

10. Studying the Rotation Torque

The rotation torque required to convert rotational motion of the Ball Screw into linear motion is obtained using the equation (40) below.

●During uniform motion

$$T_t = T_1 + T_2 + T_4 \quad \text{.....(40)}$$

where

- T_t :Rotation torque required during uniform motion (N-mm)
- T_1 :Friction torque due to external load (N-mm)
- T_2 :Preload torque of the Ball Screw (N-mm)
- T_4 :Other torque (N-mm)
(friction torque of the support bearing and oil seal)

●During acceleration

$$T_k = T_t + T_3 \quad \text{.....(41)}$$

where

- T_k :Rotation torque required during acceleration (N-mm)
- T_3 :Torque required for acceleration (N-mm)

●During deceleration

$$T_g = T_t - T_3 \quad \text{.....(42)}$$

where

- T_g :Rotation torque required for deceleration (N-mm)