PUNCH GUIDE BUSHINGS

PUNCH GUIDE BUSHINGS

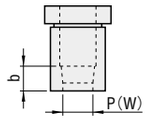
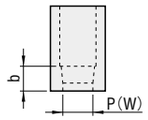
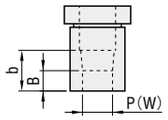
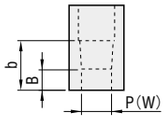
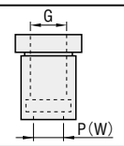
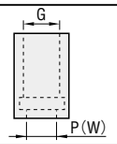
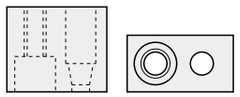
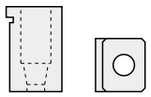


Product name Catalog No.	PUNCH GUIDE BUSHINGS Headed type	Straight	—LONG TYPE— Headed type	Straight	—EXTRA LONG— Headed type	Straight
Page	321		323		325	




PUNCH GUIDE BUSHINGS —DOUBLE-STEPPED GUIDE TYPE— Headed type	Straight	—BLOCK TYPE— Fixing-bolt type	Flange type
326		327	

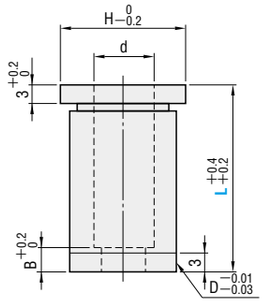
PUNCH GUIDE BUSHINGS —GUIDE—

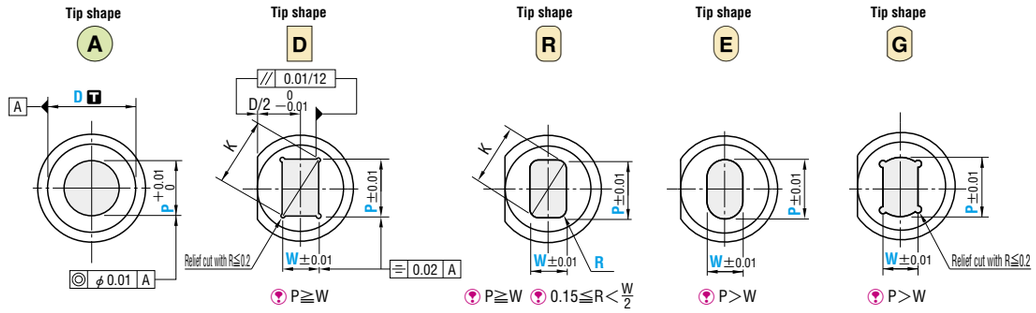
Punch guide bushing type		M	Type	Shank diameter tolerance T	Round	Shaped	Features	Page
Headed type		SKH51 (φ3 ~ 5)	Standard type	Dm5	MHG	—	—	P.321
		Equivalent to SKD11 (φ6 ~ 16)		Dm5	MHG	HG□		
				$D^{+0.005}_{0}$	A—MHG	A—HG□		
Straight		SKH51 (φ3 ~ 5)	Standard type	Dn5	MSG	—	—	
		Equivalent to SKD11 (φ6 ~ 16)		Dn5	MSG	SG□		
				$D^{+0.005}_{0}$	A—MSG	A—SG□		
Headed type		SKH51 (φ3 ~ 5)	Long type	Dm5	LMHG	—	The length (dimension b) of the P(W) size guide is longer than in the standard type of punch guide bushing, supporting longer strokes.	P.323
		Equivalent to SKD11 (φ6 ~ 16)		Dm5	LMHG	LHG□		
				$D^{+0.005}_{0}$	A—LMHG	A—LHG□		
Straight		SKH51 (φ3 ~ 5)	Long type	Dn5	LMSG	—		
		Equivalent to SKD11 (φ6 ~ 16)		Dn5	LMSG	LSG□		
				$D^{+0.005}_{0}$	A—LMSG	A—LSG□		
Headed type		SKH51 (φ4•5) Equivalent to SKD11 (φ6 ~ 10)	Extra long type	Dm5	SLMHG	—	The length of the guide parts (b and B dimensions) is even longer than in the long type, to support still longer strokes. (B dimension can be up to 5 times the P(W) dimension.)	P.325
Straight		SKH51 (φ4•5) Equivalent to SKD11 (φ6 ~ 10)	Extra long type	Dn5	SLMSG	—		
Headed type		SKH51 (φ3 ~ 5) Equivalent to SKD11 (φ6•8)	Double-stepped guide type	$D^{+0.005}_{0}$	FMHG	—	The relief hole dimension (G) can be selected so that when the punch has a small tip, it can be guided at both the shank and tip. This type features higher accuracy of dimensions D and P, and concentricity, compared with the standard type.	P.326
Straight		SKH51 (φ3 ~ 5) Equivalent to SKD11 (φ6•8)	Double-stepped guide type	$D^{+0.005}_{0}$	FMSG	—		
Fixing-bolt type		Equivalent to SKD11	Block type	$H^{+0.01}_{0}$ $V^{+0.01}_{0}$	BBG	BBG□	Shims and other items can be used to make fine position adjustments.The fixing bolt allows easy replacement from the die side. Shim tape FGSM•FGSM□ P.840 Spacer layer plate LHP P.839 Precision multipurpose plate UTPB P.841	
Flanged type		Equivalent to SKD11	Block type	$H^{+0.005}_{0}$ $V^{+0.005}_{0}$	BGF	BGF□	Shims and other items can be used to make fine position adjustments.The flange thickness matches the round shape, allowing this type to be used in combination with a round punch guide bushing. This allows it to be used within a limited range, for example only at parts requiring higher accuracy. Shim tape FGSM•FGSM□ P.840 Spacer layer plate LHP P.839 Precision multipurpose plate UTPB P.841	P.327

