

Miniature Ball Guides - Overview

Features

1 Low friction rolling motion is enabled

Free from ball circulation and seal resistance, rolling motion with very low friction is allowed.

2 Capable of highly accurate rolling motion

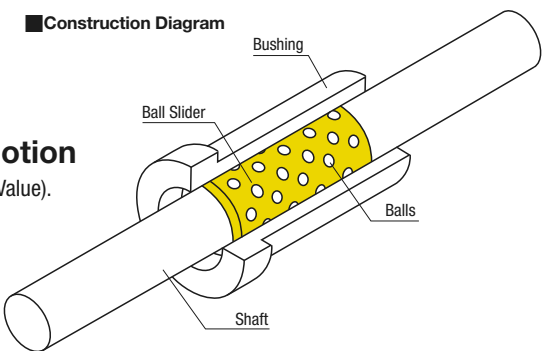
Clearance between the shaft and balls is $-3\sim+8\mu\text{m}$ (Reference Value). Low clearance rolling motion is enabled.

3 Enables Compact Designs

Bushing is selectable beginning with O.D.: 5mm / Overall Length: 10mm. Suitable for space saving designs.

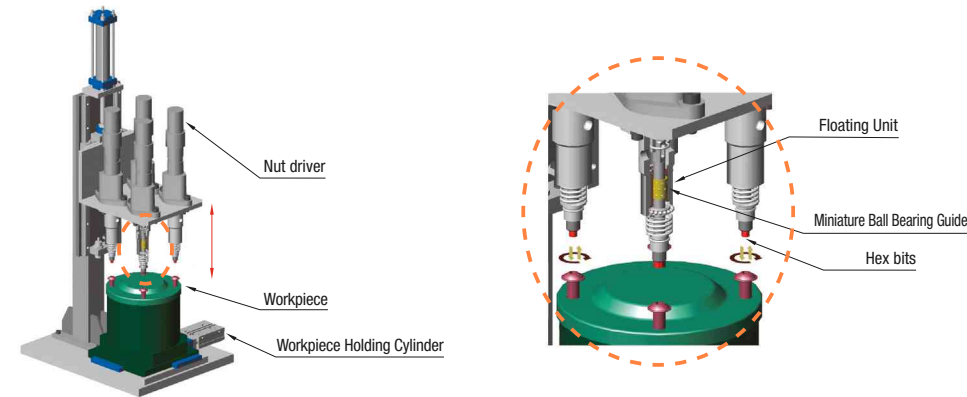
4 Linear and rotary motions can be combined

Since balls are aligned in the staggered arrangement, linear motion, rotary motion, and linear / rotary compounded motion are allowed for.



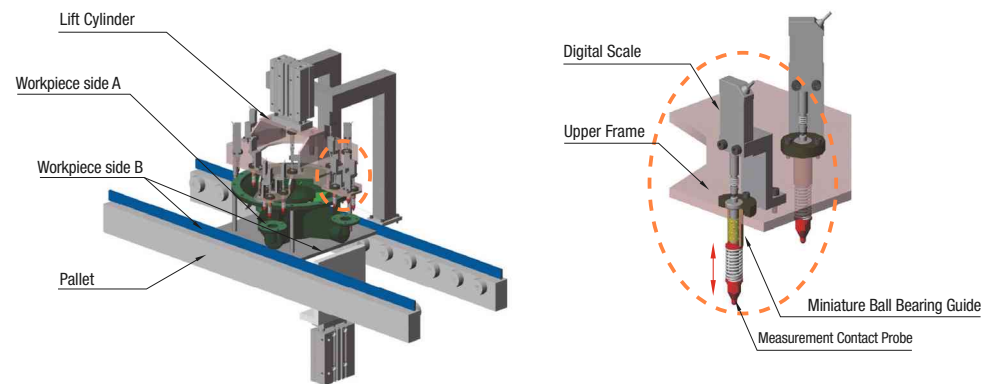
Screw Tightening Machine

When rotary / linear compounded motion is required, space-saving design is enabled by using Miniature Ball Bearing Guide.



