

# GUIDING COMPONENTS FOR AUTOMOBILE DIES

## GUIDING COMPONENTS FOR AUTOMOBILE DIES



| Product name<br>Catalog No. | GUIDE POSTS<br>GPM | OIL-FREE GUIDE BUSHINGS<br>GBF GBW | OIL-FREE GUIDE BUSHINGS WITH FLANGES<br>HGBF | GUIDE POSTS<br>GPOB | LOCKING STOPPERS FOR GUIDE POSTS<br>GPSB |
|-----------------------------|--------------------|------------------------------------|----------------------------------------------|---------------------|------------------------------------------|
| Page                        | 845                | 845                                | 845                                          | 846                 | 846                                      |



| STROKE END BLOCKS<br>GEB DSEB | LOCKING END BLOCKS FOR GUIDE BUSHINGS<br>KEB | BALL GUIDE POST SETS<br>PKHL PKHLU PKH PKH—U | DISTANCE GUIDE RINGS<br>HKD |
|-------------------------------|----------------------------------------------|----------------------------------------------|-----------------------------|
| 847                           | 848                                          | 850                                          | 852                         |



| OIL-FREE HEEL GUIDE PLATES<br>OGG OGP OGPZ | OIL-FREE HEEL GUIDE PLATES<br>GWZ GWAZ GWBZ | HEEL GUIDE PLATES WITH OIL GROOVES<br>GW GWA GWB |
|--------------------------------------------|---------------------------------------------|--------------------------------------------------|
| 853                                        | 854                                         | 855                                              |



| PAD KEEPERS<br>KEPN | —WITH OIL GROOVES—<br>KEPNZ | PAD GUIDE BLOCKS<br>PGWN |
|---------------------|-----------------------------|--------------------------|
| 856                 | 856                         | 857                      |

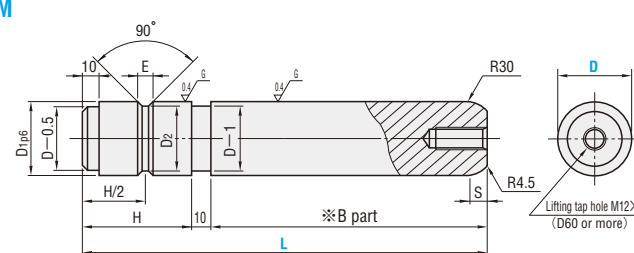
# GUIDE POSTS / OIL-FREE GUIDE BUSHINGS / OIL-FREE GUIDE BUSHINGS WITH FLANGES

**Guide posts**

**RoHS**



**GPM**



※ B part is induction hardened.

| D   | D1p6                    | D2               | H  | E   | S  | Catalog No.<br>Type | D   | L                               | Base unit price<br>1~9 pieces |
|-----|-------------------------|------------------|----|-----|----|---------------------|-----|---------------------------------|-------------------------------|
| 30  | 30<br>-0.005<br>-0.015  | +0.035<br>+0.022 | 26 | 40  | 8  | 5                   | 30  | 100<br>120<br>140<br>160<br>180 |                               |
| 40  | 40<br>-0.005<br>-0.015  | +0.042<br>+0.026 | 36 | 50  |    |                     | 40  | 120<br>140<br>160<br>180<br>200 |                               |
| 50  | 50<br>-0.005<br>-0.015  | +0.042<br>+0.026 | 45 | 70  | 10 | 10                  | 50  | 160<br>180<br>200<br>250<br>300 |                               |
| 60  | 60<br>-0.010<br>-0.020  | +0.051<br>+0.032 | 55 | 90  | 12 |                     | 60  | 200<br>220<br>250<br>300<br>350 |                               |
| 80  | 80<br>-0.010<br>-0.025  | +0.051<br>+0.032 | 75 | 120 | 12 | 10                  | 80  | 250<br>300<br>350<br>400        |                               |
| 100 | 100<br>-0.010<br>-0.025 | +0.059<br>+0.037 | 95 | 150 | 12 |                     | 100 | 300<br>350<br>400<br>450<br>500 |                               |



Order

Catalog No. — L  
GPM 80 — 300



Days to Ship

**Quotation**



Price

**Quotation**



Alterations

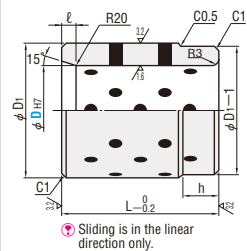
Catalog No. — L(LC) — (MC)  
GPM 40 — LC110 — MC

| Alteration | Code | Spec.                                                                                                                  | 1Code                          |
|------------|------|------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|            | LC   | Post length change<br>D Lmin.<br>30 85<br>Lmin. ≤ LC < L<br>40 105<br>1mm increments 50 140<br>Can be used for D ≤ 50. | D=30<br>D=40-50                |
|            | MC   | Addition of tap to fixing side<br>D M ℓ<br>30~80 M12 25<br>100 M16 32                                                  | D=30-40-50<br>D=60-80<br>D=100 |

## Oil-free guide bushings

**GBF** (Cast type)  
**GBW** (Copper alloy type)

**RoHS**

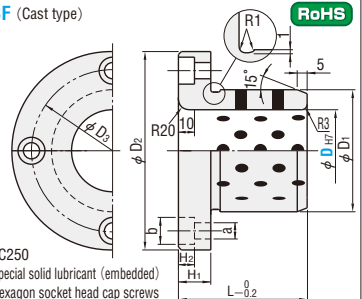


M GBF FC250  
Special solid lubricant  
(embedded)  
GBW Copper alloy  
Special solid lubricant  
(embedded)

## Flanged type Oil-free guide bushings

**HGBF** (Cast type)

**RoHS**



| D1  | DH7     | L   | h           | ℓ   | Catalog No.<br>Type | D | GBF | GBW | Base unit price<br>1~9 pieces |
|-----|---------|-----|-------------|-----|---------------------|---|-----|-----|-------------------------------|
| 50  | ±0.008  | 30  | +0.021<br>0 | 50  | 10                  | 5 | 30  |     |                               |
| 60  | ±0.0095 | 40  | +0.025<br>0 | 60  |                     |   | 40  |     |                               |
| 70  |         | 50  |             | 75  | 15                  |   | 50  |     |                               |
| 80  | ±0.011  | 60  | +0.030<br>0 | 90  | 20                  |   | 60  |     |                               |
| 100 |         | 80  |             | 120 |                     |   | 80  |     |                               |
| 120 | ±0.0125 | 100 | +0.035<br>0 | 150 | 25                  |   | 100 |     |                               |
| 140 |         | 120 |             | 180 |                     |   | 120 |     |                               |



