

KEY FLAT SHANK SHOULDER PUNCHES

—WPC® TREATMENT·HW 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 B	
—WPC® treatment— RoHS	D +0.005 0	Equivalent to SKD11 60~63 HRC Surface 1000~1100HV	GW-SP	A	S	<p>The tip edges are very slightly rounded.</p>
			GW-SH	D	L	
—HW coating—	Equivalent to SKH51 61~64 HRC Surface 1000~1100HV	GW-PH	R	L		
		GHW-SH	E	X		
Equivalent to SKH51 61~64 HRC Surface 3000 HV	Powdered high-speed steel 64~67 HRC Surface 1000~1100HV	GHW-PH	G	X		

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

* L (40) → B=8 If the full length is (40), the tip length is 8mm in all cases.
 * D R E G: P·K>D-0.05 → ε=0 If P·K>D-0.05 for a shaped punch, D-0.03 (press-in lead) is not included.
 * D=3~6 → a=0.5 When D dimension is 3~6, dimension a is 0.5mm.
 * D=8~25 → a=1 When D dimension is 8~25, dimension a is 1mm.

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

Days to Ship **Quotation**

Alterations **Catalog No.** — L (LC-LCT-LMT) — P (PC) — W (WC) — R — (BC-HC-TC, etc.)
 GW-SPAS 10 — LC72.0 — PC2.80 — BC8

Alteration	Code	A	D R E G	1Code																
Alterations to tip	PC WC	Tip dimension change PC ≥ Pmin. 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.)	Tip dimension change PC ≥ P·Wmin. ≥ 0.80 0.01 mm increments * Cannot be used for tip length X.	<table border="1"> <tr> <th>P (PC)</th> <th>Bmax.</th> </tr> <tr> <td>0.500~0.799</td> <td>10</td> </tr> <tr> <td>0.800~0.999</td> <td>13</td> </tr> <tr> <td>1.000~1.999</td> <td>20</td> </tr> <tr> <td>2.000~3.999</td> <td>35</td> </tr> <tr> <td>4.000~4.999</td> <td>45</td> </tr> <tr> <td>5.000~5.999</td> <td>50</td> </tr> <tr> <td>6.000~</td> <td>60</td> </tr> </table>	P (PC)	Bmax.	0.500~0.799	10	0.800~0.999	13	1.000~1.999	20	2.000~3.999	35	4.000~4.999	45	5.000~5.999	50	6.000~	60
		P (PC)	Bmax.																	
	0.500~0.799	10																		
	0.800~0.999	13																		
	1.000~1.999	20																		
	2.000~3.999	35																		
4.000~4.999	45																			
5.000~5.999	50																			
6.000~	60																			
BC	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments * Full length L must be at least 25mm longer than tip length BC.	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments * Full length L must be at least 30mm longer than tip length BC.	Quotation																	
PRC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1 mm increments * PRC ≤ (P-0.2)/2 * Cannot be combined with PCC.																			
PCC	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1 mm increments * PCC ≤ (P-0.2)/2 * Cannot be combined with PRC.																			
PKC	Tip tolerance change P+0.01 → +0.005 0 (P dimension can be selected in 0.001 mm increments.) * Cannot be used with HW coating.	Tip tolerance change P-W ± 0.01 → +0.01 0																		

P Price **Quotation**

Alteration	Code	A	D R E G	1Code
Alterations to full length	LC	Full length change 25+B (BC) ≤ LC < L 0.1 mm increments * If difference between full length and tip length is 25 mm or less, tip length is adjusted to (Full length-25 mm). (If combined with LKC-LKZ, 0.01 mm increments can be selected.)	Full length change 30+B (BC) ≤ 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).	Quotation
	LCT	TKC Head thickness tolerance change T+0.3 → +0.02 0	LC Full length tolerance change L+0.3 → +0.1 0	
	LMT	TKM Head thickness tolerance change T+0.3 → 0 -0.02	LC Full length tolerance change L+0.3 → +0.1 0	
	LKC	Full length tolerance change L+0.3 → +0.05 0		
Alterations to head	WKC	Addition of double key flats in parallel		Quotation
	HC	Head diameter change D ≤ HC < H 0.1 mm increments		
	TC	Head thickness change 2 ≤ TC < 5 0.1 mm increments (If combined with TKC-TKM-LCT-LMT, 0.01 mm 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		
	TKM	Head thickness tolerance change T+0.3 → 0 -0.02		
Alterations to shank	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1 mm increments 0.5 ≤ TCC ≤ (H-D)/2 * If H ≤ 5, then TCC is 0.5.		Quotation
	SKF	Single key flat on shank, configurable size SKF -0.01 P ≤ 2 (SKF-0.1) D R E G 0.1 mm increments W ≤ 2 (SKF-0.1) 0.1 mm increments 0.3D ≤ SKF ≤ D/2 - 0.1 * Cannot be combined with WKC.		
	NDC	No press-in lead ε ≥ 3 → ε = 0		