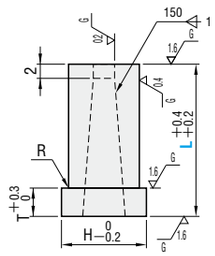
CARBIDE ANGULAR BUTTON DIES
—HEADED TYPE・STRAIGHT TYPE—

—Headed—

RoHS

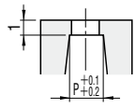
For shank diameter tolerance D T, select either m5 or $^{+0.005}_{0}$.

M H	Shank diameter D T tolerance	Catalog No.
V40(HIP) 87～88HRA	D_{m5}	Ⓐ WAHD Ⓓ WAHDD Ⓡ WAHDR Ⓔ WAHDE Ⓖ WAHDG
	D $^{+0.005}_{0}$	Ⓐ A—WAHD Ⓓ A—WAHDD Ⓡ A—WAHDR Ⓔ A—WAHDE Ⓖ A—WAHDG



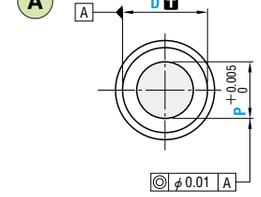
For D2・2.5・3・4・5, the relief taper is 1/50.

P=0.30～0.49
Enlarged view of die end

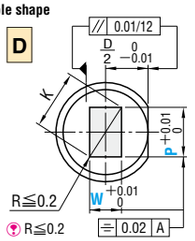


D	2・2.5・3・4・5	6～25
R	R≦0.2	R≦0.5

Hole shape Ⓐ

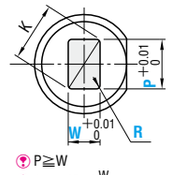


Hole shape Ⓓ



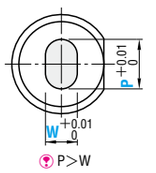
R≦0.2
P≧W
K=$\sqrt{P^2+W^2}$

Hole shape Ⓡ



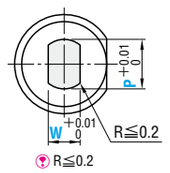
P≧W
0.15≦R＜$\frac{W}{2}$
K=$\sqrt{(P-2R)^2+(W-2R)^2}+2R$

Hole shape Ⓔ



P＞W

Hole shape Ⓖ



R≦0.2
P＞W

—Straight—

RoHS

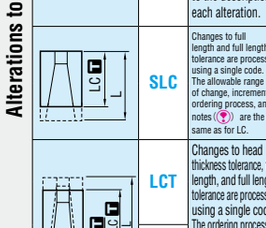
For shank diameter tolerance D T, select either n5 or $^{+0.005}_{0}$.

M H	Shank diameter D T tolerance	Catalog No.
V40(HIP) 87～88HRA	D_{n5}	Ⓐ WASD Ⓓ WASDD Ⓡ WASDR Ⓔ WASDE Ⓖ WASDG
	D $^{+0.005}_{0}$	Ⓐ A—WASD Ⓓ A—WASDD Ⓡ A—WASDR Ⓔ A—WASDE Ⓖ A—WASDG

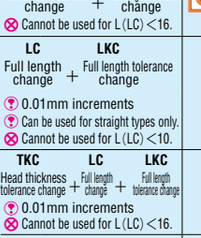
For D2・2.5・3・4・5, the relief taper is 1/50.

P=0.30～0.49
Enlarged view of die end

Hole shape Ⓐ

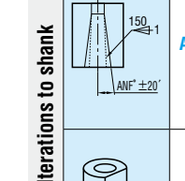


Hole shape Ⓓ



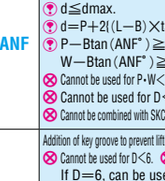
R≦0.2
P≧W
K=$\sqrt{P^2+W^2}$

Hole shape Ⓡ



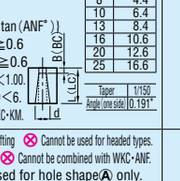
P≧W
0.15≦R＜$\frac{W}{2}$
K=$\sqrt{(P-2R)^2+(W-2R)^2}+2R$

