MOTION & CONTROL NSK

TECHNICAL INSIGHT

A PUBLICATION OF NSK EUROPE

Locking Clutch

Development Objectives

Transmits torque from the motor, prevents reverse torque from the load shaft

Ball Screw + Locking Unit

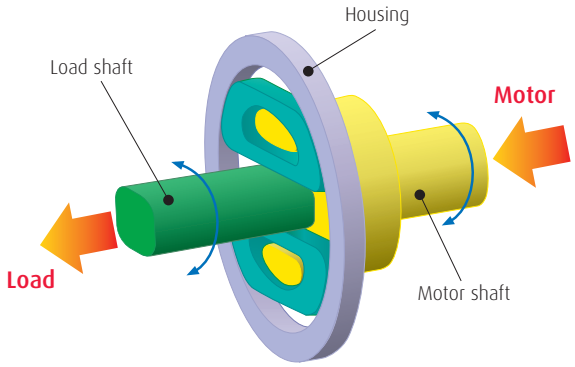
› Low driving power due to high positive efficiency
→ Low power consumption / Motor downsizing

› Energy for maintaining position not required
→ Low power consumption

General Description and Features of the Product (Structure and Operating Principles)

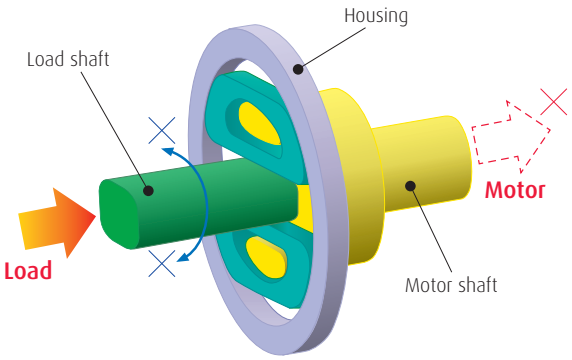
Function

Motor shaft rotation



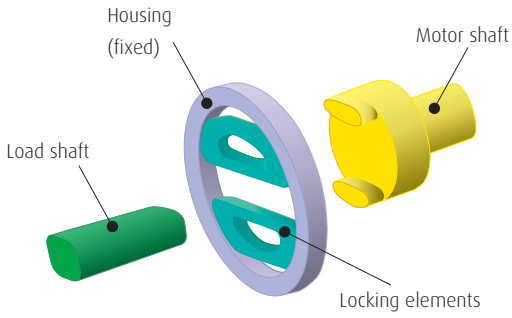
Transmits torque from the motor

Load shaft rotation



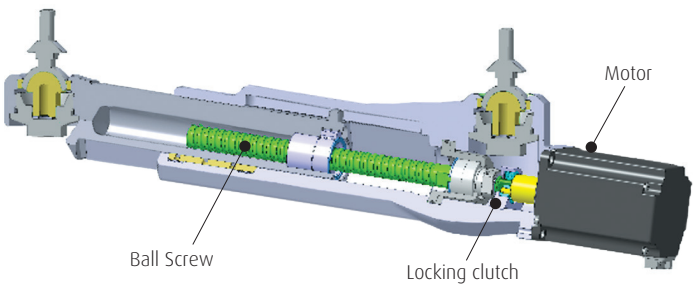
Prevents reverse torque from the load shaft

Structure



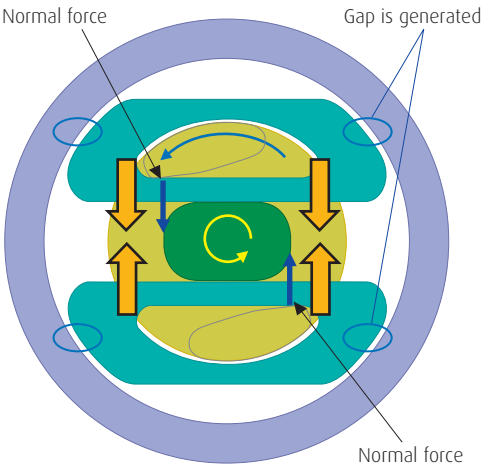
Application

Linear actuator (Ball Screw + Locking clutch)



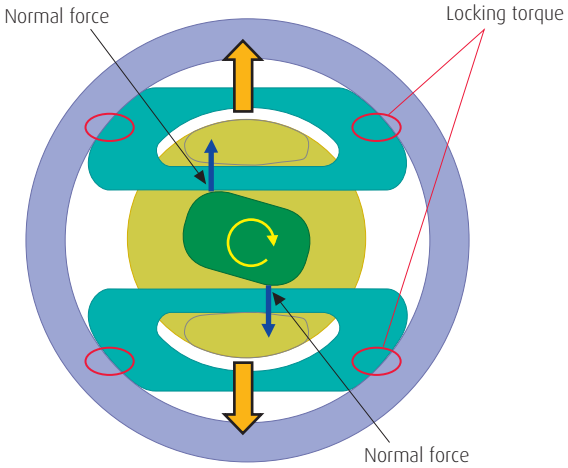
Operating principle

Motor shaft rotation



1. Motor shaft rotates
2. Locking elements move to center by normal forces
3. Gap is generated between the locking element and the housing
4. Rotating torque is transmitting from Motor shaft to Load shaft via the locking elements

Load shaft rotation



1. Load shaft rotates (by reverse input)
2. A pair of Locking elements move out by the normal forces
3. The Locking elements contact the housing i.d.
4. Locking torque is generated by the contacting points
5. Load shaft gets locked in this position