

STRAIGHT PUNCHES


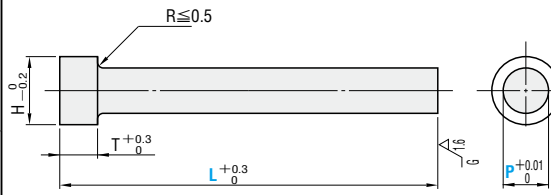
—TiCN COATING—




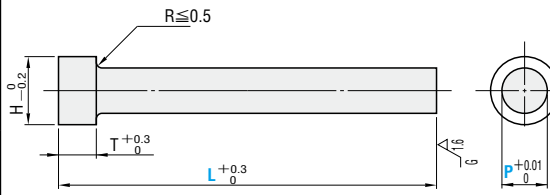
STRAIGHT PUNCHES

—DLC COATING—



Type	RoHS	Catalog No.	Shape
	Equivalent to SKH51 61~64HRC Surface 3000HV	H-SHC	
	Powdered high-speed steel 64~67HRC Surface 3000HV	H-PHC	

- Coating is applied to the tip end and the tip diameter (P). (Coating is not applied to the head.)
- The tip end is ground before the coating is applied.

Type	RoHS	Catalog No.	Shape
	Equivalent to SKH51 61~64HRC Surface 3000HV	N-SHC	
	Powdered high-speed steel 64~67HRC Surface 3000HV	N-PHC	

- Coating is applied to the tip end and the tip diameter (P). (Coating is not applied to the head.)
- The tip end is ground before the coating is applied.








Catalog No. Type	No.	L						0.01mm increments min. P max.		H	T	Base unit price 1~9 pieces	
		40	50	60	70	80	90	100	H-SHC			H-PHC	
H-SHC	4	40	50	60	70	80			7	5			
	5	40	50	60	70	80			8				
	6	40	50	60	70	80			9				
	8	40	50	60	70	80	90	100	11				
	10	40	50	60	70	80	90	100	13				
	13	40	50	60	70	80	90	100	16				
H-PHC	16	40	50	60	70	80	90	100	110	120	10.00~13.00		
	20	40	50	60	70	80	90	100	110	120	13.00~16.00		
	25	40	50	60	70	80	90	100	110	120	16.00~20.00		
		25	40	50	60	70	80	90	100	110	120	20.00~25.00	
													Quotation









Order **Catalog No.** — **L** — **P**
H-SHC 6 — 40 — P5.50

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC-LCT-LMT)** — **P** — (TC-KC, etc.)
H-SHC 6 — LC45 — P5.50 — LKC

Price **Quotation**

Alteration	Code	Spec.	1Code
Alterations to tip	 SC	Lapping of tip P dimension tolerance and increment are the same. The base material is finished before coating is applied. Refer to the 224 page for a Effective lapping range.	Quotation
	 PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments PCC $\leq (P-0.2)/2$ Cannot be combined with PCC-GC.	
	 PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1 mm increments PCC $\leq (P-0.2)/2$ Cannot be combined with PRC-GC.	
	 GC	$20^\circ \leq GC < 90^\circ$ 1° increments Cannot be combined with LKC-LCT-LMT-PRC-PCC.	
Alterations to full length	 LC	Full length change $20 \leq LC < L$ 0.1 mm increments (If combined with LKC, 0.01 mm increments can be selected.)	Quotation
	 LCT	TKC Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow +0.02$ + Full length change + $L+0.3 \Rightarrow +0.1$	
		TKM Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow 0$ + Full length change + $L+0.3 \Rightarrow +0.1$	
	 LMT	TKM Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow -0.02$ + Full length change + $L+0.3 \Rightarrow 0$	

Alteration	Code	Spec.	1Code
Full length	 LKC	Full length tolerance change $L+0.3 \Rightarrow +0.05$ / 0 Cannot be combined with GC.	Quotation
	 KC	Addition of single key flat to head	
Alterations to head	 WKC	Addition of double key flats in parallel	Quotation
	 KFC	Double key flats at 0° and a selected angle 1° increments Cannot be combined with KC-WKC.	
	 TC	Head thickness change $4.0 \leq TC < T$ 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 is equal to LC.	
	 TKC	Head thickness tolerance change $T+0.3 \Rightarrow +0.02$	
		 TKM	
	 TCC	Chamfering of head This improves the strength of the punch head. P.1611 $0.5 \leq TCC \leq (H-P)/2$ If $H \leq 5$, then TCC is 0.5.	








Catalog No. Type	No.	L						0.01mm increments min. P max.		H	T	Base unit price 1~9 pieces	
		40	50	60	70	80	90	100	N-SHC			N-PHC	
N-SHC	4	40	50	60	70	80			7	5			
	5	40	50	60	70	80			8				
	6	40	50	60	70	80			9				
	8	40	50	60	70	80	90	100	11				
	10	40	50	60	70	80	90	100	13				
	13	40	50	60	70	80	90	100	16				
N-PHC	16	40	50	60	70	80	90	100	110	120	10.00~13.00		
	20	40	50	60	70	80	90	100	110	120	13.00~16.00		
	25	40	50	60	70	80	90	100	110	120	16.00~20.00		
		25	40	50	60	70	80	90	100	110	120	20.00~25.00	
													Quotation









Order **Catalog No.** — **L** — **P**
N-SHC 6 — 40 — P5.50
N-PHC 8 — 70 — P6.30

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC-LCT-LMT)** — **P** — (TC-KC, etc.)
N-SHC 6 — LC45 — P5.50 — LKC

Price **Quotation**

Alteration	Code	Spec.	1Code
Alterations to tip	 SC	Lapping of tip P dimension tolerance and increment are the same. The base material is finished before coating is applied. Refer to the 224 page for a Effective lapping range.	Quotation
	 PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments PCC $\leq (P-0.2)/2$ Cannot be combined with PCC-GC.	
	 PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1 mm increments PCC $\leq (P-0.2)/2$ Cannot be combined with PRC-GC.	
	 GC	$20^\circ \leq GC < 90^\circ$ 1° increments Cannot be combined with LKC-LCT-LMT-PRC-PCC.	
Alterations to full length	 LC	Full length change $20 \leq LC < L$ 0.1 mm increments (If combined with LKC, 0.01 mm increments can be selected.)	Quotation
	 LCT	TKC Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow +0.02$ + Full length change + $L+0.3 \Rightarrow +0.1$	
		TKM Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow 0$	
	 LMT	TKM Full length tolerance change Head thickness tolerance change $T+0.3 \Rightarrow -0.02$ + Full length change + $L+0.3 \Rightarrow 0$	

Alteration	Code	Spec.	1Code
Full length	 LKC	Full length tolerance change $L+0.3 \Rightarrow +0.05$ / 0 Cannot be combined with GC.	Quotation
	 KC	Addition of single key flat to head	
Alterations to head	 WKC	Addition of double key flats in parallel	Quotation
	 KFC	Double key flats at 0° and a selected angle 1° increments Cannot be combined with KC-WKC.	
	 TC	Head thickness change $4.0 \leq TC < T$ 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 is equal to LC.	
	 TKC	Head thickness tolerance change $T+0.3 \Rightarrow +0.02$	
		 TKM	
	 TCC	Chamfering of head This improves the strength of the punch head. P.1611 $0.5 \leq TCC \leq (H-P)/2$ If $H \leq 5$, then TCC is 0.5.	

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