


PUNCHES WITH LOCATING DOWEL HOLES

— FINISHED FOR RETAINERS —

Punch tip shear angle alterations	1F	2F	3F	4F	5F	6F	7F

Type	A	Shank diameter D	M tolerance	Catalog No.				The tip shape can be selected from [Tip shape] A~G in the figure below.
				Type	Tip shape	Tip length B	With dowel hole	
With locating dowel hole	Dowel pin MS6-25	Dm5	Equivalent to SKD11 60~63HRC	SP	A D R E G	S L X	-C	<p>Tip length (B) X>L>S</p>

RoHS



Tip shape A

Tip shape D

Tip shape R

Tip shape E

Tip shape G

$R \leq 0.2$
 $P \geq W$
 $R=0$ can be selected.
 $K = \sqrt{P^2 + W^2}$

$R \leq 0.2$
 $P \geq W$
 $0.15 \leq R < \frac{W}{2}$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$

$P > W$
 $P > W$

Catalog No.	Type	D	L																	B	H			
			0.01mm increments																					
			A	D	R	E	G	R	min. P max.															
S	SPAS-C	10	(40)	50	60	70	80	90	100	110	120	130	140	150	3.00	~	9.99	9.97	2.50	13	13			
		13	(40)	50	60	70	80	90	100	110	120	130	140	150	6.00	~	12.99	12.97	3.00					
	SPDS-C	16	(40)	50	60	70	80	90	100	110	120	130	140	150	10.00	~	15.99	15.97	4.00			19	19	
	SPRS-C	20	(40)	50	60	70	80	90	100	110	120	130	140	150	13.00	~	19.99	19.97	5.00			23	23	
	SPES-C	25	(40)	50	60	70	80	90	100	110	120	130	140	150	18.00	~	24.99	24.97	6.00			28	28	
	SPGS-C	32	(40)	(50)	60	70	80	90	100	110	120	130	140	150	20.00	~	31.99	31.97	7.00			35	35	
		38	(40)	(50)	60	70	80	90	100	110	120	130	140	150	28.00	~	37.99	37.97	8.00			41	41	
		45	(40)	(50)	60	70	80	90	100	110	120	130	140	150	35.00	~	44.99	44.97	9.00			48	48	
	L	SPAL-C	10		50	60	70	80	90	100	110	120	130	140	150	3.00	~	9.99	9.97			2.50	19	13
			13		50	60	70	80	90	100	110	120	130	140	150	6.00	~	12.99	12.97			3.00		
SPDL-C		16		60	70	80	90	100	110	120	130	140	150	10.00	~	15.99	15.97	4.00	19	16				
SPRL-C		20		60	70	80	90	100	110	120	130	140	150	13.00	~	19.99	19.97	5.00	23	23				
SPEL-C		25		60	70	80	90	100	110	120	130	140	150	18.00	~	24.99	24.97	6.00	28	28				
SPGL-C		32		60	70	80	90	100	110	120	130	140	150	20.00	~	31.99	31.97	7.00	35	35				
		38		60	70	80	90	100	110	120	130	140	150	28.00	~	37.99	37.97	8.00	41	41				
		45		60	70	80	90	100	110	120	130	140	150	35.00	~	44.99	44.97	9.00	48	48				
X		SPAX-C	10			70	80	90	100	110	120	130	140	150	6.00	~	9.99	9.97	5.00	30	13			
			13			70	80	90	100	110	120	130	140	150	6.00	~	12.99	12.97	5.00					
	SPDX-C	16			80	90	100	110	120	130	140	150	10.00	~	15.99	15.97	5.00	19	16					
	SPRX-C	20			80	90	100	110	120	130	140	150	13.00	~	19.99	19.97	5.00	23	23					
	SPGX-C	25			80	90	100	110	120	130	140	150	18.00	~	24.99	24.97	5.00	28	28					
		32			80	90	100	110	120	130	140	150	20.00	~	31.99	31.97	5.00	35	35					
		38			80	90	100	110	120	130	140	150	28.00	~	37.99	37.97	5.00	41	41					
		45			80	90	100	110	120	130	140	150	35.00	~	44.99	44.97	5.00	48	48					

* L (40): D10 ~ 25 → B=8 If full length is (40) and D dimension is 10 ~ 25, tip length is 8mm in all cases.
 D32 ~ 45 → B=6 If full length is (40) and D dimension is 32 ~ 45, tip length is 6mm in all cases.
 * L (50) → B=13 If full length is (50), tip length is 13mm in all cases.
 * A: P>D-0.03 → ℓ=0 If P>D-0.03 for a round punch, D-0.01 (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-0.03 (press-in lead) is not included.

Order **Catalog No.** - L - P - W - R (R only)
 SPAS-C 25 - 100 - P18.05

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 the 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.



