

High Speed Steel
SKH51 equivalent

Precision
P · W⁰_{-0.005}
Free designation

PRECISION RECTANGULAR EJECTOR PINS

— N DIMENSION SHORT TYPE —

Ⓢ Non JIS material definition is listed on P.1351 - 1352

Part Number	Head Thickness	P · W
ERVSF	4mm(T4)	⁰ _{-0.005}
ERVSJF	4 · 6 · 8mm(JIS)	⁰ _{-0.005}

Ⓢ Range of guaranteed shaft diameter precision (D) (Details Ⓢ P.1301)
 Ⓢ Step R (Details: see below of the right page)

Ⓢ SKH51 equivalent
 Ⓢ 58~60HRC
 Range of guaranteed base material hardness (Details Ⓢ P.1303)

$P \geq W$
 $K = \sqrt{P^2 + W^2}$

Alterations

Part Number — L — P — W — N — (AKC · AWC · etc.)
 ERVSF 1.5 — 100.00 — P1.20 — W0.30 — N20 — AWC 0

Quotation

Alterations	Code	Spec.	1Code
	VAK (precision) AKC	VAK=45° increments AKC=1° increments 0 ≤ VAK or AKC < 360 Ⓢ (VAK) KSA, WSA not available Ⓢ (AKC) When combined with KSA/WSA, 90° increments only.	
	VAW	VAW=45° increments 0 ≤ VAW < 360 Ⓢ Combination with KSA/WSA not available.	
	AWC	AWC=1° increments 0 ≤ AWC < 360 Ⓢ When combined with KSA/WSA, 90° increments only.	
	ARC	ARC=1° increments 0 ≤ ARC < 360 Ⓢ When combined with KSA/WSA, 90° increments only.	
	ADC	ADC=1° increments 0 ≤ ADC < 360 Ⓢ When combined with KSA/WSA, 90° increments only.	
	KGA	KGA=1° increments 0 < KGA < 360	
	KGD	KGD=1° increments 0 < KGD < 360	
	HC HCC (precision)	HC · HCC=0.1mm increments Ⓢ (HC) D+1 ≤ HC < H Ⓢ (HCC) D+1 ≤ HCC < H-0.3	
	KSA	KSA=0.1mm increments Ⓢ W/2+0.1 ≤ KSA ≤ D/2-0.1	
	WSA	WSA=0.1mm increments Ⓢ W/2+0.1 ≤ WSA ≤ D/2-0.1	

Alteration details Ⓢ P.195

Alterations	Code	Spec.	1Code												
	TC	TC=0.1mm increments Ⓢ T/2 ≤ TC < T Dimensions L and N remain unchanged. Ⓢ T-TC ≤ Lmax. — L													
	NC	Dowel hole boring NC=90° increments Ⓢ Available when H ≥ 4 Ⓢ Combination with other than NHC · MHN not available. How to order and detailed specifications Ⓢ P.195													
	NCW	Dowel hole boring+Spring pin driving NCW=90° increments Ⓢ Available when H ≥ 4 Ⓢ Combination with other than NHC · MHN not available. How to order and detailed specifications Ⓢ P.195													
	NHC	Numbering on the head How to order Ⓢ P.196													
	NHN	Automatic sequential numbering on the head How to order Ⓢ P.196													
	TMC	Lapping on the tip face													
	LKC	L dimension tolerance alteration L ⁺ _{0.02} ... ⁺ _{0.01} Ⓢ Available when L ≤ 200													
	MC	Tapping D8 → M4 D10 → M5 D12 · 15 → M6 Ⓢ Not available for ERVSF Ⓢ Available when D ≥ 8 Ⓢ Only available combination is with CSW · CSF · TMC													
	CSW	C chamfering processing at 2 points on top (except tip) for relief is performed. Ⓢ Designation method CSW1-E25	<table border="1"> <thead> <tr> <th colspan="2">CSW, CSF: Range of designation</th> </tr> <tr> <th>W</th> <th>CSW, CSF</th> </tr> </thead> <tbody> <tr> <td>1.0 ≤ W < 1.5</td> <td>0.3</td> </tr> <tr> <td>W ≥ 1.5</td> <td>0.5</td> </tr> <tr> <td></td> <td>1</td> </tr> <tr> <td></td> <td>1.5</td> </tr> </tbody> </table>	CSW, CSF: Range of designation		W	CSW, CSF	1.0 ≤ W < 1.5	0.3	W ≥ 1.5	0.5		1		1.5
CSW, CSF: Range of designation															
W	CSW, CSF														
1.0 ≤ W < 1.5	0.3														
W ≥ 1.5	0.5														
	1														
	1.5														
	CSF	C chamfering processing at 4 points (except tip) for relief is performed. Ⓢ Designation method CSF0.5-E30	$P \geq 1.5$ $CSW, CSF < W/2$ $E = 1\text{mm increments}$ $5 \leq E \leq (L-N) - 20$												

