

SKH51 equivalent
Wall thickness
0.6mm~

PRECISION STRAIGHT EJECTOR SLEEVES

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

RoHS

| Part Number | | Head Thickness | D · P | V | Concentricity | Applicable center pin shaft diameter tolerance |
|-------------|--------|----------------|----------------|-------------|---------------|--|
| ESV | ESVB | 4mm(T4) | 0 -0.005 | +0.005 0 | ◎ φ 0.005 | 0 -0.005 |
| ESVJ | ESVJB | 6 · 8mm(JIS) | | | | |
| ESV-H | ESVB-H | 4mm(T4) | -0.01 -0.02 | +0.01 0 | ◎ φ 0.01 | -0.01 -0.02 |
| ESV-M | ESVB-M | | | | | |

※Note that for sleeves with V dimension tolerance of $\frac{+0.01}{0}$, combination with center pins that have shaft diameter tolerance $\frac{+0.005}{0}$ is not recommended. $\frac{-0.005}{0}$ The reason for this is the fitting sections S are longer than ones with tolerance.

ESV ESVJ ESV-H ESV-M
ESVB ESVJB ESVB-H ESVB-M

$C = V + (0.2 \sim 0.4)$

SKH51 equivalent
 58~60HRC
 ※Range of guaranteed base material hardness
 (Details P.1307)
 Overall quenching (No annealing on head)

■ Shaft diameter (D) selection type

| 4mm head | | JIS head | | Part Number | | 0.01mm increments | | | S 0.5mm increments | |
|----------|----|----------|---|---------------------------------|-------------|-------------------|----------------------------------|------------|--|---|
| H | T | H | T | Type | | D | L | V | | |
| 7 | | | | ESV ($V \frac{+0.005}{0}$) | - | 3.5 | 40.00~225.00 | 0.80~ 2.30 | (ESV · ESVJ) $1.0 \leq S \leq (V \times 3)$ and $S \leq 25$ | |
| 8 | | | | | | 4 | 40.00~250.00 | 0.80~ 2.80 | | |
| 9 | 10 | 6 | | | | 5 | | 0.80~ 3.80 | | |
| 10 | 11 | | | | | 6 | Ⓢ ESVJ...L ≤ 225.00 | 0.80~ 4.80 | | |
| 11 | 13 | | | | | 7 | | 0.80~ 5.80 | | |
| 14 | 14 | | | | | 8 | ESVJ ($V \frac{+0.005}{0}$) | 2.00~ 6.20 | | (ESV-H · ESV-M) $1.0 \leq S \leq (V \times 5)$ and $S \leq 25$ |
| 15 | 15 | 8 | | | | 9 | | 2.00~ 7.20 | | |
| 16 | 17 | | | 10 | 2.00~ 8.20 | | | | | |
| 17 | 17 | | | 11 | 2.00~ 9.20 | | | | | |
| 18 | 19 | | | 12 | 2.00~ 10.20 | | | | | |
| 19 | | | | 13 | 2.00~ 11.20 | | | | | |
| | | | | 14 | 2.00~ 12.20 | | | | | |

■ Shaft diameter (P) designation 0.01mm increments type

| 4mm head | | JIS head | | Part Number | | 0.01mm increments | | | S 0.5mm increments | | |
|----------|----|----------|---|----------------------------------|--------------|-------------------|-----------------------------------|----------------------|--|---|------------|
| H | T | H | T | Type | | No. | L | P | | | |
| 7 | | | | ESVB ($V \frac{+0.005}{0}$) | - | 4 | 40.00~225.00 | 3.20~ 3.99 | (ESVB · ESVJB) $1.0 \leq S \leq (V \times 3)$ and $S \leq 25$ | | |
| 8 | | | | | | 5 | 40.00~250.00 | 4.00~ 4.99 | | | |
| 9 | 10 | 6 | | | | 6 | | Ⓢ ESVJB...L ≤ 225.00 | | 5.00~ 5.99 | |
| 10 | 11 | | | | | 7 | | 6.00~ 6.99 | | | |
| 11 | 13 | | | | | 8 | ESVJB ($V \frac{+0.005}{0}$) | 7.00~ 7.99 | | (ESVB-H · ESVB-M) $1.0 \leq S \leq (V \times 5)$ and $S \leq 25$ | |
| 14 | 14 | 8 | | | | 9 | | 40.00~250.00 | | | 8.00~ 8.99 |
| 15 | 15 | | | | | 10 | | 9.00~ 9.99 | | | |
| 16 | 17 | | | 11 | 10.00~ 10.99 | | | | | | |
| 17 | 17 | | | 12 | 11.00~ 11.99 | | | | | | |
| 18 | 19 | | | 13 | 12.00~ 12.99 | | | | | | |
| 19 | | | | 14 | 13.00~ 13.99 | | | | | | |

Order **Part Number** - L - P - V - S
 (Shaft diameter (D) selection type) **ESV6** - 150.00 - V4.00 - S12
 (Shaft diameter (P) designation type) **ESVB6** - 140.00 - P5.95 - V3.95 - S11.5

Days to Ship **Quotation**

P Price **Quotation**

Alterations Part Number - L - P - V - S - (KC · WKC...etc.)
 ESV6 - 100.52 - V4.00 - S12 - KC 3.0

| Alterations | Code | Spec. | 1Code |
|-------------|------|---|------------------|
| | KC | Single flat cutting (D or P)/2 ≤ KC < H/2 | Quotation |
| | WKC | Two flats cutting (D or P)/2 ≤ WKC < H/2 | |
| | KAC | Varied width parallel flats cutting (D or P)/2 ≤ KAC < H/2 KBC=0.1mm increments only KAC < KBC < H/2 | |
| | KBC | | |
| | RKC | Two flats (right angled) cutting (D or P)/2 ≤ RKC < H/2 | |
| | DKC | Three flats cutting (D or P)/2 ≤ DKC < H/2 | |
| | SKC | Four flats cutting (D or P)/2 ≤ SKC < H/2 | |
| | KGC | Two flats (angled) cutting (D or P)/2 ≤ KGC < H/2 AG=1° increments 0 < AG < 360 | |
| | KTC | Three flats cutting at 120° (D or P)/2 ≤ KTC < H/2 | |

(1) To align the key flat with the shaft diameter
 (Unit of designation)
 Shaft diameter (D) selection 0.05mm increments possible
 Shaft diameter (P) designation 0.005mm increments possible
 (2) To designate arbitrary key flat dimensions
 (Unit of designation) 0.1mm

Alteration details P.275

| Alterations | Code | Spec. | 1Code |
|-------------|------|--|------------------|
| | TC | TC=0.1mm increments Ⓢ (T-TC) ≤ Lmax.-L Ⓢ T/2 ≤ TC < T Dimensions L and (L-S) remain unchanged. | Quotation |
| | HC | HC=0.1mm increments Ⓢ Shaft diameter (D or P) ≤ HC < H Ⓢ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | HCC | HCC=0.1mm increments Ⓢ (D or P) + 1 ≤ HCC < H - 0.3 | |
| | CGX | CGX=0.1mm increments Ⓢ 0.2 ≤ CGX ≤ 1.5 and CGX ≤ (D or P) - V / 2 - 0.1 Ⓢ Combination with RGX not available. | |
| | RGX | RGX=0.1mm increments Ⓢ 0.3 ≤ RGX ≤ 1.5 and RGX ≤ (D or P) - V / 2 - 0.1 Ⓢ Combination with CGX not available. | |

SKH51 equivalent
Concentricity $\odot 0.01$
Wall thickness 0.6mm~

PRECISION STRAIGHT EJECTOR SLEEVES

—S DIMENSION LONG TYPE—

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

RoHS

When $30 < S \leq 50$, guaranteed range of V dimension precision is 10mm from tip.

Ⓢ SKH51 equivalent
Ⓢ 58~60HRC
Ⓢ Range of guaranteed base material hardness
(Details P.1307)
Overall quenching (No annealing on head)

Part Number

| Shaft diameter selection type | Shaft diameter designation (0.01mm increments) type | Head Thickness | D · P | V | Applicable center pin shaft diameter tolerance |
|-------------------------------|---|----------------|----------------|------------|--|
| ESVK-H | ESVKB-H | 4mm (T4) | 0 | +0.01 0 | -0.01 -0.02 |
| ESVKJ-H | ESVKJB-H | 6 · 8mm (JIS) | -0.005 | | |
| ESVK-M | ESVKB-M | 4mm (T4) | -0.01 -0.02 | 0 | |

※ Note that for sleeves with V dimension tolerance of $+0.01$, combination with center pins that have shaft diameter tolerance -0.005 is not available. The reason for this is fitting sections S are longer.

■ Shaft diameter (D) selection type

| 4mm head | | JIS head | | Part Number | | 0.01mm increments | | S 0.5mm increments |
|----------|----|----------|---|--|-----------------------------|-------------------|--------------|-----------------------|
| H | T | H | T | Type | D | L | V | |
| 7 | | | | ESVK-H (D $_{-0.005}$) ESVKB-H (D $_{-0.01}$) | ESVKJ-H (D $_{-0.005}$) | 3.5 | 40.00~225.00 | 0.80~2.30 |
| 8 | | | | | | 4 | | 0.80~2.80 |
| 9 | 10 | 6 | | | | 5 | | 0.80~3.80 |
| 10 | 11 | | | | | 6 | | 0.80~4.80 |
| 11 | 13 | | | | | 7 | | 0.80~5.80 |
| 14 | 14 | | | | | 8 | | 2.00~6.20 |
| 15 | 15 | 8 | | | | 9 | | 2.00~7.20 |
| 16 | 17 | | | | | 10 | | 2.00~8.20 |
| 17 | 19 | | | | | 11 | | 2.00~9.20 |
| 18 | | | | | | 12 | | 2.00~10.20 |
| 19 | | | | | | 13 | | 2.00~11.20 |
| | | | | | | 14 | | 2.00~12.20 |

Ⓢ When $30 < S \leq 50$, guaranteed range of V dimension precision is 10mm from tip.