PUNCH GUIDE BUSHINGS

—Headed— RoHS

Shank diameter D (T tolerance)	M H	D dimension	Catalog No.
D_{m5}	Equivalent to SKH51 61～64HRC	D3～ 5	Ⓐ MHG
	Equivalent to SKD11 60～63HRC	D6～16	
	Equivalent to SKD11 60～63HRC	D6～16	Ⓓ HGD Ⓡ HGR Ⓔ HGE Ⓖ HGG
$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	D6～16	Ⓐ A—MHG Ⓓ A—HGD Ⓡ A—HGR Ⓔ A—HGE Ⓖ A—HGG





P≧W　K=$\sqrt{P^2+W^2}$

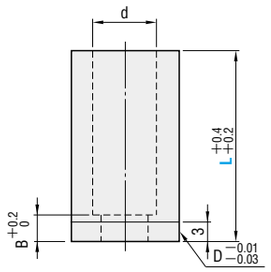
P≧W　0.15≦R<$\frac{W}{2}$　K=$\sqrt{(P-2R)^2+(W-2R)^2}+2R$

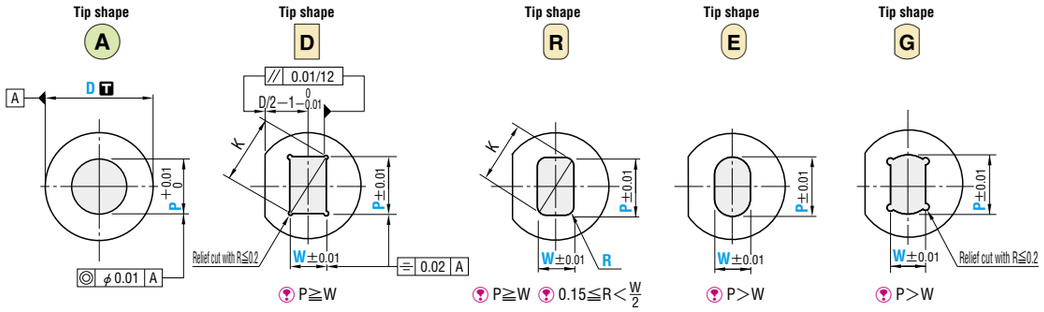
P>W

P>W

—Straight— RoHS

Shank diameter D (T tolerance)	M H	D dimension	Catalog No.
D_{n5}	Equivalent to SKH51 61～64HRC	D3～ 5	Ⓐ MSG
	Equivalent to SKD11 60～63HRC	D6～16	
	Equivalent to SKD11 60～63HRC	D8～16	Ⓓ SGD Ⓡ SGR Ⓔ SGE Ⓖ SGG
$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	D6～16	Ⓐ A—MSG
		D8～16	Ⓓ A—SGD Ⓡ A—SGR Ⓔ A—SGE Ⓖ A—SGG





P≧W　K=$\sqrt{P^2+W^2}$

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

P>W

P>W

D tolerance D	m5	n5	$^{+0.005}_{0}$	Catalog No. Type	D	L	Ⓐ min. P max.	Ⓓ Ⓡ Ⓔ Ⓖ P·Kmax.	Ⓓ Ⓡ Ⓔ Ⓖ P·Wmin.	Ⓡ R	B	d	H
3	+0.006 +0.002	+0.008 +0.004	—	(Equivalent to SKH51) Headed type (D_{m5}) Ⓐ MHG; Straight type (D_{n5}) MSG	(3)	10 13 16 20	0.30 ～ 0.70	—	—	—	2	2.0	4
4	+0.009 +0.004	+0.013 +0.008			(4)	10 13 16 20 22 25	0.30 ～ 2.00	—	—			2.4	5
5					(5)	10 13 16 20 22 25	0.50 ～ 2.50	—	—			2.9	6
6			+0.005 0	(Equivalent to SKD11) Headed type (D_{m5}) ($D^{+0.005}_{0}$); Straight type (D_{n5}) ($D^{+0.005}_{0}$)	(6)	10 13 16 20 22 25	1.00 ～ 3.00	3.00	1.00	0.15≦R<$\frac{W}{2}$ (Ⓡ only)	3	3.4	9
8	+0.012 +0.006	+0.016 +0.010		Ⓐ MHG A—MHG MSG A—MSG	8	10 13 16 20 22 25	1.00 ～ 4.00	4.00	1.00		4	4.4	11
10				Ⓓ HGD A—HGD SGD A—SGD Ⓡ HGR A—HGR SGR A—SGR	10	10 13 16 20 22 25	2.00 ～ 6.00	6.00	1.20			6.4	13
13	+0.015 +0.007	+0.020 +0.012		Ⓔ HGE A—HGE SGE A—SGE	13	10 13 16 20 22 25	3.00 ～ 8.00	8.00	1.50		6	8.4	16
16				Ⓖ HGG A—HGG SGG A—SGG	16	10 13 16 20 22 25	3.00～10.00	10.00	2.00			10.6	19

The D=(6) straight type is a specification available for shape Ⓐ only. D3 bushings are thin under the head. Be careful not to damage the bushings when mounting them.
D=(3), (4), and (5) are specifications available for m5 and n5 only.

