

# CARBIDE SHOULDER QUILL PUNCHES

— NORMAL · LAPPING · TiCN COATING —



Type	Shank diameter D Tolerance	M H	Catalog No.		Tip shape	B Tip length	Shape
			Type	Head thickness T=3mm			
— Lapping — (D ≥ 1.6)	D <sub>ms</sub>	V30 (HIP) 88 ~ 89HRA	WP Lapping L-WP	WPLT Lapping L-WPLT	S	L	<p>The tip end of a TiCN coating punch is ground before the coating is applied.</p>
			H-WP TiCN coating H-WXP	H-WPLT TiCN coating H-WPLT			
— TiCN coating —	D <sub>ms</sub>	Super fine grain (HIP) 90 ~ 92HRA	WXP Lapping L-WXP	—	S	L	
			H-WXP TiCN coating H-WXP	—			
— TiCN coating —	D <sub>ms</sub>	V30 (HIP) 88 ~ 89HRA	A-WP Lapping AL-WP	A-WPLT Lapping AL-WPLT	S	L	
			H-WP TiCN coating AH-WP	H-WPLT TiCN coating AH-WPLT			
— TiCN coating —	D <sub>ms</sub>	Super fine grain (HIP) 90 ~ 92HRA	A-WXP Lapping AL-WXP	—	S	L	
			H-WXP TiCN coating AH-WXP	—			

For shank diameter tolerance D<sub>T</sub>, select either m5 or  $\pm 0.005$ .

B	H	Catalog No.		D	L					0.001mm increments (0.01mm increments)			
		Type	Head thickness T=3mm		Head thickness T=5mm						(A)		
											min. P max. (TiCN coating)		
3	2.0	S (D <sub>ms</sub> ) WPAS A-WPAS (D ≥ 1.6)	S (D <sub>ms</sub> ) WPLTAS A-WPLTAS (D ≥ 1.6)	1.0	20	25	30	35	40	0.150 ~ 0.990			
					1.1	20	25	30	35	40	0.150 ~ 1.090 (1.00 ~ 1.09)		
4	2.6	L-WPAS AL-WPAS (D ≥ 1.6)	L-WPLTAS AL-WPLTAS (D ≥ 1.6)	1.4	20	25	30	35	40	0.150 ~ 1.290 (1.00 ~ 1.29)			
					1.5	20	25	30	35	40	0.150 ~ 1.390 (1.00 ~ 1.39)		
6	3.0	H-WPAS AH-WPAS (D ≥ 1.1)	H-WPLTAS AH-WPLTAS (D ≥ 1.6)	2.0	20	25	30	35	40	50	60	0.300 ~ 1.590 (1.00 ~ 1.59)	
					2.5	20	25	30	35	40	50	60	0.500 ~ 1.990 (1.00 ~ 1.99)
5	2.0	L (D <sub>ms</sub> ) WPAL A-WPAL (D ≥ 1.6)	L (D <sub>ms</sub> ) WPLTAL A-WPLTAL (D ≥ 1.6)	1.0	20	25	30	35	40	0.250 ~ 0.990			
					1.1	20	25	30	35	40	0.250 ~ 1.090 (1.00 ~ 1.09)		
6	2.6	L-WPAL AL-WPAL (D ≥ 1.6)	L-WPLTAL AL-WPLTAL (D ≥ 1.6)	1.4	20	25	30	35	40	0.250 ~ 1.390 (1.00 ~ 1.39)			
					1.5	20	25	30	35	40	0.250 ~ 1.490 (1.00 ~ 1.49)		
8	3.0	H-WPAL AH-WPAL (D ≥ 1.1)	H-WPLTAL AH-WPLTAL (D ≥ 1.6)	2.0	30	35	40	50	60	0.500 ~ 1.590 (1.00 ~ 1.59)			
					2.5	30	35	40	50	60	0.500 ~ 1.990 (1.00 ~ 1.99)		
13	3.5	H-WXPAL AH-WXPAL (D ≥ 1.6)	H-WPLTAL AH-WPLTAL (D ≥ 1.6)	2.5	30	35	40	50	60	0.800 ~ 2.490 (1.00 ~ 2.49)			

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

ⓑ: If P dimension is 0.150 ~ 0.249 for a tip S type, B dimension (4) is 3mm.

ⓒ: If P dimension is 0.250 ~ 0.399 for a tip L type, B dimension (6) is 5mm.

ⓓ: For TiCN coating, P min. is 1.00mm.