Order

Catalog No.  
GBF 50  
HGBF 60



Days to Ship

**Quotation**



Price

**Quotation**

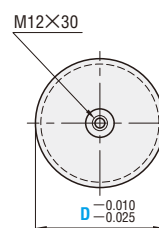
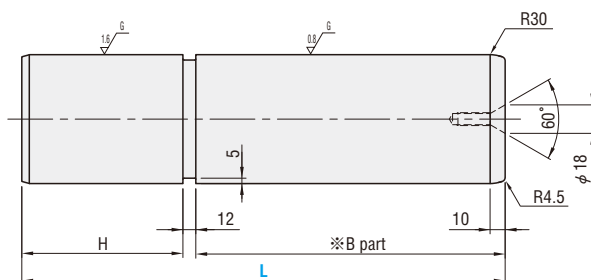
| D2  | D3  | D1  | DH7     | L   | H1          | H2  | a | b | Accessories<br>Mounting bolts | Catalog No.<br>Type | D   | Base unit price<br>1~9 pieces |
|-----|-----|-----|---------|-----|-------------|-----|---|---|-------------------------------|---------------------|-----|-------------------------------|
| 90  | 70  | 50  | ±0.008  | 30  | +0.021<br>0 | 50  |   |   |                               |                     | 30  |                               |
| 100 | 80  | 60  | ±0.0095 | 40  | +0.025<br>0 | 65  |   |   |                               |                     | 40  |                               |
| 125 | 100 | 75  |         | 50  |             | 80  |   |   |                               |                     | 50  |                               |
| 135 | 110 | 85  | ±0.011  | 60  | +0.030<br>0 | 100 |   |   | CB10-30<br>4 pcs.             |                     | 60  |                               |
| 170 | 140 | 110 |         | 80  |             | 130 |   |   |                               |                     | 80  |                               |
| 190 | 160 | 130 | ±0.0125 | 100 | +0.035<br>0 | 160 |   |   | CB12-40<br>4 pcs.             |                     | 100 |                               |

## ■ Guide posts



**RoHS**

**GPOB**



※ B part is induction hardened.

**M** S45C  
**H** 55HRC~  
(Induction hardening)

| D   |                  | H   | Catalog No. |     | L   | Base unit price |  |
|-----|------------------|-----|-------------|-----|-----|-----------------|--|
|     |                  |     | Type        | D   |     | 1～9 pieces      |  |
| 80  | —0.010<br>—0.025 | 100 | GPOB        | 80  | 350 | Quotation       |  |
|     |                  |     |             |     | 400 |                 |  |
| 100 |                  | 120 |             | 100 | 350 |                 |  |
|     |                  |     |             |     | 400 |                 |  |
|     |                  |     |             |     | 450 |                 |  |
| 120 |                  | 150 |             | 120 | 450 |                 |  |
|     | 500              |     |             |     |     |                 |  |



## Order



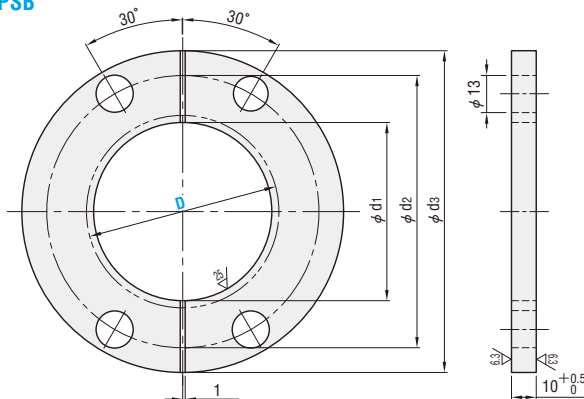
Days to Ship

**Price**

■ Locking stoppers for guide posts **RoHS**

**RoHS**

## GPSB



💡 A set consists of 2 pieces.

**M** S45C

| d1  | d2  | d3    | Catalog No. |     | Base unit price |
|-----|-----|-------|-------------|-----|-----------------|
|     |     |       | Type        | D   | 1~9 sets        |
| 72  | 110 | 130   | GPSB        | 80  |                 |
| 92  | 130 | 150   |             | 100 | Quotation       |
| 112 | 156 | 177.8 |             | 120 |                 |



## Order



Days to Ship

**Price**

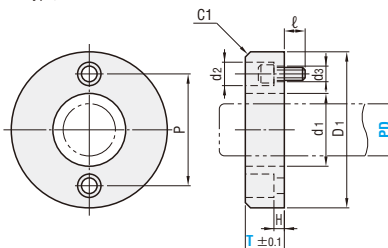
# STROKE END BLOCKS

—FOR PRESS-FIT POSTS AND LARGE OUTER DIAMETER TYPES—

RoHS

**GEB** (For press-fit posts)

**DSEB** (Large outer diameter type)



**M** SS400  
**S** Black oxide (Fe<sub>3</sub>O<sub>4</sub>)  
**A** Hexagon socket head cap screws

PD : Outside diameter of post

| D1  | P   | d1 | T        | H  | d2 | d3  | A Accessories<br>Mounting bolts | ℓ  | Catalog No. |    | T  | Color   | Base unit price |            |
|-----|-----|----|----------|----|----|-----|---------------------------------|----|-------------|----|----|---------|-----------------|------------|
|     |     |    |          |    |    |     |                                 |    | Type        | PD |    |         | 1~9 pieces      |            |
| 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 |             | 80 | 35 |         |                 | N (Normal) |
|     |     |    | 30・35・40 | 18 |    |     | CB8—30                          |    |             | 40 |    |         |                 |            |
| 150 | 116 | 88 | 20・25    | 8  |    |     | CB8—20                          |    | DSEB        | 50 | 15 | 20      | Y (Yellow)      |            |
|     |     |    | 30・35・40 | 18 |    |     | CB8—30                          |    |             | 60 | 20 |         |                 |            |
| 120 | 100 | 54 | 15       | 5  | 14 | 9   | CB8—20                          | 15 | DSEB        | 50 | 15 | R (Red) | Quotation       |            |
|     |     |    | 20       | 10 |    |     |                                 | 10 |             |    |    |         |                 |            |
| 140 | 120 | 64 | 15       | 5  |    |     |                                 | 15 |             |    |    |         |                 | Y (Yellow) |
|     |     |    | 20       | 10 |    |     |                                 | 10 |             |    |    |         |                 |            |

Ⓜ N (Normal) exterior is black oxide (Fe<sub>3</sub>O<sub>4</sub>).



