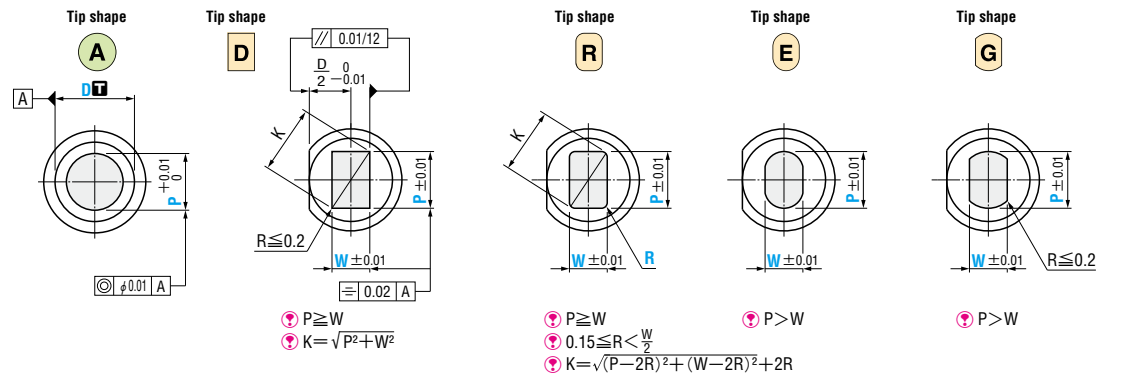


# PUNCHES FOR HEAVY LOAD

— RW COATING —



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	
<p>For shank diameter tolerance D select either m5 or <math>\pm 0.005</math>.</p>	D <sub>m5</sub>	Equivalent to SKH51 61~64HRC Surface 3100HV Powdered highspeed steel 64~67HRC Surface 3100HV	RW-AP	A	<p>The tip edges are very slightly rounded.</p>	
			RW-APH	D		
	D $\pm 0.005$ <sub>0</sub>	Equivalent to SKH51 61~64HRC Surface 3100HV Powdered highspeed steel 64~67HRC Surface 3100HV	ARW-AP	E		
			ARW-APH	G		



Type	Shape Tip shape	B Tip length	D	Catalog No.				0.01mm increments				B	H							
				L				D R E G												
				min.	P	max.	R	min.	P	max.	R									
(D <sub>m5</sub> ) RW-AP RW-APH	A, D, R	S	5	50	60	70	80	90	100	2.00	~	4.99	4.97	1.20	0.15 ≤ R < W/2 (R only)	8	10			
			6	50	60	70	80	90	100	2.00	~	5.99	5.97	1.50		11				
			8	(50)	60	70	80	90	100	110	120	130	3.00	~		7.99	7.97	2.00	13	
			10	(50)	60	70	80	90	100	110	120	130	3.00	~		9.99	9.97	2.50	15	
			13	(50)	60	70	80	90	100	110	120	130	6.00	~		12.99	12.97	3.00	18	
		(D $\pm 0.005$ ) ARW-AP ARW-APH	E, G	L	5	60	70	80	90	100	2.00	~	4.99	4.97		1.20	19	21		
					6	60	70	80	90	100	2.00	~	5.99	5.97		1.50	25			
					8	60	70	80	90	100	110	120	130	3.00		~	7.99	7.97	2.00	30
					10	60	70	80	90	100	110	120	130	3.00		~	9.99	9.97	2.50	13
					13	60	70	80	90	100	110	120	130	6.00		~	12.99	12.97	3.00	15

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

Order  Catalog No.  L  P  W  R (R only)

RW-APAS 20 - 80 - P15.00

**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

Days to Ship  **Quotation**

Alterations  Catalog No.  L(LC)  P(PC)  W(WC)  R  (BC·KC...etc.)

RW-APAS 20 - LC82 - PC12.00 - BC13

Alterations	Code	A	D R E G	1Code																						
Alterations to tip	PC	Tip dimension change PC ≥ P <sub>min</sub> D5-6 PC ≥ 1.50 0.01mm increments	Tip dimension change PC ≥ P · W <sub>min</sub> D5-6 PC ≥ 1.00 0.01mm increments	<b>Quotation</b>																						
	WC	<table border="1"> <tr> <th>P(PC)</th> <th>Bmax</th> </tr> <tr> <td>1.500~1.999</td> <td>20</td> </tr> <tr> <td>2.000~3.999</td> <td>35</td> </tr> <tr> <td>4.000~5.999</td> <td>45</td> </tr> <tr> <td>6.000~</td> <td>60</td> </tr> </table>	P(PC)		Bmax	1.500~1.999	20	2.000~3.999	35	4.000~5.999	45	6.000~	60	<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	25	5.00~	30
	P(PC)	Bmax																								
1.500~1.999	20																									
2.000~3.999	35																									
4.000~5.999	45																									
6.000~	60																									
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 ≤ BC ≤ Bmax 0.1mm increments	Tip length change 2 ≤ BC ≤ Bmax 0.1mm increments	Full length L must be at least 35mm longer than tip length BC. Full length L must be at least 40mm longer than tip length BC.																							
Alterations to full length	PRC	Rounding of tip side edge 0.3 ≤ PRC ≤ 1 0.1mm increments PRC ≤ (P - 0.2) / 2																								
	LC	Full length change 35 + B(BC) ≤ LC < L 0.1mm increments If difference between full length and tip length is 35mm or less, tip length is adjusted to (Full length - 35mm). (If combined with LKC, 0.01mm increments can be selected.)	Full length change 40 + B(BC) ≤ LC < L 0.1mm increments If difference between full length and tip length is 40mm or less, tip length is adjusted to (Full length - 40mm).																							
Alterations to shank	LKC	Full length tolerance change	L + 0.3 0 + 0.05 0																							

Price  **Quotation**

Alterations	Code	A	D R E G	1Code
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 Cannot be combined with KC-WKC.	
	NKC	No key flat	No key flat	
Alterations to shank	SKC	Single key flat on shank D5-6 P ≤ D - 1.2 W ≤ D - 1.2 (Machining width 0.5) D8~ P ≤ D - 2.2 W ≤ D - 2.2 (Machining width 1) Cannot be combined with KC-WKC-KFC.	 D R E G	
	NDC	No press-in lead	ℓ ≥ 3 ⇨ ℓ = 0	

PUNCHES