Order

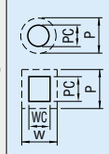
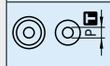
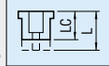
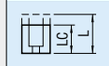
Catalog No.	L	P	W	R (Ⓡ only)
MHG 8	20	P3.01		
SGR 13	16	P7.22	W3.22	R0.15

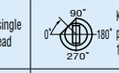
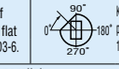
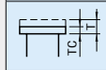
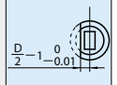
Days to Ship Quotation

Price Quotation

Alterations

Catalog No. — L(LC) — P(PC) — W(WC) — R — (HC·TC·KC, etc.)
MHG 8 — LC15 — P3.01 — KC

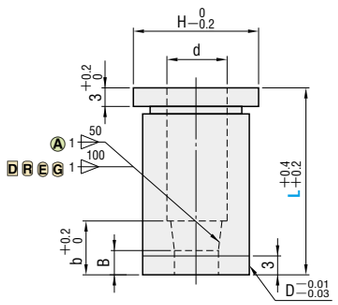
Alteration		Code	Ⓐ	Ⓓ Ⓡ Ⓔ Ⓖ	1Code
Alterations to guide		PC WC	Guide diameter change min. : P>PC≧$\frac{P_{min.}}{2}$≧0.50 0.01mm increments If PC is 1.50～1.99, then for D13, 16⋯ B=4. max. : P<PC≦P+0.2	Guide diameter change min. : $\frac{P}{W}$>$\frac{PC}{WC}$≧$\frac{P\cdot W_{min.}}{2}$≧1.00 0.01mm increments max. : $\frac{P}{W}$<$\frac{PC}{WC}$≦P·Kmax.+0.2	Quotation
		PKC	Tip diameter tolerance change $P^{+0.01}_{0}$ ⇨ $^{+0.005}_{0}$ ⊗ Cannot be used for P<1. 00.	Tip diameter tolerance change P·W±0.01 ⇨ $^{+0.01}_{0}$	
Alterations to full length		LC	Full length change (reduction in tip length) 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC·LKZ, 0.01 mm increments can be selected.) B dimension and press-in lead are shortened by (L−LC). B≧1	Full length change 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC·LKZ, 0.01 mm increments can be selected.)	
					
		LKC	Full length tolerance change $L^{+0.4}_{+0.2}$ ⇨ $^{+0.05}_{0}$		
		LKZ	Full length tolerance change $L^{+0.4}_{+0.2}$ ⇨ $^{+0.01}_{0}$ ⊗ Cannot be used for L(LC)<16.		

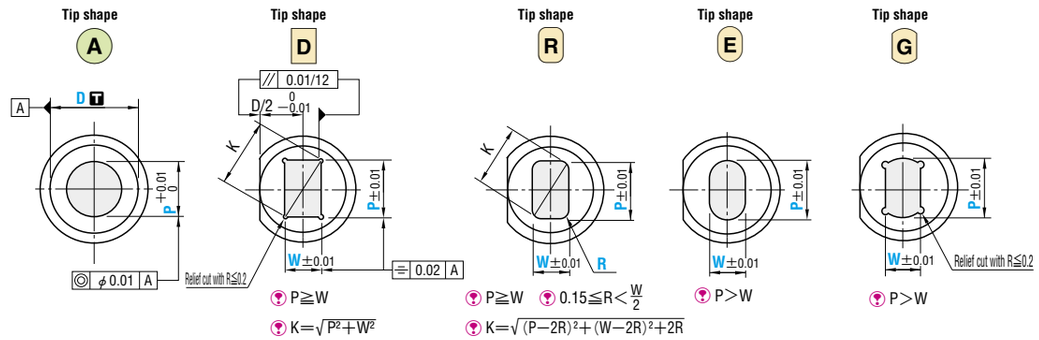
Alteration		Code	Ⓐ	Ⓓ Ⓡ Ⓔ Ⓖ	1Code
Alterations to head		KC	Addition of single key flat to head	 Key flat position change 1° increments	Quotation
			Addition of single key flat ⊗ Cannot be used for D3-6.	 Key flat position change 1° increments	
		WKC	Double key flats in parallel Can be combined with KC. ⊗ Cannot be used for L(LC)<16. ⊗ Cannot be used for D3-6 for straight types. ⊗ Cannot be combined with KC for shape Ⓐ.		
		HC	Head diameter change D≦HC<H 0.1 mm increments		
		TC	Head thickness change 2≦TC<3 0.1mm increments If combined with TKC·TKM, 0.01mm increments can be selected. Full length is shortened by (3−TC). If combined with LC, full length is equal to LC.		
		TKC	Head thickness tolerance change $T^{+0.2}_{0}$ ⇨ $^{+0.02}_{0}$ ⊗ Cannot be used for L(LC)<16.		
		TKM	Head thickness tolerance change $T^{+0.2}_{0}$ ⇨ $^{0}_{-0.02}$ ⊗ 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.		

