

Precautions on Use

Ball Screw

[Handling]

- (1) Please use at least two people to move any product weighing 20 kg or more, or use a dolly or another conveyance. Doing so may cause injury or damage.
- (2) Do not disassemble the parts. This will result in loss of functionality.
- (3) Tilting the Ball Screw shaft and the Ball Screw nut may cause them to fall by their own weight.
- (4) Take care not to drop or strike the Ball Screw. Failure to do so could cause injury or product damage. Giving an impact to it could also cause damage to its function even if the product looks intact.
- (5) When assembling, do not remove the Ball Screw nut from the Ball Screw shaft.
- (6) When handling the product, wear protective gloves, safety shoes, etc., as necessary to ensure safety.

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- (1) Prevent foreign material, such as cutting chips or coolant, from entering the product. Failure to do so may cause damage.
- (2) If the product is used in an environment where cutting chips, coolant, corrosive solvents, water, etc., may enter the product, use bellows, covers, etc., to prevent them from entering the product.
- (3) Do not use the product at temperature of 80°C or higher. Except for the heat-resistant models, exposure to higher temperatures may cause the resin/rubber parts to deform/be damaged.
- (4) If foreign material such as cutting chips adheres to the product, replenish the lubricant after cleaning the product.
- (5) Micro-oscillation makes it difficult for oil film to form on the raceway in contact with the rolling element, and may lead to fretting. Accordingly, use grease offering excellent fretting toughness. It is also recommended that the Ball Screw nut be turned once or so on a regular basis to make sure oil film is formed between the raceway and rolling element.
- (6) When using the return-pipe or return-piece type ball screw in a horizontal orientation, there is a difference in torque on the outbound and inbound cycle depending on the mounting orientation of the circulation part (return pipe or return piece). To use the product with a consistent torque, we recommend designing the product with the mounting orientation of the circulation part facing downwards.
- (7) Do not use undue force when fitting parts (pin, key, etc.) to the product. This may generate pressure marks on the raceway, leading to loss of functionality.
- (8) If an offset or skewing occurs with the Ball Screw shaft support and the Ball Screw nut, it may substantially shorten the service life. Pay much attention to components to be mounted and to the mounting accuracy.
- (9) If any of the rolling elements falls from the Ball Screw nut, contact THK instead of using the product.
- (10) When using this product with a vertical orientation, take preventive measures such as adding a safety mechanism to prevent falls. The own weight of the Ball Screw nut may cause it to fall.
- (11) Do not use this product beyond its permissible rotational speed. Doing so may cause accidents or component damage. Be sure to use the product within the specification range designated by THK.
- (12) Do not cause the Ball Screw nut to overshoot. The ball may drop, circulating parts may be damaged, raceway in contact with the ball may develop pressure marks, etc., resulting in malfunction. Continuing to use the product in this condition may lead to premature wear or damage to circulating parts.

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- (13) Use the Ball Screw by providing a LM Guide, Ball Spline or other guide element. Otherwise, the Ball Screw may be damaged.
- (14) Insufficient rigidity or accuracy of mounting members causes the bearing load to concentrate on one point and the bearing performance will drop significantly. Accordingly, give sufficient consideration to the rigidity/accuracy of the housing and base and strength of the fixing bolts.

[Lubrication]

- (1) Thoroughly wipe off anti-rust oil and feed lubricant before using the product.
 - (2) Do not mix different lubricants. Mixing greases using the same type of thickening agent may still cause adverse interaction between the two greases if they use different additives, etc.
 - (3) When using the product in locations exposed to constant vibrations or in special environments such as clean rooms, vacuum and low/high temperature, use the grease appropriate for the specification/environment.
 - (4) When lubricating a product having no grease nipple or lubrication hole, apply grease directly on the raceway and stroke the product several times to let the grease spread inside.
 - (5) The consistency of grease changes according to the temperature. Take note that the torque of the Ball Screw also changes as the consistency of grease changes.
 - (6) After lubrication, the rotational torque of the Ball Screw may increase due to the agitation resistance of grease. Be sure to perform a break-in to let the grease spread fully, before operating the machine.
 - (7) Excess grease may scatter immediately after lubrication, so wipe off scattered grease as necessary.
 - (8) The properties of grease deteriorate and its lubrication performance drops over time, so grease must be checked and added properly according to the use frequency of the machine.
 - (9) Although the lubrication interval may vary according to operating conditions and the service environment, lubrication should be performed approximately every 100 km in travel distance (three to six months). Set the final lubrication interval/amount based on the actual machine.
 - (10) Depending on the mounting orientation and access position, lubricant may not spread fully and poor lubrication may occur. Give full consideration to these factors in the design stage.
 - (11) When using a Ball Screw, it is necessary to provide effective lubrication. Using the product without lubrication may increase wear of the rolling elements or shorten the service life.
- Table1 (B15-108) shows a guideline for the feed amount of oil.

[Storage]

When storing the Ball Screw, enclose it in a package designated by THK and store it in a room in a horizontal orientation while avoiding high temperature, low temperature and high humidity. After the product has been in storage for an extended period of time, lubricant inside may have deteriorated, so add new lubricant before use.

[Disposal]

Dispose of the product properly as industrial waste.