

GUIDE COMPONENTS FOR AUTOMOTIVE DIES

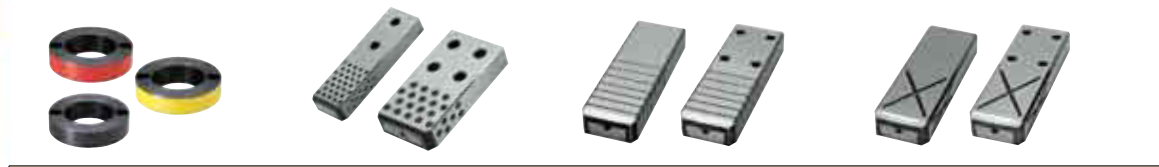
GUIDE COMPONENTS FOR AUTOMOTIVE DIE



Product name	GUIDE POSTS GPM	OIL-FREE GUIDE BUSHINGS GBF GBW	OIL-FREE GUIDE BUSHINGS WITH FLANGES HGBF	GUIDE POSTS GPOB
Catalog No.				
Page	976	977	977	978



LOCKING STOPPERS FOR GUIDE POSTS GPSB	STROKE END BLOCKS GEB DSEB	LOCKING END BLOCKS FOR GUIDE BUSHINGS KEB	BALL GUIDE POST SETS PKHL PKHLU PKH PKH-U
978	979	980	982



DISTANCE GUIDE RINGS HKD	OIL-FREE HEEL GUIDE PLATES OGG OGP OGPZ	OIL-FREE HEEL GUIDE PLATES GWZ GWAZ GWBZ	HEEL GUIDE PLATES WITH OIL GROOVES GW GWA GWB
984	985	985	987



HEEL GUIDE PLATES—OIL-FREE SLIDE PLATE CHANGEABLE TYPE— GPRSE GPRSK GPRST	PAD KEEPERS KEPN	—WITH OIL GROOVES— KEPNZ	PAD GUIDE BLOCKS PGWN
988	989	989	990



OIL-FREE GUIDE BLOCKS FOR PADS GBFC GBSC	—LOCATING PLATES— HDPT HDPTT	OIL-FREE GUIDE BLOCKS FOR PADS—CORNER GUIDE TYPE— GBLK	OIL-FREE GUIDE BUSHINGS—FLANGE TYPE— SGBW
991	992	993	994



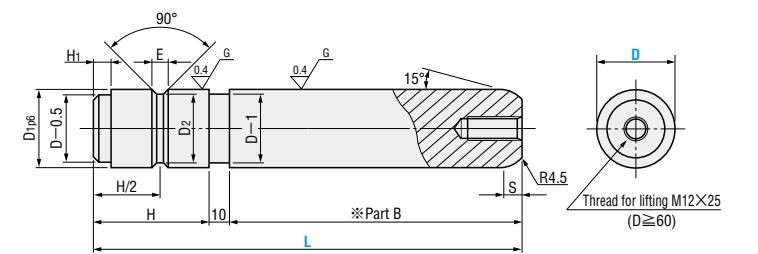
OIL-FREE UNIVERSAL GUIDE BUSHINGS—STRAIGHT TYPE— GGBW	OIL-FREE WASHERS GBWC GBWCN	OIL-FREE UNIVERSAL GUIDE BUSHINGS—STRAIGHT BRONZE TYPE— GGBP	OIL-FREE UNIVERSAL GUIDE BUSHINGS—FLANGE TYPE— GGBF
995	996	997	998

GUIDE POSTS

Guide posts



GPM



※Part B: Induction hardening

☐ S45C
 ☒ 55HRC~ (Induction hardening)

D	D1p6	D2	H	E	S	H1	Catalog No. Type	L
25	25	21	30			5	GPM	80
								100
								120
								140
								160
30	30	26	40	8	5	GPM	100	
							120	
							140	
							160	
							180	
40	40	36	50	8	5	GPM	120	
							140	
							160	
							180	
							200	
50	50	45	70	10	10	GPM	200	
							250	
							300	
							350	
							400	
60	60	55	90	12	10	GPM	200	
							220	
							250	
							300	
							350	
65	65	60	100			GPM	250	
							300	
							350	
							400	
							450	
80	80	75	120	12	10	GPM	250	
							300	
							350	
							400	
							450	
100	100	95	150	12	10	GPM	300	
							350	
							400	
							450	
							500	

Order **Catalog No. — L**
 GPM 80 — 300

Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No. — L(LC) — (MC)**
 GPM 40 — LC110 — MC


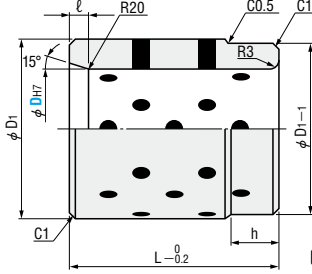
Alterations	Code	Spec.	
	LC	Post length change	D Lmin.
		Lmin. ≤ LC < L	30 85
		1mm increment	40 105
		☉ Can be used for 30 ≤ D ≤ 50.	50 140
	MC	Tap machining T on the fixing side	D M ℓ
		25 8 18	
		30 ~ 80 12 25	
		100 16 32	

GUIDING COMPONENTS FOR AUTOMOTIVE DIES

OIL-FREE GUIDE BUSHINGS / OIL-FREE GUIDE BUSHINGS WITH FLANGES

GUIDE POSTS / LOCKING STOPPERS FOR GUIDE POSTS

Oil-free guide bushings RoHS **GBF** (Cast type)
GBW (Copper alloy type)


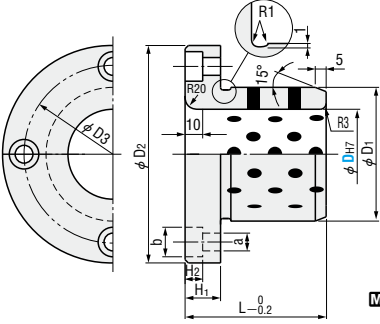



Sliding is in the linear direction only.

M GBF FC250
Special solid lubricant (embedded)
GBW Copper alloy
Special solid lubricant (embedded)

D1	DH7	L	h	ℓ	Catalog No.		
					Type	D	
50	± 0.008	30	$+0.021$ 0	50	GBF (Cast type) GBW (Copper alloy type)	30	
60	± 0.0095	40	$+0.025$ 0	60		40	
70		50	75	15		50	
80	± 0.011	60	$+0.030$ 0	90		20	60
100		80	120	25		80	
120	± 0.013	100	$+0.035$ 0	150	100		

Oil-free guide bushings with flanges RoHS **HGBF** (Cast type)

M FC250
Special solid lubricant (embedded)
A Hexagon socket head cap screws


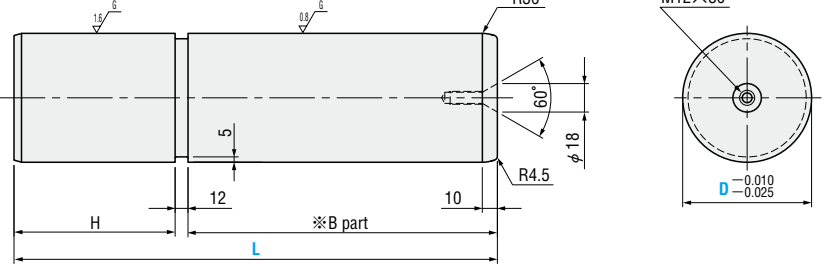
D2	D3	D1	DH7	L	H1	H2	a	b	A Mounting bolts	Catalog No.		
										Type	D	
90	70	50	± 0.008	30	$+0.021$ 0	50	20	10.8	11	17.5	CB10-30 4 pcs	30
100	80	60	± 0.0095	40	$+0.025$ 0	65						40
125	100	75		50	80	50						
135	110	85	± 0.011	60	$+0.030$ 0	100						60
170	140	110		80	130	25						13
190	160	130	± 0.0125	100	$+0.035$ 0	160	100					

Order Catalog No.
GBF 50
HGBF 60

Days to Ship Quotation

Price Quotation

Guide posts RoHS **GPOB**


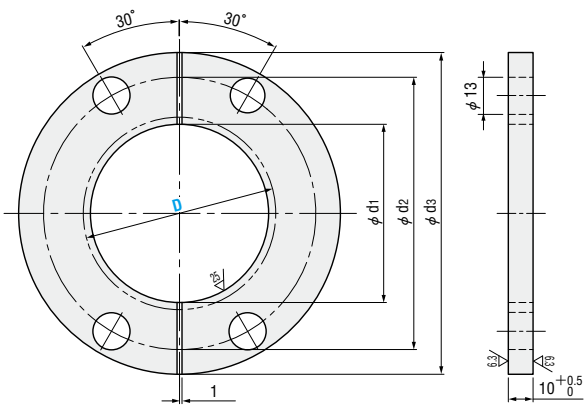
M S45C
H 55HRC~
 (Induction hardening)

※ B part is induction hardened.

