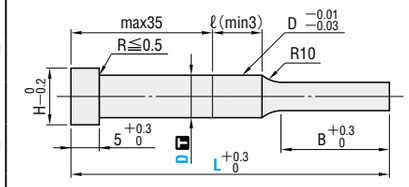
SHOULDER PUNCHES
—WPC® TREATMENT・HW COATING—

PRODUCTS DATA P.1601・1605

Type	M H	Catalog No. Type: Shank dia. T D m5	Catalog No. Type: Shank dia. T D +0.005 0	Tip shape	B Tip length
—WPC® treatment— RoHS	Equivalent to SKD11 60～63HRC Surface 1000～1100HV	W—SP	AW—SP	A D R E G	S
	Equivalent to SKH51 61～64HRC Surface 1000～1100HV	W—SH	AW—SH		L
	Powdered high-speed steel 64～67HRC Surface 1000～1100HV	W—PH	AW—PH		X
—HW coating—	Equivalent to SKH51 61～64HRC Surface 3000HV	HW—SH	AHW—SH		Tip length (B)
	Powdered high-speed steel 64～67HRC Surface 3000HV	HW—PH	AHW—PH		X>L>S

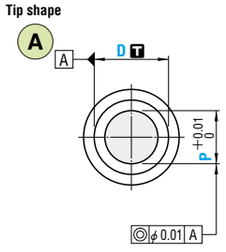
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

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

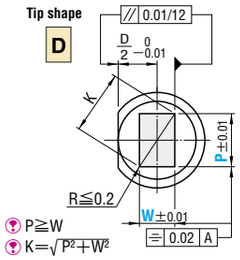


The tip edges are very slightly rounded.

Tip shape A



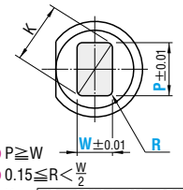
Tip shape D



P≧W

K=√(P²+W²)

Tip shape R

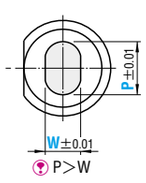


P≧W

0.15≦R<W/2

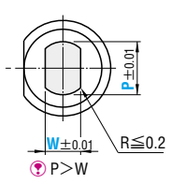
K=√((P−2R)²+(W−2R)²)+2R

Tip shape E



P>W

Tip shape G



P>W

Catalog No. Type	Tip shape	B Tip length	D	L	0.01 mm increments Ⓐ min. P max.	0.01 mm increments DREG P・Kmax.	0.01 mm increments DREG P・Wmin.	0.01 mm increments R R	B	H
(Dm5) —WPC® treatment— W—SP W—SH W—PH —HW coating— HW—SH HW—PH	A D R E G	S	3	40 50 60 70 80 90 100	1.00～ 2.99	—	—	0.15≦R<W/2 (R only)	8	5
			4	40 50 60 70 80 90 100	1.00～ 3.99	3.97	1.00			7
			5	40 50 60 70 80 90 100	2.00～ 4.99	4.97	1.20			8
			6	40 50 60 70 80 90 100	2.00～ 5.99	5.97	1.50			9
			8	(40) 50 60 70 80 90 100	3.00～ 7.99	7.97	2.00		13	11
			10	(40) 50 60 70 80 90 100	3.00～ 9.99	9.97	2.50			13
			13	(40) 50 60 70 80 90 100	6.00～ 12.99	12.97	3.00			16
			16	(40) 50 60 70 80 90 100	10.00～ 15.99	15.97	4.00		19	19
			20	(40) 50 60 70 80 90 100	13.00～ 19.99	19.97	5.00			23
			25	(40) 50 60 70 80 90 100	18.00～ 24.99	24.97	6.00			28
(D+0.005 0) —WPC® treatment— AW—SP AW—SH AW—PH —HW coating— AHW—SH AHW—PH		L	3	50 60 70 80 90 100	1.00～ 2.99	—	—		13	5
			4	50 60 70 80 90 100	1.00～ 3.99	3.97	2.00			7
			5	50 60 70 80 90 100	2.00～ 4.99	4.97	2.00			8
			6	50 60 70 80 90 100	2.00～ 5.99	5.97	2.00			9
			8	50 60 70 80 90 100	3.00～ 7.99	7.97	2.50		19	11
			10	50 60 70 80 90 100	3.00～ 9.99	9.97	2.50			13
			13	50 60 70 80 90 100	6.00～ 12.99	12.97	3.00			16
			16	60 70 80 90 100	10.00～ 15.99	15.97	4.00		25	19
			20	60 70 80 90 100	13.00～ 19.99	19.97	5.00			23
			25	60 70 80 90 100	18.00～ 24.99	24.97	6.00			28
		X	3	50 60 70 80 90 100	1.20～ 2.99	—	—		19	5
			4	50 60 70 80 90 100	1.20～ 3.99	3.97	2.00			7
			5	60 70 80 90 100	2.00～ 4.99	4.97	3.50		25	8
			6	60 70 80 90 100	2.00～ 5.99	5.97	3.50			9
			8	60 70 80 90 100	3.00～ 7.99	7.97	5.00		30	11
			10	60 70 80 90 100	3.00～ 9.99	9.97	5.00			13
			13	60 70 80 90 100	6.00～ 12.99	12.97	5.00			16
			16	70 80 90 100	10.00～ 15.99	—			40	19
			20	70 80 90 100	13.00～ 19.99					23
			25	70 80 90 100	18.00～ 24.99					28

Ⓐ: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.