PUNCH GUIDE BUSHINGS
—LONG TYPE—

—Headed— RoHS

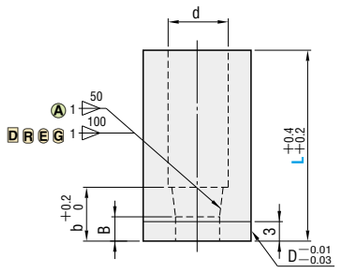
Shank diameter D T tolerance	M H	D dimension	Catalog No.
D_{m5}	Equivalent to SKH51 61～64HRC	D3～ 5	Ⓐ LMHG
	Equivalent to SKD11 60～63HRC	D6～16	
	Equivalent to SKD11 60～63HRC	D6～16	Ⓓ LHGD Ⓡ LHGR Ⓔ LHGE Ⓖ LHGG
$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	D6～16	Ⓐ A—LMHG
	Equivalent to SKD11 60～63HRC	D6～16	Ⓓ A—LHGD Ⓡ A—LHGR Ⓔ A—LHGE Ⓖ A—LHGG

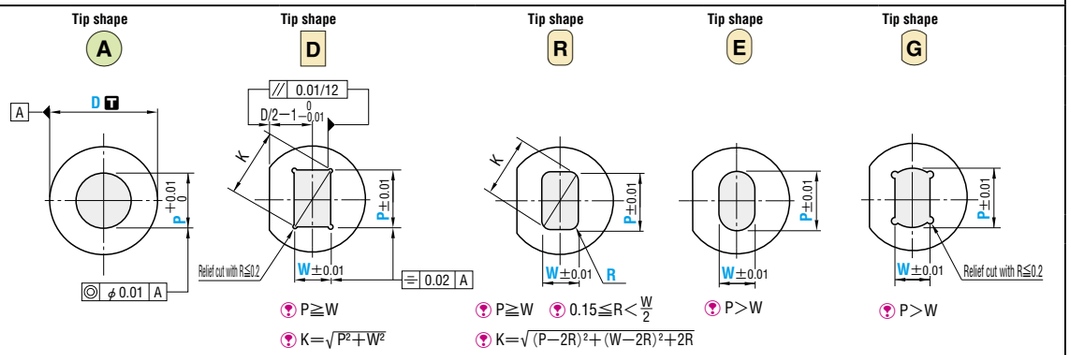




—Straight— RoHS

Shank diameter D T tolerance	M H	D dimension	Catalog No.
D_{n5}	Equivalent to SKH51 61～64HRC	D3～ 5	Ⓐ LMSG
	Equivalent to SKD11 60～63HRC	D6～16	
	Equivalent to SKD11 60～63HRC	D8～16	Ⓓ LSGD Ⓡ LSGR Ⓔ LSGE Ⓖ LSGG
$D^{+0.005}_{0}$	Equivalent to SKD11 60～63HRC	D6～16	Ⓐ A—LMSG
	Equivalent to SKD11 60～63HRC	D8～16	Ⓓ A—LSGD Ⓡ A—LSGR Ⓔ A—LSGE Ⓖ A—LSGG





D tolerance D	m5	n5	+0.005 0	Catalog No. Type	D	L	0.01mm increments Ⓐ min. P max.	DREG P·Kmax.	DREG P·Wmin.	R R	B	b	d	H
3	+0.006 +0.002	+0.008 +0.004	—	(Equivalent to SKH51) Headed type (Dm5) Ⓐ LMHG; Straight type (Dn5) LMSG	(3)	10 13 16 20	0.30 ～ 0.70	—	—	— (Ⓡ only)	2	4	2.0	4
4	+0.009 +0.004	+0.013 +0.008			(4)	10 13 16 20 22 25	0.30 ～ 2.00	—	—				2.4	5
5					(5)	10 13 16 20 22 25	0.50 ～ 2.50	—	—			5	2.9	6
6			+0.005 0	(Equivalent to SKD11) Headed type (Dm5) (D+0.005 0): Ⓐ LMHG, Ⓓ LHGD, Ⓡ LHGR, Ⓔ LHGE, Ⓖ LHGG; Straight type (Dn5) (D+0.005 0): LMSG, LSGD, LSGR, LSGE, LSGG; A—LMHG, A—LHGD, A—LHGR, A—LHGE, A—LHGG	(6)	10 13 16 20 22 25	1.00 ～ 3.00	3.00	1.00	0.15≦R<W/2 (Ⓡ only)	3	6	3.4	9
8	+0.012 +0.006	+0.016 +0.010			8	10 13 16 20 22 25	1.00 ～ 4.00	4.00	1.00		4	8	4.4	11
10					10	10 13 16 20 22 25	2.00 ～ 6.00	6.00	1.20				6.4	13
13	+0.015 +0.007	+0.020 +0.012			13	10 13 16 20 22 25	3.00 ～ 8.00	8.00	1.50		6		8.4	16
16					16	10 13 16 20 22 25	3.00～10.00	10.00	2.00				10.6	19

The D=(6) straight type is a specification available for shape Ⓐ only. D3 bushings are thin under the head. Be careful not to damage the bushings when mounting them.
D=(3), (4), and (5) are specifications available for m5 and n5 only.

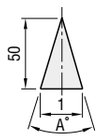
Order

Catalog No.	L	P	W	R (Ⓡ only)
LMHG 8	20	P3.01		
LSGR 13	16	P7.22	W3.22	R0.50

Days to Ship Quotation

Price Quotation

• 1 50 indicates a taper which expands by 1 mm over a length of 50 mm.