D	H	Catalog No.		L	Order
		Type	D		
80	-0.010 -0.025	GPOB	80	350	Days to Ship Quotation Price Quotation
100			100	450	

Order Catalog No. - L
GPOB 80 - 350

Locking stoppers for guide posts RoHS **GPSB**

M S45C

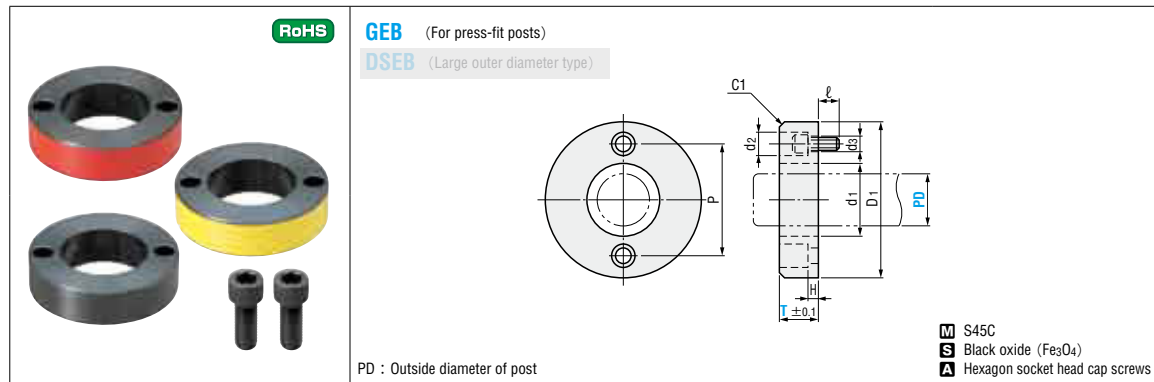
※ A set consists of 2 pieces.

d1	d2	d3	Catalog No.		Order
			Type	D	
72	110	130	GPSB	80	Days to Ship Quotation Price Quotation
92	130	150		100	

Order Catalog No.
GPSB 80

STROKE END BLOCKS

— FOR PRESS-FIT POSTS —



PD : Outside diameter of post

- M S45C
- S Black oxide (Fe₃O₄)
- A Hexagon socket head cap screws

D1	P	d1	T	H	d2	d3	Accessories Mounting bolts	ℓ	Catalog No.		T	Color	Base unit price 1~9 pieces
									Type	PD			
75	60	43	20·25·30	10	10	5.5	CB5—20	10	GEB	38	20	R (Red)	Quotation
90	72	55	20·25	10	11	6.5	CB6—20			50	25		
			30·35·40	20			CB6—30	60	30				
120	92	65	20·25	8	14	9	CB8—20	12	GEB	80	35	N (Normal)	Quotation
			30·35·40	18			CB8—30			60	30		
150	116	88	20·25	8	14	9	CB8—20	12	GEB	80	40	N (Normal)	Quotation
			30·35·40	18			CB8—30			60	30		
120	100	54	15	5	10	10		15	GEB	50	15	R (Red)	Quotation
140	120	64	20	10						50	20	Y (Yellow)	
			15	5	60	20	N (Normal)	Quotation					
			20	10	60	20	N (Normal)	Quotation					

DSEP was discontinued in 2017.

N (Normal) exterior is black oxide (Fe₃O₄).

Order **Catalog No.** — **T** — **Color**
GEB 50 — **30** — **Y**

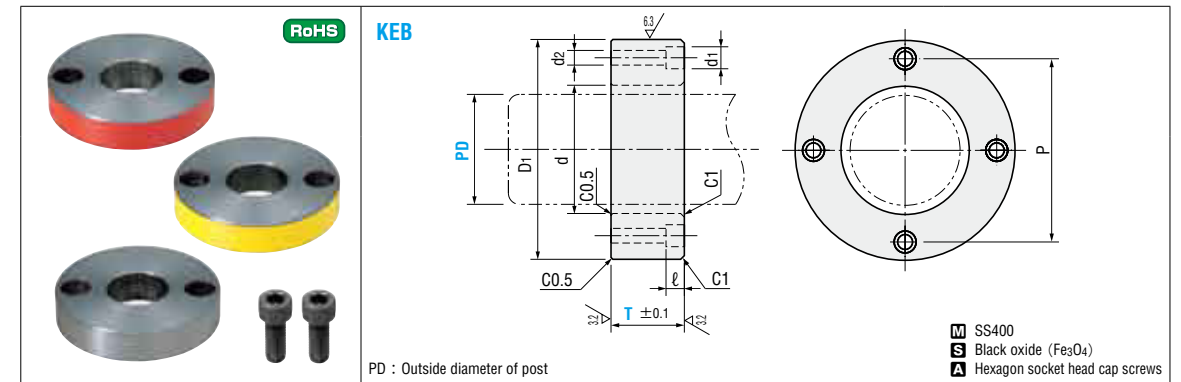
Alterations **Catalog No.** — **T** — **Color** — **(NMC)**
GEB 50 — **30** — **Y** — **NMC**

Days to Ship **Quotation**

Price **Quotation**

Alteration	Code	Spec.	1Code
	NMC	Addition of a groove for height adjustment The surface treatment at the location of the alteration is removed.	Quotation

LOCKING END BLOCKS FOR GUIDE BUSHINGS



PD : Outside diameter of post

- M SS400
- S Black oxide (Fe₃O₄)
- A Hexagon socket head cap screws

PD=30~60 PD=80~100

T dimension	Length L of provided cap screws
20	25
25	30
30	35
35	40
40	45
45	50
50	55
55	60

EX Example

Because this product combines the functions of a locking block and end block, it is effective in reducing the required man-hours.

D1	PD Post diameters	D2 Bushing outside diameter	d	P	ℓ※1	d1	d2	Accessories Mounting bolts※2	Catalog No.		T 5mm increments	Color	Base unit price 1~9 pieces
									Type	PD			
96	30	50	35	72	15	17.5	11	CB10—L 2 pcs.	KEB	30	20 ~ 30	R (Red)	Quotation
106	40	60	45	82						40	20 ~ 40		
116	50	70	55	92	20	14	CB12—L 4 pcs.	KEB	50	20 ~ 55	Y (Yellow)	Quotation	
126	60	80	65	102					60				
150	80	100	85	124					80	20 ~ 50	N (Normal)		
170	100	120	105	144					100				

N (Normal) exterior is black oxide (Fe₃O₄). ※1 If T=20, ℓ=12 ※2 For L dimension, refer to the above table.