■ Shaft diameter (P) designation 0.01mm increments type

| 4mm head | | JIS head | | Part Number | | 0.01mm increments | | S 0.5mm increments |
|----------|----|----------|---|---|------------------------------|-------------------|--------------|-----------------------|
| H | T | H | T | Type | No. | L | P | |
| 7 | | | | ESVKB-H (P $_{-0.005}$) ESVKB-M (P $_{-0.01}$) | ESVKJB-H (P $_{-0.005}$) | 4 | 40.00~225.00 | 3.20~3.99 |
| 8 | | | | | | 5 | | 4.00~4.99 |
| 9 | 10 | 6 | | | | 6 | | 5.00~5.99 |
| 10 | 11 | | | | | 7 | | 6.00~6.99 |
| 11 | 13 | | | | | 8 | | 7.00~7.99 |
| 14 | 14 | | | | | 9 | | 8.00~8.99 |
| 15 | 15 | 8 | | | | 10 | | 9.00~9.99 |
| 16 | 17 | | | | | 11 | | 10.00~10.99 |
| 17 | 19 | | | | | 12 | | 11.00~11.99 |
| 18 | | | | | | 13 | | 12.00~12.99 |
| 19 | | | | | | 14 | | 13.00~13.99 |

Ⓢ When $30 < S \leq 50$, guaranteed range of V dimension precision is 10mm from tip.

Order **Part Number** — L — P — V — S

(Shaft diameter (D) selection type) ESVK-H6 — 150.00 — V4.00 — S30

(Shaft diameter (P) designation type) ESVKB-H6 — 140.00 — P5.95 — V3.95 — S28

Days to Ship **Quotation**

P Price **Quotation**

A Alterations Part Number — L — P — V — S — (KC · WKC...etc.)

ESVK-H6 — 100.52 — V4.00 — S30 — KC 3.0

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|-------|
| | KC | Single flat cutting (D or P)/2 ≤ KC < H/2 | |
| | WKC | Two flats cutting (D or P)/2 ≤ WKC < H/2 | |
| | KAC KBC | Varied width parallel flats cutting (D or P)/2 ≤ KAC < H/2 KBC=0.1mm increments only KAC < KBC < H/2 | |
| | RKC | Two flats (right angled) cutting (D or P)/2 ≤ RKC < H/2 | |
| | DKC | Three flats cutting (D or P)/2 ≤ DKC < H/2 | |
| | SKC | Four flats cutting (D or P)/2 ≤ SKC < H/2 | |
| | KGC | Two flats (angled) cutting (D or P)/2 ≤ KGC < H/2 AG=1° increments 0 < AG < 360 | |
| | KTC | Three flats cutting at 120° (D or P)/2 ≤ KTC < H/2 | |

Alteration details P.275

| Alterations | Code | Spec. | 1Code |
|-------------|------|--|-------|
| | TC | TC=0.1mm increments Ⓢ (T-TC) ≤ Lmax. - L Ⓢ T/2 ≤ TC < T Dimensions L and (L-S) remain unchanged. | |
| | HC | HC=0.1mm increments Ⓢ Shaft diameter (D or P) ≤ HC < H Ⓢ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | HCC | HCC=0.1mm increments Ⓢ (D or P)+1 ≤ HCC < H-0.3 | |
| | CGX | CGX=0.1mm increments Ⓢ 0.2 ≤ CGX ≤ 1.5 and CGX ≤ (D or P)-V / 2 - 0.1 Ⓢ Combination with RGX not available. | |
| | RGX | RGX=0.1mm increments Ⓢ 0.3 ≤ RGX ≤ 1.5 and RGX ≤ (D or P)-V / 2 - 0.1 Ⓢ Combination with CGX not available. | |

Characteristics


- The fitting section (S) can be long up to V×10.
- Precision wire cutting is used to make the dimension S longer.
- Softened layer in the bore made by wire cutting is removed by polishing. (Tolerances of the dimension V are values after polishing.)
- The ejector sleeves are of high precision (concentricity: 0.01 · tolerances of the dimension V: $+0.01$) in addition to having a low price.

SKH51 equivalent
Concentricity $\text{◎}0.01$
Wall thickness 0.6mm~

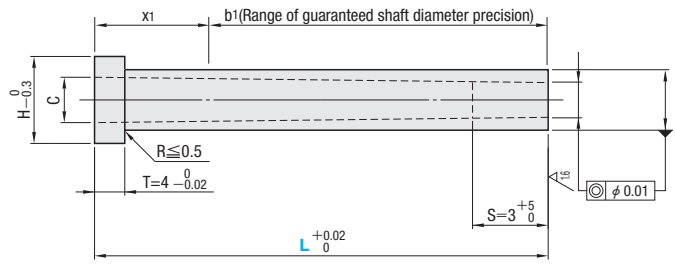
SHORT EJECTOR SLEEVES (BUSHINGS FOR EJECTOR PIN)

—RELIEF TAPERED TYPE—

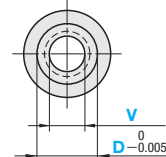
Non JIS material definition is listed on P.1351 - 1352


RoHS

| Part Number | D | V | Applicable center pin shaft diameter tolerance |
|-------------|--|---|--|
| EPBBH | $\begin{matrix} 0 \\ -0.005 \end{matrix}$ | $\begin{matrix} +0.005 \\ 0 \end{matrix}$ | $\begin{matrix} 0 \\ -0.005 \end{matrix}$ |
| EPBB-H | $\begin{matrix} 0 \\ -0.005 \end{matrix}$ | $\begin{matrix} +0.01 \\ 0 \end{matrix}$ | $\begin{matrix} -0.01 \\ -0.02 \end{matrix}$ |
| EPBB-M | $\begin{matrix} -0.01 \\ -0.02 \end{matrix}$ | $\begin{matrix} +0.01 \\ 0 \end{matrix}$ | $\begin{matrix} -0.01 \\ -0.02 \end{matrix}$ |

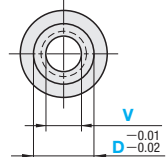


EPBBH · EPBB-H



$\begin{matrix} V \\ D_{-0.005}^0 \end{matrix}$

EPBB-M




$\begin{matrix} V \\ D_{-0.02}^{-0.01} \end{matrix}$

SKH51 equivalent
58~60HRC
 ※Range of guaranteed base material hardness
 (Details [P.1307](#))
 Overall quenching (No annealing on head)


| H | T | Cmax. | Part Number | | 0.01mm increments | |
|----|---|-------|--|-------------|-------------------|-------------|
| | | | Type | D | L | V |
| 5 | 4 | 2.1 | EPBBH $(D_{-0.005}^0) (V_{+0.005}^0)$ | 2.5 | 15.00 ~ 50.00 | 1.00 ~ 1.30 |
| 6 | | 3 | | 1.31 ~ 1.80 | | |
| 7 | | 4 | | 1.91 ~ 2.80 | | |
| 8 | | 4.6 | EPBB-H $(D_{-0.005}^0) (V_{+0.01}^0)$ | 5 | | 2.91 ~ 3.80 |
| 9 | | 5.6 | | 6 | | 3.91 ~ 4.80 |
| 10 | | 6.6 | EPBB-M $(D_{-0.02}^{-0.01}) (V_{+0.01}^0)$ | 7 | | 4.91 ~ 5.80 |
| 11 | | 7.6 | | 8 | | 5.81 ~ 6.80 |

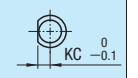
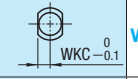
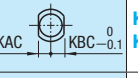
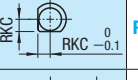
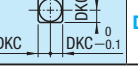
Cmax. $\geq C \geq V + 0.5$

P Price Quotation

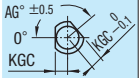

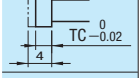
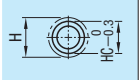
 Order Part Number — L — V
EPBB-H4 — 29.00 — V2.00

 Days to Ship Quotation

 Alterations Part Number — L — V — (KC · WKC...etc.)
EPBB-H4 — 29.00 — V2.00 — KC2.4
Quotation

| Alterations | Code | Spec. | 1Code |
|---|------------|---|-----------|
|  | KC | KC=0.1mm increments D/2 \leq KC < H/2 | Quotation |
|  | WKC | WKC=0.1mm increments D/2 \leq WKC < H/2 | |
|  | KAC KBC | KAC, KBC=0.1mm increments D/2 \leq KAC < KBC < H/2 | |
|  | RKC | RKC=0.1mm increments D/2 \leq RKC < H/2 | |
|  | DKC | DKC=0.1mm increments D/2 \leq DKC < H/2 | |

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|---|------|---|-----------|
|  | KGC | KGC=0.1mm increments AG=1° increments D/2 \leq KGC < H/2, 0 < AG < 360 | Quotation |
|  | KTC | KTC=0.1mm increments D/2 \leq KTC < H/2 | |
|  | TC | TC=0.1mm increments 2.0 \leq TC < 4, 4 - TC \leq Lmax - L Dimension L remains unchanged. Dimensions (L-S) become shorter by (4-TC). | |
|  | HC | HC=0.1mm increments D \leq HC < H In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |

Ejector Sleeves
High Speed Steel
SKH51 equivalent

SKH51 equivalent
Thin-wall
Concentricity $\odot 0.005$
Wall thickness 0.3mm~

PRECISION SMALL DIAMETER · THIN-WALL STEPPED EJECTOR SLEEVE

— TAPERED TYPE —

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

RoHS

| Part Number | P | V | Applicable center pin shaft diameter tolerance |
|-------------|---|---|--|
| ESVFX | $\begin{matrix} 0 \\ -0.005 \end{matrix}$ | $\begin{matrix} +0.005 \\ 0 \end{matrix}$ | $\begin{matrix} 0 \\ -0.005 \end{matrix}$ (Details P.1309) |

Ⓢ Range of guaranteed shaft diameter precision (D)
 (Details [P.1305](#))
 Step R (Details [P.1306](#))
 Ⓢ Range of guaranteed tip-diameter precision (b₂)
 (Details [P.1306](#))

Ⓢ SKH51 equivalent
 Ⓢ 58~60HRC
 Range of guaranteed base material hardness (Details [P.1307](#))
 Overall quenching (No annealing on head)

Ⓢ Recessed hole (C) dimension varies with the shape of relief tapered section.
 Ⓢ Note that the Stepped Center Pin's shaft diameter (D) is too large to fit in the recess (C). (Details [P.1310](#))

Quotation

Alterations

Part Number: **ESVFX 3** - **L** 100.00 - **P** P2.50 - **V** V1.00 - **N** N60 - **S** S2 - (KC · WKC...etc.)