4mm head		JIS head		Part Number		0.01mm increments				Kmax.	N 1mm increments	Nmin.
H	T	H	T	4mm head	JIS head	D	L	P	W			
3		3				1.5		0.60~1.30	0.30~	1.4	10 ≤ (L-N) ≤ 80	20
4		4				2		0.80~1.80		1.9		23
5		5	4			2.5	40.00~100.00	1.00~2.30	0.40~	2.4		25
6		6				3		1.00~2.80		2.9		
7		7				3.5		1.20~3.30		3.4		
8		8				4	40.00~120.00	1.50~3.80	0.50~	3.9	10 ≤ (L-N) ≤ 90	27
9		9				4.5		1.50~4.30		4.4		
10		10				5		1.80~4.80		4.9		
11		11				5.5		2.00~5.30		5.4		
12		12				6	50.00~150.00	2.00~5.80	0.60~	5.9	10 ≤ (L-N) ≤ 120	29
13		13				6.5		2.50~6.30		6.4		
14		14				7		2.50~6.80		6.9		
15		15				8		3.00~7.80		7.9		
16		16				10		3.00~9.80	0.80~	9.9		
17		17				12	50.00~200.00	4.00~11.80	1.00~	11.9	10 ≤ (L-N) ≤ 215	35
18		18				15	50.00~250.00	5.00~14.80	1.50~	14.9		

Ⓢ Designate P · W dimensions within the Kmax. $K = \sqrt{P^2 + W^2}$ Ⓢ $P \geq W$

Order

Part Number — L — P — W — N
 ERVSF 1.5 — 100.00 — P1.20 — W0.30 — N20

Days to Ship

Quotation

Price

Quotation

Precision Standard

Squareness of the tip corner

Corner R value of the tip corner

$P_{max.}$
 $P_{min.}$
 W plane as the base
 $(P_{max.} - P_{min.}) \leq 0.01$

$P_{max.}$
 $P_{min.}$
 $R_{max.} \leq 0.03$ (Trimming R)
 Ⓢ The tip corners have been slightly trimmed to measure the P · W dimensions.
 (Details Ⓢ P.1313)

STEP R OF RECTANGULAR EJECTOR PINS - N dimension short type

For N short type, Step R becomes smaller comparing with that of conventional rectangular ejector pin.

- Step radius (R): R65~75°
- (*This is the size of grindstone used to process R section. This is not a guaranteed value for R.)
- Formula used for calculating the length (a₁) and (a₂) of step R:

$$a_1 = 5 + \sqrt{\frac{D-W}{2} \times (2R - \frac{D-W}{2})}$$

$$a_2 = 5 + \sqrt{\frac{D-P}{2} \times (2R - \frac{D-P}{2})}$$
- *The left formulas include profile error from rough and finish processing.
- Concentricity of the rectangular tip section (P · W) and shaft diameter (D): 0.2mm or less

Rectangular Ejector Pins

High Speed Steel SKH51 equivalent

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