Taper	1/50	1/100
Angle (A°)	1.146°	0.573°

Alterations

Catalog No. — L(LC) — P(PC) — W(WC) — R — (BC·HC·TC, etc.)
LMHG 8 — LC15.5 — P3.01 — KC

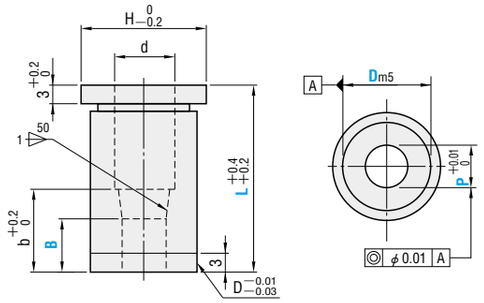
Alteration	Code	Ⓐ	DREG	1Code
Alterations to guide	PC WC	Guide diameter change min. : P>PC≧Pmin./2≧0.50; 0.01mm increments; If PC is 1.50～1.99, then for D13, 16…B=4. max. : P<PC≦P+0.2	Guide diameter change min. : P/W>PC/WC≧(P·Wmin./2)≧1.00; 0.01mm increments; max. : P/W<PC/WC≦P·Kmax.+0.2	Quotation
	BC	Guide length change 1≦BC≦Bmax.; 1≦BC≦b; 0.1mm increments; Cannot be used for P<1.00.		
	PKC	Tip diameter tolerance change P+0.01 0 ⇨ +0.005 0; Cannot be used for P<1.00.	Tip diameter tolerance change P·W±0.01 ⇨ +0.01 0	
Alterations to full length	LC	Full length change (reduction in tip length) 10≦L−(B−1)≦LC<L; 0.1 mm increments (If combined with LKC·LKZ, 0.01 mm increments can be selected.); b dimension and press-in lead are shortened by (L−LC). b≧1		
		Full length change 10≦L−(B−1)≦LC<L; 0.1 mm increments (If combined with LKC·LKZ, 0.01 mm increments can be selected.)		
	LKC	Full length tolerance change L +0.4 +0.2 ⇨ +0.05 0		
	LKZ	Full length tolerance change L +0.4 +0.2 ⇨ +0.01 0; Cannot be used for L(LC)<16.		

Alteration	Code	Ⓐ	DREG	1Code
Alterations to head	KC	Addition of single key flat to head	90° 0° 180° 270° Key flat position change 1° increments	Quotation
		Addition of single key flat; Cannot be used for D3～6.	90° 0° 180° 270° Key flat position change 1° increments	
	WKC	Double key flats in parallel; Can be combined with KC. Cannot be used for L(LC)<16. Cannot be used for D3～6 for straight types. Cannot be combined with KC for shape Ⓐ.		
	HC	Head diameter change D≦HC<H; 0.1 mm increments		
	TC	Head thickness change 2≦TC<3; 0.1mm increments; If combined with TKC·TKM, 0.01mm increments can be selected. Full length is shortened by (3−TC). If combined with LC, full length is equal to LC.		
	TKC	Head thickness tolerance change T+0.2 0 ⇨ +0.02 0; Cannot be used for L(LC)<16.		
	TKM	Head thickness tolerance change T+0.2 0 ⇨ 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.		

PUNCH GUIDE BUSHINGS
—EXTRA LONG—

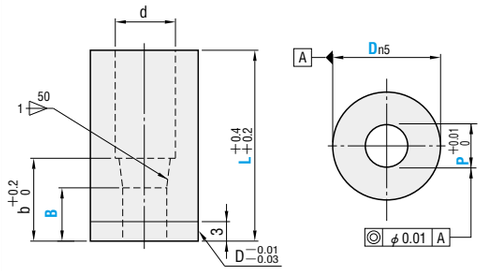
—Headed— RoHS

Shank diameter D T	M H	D dimension	Catalog No.
D_{m5}	Equivalent to SKH51 61～64HRC	D4・5	SLMHG
	Equivalent to SKD11 60～63 HRC	D6～10	



—Straight— RoHS

Shank diameter D T	M H	D dimension	Catalog No.
D_{n5}	Equivalent to SKH51 61～64HRC	D4・5	SLMSG
	Equivalent to SKD11 60～63 HRC	D6～10	



D tolerance D	m5	n5	Catalog No. Type	D	L				0.01mm increments min. P max.	0.1mm increments B	b	d	H
4	+0.009 +0.004	+0.013 +0.008	Headed type (D_{m5}) SLMHG	4	16	20			0.80 ～ 1.50	2≦B≦b and B≦(P×5)	10	2.4	5
5				5	16	20	25		0.80 ～ 2.00		11	2.9	6
6			Straight type (D_{n5}) SLMSG	6	16	20	25		1.00 ～ 2.50		12	3.4	9
8	+0.012 +0.006	+0.016 +0.010		8	16	20	25		1.00 ～ 3.50		14	4.4	11
10				10	16	20	25		2.00 ～ 5.50			6.4	13

■Features Because of the long guide length (B dimension), these bushings can be used for drawing and bending in which the punch must be guided over a long stroke.

