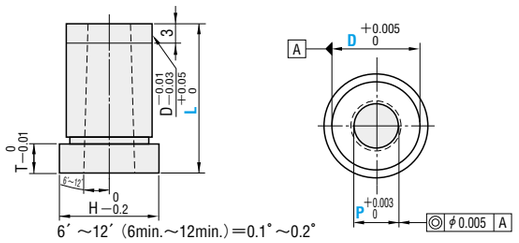
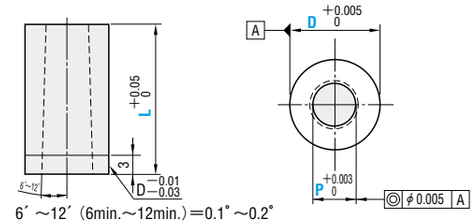
PRECISION ANGULAR BUTTON DIES
—FULLY TAPERED TYPE—

Type	M H	Catalog No.	Shape
—Headed— RoHS 	D3～5 SKH51 61～64HRC D6～10 Equivalent to SKD11 60～63HRC	VSAHD	 6′～12′ (6min.～12min.)＝0.1°～0.2°
	Powdered high-speed steel 64～67HRC	VPAHD	
	Carbide V40(HIP) 87～88HRA	VWAHD	
—Straight— RoHS 	D3～5 SKH51 61～64HRC D6･8 Equivalent to SKD11 60～63HRC	VSASD	 6′～12′ (6min.～12min.)＝0.1°～0.2°
	Powdered high-speed steel 64～67HRC	VPASD	
	Carbide V40(HIP) 87～88HRA	VWASD	

Catalog No. Type	D	L	0.001mm increments min. P max.	H	T	Base unit price for headed type VSAHD	VPAHD	VWAHD	Base unit price for straight type VSASD	VPASD	VWASD
Headed VSAHD VPAHD VWAHD / Straight VSASD VPASD VWASD	3	8 13 16 20 22 25 30	0.500 ～ 1.000	4	3	Quotation					
	4		0.500 ～ 1.500	5							
	5		0.500 ～ 2.500	6							
	6	13 16 20 22 25 30	1.000 ～ 3.000	9	5						
	8		1.000 ～ 4.000	11							
	10		2.000 ～ 6.000	13							

If In some cases, a straight portion of up to 1 mm may be created at the shaped hole part.

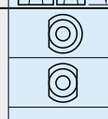
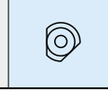
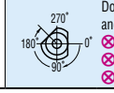
Order Catalog No. — L — P
VSAHD 8 — 20 — P3.300

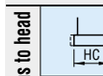
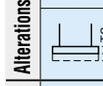
Days to Ship Quotation

- If L=8, press-in lead $D^{-0.01}_{-0.03}$ is not included.
- For VWAHD, press-in lead $D^{-0.01}_{-0.03}$ is not included.
- Relieve machining is not performed for VWAHD under-head. Instead, R≦0.2 in case of D3～5 and R≦0.5 in case of D6～10.

Alterations Catalog No. — L(LC) — P — (HC･TC, etc.)
VSAHD 6 — 16 — P2.475 — HC8.0

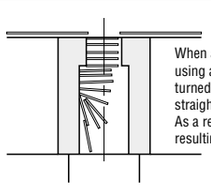
Price Quotation

Alteration	Code	Spec.	1Code
Alterations to full length 	LC	Full length change 10≦LC＜L 0.01mm increments If Press-in lead is shortened by (L—LC).	Quotation
	LKC	Full length tolerance change $L^{+0.05}_{0}$ ⇨ $^{+0.01}_{0}$ ⊗ Cannot be used for L＜16.	
Alterations to head 	KC	Addition of single key flat to head ⊗ Cannot be used for straight types.	
	WKC	Addition of double key flats in parallel ⊗ Cannot be used for straight types.	
	KFC	 Double key flats at 0° and a selected angle1° increments ⊗ Cannot be combined with KC･WKC. ⊗ Cannot be used for L＜16. ⊗ Cannot be used for straight types.	

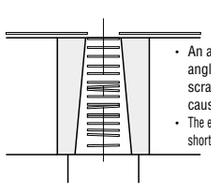
Alteration	Code	Spec.	1Code
Alterations to head 	HC	Head diameter change D≦HC＜H 0.1mm increments ⊗ Cannot be used for straight types.	Quotation
	TC	Head thickness change 2≦TC＜T 0.01mm increments If Full length L is shortened by (T—TC). If combined with LC, full length is equal to LC. ⊗ Cannot be used for straight types.	
Alterations to shank 	KM	Addition of key groove to prevent lifting ⊗ Cannot be used for headed types. ⊗ Cannot be used for D＜6.	

