

13. Safety Design

13.1. Lubrication

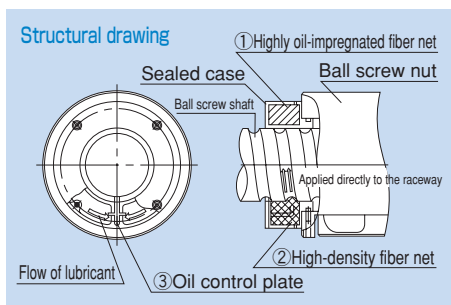
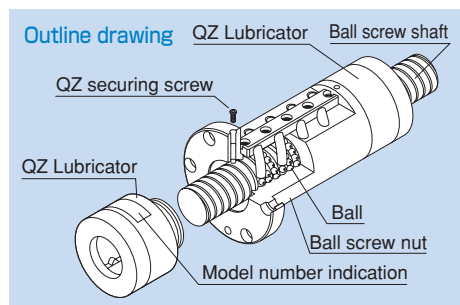
To maximize the performance of the Ball Screw, it is necessary to select a lubricant and a lubrication method according to the service conditions.

For types of lubricants, characteristics of lubricants and lubrication methods, see page A-109. Also, QZ Lubricator is available as an optional accessory that significantly increases the maintenance interval.

13.1.1. QZ Lubricator™ for the Ball Screw

QZ Lubricator feeds a right amount of lubricant to the ball raceway of the ball screw shaft. This allows an oil film to be formed between the balls and the ball raceway and significantly extends the lubrication maintenance interval.

Its structure consists of major three components: ① a highly oil-impregnated fiber net (function to store a lubricant), ② a high-density fiber net (function to apply the lubricant to the raceway) and ③ an oil control plate (function to control the flow of the lubricant). The lubricant contained in QZ Lubricator is fed based on the principle of capillary action, which is used in felt-tip pens and other products.



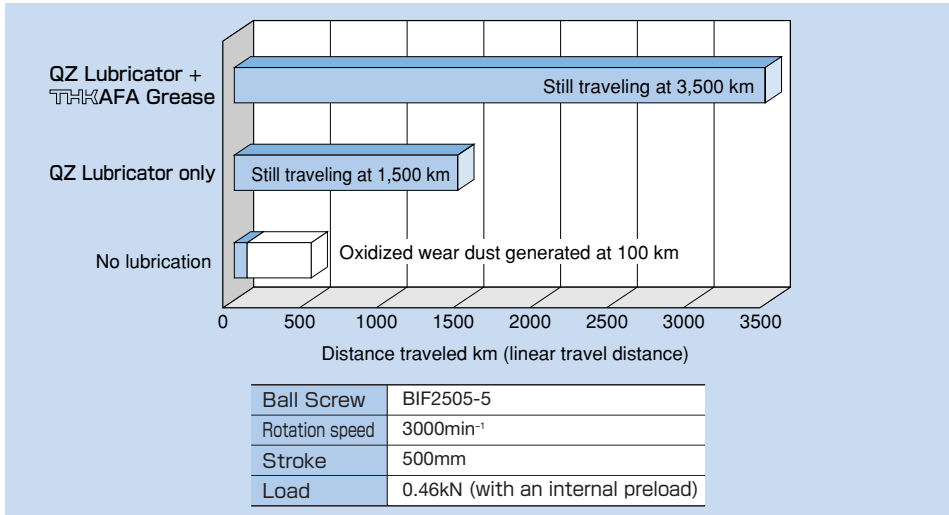
Features

- Since it supplements an oil loss, the lubrication maintenance interval can significantly be extended.
- Since the right amount of lubricant is applied to the ball raceway, an environmentally friendly lubrication system that does not contaminate the surroundings is achieved.
- Enables selection of a lubricant that meets the intended use.

Note: For model numbers supported for QZ Lubricator, see the section on the respective model number in the "THK General Catalog - Product Specifications," provided separately.

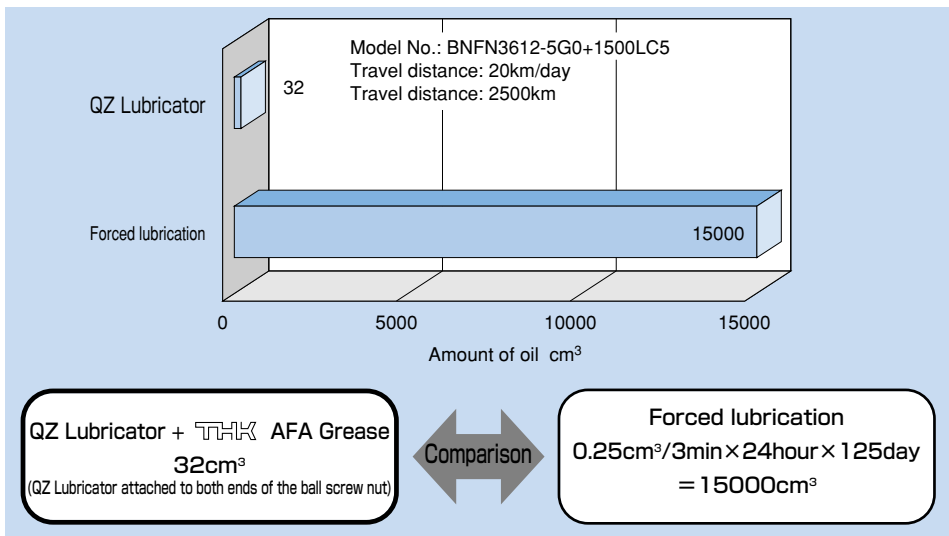
Significantly extended maintenance interval

Since QZ Lubricator continuously feed a lubricant over a long period, the maintenance interval can significantly be extended.



Environmentally friendly lubrication system

Since QZ Lubricator feeds the right amount of lubricant directly to the raceway, the lubricant can effectively be used without waste.





13.1.2. Amount of Lubricant

If the amount of lubricant to the Ball Screw is insufficient, it may cause oil film break, and if it is excessive, it may cause heat to be generated and resistance to be increased. It is necessary to select an amount that meets the service conditions.

Grease

The feed amount of grease is generally approximately one third of the special volume inside the nut.

Oil

Table 1 shows a guideline for the feed amount of oil.

Note, however, that the amount varies according to the stroke, oil type and service conditions (e.g., suppressed heat generation).

Table 1 Guideline for the Feed Amount of Oil
(Interval: 3 minutes)

Shaft diameter (mm)	Amount of lubricant (cc)
4 to 8	0.03
10 to 14	0.05
15 to 18	0.07
20 to 25	0.1
28 to 32	0.15
36 to 40	0.25
45 to 50	0.3
55 to 63	0.4
70 to 100	0.5