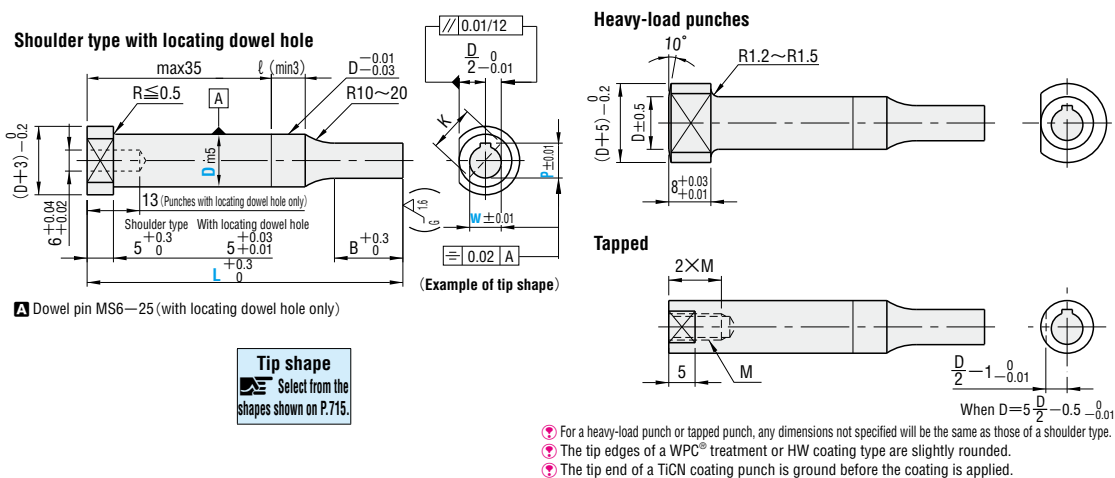


SPECIAL SHAPED PUNCHES

RoHS	Type	Applicable shank diameter	M	H	Catalog No.			
					Normal	TiCN coating Surface hardness 3000HV	WPC [®] treatment Surface hardness 1000~1100HV	HW coating Surface hardness 3000HV
	Shoulder type	4~25	Equivalent to SKD11	60~63HRC	SP	—	W-SP	—
			Equivalent to SKH51	61~64HRC	SH	H-SH	W-SH	HW-SH
			Powdered high-speed steel	64~67HRC	PH	H-PH	W-PH	HW-PH
	With locating dowel hole	10~45	Equivalent to SKD11	60~63HRC	SP-C	(D10~25) H-SP-C	W-SP-C	(D10~25) HW-SP-C
	Heavy-load punches	5~25	Equivalent to SKH51	61~64HRC	AP	H-AP	W-AP	HW-AP
			Powdered high-speed steel	64~67HRC	APH	H-APH	W-APH	HW-APH
	Tapped	5~25	Equivalent to SKD11	60~63HRC	MP	—	W-MP	—



Catalog No.		L	P-K max.	P-W min.	B	Tapped M
Type	Shape					
D 4~25	Normal	4	3.90	2.00	8	—
	TiCN coating	5 (40)	4.90	2.00		
D 4~25	WPC [®] treatment	6	5.90	2.00	13	3
	HW coating	8	7.90	2.00		
D 4~25	Normal	10	9.90	2.50	19	4
	TiCN coating	13 (40)	12.90	3.00		
D 4~25	WPC [®] treatment	16	15.90	4.00	6	5
	HW coating	20	19.90	5.00		
D 10~45	Normal	25	24.90	6.00	19	6
	TiCN coating	32	31.90	7.00		
D 5~25	WPC [®] treatment	38	37.90	8.00	—	—
	HW coating	45	44.90	9.00		

L(40)..... For heavy-load punches, full length (40) cannot be selected.
 - If full length is (40) for punches other than heavy-load punches, tip length is 6mm in all cases.
 L(50)..... If full length is (50) for heavy-load punches, tip length is 8mm in all cases.
 - If full length is (50) for punches other than heavy-load punches, tip length is 13mm in all cases.
 For TiCN coating, WPC[®] treatment, and HW coating types, 10J-13J-5K-10K-18K cannot be used.