Order **Catalog No.** — **T** — **Color**
KEB 50 — **30** — **Y**

Alterations **Catalog No.** — **T** — **Color** — **(KTP-NMC)**
KEB50 — **30** — **Y** — **KTP**

Days to Ship **Quotation**

Price **Quotation**

Alteration	Code	Spec.	1Code						
	KTP	Addition of a lead-in guide for inserting the guide post. Machined by tapering on the inner diameter. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>PD</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>30~40</td> <td>5</td> </tr> <tr> <td>50~100</td> <td>10</td> </tr> </tbody> </table> <p>The surface treatment at the location of the alteration is removed.</p>	PD	S	30~40	5	50~100	10	Quotation
PD	S								
30~40	5								
50~100	10								
	NMC	Addition of a groove for height adjustment <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>PD</th> <th>H</th> </tr> </thead> <tbody> <tr> <td>30~40</td> <td>10</td> </tr> <tr> <td>50~100</td> <td>15</td> </tr> </tbody> </table> <p>The surface treatment at the location of the alteration is removed.</p>	PD	H	30~40	10	50~100	15	
PD	H								
30~40	10								
50~100	15								

BALL GUIDE POST SETS FOR DIE GUIDES AND PADS

—GUIDE—

Reduce man-hours (die costs) by using a PKH pad guide system

Conventional pad guide systems

Slide plate system

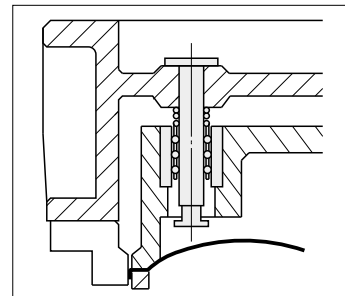
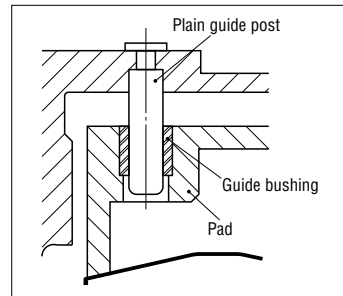
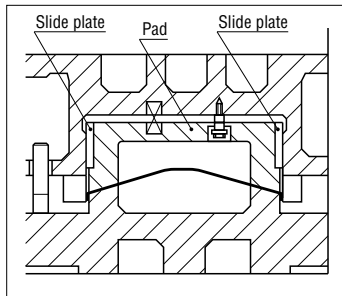
Slide plates are generally used for the pad guides as shown below in medium and large press dies, including dies for automobile parts. However it is difficult to finish the sliding surfaces of these plates with precision. Therefore when the die is assembled, the clearance must be measured and the slide plates must be adjusted. However the use of NC systems for die machining has made high-precision machining of dies possible. When such high-precision dies are used, adjusting the slide plates may cause displacement of the die surfaces.

Plain guide post system

In addition to the slide plate system, plain guide posts are also used as pad guides. However, since most pads are not well-balanced, pad assembly and disassembly are troublesome tasks.

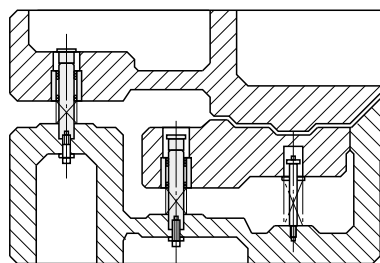
Pad guide system using ball guide posts

The ball guide post system does not require man-hours for machining like the slide plate system. It also allows frequent die assembly and disassembly to be performed easily. Consequently, this system has significant benefits in terms of reducing machining man-hours and therefore die costs. A 50% reduction in total costs (machining cost + part costs) compared with the slide plate system can be expected. The system is also superior in terms of die setup workability and safety.



Other examples of uses for ball guide posts

Use for drawing dies or bending dies

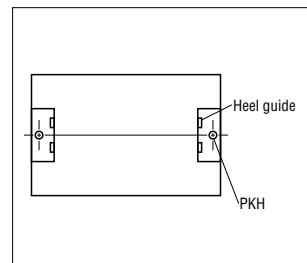


No slide plates are required.

Except for the die guides of trimming dies and others which may be exposed to thrust, PKH-U and PKHLU provide greater durability.

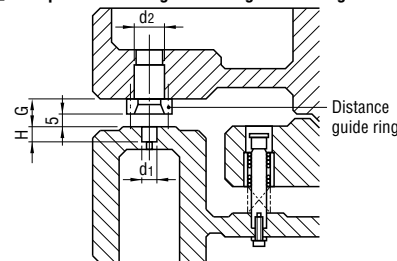
PKHLU is a thrust load absorbing type. It is particularly suitable for bending dies and drawing dies, and can absorb error resulting from machining.

Use for die centering

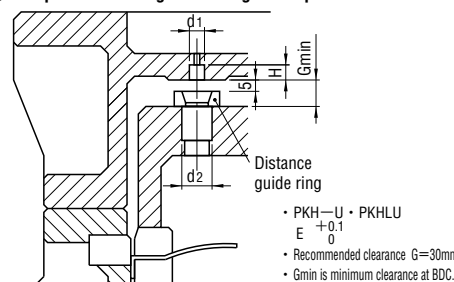


When used to center the upper and lower dies in a die set that uses heel guide plates, the PKH system ensures easy and correct die assembly and disassembly.

Example of mounting machining — For die guide —



Example of mounting machining — For pad —



- PKH-U · PKHLU
E +0.1
0
- Recommended clearance G=30mm
- Gmin is minimum clearance at BDC.

Bushing installation method

- (1) Loctite adhesive
 - PKHL · PKHNo.638 (LOC638 P.846)
 - PKHLU · PKH-U...No.401 or No.406 (products of Henkel Japan)
- (2) Fixed by HKD (P.984)

BALL GUIDE POST SETS

—FOR DIE GUIDES AND PADS—

—For die guides—

PKHL
①② SUJ2
 58HRC ~

PKHLU
① SUJ2
 58HRC ~ ② SUJ2 Urethane
 58HRC ~ Shore A90

D	d1	E		d2	B	C	l	M	t	D1	G min.	H	Catalog No.		Base unit price 1 ~ 9 pieces		
		PKHL	PKHLU										Type	D	L	PKHL	PKHLU
50	+0.035 +0.030	+0.065 +0.045	83	0 -0.010	+0.045 +0.015	120	110	40 20	12	10	58	30	80	PKHL PKHLU	50	240	Quotation
			95													280	
60	+0.035 +0.030	+0.065 +0.045	120	0 0	+0.045 +0.015	130	120	50 30	16	15	68	40	100	PKHL PKHLU	60	300	Quotation
			145													340	
80	+0.040 +0.032	+0.070 +0.045	145	0 -0.012	+0.045 +0.015	140	130	50 30	16	15	88	40	120	PKHL PKHLU	80	350	Quotation
			160													400	
100	+0.040 +0.032	+0.070 +0.045	160	0 -0.012	+0.045 +0.015	160	150	50 30 10	16	15	108	40	120	PKHL PKHLU	100	450	Quotation
			180													450	

① d1 and d2 are the dimension tolerances for mounting hole machining as shown at the bottom of the page at left. ② Sales of individual components P.983

—For pads—

PKH
①② SUJ2
 58HRC ~

PKH-U
① SUJ2
 58HRC ② SUJ2 Urethane
 58HRC ~ Shore A95

D	d1	E		d2	B	C	l	D1	G min.	H	Catalog No.		Base unit price 1 ~ 9 pieces			
		PKH	PKH-U								Type	D	10mm increments	PKH	PKH-U	
38	+0.030 +0.025	+0.060 +0.040	64	0 -0.008	+0.040 +0.015	80	50 75	20 30	46	20 25	40	PKH PKH-U	38	130 ~ 160	Quotation	
			95											170 ~ 200		
50	+0.035 +0.030	+0.065 +0.045	83	0 -0.010	+0.045 +0.015	100	60 90	20 30	58	30 50	60	PKH PKH-U	50	150 ~ 190	Quotation	
			95											200 ~ 240		
60	+0.035 +0.030	+0.065 +0.045	120	0 -0.010	+0.045 +0.015	100	70 90	20 30	68	30 20	60	PKH PKH-U	60	170 ~ 210	Quotation	
			145											220 ~ 260		
80	+0.040 +0.032	+0.070 +0.045	160	0 -0.012	+0.045 +0.015	160	150	50 30 10	16	15	88	120	PKH PKH-U	80	260 ~ 300	Quotation
			180												260 ~ 300	

① d1 and d2 are the dimension tolerances for mounting hole machining as shown at the bottom of the page at left. ② Sales of individual components P.983

Order Catalog No. — L
PKH 50 — 240

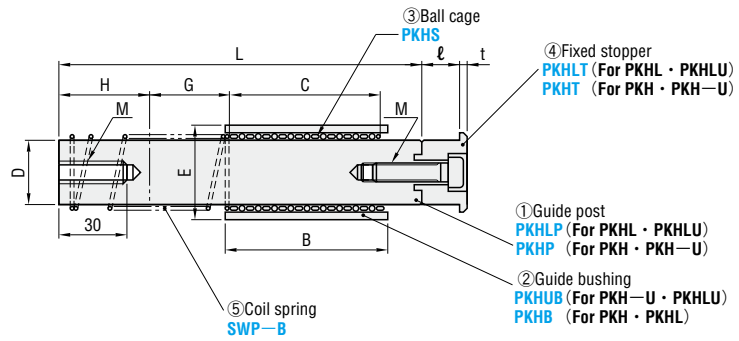
Price **Quotation**

Days to Ship **Quotation**

COMPONENTS FOR BALL GUIDE POST SETS

DISTANCE GUIDE RINGS

RoHS



For detailed dimensions, refer to P.982.