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|--|
| | KC | Single flat cutting $D/2 \leq KC < H/2$ | About Designation Unit for Key Flat Cutting (1) To align the key flat with the shaft diameter Unit of designation 0.5mm increments possible (2) To designate arbitrary key flat dimensions Unit of designation 0.1mm |
| | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
| | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$ | |
| | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
| | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
| | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
| | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ AG=1° increments $0 < AG < 360$ | |
| | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |

| Alterations | Code | Spec. | 1Code |
|-------------|------|---|-----------|
| | TC | TC=0.1mm increments $2.0 \leq TC < 4, 4 - TC \leq L_{max} - L$ Ⓢ Dimensions L, N and (L-S) remain unchanged. | Quotation |
| | HC | HC=0.1mm increments Ⓢ $D \leq HC < H$ Ⓢ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | HCC | HCC=0.1mm increments Ⓢ $D + 1 \leq HCC < H - 0.3$ | |

| 4mm head | | Tapered section | Cmax. | Part Number | | | | 0.01mm increments | | | 1mm increments | |
|----------|---|---------------------------|-------|-------------|-------------------------|---------------|--------------------------|-------------------|-------------------------------------|----------------------------|----------------|--|
| H | T | | | Type | D | L | P | V | N | S | | |
| 6 | 4 | Tapered 1/1000 or more | 2.2 | ESVFX | 3 | 100.00~150.00 | 2.50~3.00 | 1.00~1.50 | $N \geq L/2$ ($L - N \geq 30$) | $2 \leq S \leq V \times 3$ | | |
| 7 | | | 4 | | 3.00~4.00 | | | | | | | |
| 8 | | | 5 | | $D - 1.5 \leq P \leq D$ | | $1.00 \leq V \leq D - 2$ | | | | | |
| 9 | | | 6 | | | | | | | | | |
| 10 | | | 7 | | | | | | | | | |
| 11 | | | 8 | | | | | | | | | |

Ⓢ $C_{max} \geq C \geq V + 0.5$ Ⓢ Working limits for V $V \leq P - 0.6$

Order Part Number: **ESVFX 3** - **L** 100.00 - **P** P2.50 - **V** V1.00 - **N** N60 - **S** S2

Days to Ship **Quotation**

Characteristics

- Damage becomes unlikely in assembly of center pins due to tapered shape of recessed hole.
- Full length L can be set up to 200mm for wall thickness of 0.3mm and more.

Ejector Sleeves
High Speed Steel
SKH51 equivalent

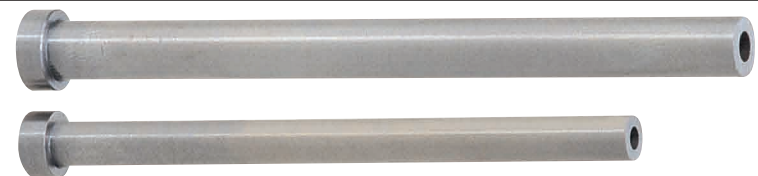
SKD61 equivalent + Nitrided
Concentricity $\phi 0.03$
4mm head

STRAIGHT EJECTOR SLEEVE

— STANDARD —

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

RoHS



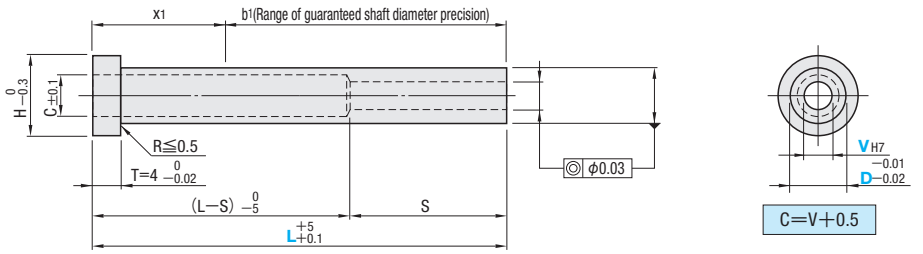
| Part Number | T V | Applicable center pin shaft diameter tolerance |
|-------------|-----|--|
| ESNV | H7 | -0.01 |
| | | -0.02 |

※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance -0.005 is not recommended. The reason for this is the fitting sections S are longer. (Details [P.1309](#))

V H7

| | | |
|---------------|-----------------------|---------------|
| $V \leq 3.0$ | $3.5 \leq V \leq 6.0$ | $V \geq 6.5$ |
| $+0.010$ 0 | $+0.012$ 0 | $+0.015$ 0 |

$C = V + 0.5$



| L | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |
|---|----|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|
| S | 40 | 50 (V1.5...→40) | 60 (V1.5...→40) | 60 | 80 | 80 | 80 | 80 | 90 | 90 |

ⓘ SKD61 equivalent + Nitrided
Surface : 900HV
Base material : 40 ± 3HRC
ⓘ (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
x1 max. = 30
Range of guaranteed base material hardness (Details [P.1307](#))
Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

ⓘ Note that the Stepped Center Pin's shaft diameter (D) is too large to fit in the recess (C). (Details [P.1310](#))

| H | Part Number | | L | | | | | | | | V Selection | |
|----|-------------|-----|----|-----|-----|-----|-----|-----|-----|-----|-------------|-----|
| | Type | D | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |
| 7 | ESNV | 4 | 75 | 100 | 125 | 150 | | | | | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | | | | |
| 8 | ESNV | 4.5 | 75 | 100 | 125 | 150 | | | | | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | | | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| 9 | ESNV | 5 | 75 | 100 | 125 | 150 | 175 | 200 | | | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| 10 | ESNV | 6 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |
| 11 | ESNV | 7 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |
| 14 | ESNV | 8 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |
| 15 | ESNV | 9 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | | |
| | | | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 275 | 300 |

Order **Part Number** - **L** - **V**
ESNV8 - 100 - 4.0

Days to Ship **Quotation**

Price **Quotation**

Alterations **Part Number** - **L** - **V** - (KC · WKC...etc.)
ESNV8 - 100 - 4.0 - KC4.5

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|-----------|
| | KC | Single flat cutting $D/2 \leq KC < H/2$ | Quotation |
| | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
| | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ KBC = 0.1mm increments only $KAC < KBC < H/2$ | |
| | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
| | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
| | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
| | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ AG = 1° increments $0 < AG < 360$ | |
| | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |

| Alterations | Code | Spec. | 1Code |
|-------------|------|---|-----------|
| | TC | TC = 0.1mm increments $2.0 \leq TC < 4$ Dimensions L and (L-S) become shorter by (4-TC). | Quotation |
| | HC | HC = 0.1mm increments $D \leq HC < H$ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |

Ejector Sleeves

Dies Steel
SKD61 equivalent
+ Nitrided


SKD61 equivalent+Nitrided
Concentricity $\text{◎}0.06$
4mm head

STRAIGHT EJECTOR SLEEVE

— STANDARD —

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

RoHS

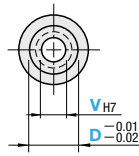


| Part Number | V | Applicable center pin shaft diameter tolerance |
|-------------|----|---|
| ESN | H7 | $\begin{matrix} -0.01 \\ -0.02 \end{matrix}$ <p>※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $\begin{matrix} 0 \\ 0.005 \end{matrix}$ is not recommended. The reason for this is the fitting sections S are longer. (Details P.1309)</p> |

VH7

| V ≤ 3.0 | 3.5 ≤ V ≤ 6.0 | 6.5 ≤ V ≤ 10.0 | V ≥ 11.0 |
|---|---|---|---|
| $\begin{matrix} +0.010 \\ 0 \end{matrix}$ | $\begin{matrix} +0.012 \\ 0 \end{matrix}$ | $\begin{matrix} +0.015 \\ 0 \end{matrix}$ | $\begin{matrix} +0.018 \\ 0 \end{matrix}$ |

VH7



$\begin{matrix} V_{H7} \\ D -0.01 \\ -0.02 \end{matrix}$

C = V + 0.5

Ⓜ SKD61 equivalent+Nitrided
Ⓜ Surface : 900HV
Ⓜ Base material : 40±3HRC
Ⓜ b1 (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
x1 max. = 30
Ⓜ Range of guaranteed base material hardness (Details [P.1307](#))
Ⓜ Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

Ⓜ L tolerance is set to $\begin{matrix} +5 \\ +0.1 \end{matrix}$.

| L | 75 | 100 | 125 | 150 | 175 | 200 | 250 | 300 |
|---|----|---------------|---------------|-----|-----|-----|-----|-----|
| S | 40 | 50(V1.5 → 40) | 60(V1.5 → 40) | 60 | 80 | 80 | 90 | 90 |

Ⓜ Note that the Stepped Center Pin's shaft diameter (D) is too large to fit in the recess (C). (Details [P.1310](#))

Order Part Number — L — V

ESN8 — 100 — 4.0

Ⓜ Days to Ship Quotation

ⓘ Note that when you order ESN, entry of an alphabetical character (V) is not required.

Alterations Part Number — L — V — (KC · WKC ··· etc.)