D	h	ℓ
6	1	5≦ℓ＜L 0.1mm increments
8	1.5	
10		

Example

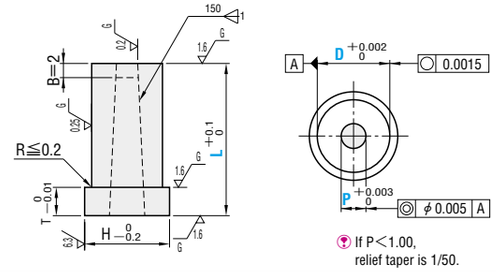
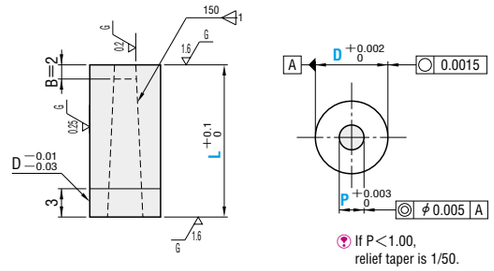


When a thin sheet of 0.5mm or less is punched using a button die with rear relief, scrap may be turned due to the level difference between the straight portion of shaped hole and the relief hole. As a result, the scrap may adhere to the die wall, resulting in scrap clogging.



- An angular relief hole tapered at a very slight angle from the end of the shaped hole prevents scraps from being turned, reducing trouble caused by scrap clogging.
- The effects of this non-clogging effect improves with shorter full length of button die relative to the P dimension.

PRECISION CARBIDE ANGULAR BUTTON DIES

Type	M H	Catalog No.	Shape
—Headed— RoHS 	V40(HIP) 87～88HRA	VAHD	 If P＜1.00, relief taper is 1/50.
	Super fine grain (HIP) 90～92HRA	VXAHD	
—Straight— RoHS 	V40(HIP) 87～88HRA	VASD	 If P＜1.00, relief taper is 1/50.
	Super fine grain (HIP) 90～92HRA	VXASD	

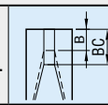
Catalog No. Type	D	L	0.001mm increments min. P max.	H	T
Headed VAHD VXAHD / Straight VASD VXASD	3	13 16 20 22 25	0.500 ～ 1.000	4	3
	4		0.500 ～ 1.500	5	
	5		0.500 ～ 2.500	6	
	6		1.000 ～ 3.000	9	5
	8		1.000 ～ 4.000	11	
	10		2.000 ～ 6.000	13	

Order Catalog No. — L — P
VAHD 6 — 20 — P2.500

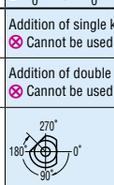
Price Quotation

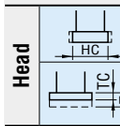
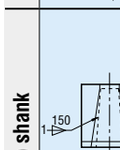
Days to Ship Quotation

Alterations Catalog No. — L(LC) — P — (BC･HC･TC, etc.)
VAHD 6 — LC18 — P2.500 — LKC

Alteration	Code	Spec.	1Code
Shaped hole 	BC	Shaped hole depth change 1≦BC≦Bmax. 0.1mm increments	Quotation

P	Bmax.
0.500～0.899	2
0.900～1.199	3
1.200～	4

Alterations to full length 	LC	Full length change for headed types L—3≦LC＜L 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) Full length change for straight types 8≦LC＜L 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.)	Quotation
	LKC	Full length tolerance change $L^{+0.1}_{0}$ ⇨ $^{+0.01}_{0}$ ⊗ Cannot be used for L＜16.	
Alterations to head 	KC	Addition of single key flat to head ⊗ Cannot be used for straight types.	
	WKC	Addition of double key flats in parallel ⊗ Cannot be used for straight types.	
	KFC	 Double key flats at 0° and a selected angle1° increments ⊗ Cannot be combined with KC･WKC. ⊗ Cannot be used for L＜16. ⊗ Cannot be used for straight types.	

Head 	HC	Head diameter change D≦HC＜H 0.1mm increments ⊗ Cannot be used for straight types.	Quotation
	TC	Head thickness change 2≦TC＜T 0.1mm increments If Full length is shortened by (T—TC). If combined with LC, full length is equal to LC. ⊗ Cannot be used for straight types.	
Alterations to shank 	ANF	Angular angle change 0.4≦ANF≦1.2 0.2° increments If d≦d max. d=P+2{(L—B)×tanANF°} If P—B tanANF°≧0.6 ⊗ P＜1.00 Cannot be used for D＜4. ⊗ Cannot be combined with KM.	

D	d max.
4	2.4
5	2.9
6	3.4
8	4.4
10	6.4

Taper	1/150
Angle (one side)	0.191°

	KM	Addition of key groove to prevent lifting ⊗ Cannot be used for D＜6. ⊗ Cannot be used for headed types.	

D	h	ℓ
6	1	5≦ℓ＜L 0.1mm increments
8	1.5	
10		

⊗ Cannot be combined with ANF.

PRECISION PUNCHES & DIES