

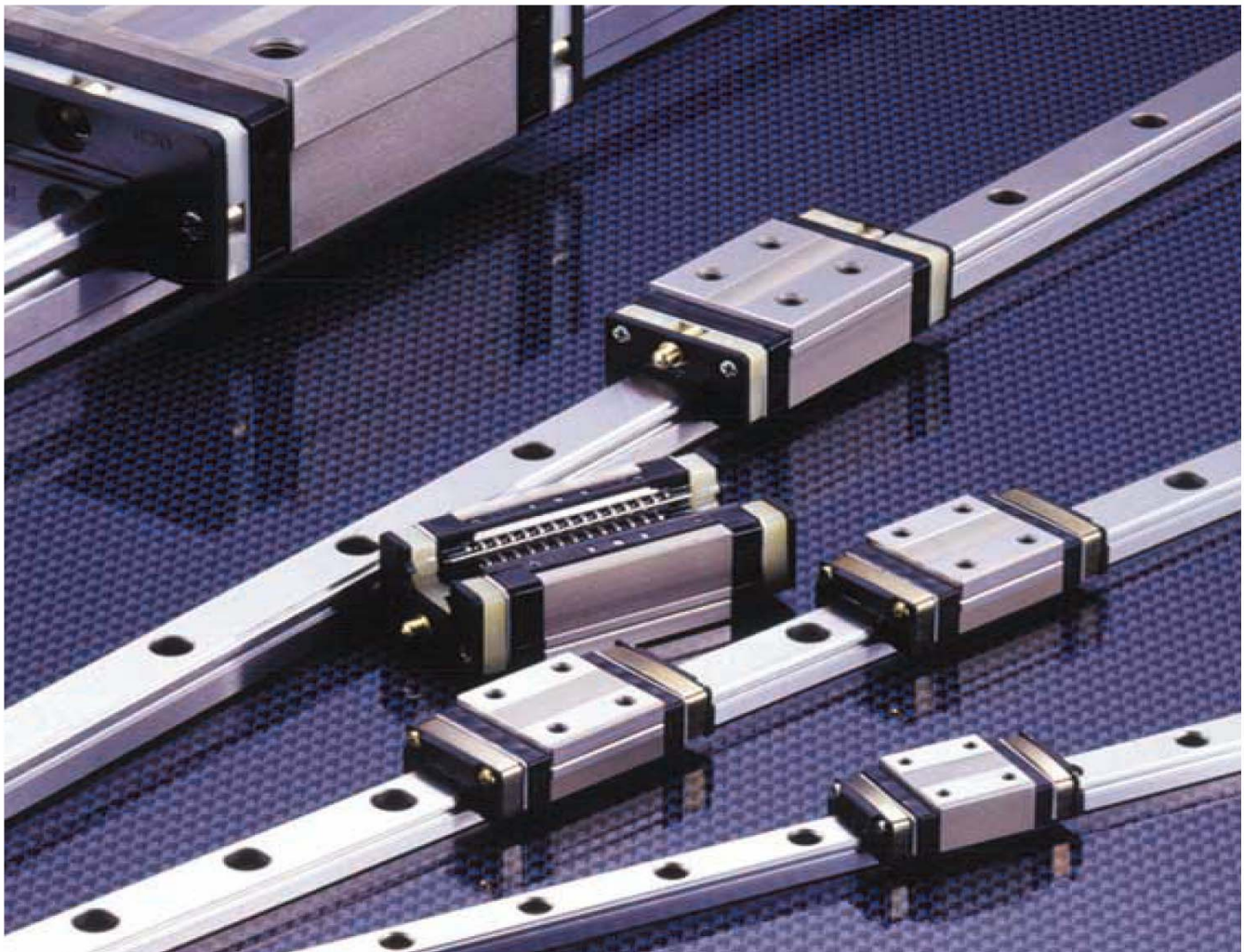


17-109 Fernstaff Court, Concord, Ont.  
Phone: 905-738-6688



## NSK Linear Guides Miniature LH Series

Miniature size, high load capacity, and high rigidity—  
perfect for all the challenging environments  
of the 21st century



# NSK Linear Guides Miniature LH Series

## 1. Features

### Large self-aligning property

Capable of high mounting error absorption.

### High vertical load capacity

50° contact angle enlarges vertical load capacity and rigidity.

### Withstands high impact load

Offset Gothic arch groove enables high impact resistance.

### High corrosion resistance

High corrosion resistant martensitic stainless steel is used as standard material.

### Easy handling

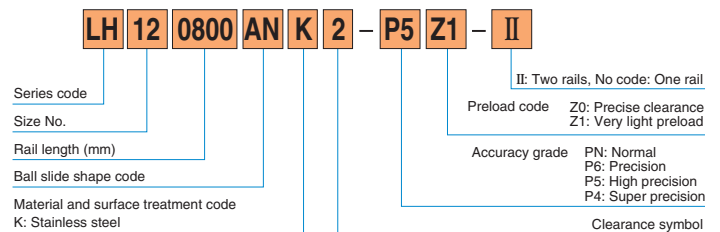
Ball retainer prevents balls from falling off the ball slide, even if a ball slide is taken out from the rail (#10 and 12).