ESN8 — 200 — 4.0 — KC4.5

Quotation

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|-----------|
| | KC | Single flat cutting $D/2 \leq KC < H/2$ | Quotation |
| | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
| | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$ | |
| | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
| | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
| | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
| | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ AG=1° increments $0 < AG < 360$ | |
| | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|-------------|------|---|-----------|
| | TC | TC=0.1mm increments Ⓜ $2.0 \leq TC < 4$ Ⓜ Dimensions L and (L-S) become shorter by (4-TC). | Quotation |
| | HC | HC=0.1mm increments Ⓜ $D \leq HC < H$ Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |

| H | Part Number | | L | | | | | | | | V Selection | | |
|----|-------------|-----|----|-----|-----|-----|-----|-----|-----|-----|-------------|----------------------|--|
| | Type | D | 75 | 100 | 125 | 150 | 175 | 200 | 250 | 300 | | | |
| 7 | ESN | 4 | | | | | | | | | — | 1.5 2.0 2.5 | |
| 8 | | 4.5 | | | | | | | | | | — | 1.5 2.0 2.5 3.0 |
| | | 5 | | | | | | | | | | — | 2.0 2.5 3.0 |
| 9 | | 5.5 | | | | | | | | | | — | 2.5 3.0 3.5 |
| | | 6 | | | | | | | | | | — | 2.5 3.0 3.5 4.0 |
| 10 | | 6.5 | | | | | | | | | | — | 2.5 3.0 3.5 4.0 |
| | | 7 | | | | | | | | | | — | 2.5 3.0 3.5 4.0 4.5 5.0 |
| 11 | | 7.5 | | | | | | | | | | — | 3.0 3.5 4.0 4.5 5.0 |
| | | 8 | | | | | | | | | | — | 3.5 4.0 4.5 5.0 5.5 6.0 |
| 14 | | | 9 | — | | | | | | | | | 6.0 6.5 7.0 |
| 15 | | | 10 | — | | | | | | | | | 6.0 7.0 8.0 |
| 17 | | 12 | — | | | | | | | | | 8.0 9.0 | |
| 18 | | 13 | — | | | | | | | | — | 8.0 9.0 10.0 | |
| 21 | | 16 | — | | | | | | | | — | 10.0 11.0 12.0 | |

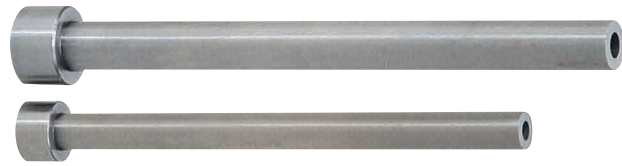
P Price Quotation

Ejector Sleeves
Dies Steel SKD61 equivalent + Nitrided

STRAIGHT EJECTOR SLEEVE

— STANDARD —

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

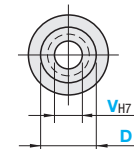
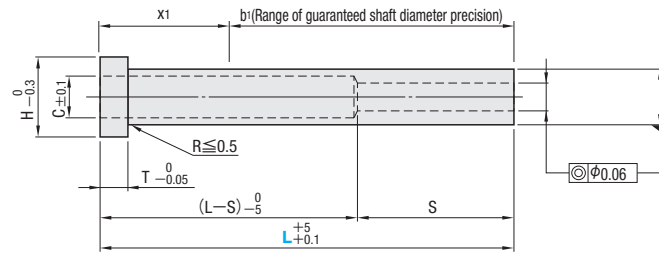


RoHS

| Part Number | T V | Applicable center pin shaft diameter tolerance |
|-------------|-----|---|
| ESJ | H7 | -0.01 -0.02 ※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance -0.005 is not recommended. The reason for this is the fitting sections S are longer. (Details P.1309) |

| D | |
|-------------|-------------|
| $D \leq 12$ | $D \geq 15$ |
| -0.01 | -0.01 |
| -0.02 | -0.03 |

| VH7 | | | |
|---------------|---------------------|----------------------|---------------|
| $V \leq 3$ | $3.5 \leq V \leq 6$ | $6.5 \leq V \leq 10$ | $V \geq 12$ |
| $+0.010$ 0 | $+0.012$ 0 | $+0.015$ 0 | $+0.018$ 0 |



$C = V + 0.5$

M SKD61 equivalent + Nitrided
 Surface : 900HV
 Base material : 40±3HRC
 b1 (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
 $x1 \text{ max.} = 35$
 Range of guaranteed base material hardness (Details [P.1307](#))
 Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

| L | 100 | 120 | 140 | 160 | 180 | 200 | 225 | 250 | 275 | 300 | 325 | 350 | 375 | 400 | 425 | 450 | 475 | 500 |
|---|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| S | 50(V1.5 → 40) | | | 75 | | | 100 | | | 115 | | | 150 | | | | | |

Note that the Stepped Center Pin's shaft diameter (D) is too large to fit in the recess (C). (Details [P.1310](#))

Alterations Part Number — L — V — (KC · WKC...etc.)
 ESJ8 — 200 — 4 — KC4.0

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|-------------|------------|--|-----------|
| | KC | Single flat cutting $D/2 \leq KC < H/2$ | Quotation |
| | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
| | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ $KBC = 0.1\text{mm increments only}$ $KAC < KBC < H/2$ | |
| | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
| | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
| | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
| | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ $AG = 1^\circ$ increments $0 < AG < 360$ | |
| | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |

| Alterations | Code | Spec. | 1Code |
|-------------|------|--|-----------|
| | TC | $TC = 0.1\text{mm increments}$ $T/2 \leq TC < T$ Dimensions L and (L-S) become shorter by (T-TC). | Quotation |
| | HC | $HC = 0.1\text{mm increments}$ $D \leq HC < H$ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |

| H | T | Part Number | | L | V Selection |
|----|---|-------------|---|---|---------------------------|
| | | Type | D | | |
| 8 | | 4 | D | 100 120 140 | 1.5 |
| | | | | 100 120 140 160 180 200 | 2 2.5 |
| | | 4.5 | D | 100 120 140 | 1.5 |
| | | | | 100 120 140 160 180 200 | 2 2.5 |
| 9 | | 5 | D | 100 120 140 160 180 200 225 | 2 2.5 3 |
| | | | | 250 275 300 | 3 |
| | | | | 100 120 140 160 180 200 225 | 2 2.5 3 |
| 10 | | 5.5 | D | 250 275 300 | 3 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 2 2.5 3 3.5 4 |
| | | 6 | D | 325 350 375 400 425 450 | 3 3.5 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 2 2.5 3 3.5 4 |
| 11 | | 6.5 | D | 325 350 375 400 425 450 | 3 3.5 4 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 2 2.5 3 3.5 4 4.5 |
| 12 | | 7 | D | 325 350 375 400 425 450 | 3 3.5 4 4.5 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 3 3.5 4 4.5 |
| 13 | | 7.5 | D | 325 350 375 | 3.5 4 4.5 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 2 2.5 3 3.5 4 4.5 5 5.5 |
| | | | | 325 350 375 400 425 450 | 3 3.5 4 4.5 5 |
| 14 | | 8 | D | 475 500 | 5 |
| | | | | 100 120 140 160 180 200 225 250 275 300 | 2 2.5 3 3.5 4 4.5 5 5.5 |
| | | 9 | D | 325 350 375 400 425 450 | 3 3.5 4 4.5 5 |
| | | | | 475 500 | 5 5.5 6 |
| 15 | | 10 | D | 100 120 140 160 180 200 225 250 275 300 325 350 375 400 425 450 | 4 4.5 5 5.5 6 6.5 7 |
| | | | | 475 500 | 5 5.5 6 6.5 7 |
| | | | | 100 120 140 160 180 200 225 250 275 300 325 350 375 400 425 450 | 4 4.5 5 5.5 6 6.5 7 8 8.5 |
| 17 | | 12 | D | 475 500 | 5 5.5 6 6.5 7 8 |
| | | | | 100 120 140 160 180 200 225 250 275 300 325 350 375 400 425 450 | 4 4.5 5 5.5 6 6.5 7 8 8.5 |
| 20 | | 15 | D | 200 225 250 275 300 325 350 375 400 425 450 475 500 | 9 10 |
| | | | | 200 225 250 275 300 325 350 375 400 425 450 475 500 | 12 15 |

Order Part Number — L — V
 ESJ6.5 — 120 — 2.5

Days to Ship Quotation

Price Quotation


Note that when you order ESJ, entry of an alphabetical character (V) is not required.

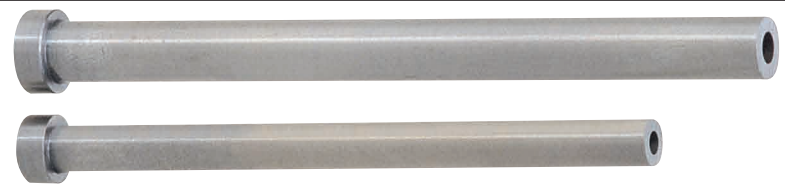
SKD61 equivalent+Nitrided
Concentricity $\phi 0.06$
4mm head

STRAIGHT EJECTOR SLEEVE

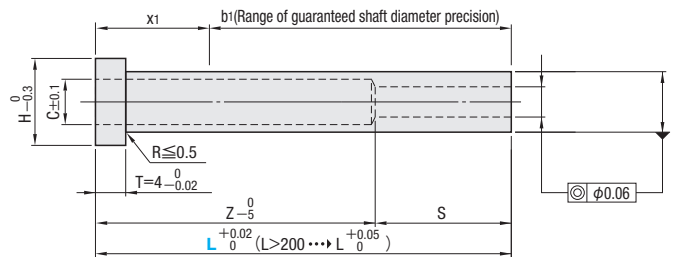
— L DIMENSION DESIGNATION TYPE —

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

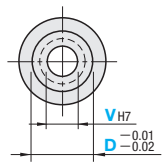




| Part Number | T V | Applicable center pin shaft diameter tolerance |
|-------------|-----|--|
| ESN-LC | H7 | -0.01 -0.02 <small>※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance -0.005 is not recommended. The reason for this is the fitting sections S are longer. (Details P.1309)</small> |



$C=V+0.5$




$C=V+0.5$

Ⓜ SKD61 equivalent+Nitrided
 Ⓜ Surface : 900HV
 Base material : 40±3HRC
 Ⓜ b1 (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
 x1 max. = 30
 Range of guaranteed base material hardness (Details [P.1307](#))
 Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

| L | 50.00~75.00 | 75.01~100.00 | 100.01~125.00 | 125.01~150.00 | 150.01~175.00 | 175.01~200.00 | 200.01~250.00 | 250.01~300.00 |
|---|-------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Z | 35 | 50(V1.5→60) | 75(V1.5→85) | 90(V1.5→110) | 115 | 120 | 170 | 210 |

Ⓜ Note that the Stepped Center Pin's shaft diameter (D) is too large to fit in the recess (C). (Details [P.1310](#))



Order

Part Number

—

L

—

V


ESN-LC8

—

123.65


—

V4.0



Days to Ship

Quotation



Alterations

Part Number

—

L

—

V

—

(KC · WKC...etc.)