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            |
|------------|------------|---------------------------------------------------------------------------------------------------------------------|------------------|
|            | <b>NMC</b> | Addition of a groove for height adjustment<br>Ⓜ The surface treatment at the location of the alteration is removed. | <b>Quotation</b> |

# LOCKING END BLOCKS FOR GUIDE BUSHINGS

**RoHS**

**KEB**

**M** SS400  
**S** Black oxide (Fe<sub>3</sub>O<sub>4</sub>)  
**A** Hexagon socket head cap screws

PD : Outside diameter of post

PD=30~60    PD=80~100

**A**

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

⚡ N (Normal) exterior is black oxide (Fe<sub>3</sub>O<sub>4</sub>). ※1 If T=20, ℓ=12 ※2 For L dimension, refer to the above table.



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



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



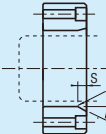
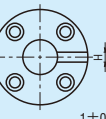
Days to Ship

**Quotation**



Price

**Quotation**

| Alteration                                                                          | Code | Spec.                                                                                                                                                                                                                                                                                                       | 1Code |   |       |    |        |    |           |
|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|-------|----|--------|----|-----------|
|  | KTP  | <p>Addition of a lead-in guide for inserting the guide post. Machined by tapering on the inner diameter.</p> <table><tr><th>PD</th><th>S</th></tr><tr><td>30~40</td><td>5</td></tr><tr><td>50~100</td><td>10</td></tr></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  | <p>Addition of a groove for height adjustment</p> <table><tr><th>PD</th><th>H</th></tr><tr><td>30~40</td><td>10</td></tr><tr><td>50~100</td><td>15</td></tr></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

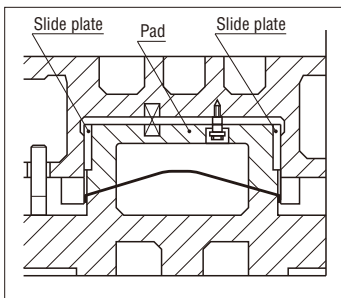
## —GUIDE—

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

#### Conventional pad guide systems

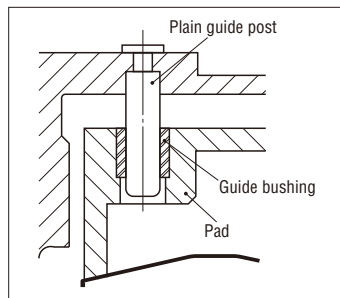
##### ● Slide plate system

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.



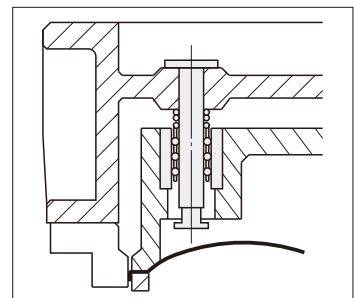
##### ● Plain guide post system

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.



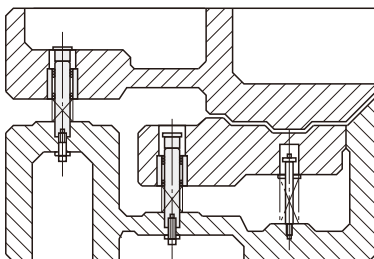
#### ■ Pad guide system using ball guide posts

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

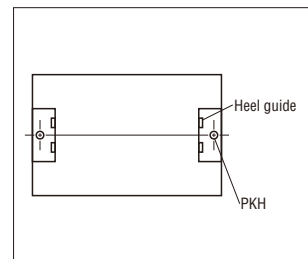


No slide plates are required.

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

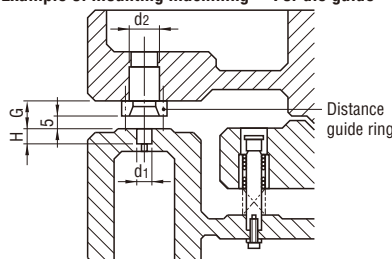


When used to center the upper and lower dies in a die set that uses heel guide plates, the PKH system ensures easy and correct die assembly and disassembly.



Example

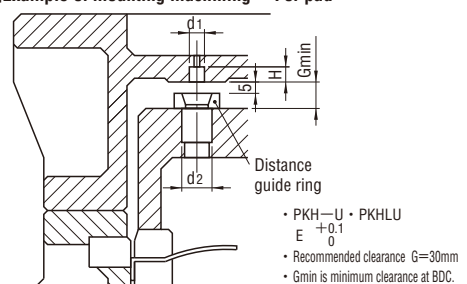
#### ■ Example of mounting machining — For die guide—



#### ■ Bushing installation method

- (1) Loctite adhesive
  - PKHL·PKH .....No.638 (LOC638) **P.714**
  - PKHLU·PKH—U.....No.401 or No.406 (products of Henkel Japan)
- (2) Fixed by HKD **P.852**