L(40)…B=8 If full length is (40), tip length is 8 mm in all cases.

Order

Catalog No.	L	P	W	R (R only)
AW—PHDL 13	80	P10.50	W7.34	

Days to Ship Quotation

Alterations

Catalog No.	L (LC・LCT・LMT)	P (PC)	W (WC)	R	(BC/HC, etc.)
W—SPDS 10	LC72	PC1.90	WC1.90		BC8—KC45

Alteration	Code	Ⓐ	DREG	1Code
Alterations to tip	PC WC	Tip dimension change PC≧Pmin./2 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.) P(PC) 0.500～0.799 10; 0.800～0.999 13; 1.000～1.999 20; 2.000～3.999 35; 4.000～4.999 45; 5.000～5.999 50; 6.000～ 60 (Bmax.)	Tip dimension change PC≧P・Wmin./2≧0.80 WC≧P・Wmin./2≧0.80 0.01 mm increments ⊗ Cannot be used for tip X. P(PC)・W(WC) 0.80～1.49 8; 1.50～1.99 13; 2.00～3.49 19; 3.50～4.99 25; 5.00～ 30 (Bmax.)	Quotation
	BC	Tip length change 2≦BC≦Bmax. 0.1 mm increments ⓨ Full length L must be at least 25 mm longer than tip length BC. ⊗ PC・WC<1.00 Cannot be used with HW coating.	Tip length change 2≦BC≦Bmax 0.1 mm increments ⓨ Full length L must be at least 30 mm 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. ⊗ Cannot be used with HW coating.	——	
	PKC	Tip tolerance change P +0.01 0 ⇨ +0.005 0 ⓨ (P dimension can be selected in 0.001 mm increments.) ⊗ D>13 Cannot be used with HW coating.	Tip tolerance change P・W±0.01⇨+0.01 0	
Alterations to full length	LC	Full length change 25+B(BC)≦LC<L 0.1 mm increments ⓨ If difference between full length and tip length is 25 mm or less, tip length is adjusted to (Full length−25 mm). (If combined with LKC, 0.01 mm increments can be selected.)	Full length change 30+B(BC)≦LC<L 0.1 mm increments ⓨ If difference between full length and tip length is 30 mm or less, tip length is adjusted to (Full length−30 mm).	
	LCT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (ⓨ) are the same as for LC. TKC Head thickness tolerance change T +0.3 0 ⇨ +0.02 0 + LC Full length change + L +0.3 0 ⇨ +0.1 0 Full length tolerance change		
	LMT	Changes to head thickness tolerance and full length are processed using a single code. The allowable range of change, increment, ordering process, and notes (ⓨ) are the same as for LC. TKM Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02 + LC Full length change + L +0.3 0 ⇨ +0.1 0 Full length tolerance change		

Price Quotation

Alteration	Code	Ⓐ	DREG	1Code
Alterations to head: Alterations to full length	LKC	Full length tolerance change L +0.3 0 ⇨ +0.05 0		Quotation
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 ⊗ 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	
	HC	Head diameter change D≦HC<H 0.1 mm increments		
	TC	Head thickness change 2≦TC<5 0.1 mm increments (If combined with TKC・TKM・LCT・LMT, 0.01mm increments can be selected.) ⓨ Full length L is shortened by (5−TC). If combined with LC・LCT・LMT, full length remains as specified.		
	TKC	Head thickness tolerance change T +0.3 0 ⇨ +0.02 0		
	TKM	Head thickness tolerance change T +0.3 0 ⇨ 0 −0.02		
	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1 mm increments 0.5≦TCC≦(H−D)/2 ⓨ If H≦5, then TCC is 0.5.		
	RC	Head thickness is machined to a tolerance of −0.04～0 relative to the retainer surface. ⊗ Cannot be used for D +0.005 0 types.		
Alterations to shank	SKC	Single key flat on shank Ⓐ: •D3～6 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.	DREG	
	UC	Modification for urethane stripper (USN) installation ⓨ For details P.750. ⊗ Can be used for D10～25.		
	NDC	No press-in lead ℓ≧3 ⇨ ℓ=0		