ESN-LC8

—

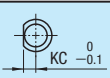
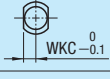

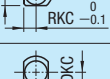
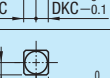

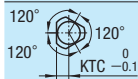
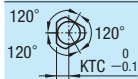
196.25

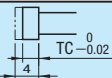

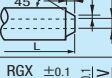
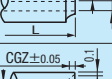
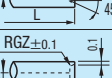

—

V4.0

—

KC4.5

| Alterations | Code | Spec. | 1Code |
|---|------------|---|-----------|
|  | KC | Single flat cutting $D/2 \leq KC < H/2$ | Quotation |
|  | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
|  | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$ | |
|  | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
|  | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
|  | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
|  | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ $AG = 1^\circ$ increments $0 < AG < 360$ | |
|  | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |

| Alterations | Code | Spec. | 1Code |
|---|------|---|-----------|
|  | TC | TC=0.1mm increments Ⓜ $2.0 \leq TC < 4.4 - TC \leq L_{max} - L$ Ⓜ Dimension L remains unchanged. Ⓜ Dimension Z becomes shorter by $(4 - TC)$. | Quotation |
|  | HC | HC=0.1mm increments Ⓜ $D \leq HC < H$ Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
|  | CGX | CGX=0.1mm increments Ⓜ $0.2 \leq CGX \leq 1.5$ and $CGX \leq \frac{D-V}{2} - 0.1$ Ⓜ Combination with RGX/CGZ/RGZ not available. | |
|  | RGX | RGX=0.1mm increments Ⓜ $0.3 \leq RGX \leq 1.5$ and $RGX \leq \frac{D-V}{2} - 0.1$ Ⓜ Combination with CGX/CGZ/RGZ not available. | |
|  | CGZ | CGZ=0.1mm increments Ⓜ $0.2 \leq CGZ \leq 1.0$ and $CGZ \leq \frac{D-V}{2} - 0.1$ Ⓜ Combination with CGX/RGX/RGZ not available. | |
|  | RGZ | RGZ=0.1mm increments Ⓜ $0.5 \leq RGZ \leq 1.0$ and $RGZ \leq \frac{D-V}{2} - 0.1$ Ⓜ Combination with CGX/RGX/CGZ not available. | |

| H | Part Number | | L 0.01mm increments | V Selection |
|-----|-------------|--------------|------------------------|----------------|
| | Type | D | | |
| 7 | ESN-LC | 4 | 50.00~150.00 | 1.5 |
| | | | 50.00~200.00 | 2.0 |
| 8 | | 4.5 | 50.00~150.00 | 1.5 |
| | | | 50.00~200.00 | 2.0 |
| 5 | | 50.00~200.00 | 2.5 | |
| | | 3.0 | | |
| 9 | | 5.5 | 50.00~200.00 | 2.0 |
| | | | 2.5 | |
| 3.0 | | 6 | 50.00~250.00 | 2.5 |
| | | | 4.0 | |
| 10 | 6.5 | 50.00~250.00 | 3.0 | |
| | | 3.5 | | |
| 7 | 7 | 50.00~250.00 | 2.5 | |
| | | 3.0 | | |
| 11 | 7.5 | 50.00~250.00 | 3.5 | |
| | | 4.5 | | |
| 8 | 8 | 50.00~250.00 | 5.0 | |
| | | 3.0 | | |
| 14 | 9 | 80.00~300.00 | 3.5 | |
| | | 4.0 | | |
| 15 | 10 | 80.00~300.00 | 4.0 | |
| | | 5.0 | | |
| 17 | 12 | 80.00~300.00 | 5.5 | |
| | | 6.0 | | |
| 18 | 13 | 80.00~300.00 | 6.0 | |
| | | 7.0 | | |
| 21 | 16 | 80.00~300.00 | 7.0 | |
| | | 8.0 | | |
| | | | 8.0 | |
| | | | 9.0 | |
| | | | 10.0 | |
| | | | 10.0 | |
| | | | 11.0 | |
| | | | 12.0 | |

Ⓜ For L dimension less than 50mm, please use Short Ejector Sleeves ECB and ECBB. (Only for D4 · 5 · 6 · 7 · 8 · 10) [P.315](#)

P Price

Quotation

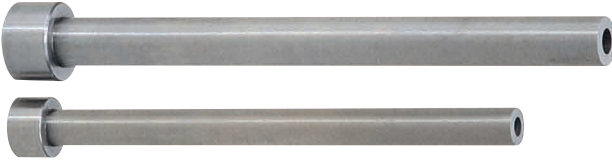
Ejector Sleeves
Dies Steel
SKD61 equivalent
+ Nitrided

STRAIGHT EJECTOR SLEEVE

— L DIMENSION DESIGNATION TYPE —

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

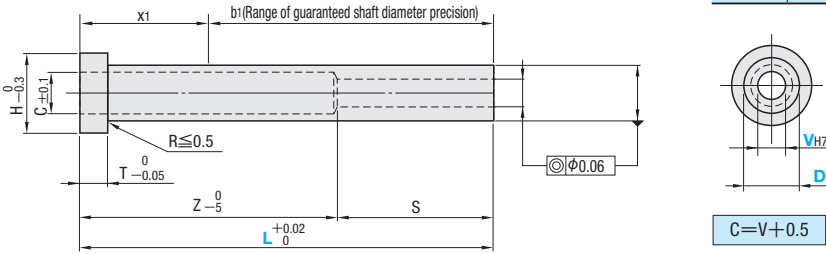
RoHS



| Part Number | T V | Applicable center pin shaft diameter tolerance |
|-------------|-----|--|
| ESJL | H7 | -0.01 -0.02 <small>※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $0_{-0.005}$ is not recommended. The reason for this is the fitting sections S are longer. (Details P.1309)</small> |

| D | |
|-------------|-------------|
| $D \leq 12$ | $D \geq 15$ |
| -0.01 | -0.01 |
| -0.02 | -0.03 |

| VH7 | | | |
|---------------|---------------------|----------------------|---------------|
| $V \leq 3$ | $3.5 \leq V \leq 6$ | $6.5 \leq V \leq 10$ | $V \geq 12$ |
| $+0.010$ 0 | $+0.012$ 0 | $+0.015$ 0 | $+0.018$ 0 |



Ⓜ S dimension depends on the designated L dimension.
S=L-Z

| L | 80.00~100.00 | 100.01~120.00 | 120.01~140.00 | 140.01~160.00 | 160.01~180.00 | 180.01~225.00 | 225.01~250.00 | 250.01~275.00 | 275.01~300.00 | 300.01~325.00 | 325.01~350.00 | 350.01~375.00 | 375.01~400.00 | 400.01~425.00 | 425.01~450.00 | 450.01~475.00 | 475.01~500.00 |
|---|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Z | 50 (60) | 70 (80) | 90 (100) | 85 | 105 | 125 | 150 | 175 | 185 | 210 | 235 | 225 | 250 | 275 | 300 | 325 | 350 |

Ⓜ Figures in parentheses are applicable for V1.5. Ⓜ SKD61 equivalent+Nitrided Ⓜ Surface: 900HV Ⓜ Base material: 40±3HRC

Ⓜ (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
x1 max.=35

Ⓜ Range of guaranteed base material hardness (Details [P.1307](#))
Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

Alterations Part Number — L — V — (KC · WKC...etc.)

ESJL8 — 200.05 — V4 — KC4.0

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|-----------|
| | KC | Single flat cutting $D/2 \leq KC < H/2$ | Quotation |
| | WKC | Two flats cutting $D/2 \leq WKC < H/2$ | |
| | KAC KBC | Varied width parallel flats cutting $D/2 \leq KAC < H/2$ KBC=0.1mm increments only $KAC < KBC < H/2$ | |
| | RKC | Two flats (right angled) cutting $D/2 \leq RKC < H/2$ | |
| | DKC | Three flats cutting $D/2 \leq DKC < H/2$ | |
| | SKC | Four flats cutting $D/2 \leq SKC < H/2$ | |
| | KGC | Two flats (angled) cutting $D/2 \leq KGC < H/2$ AG=1° increments $0 < AG < 360$ | |
| | KTC | Three flats cutting at 120° $D/2 \leq KTC < H/2$ | |
| | | (1) To align the key flat with the shaft diameter Unit of designation: 0.05mm increments possible | |
| | | (2) To designate arbitrary key flat dimensions Unit of designation: 0.1mm | |

| Alterations | Code | Spec. | 1Code |
|-------------|------|---|-----------|
| | TC | TC=0.1mm increments $T/2 \leq TC < T, (T-TC) \leq L_{max} - L$ V Dimension L remains unchanged. Dimension Z becomes shorter by (T-TC). | |
| | HC | HC=0.1mm increments $D \leq HC < H$ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | CGX | CGX=0.1mm increments $0.2 \leq CGX \leq 1.5$ and $CGX \leq \frac{D-V}{2} - 0.1$ Available when $L \leq 300$ Combination with RGX/CGZ/RGZ not available. | Quotation |
| | RGX | RGX=0.1mm increments $0.3 \leq RGX \leq 1.5$ and $RGX \leq \frac{D-V}{2} - 0.1$ Available when $L \leq 300$ Combination with CGX/CGZ/RGZ not available. | |
| | CGZ | CGZ=0.1mm increments $0.2 \leq CGZ \leq 1.0$ and $CGZ \leq \frac{D-V}{2} - 0.1$ Available when $L \leq 300$ Combination with CGX/RGX/RGZ not available. | |
| | RGZ | RGZ=0.1mm increments $0.5 \leq RGZ \leq 1.0$ and $RGZ \leq \frac{D-V}{2} - 0.1$ Available when $L \leq 300$ Combination with CGX/RGX/CGZ not available. | |

