

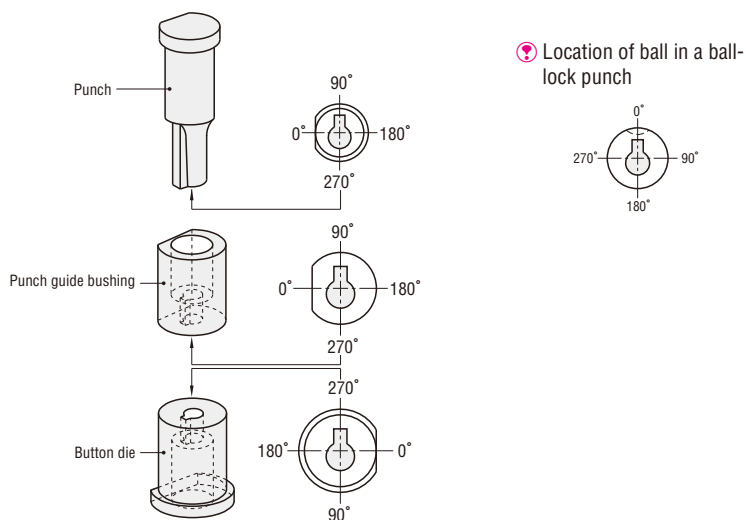
SPECIAL SHAPED PUNCHES & DIES

SPECIAL SHAPED PUNCHES & DIES



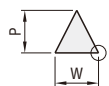
Product name Catalog No.	SPECIAL SHAPED PUNCHES	SPECIAL SHAPED PUNCH GUIDE BUSHINGS & BUTTON DIES	SPECIAL SHAPED BLOCK DIES
Page	597 ~ 606	607	609

Position of key flat



Fillets and sharp corners

Sharp corner

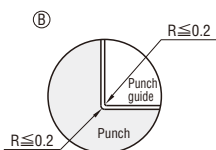
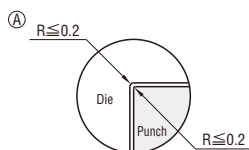
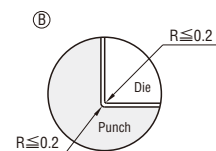
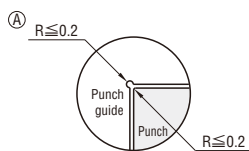


● Generally, rounded to $R \leq 0.2$.

● $R=0$ can be selected.



Fillets and sharp corners of punch • punches guide bushings • button dies



SPECIAL SHAPED PUNCHES & DIES — GUIDE —

■ SPECIAL SHAPED PUNCHES & DIES

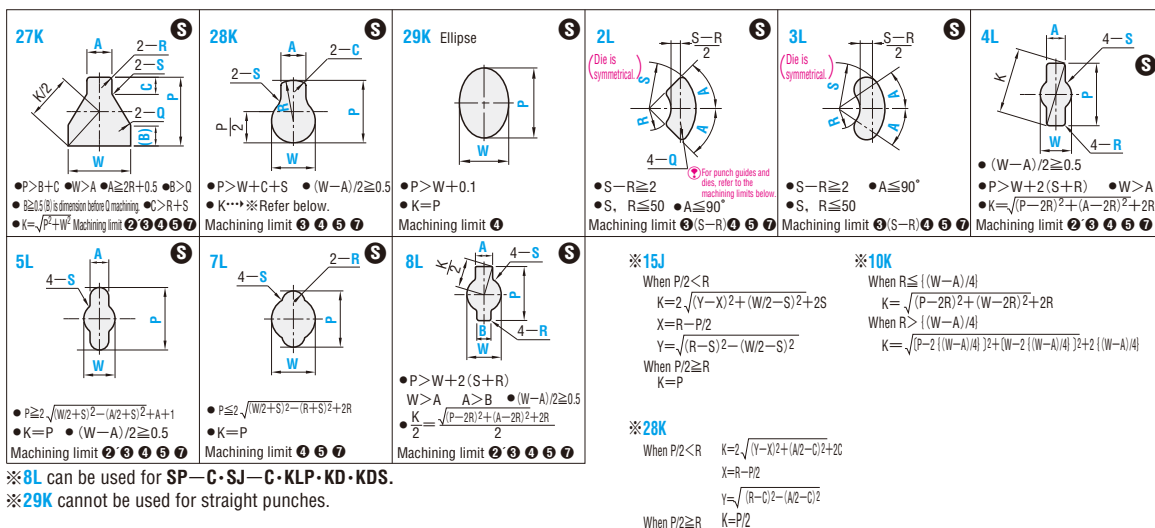
Drawings of shapes	         51 variations								Page  P.595
Type	Product	Normal	TiCN coating	WPC® treatment	HW coating	Shank	Full length	Page	
Punches	• Shoulder punches Equivalent to SKD11 SKH51 Powdered high-speed steel	SP SH PH	H—SH H—PH	W—SP W—SH W—PH	HW—SH HW—PH	D4 ~ 25 D4 ~ 25 D4 ~ 25	L40 ~ 100 L40 ~ 100 L40 ~ 100	P.597	
	• Punches with locating dowel holes	SP—C		W—SP—C		D10 ~ 45	L40 ~ 120		
	• Punches for heavy load SKH51 Powdered high-speed steel	AP APH	H—AP H—APH	W—AP W—APH	HW—AP HW—APH	D5 ~ 25 D5 ~ 25	L50 ~ 100 L50 ~ 100		
	• Tapped punches	MP		W—MP		D5 ~ 25	L40 ~ 100		
	• Jector punches Equivalent to SKD11 Powdered high-speed steel	SJ PJ	H—PJ	W—SJ W—PJ	HW—PJ	D5 ~ 25 D5 ~ 25	L40 ~ 100 L40 ~ 100	P.599	
	• Jector punches with locating dowel holes	SJ—C		W—SJ—C		D10 ~ 45	L60 ~ 120		
	• Ball-lock punches Light load Heavy load	ELP KLP EBP KBP				D10 ~ 32 D10 ~ 32	L63 ~ 90 L71 ~ 100	P.601	
	• Block punches (Straight•Tapped•With key groove) Single flange•Double flanges	Equivalent to SKD11 SKH51 Powdered high-speed steel H□ PH□	H—HS□ H—PH□			V3 ~ 50 V3 ~ 30 V3 ~ 30	L40 ~ 80 L40 ~ 80 L40 ~ 80	P.603	
	• Straight punches (Straight•Tapped•With key groove)	Equivalent to SKD11 SKH51 Powdered high-speed steel H□C PH□C	H—HS□C H—PH□C			P2.00 ~ 30.00 P2.00 ~ 30.00 P2.00 ~ 30.00	L40 ~ 80 L40 ~ 80 L40 ~ 80	P.605	
Punch guide bushings	• Punch guide bushings Headed Straight	HG SG				D8 ~ 16 D8 ~ 16	L10 ~ 25 L10 ~ 25	P.607	
Button dies	• Button dies Headed Straight Dowel slot	HD SD KD				D6 ~ 56 D8 ~ 56 D10 ~ 56	L16 ~ 35 L16 ~ 35 L16 ~ 35		
	• Tilting button dies Headed Straight Dowel slot	HDS SDS KDS				D10 ~ 56 D10 ~ 56 D10 ~ 56	L40 L16 ~ 40 L16 ~ 40		
Block dies	• Straight	Equivalent to SKD11 Powdered high-speed steel BL PBL				V•H6 ~ 25	L16 ~ 35	P.609	
	• Single flange	Equivalent to SKD11 Powdered high-speed steel BLF PBLF							
	• Configurable size type	Equivalent to SKD11 Powdered high-speed steel FBL FPBL							

SHAPES OF SPECIAL SHAPED PUNCHES & DIES

⑧ The center of the tip or shaped hole is located at the point that divides P and W dimensions each into two equal lengths. It is not located at the shape center of gravity (except for shapes 12H·17J·23K·25K·2L·3L).