#### ■ Example of mounting machining — For pad—



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

# BALL GUIDE POST SETS

—FOR DIE GUIDES AND PADS—

RoHS

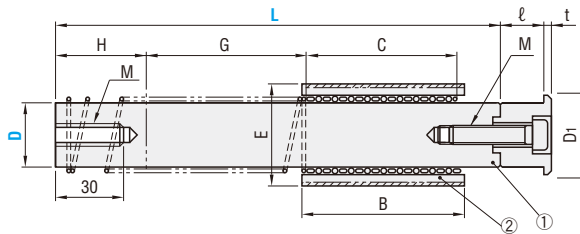
PKHL

PKHLU

—With urethane—



—For die guides—



**PKHL**  
①② M SUJ2  
H 58HRC ~

**PKHLU**  
① M SUJ2  
H 58HRC ~  
② M SUJ2 Urethane  
H 58HRC ~ Shore A90

| D   | d <sub>1</sub>   | E                |       |             | d <sub>2</sub> | B                | C   | ℓ   | M              | t  | D <sub>1</sub> | G min. | H  | Catalog No. |               | L  | Base unit price 1 ~ 9 pieces |           |  |    |    |     |     |    |     |     |     |
|-----|------------------|------------------|-------|-------------|----------------|------------------|-----|-----|----------------|----|----------------|--------|----|-------------|---------------|----|------------------------------|-----------|--|----|----|-----|-----|----|-----|-----|-----|
|     |                  | PKHL             | PKHLU | Type        |                |                  |     |     |                |    |                |        |    | D           | PKHL          |    | PKHLU                        |           |  |    |    |     |     |    |     |     |     |
| 50  | +0.035<br>+0.030 | +0.065<br>+0.045 | 83    | 0<br>−0.010 | +0.1<br>0      | +0.045<br>+0.015 | 120 | 110 | 40<br>20       | 12 | 10             | 58     | 30 | 60          | PKHL<br>PKHLU | 50 | 240                          | Quotation |  |    |    |     |     |    |     |     |     |
| 60  |                  |                  | 95    |             |                |                  | 130 | 120 | 50<br>30       |    |                |        |    |             |               |    | 68                           |           |  | 30 | 80 | 260 | 300 |    |     |     |     |
| 80  |                  |                  | 120   |             |                |                  | 140 | 130 | 50<br>30       |    |                |        |    |             |               |    |                              |           |  |    |    |     |     | 88 | 100 | 340 | 400 |
| 100 |                  |                  | 145   |             |                |                  | 160 | 150 | 50<br>30<br>10 |    |                |        |    |             |               |    |                              |           |  |    |    |     |     |    |     |     |     |

⚠ d<sub>1</sub> and d<sub>2</sub> are the dimension tolerances for mounting hole machining as shown at the bottom of the page at left. ⚠ Sales of individual components P.851

RoHS

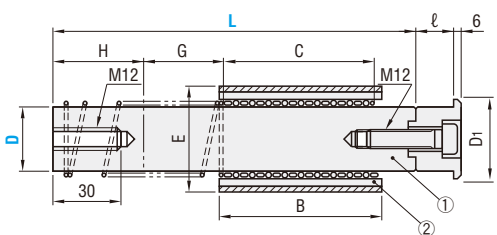
PKH

PKH-U

—With urethane—



—For pads—



**PKH**  
①② M SUJ2  
H 58HRC ~

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

| D  | d <sub>1</sub> |        | E   |             | d <sub>2</sub> | B   | C      | ℓ  | D <sub>1</sub> | G min.    | H  | Catalog No.  |    | L         | Base unit price 1 ~ 9 pieces |     |           |           |
|----|----------------|--------|-----|-------------|----------------|-----|--------|----|----------------|-----------|----|--------------|----|-----------|------------------------------|-----|-----------|-----------|
|    |                |        | PKH | PKH—U       |                |     |        |    |                |           |    | Type         | D  |           | 10mm increments              | PKH | PKH—U     |           |
| 38 | +0.030         | +0.060 | 64  | 0           | +0.040         | 80  | 50     | 20 | 46             | 20        | 40 | PKH<br>PKH-U | 38 | 130 ~ 160 | Quotation                    |     |           |           |
|    | +0.025         | +0.040 |     | —0.008      |                |     | +0.015 | 75 |                | 30        |    |              |    | 25        |                              |     | 170 ~ 200 |           |
| 50 | +0.035         | +0.065 | 83  | 0<br>—0.010 | +0.045         | 100 | 60     | 20 | 58             | 30        | 50 |              | 50 | 150 ~ 190 |                              |     |           |           |
|    |                |        |     |             |                |     | 90     | 30 |                | 30        |    |              |    | 200 ~ 240 |                              |     |           |           |
| 60 | +0.030         | +0.045 | 95  |             |                |     | 68     | 60 | 80             | 70        | 20 |              | 60 | 170 ~ 210 |                              |     |           |           |
|    |                |        |     |             |                |     |        |    |                | 220 ~ 260 |    |              |    |           |                              |     |           |           |
| 80 |                |        | 120 |             |                |     |        |    |                | 90        | 30 |              | 88 |           |                              |     | 80        | 260 ~ 300 |
|    |                |        |     |             |                |     |        |    |                |           |    |              |    |           |                              |     |           |           |

⚠ d<sub>1</sub> and d<sub>2</sub> are the dimension tolerances for mounting hole machining as shown at the bottom of the page at left. ⚠ Sales of individual components P.851

Order

Catalog No.

— L

PKH 50 — 240

Price

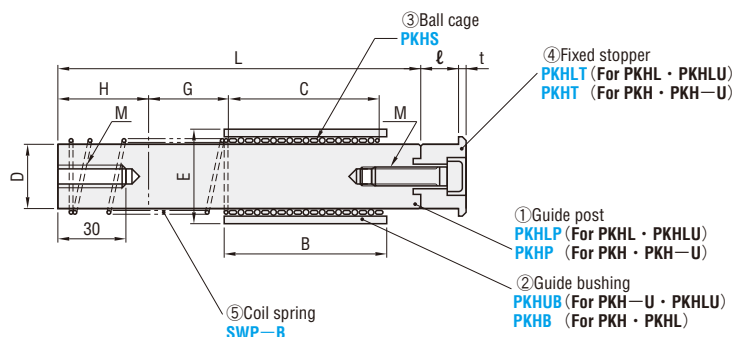
Quotation

Days to Ship

Quotation

# COMPONENTS FOR BALL GUIDE POST SETS

RoHS



For detailed dimensions, refer to P.850.

