

SHOULDER PUNCHES

—QUILL PUNCHES, NORMAL • TiCN COATING • LAPPING • HW COATING—

PRODUCTS DATA

P.1091 • 1094 • 1095

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	Type Head thickness 5mm	Tip shape	B Tip length	
RoHS — LAPPING — 							

Tip shape	Tip shape	Tip shape	Tip shape	Tip shape
A	D	R	E	G
* P ≥ W * R=0 can be selected. (However lapping and HW coating cannot be used.) * K = √(P² + W²)	* P ≥ W * R=0 can be selected. (However lapping and HW coating cannot be used.) * K = √(P² + W²)	* P ≥ W * 0.05 ≤ R < W/2 * K = √(P² + W²)	* P ≥ W * 0.05 ≤ R < W/2 * K = √(P² + W²)	* P ≥ W * 0.05 ≤ R < W/2 * K = √(P² + W²)

Catalog No.		L		0.01mm increments (0.001mm increments for lapping)		0.01mm		H	T
Type	Tip shape	Tip length	D	min. P max.	B	P-Kmax. P-Wmin.	B		
(D _{m5}) (D _h +0.005)	A D R E G	S	1.6	(20) (25) 30 35 40 50 60	0.30 (1.00) ~1.59	6	—	2.6	
SH A-SH			2.0	(20) (25) 30 35 40 50 60	0.50 (1.00) ~1.99	8	1.97 0.30 (1.00)	3.0	3
PH A-PH			2.5	(20) (25) 30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—Lapping—		L	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
L-SH AL-SH			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
L-PH AL-PH			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—TiCN coating—	A D R E G	S	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
H-SH AH-SH			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
H-PH AH-PH			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—HW coating—		L	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
HW-SH AHW-SH			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
HW-PH AHW-PH			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
(D _{m5}) (D _h +0.005)	A D R E G	S	1.6	(20) (25) 30 35 40 50 60	0.30 (1.00) ~1.59	6	—	2.6	
SHLT A-SHLT			2.0	(20) (25) 30 35 40 50 60	0.50 (1.00) ~1.99	8	1.97 0.30 (1.00)	3.0	5
PHLT A-PHLT			2.5	(20) (25) 30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—Lapping—		L	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
L-SHLT AL-SHLT			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
L-PHLT AL-PHLT			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—TiCN coating—	A D R E G	S	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
H-SHLT AH-SHLT			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
H-PHLT AH-PHLT			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5
—HW coating—		L	1.6	30 35 40 50 60	0.50 (1.00) ~1.59	8	—	2.6	
HW-SHLT AHW-SHLT			2.0	30 35 40 50 60	0.80 (1.00) ~1.99	10	1.97 0.30 (1.00)	3.0	3
HW-PHLT AHW-PHLT			2.5	30 35 40 50 60	0.80 (1.00) ~2.49	13	2.47 0.50 (1.00)	3.5	5

* L (20)/(25) → B=4 If full length is (20) or (25), tip length is 4mm in all cases.
 * 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.
 * R E G: P > K > D-0.05 → ℓ=0 If P > K > D-0.05 for a shaped punch, D-0.01 (press-in lead) is not included.
 * P-W (1.00) → For TiCN coating/HW coating, P-Wmin. is 1.00.



Order

Catalog No. — L — P — W — R (R only)
 SHAS 1.6 — 30 — P1.31
 L-PHDL 2.0 — 40 — P1.240 — W0.830



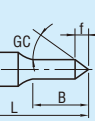
Days to Ship

Quotation



Alterations

Catalog No. — L (LC-LCT-LMT) — P — W — R — (BC-HC-TC, etc.)
 PHDL 2.0 — LC42 — P1.24 — W0.83 — HC2.8