2H ⑤ • $K = \sqrt{P^2 + W^2}$ Machining limit ④ ⑤ ⑥	4H ⑤ • $W > A \geq 0.5$ • $K = \sqrt{P^2 + W^2}$ Machining limit ④ ⑤ ⑥ ⑦	5H ⑤ • $P > W/2$ • $K = \sqrt{P^2 + W^2}$ Machining limit ④ ⑤ ⑦	6H ⑤ • $W > 2R$ • $K = \sqrt{P^2 + W^2}$ Machining limit ④ ⑤	7H ⑤ • $K = P$ Machining limit ④ ⑤	8H ⑤ • $K = 1.1547 \times P$ Machining limit ④ ⑤
9H ⑤ • $P > B$ • $K = \sqrt{P^2 + W^2}$ Machining limit ② ③ ④ ⑤ ⑥	10H ⑤ • $24 \geq R > \frac{W}{2}$ • $P/2 > R \dots K = P$ • $P/2 < R \dots K = \sqrt{4(Y-X)^2 + W^2}$ • $X = R - P/2$, $Y = \sqrt{R^2 - (W/2)^2}$ Machining limit ④ ⑤	11H ⑤ • $W > 2S$ • $R < S$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ④ ⑤ ⑥	12H ⑤ (Die is symmetrical) • $P > W \geq P/2 + 0.2$ • $K = P$ Machining limit ④ ⑤	2J ⑤ • $W > 2S$ • $K = \sqrt{(P-2S)^2 + (W-2S)^2} + 2S$ Machining limit ④ ⑤ ⑥	3J ⑤ • $P > W$ • $W > A \geq 0.5$ • $K = \sqrt{P^2 + A^2}$ Machining limit ③ ④ ⑤ ⑥
4J ⑤ • $P > R + S$ • $A \geq 2R + 0.5$ • $W \geq 2S + 0.5$ • $W > A \geq 0.5$ • A is dimension before R machining • $K = \sqrt{(P-2S)^2 + (W-2S)^2} + 2S$ Machining limit ② ③ ④ ⑤ ⑥	5J ⑤ • $P \geq W/2 + R + 0.5$ • $W \geq 2R + 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ④ ⑤	8J ⑤ • $P > W$ • $W > 2R$ • $K = P$ Machining limit ④ ⑤	9J ⑤ • $P \geq B + 0.5$ • $W \geq A + 1$ • $K = \sqrt{P^2 + W^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	10J ⑤ • $W \geq A + 1$ • $P \geq B + 0.5$ • $K = \sqrt{P^2 + W^2}$ Machining limit ② ③ ④ ⑤ ⑥ ⑦	11J ⑤ (Die is symmetrical) • $W \geq A + 0.5$ • $P \geq B + 0.5$ • $K = \sqrt{P^2 + W^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦
12J ⑤ • $P \geq B + 1$ • $W \geq A + 1$ • $K_1 = \sqrt{P^2 + A^2}$ • $K_2 = \sqrt{W^2 + B^2}$ • $K_1 > K_2 \dots K = K_1$, $K_1 < K_2 \dots K = K_2$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	13J ⑤ • $P \geq B + 1$ • $W \geq A + 1$ • $K = \sqrt{P^2 + W^2}$ Machining limit ② ③ ④ ⑤ ⑥ ⑦	14J ⑤ • $P > B \geq 0.5$ • $K = \sqrt{P^2 + W^2}$ • (B) is dimension before S machining. Machining limit ④ ⑤	15J ⑤ • $24 \geq R > \frac{W}{2}$ • $K \dots$ Refer to page at right. Machining limit ④ ⑤	16J ⑤ (Die is symmetrical) • $W \geq A + 0.5$ • $P \geq B + 0.5$ • $K = \sqrt{P^2 + W^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	17J ⑤ (Die is symmetrical) • $P > W \geq P/2 + R + 0.2$ • $K = P$ • $R = 0$ cannot be selected. Machining limit ④ ⑤
18J ⑤ • $K = 1.1547(P-2R) + 2R$ Machining limit ④ ⑤	3K ⑤ • $P > W$ • $W > A \geq 0.5$ • $(W-A)/2 \geq 0.5$ • $K = \sqrt{P^2 + A^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	4K ⑤ • $W \geq A + 2(R+S) + 1$ • $P \geq B + R + S + 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ① ② ③ ④ ⑤ ⑥ ⑦	5K ⑤ • $W \geq A + 4R + 1$ • $A \geq 2S + 0.5$ • $P > W$ • $(W-A)/2 \geq 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ② ③ ④ ⑤ ⑥ ⑦	6K ⑤ • $S = \frac{P^2 - 4PR + W^2}{4(W-2R)} \leq 24$ • $K = P$ Machining limit ④ ⑤	8K ⑤ • $P \geq \sqrt{(W/2+S)^2 - (A/2+S)^2} + R + W/2 + 0.5$ • $A \geq 2R + 0.5$ • $(W-A)/2 \geq 0.5$ • $K = \sqrt{(P-2R)^2 + (A-2R)^2} + 2R$ Machining limit ① ③ ④ ⑤ ⑥ ⑦
9K ⑤ • $W \geq A + 2(R+S) + 1$ • $P \geq B + S + A/2 + 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	10K ⑤ • $P \geq B + \frac{W-A}{2} + S + 0.5$ • $A \geq 2S + 0.5$ • $K \dots$ Refer to page at right. Machining limit ② ③ ④ ⑤ ⑥ ⑦	13K ⑤ • $(W-A)/2 \geq 0.5$ • $P \geq \sqrt{(W/2+S)^2 - (A/2+S)^2} + A/2 + W/2 + 0.5$ • $K = P$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	14K ⑤ • $W > A \geq 0.5$ • $P > W$ • $(W-A)/2 \geq 0.5$ • $K = \sqrt{P^2 + A^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	15K ⑤ • $P > W$ • $W > A$ • $K = P$ • $(W-A)/2 \geq 0.5$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	17K ⑤ • $P \geq B + 2(R+S) + 1$ • $W \geq A + 2(R+S) + 1$ • $K_1 = \sqrt{(P-2R)^2 + (A-2R)^2} + 2R$ • $K_2 = \sqrt{(W-2R)^2 + (B-2R)^2} + 2R$ • $K_1 > K_2 \dots K = K_1$, $K_1 < K_2 \dots K = K_2$ Machining limit ① ③ ④ ⑤ ⑥ ⑦
18K ⑤ • $P \geq B + 4R + 1$ • $W \geq A + 2(R+S) + 1$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ② ③ ④ ⑤ ⑥ ⑦	20K ⑤ (Die is symmetrical) • $P \geq B + R + S + 0.5$ • $W \geq A + R + S + 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	21K ⑤ (Die is symmetrical) • $P \geq B + R + S + 0.5$ • $W \geq A + R + S + 0.5$ • $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	22K ⑤ • $P \leq \sqrt{(W/2+S)^2 - (R+S)^2} + R + W/2$ • $K = P$ • $R < W/2$ Machining limit ④ ⑤ ⑦	23K ⑤ • $P > W$ • $W > A \geq 0.5$ • $(W-A)/2 \geq 0.5$ • $K = 2 \sqrt{(P-W/2)^2 + (A/2)^2}$ Machining limit ① ③ ④ ⑤ ⑥ ⑦	25K ⑤ • $(W-A)/2 \geq 0.5$ • $P \geq \sqrt{(W/2+S)^2 - (A/2+S)^2} + A/2 + W/2 + 0.5$ • $K = 2(P-W/2)$ Machining limit ① ③ ④ ⑤ ⑥ ⑦

⑧ TiCN coating, WPC® treatment, and HW coating can be used for the shapes marked with ⑤ P.597~600, P.603~606



Punch machining limit

① Limits for cutout width and depth	① Limits for cutout width and depth	② Limits for groove width and depth	② Limits for groove width and depth	③ Limits for width and tip length
④ Limits for tip wall thickness	⑤ Limits for interior-exterior angles	⑥ Reduction in dimensions due to chamfering	⑦ Limits for tip dimension	

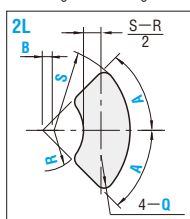
Increment

Dimension tolerance	Increment
$W \pm 0.01$	0.01mm increments
$P \pm 0.01$	0.01mm increments
$A \pm 0.01$	0.01mm increments
$B \pm 0.01$	0.01mm increments
$C \pm 0.01$	0.01mm increments
Q	0.01mm increments
R	0.01mm increments
S	0.01mm increments
$C(R)$	0.01mm increments
A° (Angle)	0.1° increments

Machining limits for punch guide bushings·button dies·block dies

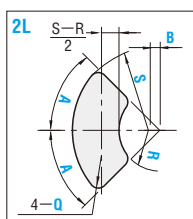
- For button dies and block dies, the shapes 12H·11J·16J·17J·20K·21K·2L·3L are symmetrical.
- For 2L, specify the reference point B for angle A in order to achieve even clearance relative to the punch shape. (Refer to the figure below.)

