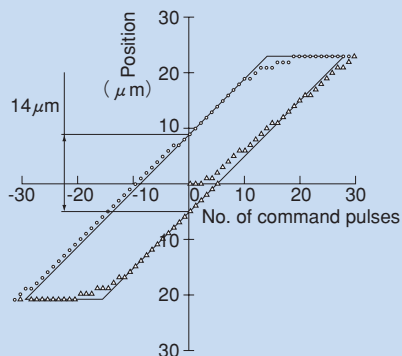


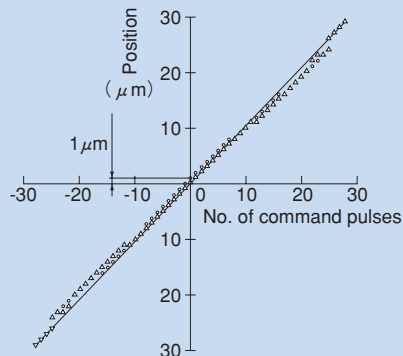
## 1.7. High Dynamic Accuracy

### ● Small motion loss

The LM Guide is provided with an ideal rolling mechanism. Therefore, the difference between dynamic and static friction is minimal and motion loss hardly occurs.



Square slide + Turcite



LM Guide

(Measurements are taken with the single-axis table loaded with a 500-kg weight)

Fig. 9 Comparison of Motion Loss between the LM Guide and a Slide Guide

Table 6 Motion Loss Comparison

Unit:  $\mu\text{m}$

| Type                      | Test method<br>Clearance     | As per JIS B 6330 |           |            | Based on minimum<br>unit feeding |
|---------------------------|------------------------------|-------------------|-----------|------------|----------------------------------|
|                           |                              | 10mm/min          | 500mm/min | 4000mm/min |                                  |
| Square slide +<br>Turcite | 0.02 mm                      | 10.7              | 15        | 14.1       | 14                               |
|                           | 0.005 mm                     | 8.7               | 13.1      | 12.1       | 13                               |
| LM Guide<br>(HSR45)       | C1 clearance <sup>Note</sup> | 2.3               | 5.3       | 3.9        | 0                                |
|                           | C0 clearance <sup>Note</sup> | 3.6               | 4.4       | 3.1        | 1                                |

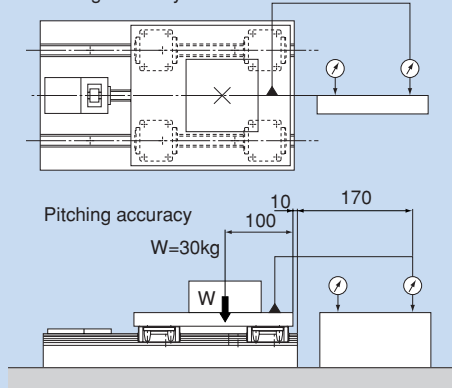
Note: Radial clearance of the LM Guide Unit:  $\mu\text{m}$

| Symbol           | C1         | C0         |
|------------------|------------|------------|
| Radial clearance | -25 to -10 | -40 to -25 |

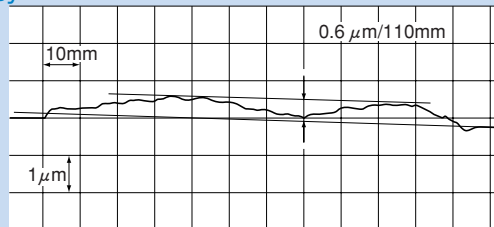
## ● High running accuracy

Use of the LM Guide allows you to achieve high running accuracy.

[Measurement method] Yawing accuracy



Pitching accuracy



Yawing accuracy

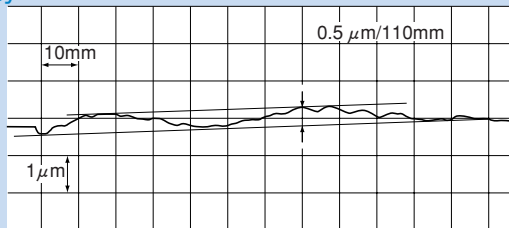


Fig. 10 Dynamic Accuracy of a Single-axis Table

## ● High accuracy maintained over a long period

As the LM Guide employs an ideal rolling mechanism, wear is negligible and high precision is maintained for long periods of time. As shown in Fig. 12, when the LM Guide operates under both a preload and a normal load, more than 90% of the preload remains even after running 2,000 km.

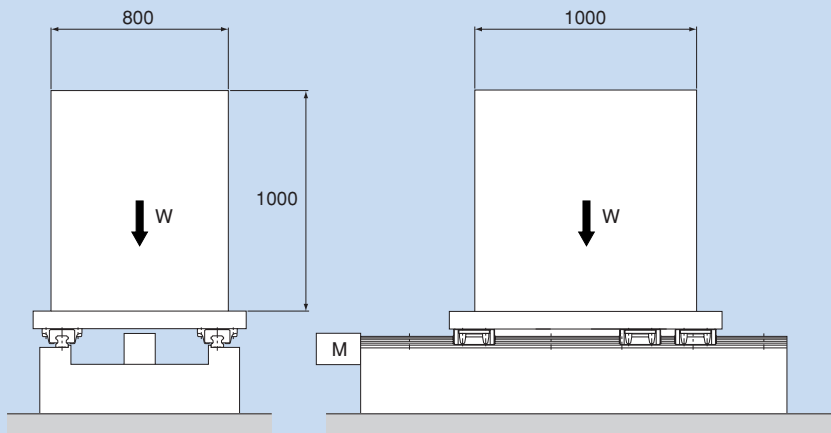


Fig. 11 Service Conditions

### [Service conditions]

Model No. : HSR65LA3SSCO + 2565LP-II  
 Radial clearance: CO (preload: 15.7 kN)  
 Stroke : 1,050 mm  
 Speed : 15 m/min (stops 5 sec at both ends)  
 Acceleration time: 300 ms  
 (acceleration:  $\alpha = 0.833 \text{ m/s}^2$ )  
 Mass : 6,000 kg  
 Drive : Ball Screw  
 Lubrication : Lithium soap-based grease No. 2  
 (greased every 100 km)

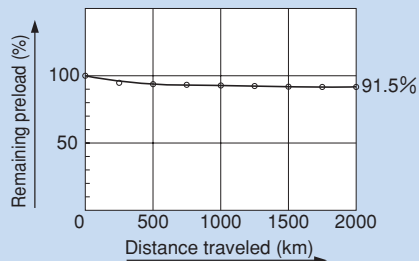


Fig. 12 Distance Traveled and Remaining Preload