Price Quotation

Order

Catalog No.	L	P	B
SLMHG 4	16	P0.80	B3.5
SLMSG 5	16	P1.01	B4.0

Days to Ship Quotation

Alterations

Catalog No. — L(LC) — P — B — (HC・TC, etc.)
SLMHG 8 — LC15.0 — P3.01 — B10.0 — HC10.0

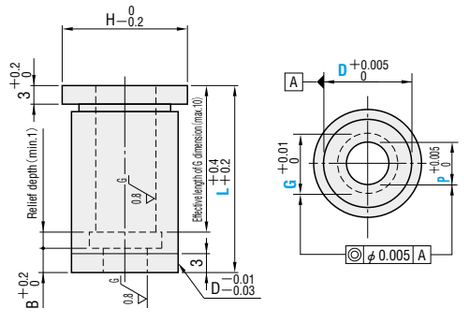
Alterations	Alteration	Code	Spec.	1Code
Alterations to full length	LC	LC	Full length change (reduction in tip length) 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC・LKZ, 0.01 mm increments can be selected.) Tip length b is shortened by (L−LC).	Quotation
	LC		Full length change 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC・LKZ, 0.01 mm increments can be selected.)	
	L	LKC	Full length tolerance change L +0.4 +0.2 ⇨ +0.05 0	
	L	LKZ	Full length tolerance change L +0.4 +0.2 ⇨ +0.01 0 ⊗ Cannot be used for L(LC)<16.	

Alterations	Alteration	Code	Spec.	1Code
Alterations to head	HC	HC	Head diameter change D≦HC<H 0.1 mm increments	Quotation
	TC	TC	Head thickness change 2≦TC<3 0.1mm increments If combined with TKC・TKM, 0.01mm increments can be selected. Full length is shortened by (3−TC). If combined with LC, full length is equal to LC.	
	T	TKC	Head thickness tolerance change T +0.2 0 ⇨ +0.02 0 ⊗ Cannot be used for L(LC)<16.	
	T	TKM	Head thickness tolerance change T +0.2 0 ⇨ 0 −0.02 ⊗ Cannot be used for L(LC)<16.	

PUNCH GUIDE BUSHINGS
—DOUBLE-STEPPED GUIDE TYPE—

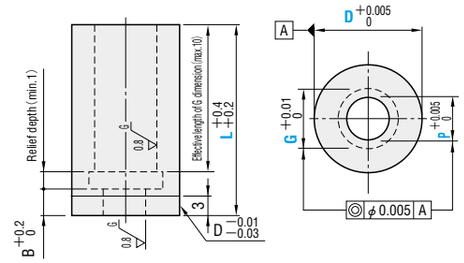
—Headed type— RoHS

M H	D dimension	Catalog No.
Equivalent to SKH51 61～64HRC	D3～5	FMHG
Equivalent to SKD11 60～63 HRC	D6・8	



—Straight— RoHS

M H	D dimension	Catalog No.
Equivalent to SKH51 61～64HRC	D3～5	FMSG
Equivalent to SKD11 60～63 HRC	D6・8	



Catalog No. Type	D	L				0.01mm increments min. P max.	min. G max.	B	H
Headed type ($D^{+0.005}_{0}$) FMHG	3	10	13	16		0.80 ～ 1.98	2.00	2	4
	4	10	13	16		0.80 ～ 2.38	2.00 ～ 2.40		5
	5	10	13	16		0.80 ～ 2.88	2.00 ～ 2.90		6
Straight type ($D^{+0.005}_{0}$) FMSG	6	10	13	16	20	0.80 ～ 3.38	3.00 ～ 3.40	3	9
	8	10	13	16	20	0.80 ～ 4.38	3.00 ～ 4.40	4	11

Bushing under the head and at the relief hole may be thin. Be careful not to damage the bushings when mounting them. If D=3, only 2.00 can be selected for G dimension.

Order

Catalog No.	L	P	G
FMHG 3	10	P0.80	G2.00
FMSG 5	16	P1.01	G2.50

Price Quotation

Days to Ship Quotation

Alterations

Catalog No. — L(LC) — P — G — (HC・TC, etc.)
FMHG 8 — LC15.0 — P3.01 — G4.00 — HC10.0

Alterations	Alteration	Code	Spec.	1Code
Alterations to full length	LC	LC	Full length change (reduction in tip length) 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC・LKZ, 0.01 mm increments can be selected.)	Quotation
	LC		Full length change 10≦L−(B−1)≦LC<L 0.1 mm increments (If combined with LKC・LKZ, 0.01 mm increments can be selected.)	
	L	LKC	Full length tolerance change L +0.4 +0.2 ⇨ +0.05 0	
	L	LKZ	Full length tolerance change L +0.4 +0.2 ⇨ +0.01 0 ⊗ Cannot be used for L(LC)<16.	

Alterations	Alteration	Code	Spec.	1Code
Alterations to head	HC	HC	Head diameter change D≦HC<H 0.1 mm increments	Quotation
	TC	TC	Head thickness change 2≦TC<3 0.1mm increments If combined with TKC・TKM, 0.01mm increments can be selected. Full length is shortened by (3−TC). If combined with LC, full length is equal to LC.	
	T	TKC	Head thickness tolerance change T +0.2 0 ⇨ +0.02 0 ⊗ Cannot be used for L(LC)<16.	
	T	TKM	Head thickness tolerance change T +0.2 0 ⇨ 0 −0.02 ⊗ Cannot be used for L(LC)<16.	