•Punch guide bushings



$$B = \frac{\text{Clearance (one side)}}{\sin A}$$

•Button dies·block dies



$$0 \leq B \leq 2.00 \quad 0.01\text{mm increments}$$

Limits for groove width and depth	Interior-exterior angle

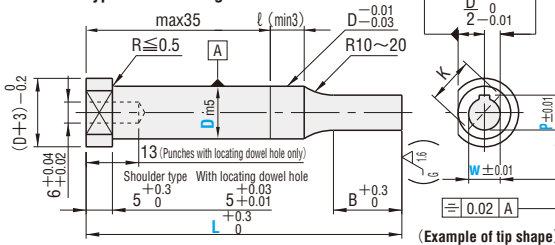
Increment

Dimension tolerance	Increment
$W \pm 0.01$	0.01mm increments
$P \pm 0.01$	0.01mm increments
$A \pm 0.01$	0.01mm increments
$B \pm 0.01$	0.01mm increments
$C \pm 0.01$	0.01mm increments
Q	0.01mm increments
R	0.01mm increments
S	0.01mm increments
$C(R)$	0.01mm increments
A° (Angle)	0.1° increments

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	—
			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	—	W—SP—C	—
	Heavy-load punches	5~25	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	—

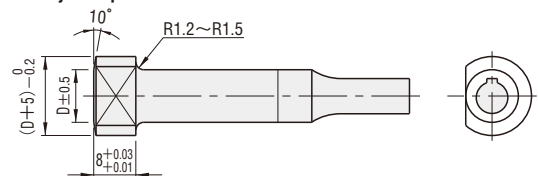
Shoulder type with locating dowel hole



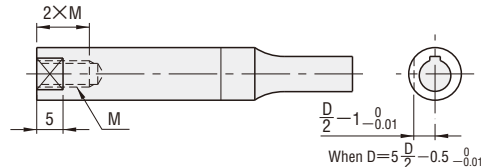
▲ Dowel pin MS6—25 (with locating dowel hole only)

Tip shape
Select from the shapes shown on P.595.

Heavy-load punches



Tapped



- ① For a heavy-load punch or tapped punch, any dimensions not specified will be the same as those of a shoulder type.
- ② The tip edges of a WPC® treatment or HW coating type are slightly rounded.
- ③ The tip end of a TiCN coating punch is ground before the coating is applied.

Catalog No.				L	P-K max.	P-W min.	B	Tapped M
Type	Shape	D						
—Normal— —TiCN coating— —WPC® treatment— —HW coating— D 4~25 SP SH H—SH H—PH W—SP W—SH W—PH HW—SH D 4~25 PH H—PH W—PH HW—PH D10~45 SP—C W—SP—C D 5~25 AP H—AP W—AP HW—AP D 5~25 APH H—APH W—APH HW—APH D 5~25 MP W—MP	2H~12H	4			3.90	2.00		—
	2J~18J	5	(40) 50 60 70 80		4.90	2.00	8	3
	3K~29K	6			5.90	2.00		
	2L~7L	8			7.90	2.00		4
		10			9.90	2.50	13	5
		13	(40) (50) 60 70 80 90 100		12.90	3.00		
		16			15.90	4.00		6
		20			19.90	5.00		
		25			24.90	6.00	19	
		32	70 80 90 100 110 120		31.90	7.00		
		38	80 90 100 110 120		37.90	8.00		—
		45			44.90	9.00		

Tip shape
Select from the shapes shown on P.595.

- ① 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.
- ② 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.
- ③ 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.)

SPK 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.	<table><tr><td>P·W</td><td>B_{max}</td></tr><tr><td>2.00~2.99</td><td>13</td></tr><tr><td>3.00~3.99</td><td>19</td></tr><tr><td>4.00~4.99</td><td>25</td></tr><tr><td>5.00~</td><td>30</td></tr></table> <table><tr><td>L (LC)</td><td>B_{max}</td></tr><tr><td></td><td>D32 D38~45</td></tr><tr><td>50.0~59.9</td><td>6</td></tr><tr><td>60.0~69.9</td><td>13</td></tr><tr><td>70.0~79.9</td><td>19</td></tr><tr><td>80.0~</td><td>19</td></tr></table>	P·W	B _{max}	2.00~2.99	13	3.00~3.99	19	4.00~4.99	25	5.00~	30	L (LC)	B _{max}		D32 D38~45	50.0~59.9	6	60.0~69.9	13	70.0~79.9	19	80.0~	19
	P·W	B _{max}																							
2.00~2.99	13																								
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70.0~79.9	19																								
80.0~	19																								
 PKC	Tip tolerance change $P \cdot W \pm 0.01 \Rightarrow +0.01$ 0 ✗ 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.	<table><tr><td>L (LC)</td><td>B_{max}</td></tr><tr><td></td><td>D32 D38~45</td></tr><tr><td>50.0~59.9</td><td>6</td></tr><tr><td>60.0~69.9</td><td>13</td></tr><tr><td>70.0~79.9</td><td>19</td></tr><tr><td>80.0~</td><td>19</td></tr></table>	L (LC)	B _{max}		D32 D38~45	50.0~59.9	6	60.0~69.9	13	70.0~79.9	19	80.0~	19										
	L (LC)	B _{max}																							
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60.0~69.9	13																								
70.0~79.9	19																								
80.0~	19																								
 LKC	Full length tolerance change $L +0.3 \Rightarrow +0.05$ 0																								
 LKZ	Full length tolerance change $L +0.3 \Rightarrow +0.01$ 0 ✗ Cannot be used for $D \geq 25$ ♡ Can be used for normal types only.																								
Alterations to head	 HC	Head diameter change $D \leq HC < D+3$ 0.1mm increments ✗ Cannot be used for heavy-load punches.																							
	 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.																							
	 KC	Key flat position change 1° increments ✗ Cannot be used for MP types with $D=5$.																							
	 WKC	Double key flats in parallel Can be combined with KC. ✗ Cannot be used for MP types with $D=5$.																							
	 KFC	Double key flats at 0° and a selected angle 1° increments ✗ Cannot be combined with KC·WKC. ✗ Cannot be used for MP types.																							

