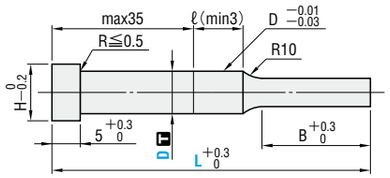
SHOULDER PUNCHES

—WPC® TREATMENT・HW COATING—

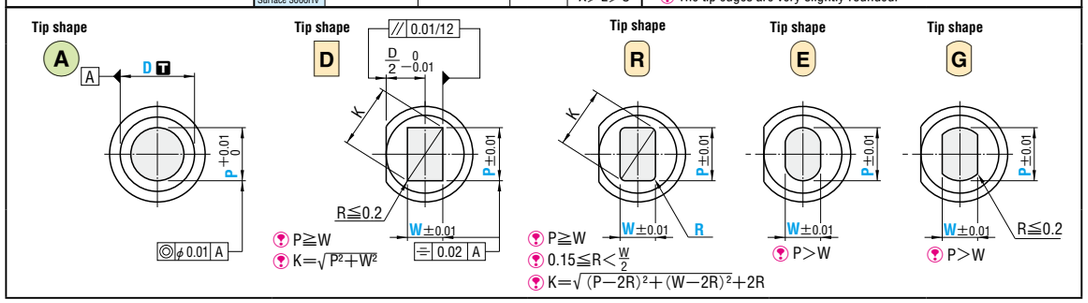
PRODUCTS DATA P.1601・1605

Type	M H	Catalog No. Type: Shank dia. T Dm5	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)
For shank diameter tolerance D T, select either m5 or +0.005/0	Powdered high-speed steel 64～67HRC Surface 3000HV	HW—PH	AHW—PH		X>L>S

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



The tip edges are very slightly rounded.



Type	Tip shape	B Tip length	D	L							0.01 mm increments Ⓐ min. P max.	D R E G P・Kmax.	D R E G P・Wmin.	R R	B	H
(Dm5) —WPC® treatment— W—SP	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
W—SH			4	40	50	60	70	80	90	100	1.00～ 3.99	3.97	1.00			7
W—PH			5	40	50	60	70	80	90	100	2.00～ 4.99	4.97	1.20			8
—HW coating— HW—SH			6	40	50	60	70	80	90	100	2.00～ 5.99	5.97	1.50			9
HW—PH			8	(40)	50	60	70	80	90	100	3.00～ 7.99	7.97	2.00		13	11
(D+0.005/0) —WPC® treatment— AW—SP			10	(40)	50	60	70	80	90	100	3.00～ 9.99	9.97	2.50			13
AW—SH			13	(40)	50	60	70	80	90	100	6.00～ 12.99	12.97	3.00			16
AW—PH			16	(40)	50	60	70	80	90	100	10.00～ 15.99	15.97	4.00		19	19
—HW coating— AHW—SH			20	(40)	50	60	70	80	90	100	13.00～ 19.99	19.97	5.00			23
AHW—PH			25	(40)	50	60	70	80	90	100	18.00～ 24.99	24.97	6.00			28
		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.
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.
L(40)…B=8 If full length is (40), tip length is 8 mm in all cases.

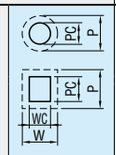
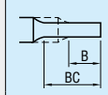
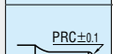
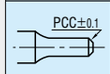
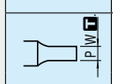
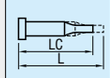
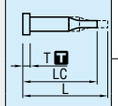
Order

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

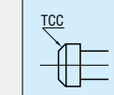
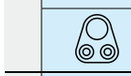
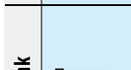
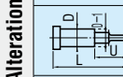
Days to Ship Quotation

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	Ⓐ	D R E G	1Code
Alterations to tip				
	PC WC	Tip dimension change PC≧Pmin./2 0.01 mm increments (If combined with PRC, 0.001 mm increments can be selected.) P(PC) / Bmax.: 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	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) / Bmax.: 0.80～1.49 / 8; 1.50～1.99 / 13; 2.00～3.49 / 19; 3.50～4.99 / 25; 5.00～ / 30	
	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.	——	Quotation
	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+ Full length tolerance change L+0.3/0 ⇨ +0.1/0		
	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+ Full length tolerance change L+0.3/0 ⇨ +0.1/0		

Price Quotation

Alteration	Code	Ⓐ	D R E G	1Code
Alterations to full length				
	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 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.		Quotation
	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 Ⓐ D/2−0.5 −0/−0.01 •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.	D R E G D/2−1 −0/−0.01	
	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		

PUNCHES