Type	Set		① Guide post		Base unit price 1~9 pieces	② Guide bushing		Base unit price 1~9 pieces	③ Ball cage		Base unit price 1~9 pieces	④ Fixed stopper		Base unit price 1~9 pieces									
	D	L	Type	D L		Type	D-B		Type	D-C		Type	D-ℓ										
For die guides PKHL PKHLU	50	240	For die guides PKHLP	240	Quotation	PKHB (For PKHL, PKH)	50-120	Quotation	PKHS	50-110	Quotation	PKHLT	50-40										
		280		50-20																			
	60	260		60-30									60-30	60-30	60-30	60-30	60-50						
		300		60-130									60-130	60-130	60-50	80-30	80-30						
	80	340		80-340									80-140	80-140	80-140	80-30	80-30	100-50	100-30	100-10	100-10	Quotation	
		350		100-350									100-160	100-160	100-160	100-30	100-30	38-20	38-30	38-20	38-30	Quotation	
100	400	100-400	100-160	100-160	100-160	100-30	100-30	38-50	38-75	38-50	38-75	Quotation											
	450	100-450	100-160	100-160	100-160	100-30	100-30	50-60	50-90	50-60	50-90	Quotation											
For pads PKH PKH-U	38	130~160	For pads PKHP	130~160	With urethane PKHUB (For PKHLU, PKH-U)	50-100	Quotation	PKHT	38-20	38-30	38-20	38-30	50-20										
		170~200		50-100										50-100	50-20	50-30	50-20	50-30					
	50	150~190		60-100										60-100	60-100	60-20	60-20	60-20	60-30	60-20	60-30	60-20	60-30
		200~240		60-100										60-100	60-100	60-20	60-20	60-20	60-30	60-20	60-30	60-20	60-30
	60	170~210		80-100										80-100	80-100	80-20	80-20	80-20	80-30	80-20	80-30	80-20	80-30
		220~260		80-100										80-100	80-100	80-20	80-20	80-20	80-30	80-20	80-30	80-20	80-30
80	260~300	80-100	80-100	80-100	80-20	80-20	80-20	80-30	80-20	80-30	80-20	80-30											

Order **Catalog No.** - L
PKHP 50 - 200

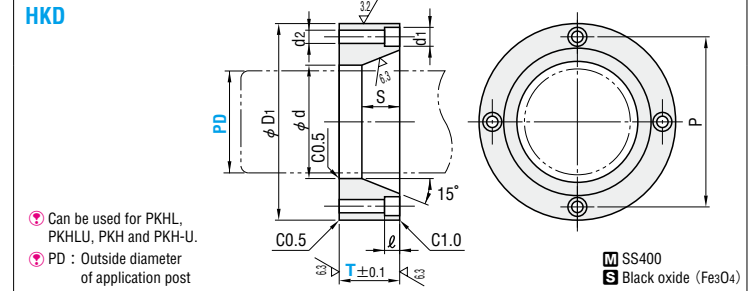
Days to Ship **Catalog No.**
PKHB 60-130 **Quotation**

Price **Quotation**

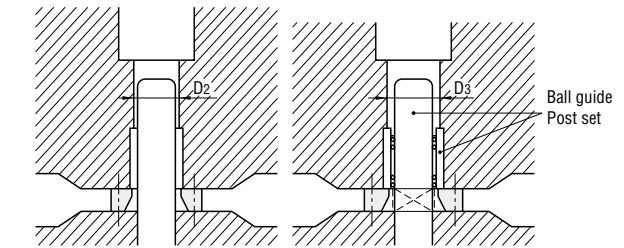
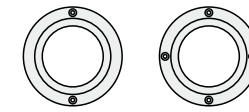
⑤ Coil spring (For detailed specifications, see page at right)

Type	Set		⑤ Coil spring	
	D	L	Type	D FL (Free length)
For die guides PKHL PKHLU	50	240	SWP-B	50 140
		280		60 150
	60	260		60 150
		300		60 170
	80	340		80 180
		350		80 200
100	400	100 200		
	450	100 230		
For pads PKH PKH-U	38	130~160	38 L-50	
		170~200	38 L-60	
	50	150~190	50 L-70	
		200~240	50 L-90	
	60	170~210	60 L-90	
		220~260	60 L-100	
80	260~300	80 L-100		

RoHS



PD=38 · 50 · 60 PD=80 · 100



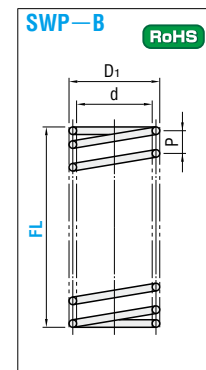
D ₁	d	P	S		d ₁	d ₂	ℓ	D ₂	D ₃	Catalog No.		Color	Base unit price 1~9 pieces	
			T=25	T≥30						Type	PD		T=25~35	T=40~55
108	54	88	23	28	17.5	11	15	38	50	HKD	38	25~55	R (Red) Y (Yellow) N (Normal)	Quotation
118	64	98						50	60		50			
148	84	126						60	80		60			
168	104	146						80	100		80			
188	124	166						100	—		100			
								100	—		100			

N (Normal) exterior is black oxide (Fe₃O₄).

Order **Catalog No.** - T - Color
HKD 38 - 30 - R

Price **Quotation**

Days to Ship **Quotation**



D ₁	d	P	Catalog No. Type	D	FL		Base unit price 1~9 pieces
					FL	FL	
42.5	38.5	18	SWP-B	38	80 90 100 110	120 130 140	Quotation
					80 90 100 110	120 130 140	
55.7	50.5	20		50	120 130 140	150	
					80 90 100	110 120 130 140	
66.9	60.5	20		60	150 160 170	160	
					170 180	190 200	
87.7	80.5	30	80	200	230		
				230	260		
108.5	100.5	50	100	230	260		
				230	260		

Order **Catalog No.** - D - FL
SWP-B - 50 - 130

Price **Quotation**

Days to Ship **Quotation**

OIL-FREE HEEL GUIDE PLATES

OIL-FREE HEEL GUIDE PLATES

Without bolt hole (W=50-70)

With bolt holes (W=50-70)

(W=100-120-150-180)

OGG

OGP

OGPZ (Counterbore machining type)

Material: S45C Special solid lubricant (embedded) 55HRC ~ (Induction hardening)

W	T	S	OGP-OGPZ						Catalog No. Type	W	L	Base unit price 1~9 pieces		
			ℓ ₁	ℓ ₂	w ₁	d ₁	d ₂	t				OGG	OGP	OGPZ
50	30	60	20	50	18	26	18	OGG	50	160	200	260	230	
		120	80											
		100	60											
70	35	160	25	60	18	26	18	OGG	70	260	300	260	230	
		160	75											
		150	150											
100	45	100	30	60	22	32	22	OGG	100	230	280	330	330	
		160	60											
		200	120											
120	45	100	30	60	22	32	22	OGP	120	280	330	390	390	
		160	100											
		200	120											
150	50	160	30	60	22	32	22	OGPZ	150	280	330	390	430	
		190	80											
		190	140											
180	55	160	30	60	120	120	120	OGPZ	180	280	330	390	480	
		190	80											
		190	140											

Order **Catalog No. — L**
OGP 50 — 160

Days to Ship **Quotation**

Price **Quotation**

- Lubricate the plates before use. (initial greasing)
- The special solid lubricant embedded in the grooves continuously provides a lubricant film according to the load.
- The plate can slide only in the direction to L dimension.