Quotation

Quotation



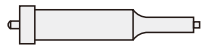
Price

Quotation

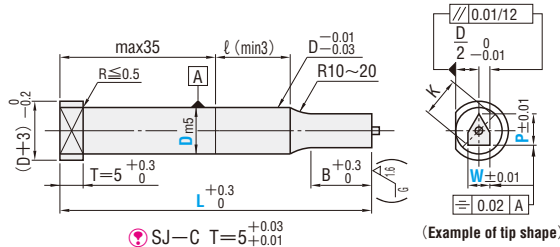
Alteration	Code	Spec.	1Code
Alterations to head	 TCC	Chamfering of head This improves the strength of the punch head. P.1097 0.1mm increments $0.5 \leq TCC \leq (H-D)/2$ If $H \leq 5$, then TCC is 0.5. Cannot be combined with SRC. Cannot be used for heavy-load punches.	
	 RC	Head thickness is machined to a tolerance of —0.04~0 relative to the retainer surface. Can be used for shoulder punches only.	
	 SRC	Modification of head for use with select retainers (SLS) Details P.629 Can be used for D10~25.	
	 TKC	Head thickness tolerance change $T +0.3 \Rightarrow +0.02$ 0	
Alterations to shank	 TKM	Head thickness tolerance change $T +0.3 \Rightarrow 0$ 0	
	 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.) D4~6 (Machining width 0.5) $W \leq D-1.2$ D8~ (Machining width 1) $W \leq D-2.2$ 8H, 12H, 18J D4~6 (Machining width 0.5) $P \cdot K \leq D-1.2$ D8~ (Machining width 1) $P \cdot K \leq D-2.2$	

Quotation

SPECIAL SHAPED JECTOR 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 	5~25	(D5~6) SKH51 (D8~25) Equivalent to SKD11	(D5~6) 61~64HRC (D8~25) 60~63HRC	SJ	—	W—SJ	—
			Powdered high-speed steel	64~67HRC	PJ	H—PJ	W—PJ	HW—PJ
	With locating dowel hole 	10~45 (L≥60)	Equivalent to SKD11	60~63HRC	SJ—C	—	W—SJ—C	—

Tip shape
Select from the shapes shown on P.595.



A Dowel pin MS6—25 (with locating dowel hole only)

The tip edges of a WPC® treatment or HW coating type are slightly rounded.

The tip end of a TiCN coating punch is ground before the coating is applied.

Catalog No.		Shape	D	L	P·K max.	P·W min.	B
Type							
—Normal—	—TiCN coating—	—WPC® treatment—	—HW coating—				
D5~25	SJ	W—SJ			4.90	2.00	8
				(40) 50 60 70 80	5.90	2.00	
D5~25	PJ	H—PJ	W—PJ		7.90	3.00	13
					9.90	3.00	
					12.90	6.00	
				(40) (50) (60) 70 80 90 100	15.90	6.00	
D10~45 L≥60	SJ—C	W—SJ—C			19.90	6.00	19
					24.90	6.00	
					31.90	7.00	
				70 80 90 100 110 120	37.90	8.00	
				80 90 100 110 120	44.90	9.00	

L (40) → B=6 If full length is (40), tip length is 6mm in all cases.

L (50) → B=13 If full length is (50), tip length is 13mm in all cases.

SJ—C → L≥60 Specifications with L<60 are not available. If full length is (60), tip length is 13mm in all cases.

Jector hole and machining limit

D	J
5~8	1.0
10~13	1.5
16~32	2.0
38~45	4.0

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

SJ3K 25 — 80 — P18.00—W16.00—A8.00

W—SJ29K10 — 80 — P 7.00—W 5.00



Days to Ship

Quotation



Alterations



Catalog No.

L (LC)

P·W·A·B·C·Q...

(BC·HC·TC, etc.)

SJ3K 25

LC75

P18.00—W16.00—A8.00

BC13—KFC225

Alteration	Code	Spec.	1Code																		
Alterations to tip	 BC	Tip length change $2 \leq BC < B$ 0.1mm increments ❗ If $D \geq 32$ for shapes 9J~13J·16J·K·L, tip length B is as indicated in the table below. <table><tr><th>L</th><th colspan="2">Bmax</th></tr><tr><th></th><th>D32</th><th>D38-45</th></tr><tr><td>50.0~59.9</td><td>6</td><td>—</td></tr><tr><td>60.0~69.9</td><td>13</td><td>4</td></tr><tr><td>70.0~79.9</td><td>19</td><td>11</td></tr><tr><td>80.0~</td><td>19</td><td>19</td></tr></table>	L	Bmax			D32	D38-45	50.0~59.9	6	—	60.0~69.9	13	4	70.0~79.9	19	11	80.0~	19	19	
	L	Bmax																			
	D32	D38-45																			
50.0~59.9	6	—																			
60.0~69.9	13	4																			
70.0~79.9	19	11																			
80.0~	19	19																			
 PKC	Tip tolerance change $P \cdot W \pm 0.01 \Rightarrow +0.01$ 0 ❗ Cannot be used for $D \geq 32$. ❗ Can be used for normal types only.																				
Alterations to full length	 LC	Full length change $LC < L$ 0.1mm increments ❗ Tip length B is shortened by $(L-LC)$. ❗ If $D \geq 32$ for 9J~13J·16J·K·L, tip length B is as indicated in the table below. <table><tr><th>L</th><th colspan="2">Bmax</th></tr><tr><th></th><th>D32</th><th>D38-45</th></tr><tr><td>50.0~59.9</td><td>6</td><td>—</td></tr><tr><td>60.0~69.9</td><td>13</td><td>4</td></tr><tr><td>70.0~79.9</td><td>19</td><td>11</td></tr><tr><td>80.0~</td><td>19</td><td>19</td></tr></table>	L	Bmax			D32	D38-45	50.0~59.9	6	—	60.0~69.9	13	4	70.0~79.9	19	11	80.0~	19	19	Quotation
	L	Bmax																			
		D32	D38-45																		
	50.0~59.9	6	—																		
60.0~69.9	13	4																			
70.0~79.9	19	11																			
80.0~	19	19																			
 LKC	Full length tolerance change $L +0.3 \Rightarrow +0.05$ 0 0																				
 LKZ	Full length tolerance change $L +0.3 \Rightarrow +0.01$ 0 0 ❗ Cannot be used for $D > 25$. ❗ Can be used for normal types only.																				
Alterations to head	 HC	Head diameter change $D \leq HC < D+3$ 0.1mm increments																			
	 TC	Head thickness change $3.5 \leq TC < 5$ 0.1mm increments ❗ Full length L is shortened by $(5-TC)$. If combined with LC, full length is equal to LC.																			
	 KC	Key flat position change 1° increments																			

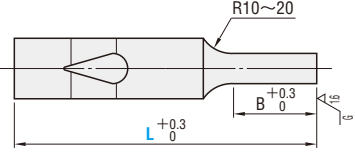
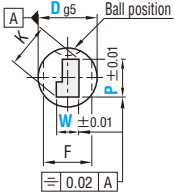
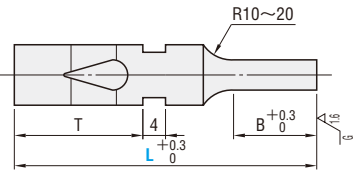


Price

Quotation

Alteration	Code	Spec.	1Code
Alterations to head	 WKC	Addition of double key flats in parallel	
	 KFC	Double key flats at 0° and a selected angle 1° increments ❗ Cannot be combined with KC·WKC.	
	 TCC	Chamfering of head This improves the strength of the punch head. P.1097 0.1 mm increments $0.5 \leq TCC \leq (H-D)/2$ ❗ If $H \leq 5$, then TCC is 0.5. ❗ Cannot be combined with SRC.	
	 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.	
	 SRC	Modification of head for use with select retainers (SLS) ❗ Details P.629 ❗ Can be used for D10 ~ 25.	
	 TKC	Head thickness tolerance change $+0.3 \rightarrow +0.02$ 0 0 ❗ Can be used for shoulder punches only.	Quotation
	 TKM	Head thickness tolerance change $+0.3 \rightarrow 0$ 0 -0.02 ❗ Can be used for shoulder punches only.	
Others	 AC	The jector pin is removed to create an air path and the side vent hole is plugged from the inside.	
	 NC	The jector pin is removed. ❗ Cannot be combined with AC.	
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 2L, 3L. ❗ Cannot be combined with KC·WKC·KFC. (However this restriction does not apply to 8H, 12H, 18L, 3L, 3.) ❗ D5-6 (Machining width 0.5) $W \leq D-1.2$ ❗ D8~ (Machining width 1) $W \leq D-2.2$ ❗ 8H, 12H, 18J ❗ D5-6 (Machining width 0.5) $P \cdot K \leq D-1.2$ ❗ D8~ (Machining width 1) $P \cdot K \leq D-2.2$	