Order **Catalog No.** — **L** — **P·W·A·B·C·Q·R·S** ··· 0.01mm increments
 SP3K 25 — 80 — P18.00—W16.00—A8.00
 W-SP29K 10 — 80 — P7.00 —W5.00

Days to Ship **Quotation**

Alterations **Catalog No.** — **L(LC)** — **P·W·A·B·C·Q** ··· (HC·TC, etc.)
 SP3K 25 — LC75 — P18.00—W16.00—A8.00 — BC13—KFC225

Alteration	Code	Spec.	1Code
Alterations to tip	BC	Tip length change $2 \leq BC \leq B_{max}$. 0.1mm increments Full length L must be at least 37mm (or 42mm for heavy load type) longer than tip length BC. If $D \geq 32$ for shapes 9J~13J·16J·K·L, tip length B is as indicated in the table at right.	Quotation
	PKC	Tip tolerance change $P \cdot W \pm 0.01 \rightarrow +0.01$ Cannot be used for $D \geq 32$. Can be used for normal types only.	
Alterations to full length	LC	Full length change $37+B(BC) \leq LC < L$. 0.1mm increments If difference between full length and tip length is 37mm or less, tip length is adjusted to (Full length-37mm). If $D \geq 32$ for 9J~13J·16J·K·L, tip length B is as indicated in the table below.	Quotation
	LKC	Full length tolerance change $L + 0.3 \rightarrow +0.05$	
Alterations to head	LKZ	Full length tolerance change $L + 0.3 \rightarrow +0.01$ Cannot be used for $D \geq 25$. Can be used for normal types only.	Quotation
	HC	Head diameter change $D \leq HC < D+3$. 0.1mm increments Cannot be used for heavy-load punches.	
Alterations to shank	TC	Head thickness change $2 \leq TC < 5$. 0.1mm increments Full length L is shortened by (5-TC). If combined with LC, full length is equal to LC. Cannot be used for heavy-load punches.	Quotation
	KC	Key flat position change 1° increments Cannot be used for MP types with $D=5$.	

Price **Quotation**

Alteration	Code	Spec.	1Code
Alterations to head	WKC	Double key flats in parallel Can be combined with KC. Cannot be used for MP types with $D=5$.	Quotation
	KFC	Double key flats at 0° and a selected angle 1° increments Cannot be combined with KC-WKC. Cannot be used for MP types.	
	TCC	Chamfering of head This improves the strength of the punch head. P.1611 0.1mm increments $0.5 \leq TCC \leq (H-D)/2$ If $H \leq 5$, then TCC is 0.5. Cannot be combined with SRC. Cannot be used for heavy-load punches.	
	RC	Head thickness is machined to a tolerance of $-0.04 \sim 0$ relative to the retainer surface. Can be used for shoulder punches only.	
Alterations to shank	TKC	Head thickness tolerance change $T + 0.3 \rightarrow +0.02$ Can be used for shoulder punches only.	Quotation
	TKM	Head thickness tolerance change $T + 0.3 \rightarrow 0 \rightarrow -0.02$ Can be used for shoulder punches only.	
Alterations to shank	SKC	Single key flat on shank Can be used for normal types only. Cannot be used for $D > 25$. Cannot be used for MP types with $D=5$. Cannot be used for 2L, 3L. Cannot be combined with KC-WKC-KFC. (However this restriction does not apply to 8H, 12H, 18J, 2L, 3L.)	Quotation
		D4~6 (Machining width 0.5) $P_K \leq D-1.2$ D8~12H, 18J D4~6 (Machining width 0.5) $P_K \leq D-1.2$ D8~12 (Machining width 1) $P_K \leq D-2.2$	