Without bolt hole (W=50-70)

With bolt holes (W=50-70)

(W=100-130-150)

(W=100-130-150)

GWZ

GWAZ

GWBZ

This product was discontinued in 2017.
Catalog No. : GWZ GWAZ GWBZ

Material: S45C Special solid lubricant (embedded) 55HRC ~ (Induction hardening)

T	GWAZ-GWBZ						Number of grooves	S	Catalog No. Type	W	L	Base unit price 1~9 pieces		
	ℓ ₁	ℓ ₂	C	d	D	t						GWZ	GWAZ	GWBZ
30	20	50	—	18	26	18	3	60	GWZ	50	160	190	220	
							5	90						
							7	120						
35	25	60	—	18	26	18	6	100	GWZ	70	230	270	310	
							9	140						
							11	180						
45	30	90	60	22	32	22	8	130	GWAZ	100	350	400	Quotation	
							11	180						
							14	230						
50	30	120	80	22	32	22	9	150	GWBZ	130	350	400	450	
							12	200						
							16	250						
60	35	150	100	22	32	22	11	180	GWBZ	150	420	470	520	
							14	230						
							18	280						

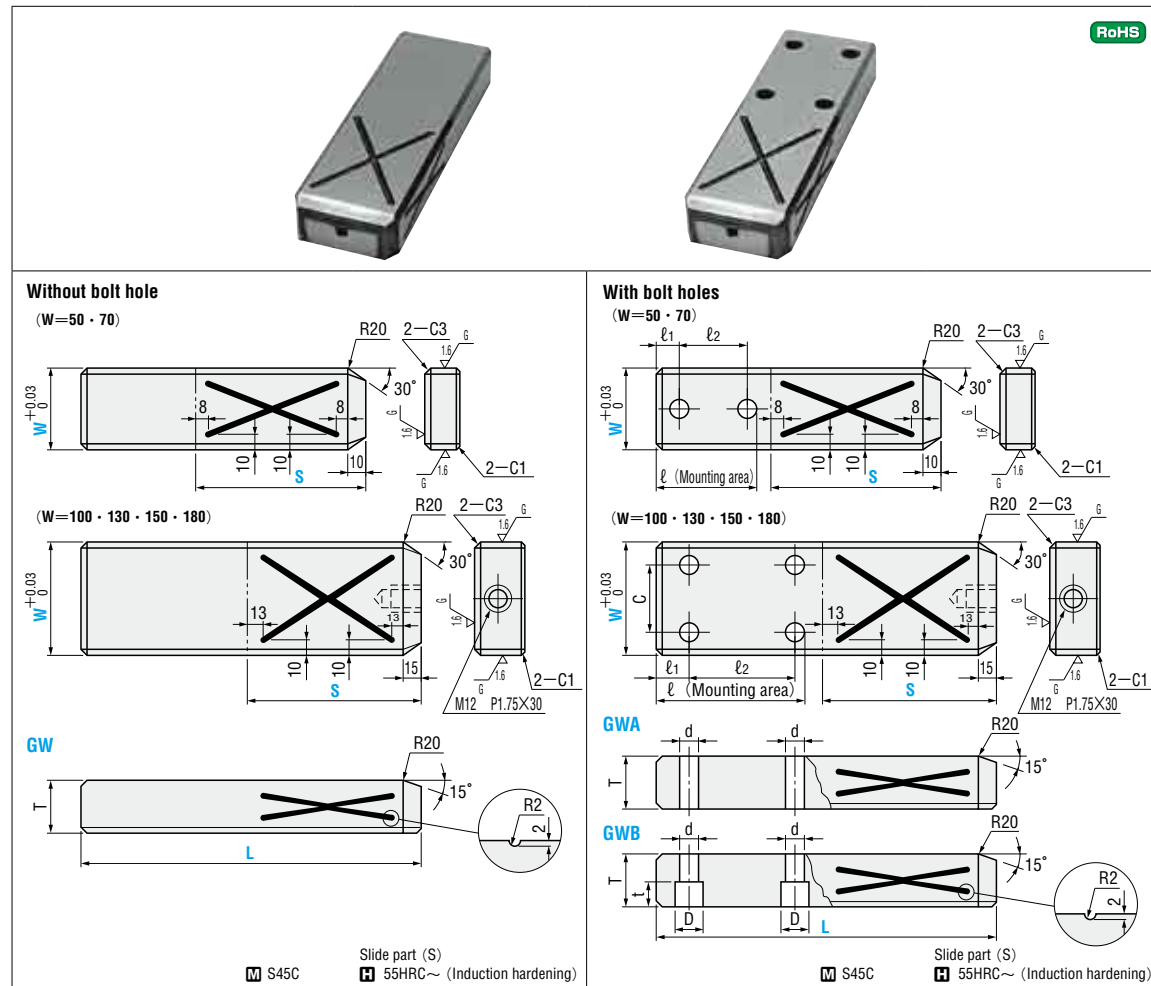
Order **Catalog No. — L**
GWBZ 50 — 160

Price **Quotation**

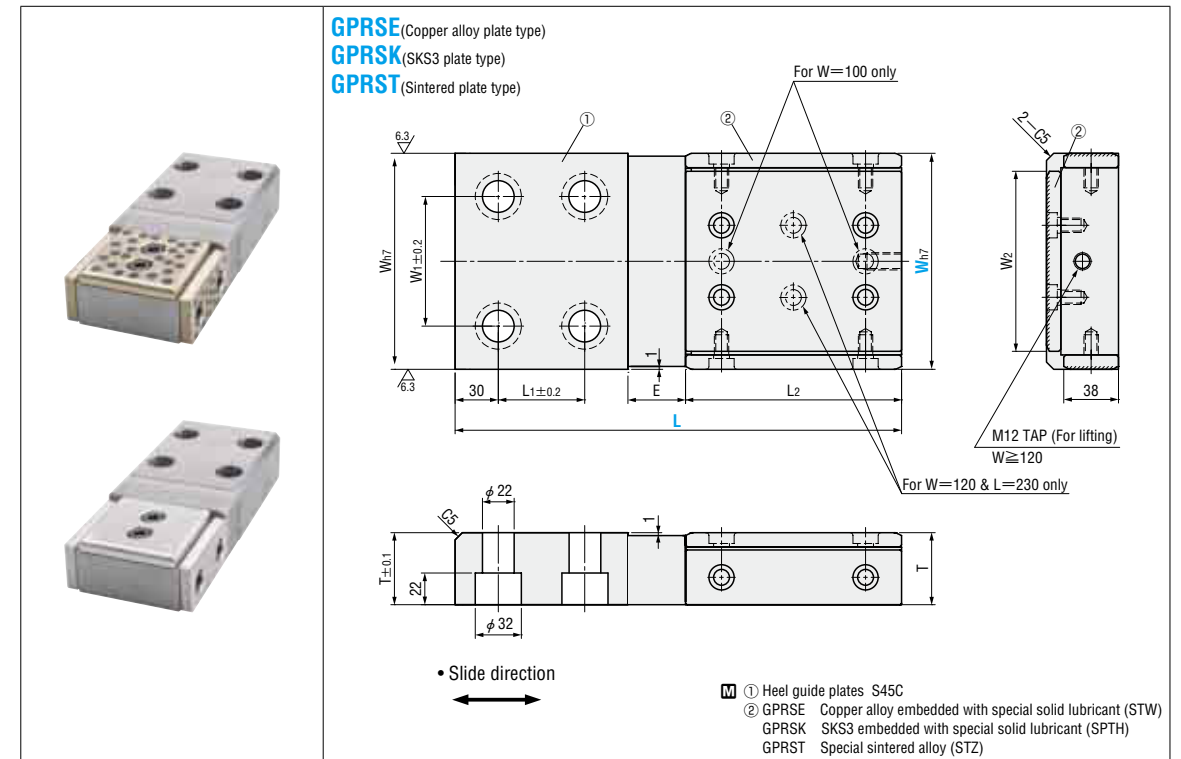
Days to Ship **Quotation**

HEEL GUIDE PLATES WITH OIL GROOVES

HEEL GUIDE PLATES — OIL-FREE SLIDE PLATE CHANGABLE TYPE —



RoHS



T	GWA · GWB							Catalog No.		S	L 10mm increments
	ℓ	ℓ ₁	ℓ ₂	C	d	D	t	Type	W		
30	90	20	50	—	18	26	18	GW GWA GWB	50	60	150 ~ 180
35	110	25	60	—					90	190 ~ 250	
45	150	30	90	60	120	200 ~ 250					
50	150	30	90	80	120	230 ~ 350					
	180		120		270 ~ 320						
60	160	35	90	100	150	300 ~ 380					
	220		150		180	340 ~ 450					
	180		110		120	240	460 ~ 550				
			110		120	200	380 ~ 470				