Days to Ship **Quotation**

Alterations **Catalog No.** - L(LC) - P(PC) - W(WC) - R - (BC-HC-TC, etc.)
 SPAS-C 25 - LC95 - P18.05 - BC30

Alteration	Code	A	D R E G	1Code												
Alterations to tip	PC WC	Tip dimension change $PC \geq \frac{P_{min}}{2}$ 0.01 mm increments (If combined with PKC, 0.001 mm increments can be selected.)	Tip dimension change $PC \geq \frac{P \cdot W_{min}}{2}$ 0.01 mm increments * Cannot be used for tip X.	<table border="1"> <tr> <th>P(PC) Bmax.</th> <th>P(PC)-W(WC) Bmax.</th> </tr> <tr> <td>1.500 ~ 1.999 20</td> <td>1.25 ~ 1.49 8</td> </tr> <tr> <td>2.000 ~ 3.999 35</td> <td>1.50 ~ 1.99 13</td> </tr> <tr> <td>4.000 ~ 5.999 45</td> <td>2.00 ~ 3.49 19</td> </tr> <tr> <td>6.000 ~ 60</td> <td>3.50 ~ 4.99 25</td> </tr> <tr> <td></td> <td>5.00 ~ 30</td> </tr> </table>	P(PC) Bmax.	P(PC)-W(WC) Bmax.	1.500 ~ 1.999 20	1.25 ~ 1.49 8	2.000 ~ 3.999 35	1.50 ~ 1.99 13	4.000 ~ 5.999 45	2.00 ~ 3.49 19	6.000 ~ 60	3.50 ~ 4.99 25		5.00 ~ 30
		P(PC) Bmax.	P(PC)-W(WC) Bmax.													
	1.500 ~ 1.999 20	1.25 ~ 1.49 8														
	2.000 ~ 3.999 35	1.50 ~ 1.99 13														
	4.000 ~ 5.999 45	2.00 ~ 3.49 19														
	6.000 ~ 60	3.50 ~ 4.99 25														
		5.00 ~ 30														
	Tip length change $2 \leq BC \leq B_{max}$ 0.1 mm increments * Full length L must be at least 25 mm longer than tip length BC.	Tip length change $2 \leq BC \leq B_{max}$ 0.1 mm increments * Full length L must be at least 30mm longer than tip length BC.														
	SC	Lapping of tip * P dimension tolerance and increment are the same. * R=0 cannot be selected for the tip shape D corners.														
	PRC	Rounding of tip side edge $0.3 \leq PRC \leq 1$ 0.1 mm increments * $PRC \leq (P-0.2)/2$ * Cannot be combined with PCC-GC.														
PCC	Chamfering to tip side edge $0.3 \leq PCC \leq 1$ 0.1 mm increments * $PCC \leq (P-0.2)/2$ * Cannot be combined with PRC-GC.															
GC	$20^\circ \leq GC < 90^\circ$ 1° increments Tip length $B \geq f+2$ $f = P/2 \times \tan(90^\circ - GC)$ * If combined with SC, tip edges are rounded. * Cannot be combined with LKC-LKZ-PRC-PCC.															
PKC	Tip tolerance change $P+0.01 \rightarrow +0.005$ 0 → 0 * (P dimension can be selected in 0.001 mm increments.)	Tip tolerance change $P-W \pm 0.01 \rightarrow +0.01$ 0 → 0														
Alterations to full length	LC	Full length change $25+B(BC) \leq LC < L$ 0.1 mm increments * If difference between full length and tip length is 25mm or less, tip length is adjusted to (Full length-25mm). (If combined with LKC-LKZ, 0.01mm increments can be selected.)	Full length change $30+B(BC) \leq LC < L$ 0.1 mm increments * If difference between full length and tip length is 30mm or less, tip length is adjusted to (Full length-30mm).													
	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.														
	Alterations to head	KC	Addition of single key flat to head	Key flat position 90° 180° change 1° increments												
WKC		Addition of double key flats in parallel	Double key flats in parallel Can be combined with KC.													

Alteration	Code	A	D R E G	1Code											
Alterations to head	KFC	Double key flats at 0° and a selected angle 90° 270° 180° selected angle 1° increments * Cannot be combined with KC-WKC.	Double key flats at 0° and a selected angle 90° 270° 180° selected angle 1° increments * Cannot be combined with KC-WKC.												
	NKC	—	No key flat												
	HC	Head diameter change $D \leq HC < H$ 0.1 mm increments													
	TC	Head thickness change $2 \leq TC < 5$ 0.1 mm increments * Full length L is shortened by (5-TC). If combined with LC, full length is equal to LC.													
Alterations to shank	TCC	Chamfering of head This improves the strength of the punch head. 0.5 ≤ TCC ≤ (H-D)/2													
	UC	Modification for urethane stripper (USN) installation <table border="1"> <tr> <th>Code</th> <th>U</th> <th>L</th> <th>Applicable USN</th> </tr> <tr> <td>UC40</td> <td>37</td> <td>L ≥ 80</td> <td>USN40</td> </tr> <tr> <td>UC50</td> <td>47</td> <td>L ≥ 90</td> <td>USN50</td> </tr> </table> * P·Kmax=D-1.1 * Details * Can be used for L ≥ 80 or L ≥ 90. * Can be used for D10 ~ 32.	Code	U	L	Applicable USN	UC40	37	L ≥ 80	USN40	UC50	47	L ≥ 90	USN50	
	Code	U	L	Applicable USN											
	UC40	37	L ≥ 80	USN40											
UC50	47	L ≥ 90	USN50												
TPC	Dowel pin change MS6-25 that comes with the product is changed to MSTP6-25 (tapped type). * Cannot be used for D38-45.														
NDC	No press-in lead $\ell \geq 3 \rightarrow \ell = 0$														

Price **Quotation**

PUNCHES