Hole shape Ⓔ



P＞W

Hole shape Ⓖ



R≦0.2
P＞W

D tolerance D	m5	n5	Catalog No. Type	D	L	0.01mm increments Ⓐ min. P max.	DREG P・Kmax.	DREG P・Wmin.	R R	H	T
2	+0.006 +0.002	+0.008 +0.004	Headed (D_{m5}) WAHD	(2)	10	0.30～ 0.49	—	—	—	3	3
2.5			WAHDD	(2.5)	13	0.30～ 0.49	—	—		3.5	
3			WAHDR	(3)	16	0.30～ 0.49	—	—		4	
3			WAHDE	(3)	13	0.50～ 1.00	—	—		4	
4			WAHDG	(4)	16	0.50～ 1.50	—	—		5	
5	+0.009 +0.004	+0.013 +0.008	Straight (D_{n5}) WASD	(5)		0.50～ 2.50	—	—		6	
6			WASDD	6	20	1.00～ 3.00	3.00	1.00	0.15≦R＜$\frac{W}{2}$ (Ⓡ only)	9	5
8	+0.012 +0.006	+0.016 +0.010	WASDR ($D^{+0.005}_{0}$) A—WAHD	8	22	1.00～ 4.00	4.00	1.00		11	
10			WASDE A—WAHDD	10	25	2.00～ 6.00	6.00	1.20		13	
13	+0.015 +0.007	+0.020 +0.012	WASDG A—WAHDR	13	(30)	3.00～ 8.00	8.00	1.50		16	
16			A—WAHDE	16	(35)	5.00～ 10.00	10.00	2.00		19	
20	+0.017 +0.008	+0.024 +0.015	A—WAHDG ($D^{+0.005}_{0}$) A—WASD	20		7.00～ 12.00	12.00	2.00		23	
25			A—WASDD	25		10.00～ 16.00	16.00	2.00		28	

Ⓟ D=(2)(2.5)(3)(4)(5) are specifications available for shape Ⓐ(round) only. They are not available for shapes DREG.
Ⓟ If P is 0.30～0.49, full length is either of L10・13・16. Ⓟ L(30)・(35) ···· D8～25 Full length(30)・(35) are specifications available for D8～25 only.

Order

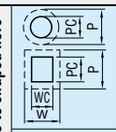
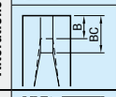
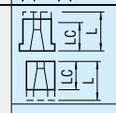
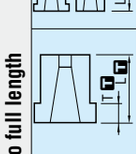
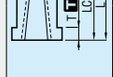
Catalog No.	L	P	W	R(Ⓡ only)
WAHDR 13	25	P6.50	W4.00	R1.00

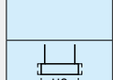
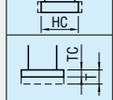
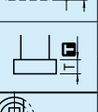
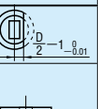
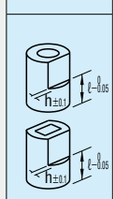
Days to Ship: Quotation