### Long term, maintenance

Optional NSK K1® lubrication unit supports long term, maintenance-free operation.

## 2. Specification Number

The specification number indicates the general specifications through numbers and codes, and is used until the final reference number (indicated in a specification drawing) is assigned upon confirming specifications with the user. The reference number is the specification number added to the design serial number and other additional information.



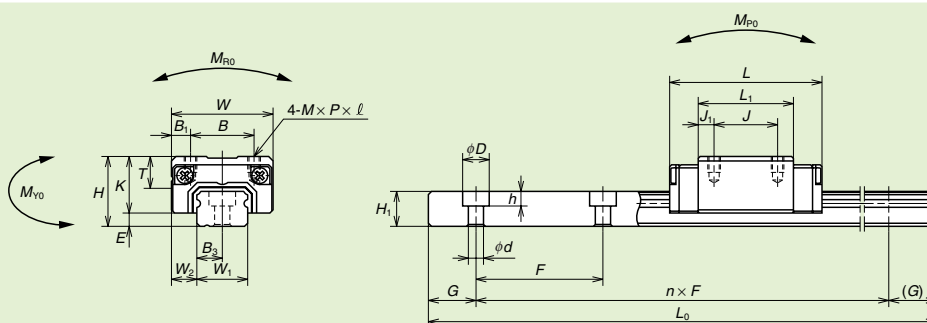
## 3. Rail Length

The maximum single rail length is shown in the following table. Two rails must be butted for longer lengths.

Table 1. Maximum rail length

Unit: mm

| Size No.            | 08  | 10  | 12  |
|---------------------|-----|-----|-----|
| Maximum rail length | 375 | 600 | 800 |



LH08, LH10

Unit: mm

| Model No. | Assembly dimension |     |                | Ball slide dimension |             |             |    |                 |                |                |                |      |   |               |                |   |
|-----------|--------------------|-----|----------------|----------------------|-------------|-------------|----|-----------------|----------------|----------------|----------------|------|---|---------------|----------------|---|
|           | Height<br>H        | E   | W <sub>2</sub> | Width<br>W           | Length<br>L | Tapped hole |    |                 | B <sub>1</sub> | L <sub>1</sub> | J <sub>1</sub> | K    | T | Grease nipple |                |   |
|           |                    |     |                |                      |             | B           | J  | M × Pitch × ℓ   |                |                |                |      |   | Mounting hole | T <sub>1</sub> | N |
| LH08AN    | 11                 | 2.1 | 4              | 16                   | 24          | 10          | 10 | M2 × 0.4 × 2.5  | 3              | 15             | 2.5            | 8.9  | — | —             | —              |   |
| LH10AN    | 13                 | 2.4 | 5              | 20                   | 31          | 13          | 12 | M2.6 × 0.45 × 3 | 3.5            | 20.2           | 4.1            | 10.6 | 6 | —             | —              |   |
| LH12AN    | 20                 | 3.2 | 7.5            | 27                   | 45          | 15          | 15 | M4 × 0.7 × 5    | 6              | 31             | 8              | 16.8 | 6 | φ3            | 5              | 4 |

Note : LH10 and LH12 are constructed with a ball retainer which prevents balls from falling out even if the bearing is taken out from the rail.

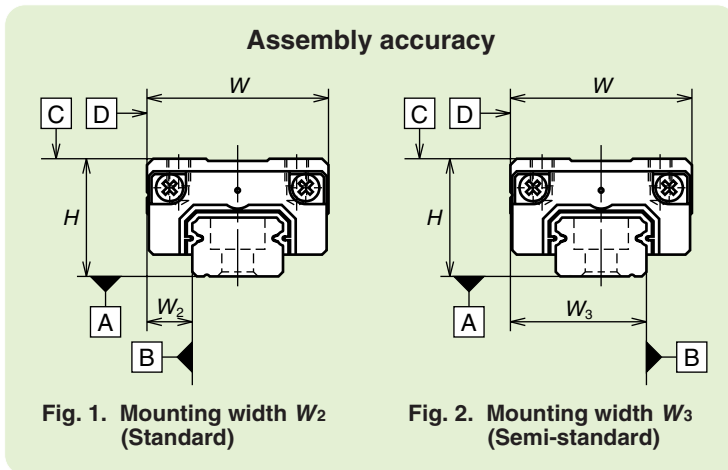
## 4. Accuracy Standard

Four accuracy grades are available: super precision P4, high precision P5, precision P6, and normal PN.