| H | T | Part Number Type | D | L | | V | |
|-----|---|------------------|---------------|---------------------------|-------------------------|---|--|
| | | | | 0.01mm increments | Selection | | |
| 8 | 6 | ESJL | 4 | 80.00~140.00 | 1.5 2 2.5 | | |
| | | | 4.5 | 140.01~200.00 | 2 2.5 | | |
| 5 | | | 80.00~140.00 | 1.5 2 2.5 | | | |
| 5.5 | | | 140.01~200.00 | 2 2.5 | | | |
| 6 | | | 80.00~225.00 | 2 2.5 3 | | | |
| 6.5 | | | 225.01~300.00 | 3 | | | |
| 7 | | | 80.00~225.00 | 2 2.5 3 | | | |
| 7.5 | | | 225.01~300.00 | 3 | | | |
| 8 | | | 80.00~300.00 | 2 2.5 3 3.5 4 | | | |
| 8 | | | 300.01~450.00 | 3 3.5 | | | |
| 9 | 8 | ESJL | 4 | 80.00~300.00 | 2 2.5 3 3.5 4 | | |
| | | | 4.5 | 300.01~450.00 | 3 3.5 | | |
| 5 | | | 80.00~300.00 | 2 2.5 3 3.5 4 | | | |
| 5.5 | | | 300.01~450.00 | 3 3.5 4 | | | |
| 6 | | | 80.00~300.00 | 2 2.5 3 3.5 4 4.5 | | | |
| 6.5 | | | 300.01~450.00 | 3 3.5 4 4.5 | | | |
| 7 | | | 80.00~300.00 | 2 2.5 3 3.5 4 4.5 | | | |
| 7.5 | | | 300.01~450.00 | 3 3.5 4 4.5 | | | |
| 8 | | | 80.00~300.00 | 2 2.5 3 3.5 4 4.5 5 5.5 | | | |
| 8 | | | 300.01~450.00 | 3 3.5 4 4.5 5 | | | |
| 10 | 8 | ESJL | 4 | 450.01~500.00 | 5 | | |
| | | | 4.5 | 80.00~300.00 | 2 2.5 3 3.5 4 4.5 5 5.5 | | |
| 5 | | | 300.01~450.00 | 3 3.5 4 4.5 5 | | | |
| 5.5 | | | 450.01~500.00 | 5 5.5 6 | | | |
| 6 | | | 80.00~450.00 | 4 4.5 5 5.5 6 6.5 7 | | | |
| 6.5 | | | 450.01~500.00 | 5 5.5 6 6.5 7 | | | |
| 7 | | | 80.00~450.00 | 4 4.5 5 5.5 6 6.5 7 8 8.5 | | | |
| 7.5 | | | 450.01~500.00 | 5 5.5 6 6.5 7 8 | | | |
| 8 | | | 80.00~450.00 | 4 4.5 5 5.5 6 6.5 7 8 8.5 | | | |
| 8 | | | 450.01~500.00 | 5 5.5 6 6.5 7 8 | | | |
| 11 | 8 | ESJL | 4 | 180.01~500.00 | 9 10 | | |
| | | | 4.5 | 180.01~500.00 | 9 10 | | |
| 5 | | | 180.01~500.00 | 9 10 | | | |
| 5.5 | | | 180.01~500.00 | 9 10 | | | |
| 6 | | | 180.01~500.00 | 9 10 | | | |
| 6.5 | | | 180.01~500.00 | 9 10 | | | |
| 7 | | | 180.01~500.00 | 9 10 | | | |
| 7.5 | | | 180.01~500.00 | 9 10 | | | |
| 8 | | | 180.01~500.00 | 9 10 | | | |
| 8 | | | 180.01~500.00 | 9 10 | | | |

Order Part Number — L — V
ESJL6.5 — 115.50 — V2.5

Days to Ship **Quotation**

Price **Quotation**

SKD61 equivalent + Nitrided
Concentricity $\phi 0.06$
4mm head

STRAIGHT EJECTOR SLEEVE

— SHAFT DIAMETER SELECTION TYPE · SHAFT DIAMETER DESIGNATION TYPE —

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

RoHS

| Part Number | | Shaft diameter designation (0.01mm increments) type | D · P | V | Applicable center pin shaft diameter tolerance | | | | | | | | | | |
|-------------------------------|---------------|---|-------------|---|--|---|--|---------|---------------|----------------|----------|-------------|-------------|-------------|-------------|
| Shaft diameter selection type | ESNB | | | | H7 | ※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance -0.005 is not recommended. The reason for this is the fitting sections S are longer. (Details P.1309) | | | | | | | | | |
| ESN-L | ESNB | -0.01 -0.02 | H7 | <table border="1" style="font-size: small;"> <tr> <th>V ≤ 3.0</th> <th>3.1 ≤ V ≤ 6.0</th> <th>6.1 ≤ V ≤ 10.0</th> <th>V ≥ 10.1</th> </tr> <tr> <td>+0.010 0</td> <td>+0.012 0</td> <td>+0.015 0</td> <td>+0.018 0</td> </tr> </table> | | | | V ≤ 3.0 | 3.1 ≤ V ≤ 6.0 | 6.1 ≤ V ≤ 10.0 | V ≥ 10.1 | +0.010 0 | +0.012 0 | +0.015 0 | +0.018 0 |
| V ≤ 3.0 | 3.1 ≤ V ≤ 6.0 | 6.1 ≤ V ≤ 10.0 | V ≥ 10.1 | | | | | | | | | | | | |
| +0.010 0 | +0.012 0 | +0.015 0 | +0.018 0 | | | | | | | | | | | | |

Ⓜ SKD61 equivalent + Nitrided
Ⓜ Surface : 900HV
Base material : 40±3HRC

Ⓜ b (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
x1 max. = 30

Ⓜ Range of guaranteed base material hardness (Details [P.1307](#))
Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

Ⓜ Nitriding may extend to the head as it is applied after dimension V and P machining.
Ⓜ To insert a stepped center pin, the following condition must be met:
the sleeve's recess diameter (C) ≥ the center pin's shaft diameter (D) + 1.0 (Details [P.1310](#))

Alterations Part Number — L — P — V — C — S — (KC · WKC · etc.)

ESN-L8 — 200.05 — V4.1 — C4.6 — S32 — KC4.5
ESNB 8 — 150.00 — P7.55 — V4.0 — C5.0 — S32 — KC3.775

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code | Alterations | Code | Spec. | 1Code |
|-------------|------------|--|-----------|-------------|------|--|-----------|
| | KC | Single flat cutting (DorP)/2 ≤ KC < H/2 | | | TC | TC = 0.1mm increments Ⓜ (4 - TC) ≤ Lmax. - L Ⓜ 2.0 ≤ TC < 4 Dimensions L and (L - S) remain unchanged. | |
| | WKC | Two flats cutting (DorP)/2 ≤ WKC < H/2 | | | HC | HC = 0.1mm increments Ⓜ (DorP) ≤ HC < H Ⓜ In relation to the head diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | KAC KBC | Varied width parallel flats cutting (DorP)/2 ≤ KAC < H/2 KBC = 0.1mm increments only KAC < KBC < H/2 | | | CW | Two-step recessing (Makes recess C into two-steps and widens it) CW = 0.1mm increments W = 5mm increments Ⓜ C + 0.5 ≤ CW ≤ Cmax, CW ≤ P - 1.5 Ⓜ 10 ≤ W ≤ L - S - 10, W ≤ 200 | |
| | RKC | Two flats (right angled) cutting (DorP)/2 ≤ RKC < H/2 | Quotation | | CGX | CGX = 0.1mm increments Ⓜ 0.2 ≤ CGX ≤ 1.5 and CGX ≤ (D(P) - V) / 2 - 0.1 Ⓜ Combination with RGX/CGZ/RGZ not available. | Quotation |
| | DKC | Three flats cutting (DorP)/2 ≤ DKC < H/2 | | | RGX | RGX = 0.1mm increments Ⓜ 0.3 ≤ RGX ≤ 1.5 and RGX ≤ (D(P) - V) / 2 - 0.1 Ⓜ Combination with CGX/CGZ/RGZ not available. | |
| | SKC | Four flats cutting (DorP)/2 ≤ SKC < H/2 | | | CGZ | CGZ = 0.1mm increments Ⓜ 0.2 ≤ CGZ ≤ 1.0 and CGZ ≤ (D(P) - V) / 2 - 0.1 Ⓜ Combination with CGX/CGZ/RGZ not available. | |
| | KGC | Two flats (angled) cutting (DorP)/2 ≤ KGC < H/2 AG = 1° increments 0 < AG < 360 | | | RGZ | RGZ = 0.1mm increments Ⓜ 0.5 ≤ RGZ ≤ 1.0 and RGZ ≤ (D(P) - V) / 2 - 0.1 Ⓜ Combination with CGX/CGZ/RGZ not available. | |
| | KTC | Three flats cutting at 120° (DorP)/2 ≤ KTC < H/2 | | | | | |