Order **Catalog No.** — **S** — **L**
 GW 100 — 180 — 350

P Price **Quotation**

Days to Ship **Quotation**

Wh7	W1	W2	L1	L2	T	E	②Qty. of mounting bolts	Catalog No.	W	L		
100	0 -0.035	60	75	60	75	45	6	GPRSE GPRSK GPRST	100	230		
				100	125					280		
				120	150					330		
			120	100	60					75	35	230
					100					125	45	280
					120					150	60	330
150	0 -0.040	90	125	60	125	50	8		120	280		
				100	150					35	330	
				120	150					60	390	
			150	125	60					125	35	280
					100					150	45	330
					120					150	60	390
150	0 -0.040	90	125	140	150	50	8	150	430			

Order **Catalog No.** **W** — **L**
 GPRSE 100 — 280
 GPRSK 120 — 390
 GPRST 150 — 330

Days to Ship **Quotation**


Price **Quotation**

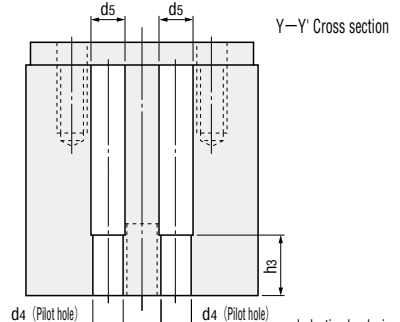
PAD KEEPERS

KEPN and KEPNP were discontinued in 2017.

PAD GUIDE BLOCKS

KEPN RoHS




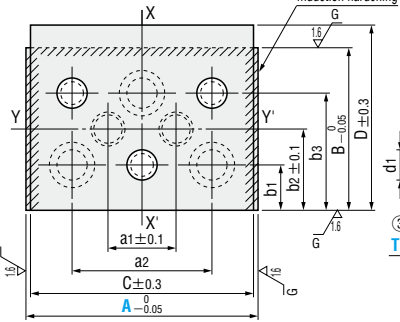


Y-Y' Cross section

A	KEPNZ80	KEPNZ100
③ T=10	CB10-30 3 pcs.	CB12-35 3 pcs.
T=15	CB10-35 3 pcs.	CB12-40 3 pcs.
T=20	—	CB12-45 3 pcs.
④	CB10-50 3 pcs.	CB12-55 3 pcs.
⑤	MSTM10-40 2 pcs.	MSTM13-50 2 pcs.

KEPNZ (With oil grooves) RoHS





X-X' Cross section

① S45C
② 40~45HRC (Induction hardening)
③ S45C

① Mounting block													② Plate							
A	B	a ₁	a ₂	b ₁	b ₂	b ₃	d ₁	d ₂	d ₃	d ₄	h ₁	h ₂	h ₃	M×P	C	D	a ₂	b ₁	b ₃	d ₅
80	60	25	50	15	30	45	11	18	11	9.8	25	30	20	10×1.5	76	75	50	15	45	12
100	70	30	60	20	35	50	13	20	13	12.8	30	30	25	12×1.75	96	85	60	20	50	15

Catalog No.				Catalog No.			
Type	A	H		Type	A	T	
KEPN	80	50	60	KEPNP	80	10	15
		70	80			10	15
KEPNZ	100	60	70	(② only)	100	10	15
		70	80			10	15
						120	20

Order Catalog No. — H — T
KEPNZ 80 — 50 — 10

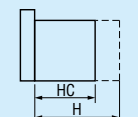
Days to Ship **Quotation**

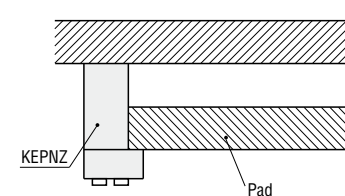
Price **Quotation**

Example


Alterations Catalog No. — H(HC) — T
KEPNZ 80 — HC55 — 10

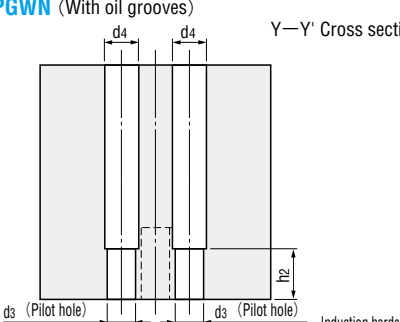
Example

Alterations	Code	Spec.
	HC	H dimension change Hmin.<HC<Hmax. 1mm increments ① Can be used for KEPN and KEPNZ. ② If (H-HC)<10... h ₂ , h ₃ is shortened by (H-HC). If 10≤(H-HC)<20... h ₂ , h ₃ is shortened by (H-HC-10).



PGWN (With oil grooves) RoHS

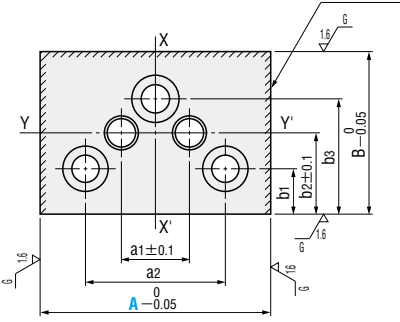




Y-Y' Cross section

PGWN80		PGWN100	
CB10-50	3 pcs.	CB12-55	3 pcs.
MSTM10-40	2 pcs.	MSTM13-50	2 pcs.

① S45C
② 40~45HRC (Induction hardening)



X-X' Cross section

③ Each corner edge is chamfered to C0.2~0.5.

A	B	a ₁	a ₂	b ₁	b ₂	b ₃	d ₁	d ₂	d ₃	d ₄	h ₁	h ₂	Catalog No.		H				
													Type	A					
80	60	25	50	15	30	45	18	11	9.8	12	30	20	PGWN	80	50	60	70	80	100
															120				
100	70	30	60	20	35	50	20	13	12.8	15	30	25		100	60	70	80	100	
													120						

Order Catalog No. — H
PGWN 80 — 50

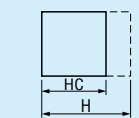
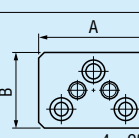
Days to Ship **Quotation**

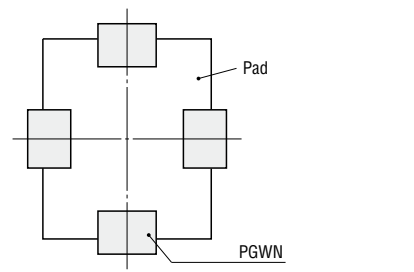
Price **Quotation**

Example

Alterations Catalog No. — H(HC) — (CC)
PGWN 80 — HC55 — CC

Example

Alterations	Code	Spec.
	HC	H dimension change Hmin.<HC<Hmax. 1mm increments ① If (H-HC)<10... h ₁ is shortened by (H-HC). If 10≤(H-HC)<20... h ₁ is shortened by (H-HC-10).
	CC	Change to C5 for chamfering of 4 corner edges



OIL-FREE GUIDE BLOCKS FOR PADS

GBFC (With finished dowel holes and FC250 material)
GBSC (With finished dowel holes and S45C material)

• **A=50**

• **A=70 · 100**

GBFC FC250
 GBSC S45C
 Special solid lubricant (embedded)
 (Induction hardened)

A1	B	B1	B2	B3	H1	H2	d	d1	d2	M	Catalog No.	A	H
20	50	15	20	—	20	20	11	18	—	—	GBFC GBSC	50	50 60 90
40	70	15	40	35	25	30	13	20	16	M12		70	70 90
60	80	17.5	45	40	30	40	18	26	18	M16		100	70 90 130*

* H=130 is only for GBSC.