SPECIAL SHAPED BALL-LOCK PUNCHES

Type	Applicable shank diameter	M	H	Type	Tip shape	Tip shape	Select from the shapes shown on P.595. RoHS
	Light load	Equivalent to SKD11	60~63HRC	ELP			(Example of tip shape)
	Heavy load	SKH51	61~64HRC	EBP			
—With wrench flat— 	Light load	Equivalent to SKD11	60~63HRC	KLP			
	Heavy load	SKH51	61~64HRC	KBP			

Catalog No.			L					P・K max.	P・W min.	B	T	F
Type	Shape	D										
— With wrench flat — ELP KLP	Light load 2H~12H 2J~18J 3K~29K 2L~ 7L 8L (KLP only)	10	63 71 74 80 90	9.90	2.50	13	27	8				
		13		12.90	3.00			10				
		16		15.90	4.00	19		13				
		20		19.90	5.00			17				
		25		24.90	6.00			22				
		32		31.90	7.00			29				
		— With wrench flat — EBP KBP		Heavy load Tip shape  Select from the shapes shown on P.595.	10	71 80 90 100	9.90	2.50	13	36	8	
13	12.90		3.00		10							
16	15.90		4.00		19		13					
20	19.90		5.00				17					
25	24.90		6.00				22					
32	31.90		7.00				29					

The wrench flat is used to check that the punch is correctly locked in place. P.665



Order

Catalog No. — L — P·W·A·B·C·Q·R·S...0.01mm increments

ELP3K 25 — 80 — P18.00—W16.00—A8.00



Days to Ship

Quotation



Alterations



Catalog No. — **L (LC)** — **P·W·A·B·C·Q...** — (BC·KC, etc.)
 ELP3K 25 — LC73 — P18.00—W16.00—A8.00 — BC13

Alteration	Code	Spec.	1Code										
Alterations to full length	 LC	Full length change $50+B(BC) \leq LC < L$ 0.1mm increments ⚠ If difference between full length and tip length is 50mm or less, tip length is adjusted to (Full length—50mm) (or to (Full length—45mm) for light load punches). ⚠ If D=32 for shapes 9J~13J·16J·K·L, tip length B is as indicated in the table at right. <table><tr><th>L (LC)</th><th>Bmax. D32</th></tr><tr><td>50.0~59.9</td><td>6</td></tr><tr><td>60.0~69.9</td><td>13</td></tr><tr><td>70.0~79.9</td><td>19</td></tr><tr><td>80.0~</td><td>19</td></tr></table>	L (LC)	Bmax. D32	50.0~59.9	6	60.0~69.9	13	70.0~79.9	19	80.0~	19	Quotation
	L (LC)	Bmax. D32											
50.0~59.9	6												
60.0~69.9	13												
70.0~79.9	19												
80.0~	19												
 LKC	Full length tolerance change $L \begin{smallmatrix} +0.3 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$												



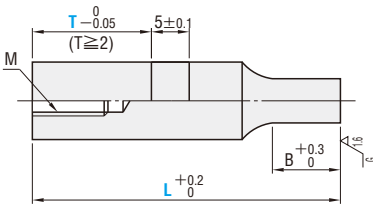
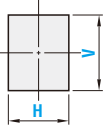
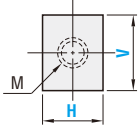
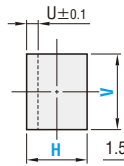
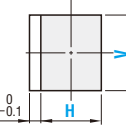
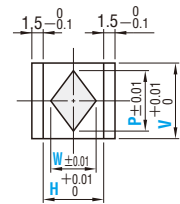
Price

Quotation

Alteration	Code	Spec.	1Code										
Alterations to tip	 BC	Tip length change $2 \leq BC \leq Bmax.$ 0.1mm increments ⚠ Full length L must be at least 50mm (45mm for light load punches) longer than tip length BC. <table><tr><th>P·W</th><th>Bmax.</th></tr><tr><td>2.50~2.99</td><td>13</td></tr><tr><td>3.00~3.99</td><td>19</td></tr><tr><td>4.00~4.99</td><td>25</td></tr><tr><td>5.00~</td><td>30</td></tr></table>	P·W	Bmax.	2.50~2.99	13	3.00~3.99	19	4.00~4.99	25	5.00~	30	Quotation
	P·W	Bmax.											
2.50~2.99	13												
3.00~3.99	19												
4.00~4.99	25												
5.00~	30												
 PKC	Tip tolerance change $P \cdot W \pm 0.01 \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$ ⊗ Cannot be used for D=32.												
Others	 KC	Ball position change 1° increments 											

SPECIAL SHAPED BLOCK PUNCHES

	RoHS	M	H	S	Type				
					Straight	Tapped	With key groove	Single flange	Double flanges
		H3~5 SKH51 H6~30 Equivalent to SKD11	H3~5 61~64HRC H6~30 60~63HRC	—	HP	HM	HK	HF	HW
		Powdered high-speed steel	64~67HRC	—	PHP	PHM	PHK	PHF	PHW
		SKH51	61~64HRC	TiCN surface treatment 3000HV	H—HSP	H—HSM	H—HSK	H—HSF	H—HSW
		Powdered high-speed steel	64~67HRC	TiCN surface treatment 3000HV	H—PHP	H—PHM	H—PHK	H—PHF	H—PHW

Shank type	Straight	Tapped	With key groove	Single flange type	Double flanges type
					
(Example of tip shape) For single flange and double flanges types, the flange thickness is $5^{+0.2}_0$ mm.					

Catalog No.		V	H	P _{min}	3	4	5	6	8	10	13	16	20	22	25	28	30	40	50	L	B	M	U
Type	Shape				1.5	2.0	2.5	3.0	3.0	4.0	5.0	7.0	8.0	9.0	10.0	12.0	12.0	16.0	20.0				
V3~V50	V3~V30	(3)	1.0		○	○	○	○	○	○	○	○	○	○						(40)	8	—	1.0
HP	PHP	(4)	1.0			○	○	○	○	○	○	○	○	○									
HM	PHM	5	1.2				○	○	○	○	○	○	○	○									
HK	PHK	6	1.5					○	○	○	○	○	○	○									
HF	PHF	8	2.0						○	○	○	○	○	○									
HW	PHW	10	2.5							○	○	○	○	○									
V3~V30	V3~V30	13	3.0								○	○	○	○									
H—HSP	H—PHP	16	4.0									○	○	○									
H—HSM	H—PHM	20	5.0										○	○									
H—HSK	H—PHK	22	6.0											○									
H—HSF	H—PHF	25	6.5												○					(19)	13	8	1.5
H—HSW	H—PHW	28	7.0													○							
		30	7.5														○						
																		○					

① H = (3), (4) ... L = 40~70 If H dimension is (3) or (4), full length L is within a range of 40~70. L80 is not available.

② H = 10~30, L = (40) ... B = 8 If H dimension is 10~30 and L dimension is 40, tip length B is 8mm in all cases.

③ 9J~13J·16J·K·L Type...Pmax. = 30.00

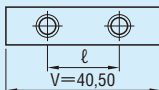
④ For 29K, 13 ≤ H·V ≤ 25, P ≤ V - 0.4, W ≤ H - 0.4, tip length B = 13

⑤ For coating punches, 10J·13J·5K·10K·18K·29K cannot be used.

⑥ Although the effective range of coating is part B, an extremely thin coating film is formed also on part S to a length of approximately 10mm.



