



SHOULDER PUNCHES

— SHORT TYPE · TiCN COATING · HW COATING · DLC COATING —



Type	Shank diameter D Tolerance	M H	Type			Tip shape	Tip length B	The tip shape can be selected from Tip shape A~G in the figure below.
			TiCN coating Surface 3000HV	HW coating Surface 3000HV	DLC coating Surface 3000HV			
—TiCN coating— RoHS	Dm5	Equivalent to SKH51 61~64HRC	H-SSH	HW-SSH	N-SSH WPC® treatment	A	S	<p>※ If W < 3 for shapes R, E, R13 is selected. ⊕ The tip end is ground before the coating is applied. ⊕ The tip edges of a RW coating or DLC foundation WPC® are slightly rounded.</p>
—HW coating—			H-SSP	HW-SSP	N-SSP WPC® treatment			
—DLC coating—	D +0.005 0	Equivalent to SKH51 61~64HRC	AH-SSH	AHW-SSH	AN-SSH WPC® treatment	E		
			AH-SSP	AHW-SSP	AN-SSP WPC® treatment	R		
	D +0.005 0	Powdered high-speed steel 64~67HRC				G		
						L		

Type	Tip shape	Tip length	D	L			0.01mm increments				B	H
				min.	P max.	P-Kmax.	P-Wmin.	R				
(Dm5) (D +0.005 0)	S	3	25	30	35	40	1.00~2.99	2.95	1.00		5	
		4					2.00~3.99	3.95	1.20		7	
		5					2.00~4.99	4.95	1.20		8	
		6					2.50~5.99	5.95	1.50		9	
		8					5.00~7.99	7.95	2.00		11	
		10					7.00~9.99	9.95	2.50		13	
		L	3					1.00~2.99	2.95	1.00		5
			4					2.00~3.99	3.95	1.20		7
			5		30	35	40	2.00~4.99	4.95	1.20		8
			6					2.50~5.99	5.95	1.50		9
		8				5.00~7.99	7.95	2.00		11		
		10				7.00~9.99	9.95	2.50		13		

⊕ A: P > D - 0.03 → ℓ = 0 If P > D - 0.03 for a round punch, D - 0.01 (press-in lead) is not included.

Order	Catalog No.	L	P	W	R (only)
	H-SSHDS 4	30	P2.00	W1.20	
	NW-SSHAL 5	40	P3.65		

Effects of DLC coating
 Effective for preventing adhesion during aluminum or copper blanking thanks to its low affinity for nonferrous metal. See the product data for details. P. 1609

Days to Ship **Quotation**

Alterations Catalog No. — L(LC-LCT-LMT) — P(PC) — W — R — (BC-HC-TC...etc.)
 H-SSHAS 4 — LC28 — P3.02 — BC10

Alteration	Code	(A)	D R E G	1Code
Alterations to tip	PC	Tip dimension change PC ≥ Pmin. ≥ 1.00 ⊕ TiCN coating cannot be used for D3. 0.01mm increments (If combined with PCC, 0.001mm increments can be selected.)		
	BC	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments ⊕ Full length L must be at least 15mm longer than tip length BC.	P-W Bmax. 1.00~1.19 15 1.20~ 20	Tip length change 2 ≤ BC ≤ Bmax. 0.1 mm increments ⊕ Full length L must be at least 15mm 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. ⊕ Cannot be used with TiCN coating · DLC foundation WPC®. ⊕ R=0 cannot be selected for the tip shape D corners.		
	PRC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1 mm increments ⊕ PRC ≤ (P-0.2)/2 ⊕ Cannot be combined with PCC-GC. ⊕ For HW coating and DLC foundation WPC®, the tolerance is PRC±0.1.		
	PCC	Chamfering to tip side edge 0.3 ≤ PCC ≤ 1 0.1 mm increments ⊕ PCC ≤ (P-0.2)/2 ⊕ Cannot be combined with PRC-GC. ⊕ HW coating · DLC foundation WPC® cannot be used.		
	GC	20° ≤ GC < 90° 1° increments Tip length B ≥ f + 2 f = P/2 × tan(90° - GC°) ⊕ Cannot be used for P < 1.0. ⊕ Cannot be combined with LK-LKZ-LCT-LMT-PRC-PCC. ⊕ HW coating · DLC foundation WPC® cannot be used.		
	PKC	Tip tolerance change P ± 0.01 → +0.005 0 ⊕ (P dimension can be selected in 0.001 mm increments.) ⊕ When D > 13, cannot be used with TiCN coating and HW coating.	Tip tolerance change P · W ± 0.01 → +0.01 0	
	LC	15 + B(BC) ≤ LC < L 0.1 mm increments ⊕ If difference between full length and tip length is 15mm or less, tip length is adjusted to (Full length - 15mm). (If combined with LK-LKZ, 0.01 mm increments can be selected for LC.)		
	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.	Full length tolerance change TKC LC Tolerance change T +0.3 → +0.02 + Full length change + L +0.3 → +0.1 0 0	
	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.	Full length tolerance change TKM LC Tolerance change T +0.3 → 0 + Full length change + L +0.3 → +0.1 -0.02 0	

Alteration	Code	(A)	D R E G	1Code
Alterations to full length	LKC	Full length tolerance change L +0.3 → +0.05 0		
	KC	Addition of single key flat to head ⊕ Key flat 90° 180° position change 1° increments		
Alterations to shank	WKC	Addition of double key flats in parallel ⊕ Double key flats in parallel Can be combined with KC.		
	KFC	Double key flats at 0° and a selected angle ⊕ Double key flats at 0° and a selected angle 1° increments ⊕ Cannot be combined with KC-WKC.		
	NKC	No key flat		
	HC	Head diameter change D ≤ HC < H 0.1 mm increments		
	TC	Head thickness change 2 ≤ TC < 3 0.1 mm increments (If combined with TKC · TKM · LCT-LMT, 0.01 mm increments can be selected.) ⊕ Full length L is shortened by (3-TC). If combined with LC-LCT-LMT, full length remains as specified.		
	TKC	Head thickness tolerance change T +0.3 → +0.02 0		
Alterations to head	TKM	Head thickness tolerance change T +0.3 → 0 -0.02		
	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.5 ≤ TCC ≤ (H-D)/2 ⊕ If H ≤ 5, then TCC is 0.5.		
	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.		
NDC	No press-in lead ℓ ≥ 3 → ℓ = 0			

Price **Quotation**