MOTION & CONTROL™

NSK

High-speed, Low-noise Ball Screw II

New!

Patent Pending

～ Greatly Reduced Peak Noise during Ball Screw Operation ～

Features

1. Greatly reduced noise during Ball Screw Operation

- Ball raceway noise was greatly reduced by optimizing the design of screw grooves for the ball screw and taking raceway noise countermeasures through production technology development.
- This can reduce resonance with the machine base.

2. Further noise reduction by upgrading to “High-speed, Low noise Ball Screw” technology

- Machinery noise can be reduced even further using the new product in combination with conventional high-speed, low-noise ball screws, which are already well received in the market and which also feature ball recirculation noise reduction.

Noise from ball screw

The noise generated from ball screw is basically classified into 2 types shown below.

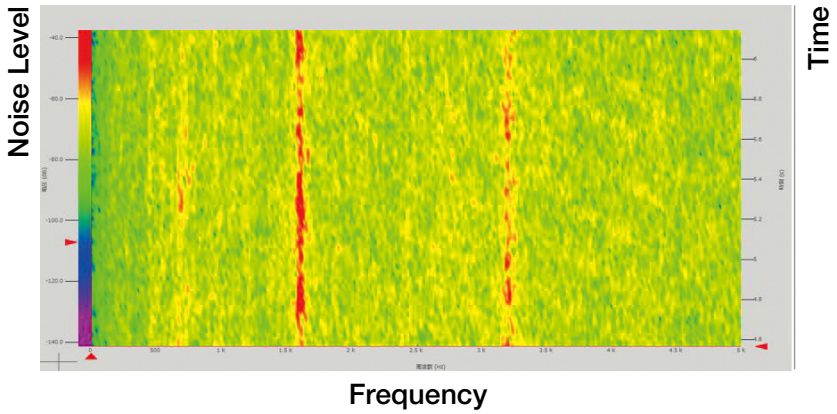
Ball recirculation noise : The sound of the balls rolling inside the recirculation component
Ball raceway noise : The sound of the balls rolling along the surfaces of the screw raceways of the shaft and nut

In conventional ball screws, the ball recirculation noise is dominant, and “High-speed, Low-noise series” greatly reduced the ball recirculation noise.

However, recently, the countermeasure against resonance in the machine caused by ball raceway noise, which was not much of a problem before, becomes more necessary.

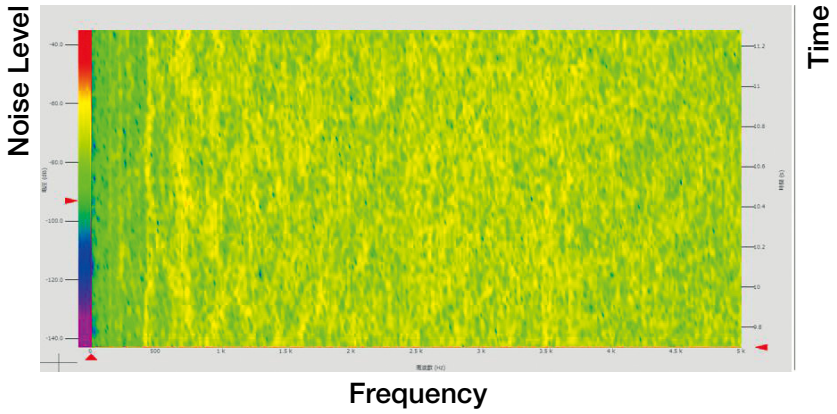
Noise reduction during ball screw operation

By the design optimization of the screw grooves and the production technology development, this "High-speed, Low-noise Ball Screw II" suppresses the vibration caused by the balls rolling along the surfaces of the screw raceways. As a result, the noise (ball raceway noise), caused by ball groove waviness and surface accuracy, is greatly reduced.
The following is a comparison by frequency color-map analysis.



Conventional ball screw

There are some specific frequency noises.
(Red line part in the Color-map)



High-speed, Low-noise Ball Screw II

No specific noise

Effect of High-speed, Low-noise Ball Screw II

Benefits by using “High-speed, Low-noise Ball Screw II” are shown below.

- Reduces the ball raceway noise which is noticeable from reduction effect of ball recirculation noise by using “High-speed, Low-noise Ball screw” under high-speed feed.
- Reduces the resonance sound/vibration which tends to become an issue by weight saving of the machine.
- Reduces the ball raceway noise which was amplified by the misalignment.

For more information about NSK products, please contact: **www.nsk.com**

Eco-awareness and reliability in motion
NSK

NSK used environmentally friendly paper and printing methods for this publication.

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