| Set                             |     |           | ① Guide post            |     |           | Base unit price | ② Guide bushing                                  |         |      | Base unit price | ③ Ball cage | Base unit price | ④ Fixed stopper |                         |        | Base unit price |
|---------------------------------|-----|-----------|-------------------------|-----|-----------|-----------------|--------------------------------------------------|---------|------|-----------------|-------------|-----------------|-----------------|-------------------------|--------|-----------------|
| Type                            | D   | L         | Type                    | D   | L         | 1 ~ 9 pieces    | Type                                             | D-B     | PKHB | PKHUB           | Type        | D-C             | 1 ~ 9 pieces    | Type                    | D-ℓ    | 1 ~ 9 pieces    |
| For die guides<br>PKHL<br>PKHLU | 50  | 240       | For die guides<br>PKHLP | 50  | 240       |                 | PKHB<br>(For PKHL)<br>(PKH)                      | 50-120  |      |                 | PKHS        | 50-110          |                 | For die guides<br>PKHLT | 50-20  |                 |
|                                 |     | 280       |                         | 50  | 280       |                 |                                                  |         |      |                 |             |                 |                 |                         | 50-40  |                 |
|                                 | 60  | 260       |                         | 60  | 260       |                 |                                                  | 60-130  |      |                 |             | 60-120          |                 |                         | 60-30  |                 |
|                                 |     | 300       |                         | 60  | 300       |                 |                                                  | 80-140  |      |                 |             | 80-130          |                 |                         | 60-50  |                 |
|                                 | 80  | 300       |                         | 80  | 300       |                 |                                                  |         |      |                 |             |                 |                 |                         | 80-30  |                 |
|                                 |     | 340       |                         | 80  | 340       |                 |                                                  |         |      |                 |             |                 |                 |                         | 80-50  |                 |
|                                 |     | 350       |                         |     | 350       |                 |                                                  |         |      |                 |             |                 |                 |                         | 100-10 |                 |
| For pads<br>PKH<br>PKH-U        | 100 | 400       |                         | 100 | 400       |                 |                                                  | 100-160 |      |                 |             | 100-150         |                 |                         | 100-30 |                 |
|                                 |     | 450       |                         |     | 450       |                 |                                                  |         |      |                 |             |                 |                 |                         | 100-50 |                 |
|                                 | 38  | 130 ~ 160 | For pads<br>PKHP        | 38  | 130 ~ 160 |                 | With urethane<br>PKHUB<br>(For PKHLU)<br>(PKH-U) | 38-80   |      |                 |             | 38-50           |                 | For pads<br>PKHT        | 38-20  |                 |
|                                 |     | 170 ~ 200 |                         | 38  | 170 ~ 200 |                 |                                                  |         |      |                 |             | 38-75           |                 |                         | 38-30  |                 |
|                                 | 50  | 150 ~ 190 |                         | 50  | 150 ~ 190 |                 |                                                  | 50-100  |      |                 |             | 50-60           |                 |                         | 50-20  |                 |
|                                 |     | 200 ~ 240 |                         | 50  | 200 ~ 240 |                 |                                                  |         |      |                 |             | 50-90           |                 |                         | 50-30  |                 |
|                                 | 60  | 170 ~ 210 |                         | 60  | 170 ~ 210 |                 |                                                  | 60-100  |      |                 |             | 60-70           |                 |                         | 60-20  |                 |
|                                 |     | 220 ~ 260 |                         | 60  | 220 ~ 260 |                 |                                                  |         |      |                 |             | 60-90           |                 |                         | 60-30  |                 |
|                                 | 80  | 260 ~ 300 |                         | 80  | 260 ~ 300 |                 |                                                  | 80-100  |      |                 |             | 80-90           |                 |                         | 80-30  |                 |



Order

Catalog No. — L

PKHP 50 — 200

Catalog No.

PKHB 60—130



Days to Ship

Quotation



Price

Quotation

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

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

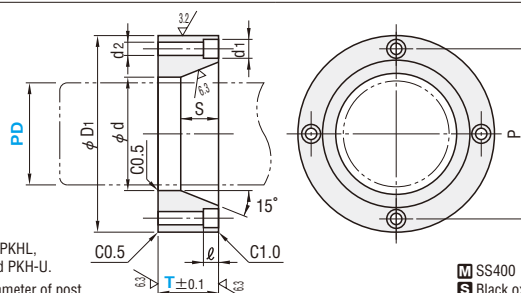


## DISTANCE GUIDE RINGS



RoHS

HKD

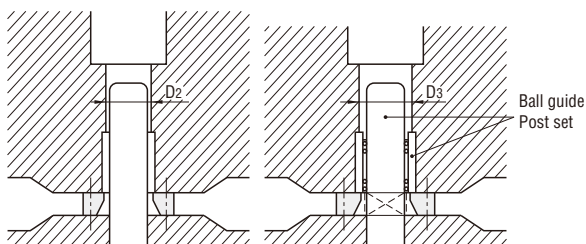
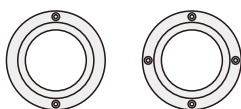


📌 Can be used for PKHL, PKHLU, PKH and PKH-U.

PD : Outside diameter of post

**M** SS400

**S** Black oxide ( $\text{Fe}_3\text{O}_4$ )

$$PD=38 \cdot 50 \cdot 60 \quad PD=80 \cdot 100$$


| D <sub>1</sub> | d   | P   | S    |      | d <sub>1</sub> | d <sub>2</sub> | ℓ  | D <sub>2</sub> | D <sub>3</sub> | Catalog No. |    | T<br>5mm increments | 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) |                              |           |
| 118            | 64  | 98  |      |      |                |                |    | 50             | 60             |             | 50 |                     |         |                              |           |
| 148            | 84  | 126 |      |      |                |                |    | 60             | 80             |             | 60 |                     |         |                              |           |
| 168            | 104 | 146 |      |      |                |                |    | 80             | 100            |             | 80 |                     |         |                              |           |
| 188            | 124 | 166 |      |      | 100            | —              |    | 100            |                |             |    |                     |         |                              |           |

! N (Normal) exterior is black oxide ( $\text{Fe}_3\text{O}_4$ ).



## Order

Catalog No. — T — Color

|        |   |    |   |   |
|--------|---|----|---|---|
| HKD 38 | — | 30 | — | R |
|--------|---|----|---|---|

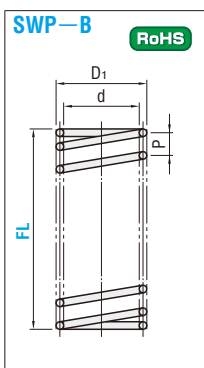
**Price**

## Quotation



Days to Ship

## Quotation



RoHS

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

## Quotation



## Order

Catalog No. — **D** — **FL**

|       |   |    |   |     |
|-------|---|----|---|-----|
| SWP—B | — | 50 | — | 130 |
|-------|---|----|---|-----|

**Price**

## Quotation



Days to Ship

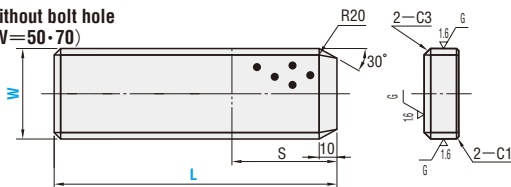
## Quotation

# OIL-FREE HEEL GUIDE PLATES

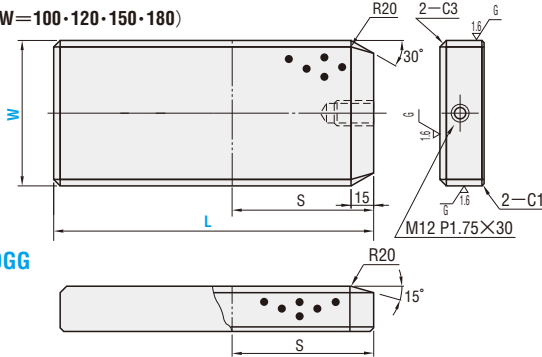
RoHS



Without bolt hole  
(W=50~70)



