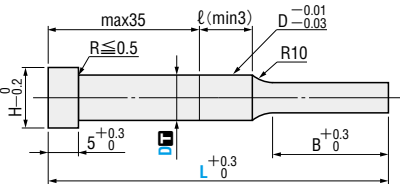
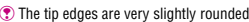


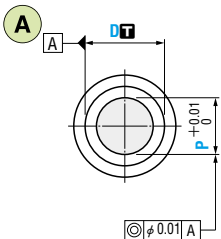
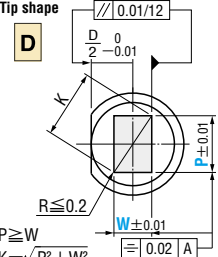
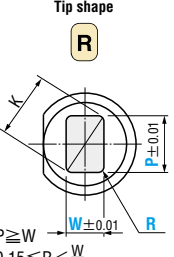
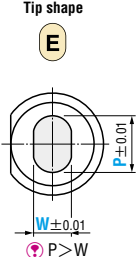
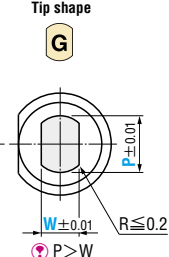
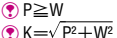
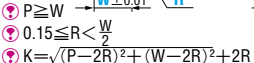


SHOULDER PUNCHES

—RW COATING—



Type	M H	Catalog No.		Shape Tip shape	B Tip length	The tip shape can be selected from the figure below. Tip shape A~G in the figure below.
		Type	Shank dia. $\varnothing D_{m5}$			
 RoHS Equivalent to SKH51 61 ~ 64HRC Surface 3100HV	Equivalent to SKH51 61 ~ 64HRC Surface 3100HV	RW-SH	ARW-SH	    	  	
 Powdered highspeed steel 64 ~ 67HRC Surface 3100HV		RW-PH	ARW-PH			
For shank diameter tolerance $\varnothing D_{m5}$, select either $m5 \cdot \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$						

Tip shape	Tip shape	Tip shape	Tip shape	Tip shape
				
				

Catalog No.			L								0.01mm increments				B	H
Type	Shape Tip shape	^B Tip length									D	(A)		D R E G		
				min.	P max.	P-Kmax.	P-Wmin.	R								
(D _{m5}) RW—SH RW—PH (D ^{+0.005} ₀) ARW—SH ARW—PH		S	3	40	50	60	70	80	90	100	1.00 ~ 2.99	—	—	8	5	
			4	40	50	60	70	80	90	100	1.00 ~ 3.99	3.97	1.00		7	
			5	40	50	60	70	80	90	100	2.00 ~ 4.99	4.97	1.20		8	
			6	40	50	60	70	80	90	100	2.00 ~ 5.99	5.97	1.50		9	
			8	(40)	50	60	70	80	90	100	3.00 ~ 7.99	7.97	2.00		11	
			10	(40)	50	60	70	80	90	100	3.00 ~ 9.99	9.97	2.50		13	
			13	(40)	50	60	70	80	90	100	6.00 ~ 12.99	12.97	3.00		16	
			16	(40)	50	60	70	80	90	100	10.00 ~ 15.99	15.97	4.00		19	
			20	(40)	50	60	70	80	90	100	13.00 ~ 19.99	19.97	5.00		23	
			25	(40)	50	60	70	80	90	100	18.00 ~ 24.99	24.97	6.00		28	
			3	50	60	70	80	90	100	1.00 ~ 2.99	—	—	13		5	
			4	50	60	70	80	90	100	1.00 ~ 3.99	3.97	2.00			7	
	5	50	60	70	80	90	100	2.00 ~ 4.99	4.97	2.00	8					
	6	50	60	70	80	90	100	2.00 ~ 5.99	5.97	2.00	9					
	8	50	60	70	80	90	100	3.00 ~ 7.99	7.97	2.50	11					
	10	50	60	70	80	90	100	3.00 ~ 9.99	9.97	2.50	13					
	13	50	60	70	80	90	100	6.00 ~ 12.99	12.97	3.00	16					
	16	60	70	80	90	100	10.00 ~ 15.99	15.97	4.00	19						
	20	60	70	80	90	100	13.00 ~ 19.99	19.97	5.00	23						
	25	60	70	80	90	100	18.00 ~ 24.99	24.97	6.00	28						
		L	3	50	60	70	80	90	100	1.20 ~ 2.99	—	—		19	5	
			4	50	60	70	80	90	100	1.20 ~ 3.99	3.97	2.00			7	
			5	60	70	80	90	100	2.00 ~ 4.99	4.97	3.50	8				
			6	60	70	80	90	100	2.00 ~ 5.99	5.97	3.50	9				
			8	60	70	80	90	100	3.00 ~ 7.99	7.97	5.00	11				
			10	60	70	80	90	100	3.00 ~ 9.99	9.97	5.00	13				
			13	60	70	80	90	100	6.00 ~ 12.99	12.97	5.00	16				
			16	70	80	90	100	10.00 ~ 15.99	—	—	19					
			20	70	80	90	100	13.00 ~ 19.99	—	—	23					
			25	70	80	90	100	18.00 ~ 24.99	—	—	28					
			X	3	50	60	70	80	90	100	1.20 ~ 2.99	—	—		19	5
				4	50	60	70	80	90	100	1.20 ~ 3.99	3.97	2.00			7
	5	60		70	80	90	100	2.00 ~ 4.99	4.97	3.50	8					
	6	60		70	80	90	100	2.00 ~ 5.99	5.97	3.50	9					
	8	60		70	80	90	100	3.00 ~ 7.99	7.97	5.00	11					
	10	60		70	80	90	100	3.00 ~ 9.99	9.97	5.00	13					
	13	60		70	80	90	100	6.00 ~ 12.99	12.97	5.00	16					
	16	70		80	90	100	10.00 ~ 15.99	—	—	19						
	20	70		80	90	100	13.00 ~ 19.99	—	—	23						
	25	70		80	90	100	18.00 ~ 24.99	—	—	28						