⑦ Tap M of HM·PHM·H—HSM·H—PHM

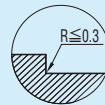


V	40	50
ℓ	20	24

⑧ Details of key groove



⑨ Details of flange





Order

H	No.
3~10	1
13~22	2
25~30	3

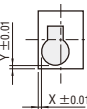
(1)



- In case of H3~10
- In case of H13~22
- In case of H25~30

Catalog No.	No.	Catalog No.	V	H	L	0.01mm increments	(T·K·F·WF)
HP 4J	1	HP 4J	06	05	50	P5.25-W3.83-A3.50-R1.50	\$1.50
HP 4J	2	HP 4J	20	16	60	P16.32-W14.23-A8.00-R3.50	\$4.00
HP 4J	3	HP 4J	40	30	70	P35.88-W28.45-A8.00-R3.90	\$6.50

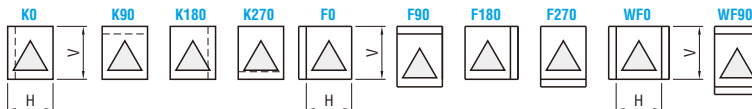
(2)



Catalog No.	No.	Catalog No.	V	H	L	0.01mm increments	(T·K·F·WF)
HP 4J	2	HP 4J	13	13	70	P8.44-W6.23-A2.50-R1.22	\$2.10
						X1.00-Y1.00	

- ⚠ (X and Y dimensions must be set either to 0 or to 0.02 or more. Tolerance ± 0.01)
- ⊗ For 29K, X and Y cannot be selected.

Key groove and flange position selection



Days to Ship

Quotation



Alterations



Catalog No.	No.	Catalog No.	V	H	L (LC)	P (PC) · W (WC) · A · ...	(T·K·F·WF)	(BC·HC, etc.)
H-HSP 7H	1	H-HSP 7H	13	10	LC65.0	P10.00-WC2.00-R0.50	\$2.00	BC8.00

Alteration	Code	Spec.	1Code
Alterations to tip	PC WC	Tip dimension change $1.00 \leq V \times 0.3 \leq PC$ $0.50 \leq H \times 0.15 \leq WC$ ⊗ Cannot be used for 29K.	
	BC	Tip length change $2 \leq BC \leq B_{max}$. 0.1mm increments ⚠ Full length L must be at least 30mm longer than tip length BC. ⚠ The requirements of machining limit ⚠ take priority. ⚠ P.596 ⚠ 29K → $2 \leq BC \leq B_{max} \leq 13$	Quotation
	PKC	Tip tolerance $P \cdot W \pm 0.01 \rightarrow +0.01$ change ⊗ Cannot be used with TiCN coating. ⊗ Cannot be used for 29K.	

Alteration	Code	Spec.	1Code
Alterations to full length	LC	Full length change $30 + B (BC) \leq LC < L$. 0.1mm increments If difference between full length (LC) and tip length (B) is 30mm or less, tip length is adjusted to (Full length-30).	
	LKC LKZ	Full length tolerance change $L \begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$ Full length tolerance change $L \begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$ ⊗ Cannot be used with TiCN coating.	
Alterations to key groove	RTC	Key groove position tolerance $T \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$ change	Quotation
	TKC	Key groove position tolerance $T \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix} \rightarrow \begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$ change	
Alterations to flange	HC	Flange width change $0 \leq HC < 1.5$ 0.1mm increments	
	TC	Flange 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.	
	TKC TKM	Flange thickness tolerance change $T \begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$ Flange thickness tolerance change $T \begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix} \rightarrow \begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	



Price

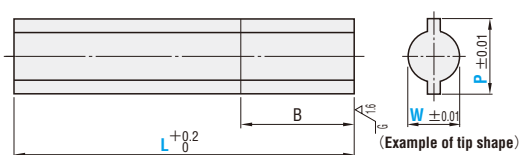
Quotation

SPECIAL SHAPED STRAIGHT PUNCHES

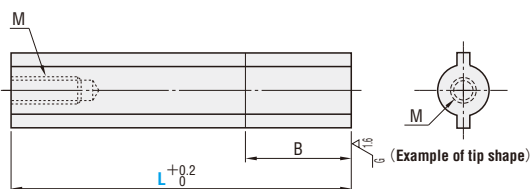
⚠ (Note) For types HPC・HMC・HKC, if the tip shape does not include a W dimension specification, (such as shapes 2L and 3L), the material is determined by the maximum width of the shape.

RoHS	M	H	S	Type		
				Straight	Tapped	With key groove
	W2.00~5.00 ^(min) SKH51 W5.01~30.00 ^(max) Equivalent to SKD11	61~64HRC	—	HPC	HMC	HKC
		60~63HRC	—			
	Powdered high-speed steel	64~67HRC	—	PHPC	PHMC	PHKC
	SKH51	61~64HRC	TiCN surface hardness 3000HV	H—HSPC	H—HSMC	H—HSCC
	Powdered high-speed steel	64~67HRC	TiCN surface hardness 3000HV	H—PHPC	H—PHMC	H—PHKC

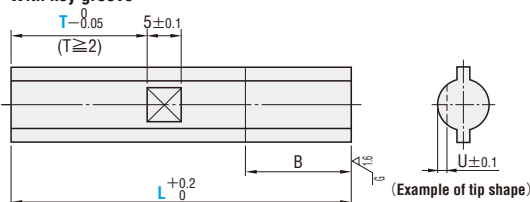
Straight



Tapped



With key groove



Catalog No.					L	W \ P	2.00	5.01	10.01	15.01	20.01	25.01	M	U	B
Type		Shape					5.00	10.00	15.00	20.00	25.00	30.00			
SKH51 (W2.00~5.00) Equivalent to SKD11 (W5.01~30.00) Powdered high-speed steel	Straight	Tapped	With key groove		40	2.00~ 3.00	○	○	○				—	1.0	15
						3.01~ 4.00	○	○	○	○					
	HPC	HMC	HKC		4.01~ 5.00	○	○	○	○	○	○	3			
					5.01~ 6.00		○	○	○	○	○	4			
	PHPC	PHMC	PHKC		60	6.01~ 8.00		○	○	○	○	○	5		
					70	8.01~ 10.00		○	○	○	○	○	6		
SKH51 Coating	H—HSPC	H—HSMC	H—HSKC		80	10.01~ 15.00			○	○	○	○	8	1.5	
						15.01~ 20.00				○	○	○			
						20.01~ 25.00					○	○			
Powdered high-speed steel Coating	H—PHPC	H—PHMC	H—PHKC			25.01~ 30.00						○			

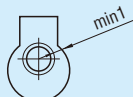
⚠ For coating punches, 10J・13J・5K・10K・18K cannot be used.

⚠ Although the effective range of coating is part B, an extremely thin coating film is formed also on part S to a length of approximately 10mm.
The dimension of the uncoated part is reduced by an amount equivalent to the coating thickness (6~10 μm).



⚠ Machining limit for HMC・PHMC・H—HSMC・H—PHMC

① Shapes 23K・25K cannot be manufactured. ② Machining limit for tapping and tip



③ P・W dimensions and tap M

P (W)	M
4.01~5.00	3
5.01~6.00	4
6.01~8.00	5
8.01~10.00	6
10.01~30.00	8

⚠ Details of key groove



⚠ Tap M is based on either P or W dimension, whichever is shorter.

⚠ Tap M for shapes 8H・18J is based on P dimension.

⚠ The center of tap M is at the same position as the center of each tip shape (except for shapes 2L・3L).

⚠ The center of tap M for shapes 2L・3L is the midpoint at the maximum lateral width of the tip.

⚠ P or W < 8...L ≤ 50 If P or W dimension is smaller than 8.00, full length is within a range of 40~50.