(W=100·120·150·180)

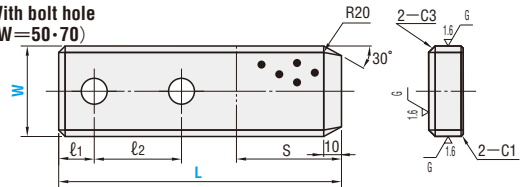


OGG

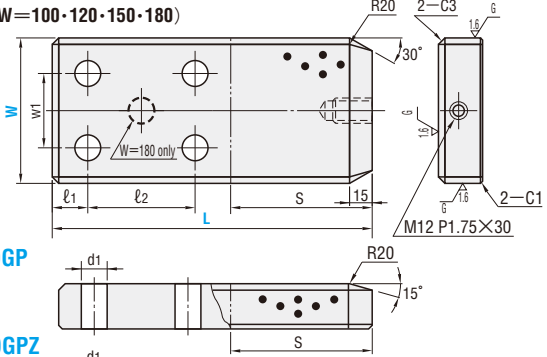
M S45C  
Special solid lubricant (embedded)

Slide part (S)  
H 55HRC ~ (Induction hardening)

With bolt hole  
(W=50~70)



(W=100·120·150·180)



OGP

OGPZ  
(Counterbore  
machining type)

M S45C  
Special solid lubricant (embedded)

Slide part (S)  
H 55HRC ~ (Induction hardening)

| W   | T                                                   | S  | OGP・OGPZ       |                |                |                |                |    | Catalog No.        |     | L   | Base unit price 1 ~ 9 pieces |     |      |
|-----|-----------------------------------------------------|----|----------------|----------------|----------------|----------------|----------------|----|--------------------|-----|-----|------------------------------|-----|------|
|     |                                                     |    | ℓ <sub>1</sub> | ℓ <sub>2</sub> | w <sub>1</sub> | d <sub>1</sub> | d <sub>2</sub> | t  | Type               | W   |     | OGG                          | OGP | OGPZ |
| 50  | $\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$ | 30 | 60             | 50             | —              | 18             | 26             | 18 | OGG<br>OGP<br>OGPZ | 50  | 160 |                              |     |      |
|     |                                                     |    | 120            | 50             |                |                |                |    |                    |     | 200 |                              |     |      |
|     |                                                     |    | 120            | 80             |                |                |                |    |                    |     | 260 |                              |     |      |
| 70  | $\begin{smallmatrix} 0 \\ -0.030 \end{smallmatrix}$ | 35 | 100            | 60             | 70             | 230            |                |    |                    |     |     |                              |     |      |
|     |                                                     |    | 160            | 60             |                | 260            |                |    |                    |     |     |                              |     |      |
|     |                                                     |    | 160            | 75             |                | 300            |                |    |                    |     |     |                              |     |      |
|     |                                                     |    | 150            | 150            |                | 350            |                |    |                    |     |     |                              |     |      |
| 100 | $\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$ | 45 | 100            | 60             | 60             | 22             | 32             | 22 |                    | 100 | 230 |                              |     |      |
|     |                                                     |    | 160            | 60             |                |                |                |    |                    |     | 280 |                              |     |      |
|     |                                                     |    | 160            | 100            |                |                |                |    |                    |     | 330 |                              |     |      |
|     |                                                     |    | 200            | 120            |                |                |                |    |                    |     | 390 |                              |     |      |
| 120 | $\begin{smallmatrix} 0 \\ -0.035 \end{smallmatrix}$ | 45 | 100            | 60             |                |                |                |    |                    | 120 | 230 |                              |     |      |
|     |                                                     |    | 160            | 60             |                |                |                |    |                    |     | 280 |                              |     |      |
|     |                                                     |    | 160            | 100            |                |                |                |    |                    |     | 330 |                              |     |      |
|     |                                                     |    | 200            | 120            |                |                |                |    |                    |     | 390 |                              |     |      |
| 150 | $\begin{smallmatrix} 0 \\ -0.040 \end{smallmatrix}$ | 50 | 160            | 60             |                |                |                |    | 150                | 280 |     |                              |     |      |
|     |                                                     |    | 190            | 80             |                |                |                |    |                    | 330 |     |                              |     |      |
|     |                                                     |    | 190            | 140            |                |                |                |    |                    | 390 |     |                              |     |      |
|     |                                                     |    | 190            | 180            |                |                |                |    |                    | 430 |     |                              |     |      |
| 180 | $\begin{smallmatrix} 0 \\ -0.040 \end{smallmatrix}$ | 55 | 160            | 60             | 180            |                |                |    | 280                |     |     |                              |     |      |
|     |                                                     |    | 190            | 80             |                |                |                |    | 330                |     |     |                              |     |      |
|     |                                                     |    | 190            | 140            |                |                |                |    | 390                |     |     |                              |     |      |
|     |                                                     |    | 190            | 180            |                |                |                |    | 430                |     |     |                              |     |      |
|     |                                                     |    | 200            | 200            |                |                |                |    | 480                |     |     |                              |     |      |
|     |                                                     |    | 250            | 225            |                | 550            |                |    |                    |     |     |                              |     |      |

