
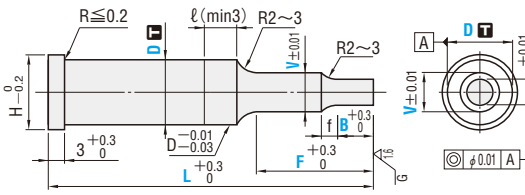


DOUBLE-STEPPED SHOULDER PUNCHES

—QUILL TYPE—


Type	Shank diameter D tolerance	Material	Catalog No.		Shape
			Type	Tip shape	
	D _{m5}	SKH51 61~64HRC	SHTW		
		Powdered high-speed steel 64~67HRC	PHTW		
	D ^{+0.005} ₀	SKH51 61~64HRC	A-SHTW		
		Powdered high-speed steel 64~67HRC	A-PHTW		



Catalog No.			L	0.01mm increments		0.1mm increments		V	0.01mm increments		0.1mm increments		H								
Type	Shape Tip shape	D		P	A	B	F		V	Fmax.											
(D _{m5}) SHTW PHTW	A	1.6	20 25 30 35 40 50 60	0.30~0.49	1.0~3.0	D>V>P+0.01	B+f+1<F≤Fmax. F<L-12	<table border="1"> <tr><th>V</th><th>Fmax.</th></tr> <tr><td>0.31~0.49</td><td>6</td></tr> <tr><td>0.50~0.79</td><td>8</td></tr> <tr><td>0.80~0.99</td><td>10</td></tr> <tr><td>1.00~1.99</td><td>20</td></tr> <tr><td>2.00~</td><td>35</td></tr> </table>	V	Fmax.	0.31~0.49	6	0.50~0.79	8	0.80~0.99	10	1.00~1.99	20	2.00~	35	For dimension f, refer to the punch R length in [Products data] on P.1224 and verify that (V-P)/2=X.
				V	Fmax.																
				0.31~0.49	6																
0.50~0.79	8																				
0.80~0.99	10																				
1.00~1.99	20																				
2.00~	35																				
0.50~0.79	1.0~5.0																				
0.80~0.99	1.0~8.0																				
1.00~1.56	1.0~10.0																				
0.50~0.79	1.0~5.0																				
0.80~0.99	1.0~8.0																				
1.00~1.96	1.0~10.0																				
0.80~0.99	1.0~8.0																				
1.00~2.46	1.0~10.0																				
(D ^{+0.005}) A-SHTW A-PHTW	A	2.0	0.50~0.79	1.0~5.0	0.80~0.99	1.0~8.0	1.00~1.96	1.0~10.0	0.80~0.99	1.0~8.0	1.00~2.46	1.0~10.0									
2.5		0.50~0.79	1.0~5.0	0.80~0.99	1.0~8.0	1.00~1.96	1.0~10.0	0.80~0.99	1.0~8.0	1.00~2.46	1.0~10.0										



⚠ If V>D-0.03...ℓ=0 If V>D-0.03, D^{-0.01}_{-0.03} (press-in lead) is not included.

 Order **Catalog No.** — **L** — **P** — **B** — **V** — **F**
A-SHTWA2.0 — 40 — P0.85 — B2 — V1.50 — F10

 Days to Ship **Quotation**

 Alterations **Catalog No.** — **L(LC·LCT·LMT)** — **P** — **B** — **V** — **F** — (HC·TC·KC, etc.)
A-SHTWA2.0 — LC45 — P0.76 — B3 — V1.2 — F10 — HC2.8

Alteration	Code	(A)	1Code									
 Alterations to tip	SC	Lapping of tip ⚠ P dimension tolerance and increment are the same.										
	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.										
	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.										
	GC	20°≤GC<90° 1° increments Tip length B≥g+2 g=P/2×tan(90°-GC°) ⚠ Cannot be used for P<1.0. ⚠ When combined with SC, tip edges are rounded. ⚠ Cannot be combined with LKC-LKZ-LCT-LMT-PRC-PCC.										
	PKC	Tip tolerance change p+0.01 ₀ ⇔ +0.005 ₀ (P dimension can be selected in 0.001 mm increments.)										
 Alterations to full length	LC	Full length change Can be changed within the following range. 0.1 mm increments <table border="1"> <tr><th>D</th><th>LC</th></tr> <tr><td>1.6~2.5</td><td>20<LC<60</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	LC	1.6~2.5	20<LC<60	Quotation					
	D	LC										
	1.6~2.5	20<LC<60										
	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 border="1"> <tr><th>TKC</th><th>LC</th><th>Full length</th></tr> <tr><td>Head thickness tolerance change</td><td>tolerance change</td><td>tolerance change</td></tr> <tr><td>T+0.3₀ ⇔ +0.02₀</td><td>+ Full length change + L+0.3₀ ⇔ +0.1₀</td><td></td></tr> </table>	TKC	LC	Full length	Head thickness tolerance change		tolerance change	tolerance change	T+0.3 ₀ ⇔ +0.02 ₀	+ Full length change + L+0.3 ₀ ⇔ +0.1 ₀	
	TKC	LC	Full length									
Head thickness tolerance change	tolerance change	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. <table border="1"> <tr><th>TKM</th><th>LC</th><th>Full length</th></tr> <tr><td>Head thickness tolerance change</td><td>tolerance change</td><td>tolerance change</td></tr> <tr><td>T+0.3₀ ⇔ -0.02₀</td><td>+ Full length change + L+0.3₀ ⇔ +0.1₀</td><td></td></tr> </table>	TKM	LC	Full length	Head thickness tolerance change	tolerance change	tolerance change	T+0.3 ₀ ⇔ -0.02 ₀	+ Full length change + L+0.3 ₀ ⇔ +0.1 ₀			
TKM	LC	Full length										
Head thickness tolerance change	tolerance change	tolerance change										
T+0.3 ₀ ⇔ -0.02 ₀	+ Full length change + L+0.3 ₀ ⇔ +0.1 ₀											
LKC	Full length tolerance change L+0.3 ₀ ⇔ +0.05 ₀											
LKZ	Full length tolerance change L+0.3 ₀ ⇔ 0.01 ₀											

Alteration	Code	(A)	1Code
 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 0.1 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-LMT, full length remains as specified.	Quotation
TKC	Head thickness tolerance change T+0.3 ₀ ⇔ +0.02 ₀		
TKM	Head thickness tolerance change T+0.3 ₀ ⇔ -0.02 ₀		
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.		
 Shank	NDC	No press-in lead ℓ≥3 ⇔ ℓ=0	

P Price **Quotation**