1mm increments Full length L must be at least 25mm longer than tip length BC.	Tip length change 2 ≤ BC ≤ Bmax. 0.1mm 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. With TiCN coating. The base material is finished before the coating is applied. R=0 cannot be selected for the tip shape D corners.				
	PRC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments PRC ≤ (P - 0.2)/2 Cannot be combined with PCC-GC.				
	PCC	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1mm increments PCC ≤ (P - 0.2)/2 Cannot be combined with PRC-GC.				
	GC	20° ≤ GC < 90° 1° increments Tip length B ≥ f + 2 f = P/2 × tan(90° - GC°) If combined with SC, tip edges are rounded. Cannot be combined with LKC-LKZ-LCT-LMT-PRC-PCC.				
	PKC	Tip tolerance change P + 0.01 → +0.005 0 → 0 (P dimension can be selected in 0.001mm increments.) TiCN coating cannot be used for D > 13.	Tip tolerance change P·W ± 0.01 → +0.01 0 → 0			
	Alterations to full length	LC	Full length change 25 + B (BC) ≤ LC < L 0.1mm 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-LKZ, 0.01mm increments can be selected.)	Full length change 30 + B (BC) ≤ LC < L 0.1mm increments If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length - 30mm).		
		LCT	TKC Head thickness tolerance change T + 0.3 → +0.02 0 → 0	LC Full length tolerance change L + 0.3 → +0.1 0 → 0		
		LMT	TKM Head thickness tolerance change T + 0.3 → 0 0 → -0.02	LC Full length tolerance change L + 0.3 → +0.1 0 → 0		
LKC		Full length tolerance change L + 0.3 → +0.05 0 → 0				
LKZ		Full length tolerance change L + 0.3 → +0.01 0 → 0 Cannot be used with TiCN coating.				
Alterations to head		WKC	Addition of double key flats in parallel			
		HC	Head diameter change D ≤ HC < H 0.1mm increments			
		TC	Head thickness change 2 ≤ TC < 5 0.1mm increments (If combined with TKC-TKM-LCT-LMT, 0.01mm increments can be selected.) Full length L is shortened by (5 - TC). If combined with LC-LCT-LMT, full length remains as specified.			
		TKC	Head thickness tolerance change T + 0.3 → +0.02 0 → 0			
		TKM	Head thickness tolerance change T + 0.3 → 0 0 → -0.02			
Alterations to shank	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1mm increments 0.5 ≤ TCC ≤ (H - D)/2 If H ≤ 5, then TCC is 0.5.				
	SKF	Single key flat on shank, configurable size SKF - 0.01 P ≤ 2 (SKF - 0.1) W ≤ 2 (SKF - 0.1) 0.1mm increments 0.1mm increments 0.3D ≤ SKF ≤ D/2 - 0.1 Cannot be combined with WKC.				
	NDC	No press-in lead ℓ ≥ 3 → ℓ = 0				

P Price **Quotation**

Order Catalog No. — L — P — W — R (R only)
 G—PHDL 13 — 80 — P10.50 — W7.34

Days to Ship **Quotation**

PUNCHES

Quotation