

# SHOULDER PUNCHES

—DICOAT® TREATMENT—



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	
—Dicoat® treatment— <b>RoHS</b>	D <sub>m5</sub> (D3~25)	Equivalent to SKD11 60~63HRC Surface 3000HV	T-SP	A		
			T-PH	D		
	D <sup>+0.005</sup> <sub>0</sub> (D3~13)	Equivalent to SKD11 60~63HRC Surface 3000HV	AT-SP	E		
			AT-PH	G		

  

Tip shape	Tip shape	Tip shape	Tip shape	Tip shape	Tip shape
A	D	R	E		G
$P \geq W$ $R=0$ can be selected. $K = \sqrt{P^2 + W^2}$	$P \geq W$ $0.15 \leq R < \frac{W}{2}$ $K = \sqrt{(P-2R)^2 + (W-2R)^2 + 2R}$	$P \geq W$ $0.15 \leq R < \frac{W}{2}$ $K = \sqrt{(P-2R)^2 + (W-2R)^2 + 2R}$	$P > W$		$P > W$

Type	Tip shape	Tip length	Catalog No.										B	H					
			L																
			0.01 mm increments																
(D <sub>m5</sub> ) T-SP T-PH	A, D, R, E, G	S, L	3	40	50	60	70	80	min. P	max. P	P·Kmax.	P·Wmin.	R	0.15 ≤ R < W/2 (R only)	5, 7, 8, 9, 11, 13, 16, 19, 23, 28				
			4	40	50	60	70	80	1.00	2.99	—	—	—						
			5	40	50	60	70	80	1.00	3.99	3.97	1.00	—						
			6	40	50	60	70	80	2.00	4.99	4.97	1.20	—						
			8	40	50	60	70	80	2.00	5.99	5.97	1.50	—						
			10	40	50	60	70	80	3.00	7.99	7.97	2.00	—						
			13	40	50	60	70	80	3.00	9.99	9.97	2.50	—						
			16	40	50	60	70	80	6.00	12.99	12.97	3.00	—						
			20	40	50	60	70	80	10.00	15.99	15.97	4.00	—						
			25	40	50	60	70	80	13.00	19.99	19.97	5.00	—						
			25	40	50	60	70	80	18.00	24.99	24.97	6.00	—						
			(D <sup>+0.005</sup> ) (D3~13) AT-SP AT-PH	A	X	3	50	60	70	80	2.00	2.99	—			—	—	0.15 ≤ R < W/2 (R only)	5, 7, 8, 9, 11, 13, 16, 19, 23, 28
						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	3.00	7.99	7.97	2.50	—							
10	50	60				70	80	3.00	9.99	9.97	2.50	—							
13	50	60				70	80	6.00	12.99	12.97	3.00	—							
16	50	60				70	80	10.00	15.99	15.97	4.00	—							
20	50	60				70	80	13.00	19.99	19.97	5.00	—							
25	50	60				70	80	18.00	24.99	24.97	6.00	—							
3	60	70				80	90	100	3.00	7.99	7.97	2.50	—						
4	60	70				80	90	100	3.00	9.99	9.97	2.50	—						
5	60	70				80	90	100	6.00	12.99	12.97	3.00	—						
6	60	70				80	90	100	10.00	15.99	15.97	4.00	—						
8	60	70				80	90	100	13.00	19.99	19.97	5.00	—						
10	60	70	80	90	100	18.00	24.99	24.97	6.00	—									

ⓐ: P > D - 0.03 → ℓ = 0 If P > D - 0.03 for a round punch, D<sub>0.03</sub><sup>-0.01</sup> (press-in lead) is not included.  
 ⓑ: P > K > D - 0.05 → ℓ = 0 If P > K > D - 0.05 for a shaped punch, D<sub>0.03</sub><sup>-0.01</sup> (press-in lead) is not included.  
 ⓐ: L(40) → B=8 If full length is (40), tip length is 8 mm in all cases.

Order **Catalog No.** — L — P — W — R (R only)  
 T-SPEL 16 — 70 — P12.00 — W6.00

Days to Ship **Quotation**

Alterations **Catalog No.** — (L)(LC-LCT-LMT) — (P)(PC) — (W)(WC) — R — (BC-HC-TC, etc.)  
 T-SPEL 16 — LC65 — P12.00 — W6.00 — KC90

Alteration	Code	A	D R E G	1Code
Alterations to tip	PC WC	Tip dimension change PC ≥ P <sub>min</sub> ≥ 1.00 0.01 mm increments	Tip dimension change PC ≥ P·Wmin ≥ 1.00 0.01 mm increments	
	BC	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments	
	PRC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1 mm increments		
	LC	Full length change 25 + B(BC) ≤ LC < L 0.1 mm increments	Full length change 30 + B(BC) ≤ LC < L 0.1 mm increments	
Alterations to full length	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (ⓐ) are the same as for LC.	TKC Head thickness tolerance change T +0.3 → +0.02 + Full length change + L +0.3 → +0.1	LC Full length tolerance change L +0.3 → +0.1
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (ⓐ) are the same as for LC.	TKM Head thickness tolerance change T +0.3 → 0 + Full length change + L +0.3 → +0.1	LC Full length tolerance change L +0.3 → +0.1
	LKC	Full length tolerance change L +0.3 → +0.05		
	KC WKC	Addition of single key flat to head Key flat position change 1° increments	Addition of double key flats in parallel Double key flats in parallel Can be combined with KC.	

Price **Quotation**

Alteration	Code	A	D R E G	1Code
Alterations to head	KFC	Double key flats at 0° and a selected angle 1° increments	Double key flats at 0° and a selected angle 1° increments	
	NKC		No key flat	
	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.)		
	TKC	Head thickness tolerance change T +0.3 → +0.02 0		
	TKM	Head thickness tolerance change T +0.3 → 0 -0.02		
	TCC	Chamfering of head This improves the strength of the punch head. P.1097		
	TCC	0.5 ≤ TCC ≤ (H-D)/2 If H ≤ 5, then TCC is 0.5. Cannot be combined with SRC.		
	RC	Head thickness is machined to a tolerance of -0.04~0 relative to the retainer surface. Cannot be used for D <sub>0</sub> <sup>+0.005</sup> types.		
	SRC	Modification of head for use with select retainers (SLS) For details, refer to P.629. Can be used for D10~25. Cannot be used for D <sub>0</sub> <sup>+0.005</sup> types.		
Alterations to shank	SKC	Single key flat on shank ⓐ: D3~6 P ≤ D-1.2 W ≤ D-1.2 (Machining width 0.5) ⓑ: D8~ P ≤ D-2.2 W ≤ D-2.2 (Machining width 1) Cannot be combined with KC-WKC-KFC.		
	UC	Modification for urethane stripper (USN) installation For details P.630. Can be used for D10~25.		
Alterations to head	NDC	No press-in lead ℓ ≥ 3 → ℓ = 0		

Quotation