Order

Catalog No.	A	H
GBFC	50	60
GBSC	100	90

Days to Ship **Quotation**

Price **Quotation**

■ **Locating plates**

HDPT (Supported by one side) • **A=50** • **A=70 · 100**

HDPTT (Supported by three sides)

① S45C
 ② SCM435

d	② Provided bolts	A1	B1	B2	B3	Catalog No.	A	T
18	M16×40	—	65	15	20	HDPT	50	12
13	M12×40	35	85	15	20		70	15
17	M16×50	50	95	17.5	22.5		100	

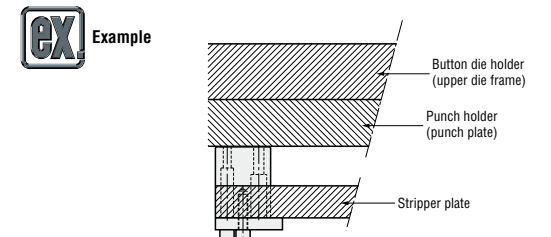
d	② Provided bolts	A1	W	B1	B2	B3	Catalog No.	A	T
13	M12×40	35	80	75	15	20	HDPTT	70	15
18	M16×50	50	110	85	17.5	22.5		100	

Order

Catalog No.	A	T
HDPT	70	15

Days to Ship **Quotation**

Price **Quotation**

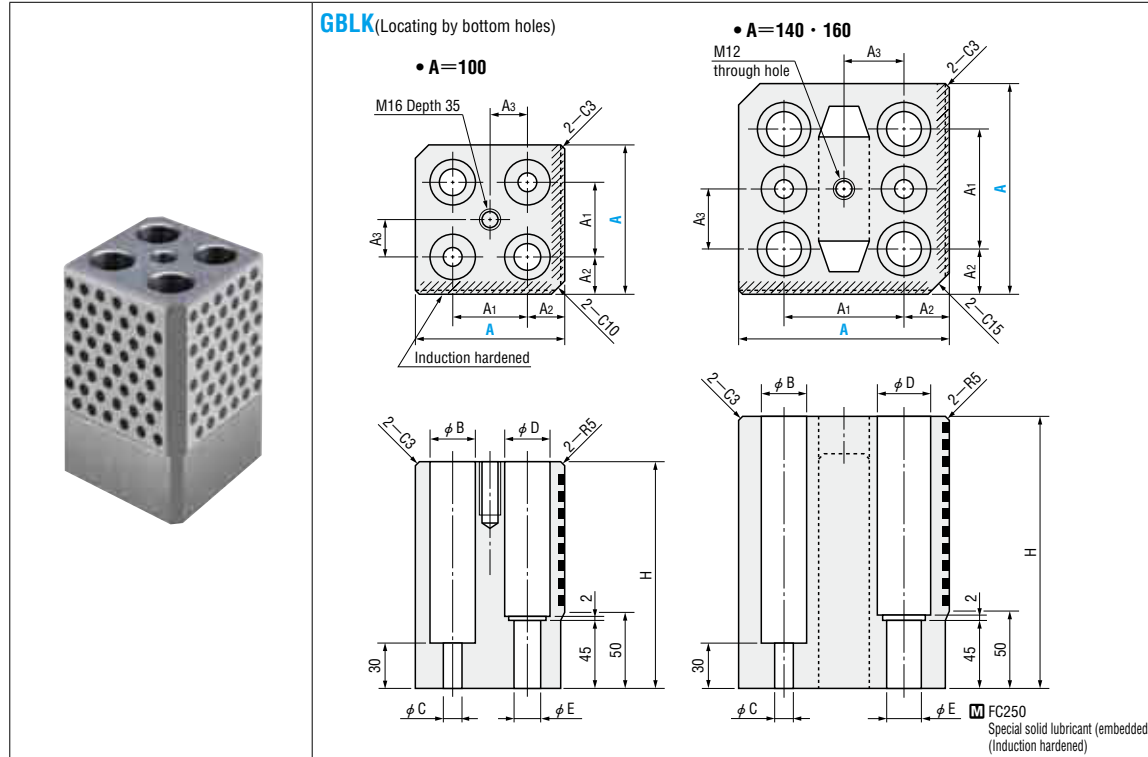


OIL-FREE GUIDE BLOCKS FOR PADS

— CORNER GUIDE TYPE —

OIL-FREE GUIDE BUSHINGS

— FLANGE TYPE —

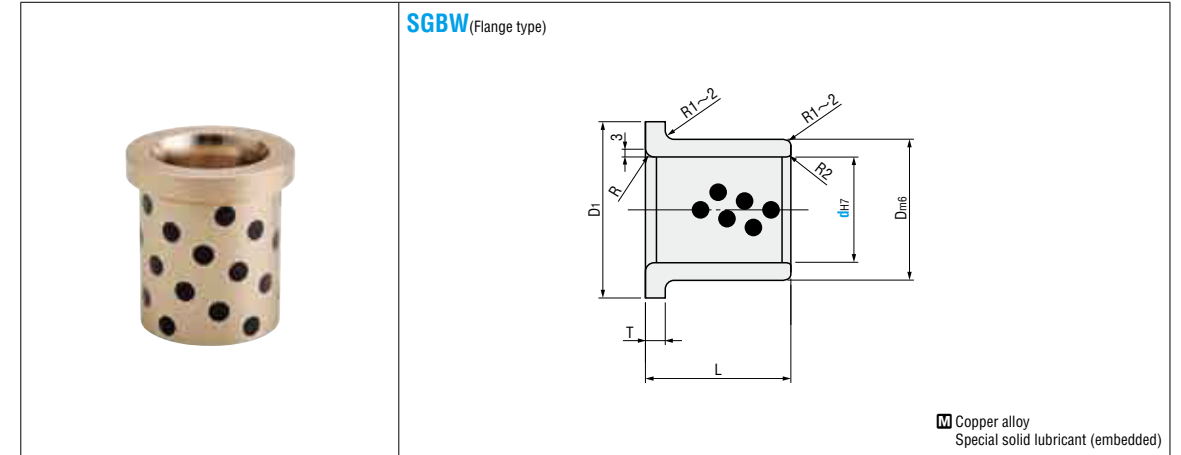


A1	A2	A3	φ B	φ C	φ D	φ E	H	Catalog No.	A
50	25	25	2-φ 31	2-φ 12	2-φ 31	2-φ 18	150	GBLK	100
80	30	40	2-φ 30	2-φ 12	4-φ 37	4-φ 22	180		140
100	30	50	2-φ 30	2-φ 12	4-φ 37	4-φ 22	200		160

Order

Days to Ship

Price



dH7		Dm6		D1	T	R	L	Catalog No.		
								Type	d	
25	+0.021 0	35	+0.025 +0.009	45	7	10	40	SGBW	25	
30	+0.025 0	40	+0.030 +0.011	50	10		50		30	
40		55		65			70		40	
50	65	75		85			80		50	
60	+0.030 0	75	+0.035 +0.013	90		20	80		60	
65		80		100			120		65	
80	+0.035 0	100	+0.035 +0.013	110			20		100	80
100		120		130					140	100