Alteration	Code	A	D R E G	1Code									
Alterations to tip		BC	Tip length change $2 \leq BC < B$ 0.1 mm increments										
		PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1mm increments ⊕ $PRC \leq (P-0.2)/2$ ⊗ Cannot be combined with PCC-GC.	—									
		PCC	Chamfering to tip side edge. $0.3 \leq PCC \leq 1$ 0.1mm increments ⊕ $PCC \leq (P-0.2)/2$ ⊗ Cannot be combined with PRC-GC.	—									
		GC	$20^\circ \leq GC < 90^\circ$ 1° increments Tip length $B \geq 1+2$ $f = P/2 \times \tan(90^\circ - GC^\circ)$ ⊕ When combined with SC, tip edges are rounded. ⊗ Cannot be used for $P < 1.0$. ⊗ Cannot be combined with LKC-LKZ-LMT-PRC-PCC. ⊗ Cannot be used with HW coating.	—									
		PKC	Tip tolerance change $P \pm 0.01 \rightarrow \pm 0.005$ ⊕ P dimension can be selected in 0.001 mm increments. ⊗ Cannot be used with Lapping. ⊗ Cannot be used with HW coating.	Tip tolerance change $P-W \pm 0.01 \rightarrow \pm 0.01$									
Alterations to full length		LC	Full length change Can be changed within the following range. 0.1 mm increments <table><tr><th>D</th><th>S</th><th>L</th></tr><tr><td>1.6~2.5</td><td>$20 < LC < 60$</td><td>$30 < LC < 60$</td></tr><tr><td>3</td><td>$36 < LC < 80$</td><td>$50 < LC < 80$</td></tr></table> ⊕ If LC is 25 or less, tip length B is 4mm in all cases. (If combined with LKC-LKZ, 0.01mm increments can be selected.)	D	S	L	1.6~2.5	$20 < LC < 60$	$30 < LC < 60$	3	$36 < LC < 80$	$50 < LC < 80$	
	D	S	L										
	1.6~2.5	$20 < LC < 60$	$30 < LC < 60$										
3	$36 < LC < 80$	$50 < LC < 80$											
	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. <table><tr><th>TKC</th><th>LC</th><th>Full length tolerance change</th></tr><tr><td>Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$</td><td>Full length change + Full length change +</td><td>$L \pm 0.3 \rightarrow \pm 0.1$</td></tr></table>	TKC	LC	Full length tolerance change	Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$	Full length change + Full length change +	$L \pm 0.3 \rightarrow \pm 0.1$					
TKC	LC	Full length tolerance change											
Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$	Full length change + Full length change +	$L \pm 0.3 \rightarrow \pm 0.1$											
	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. <table><tr><th>TKM</th><th>LC</th><th>Full length tolerance change</th></tr><tr><td>Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$</td><td>Full length change + Full length change +</td><td>$L \pm 0.3 \rightarrow \pm 0.1$</td></tr></table>	TKM	LC	Full length tolerance change	Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$	Full length change + Full length change +	$L \pm 0.3 \rightarrow \pm 0.1$					
TKM	LC	Full length tolerance change											
Head thickness tolerance change $T \pm 0.3 \rightarrow \pm 0.02$	Full length change + Full length change +	$L \pm 0.3 \rightarrow \pm 0.1$											

Quotation



Price

Quotation

Alteration	Code	A	D R E G	1Code
Alterations to full length	LKC	Full length tolerance change L ± 0.3 → ± 0.05		
	LKZ	Full length tolerance change L ± 0.3 → ± 0.01 * Cannot be used with TiCN-HW coating.		
Alterations to head	KC	Addition of single key flat to head Key flat position change 1° increments		
	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 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 < T 0.1 mm increments (If combined with TKC/TKM/LCT/LMT, 0.01 mm 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 shank	TKC	Head thickness tolerance change T ± 0.3 → ± 0.02		
	TKM	Head thickness tolerance change T ± 0.3 → ± 0.02		
	TCC	Chamfering of head (C0.5) This improves the strength of the punch head. P.1097 [Ordering method] TCC 0.5 * Cannot be used for H < 2.6.		
	SKC	Single key flat on shank * D3 W ≤ D-1.2 (Machining width 0.5) * Only D3 can be used. * Cannot be combined with KC-WKC-KFC. * HW coating cannot be used.		
	NDC	No press-in lead ℓ ≥ 3 → ℓ = 0		