Order

W	No.
2.00~10.00	1
10.01~20.00	2
20.01~30.00	3

●In case of
W2.00~10.00

Catalog No. — No. — Catalog No. — L — 0.01mm increments — P·W·A·B·C·R·S... — (T·K)

HPC 8J — 1 — HPC 8J — 50 — P10.55—W8.85—R2.50

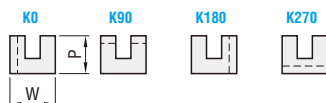
●In case of
W10.01~20.00

HPC 8J — 2 — HPC 8J — 60 — P19.62—W16.35— R4.50

●In case of
W20.01~30.00

HPC 8J — 3 — HPC 8J — 70 — P28.25—W25.68—R6.20

Key groove position selection



Days to Ship

Quotation


Alterations



Catalog No. — No. — Catalog No. — L (LC) — P·W·A·B... — (PKC·LC·LKC·TKC·RTC)

H—HSPC 8J — 1 — H—HSPC 8J — LC58.0 — P12.40 — W10.00 — R2.00 — LKC

Alteration	Code	Spec.	1Code
Tip	PKC	Tip tolerance $P \cdot W \pm 0.01 \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$ change ✗ Cannot be used with TiCN coating.	Quotation
Alterations to full length	LC	Full length change $30 \leq LC < L$ 0.1mm increments	
	LKC	Full length tolerance change $L \begin{smallmatrix} +0.3 \\ 0 \end{smallmatrix} \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$	

Alteration	Code	Spec.	1Code
Alterations to key groove	TKC	Key groove position tolerance change $T \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix} \begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	Quotation
	RTC	Key groove position tolerance change $T \begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix} \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$	



Price

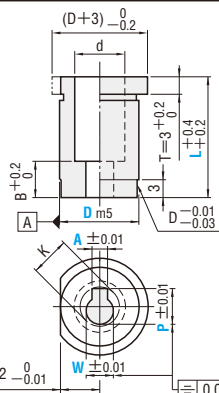
Quotation

SPECIAL SHAPED PUNCH GUIDE BUSHINGS & BUTTON DIES

Punch guide bushings

RoHS

Headed type
HG



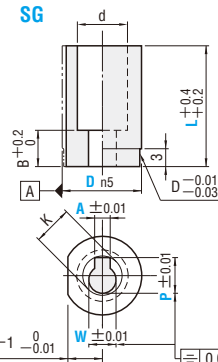
⚠ The shapes shown in the specification drawings at right are examples.

M Equivalent to SKD11
H 60~63HRC

// 0.01/12

01 ± 0.01 0.02 A

Straight type
SG



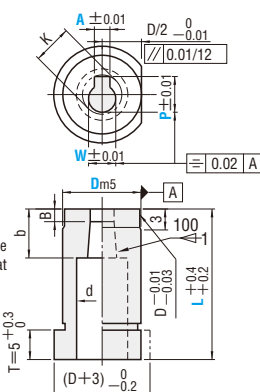
//	0.01/12
----	---------

0.01 $\overline{W} \pm 0.01$ 0.02 A

Button dies

RoHS

Headed type **HD** (L=16~35)
HDS (L=40 only)

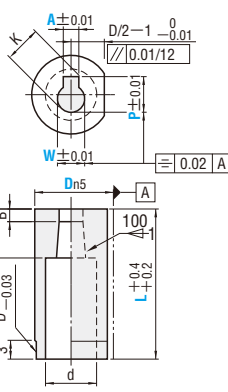


⚠ The shapes shown in the specification drawings at right are examples.

M Equivalent to SKD11
H 60~63HRC

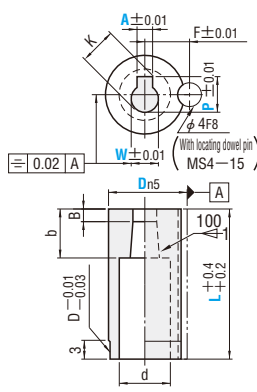
T	(D+
---	-----

Straight type **SD** (L=16~35)
SDS (L=16~40)


$$W \pm 0.05$$

$=$	0.02	A
-----	------	---

Dowel slot type **KD** (L=16~35)
KDS (L=16~40)



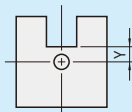
$W \pm 0.01$ (MS4-15)

Catalog No.				L	P・K max.	P・W min.	Punch guide	Button dies		Tilting button dies		d	F
Type		Shape	D				HG・SG	HD・SD・KD	HDS・SDS・KDS				
							B	b	B	b	B		
Punch guide	HG	2H~12H	8	10 13	4.00	2.00	4	—	—	—	—	4.4	—
		2J~18J	10	16	6.00	2.00						6.4	
	SG	3K~29K	13	20 22	8.00	3.00	6					8.4	
		2L~ 7L	16	25	10.00	3.00						10.6	
Button dies	HD	2H~12H 2J~18J 3K~29K 2L~ 7L 8L (KD・KDS only)  Select from the shapes shown on P.595.	6	(16) 20 22 25 30 35 (40) 50 56	3.00	2.00	—	3	2	—	—	3.4	—
	HD・SD		8		4.00	2.00		4		4.4			
	HD HDS SD SDS KD KDS		10		6.00	2.00		6		10	6	6.4	6
			13		8.00	2.00		8		10	6	8.4	7.5
			16		10.00	2.50						10.6	8
			20		12.00	3.00		12		8	12.6	10	
			25		16.00	4.00					16.6	12.5	
			32		20.00	5.00		15		10	20.6	16	
			38		26.00	6.00					26.6	19	
			45		35.00	6.00		20		14	36.0	22.5	
			50		40.00	7.00					41.0	25	
			56		45.00	8.00					46.0	28	

📌 If $L = (16) \cdot (40)$, the applicable types and D dimensions are as shown at right.

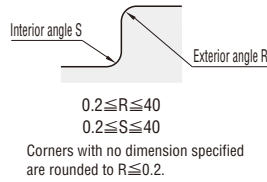
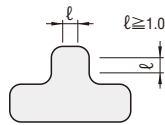
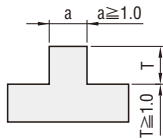
L	D	Type
(16)	6 7 38	HD SD SDS KD KDS
(40)	10 7 56	HDS SDS KDS

⚠ If Y dimension is smaller than min.Y, button die blanks with pilot holes (prepared holes for machining) cannot be used, and therefore express are not available.



D	min.Y
6~16	0.7
20	0.8
25	1.2
32~56	1.7

Machining limit



Increment

Dimension tolerance	Increment
$W \pm 0.01$	0.01mm increments
$P \pm 0.01$	0.01mm increments
$A \pm 0.01$	0.01mm increments
$B \pm 0.01$	0.01mm increments
$C \pm 0.01$	0.01mm increments
Q	0.01mm increments
R	0.01mm increments
S	0.01mm increments
$C(R)$	0.01mm increments
A° (Angle)	0.1° increments



Order

Catalog No. — L — P·W·A·B·C·Q·R·S...0.01mm increments
HD8J 25 — 25 — P14.00—W11.00—R4.00



Days to Ship

Quotation



Alterations

Catalog No. — L(LC) — P(PC)·W(WC)·A·B·C·Q·R·S — (BC·HC·TC, etc.)
HD8J 25 — 25 — P14.00—W11.00—R4.00 — BC4—KFC225

Alteration	Code	Spec.	1Code
Alterations to shaped hole	 PC WC	Shaped hole diameter change $\min: \frac{P}{W} > \frac{PC}{WC} \Rightarrow \frac{P \cdot W_{\min}}{2} \geq 1.00$ 0.01mm increments $\max: \frac{P}{W} < \frac{PC}{WC} \Rightarrow P \cdot K_{\max} + 0.2$ 0.01mm increments	
	 BC	Shaped hole depth change $1 \leq BC \leq b$ 0.1mm increments ⊗ Cannot be used for HG·SG.	
Alterations to full length	 LC	Full length change (reduction in shaped hole depth) 0.1mm increments Punch guide bushing $10 \leq L - (B - 1) \leq LC < L$ ⊗ B dimension and press-in lead are shortened by (L - LC). ⊗ Dimension b and press-in lead are shortened by (L - LC).	Quotation
	 LC	Full length change $10 \leq LC < L$ 0.1mm increments	
	 LKC	Full length tolerance change $L + 0.4 \Rightarrow +0.05$ $L + 0.2 \Rightarrow 0$	
	 LKZ	Full length tolerance change $L + 0.4 \Rightarrow +0.01$ $L + 0.2 \Rightarrow 0$ ⊗ Cannot be used for L < 16. ⊗ Cannot be used for D > 25.	