Shaft diameter (D) selection type

| H | Part Number | | L | V | C | Cmax. | S |
|----|-------------|-----|------------------------------|----------|-------------|-------|---|
| | Type | D | | | | | |
| 7 | ESN-L | 4 | 40.00~200.00 | 1.5~2.5 | C ≥ V + 0.5 | 3.0 | 20~100 (Ⓜ D4~5.5 When V1.5~V1.9 20~40) |
| 8 | | 4.5 | 40.00~250.00 | 1.5~2.5 | | | |
| | | 5 | *V dimension 40.00~150.00 | 1.5~3.0 | | | |
| | | 5.5 | | *3.1~3.5 | | | |
| 9 | | 6 | | *3.6~4.0 | | | |
| | | 6.5 | | 2.0~4.0 | | | |
| | | 7 | | *4.1~4.5 | | | |
| | | 7.5 | | 2.0~4.5 | | | |
| 10 | | 8 | | 2.0~5.0 | | | |
| | | 8 | | 2.0~5.5 | | | |
| | | 8 | | 2.5~6.0 | | | |
| 14 | | 9 | | 2.5~7.0 | | | |
| | | 9 | | 2.5~8.0 | | | |
| 15 | | 10 | | 2.5~10.0 | | | |
| 17 | | 12 | | 2.5~11.0 | | | |
| 18 | | 13 | | 2.5~13.0 | | | |
| 21 | | 16 | | 3.0~16.0 | | | |
| 25 | | 20 | | | | | |

Shaft diameter (P) designation 0.01mm increments type

| H | Part Number | | L | P | V | C | Cmax. | S |
|----|-------------|-----|--------------|-------------|----------|-----------------------------------|-------|---|
| | Type | No. | | | | | | |
| 7 | ESNB | 4 | 40.00~200.00 | 3.50~3.99 | 1.5~1.9 | C ≥ V + 0.5 and C ≤ P - 1.5 | 2.5 | 20~100 (Ⓜ No.4 When V1.5~V1.9 20~40) |
| 8 | | 5 | 40.00~250.00 | 4.01~4.99 | 2.0~2.5 | | | |
| | | 5.5 | | 5.01~5.99 | 2.0~3.4 | | | |
| 9 | | 6 | | 5.51~5.99 | 2.0~3.9 | | | |
| | | 6.5 | | 6.01~6.49 | 2.0~4.4 | | | |
| | | 7 | | 6.51~6.99 | 2.0~4.9 | | | |
| 10 | | 7.5 | | 7.01~7.49 | 2.0~5.4 | | | |
| | | 8 | | 7.51~7.99 | 2.5~5.9 | | | |
| 11 | | 8 | | 8.01~8.99 | 2.5~6.9 | | | |
| 14 | | 9 | | 9.01~9.99 | 2.5~7.9 | | | |
| 15 | | 10 | | 10.01~12.99 | 2.5~10.9 | | | |
| 18 | | 13 | | 13.01~15.99 | 2.5~13.0 | | | |
| 21 | | 16 | | 16.01~19.99 | 3.0~16.0 | | | |
| 25 | | 20 | | | | | | |

Ⓜ V ≤ P - 2.0

Order Part Number — L — P — V — C — S
(D selection type) ESN-L8 — 200.05 — V4.1 — C5.0 — S32
(P designation type) ESNB8 — 200.05 — P7.55 — V4.1 — C5.0 — S32

Days to Ship **Quotation**

Price **Quotation**

Ejector Sleeves

Dies Steel
SKD61 equivalent
+ Nitrided



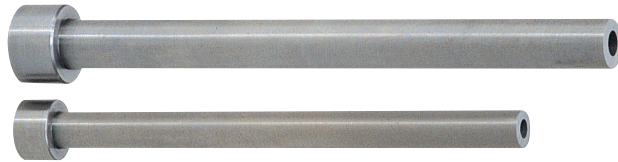
SKD61 equivalent + Nitrided
Concentricity $\phi 0.06$
JIS head

STRAIGHT EJECTOR SLEEVE

— SHAFT DIAMETER SELECTION TYPE • SHAFT DIAMETER DESIGNATION TYPE —

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

RoHS

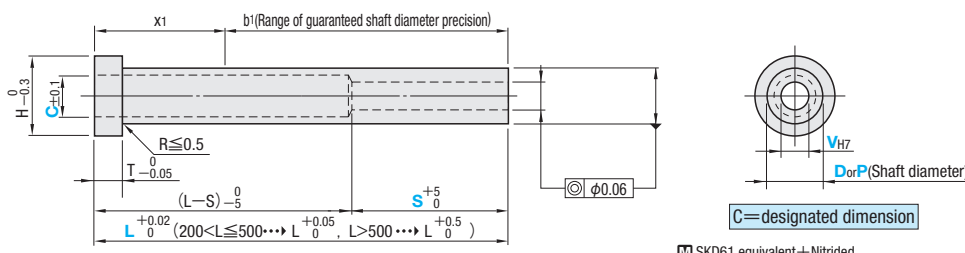


| Part Number | Shaft diameter designation (0.01mm increments) type | D or P | \square D · P | \square V | Applicable center pin shaft diameter tolerance |
|-------------|---|---------------------|-----------------|-------------|--|
| ESNJ | ESJB | D or P ≤ 12.00 | -0.01 -0.02 | H7 | -0.01 -0.02 |
| | | D or P > 12.00 | -0.01 -0.03 | | |

Ⓢ V H7

| V ≤ 3.0 | 3.1 \leq V ≤ 6.0 | 6.1 \leq V ≤ 10.0 | V ≥ 10.1 |
|--------------------|-------------------------|--------------------------|--------------------|
| $\frac{+0.010}{0}$ | $\frac{+0.012}{0}$ | $\frac{+0.015}{0}$ | $\frac{+0.018}{0}$ |

※Note that for sleeves with V dimension tolerance of H7, combination with center pins that have shaft diameter tolerance $\frac{0}{-0.005}$ is not recommended. The reason for this is the fitting sections S are longer. (Details [P.1309](#))



Ⓢ SKD61 equivalent + Nitrided
Ⓢ Surface : 900HV
Base material : 40 \pm 3HRC
Ⓢ b1 (Range of guaranteed shaft diameter precision) (Details [P.1305](#))
x1 max. = 35
Range of guaranteed base material hardness (Details [P.1307](#))
Range of guaranteed surface hardness for nitriding (Details [P.1308](#))

Ⓢ Nitriding may extend to the head as it is applied after dimension V and P machining.
Ⓢ To insert a stepped center pin, the following condition must be met:
the sleeve's recess diameter $(D) \geq$ the center pin's shaft diameter $(D) + 1.0$ (Details [P.1310](#))

Order Part Number — L — P — V — C — S
(D selection type) **ESNJ8 — 200.05 — V4.5 — C5.0 — S32**
(P designation type) **ESJB8 — 200.05 — P7.55 — V5.0 — C5.5 — S40**

Days to Ship Quotation

Alterations Part Number — L — P — V — C — S — (KC · WKC...etc.)
ESNJ8 — 200.05 — V4.0 — C5.0 — S32 — KC4.5
ESJB8 — 200.05 — P7.55 — V5.0 — C5.5 — S40 — HC11.5

Alteration details [P.275](#)

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|-----------|
| | KC | Single flat cutting (DorP)/2 \leq KC < H/2 | Quotation |
| | WKC | Two flats cutting (DorP)/2 \leq WKC < H/2 | |
| | KAC KBC | Varied width parallel flats cutting (DorP)/2 \leq KAC < H/2 KBC = 0.1mm increments only KAC < KBC < H/2 | |
| | RKC | Two flats (right angled) cutting (DorP)/2 \leq RKC < H/2 | |
| | DKC | Three flats cutting (DorP)/2 \leq DKC < H/2 | |
| | SKC | Four flats cutting (DorP)/2 \leq SKC < H/2 | |
| | KGC | Two flats (angled) cutting (DorP)/2 \leq KGC < H/2 AG = 1° increments 0 < AG < 360 | |
| | KTC | Three flats cutting at 120° (DorP)/2 \leq KTC < H/2 | |

About Designation Unit and Tolerance for Key Flat Cutting
(1) To align the key flat with the shaft diameter
Unit of designation: Shaft diameter (D) selection 0.05mm increments possible; Shaft diameter (P) designation 0.005mm increments possible
The tolerance is $\frac{0}{-0.1}$ even when (D or P)/2 is designated to fit to the shaft diameter.
(2) To designate arbitrary key flat dimensions (Unit of designation) 0.1mm

Shaft diameter (D) selection type

| H | T | Part Number | | L | V | C | Cmax. | S |
|-------------|-----|--------------|-------------|--------------|----------|--|-------|--------|
| | | Type | D | | | | | |
| 8 | 6 | ESNJ | 4 | 40.00~200.00 | — | — | — | 3.0 |
| | | | 4.5 | 40.00~250.00 | | | | |
| 9 | | | 5 | 40.00~300.00 | | | | |
| | | | 5.5 | 40.00~300.00 | | | | |
| 10 | | | 6 | 40.00~500.00 | | | | |
| | | | 6.5 | | | | | |
| 11 | 7 | 40.00~500.00 | | | | | | |
| | 7.5 | | | | | | | |
| 12 | 8 | 40.00~500.00 | | | | | | |
| | 9 | | | | | | | |
| 13 | 10 | 40.00~500.00 | | | | | | |
| | 12 | | | | | | | |
| 14 | 15 | 40.00~500.00 | | | | | | |
| | 16 | | | | | | | |
| 15 | 20 | 40.00~500.00 | | | | | | |
| | 25 | | | | | | | |
| 17 | 8 | ESNJ | 500.1~800.0 | 500.1~800.0 | 2.5~8.0 | Ⓢ $\geq V + 0.5$ (Ⓢ When L > 300 0.5mm increments) | 6.5 | 20~150 |
| | | | 500.1~800.0 | 500.1~800.0 | 2.5~10.0 | | | |
| 500.1~800.0 | | | 500.1~800.0 | 2.5~12.0 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 3.0~13.0 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 3.0~16.0 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 3.0~16.0 | | | | |