Order

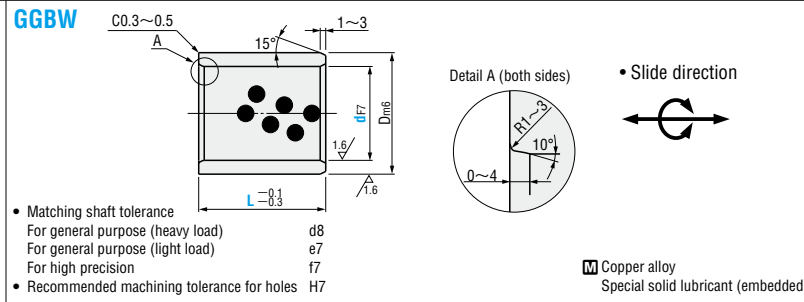
Days to Ship

Price

GUIDING COMPONENTS FOR AUTOMOTIVE DIES

OIL-FREE UNIVERSAL GUIDE BUSHINGS

— STRAIGHT TYPE —



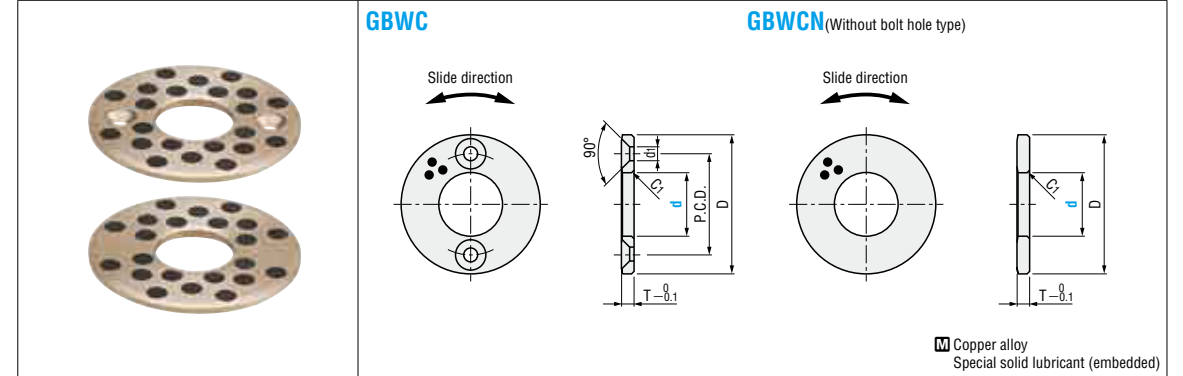
dF7	Dm6	Applicable washers	Catalog No.		L
			Type	d	
8	12	—	—	8 10 12 15	
10	14	+0.018	GBWC10	10 8 10 12 15 20	
12	18	+0.007	GBWC12	12 8 10 12 15 16 19 20 25 30	
13	19	—	GBWC13	13 10 12 15 16 20	
14	20	—	GBWC14	14 10 12 15 20 25 30	
15	21	—	GBWC15	15 10 12 15 16 20 25 30	
16	22	—	GBWC16	16 10 12 15 16 19 20 25 30 35 40	
17	23	—	—	17 15	
18	24	+0.021	GBWC18	18 12 15 16 20 25 30 35 40	
19	26	+0.008	—	19 15 20	
20	28	—	GBWC20	20 10 12 15 16 19 20 25 30 35 40 50	
20	30	—	—	20A 16 20 25 30 35 40 70 100	
22	32	—	—	22 12 15 20 25	
25	33	—	GBWC25	25 12 15 16 20 25 30 35 40 50 60	
25	35	—	—	25A 12 15 16 20 25 30 35 40 50	
28	38	—	—	28 20 25 30 40	
30	38	—	—	30 12 15 20 25 30 35 40 50 60	
30	40	+0.025	GBWC30	30A 12 15 20 25 30 35 40 50 60	
32	42	+0.009	—	32 15 20 30 40	
35	44	—	—	35 20 25 30 35 40 50 60	
35	45	—	GBWC35	35A 20 25 30 35 40 50 60	
38	48	—	—	38 30 40	
40	50	—	GBWC40	40 15 20 25 30 35 40 50 60 70 80	
40	55	—	—	40A 15 25 30 35 40 50 60	
45	55	—	—	45 30 35 40 50 60	
45	56	+0.030	GBWC45	45A 30 35 40 50 60	
45	60	+0.011	—	45B 30 35 40 50 60 70 80	
50	60	—	—	50 30 35 40 50 60 70 80	
50	62	—	GBWC50	50A 30 35 40 50 60 70	
50	65	—	—	50B 30 40 50 60 70 80 100	
55	70	—	GBWC55	55 30 35 40 50 60 70	
60	74	—	GBWC60	60 30 35 40 50 60 70 80 100	
60	75	—	—	60A 30 35 40 50 60 70 80 100	
63	75	—	—	63 60 70 80	
65	80	—	GBWC65	65 40 50 60 70 80	
70	85	—	—	70 30 35 40 50 60 70 80 100	
70	90	+0.035	GBWC70	70A 50 60 70 80	
75	90	+0.013	—	75 50 60 70 80 100	
75	95	—	GBWC75	75A 60 70 80 100	
80	96	—	—	80 20 40 50 60 70 80 100 120	
80	100	—	GBWC80	80A 40 50 60 70 80 100 120 140	
85	100	—	—	85 25 60 80	
90	110	—	GBWC90	90 30 50 60 70 80 90 100 120	
100	120	+0.071	GBWC100	100 40 50 60 70 80 90 100 120 140	
110	130	+0.036	—	110 50 70 80 100 120	
120	140	—	GBWC120	120 70 80 90 100 120 140	
125	145	—	—	125 100 120	
130	150	+0.040	—	130 80 100 130	
140	160	+0.015	—	140 100 140	
150	170	—	—	150 80 100 150	
160	180	—	—	160 80 100 150	

Order
 GGBW60 — 50
 GGBW60A — 50

Days to Ship

Price

OIL-FREE WASHERS



d (Actual dimension)	D	T	Mounting bolt hole			Catalog No.	d (Nominal dimension)						
			P.C.D.	Qty.	Flat head bolt used								
10.2	30	3	20	2	M3	3.5	10						
12.2	40		28				12						
13.2			28				13						
14.2			28				14						
15.2	50	35	4				M5	6	15				
16.2									35	16			
18.2									35	18			
20.2									35	20			
25.2	55	5							40	25			
30.2	60								45	30			
35.2	70			50	35								
40.2	80	7		60	4	M6			7	40			
45.3	90			67.5						45			
50.3	100			75						50			
55.3	110		85	55									
60.3	120	8	90	4			M8	9		60			
65.3	125		95							65			
70.3	130		100							70			
75.3	140		110							75			
80.3	150	10	120							4	M10	11	80
90.5	170		140										90
100.5	190		160		100								
120.5	200		175		120								
10.2	30	3	Without bolt holes			GBWCN			10				
12.2	40		12										
16.2	50		16										
20.2			20										
25.2	55		25										

Order
 GBWC 60


Days to Ship

Price

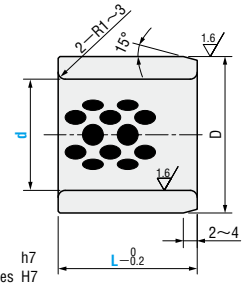
GUIDING COMPONENTS FOR AUTOMOTIVE DIES

OIL-FREE UNIVERSAL GUIDE BUSHINGS


— STRAIGHT BRONZE TYPE —



GGBP



• Slide direction



• Matching shaft tolerance
• Recommended machining tolerance for holes H7

M Copper alloy
Special solid lubricant (embedded)

d	D	Catalog No.		L
		Type	d	
20	30		20 25 30	
25	35		20 30 40	
30	40		25 30 40	
30	42		30A 25 30 40	
32	42		32 30 40	
32	45		32A 30 40	
35	45		35 30 40 50	
35	48		35A 30 40 50	
40	50		40 30 40 50	
40	55		40A 30 40 50	
45	55		45 40 50	
45	60		45A 40 50	
50	60		50 40 50 60	
50	65		50A 40 50 60	
55	70		55 50 60	
60	75		60 50 60 80	
60	80		60A 50 60 80	
65	80		65 60 80	
65	85		65A 60 80	
70	85		70 60 80	
70	90		70A 60 80	
75	90		75 60 80	
75	95		75A 60 80	
80	95		80 80 100	
80	100		80A 80 100	
85	100		85 80 100	
85	105		85A 80 100	
90	110		90 80 100	
90	115		90A 80 100	
100	120		100 80 100 120	
160	125		100A 80 100 120	


Order **Catalog No.** — **L**
GGBP60 — 50
GGBP60A — 50

Days to Ship **Quotation**

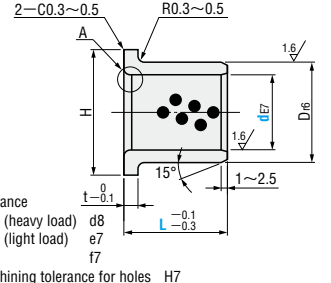
Price **Quotation**

OIL-FREE UNIVERSAL GUIDE BUSHINGS

— FLANGE TYPE —



GGBF



• Matching shaft tolerance
For general purpose (heavy load) d8
For general purpose (light load) e7
For high precision f7
• Recommended machining tolerance for holes H7

M Copper alloy
Special solid lubricant (embedded)

de7	Dr6	H	t	Catalog No.		L
				Type	d	
8	12	20	2		8 10 15	
10	14	22			10 10 12 15 17 20	
12	18	25			12 15 20 25 30	
13	19	26			13 15 20	
14	20	27			14 15 20 25	
15	21	28			15 15 20 25 30	
16	22	29			16 15 18 20 23 25 30 35 40	
18	24	32			18 20 30	
20	30	40			20 15 20 25 30 35 40	
25	35	45			25 15 20 25 30 35 40 50	
30	40	50			30 20 25 30 35 40 50	
35	45	60			35 20 25 30 35 40 50	
40	50	65			40 20 25 30 35 40 50	
45	55	70			45 30 35 40 50 60	
50	60	75			50 30 35 40 50 60	
55	65	80			55 40 60	
60	75	90			60 40 50 80	
70	85	105			70 50 80	
80	100	120			80 60 80 100	
90	110	130			90 60 80	
100	120	150			100 80 100	
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