

# BURRING PUNCHES

— HALF-MADE TIP R TYPE · DLC COATING —

PRODUCTS DATA

P.1605-1609

**RoHS**

**Jector type**

**RoHS**

$V-P \geq 0.3$

$V-P \geq 0.3$

Calculating the projection length of the jector pin (reference value) **P.241**  
 For details of jector holes, refer to Jector Punch Blanks. **P.236**  
 (Blanks are based on PJB.)  
 For details of jector pins, refer to Jector Pin Sets. **P.239**

Catalog No.				M	S	H
D <sub>m5</sub>		D <sub>0</sub> <sup>+0.005</sup>				
Short tip	Long tip	Short tip	Long tip			
N-SHMS	N-SHMSL	AN-SHMS	AN-SHMSL	Equivalent to SKH51	DLC coating	61~64HRC Over surface 3000HV
NW-SHMS	NW-SHMSL	ANW-SHMS	ANW-SHMSL			
N-PHMS	N-PHMSL	AN-PHMS	AN-PHMSL	Powdered high-speed steel	DLC coating	64~67HRC Over surface 3000HV
NW-PHMS	NW-PHMSL	ANW-PHMS	ANW-PHMSL			

$\varnothing$  For shank diameter tolerance D, select either (m5) or ( $0^{+0.005}$ ).

Catalog No.				M	S	H
D <sub>m5</sub>		D <sub>0</sub> <sup>+0.005</sup>				
Short tip	Long tip	Short tip	Long tip			
N-PJMS	—	AN-PJMS	—	Powdered high-speed steel	DLC coating	64~67HRC Over surface 3000HV
NW-PJMS	—	ANW-PJMS	—			

$\varnothing$  For shank diameter tolerance D, select either (m5) or ( $0^{+0.005}$ ).

B	H	Catalog No.		L	0.01mm increments		0.1mm increments
		Type	D		min. V	max. P	
8	7	—Short tip— (D <sub>m5</sub> ) (D <sub>0</sub> <sup>+0.005</sup> )	4	40.0~80.0 (0.1mm increments)	1.60~3.99	1.00	F ≤ L-2
	8	—DLC coating—	5		1.80~4.99	1.20	
	9	N-SHMS AN-SHMS N-PHMS AN-PHMS	6		1.80~5.99	1.20	
	11	—Foundation WPC®—	8		2.10~7.99	1.50	
	13	NW-SHMS ANW-SHMS NW-PHMS ANW-PHMS	10		3.00~9.99	2.50	
15	7	—Long tip— (D <sub>m5</sub> ) (D <sub>0</sub> <sup>+0.005</sup> )	4	50.0~80.0 (0.1mm increments)	1.60~3.99	1.00	F ≤ L-2
	8	—DLC coating—	5		1.80~4.99	1.20	
	9	N-SHMSL AN-SHMSL N-PHMSL AN-PHMSL	6		1.80~5.99	1.20	
	11	—Foundation WPC®—	8		2.10~7.99	1.50	
	13	NW-SHMSL ANW-SHMSL NW-PHMSL ANW-PHMSL	10		3.00~9.99	2.50	
8	7	—Short tip jector— (D <sub>m5</sub> ) (D <sub>0</sub> <sup>+0.005</sup> )	4	40 50 60 70 80	2.00~3.99	1.00	F ≤ L-2
	8	—DLC coating—	5		2.00~4.99	2.00	
	9	N-PJMS AN-PJMS	6		2.00~5.99	2.00	
	11	—Foundation WPC®—	8		3.00~7.99	3.00	
	13	NW-PJMS ANW-PJMS	10		3.00~9.99	3.00	

$V-P \geq 0.3$     $B \geq (L-F) + \sqrt{(V-P)\{(V-P)-(V-P)/4\}} + 2$

Order **Catalog No.** — **L** — **V** — **P** — **F**  
 N-SHMS 4 — 41.0 — V2.60 — P1.00 — F39.0

Days to Ship **Quotation**

Alterations **Catalog No.** — **L** — **V** — **P** — **F** — (BC-HC-TC...etc.)  
 N-SHMS 4 — 41.0 — V1.60 — P1.00 — F38.5 — BC10  
 N-PJMS 4 — 40.0 — V2.61 — P1.00 — F38.0

Alterations	Code	Spec.	1Code									
Alterations to tip	BC	B dimension change 0.1mm increments Full length must be 30 mm longer than tip length. (L-F) + α + 2 ≤ BC ≤ BC <sub>max</sub> ≤ L/2 α varies depending on the shape. $\alpha = \sqrt{(V-P)\{(V-P)-(V-P)/4\}}$	Quotation									
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>V</th> <th>BC<sub>max</sub></th> </tr> </thead> <tbody> <tr> <td>1.60~1.99</td> <td>20</td> </tr> <tr> <td>2.00~2.99</td> <td>30</td> </tr> <tr> <td>3.00~3.99</td> <td>35</td> </tr> <tr> <td>4.00~4.99</td> <td>45</td> </tr> <tr> <td>5.00~</td> <td>60</td> </tr> </tbody> </table> <p>Cannot be used for jector punches.</p>		V	BC <sub>max</sub>	1.60~1.99	20	2.00~2.99	30	3.00~3.99	35	4.00~4.99
V	BC <sub>max</sub>											
1.60~1.99	20											
2.00~2.99	30											
3.00~3.99	35											
4.00~4.99	45											
5.00~	60											
Alterations to head	HC	Head diameter change D ≤ HC < H 0.1mm increments	Quotation									
	TC	Head thickness change 0.1mm increments Other than jector 2 ≤ TC < 5   Full length L remains as specified. Jector 3.5 ≤ TC < 5   Full length L is shortened by (5-TC). (If combined with TKC-TKM, 0.01mm increments can be selected.)										
	TCC	Chamfering of head This improves the strength of the punch head. <b>P.1611</b> 0.1 mm increments 0.5 ≤ TCC ≤ (H-D)/2 If H ≤ 5, then TCC is 0.5.										

Alterations	Code	Spec.	1Code
Alterations to head	TKC	Head thickness tolerance change $\begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.02 \\ 0 \end{matrix}$	Quotation
	TKM	Head thickness tolerance change $\begin{matrix} +0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} 0 \\ -0.02 \end{matrix}$	
	KC	Addition of single key flat to head	
	WKC	Addition of double key flats in parallel	
Others	RC	Head thickness is machined to a tolerance of -0.04 ~ 0 relative to the retainer surface. Cannot be used for D <sub>0</sub> <sup>+0.005</sup> types.	Quotation
	LKC	Full length tolerance change $\begin{matrix} L+0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.05 \\ 0 \end{matrix}$	
	FKC	Full length tolerance change $\begin{matrix} F+0.3 \\ 0 \end{matrix} \Rightarrow \begin{matrix} +0.05 \\ 0 \end{matrix}$	
	AC	The jector pin is removed to create an air path and the side vent hole is plugged from the inside. Can be used for jector types only.	
	NC	The jector pin is removed. Cannot be combined with AC. Can be used for jector types only.	
NDC	No press-in lead $\begin{matrix} \ell \geq 3 \\ \ell = 0 \end{matrix}$		

**P** Price **Quotation**

**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**

PUNCHES & DIES FOR FORMING