Shaft diameter (P) designation 0.01mm increments type

| H | T | Part Number | | L | P | V | C | Cmax. | S |
|-------------|-----|--------------|-------------|--------------|-----------|---------|---|-------|--------|
| | | Type | No. | | | | | | |
| 8 | 6 | ESJB | 4 | 40.00~200.00 | — | — | — | 3.0 | 20~100 |
| | | | 4.5 | 40.00~250.00 | | | | | |
| 9 | | | 5 | 40.00~300.00 | | | | | |
| | | | 5.5 | 40.00~300.00 | | | | | |
| 10 | | | 6 | 40.00~500.00 | | | | | |
| | | | 6.5 | | | | | | |
| 11 | 7 | 40.00~500.00 | | | | | | | |
| | 7.5 | | | | | | | | |
| 12 | 8 | 40.00~500.00 | | | | | | | |
| | 9 | | | | | | | | |
| 13 | 10 | 40.00~500.00 | | | | | | | |
| | 12 | | | | | | | | |
| 14 | 15 | 40.00~500.00 | | | | | | | |
| | 16 | | | | | | | | |
| 15 | 20 | 40.00~500.00 | | | | | | | |
| | 25 | | | | | | | | |
| 17 | 8 | ESJB | 500.1~800.0 | 500.1~800.0 | 3.50~3.99 | 1.5~2.5 | Ⓢ $\geq V + 0.5$ and Ⓢ $\leq P - 1.5$ (Ⓢ When L > 300 0.5mm increments) | 6.5 | 20~150 |
| | | | 500.1~800.0 | 500.1~800.0 | 4.01~4.49 | 2.0~3.0 | | | |
| 500.1~800.0 | | | 500.1~800.0 | 4.51~4.99 | 2.0~3.5 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 5.01~5.49 | 2.0~4.0 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 6.01~6.49 | 2.0~4.5 | | | | |
| 500.1~800.0 | | | 500.1~800.0 | 6.51~6.99 | 2.0~5.0 | | | | |

Ⓢ V \leq P - 2.0

Price Quotation

Ejector Sleeves

Dies Steel
SKD61 equivalent
+ Nitrided

STRAIGHT EJECTOR SLEEVE & ONE-STEP CENTER PIN SETS

— L DIMENSION DESIGNATION TYPE —

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

RoHS

| Part Number | Head Thickness (T · J) | Head Thickness (T · J) | |
|-------------|------------------------|------------------------|------------|
| | | L ≤ 300 | L > 300 |
| ESNS-□ | 4mm (T4) | 0 -0.02 | 0 -0.05 |
| ESJS-□ | 4 · 6 · 8mm (JIS) | 0 -0.05 | |

Clearance (cℓ) between the ejector sleeve's internal diameter (VH7) and the center pin's shaft diameter (V).

Clearance (cℓ) < 0.03

Ⓜ VH7 dimension tolerance

| V | Tolerance |
|---------|-------------|
| 1.5~3.0 | +0.010 0 |
| 3.5~6.0 | +0.012 0 |
| 6.5~8.5 | +0.015 0 |

Head diameter/thickness of center pin

| V | 4mm head | | JIS head | |
|-----|----------|----|----------|---|
| | Q | J | Q | J |
| 1.5 | 3 | 3 | 3 | 3 |
| 2.0 | 4 | 4 | 4 | 4 |
| 2.5 | 5 | 5 | 5 | 4 |
| 3.0 | 6 | 6 | 6 | 4 |
| 3.5 | 7 | 7 | 7 | 6 |
| 4.0 | 7 | 7 | 8 | 6 |
| 4.5 | 8 | 8 | 8 | 6 |
| 5.0 | 8 | 8 | 9 | 6 |
| 5.5 | 9 | 9 | 10 | 6 |
| 6.0 | 10 | 10 | 11 | 6 |
| 6.5 | 10 | 10 | 11 | 6 |
| 8.0 | 11 | 11 | 13 | 8 |
| 8.5 | 13 | 14 | 14 | 8 |

Ⓜ S dimension depends on the designated L dimension.
S = L - Z

| L | 80.00~100.00 | 100.01~120.00 | 120.01~140.00 | 140.01~160.00 | 160.01~180.00 | 180.01~225.00 | 225.01~250.00 | 250.01~275.00 | 275.01~300.00 | 300.01~325.00 | 325.01~350.00 | 350.01~375.00 | 375.01~400.00 |
|---|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Z | 50 | 70 | 90 | 85 | 105 | 125 | 150 | 175 | 185 | 210 | 235 | 225 | 250 |

① SKD61 equivalent + Nitrided
② SKD61 equivalent + Nitrided

Ⓜ Surface 900HV
Ⓜ Surface 900HV

Base material 40 ± 3HRC
Base material 40 ~ 45HRC

Range of guaranteed shaft diameter precision (Details P.1305)
Range of guaranteed base material hardness (Details P.1307)

Range of guaranteed surface hardness for nitriding (Details P.1308)

Ⓜ No nitriding on the tip (ℓ) of center pin.

① Alterations for Ejector Sleeves : KC, WKC, HC, TC

② Center pin alteration : WC, WWC, QC, JC, CX, RX, SR, AC, RR

Quotation

| Ejector Sleeve 4mm head JIS head | | Part Number | | L | | V | | 0.01mm increments | | | | 0.1mm increments | ℓ max. | |
|-------------------------------------|----|-------------|----|---------------------|----------------------------|---------------------------------|---------------|-------------------|-----------------------|--|--|------------------|--|-----------------------------|
| H | T | H | T | Type | Step | D | | | X | F | A | Emin. | | C · R |
| 7 | 8 | 8 | 8 | ESNS- (4mm head) | S A B C D E | 4 | 80.00~160.00 | 1.5 2.0 2.5 | L+100 ≤ X X ≥ L+20 | F ≥ 50.00 No need to designate F when ESJS is selected. | V > A ≥ E No need to designate A · E when ESJS is selected. | 0.70 | Step] D only 0.1 ≤ C ≤ 1.5 and C < V-A 2 | |
| | | | | | | | 160.01~200.00 | 2.0 | | | | | | |
| 8 | 9 | 9 | 9 | | | | 5 | 80.00~160.00 | | | | | | 1.5 2.0 2.5 |
| | | | | | | | | 160.01~200.00 | | | | | | 2.0 |
| 9 | 10 | 10 | 10 | | | | 6 | 80.00~225.00 | | | | | | 2.0 2.5 3.0 |
| | | | | | | | | 225.01~275.00 | | | | | | 3.0 |
| 10 | 11 | 11 | 11 | | | | 7 | 80.00~300.00 | | | | | | 2.0 2.5 3.0 3.5 4.0 |
| | | | | | | | | 300.01~400.00 | | | | | | 3.0 |
| 11 | 12 | 12 | 12 | | | | 8 | 80.00~300.00 | | | | | | 2.0 2.5 3.0 3.5 4.0 4.5 |
| | | | | | | | | 300.01~400.00 | | | | | | 3.0 3.5 4.0 4.5 |
| 15 | 15 | 15 | 15 | | | | 10 | 80.00~300.00 | | | | | | 2.0 2.5 3.0 3.5 4.0 4.5 5.0 |
| | | | | | | | | 300.01~400.00 | | | | | | 3.0 3.5 4.0 4.5 5.0 |
| 17 | 17 | 17 | 17 | 12 | 80.00~400.00 | 4.0 4.5 5.0 5.5 6.0 6.5 | | | | | | | | |
| | | | | | 80.00~400.00 | 4.0 4.5 5.0 5.5 6.0 6.5 8.0 8.5 | | | | | | | | |

Order Part Number - L - V - X - F - A - E - C(R) - (KC · WKC...etc.)

ESNS-D8 - 300.00 - V5.0 - X390.00 - F350.00 - A2.50 - E2.00 - C1.0

Quotation

Price **Quotation**

Alterations Part Number - L - V - X - F - A - E - C(R) - (KC · WKC...etc.)

ESNS-E10 - 310.00 - V4.5 - X400.00 - F300.00 - A3.20 - E2.40 - R0.3 - HC13-WC6

Alterations

| Alterations | Code | Spec. | 1Code |
|-------------|------------|---|------------------|
| | KC WC | KC · WC = 0.1mm increments KC = D/2 ... 0.05mm increments possible WC = V/2 ... 0.05mm increments possible Ⓜ D/2 ≤ KC < H/2, V/2 ≤ WC < Q/2 | Quotation |
| | WKC WWC | WKC · WWC = 0.1mm increments WKC = D/2 ... 0.05mm increments possible WWC = V/2 ... 0.05mm increments possible Ⓜ D/2 ≤ WKC < H/2, V/2 ≤ WWC < Q/2 | |
| | HC QC | HC · QC = 0.1mm increments Ⓜ D ≤ HC < H, V ≤ QC < Q Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft. | |
| | TC JC | TC · JC = 0.1mm increments (Dimensions L · X and F remain unchanged.) Ⓜ T/2 ≤ TC < T, T - TC ≤ Lmax - L J/2 ≤ JC < J, J - JC ≤ Xmax - X | |

Alteration details P.275

| Alterations | Code | Spec. | 1Code |
|-------------|------|--|------------------|
| | CX | CX = 0.1mm increments Ⓜ 0.3 ≤ CX ≤ 0.5, CX < E (or V)/2 E (or V) is a dimension prior to CX machining. α = CX | Quotation |
| | RX | RX = 0.1mm increments Ⓜ V ≤ 4.5, 0.3 ≤ RX ≤ 0.5, RX < E (or V)/2 V > 4.5, 0.3 ≤ RX ≤ 1.0 E (or V) is a dimension prior to RX machining. α = RX | |
| | SR | Finishes the tip in spherical shape (SR). α = E (or V)/2 Ⓜ X is +0.05 E (or V) is a dimension prior to SR machining. | |
| | AC | Changes the standard angle (Ks = 45°). AC = 1° increments Ⓜ 30 ≤ AC ≤ 60 Ⓜ [Step] Available for C/D Ⓜ Combination with RR not available. When [Step] D, C ≤ 1.0, A + 2(CX tan AC) < V | |
| | RR | Changes R (normally 0.2 or less) to R0.3~0.5. (for Strength improvement) [Designation method] RR Ⓜ Available for [Step] B, C, D Ⓜ V - A ≥ 1.0 When [Step] D, C ≥ 0.5 | |