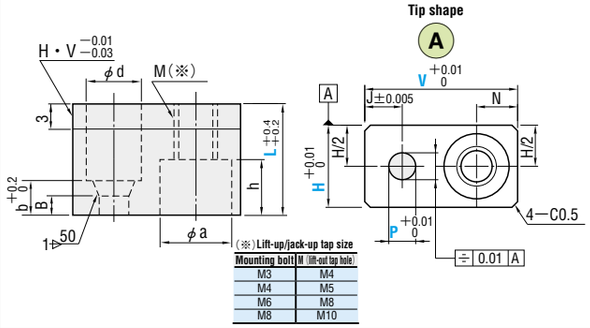
PUNCH GUIDE BUSHINGS

—BLOCK BUSHINGS, FIXING-BOLT TYPE/FLANGE TYPE—

—Block bushings, fixing-bolt type—

RoHS

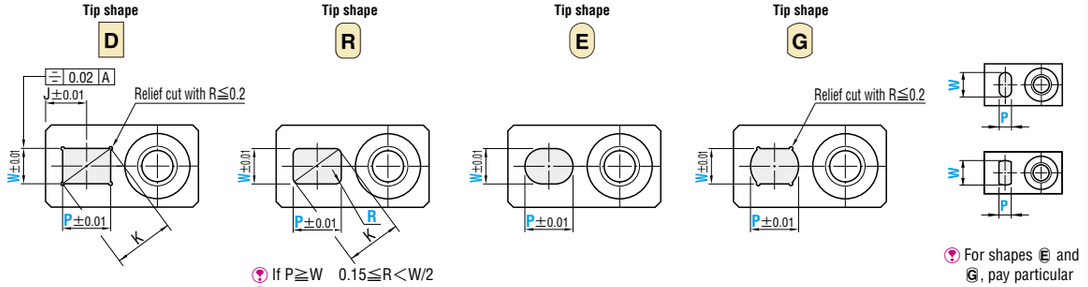
M H	Catalog No.
Equivalent to SKD11 60～63HRC	Ⓐ BBG Ⓓ BBGD Ⓡ BBGR Ⓔ BBGE Ⓖ BBGG



(※) Lift-up/jack-up tap size

Mounting bolt	M (lift-out tap hole)
M3	M4
M4	M5
M6	M8
M8	M10

Tip shape Ⓐ

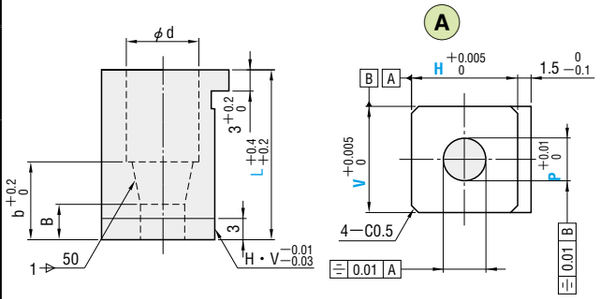


- K=$\sqrt{P^2+W^2}$
- If P≧W 0.15≦R<W/2
- If P<W 0.15≦R<P/2
- K=$\sqrt{(P-2R)^2+(W-2R)^2}+2R$
- ⊗ P=W cannot be selected.
- ⊗ P=W cannot be selected.
- For shapes Ⓔ and Ⓖ, pay particular attention to the shape if P<W.

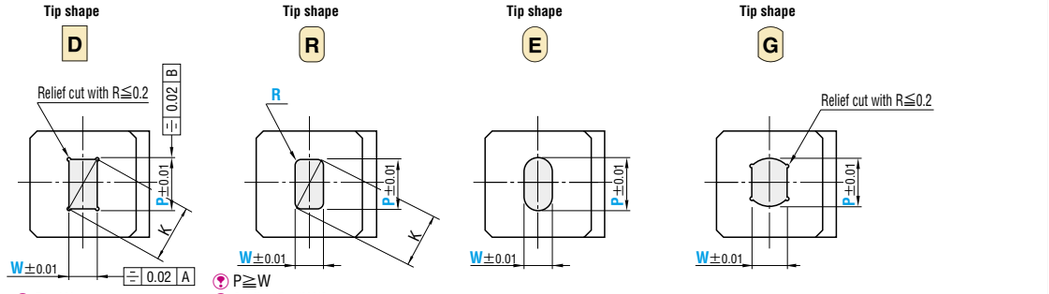
—Block, flange type—

RoHS

M H	Catalog No.
Equivalent to SKD11 60～63HRC	Ⓐ BGF Ⓓ BGFD Ⓡ BGFR Ⓔ BGFE Ⓖ BGFG



Tip shape Ⓐ



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

■Block: fixing-bolt type

B	b	d	N	Mounting bolt a	Mounting bolt h	Mounting bolt Size	J	Catalog No.	V	H	L	0.01mm increments Ⓐ min. P max.	0.01mm increments ⒹⓇⒺⒼ P・W・Kmax.	0.01mm increments ⒹⓇⒺⒼ P・Wmin.	0.01mm increments Ⓡ R(Note)	Base unit price for 1～9 pieces BBG	Base unit price for 1～9 pieces BBG□
4	8	4.4	4	6	7.5	M3	4	Ⓐ BBG Ⓓ BBGD Ⓡ BBGR Ⓔ BBGE Ⓖ BBGG	16	8	16 20 22 25 30 35	1.00～ 4.00	4.00	1.00	0.15≦R<W/2 (Ⓡ only)	Quotation	
		6.4	5	8	8.5	M4	4		18	10	16 20 22 25 30 35	1.00～ 6.00	6.00	1.00			
6		8.4	6.5	11	10.5	M6	6.5		25	13	16 20 22 25 30 35	1.00～ 8.00	8.00	1.00			
		10.6					8		28	16	16 20 22 25 30 35	1.00～ 10.00	10.00	1.00			
	10	13.8	8	14	12.5	M8	10		35	20	16 20 22 25 30 35	1.50～ 13.00	13.00	1.50			
		16.8					12.5		40	25	16 20 22 25 30 35	1.50～ 16.00	16.00	1.50			

