
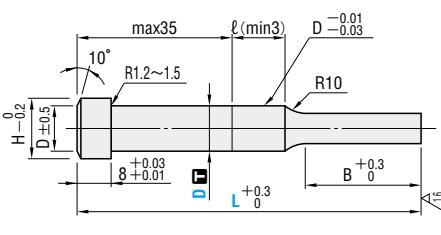


PUNCHES FOR HEAVY LOAD

— FINISHED FOR RETAINERS · DICOAT® TREATMENT —

PRODUCTS DATA
P.1599-1611

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	Tip shape	B Tip length	
 RoHS Dm5 Powdered high-speed steel 62~64HRC Surface 3000HV	$D \begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$ (D5~13)		T-APH	A D R E G		
			AT-APH			
<p>For shank diameter tolerance D, select either m5 or $\begin{smallmatrix} +0.005 \\ 0 \end{smallmatrix}$.</p>						
<p>Tip length (B) L > S</p>						
<p>Tip shape diagrams A, D, R, E, G with dimensions and formulas:</p> <ul style="list-style-type: none"> Tip shape A: $P \geq W$, $R=0$ can be selected, $K = \sqrt{P^2 + W^2}$ Tip shape D: $P \geq W$, $R=0$ can be selected, $K = \sqrt{P^2 + W^2}$ Tip shape R: $P \geq W$, $0.15 \leq R < \frac{W}{2}$, $K = \sqrt{(P-2R)^2 + (W-2R)^2 + 2R}$ Tip shape E: $P > W$ Tip shape G: $P > W$ 						

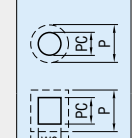
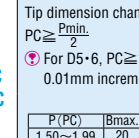
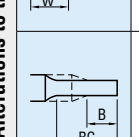
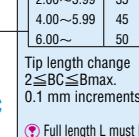
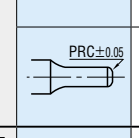
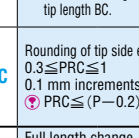
Type	Tip shape	B Tip length	D	L											B	H					
				0.01mm increments																	
				A		D R E G		R													
min. P max.		P-Kmax. P-Wmin.		R																	
(Dm5) T-APH	A, D, R, E, G	S	5	50	60	70	80	2.00	4.99	4.97	1.20						8	10			
			6	50	60	70	80	2.00	5.99	5.97	1.50							11			
			8	(50)	60	70	80	90	3.00	7.99	7.97	2.00						13			
			10	(50)	60	70	80	90	3.00	9.99	9.97	2.50						15			
			13	(50)	60	70	80	90	6.00	12.99	12.97	3.00						18			
		(D+0.005) AT-APH (D5~13)	A, D, R, E, G	L	20	(50)	60	70	80	90	100	10.00	15.99	15.97	4.00						21
					25	(50)	60	70	80	90	100	13.00	19.99	19.97	5.00						25
					5		60	70	80	2.00	4.99	4.97	1.20						30		
					6		60	70	80	2.00	5.99	5.97	1.50						13		
					8		60	70	80	90	3.00	7.99	7.97	2.00						11	
		10		60	70	80	90	100	3.00	9.99	9.97	2.50						13			
		13		60	70	80	90	100	6.00	12.99	12.97	3.00						15			
		16			70	80	90	100	10.00	15.99	15.97	4.00						18			
		20		70	80	90	100	13.00	19.99	19.97	5.00						21				
		25		70	80	90	100	18.00	24.99	24.97	6.00						25				
				70	80	90	100	18.00	24.99	24.97	6.00						30				









* L(50)→B=8 If full length is (50), tip length is 8mm in all cases.
 * A: $P > D - 0.03 \rightarrow \ell = 0$ If $P > D - 0.03$ for a round punch, $D_{-0.03}^{-0.01}$ (press-in lead) is not included.
 * D R E G: $P \cdot K > D - 0.05 \rightarrow \ell = 0$ If $P \cdot K > D - 0.05$ for a shaped punch, $D_{-0.03}^{-0.01}$ (press-in lead) is not included.

Order **Catalog No.** — **L** — **P** — **W** — **R (R only)**
 T-APHDS 25 — 80 — P18.00 — W10.00

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC)** — **P(PC)** — **W(WC)** — **R** — (BC-KC, etc.)
 T-APHAS 20 — LC82 — PC12.00 — BC13

Alteration	Code	A	D R E G	1Code																				
Alterations to tip	PC WC	Tip dimension change $PC \geq \frac{P_{min.}}{2}$ * For D5-6, $PC \geq 1.50$ 0.01mm increments	Tip dimension change $WC \geq \frac{P-W_{min.}}{2}$ * For D5-6, $WC \geq 1.00$ 0.01 mm increments																					
		<table border="1"> <tr><th>P(PC)</th><th>Bmax.</th></tr> <tr><td>1.50~1.99</td><td>20</td></tr> <tr><td>2.00~3.99</td><td>35</td></tr> <tr><td>4.00~5.99</td><td>45</td></tr> <tr><td>6.00~</td><td>50</td></tr> </table>	P(PC)			Bmax.	1.50~1.99	20	2.00~3.99	35	4.00~5.99	45	6.00~	50	<table border="1"> <tr><th>P(PC)-W(WC)</th><th>Bmax.</th></tr> <tr><td>1.00~1.49</td><td>8</td></tr> <tr><td>1.50~1.99</td><td>13</td></tr> <tr><td>2.00~3.49</td><td>19</td></tr> <tr><td>3.50~4.99</td><td>25</td></tr> <tr><td>5.00~</td><td>30</td></tr> </table>	P(PC)-W(WC)	Bmax.	1.00~1.49	8	1.50~1.99	13	2.00~3.49	19	3.50~4.99
	P(PC)	Bmax.																						
1.50~1.99	20																							
2.00~3.99	35																							
4.00~5.99	45																							
6.00~	50																							
P(PC)-W(WC)	Bmax.																							
1.00~1.49	8																							
1.50~1.99	13																							
2.00~3.49	19																							
3.50~4.99	25																							
5.00~	30																							
BC	Tip length change $2 \leq BC \leq B_{max.}$ 0.1 mm increments	Tip length change $2 \leq BC \leq B_{max.}$ 0.1 mm increments																						
PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments * $PRC \leq (P-0.2)/2$																							
Alterations to full length	LC	Full length change $35+B(BC) \leq LC < L$ 0.1 mm increments * If difference between full length and tip length is 35mm or less, tip length is adjusted to (Full length-35mm).	Full length change $40+B(BC) \leq LC < L$ 0.1 mm increments * If difference between full length and tip length is 40mm or less, tip length is adjusted to (Full length-40mm).																					
	LKC	Full length tolerance change $L \begin{smallmatrix} +0.3 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$																						

Alteration	Code	A	D R E G	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 270° * Cannot be combined with KC-WKC.		
	NKC	No key flat		
Alterations to shank	SKC	Single key flat on shank * D5-6 $P \leq D - 1.2$ $W \leq D - 1.2$ (Machining width 0.5) * D8 ~ $P \leq D - 2.2$ $W \leq D - 2.2$ (Machining width 1) * Cannot be combined with KC-WKC-KFC.		
	NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$		

Price **Quotation**