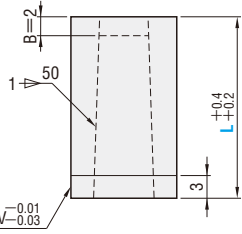
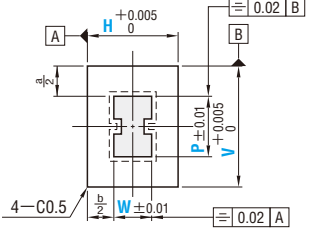
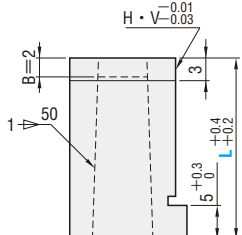
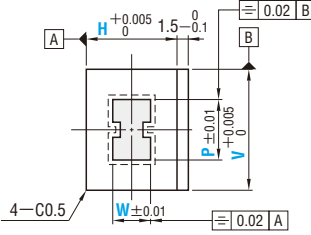


Price

Quotation

Alteration	Code	Spec.	1Code
 HC		Head diameter change $D \leq HC < D + 3$ 0.1mm increments	
 TC		Head thickness change $2 \leq TC < T$ 0.1mm increments ⊗ Full length is shortened by (T - TC). If combined with LC, full length is equal to LC.	
 KC		• Guide 90° • Die 270° Key flat position change 1° increments	
 WKC		Double key flats in parallel Can be combined with KC.	
 KFC		• Guide 90° • Die 270° Double key flats at 0° and a selected angle 1° increments ⊗ Cannot be combined with KC-WKC. ⊗ Cannot be used for D > 25.	Quotation
 RC		Head thickness is machined to a tolerance of -0.04~0 relative to the retainer surface. ⊗ Cannot be used for L < 30.	
 TKC		Head thickness tolerance change $T + 0.2 \Rightarrow +0.02$ $T + 0 \Rightarrow 0$ ⊗ Cannot be used for L < 16.	
 TKM		Head thickness tolerance change $T + 0.2 \Rightarrow 0$ $T + 0 \Rightarrow -0.02$ ⊗ Cannot be used for L < 16.	

SPECIAL SHAPED BLOCK DIES

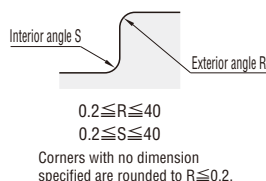
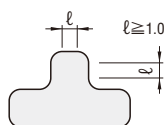
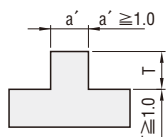
Type	V·H dimensions		Catalog No.	Shape	RoHS
Straight type 	Standard blank size	Equivalent to SKD11 60~63HRC	BL	Straight type Configurable size type  (Example of hole shape) 	
		Powdered high-speed steel 64~67HRC	PBL		
Single flange type 		Equivalent to SKD11 60~63HRC	BLF		
		Powdered high-speed steel 64~67HRC	PBLF		
Configurable-size·straight type 	V·H dimensions 6.0~25.0 Configurable type	Equivalent to SKD11 60~63HRC	FBL	Single flange type  	
		Powdered high-speed steel 64~67HRC	FPBL		

Catalog No.		V			6	8	10	13	16	20	25	L	
Type	Shape				H	W	P	1.00~3.00	1.00~4.00	1.00~6.00	1.00~8.00		1.00~10.00
Straight type BL PBL Single flange type BLF PBLF	2H~12H	6	1.00~ 3.00		○	○	○	○	○	○	○	16 20 22 25 30 35	
	2J~18J	8	1.00~ 4.00			○	○	○	○	○	○		
	3K~29K	10	1.00~ 6.00				○	○	○	○	○		
	2L~ 7L	13	1.00~ 8.00					○	○	○	○		
	Hole shape  Select from the shapes shown on P.595.	16	1.00~ 10.00						○	○	○		
		20	1.50~ 12.00								○		○
		25	1.50~ 16.00										○

Catalog No.		V				6.0~8.0	8.1~10.0	10.1~13.0	13.1~16.0	16.1~20.0	20.1~25.0	L
Type	Shape	H	W	b	a	4	4	5	6	8	9	
Configurable size type Straight type FBL FPBL	2H~12H	6.0~ 8.0	1.00~ 4.00	4		○	○	○	○	○	○	16
	2J~18J	8.1~ 10.0	1.00~ 6.00	4			○	○	○	○	○	20
	3K~29K	10.1~ 13.0	1.00~ 8.00	5				○	○	○	○	22
	2L~ 7L	13.1~ 16.0	1.00~ 10.00	6					○	○	○	25
	Hole shape  Select from the shapes shown on P.595.	16.1~ 20.0	1.50~ 12.00	8						○	○	30
		20.1~ 25.0	1.50~ 16.00	9							○	35

 V·H→0.1mm increments
  V-P≥a H-W≥b

Machining limit



Increment

Dimension	Increment
T Tolerance	
W ±0.01	0.01mm increments
P ±0.01	0.01mm increments
A ±0.01	0.01mm increments
B ±0.01	0.01mm increments
C ±0.01	0.01mm increments
Q	0.01mm increments
R	0.01mm increments
S	0.01mm increments
C (R)	0.01mm increments
A' (Angle)	0.1° increments



Order

Catalog No. — V — H — L — P·W·A·B·C·Q·R·S...0.01mm increments

BL 4J 13 10 — 20 — P8.00—W6.00—A4.50—R1.00—S2.00
 FBL 5J — V14.6 — H13.1 — 20 — P9.00—W7.00—R1.00



Days to Ship

Quotation

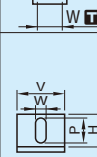
Alterations



Catalog No. V H L(LC) — P·W·A·B·C·Q·R·S... — (BC·HC·TC, etc.)

BL4J 13 10 — 20 — P8.00—W6.00—A5.5—R2.00—S2.00 — BC4

Alteration	Code	Spec.	1Code
Alterations to full length	 LC	Full length change $10 \leq LC < L$ 0.1mm increments For flange types, if $LC \leq 12$ then press-in lead is not included.	
	 LKC	Full length tolerance change $L \begin{smallmatrix} +0.4 \\ +0.2 \end{smallmatrix} \Rightarrow \begin{smallmatrix} +0.05 \\ 0 \end{smallmatrix}$	
	 LKZ	Full length tolerance change $L \begin{smallmatrix} +0.4 \\ +0.2 \end{smallmatrix} \Rightarrow \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$	
Alterations to flange	 HC	Flange width change $0 \leq HC < 1.5$ 0.1mm increments	Quotation
	 TC	Flange 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.	
	 TKC	Head thickness tolerance change $T \begin{smallmatrix} +0.3 \\ 0 \end{smallmatrix} \Rightarrow \begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$	
	 TKM	Head thickness tolerance change $T \begin{smallmatrix} +0.3 \\ 0 \end{smallmatrix} \Rightarrow \begin{smallmatrix} 0 \\ -0.02 \end{smallmatrix}$	

Alteration	Code	Spec.	1Code
Alterations to shaped hole	 BC	Shaped hole depth change $0 \leq BC \leq 4$ 0.1mm increments	
	 PKC	Shaped hole diameter tolerance change $P \cdot W \pm 0.01 \Rightarrow \begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$	
	 HVC	H and V are reversed relative to shaped hole. P dimension is machined in direction H and W dimension is machined in direction V. P → min W max. P dimension must be within the range for W dimension that is listed in the specification table. The flange position for BLF·PBLF is as shown below. 	Quotation
Others	 NDC	No press-in lead	



Price

Quotation