Quotation



Order

Catalog No. — L

OGP 50 — 160



Days to Ship

Quotation



Price

Quotation

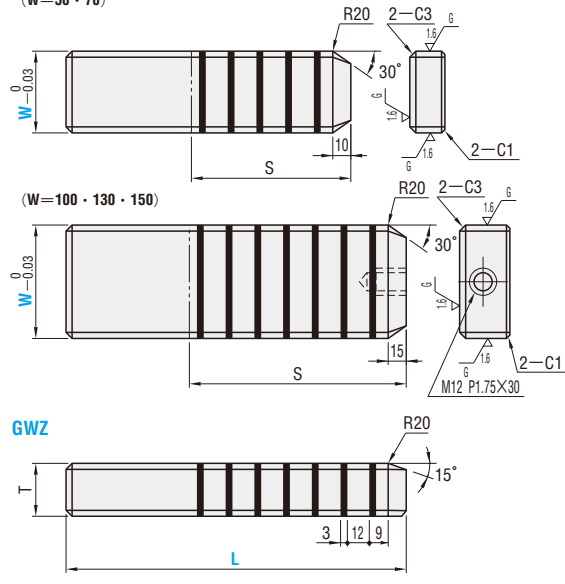
- Lubricate the plates before use.  
(initial greasing)
- The special solid lubricant  
embedded in the grooves  
continuously provides a lubricant  
film according to the load.
- The plate can slide only in the  
direction of L dimension.

# OIL-FREE HEEL GUIDE PLATES

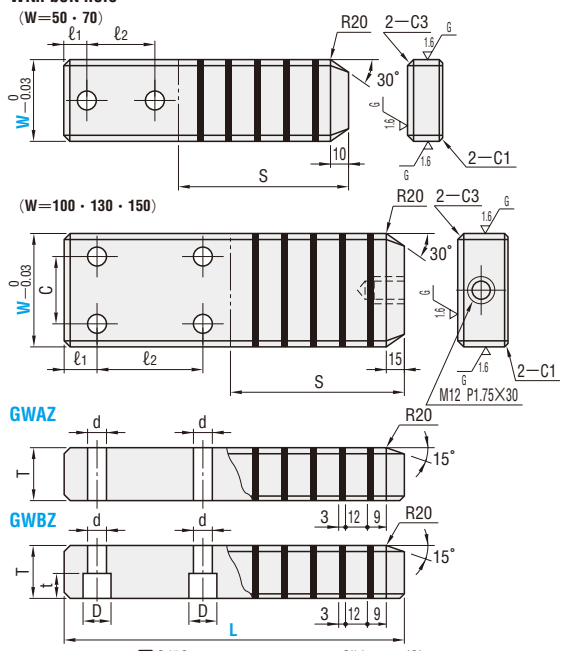
RoHS



**Without bolt hole**  
(W=50・70)



**With bolt hole**  
(W=50・70)



MS45C Special solid lubricant (embedded) Slide part (S) 55HRC~ (Induction hardening)

MS45C Special solid lubricant (embedded) Slide part (S) 55HRC~ (Induction hardening)

| T  | GWAZ・GWBZ      |                |     |    |     |     | Number of grooves | S   | Catalog No.                 |     | L   | Base unit price 1～9 pieces |      |      |
|----|----------------|----------------|-----|----|-----|-----|-------------------|-----|-----------------------------|-----|-----|----------------------------|------|------|
|    | ℓ <sub>1</sub> | ℓ <sub>2</sub> | C   | d  | D   | t   |                   |     | Type                        | W   |     | GWZ                        | GWAZ | GWBZ |
| 30 | 20             | 50             | —   | 18 | 26  | 18  | 3                 | 60  | GWZ<br><br>GWAZ<br><br>GWBZ | 50  | 160 |                            |      |      |
| 35 | 25             | 60             | —   |    |     |     | 5                 | 90  |                             |     | 190 |                            |      |      |
|    |                |                |     |    |     |     | 7                 | 120 |                             |     | 220 |                            |      |      |
|    |                |                |     |    |     |     | 6                 | 100 |                             | 230 |     |                            |      |      |
| 45 | 30             | 90             | 60  |    |     |     | 9                 | 140 |                             | 270 |     |                            |      |      |
|    |                |                |     |    |     |     | 11                | 180 |                             | 310 |     |                            |      |      |
|    |                |                |     | 8  | 130 | 300 | Quotation         |     |                             |     |     |                            |      |      |
| 50 | 30             | 120            | 80  | 11 | 180 | 350 |                   |     |                             |     |     |                            |      |      |
|    |                |                |     | 14 | 230 | 400 |                   |     |                             |     |     |                            |      |      |
|    |                |                |     | 9  | 150 | 350 | 130               |     |                             |     |     |                            |      |      |
| 60 | 35             | 150            | 100 | 12 | 200 | 400 |                   |     |                             |     |     |                            |      |      |
|    |                |                |     | 16 | 250 | 450 |                   |     |                             |     |     |                            |      |      |
|    |                |                |     | 11 | 180 | 420 |                   |     |                             |     |     |                            |      |      |
|    |                |                |     | 14 | 230 | 470 | 150               |     |                             |     |     |                            |      |      |
|    |                |                |     | 18 | 280 | 520 |                   |     |                             |     |     |                            |      |      |

Quotation



Order

Catalog No. — L  
GWBZ 50 — 160



Price

Quotation



Days to Ship

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 of L dimension.

**RoHS**



(W=50 • 70)



Slide part (S)  
**H** 55HRC~ (Induction hardening)

(W=50 · 70)



Slide part (S)  
**H** 55HRC~ (Induction hardening)

## Quotation



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

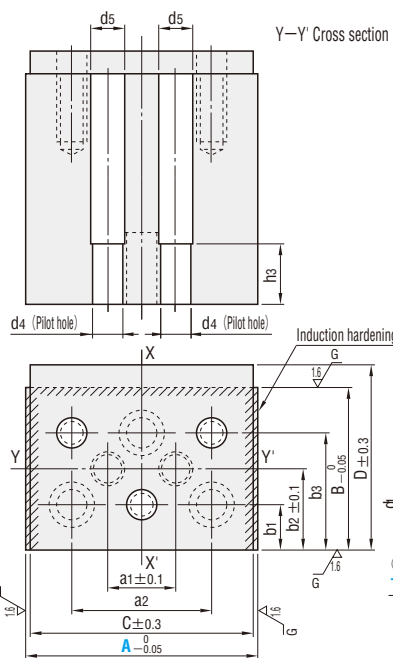


## Quotation



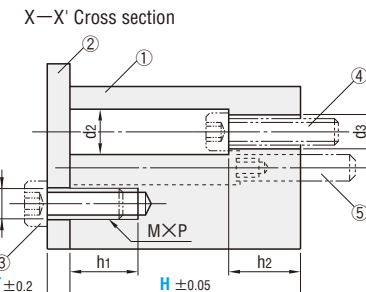
## Quotation

# PAD KEEPERS



| A      | KEPN80<br>KEPNZ80 | KEPN100<br>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.    |