**Table 2. Accuracy standard**

Unit:  $\mu\text{m}$

| Items   | Accuracy grade   |                   |              |           |
|---|--|-------------------|--------------|-----------|
|   | Super precision P4   | High precision P5 | Precision P6 | Normal PN |
| Assembly height $H$   | $\pm 10$   | $\pm 20$          | $\pm 40$     | $\pm 80$  |
| Variation of assembly height $H$<br>(All slides on a pair of rails)                 | 3  | 5                 | 7            | 15        |
| Assembly width dimension $W_2$ or $W_3$   | $\pm 10$   | $\pm 15$          | $\pm 25$     | $\pm 50$  |
| Variation of assembly width dimension $W_2$ or $W_3$<br>(All slides on datum rails) | 5  | 7                 | 10           | 20        |
| Running parallelism of face C against face A  | See Fig. 1. and Fig. 2.<br>Refer to Table 3. for tolerance |                   |              |           |
| Running parallelism of face D against face B  |  |                   |              |           |



**Table 3. Running parallelism of ball slide**

Unit:  $\mu\text{m}$

| Total rail length (mm) | Accuracy grade |     |     |     |
|------------------------|----------------|-----|-----|-----|
|                        | P4             | P5  | P6  | PN  |
| Over ~ below 50        | 2              | 2   | 4.5 | 6   |
| 50 ~ 80                | 2              | 3   | 5   | 6   |
| 80 ~ 125               | 2              | 3.5 | 5.5 | 6.5 |
| 125 ~ 200              | 2              | 4   | 6   | 7   |
| 200 ~ 250              | 2.5            | 5   | 7   | 8   |
| 250 ~ 315              | 2.5            | 5   | 8   | 9   |
| 315 ~ 400              | 3              | 6   | 9   | 11  |
| 400 ~ 500              | 3              | 6   | 10  | 12  |
| 500 ~ 630              | 3.5            | 7   | 12  | 14  |
| 630 ~ 800              | 4.5            | 8   | 14  | 16  |

## 5. Preload and Clearance

Slight preload Z1 and fine clearance Z0 are available.

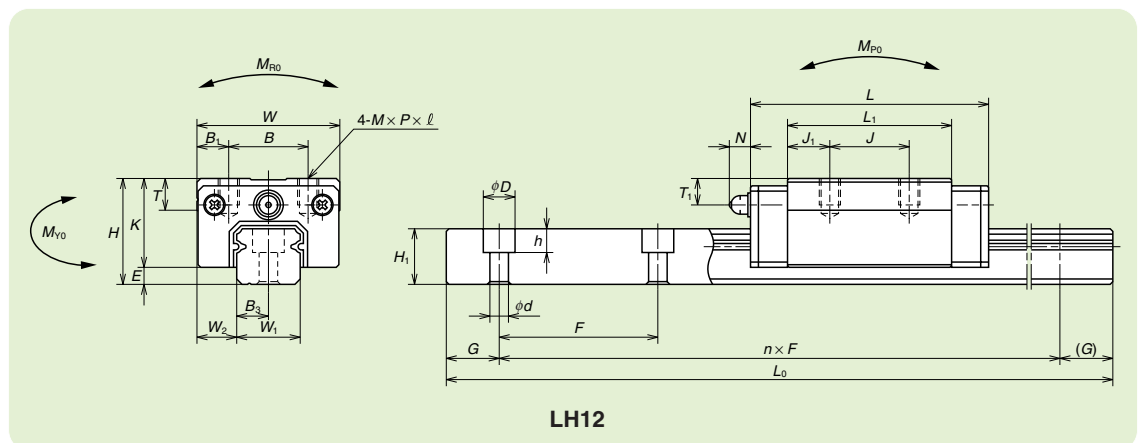
**Table 4. Dimension of linear guides equipped with NSK K1®**

Unit: mm

| Model No. | Ball slide length equipped with two NSK K1s |
|-----------|---|
| LH08      | 31  |
| LH10      | 40  |
| LH12      | 54  |

## 6. Option

The NSK K1® lubrication unit is available as an option. Refer to Table 4 for dimension of linear guides equipped with the NSK K1®.



Unit: mm

| Rail dimension   |                   |                |                                 |       |            |                                 | Basic load rating |                  |                     |          |    | Ball diameter | Weight      |                |
|------------------|-------------------|----------------|---------------------------------|-------|------------|---------------------------------|-------------------|------------------|---------------------|----------|----|---------------|-------------|----------------|
| Rail width $W_1$ | Rail height $H_1$ | Bolt pitch $F$ | Bolt hole $d \times D \times h$ | $B_3$ | $G$ (std.) | Maximum length $L_{\text{max}}$ | Dynamic $C$ (N)   | Static $C_0$ (N) | Static moment (N·m) |          |    | $D_v$         | Bearing (g) | Rail (g/100mm) |
|                  |                   |                |                                 |       |            |                                 |                   | $M_{R0}$         | $M_{P0}$            | $M_{V0}$ |    |               |             |                |
| 8                | 5.5               | 20             | 2.4 × 4.2 × 2.3                 | 4     | 7.5        | 375                             | 980               | 2 260            | 7                   | 4        | 4  | 1.2000        | 13          | 31             |
| 10               | 6.5               | 25             | 3.5 × 6 × 3.5                   | 5     | 10         | 600                             | 1 860             | 3 920            | 16                  | 10       | 10 | 1.5875        | 26          | 44             |
| 12               | 10.5              | 40             | 3.5 × 6 × 4.5                   | 6     | 15         | 800                             | 4 310             | 9 020            | 42                  | 34       | 32 | 2.3812        | 82          | 88             |