

PUNCHES FOR HEAVY LOAD WITH DOWEL HOLES

— FINISHED FOR RETAINERS —



Type	A	Shank diameter D	M H	Catalog No.			The tip shape can be selected from Tip shape A~G in the figure below.
				Type	Tip shape	Tip length	
With locating dowel hole	Dowel pin MS6—25	Dm5	Equivalent to SKH51 61~64HRC Powdered high-speed steel 64~67HRC	AP	A	S	—C
				APH	D R E G	L	

RoHS

Tip length (B) L>S

Tip shape A

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	Catalog No.	D	L																	B	H							
			0.01mm increments																									
			A		D R E G		R																					
S	APAS—C	APHAS—C	10	(50)	60	70	80	90	100	110	120	130	140	150	3.00	~	9.99	9.97	2.50	0.15 ≤ R < W/2 (R only)	13	15						
	APDS—C	APHDS—C	13	(50)	60	70	80	90	100	110	120	130	140	150	6.00	~	12.99	12.97	3.00				19	21				
	APRS—C	APHRS—C	16	(50)	60	70	80	90	100	110	120	130	140	150	10.00	~	15.99	15.97	4.00						25	25		
	APES—C	APHES—C	20	(50)	60	70	80	90	100	110	120	130	140	150	13.00	~	19.99	19.97	5.00								30	30
	APGS—C	APHGS—C	25	(50)	60	70	80	90	100	110	120	130	140	150	18.00	~	24.99	24.97	6.00									
L	APAL—C	APHAL—C	10		60	70	80	90	100	110	120	130	140	150	3.00	~	9.99	9.97	2.50	0.15 ≤ R < W/2 (R only)	19	15						
	APDL—C	APHDL—C	13		60	70	80	90	100	110	120	130	140	150	6.00	~	12.99	12.97	3.00				25	25				
	APRL—C	APHRL—C	16			70	80	90	100	110	120	130	140	150	10.00	~	15.99	15.97	4.00						30	30		
	APEL—C	APHEL—C	20			70	80	90	100	110	120	130	140	150	13.00	~	19.99	19.97	5.00									
	APGL—C	APHGL—C	25			70	80	90	100	110	120	130	140	150	18.00	~	24.99	24.97	6.00									

(S) L(50) → B=8 If the full length is (50), the tip length is 8mm in all cases.
 (A): P > D - 0.03 → ℓ = 0 If P > D - 0.03 for a round punch, D - 0.01/-0.03 (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 - 0.01/-0.03 (press-in lead) is not included.

Order

Catalog No.	L	P	W	R (R only)
APAS—C20	80	P15.00		
APDS—C25	80	P18.00	W10.00	

Days to Ship **Quotation**

Alterations Catalog No. — L(LC) — P(PC) — W(WC) — R — (BC·KC, etc.) — BC13

Alteration	Code	A	D R E G	1Code
Alterations to tip	PC WC	Tip dimension change $PC \geq \frac{Pmin.}{2}$ 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.)	Tip dimension change $PC \geq \frac{P \cdot Wmin.}{2}$ 0.01 mm increments	Quotation
	BC	Tip length change $2 \leq BC \leq Bmax.$ 0.1 mm increments Full length L must be at least 35mm longer than tip length BC.	Tip length change $2 \leq BC \leq Bmax.$ 0.1 mm increments Full length L must be at least 40mm longer than tip length BC.	
	SC	Lapping of tip P dimension tolerance and increment are the same. R=0 cannot be selected for the tip D corner.		
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments $PRC \leq (P-0.2)/2$ Cannot be combined with PCC.		
	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.		
	PKC	Tip tolerance change $P +0.01/0 \rightarrow +0.005/0$ (P dimension can be selected in 0.001 mm increments.)	Tip tolerance change $P \cdot W \pm 0.01 \rightarrow +0.01/0$	

Alteration	Code	A	D R E G	1Code
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). (If combined with LKC-LKZ, 0.01 mm increments can be selected.)	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).	Quotation
	LKC LKZ	Full length tolerance change $L +0.3/0 \rightarrow +0.05/0$	Full length tolerance change $L +0.3/0 \rightarrow +0.01/0$	
Alterations to head	KC	Addition of single key flat to head	Key flat position change 1° increments	Quotation
	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		
Shank	TPC	Dowel pin change MS6—25 that comes with the product is changed to MSTP6—25 (tapped type).		Quotation
	NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$		

ex Example ■ Uses of punches with locating dowel holes

This type of punch is mainly used with dies for parts such as automobile bodies, in combination with a retainer that holds the punch. Rather than indirect positioning using the retainer dowel hole, these punches can be positioned directly using the dowel hole machined on the punch axis, improving die accuracy. These punches are particularly effective when used for die machining with NC machines.

This type of punch can be also used with dies for the external panels of electrical appliances, either in combination with a retainer, or attached to the punch plate of an ordinary progressive die.



P Price **Quotation**