Ⓜ: $P > D - 0.03 \rightarrow \ell = 0$ If $P > D - 0.03$ for a round punch, $D_{-0.01}^{-0.03}$ (press-in lead) is not included.
Ⓜ: $P > K > D - 0.05 \rightarrow \ell = 0$ If $P > K > D - 0.05$ for a shaped punch, $D_{-0.01}^{-0.03}$ (press-in lead) is not included.
Ⓜ: $L(40) \rightarrow B = 8$ If full length is (40), tip length is 8mm in all cases.

Order Catalog No. — L — P — W — R (R only)
RW-PHDL 13 — 80 — P10.50 — W7.34

Days to Ship Quotation

Effects of RW coating
Effective for press processing of ultra-high-tensile material and thick plate high-tensile material thanks to its superior wear resistance, peeling resistance and heat resistance.
See the product data for details. P.1607

Alterations Catalog No. — L (LC·LCT·LMT) — P (PC) — W (WC) — R — (BC·HC...etc.)
RW-SHDS 10 — LC72 — PC1.90 — WC1.90 — BC8-KC45

Alterations	Code	A	D R E G	1Code
Alterations to tip	PC WC	Tip dimension change $PC \geq \frac{P_{min}}{2} \geq 1.00$ 0.01mm increments	Tip dimension change $PC \geq \frac{P \cdot W_{min}}{2} \geq 1.00$ 0.01mm increments Ⓜ Cannot be used for tip X.	
	BC	Tip length change $2 \leq BC \leq B_{max}$ 0.1mm increments Ⓜ Full length L must be at least 25mm longer than tip length BC.	Tip length change $2 \leq BC \leq B_{max}$ 0.1mm increments Ⓜ Full length L must be at least 30mm longer than tip length BC.	
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1mm increments Ⓜ $PRC \leq (P-0.2)/2$		
	LC	Full length change $25 + B(BC) \leq LC < L$ 0.1mm increments Ⓜ If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length-25mm). (If combined with LKC, 0.01mm increments can be selected.)	Full length change $30 + B(BC) \leq LC < L$ 0.1mm increments Ⓜ If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length-30mm).	
Alterations to full length	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 Head thickness tolerance change $T_{+0.3}^{+0.02} \rightarrow T_{+0.3}^{+0.02}$ LC Full length tolerance change $L_{+0.3}^{+0.1} \rightarrow L_{+0.3}^{+0.1}$	
	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.	TKM Head thickness tolerance change $T_{+0.3}^{+0.02} \rightarrow T_{+0.3}^{+0.02}$ LC Full length tolerance change $L_{+0.3}^{+0.1} \rightarrow L_{+0.3}^{+0.1}$	
	LKC	Full length tolerance change $L_{+0.3}^{+0.05} \rightarrow L_{+0.3}^{+0.05}$		
	UC	Modification for urethane stripper (USN) installation Ⓜ For details P.750 Ⓜ Can be used for D10 ~ 25.		
Alterations to shank	NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$		

Price Quotation

Alterations	Code	A	D R E G	1Code
Alterations to head	KC	Addition of single key flat to head	Key flat 180° 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 Ⓜ Cannot be combined with KC·WKC.	Double key flats at 0° and a selected angle 1° increments Ⓜ Cannot be combined with KC·WKC.	
	NKC	No key flat		
	HC	Head diameter change $D \leq HC < H$ 0.1mm increments Ⓜ Cannot be used for retainer set products		
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments (If combined with TKC·TKM·LCT·LMT, 0.01mm increments can be selected.) Ⓜ Full length L is shortened by (5-TC). Ⓜ If combined with LC·LCT·LMT, full length remains as specified.		
	TKC	Head thickness tolerance change $T_{+0.3}^{+0.02} \rightarrow T_{+0.3}^{+0.02}$		
	TKM	Head thickness tolerance change $T_{+0.3}^{+0.02} \rightarrow T_{+0.3}^{+0.02}$		
Alterations to shank	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.		
	RC	Head thickness is machined to a tolerance of -0.04 ~ 0 relative to the retainer surface. Ⓜ Cannot be used for D +0.005 0		