PUNCHES FOR HEAVY LOAD WITH DOWEL HOLES
—FINISHED FOR RETAINERS・WPC® TREATMENT・HW COATING—

PRODUCTS DATA P.1601・1605・1611

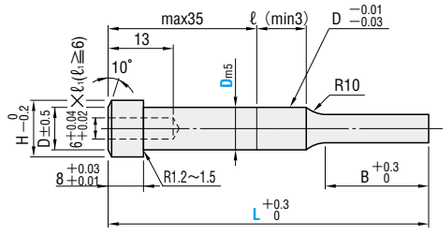
Type	Ⓐ	Shank diameter D T tolerance	M H	Catalog No. Type	Tip shape	B Tip length	With dowel hole
WPC® treatment with locating dowel hole	Dowel pin MS6—25	Dm5	Equivalent to SKH51 61～64HRC Surface 1000～1100HV	W—AP	Ⓐ Ⓓ Ⓡ Ⓔ Ⓖ	S L	—C
			Powdered high-speed steel 64～67HRC Surface 1000～1100HV	W—APH			
HW coating with locating dowel hole			Equivalent to SKH51 61～64HRC Surface 3000HV	HW—AP			
			Powdered high-speed steel 64～67HRC Surface 3000HV	HW—APH			

—WPC® treatment—

RoHS

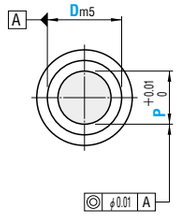
—HW coating—

The tip shape can be selected from Tip shape Ⓐ～Ⓖ in the figure below.



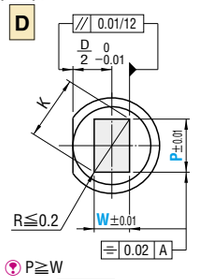
The tip edges are very slightly rounded.
Tip length (B) L>S

Tip shape Ⓐ



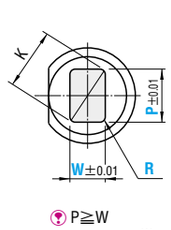
P≧W

Tip shape Ⓓ



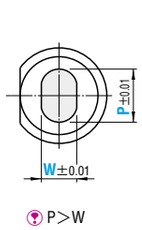
P≧W
K=√(P²+W²)

Tip shape Ⓡ



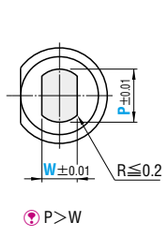
P≧W
0.15≦R<W/2

Tip shape Ⓔ



P>W

Tip shape Ⓖ



P>W

K=√(P−2R)²+(W−2R)²+2R

Catalog No. Type	Tip shape	B Tip length	With dowel hole	D	L	0.01mm increments Ⓐ min. P max.	DREG P・Kmax.	DREG P・Wmin.	Ⓡ R	B	H
WPC® treatment (SKH51) W—AP (Powdered high-speed steel) W—APH	Ⓐ Ⓓ Ⓡ Ⓔ Ⓖ	S	—C	10	(50) 60 70 80 90 100 110 120 130 140 150	3.00～ 9.99	9.97	2.50	W/2 (Ⓡ only) ≦R<	13	15
				13	(50) 60 70 80 90 100 110 120 130 140 150	6.00～ 12.99	12.97	3.00			18
				16	(50) 60 70 80 90 100 110 120 130 140 150	10.00～ 15.99	15.97	4.00		19	21
				20	(50) 60 70 80 90 100 110 120 130 140 150	13.00～ 19.99	19.97	5.00			25
				25	(50) 60 70 80 90 100 110 120 130 140 150	18.00～ 24.99	24.97	6.00			30
HW coating (SKH51) HW—AP (Powdered high-speed steel) HW—APH		L		10	60 70 80 90 100 110 120 130 140 150	3.00～ 9.99	9.97	2.50		19	15
				13	60 70 80 90 100 110 120 130 140 150	6.00～ 12.99	12.97	3.00			18
				16	70 80 90 100 110 120 130 140 150	10.00～ 15.99	15.97	4.00		25	21
				20	70 80 90 100 110 120 130 140 150	13.00～ 19.99	19.97	5.00			25
				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.
Ⓐ: 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.
DREG: 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.

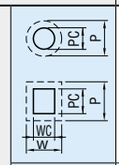
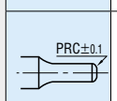
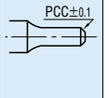
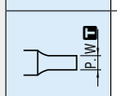
Order

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

Days to Ship Quotation

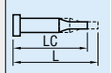
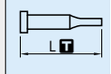
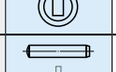
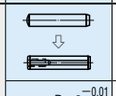
Alterations

Catalog No. — L(LC) — P(PC) — W(WC) — R — (BC・KC, etc.)
W—APAS—C 20 — LC82 — PC12.00 — BC13

Alteration		Code	Ⓐ	DREG	1Code
Alterations to tip		PC WC	Tip dimension change PC≧ P min. / 2, WC≧ P・W min. / 2; 0.01 mm increments (If combined with PKC, 0.001mm increments can be selected.)	0.01 mm increments	Quotation
		BC	Tip length change 2≦BC≦Bmax. 0.1 mm increments; Full length L must be at least 35mm longer than tip length BC.	Tip length change 2≦BC≦Bmax. 0.1 mm increments; Full length L must be at least 40mm longer than tip length BC.	
		PRC	Rounding of tip side edge 0.3≦PRC≦1 0.1 mm increments; PRC≦(P−0.2)/2; ⊗ Cannot be combined with PCC.	—	
		PCC	Chamfering to tip side edge 0.3≦PCC≦1 0.1 mm increments; PCC≦(P−0.2)/2; ⊗ Cannot be combined with PRC.	—	
		PKC	Tip tolerance change P +0.01 0 ⇨ +0.005 0 (P dimension can be selected in 0.001 mm increments.); ⊗ HW coating cannot be used for D>13.	Tip tolerance change P・W±0.01 ⇨ +0.01 0; ⊗ HW coating cannot be used for D>13.	

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.
1.25～1.49	8
1.50～1.99	13
2.00～3.49	19
3.50～4.99	25
5.00～	30

Alteration		Code	Ⓐ	DREG	1Code
Alterations to full length		LC	Full length change 35+B(BC)≦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, 0.01 mm increments can be selected.)	Full length change 40+B(BC)≦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	Full length tolerance change L +0.3 0 ⇨ +0.05 0		
Alterations to head		KC	Addition of single key flat to head	Key flat position change 90°, 180°, 270°, 0° 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; ⊗ 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).		
		NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		

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.

Price Quotation