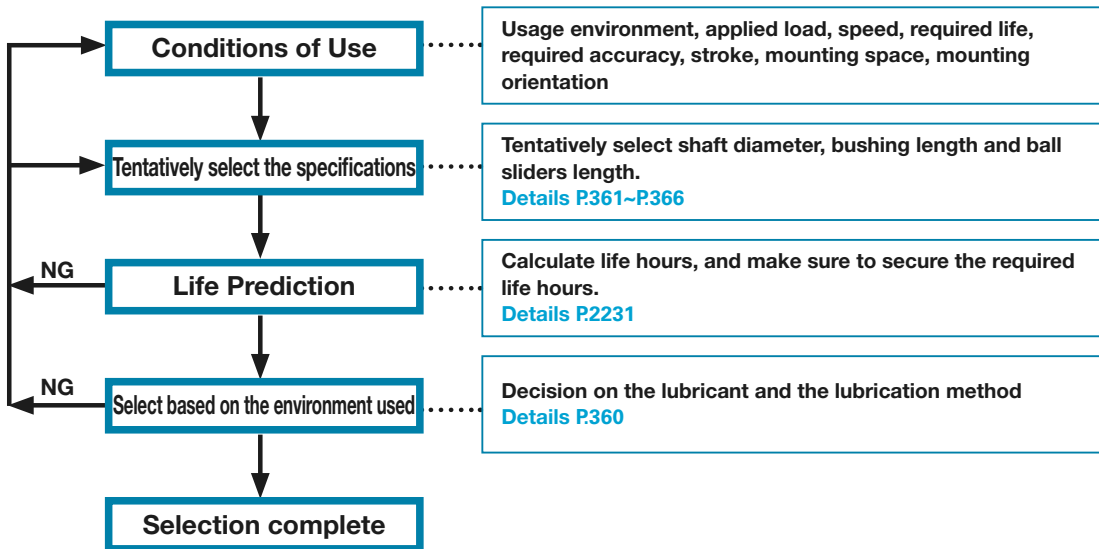
Machined Surface Distortion Measurement Device

If highly repeatable motion or device weight reduction is required, use of Miniature Ball Bearing Guide is effective.



Selection procedure

The basic selection procedure of the Miniature Ball Bearing Guide and the required considerations are shown below.



Precautions at the time of selection / usage

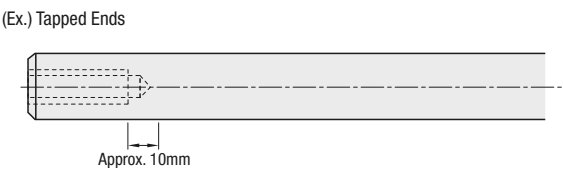
Mating designs

- It is recommended to use Misumi's miniature ball guide sets with hardened shafts.
- Recommended housing tolerance of Misumi's miniature ball guide sets is H7.

Shaft Dia. Tolerance		Housing Dia. Tolerance	
Shaft Diameter	Shaft Dia. Tolerance	Housing Diameter	H7
2	0 -0.005	7~10	+0.015 0
3			
4		11~14	+0.018 0
5			
6		15~18	+0.018 0
8			
10		19~24	+0.021 0
12			

Annealing Range

- Shafts are hardened, and must be annealed before machining.
- Annealing may lower hardness on the machined area +10mm (See the examples below).
- Annealed sections are not included in the guaranteed O.D. Tolerance range. When calculating a stroke, exclude the annealed sections.



Lubrication

- Although Miniature Ball Guides are shipped with anti-rust oil coating, it is recommended to apply grease after washing and drying it before the use.
- Administer lubrication maintenance with appropriate lithium soap based grease (Alvania Grease S2 by Showa Shell Sekiyu K.K), etc. as needed.