

DRAWING DIES

RoHS

Button die type (Select the hole shape from 2A~4A·2B~5B·2C·3C in the figure below.)

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

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

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

Equivalent to SKD11 60~63HRC

Hole shape

2A

● $\ell_{min.} < \ell = \frac{D}{2} - \frac{P}{2} - R$
● $R \leq B - 2$
⊕ R=0 can be selected.

3A

● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{P}{2} - \text{Stan } \frac{K}{2}$
● $S \leq B - 2$

4A

● P < V
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2}$
● $S \leq B - 2$

2B

● P < V ● $S \leq B - 2$ ● $V \pm 0.05$
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2} - \text{Stan } \frac{K}{2}$

3B

● P < V ● $S \leq B - 2$ ● $S - A \geq 2$
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2} - \text{Atan } \frac{K}{2}$

4B

● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{P}{2} - \text{Stan } \frac{K}{2} - \text{Rtan } \frac{180^\circ - K}{4}$
● $S \leq B - 2$

5B

● P < V
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2} - R$
● $S \leq B - 2$

2C

● P < V ● $S \leq B - 2$ ● $V \pm 0.05$
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2} - \text{Stan } \frac{K}{2} - \text{Rtan } \frac{180^\circ - K}{4}$

3C

● P < V ● $S \leq B - 2$ ● $S - A \geq 2$
● $\ell_{min.} \leq \ell = \frac{D}{2} - \frac{V}{2} - \text{Atan } \frac{K}{2} - \text{Rtan } \frac{180^\circ - K}{4}$

* —Headed— —Straight—

⊕ **HDS·SDS** include key flats.

Machining limits and increments

(Interior angle) $R \leq 0.5$

- R...0.2 ≤ R ≤ 10 \square R ± 0.1
- K...1° ≤ K ≤ 179° \square K ± 30'
- S...S ≥ 2 \square S ± 0.1
- A...0.1mm increments \square A ± 0.1

- P...0.01mm increments \square P^{+0.01}₀
- V...0.01mm increments \square V^{+0.01}₀
- ℓ...HD·HDS·SD... ℓ min.=0.5
- SDS...ℓ min.=1.5
- KD·KDS...ℓ min.=2.5

⊕ If alteration KC is selected for SD, ℓ min.=1.5.

Catalog No.		L	0.01mm increments		HD·SD	HDS·SDS	d						
Type	D		min. P max.		KD	KDS							
Headed type HD (L=16~35) HDS (L=40)	2A~4A	10	2.00 ~ 6.00	(16) 20 22 25 (28) 30 (32) 35 (40)	6	10	6.4						
		13	3.00 ~ 8.00				8.4						
		16	5.00 ~ 10.00				10.6						
		20	7.00 ~ 12.00				12.6						
Straight type SD (L=16~35) SDS (L=16~40)	2B~5B	25	10.00 ~ 16.00				8	15	20	16.6			
		32	15.00 ~ 20.00							20.6			
		38	19.00 ~ 26.00							26.6			
		45	25.00 ~ 35.00							36.0			
Dowel slot type KD (L=16~35) KDS (L=16~40)	2C·3C	50	33.00 ~ 40.00							20	20	20	41.0
		56	38.00 ~ 45.00										46.0

⊕ L(16) → Can be used for D10~38. ⊕ L(40) → Can be used for HDS·SDS·KDS only. ⊕ L(28)·(32) → Can be used for HD·SD·KD with D10~D32 only.

Order Catalog No. — L — P·V·R·K·S·A

HD3B 16 — 30 — P5.00—V6.00—K60—S5.0—A3.0

Days to Ship **Quotation**

Alterations Catalog No. — L(LC) — P(PC)·V·R·K·S·A — (HC·TC, etc.)

HD3B 16 — LC34.0 — P5.00—V6.00—K60—S5.0—A3.0 — TC4.00—TKC

Alteration	Code	Spec.	1Code
Shaped hole	PC	Shaped hole diameter change $P > PC \geq \frac{P_{min.}}{2} \geq 1.90$ 0.01mm increments	
Alterations to full length	LC	Full length change ● HD·HDS $L - (B - S(R)) + 2 \leq LC < L$ 0.1mm increments ⊕ Press-in lead is shortened by (L-LC). ⊕ B dimension is shortened by (L-LC). ● SD·SDS·KD·KDS $10 \leq LC < L$ 0.1mm increments ⊕ Press-in lead is shortened by (L-LC). (If combined with LKC, 0.01mm increments can be selected.)	Quotation
	LKC	Full length tolerance change $L \begin{matrix} +0.4 \\ -0.2 \end{matrix} \rightarrow \begin{matrix} +0.05 \\ 0 \end{matrix}$	

Alteration	Code	Spec.	1Code
Alterations to head	HC	Head diameter change $D \leq HC < H$ 0.1mm increments	
	TC	Head thickness change $2 \leq TC < 5$ 0.1mm increments (If combined with TKC·TKM, 0.01mm increments can be selected.) ⊕ Full length is shortened by (S-TC). ⊕ If combined with LC, full length is equal to LC.	Quotation
	KC	⊗ Cannot be used for HDS/SDS/KD/KDS.	
	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 $T \begin{matrix} +0.3 \\ 0 \end{matrix} \rightarrow \begin{matrix} +0.02 \\ 0 \end{matrix}$ ⊗ Cannot be used for L < 16.	
TKM	Head thickness tolerance change $T \begin{matrix} +0.3 \\ 0 \end{matrix} \rightarrow \begin{matrix} 0 \\ -0.02 \end{matrix}$ ⊗ Cannot be used for L < 16.		

P Price **Quotation**