Price: Quotation

Alterations

Catalog No.	L(LC・SLC・LCT・LMT)	P(PC)	W(WC)	R	(BC・HC・TC・CKC・MKC, etc.)
WAHDD 10	25	P5.00	W3.20		TC3.0—TKC

Alteration		Code	Ⓐ	DREG	1Code
Alterations to shaped hole		PC WC	Shaped hole diameter change min.: $\frac{P}{W}>\frac{PC}{WC}\geqq\frac{P\cdot Wmin.}{2}\geqq1.00$ 0.01mm increments max.: $\frac{P}{W}<\frac{PC}{WC}\leqq P\cdot Kmax.+0.2$ 0.01mm increments		
		BC	Shaped hole depth change 1≦BC≦4 0.1mm increments ⊗ Cannot be used for P0.30～0.49.		
Alterations to full length		LC	Full length change 10≦LC＜L 0.1mm increments (If combined with LKC・LKZ・CKC・MKC, 0.01mm increments can be selected.) Ⓟ If P=0.30～0.49, 7≦LC≦16. Full length change 8≦LC＜L 0.1mm increments (If combined with LKC・LKZ, 0.01mm increments can be selected.)		
		LKC	Full length tolerance change $L^{+0.4}_{+0.2}\Rightarrow^{+0.05}_{0}$ ⊗ Cannot be used for L(LC)＜16.		
		LKZ	Full length tolerance change $L^{+0.4}_{+0.2}\Rightarrow^{+0.01}_{0}$ ⊗ Cannot be used for L(LC)＜16.		
		CKC	Changes to head thickness tolerance and full length tolerance are processed using a single code. For the machining limit, refer to the description of each alteration.	TKC Head thickness tolerance change + LKC Full length tolerance change ⊗ Cannot be used for L(LC)＜16.	Quotation
		MKC		TKM Head thickness tolerance change + LKC Full length tolerance change ⊗ Cannot be used for L(LC)＜16.	
		SLC	Changes to full length and full length tolerance are processed using a single code. The allowable range of change, increment, ordering process, and notes(Ⓟ) are the same as for LC.	LC Full length change + LKC Full length tolerance change Ⓟ 0.01mm increments Ⓟ Can be used for straight types only. ⊗ Cannot be used for L(LC)＜10.	
		LCT	Changes to head thickness tolerance, full length, and full length tolerance are processed using a single code. The ordering process is the same as for LC.For the machining limit and notes(Ⓟ), refer to the description of each alteration.	TKC Head thickness tolerance change + LC Full length change + LKC Full length tolerance change Ⓟ 0.01mm increments ⊗ Cannot be used for L(LC)＜16.	
		LMT		TKM Head thickness tolerance change + LC Full length change + LKC Full length tolerance change Ⓟ 0.01mm increments ⊗ Cannot be used for L(LC)＜16.	
Head		WKC	Addition of double key flats in parallel ⊗ Cannot be combined with KC・KFC. ⊗ Cannot be used for straight types with D5 or less.		

Alteration		Code	Ⓐ	DREG	1Code
Alterations to head		KC	Addition of single key flat to head Addition of single key flat ⊗ Cannot be used for D5 or less.	Key flat position change 1° increments	Quotation
		KFC	Double key flats at 0° and a selected angle 1° increments ⊗ Cannot be used for straight types. ⊗ Cannot be used for L(LC)＜16. ⊗ Cannot be combined with KC・WKC.	Double key flats at 0° and a selected angle 1° increments	
		HC	Head diameter change D≦HC＜H 0.1mm increments		
		TC	Head thickness change 2≦TC＜T 0.1mm increments (If combined with TKC・TKM・CKC・MKC, 0.01mm increments can be selected.) Ⓟ Full length L is shortened by (T—TC). If combined with LC, full length is equal to LC.		
		TKC	Head thickness tolerance change $T^{+0.3}_{0}\Rightarrow^{+0.02}_{0}$ ⊗ Cannot be used for L(LC)＜16.		
		TKM	Head thickness tolerance change $T^{+0.3}_{0}\Rightarrow^{0}_{-0.02}$ ⊗ Cannot be used for L(LC)＜16.		
Alterations to shank		SKC	Single key flat on shank Ⓟ Can be used for headed types only. Ⓟ Can be used for D≧8 and L(LC)≧20. ⊗ Cannot be combined with KC・WKC・KFC・ANF.		
		ANF	Angular angle change 0.4≦ANF≦1.2 0.2° increments Ⓟ d≦dmax. Ⓟ d=P+2{(L—B)×tan(ANF°)} Ⓟ P—Btan(ANF°)≧0.6 W—Btan(ANF°)≧0.6 ⊗ Cannot be used for P・W＜1.00 ⊗ Cannot be used for D＜6. ⊗ Cannot be combined with SKC・KM.	D / dmax.: 6 3.4; 8 4.4; 10 6.4; 13 8.4; 16 10.6; 20 12.6; 25 16.6 Taper 1/150; Angle (one side) 0.191°	
		KM	Addition of key groove to prevent lifting ⊗ Cannot be used for headed types. ⊗ Cannot be used for D＜6. ⊗ Cannot be combined with WKC・ANF. If D=6, can be used for hole shape Ⓐ only.	D / h / ℓ: 6 1; 8; 10; 13; 16 1.5; 20; 25 2; 5≦ℓ＜L 0.1mm increments Ⓟ KM machining adds key flats in symmetrically opposite positions.	