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



| ① Mounting block |    |    |    |    |    |    |    |    |    |      |    |    |    | ② Plate |    |    |    |    |    |    |
|------------------|----|----|----|----|----|----|----|----|----|------|----|----|----|---------|----|----|----|----|----|----|
| A                | B  | a1 | a2 | b1 | b2 | b3 | d1 | d2 | d3 | d4   | h1 | h2 | h3 | M×P     | C  | D  | a2 | b1 | b3 | d5 |
| 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.            |     | H  |    |    |     |     | T  | Base unit price 1~9 pieces |       | Catalog No.       |     | T  | Base unit price 1~9 pieces |  |
|------------------------|-----|----|----|----|-----|-----|----|----------------------------|-------|-------------------|-----|----|----------------------------|--|
| Type                   | A   |    |    |    |     |     |    | KEPN                       | KEPNZ | Type              | A   |    |                            |  |
| KEPN<br>KEPNZ<br>(①~⑤) | 80  | 50 | 60 | 70 | 80  | 100 | 10 |                            |       | KEPNP<br>(② only) | 80  | 10 |                            |  |
|                        |     |    |    |    |     | 120 | 15 |                            |       |                   |     | 15 |                            |  |
|                        |     |    |    |    |     |     |    |                            |       |                   |     | 10 |                            |  |
|                        | 100 | 60 | 70 | 80 | 100 | 120 | 10 |                            |       |                   | 100 | 15 |                            |  |
|                        |     |    |    |    |     |     | 20 |                            |       |                   |     | 20 |                            |  |

Order

Catalog No. — H — T

KEPN 80 — 50 — 10

KEPNP 80 — — 10

Days to Ship

**Quotation**

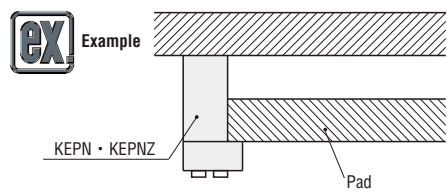
Price

**Quotation**

Alterations

Catalog No. — H(HC) — T — (NC)

KEPN 80 — HC55 — 10



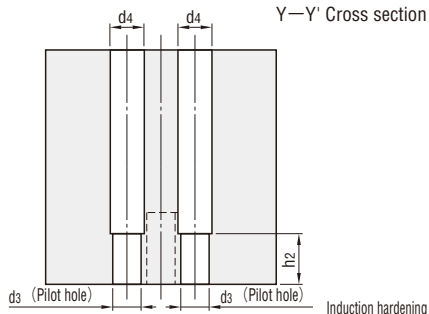
| Alteration | Code | Spec.                                                                                                                                                                                                                                              | 1Code            |
|------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|            | HC   | H dimension change<br>$H_{min} < HC < H_{max}$ .<br>1mm increments<br>Can be used for KEPN and KEPNZ.<br>If $(H-HC) < 10$ ...<br>$h_2, h_3$ is shortened by $(H-HC)$ .<br>If $10 \leq (H-HC) < 20$ ...<br>$h_2, h_3$ is shortened by $(H-HC-10)$ . | <b>Quotation</b> |
|            | NC   | 3 bolt holes and 2 dowel pin holes are machined in the plate ② so that it can be removed in assembled form together with the mounting block ①.                                                                                                     |                  |

# PAD GUIDE BLOCKS

RoHS

PGWN (With oil grooves)

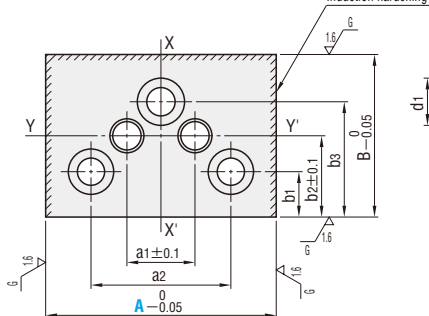
Y-Y' Cross section



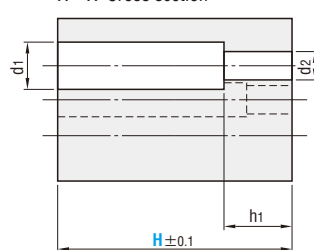
| PGWN80    |        |  | PGWN100   |        |  |
|-----------|--------|--|-----------|--------|--|
| CB10-50   | 3 pcs. |  | CB12-55   | 3 pcs. |  |
| MSTM10-40 | 2 pcs. |  | MSTM13-50 | 2 pcs. |  |

M S45C  
H 40~45HRC (Induction hardening)  
A

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



X-X' Cross section



| A   | B  | a1 | a2 | b1 | b2 | b3 | d1 | d2 | d3   | d4 | h1 | h2 | Catalog No. |     | H         | Base unit price |
|-----|----|----|----|----|----|----|----|----|------|----|----|----|-------------|-----|-----------|-----------------|
|     |    |    |    |    |    |    |    |    |      |    |    |    | Type        | A   |           | 1~9 pieces      |
| 80  | 60 | 25 | 50 | 15 | 30 | 45 | 18 | 11 | 9.8  | 12 | 30 | 20 | PGWN        | 80  | 50 60     | Quotation       |
|     |    |    |    |    |    |    |    |    |      |    |    |    |             |     | 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



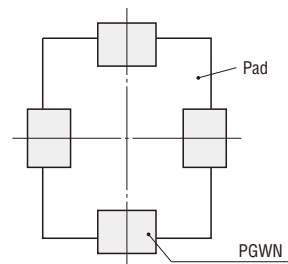
Alterations



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



Example



| Alteration | Code | Spec.                                                                                                                                                                              | 1Code     |
|------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | HC   | H dimension change<br>Hmin. < HC < Hmax.<br>1mm increments<br>If (H - HC) < 10...<br>h1 is shortened by (H - HC).<br>If 10 ≤ (H - HC) < 20...<br>h1 is shortened by (H - HC - 10). | Quotation |
|            | CC   | Change to C5 for chamfering<br>of 4 corner edges                                                                                                                                   |           |