R(Note)…If P<W, allowable range is 0.15≦R<P/2.

■Block: flange type

B	b	d	Catalog No.	V	H	L	0.01mm increments Ⓐ min. P max.	0.01mm increments ⒹⓇⒺⒼ P・Kmax.	0.01mm increments ⒹⓇⒺⒼ P・Wmin.	0.01mm increments Ⓡ R	Base unit price for 1～9 pieces BGF	Base unit price for 1～9 pieces BGF□
4	8	4.4	Ⓐ BGF Ⓓ BGFD Ⓡ BGFR Ⓔ BGFE Ⓖ BGFG	6	6	16 20 22 25 30 35	1.00～ 3.00	3.00	1.00	0.15≦R<W/2 (Ⓡ only)	Quotation	
		6.4		8	8	16 20 22 25 30 35	1.00～ 4.00	4.00	1.00			
		8.4		10	10	16 20 22 25 30 35	1.00～ 6.00	6.00	1.00			
6		11.0		13	13	16 20 22 25 30 35	1.00～ 8.00	8.00	1.00			
		14.0		16	16	16 20 22 25 30 35	1.00～ 10.00	10.00	1.00			
	10	17.0		20	20	16 20 22 25 30 35	1.50～ 13.00	13.00	1.50			
		21.0		25	25	16 20 22 25 30 35	1.50～ 16.00	16.00	1.50			

ⒶⒹ shapes: P≧W ⒹⓇⒺⒼ shapes: P>W

Order

Catalog No.	V	H	L	P	W	R (Ⓡ only)
BBGE	25	13	20	P6.34	W4.65	
BGFR	20	20	16	P9.50	W2.50	R0.25

(0.01mm increments)

If P<W, pay particular attention to the tip shape.

Days to Ship Quotation

Price Quotation

Alterations

Catalog No.	V	H	L(LC)	P—W—R	(BC・PKC, etc.)
BBG	25	13	LC18	P1.50	BC3—LKC

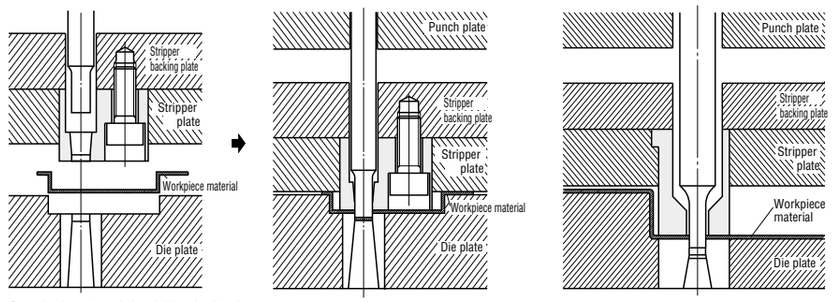
Alteration	Code	Ⓐ	ⒹⓇⒺⒼ	1Code
Alterations to guide	BC	Guide length change 1≦BC≦b 0.1mm increments		Quotation
	PKC	Tip diameter tolerance change P +0.01 0 ⇨ +0.005 0	Tip diameter tolerance change P・W±0.01 ⇨ +0.01 0	
Alterations to full length	LC	Full length change 16<LC<35 0.1mm increments (If combined with LKC・LKZ, 0.01mm increments can be selected.)		
		Full length change 10≦L−(B−1)≦LC<L If LC≦12, press-in lead is not included for single flange types. 0.1mm increments (If combined with LKC, 0.01mm increments can be selected.) Dimension b is shortened by (L−LC).		

Alteration	Code	Ⓐ	ⒹⓇⒺⒼ	1Code
Alterations to full length	LKC	Full length tolerance change L +0.4 +0.2 ⇨ +0.05 0		Quotation
	LKZ	Full length tolerance change L +0.4 +0.2 ⇨ +0.01 0		
Others	VKC1	V・H tolerance change V・H +0.01 0 ⇨ V・H +0.005 0 ⊗ Cannot be used for flange types.		
	VKC2	V・H tolerance change V・H +0.01 0 ⇨ V・H 0 −0.005 ⊗ Cannot be used for flange types.		
	NDC	No press-in lead		
	TKC	Head thickness tolerance change L +0.3 0 ⇨ +0.02 0	⊗ Cannot be used for fixing-bolt types.	

Example

■**Features**
1. Shims and other items can be used to make fine position adjustments.
2. Can be used also as the cavity insert for a stripper plate.

Shim tape FGSM・FGSM□ P.840
Spacer layer plate LHP P.839
Precision multipurpose plate UTPB P841



Example of use as workpiece holder after bending process