

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 _{ms}		V30 (HIP) 88 ~ 89HRA	WP Lapping L-WP TiCN coating H-WP	WPLT Lapping L-WPLT TiCN coating H-WPLT	S	
			Super fine grain (HIP) 90 ~ 92HRA	WXP Lapping L-WXP TiCN coating H-WXP	—		
—TiCN coating—	D ^{+0.005} ₀		V30 (HIP) 88 ~ 89HRA	A-WP Lapping AL-WP TiCN coating AH-WP	A-WPLT Lapping AL-WPLT TiCN coating AH-WPLT	L	
			Super fine grain (HIP) 90 ~ 92HRA	A-WXP Lapping AL-WXP TiCN coating AH-WXP	—		

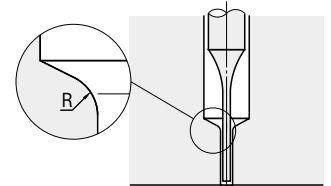
B	H	Catalog No.		D	L					0.001mm increments (0.01mm increments)		
		Type	Head thickness T=3mm		Head thickness T=5mm						(A)	
3	2.0	S	WPAS	A-WPAS	1.0	20	25	30	35	40	0.150 ~ 0.990	
						1.1	20	25	30	35	40	0.150 ~ 1.090 (1.00 ~ 1.09)
4	2.6	L	L-WPAS	AL-WPAS	1.2	20	25	30	35	40	0.150 ~ 1.190 (1.00 ~ 1.19)	
						1.3	20	25	30	35	40	0.150 ~ 1.290 (1.00 ~ 1.29)
6	3.0	H	H-WPAS	AH-WPAS	2.0	20	25	30	35	40	0.300 ~ 1.590 (1.00 ~ 1.59)	
						2.5	20	25	30	35	40	0.500 ~ 1.990 (1.00 ~ 1.99)
5	2.0	L	WXPAL	A-WXPAL	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	L-WXPAL	AL-WXPAL	1.2	20	25	30	35	40	0.250 ~ 1.190 (1.00 ~ 1.19)	
						1.3	20	25	30	35	40	0.250 ~ 1.290 (1.00 ~ 1.29)
8	3.0	H	H-WXPAL	AH-WXPAL	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)

Ⓜ: P > D - 0.03 → ℓ = 0 If P > D - 0.03 for a round punch, D_{0.03}^{+0.01} (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
	Super fine grain	WPLTA □ A-WPLTA □	5	D1.6 ~ 2.5
Lapping	V30	WXP □ A-WXP □	3	D1.6 ~ 2.5
	Super fine grain	WXPAL □ A-WXPAL □	3	D1.6 ~ 2.5
TiCN coating	V30	H-WPA □ AH-WPA □	3	D1.1 ~ 2.5
	Super fine grain	H-WPLTA □ AH-WPLTA □	5	D1.6 ~ 2.5

Ⓜ: 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 — P.1600

Days to Ship **Quotation**

Alterations **Catalog No.** — L(LC-LCT-LMT) — P — (BC-HC-TC, etc.)
L-WPAS 2.5 — LC45 — P.1600 — BC6.0-PKC

Alteration	Code	Spec.	1Code
Alterations to full length	BC	Tip length change 2 ≤ BC < B 0.1mm increments	
	SC	Tip roughness change The base material is finished before the coating is applied. Ⓜ: Can be used for coating types only.	
Alterations to tip	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 head	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.	Quotation
	PKC	Tip tolerance change • Normal P ^{+0.005} ₀ ⇔ +0.003 • Lapping P ^{+0.01} ₀ ⇔ +0.005 • Coating P ^{+0.01} ₀ ⇔ +0.005 (P dimension can be selected in 0.001mm increments.)	
Alterations to full length	PKV	Tip tolerance change • Normal P ^{+0.005} ₀ ⇔ ±0.002 • Lapping P ^{+0.01} ₀ ⇔ ±0.005 • Coating P ^{+0.01} ₀ ⇔ ±0.005 Ⓜ: P dimension increment remains the same.	
	LC	Full length change 20 ≤ LC < L 0.1mm increments (If combined with LKC-LKZ, 0.01mm increments can be selected.) 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.	
Alterations to full length	LCT	TKC Full length tolerance change T ^{+0.3} ₀ ⇔ +0.02 + Full length change + L ^{+0.3} ₀ ⇔ +0.1	
	LMT	TKM Full length tolerance change T ^{+0.3} ₀ ⇔ -0.02 + Full length change + L ^{+0.3} ₀ ⇔ +0.1	

Alteration	Code	Spec.	1Code
Alterations to full length	LKC	Full length tolerance change L ^{+0.3} ₀ ⇔ +0.05	
	LKZ	Full length tolerance change L ^{+0.3} ₀ ⇔ +0.01 Ⓜ: 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	
Alterations to head	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	Quotation
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	
	TKM	Head thickness tolerance change T ^{+0.3} ₀ ⇔ -0.02	
Alterations to head	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. Ⓜ: Cannot be used for H < 2.6.	
	NDC	No press-in lead ℓ = 3 ⇔ ℓ = 0	

Price **Quotation**