

# PUNCHES FOR HEAVY LOAD WITH DOWEL HOLES

— FINISHED FOR RETAINERS —

Type	A	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	Tip length <sup>B</sup> Tip length		With dowel hole	
With locating dowel hole	Dowel pin MS6—25	D <sub>m5</sub>	Equivalent to SKH51 61~64HRC Powdered high-speed steel 64~67HRC	AP APH	A D R E G	S L	—C	<p>Tip length (B) L &gt; S</p>	
Tip shape A		Tip shape D		Tip shape R		Tip shape E		Tip shape G	
		<ul style="list-style-type: none"> <li>☉ P ≥ W</li> <li>☉ R = 0 can be selected.</li> <li>☉ K = √(P<sup>2</sup> + W<sup>2</sup>)</li> </ul>		<ul style="list-style-type: none"> <li>☉ P ≥ W</li> <li>☉ 0.15 ≤ R &lt; W/2</li> <li>☉ K = √(P - 2R)<sup>2</sup> + (W - 2R)<sup>2</sup> + 2R</li> </ul>		<ul style="list-style-type: none"> <li>☉ P &gt; W</li> </ul>		<ul style="list-style-type: none"> <li>☉ P &gt; W</li> </ul>	

Catalog No.		D	L													0.01mm increments				B	H
Type			A	D	R	E	G	R	min.	P max.	P-Kmax.	P-Wmin.	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			18	
	APRS—C	APHRS—C	16	(50)	60	70	80	90	100	110	120	130	140	150	10.00 ~ 15.99	15.97	4.00		21		
	APES—C	APHES—C	20	(50)	60	70	80	90	100	110	120	130	140	150	13.00 ~ 19.99	19.97	5.00		25		
	APGS—C	APHGS—C	25	(50)	60	70	80	90	100	110	120	130	140	150	18.00 ~ 24.99	24.97	6.00		30		
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			18	
	APRL—C	APHRL—C	16			70	80	90	100	110	120	130	140	150	10.00 ~ 15.99	15.97	4.00		21		
	APEL—C	APHEL—C	20			70	80	90	100	110	120	130	140	150	13.00 ~ 19.99	19.97	5.00		25		
	APGL—C	APHGL—C	25			70	80	90	100	110	120	130	140	150	18.00 ~ 24.99	24.97	6.00		30		

- ☉ 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<sup>-0.01</sup>/<sub>-0.03</sub> (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<sup>-0.01</sup>/<sub>-0.03</sub> (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**