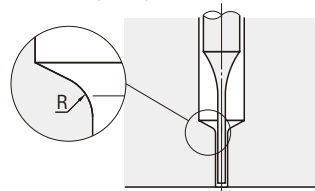
ⓔ: P dimension increments → For TiCN coating, increments are 0.01mm. (If used with PKC alteration, 0.001mm increments can be selected.)

ⓕ: For the available shank diameters (D dimension) of each type, refer to the table below.

S	M	Type	Head thickness Tmm	Available range of D
Normal	V30	WPA □ A-WPA □	3	D1.0 ~ 2.5
		WPLTA □ A-WPLTA □	5	D1.6 ~ 2.5
	Super fine grain	WXP □ A-WXP □	3	
Lapping	V30	L-WPA □ AL-WPA □	3	D1.6 ~ 2.5
		L-WPLTA □ AL-WPLTA □	5	
	Super fine grain	L-WXP □ AL-WXP □	3	
TiCN coating	V30	H-WPA □ AH-WPA □	3	D1.1 ~ 2.5
		H-WPLTA □ AH-WPLTA □	5	D1.6 ~ 2.5
	Super fine grain	H-WXP □ AH-WXP □	3	

ⓖ: If P is 0.3 or less, pay particular attention to possible tip breakage.

- Pay particular attention to the tip when measuring it with a micrometer.
- Be sure to place the punch on a soft surface.
- Always use the punch with its tip inserted into the punch guide.
- Be sure that the punch guide corners are rounded.



Order **Catalog No.** — L — P  
L-WPAS 2.5 — 50 — P1.600

Days to Ship **Quotation**

Alterations **Catalog No.** — L(LC-LCT-LMT) — P — (BC-HC-TC, etc.)  
L-WPAS 2.5 — LC45 — P1.600 — BC6.0-PKC

Alteration	Code	Spec.	1Code
Alterations to tip	BC	Tip length change 2 ≤ BC < B 0.1mm increments	
	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.	
Alterations to full length	GC	20° ≤ GC < 90° 1° increments Tip length B ≥ f + 2 f = P/2 × tan(90° - GC°) ⓖ With lapping, tip edges are rounded. ⓓ Cannot be used for P ≤ 1.000. ⓔ Cannot be combined with LKC-LKZ-LCT-LMT-PRC-PCC.	
	PKC	Tip tolerance change • Normal P +0.005 ⇨ +0.003 • Lapping P +0.01 ⇨ +0.005 • Coating P +0.01 ⇨ +0.005 (P dimension can be selected in 0.001mm increments.)	
	PKV	Tip tolerance change • Normal P +0.005 ⇨ ±0.002 • Lapping P +0.01 ⇨ ±0.005 • Coating P +0.01 ⇨ ±0.005 ⓖ P dimension increment remains the same.	
Alterations to full length	LC	Full length change 20 ≤ LC < L 0.1mm increments (If combined with LKC-LKZ, 0.01mm increments can be selected.)	
	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 LC Full length tolerance change T +0.3/0 ⇨ +0.02/0 + full length change + L +0.3/0 ⇨ +0.1/0	
	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. TKM LC Full length tolerance change T +0.3/0 ⇨ -0.02/0 + full length change + L +0.3/0 ⇨ +0.1/0	

Alteration	Code	Spec.	1Code
Alterations to full length	LKC	Full length tolerance change L +0.3/0 ⇨ +0.05/0	
	LKZ	Full length tolerance change L +0.3/0 ⇨ +0.01/0 ⓓ Cannot be used with TiCN coating.	
Alterations to head	KC	Addition of single key flat to head	
	WKC	Addition of double key flats in parallel	
	KFC	Double key flats at 0° and a selected angle 1° increments ⓓ Cannot be combined with KC-WKC.	
	HC	Head diameter change D ≤ HC < H 0.1mm increments	
	TC	Head thickness change 2 ≤ TC < T 0.1mm increments (If combined with TKC-TKM-LCT-LMT, 0.01mm increments can be selected.) ⓖ Full length L is shortened by (T - TC). If combined with LC-LCT-LMT, full length remains as specified.	
Alterations to head	TKC	Head thickness tolerance change T +0.3/0 ⇨ +0.02/0	
	TKM	Head thickness tolerance change T +0.3/0 ⇨ -0.02/0	
Alterations to head	TCC	Chamfering of head This improves the strength of the punch head. ⓖ P1097 0.5 ≤ TCC ≤ (H - D) / 2 ⓖ If H ≤ 5, then TCC is 0.5. ⓔ Cannot be used for H < 2.6.	
	NDC	No press-in lead ℓ = 3 ⇨ ℓ = 0	

Price **Quotation**