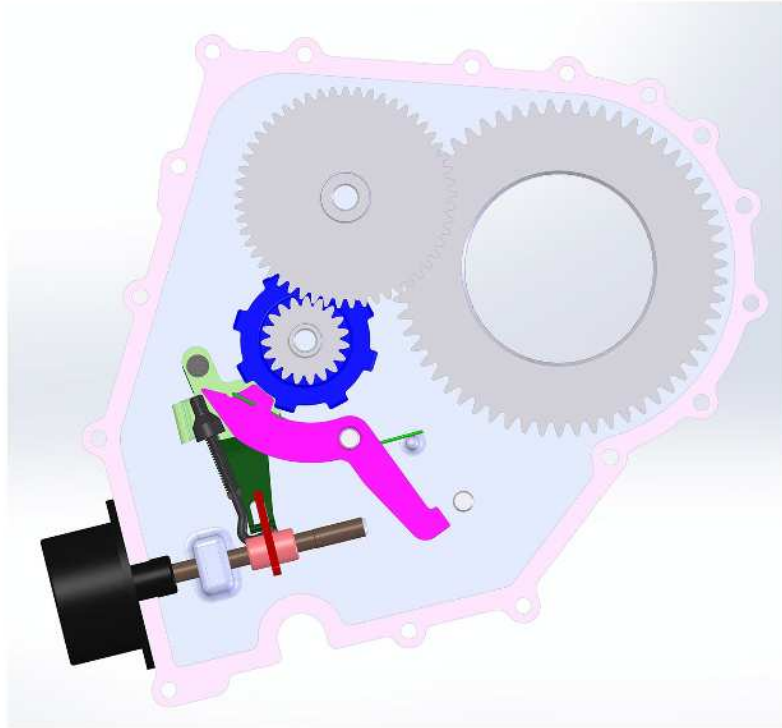


P range Lock Clutch

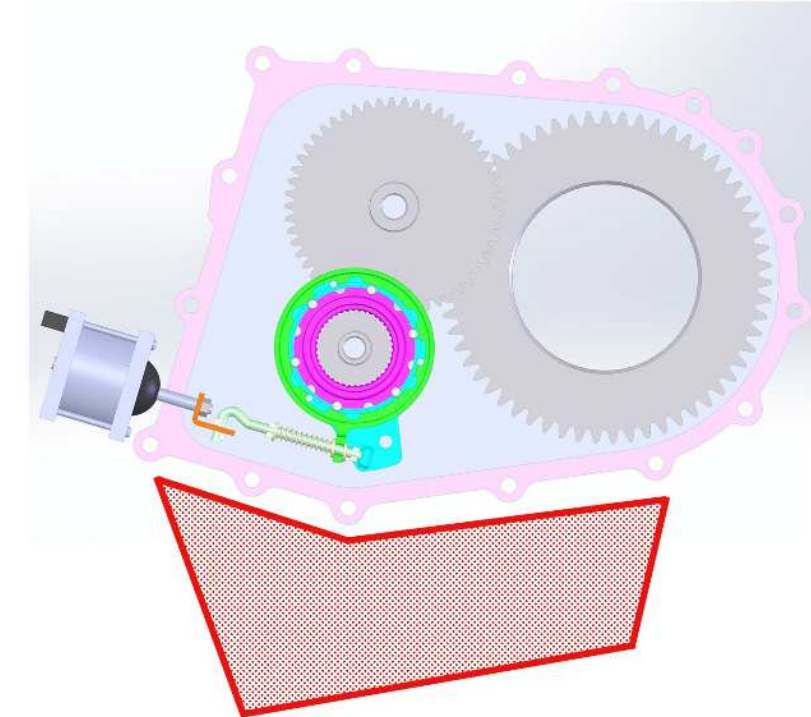


Compact and lightweight mechanism = 25% reduction in area dedicated to the parking lock
 Reduction in the number of parts and assembly man-hours = 70% reduction in unit parts
 Reduction in processing cost of case body = 75% reduction in processing areas

*Surveyed by our company

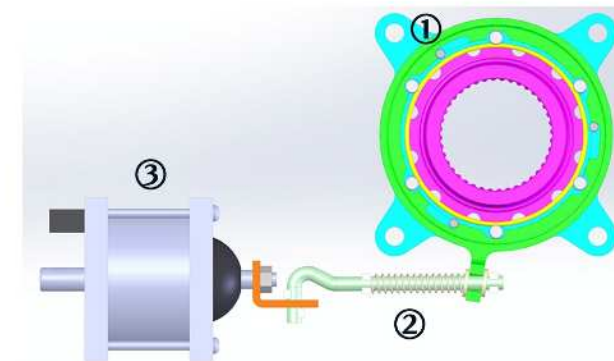
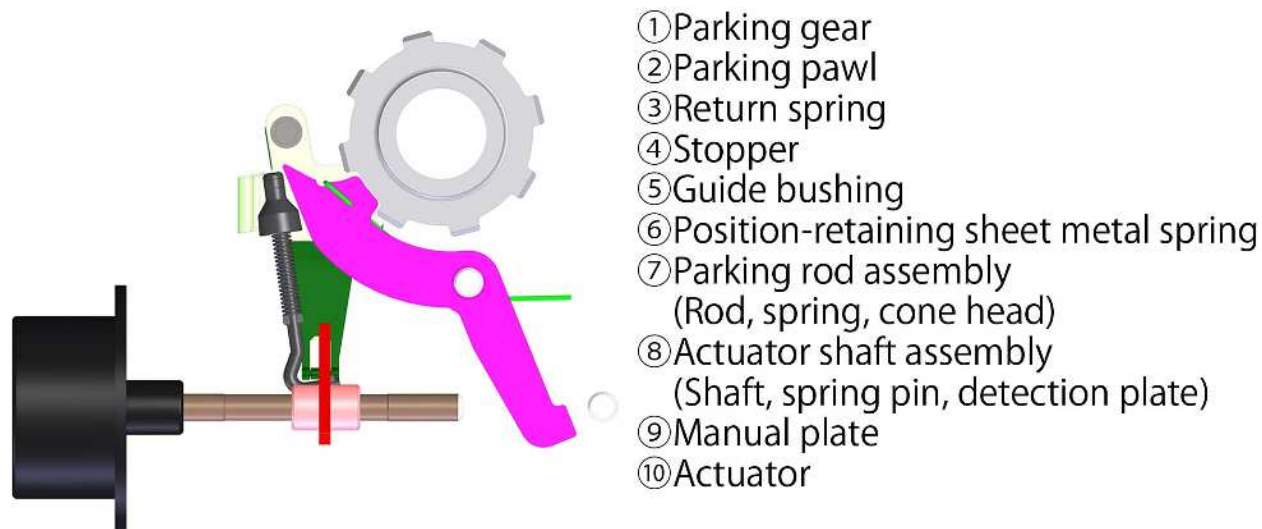


Current parking lock system



Up to to 25% downsizing

Tsubaki Parking Lock System



- ① Parking lock clutch assembly (Outer ring, inner ring, roller, spring, selector)
- ② Parking rod assembly (Rod, spring)
- ③ Actuator

- ✓ Clutch variations
 - Standby spring (coaxial type)
- ✓ Mounting variations
 - Spline
 - Bolt securing
- ✓ Selection method variations
 - Compatible with various actuators
 - Proposals for units that include an actuator are also possible

Clutch unitization and parts reduction/miniaturization

A wide variety of versions that meet our customers' needs

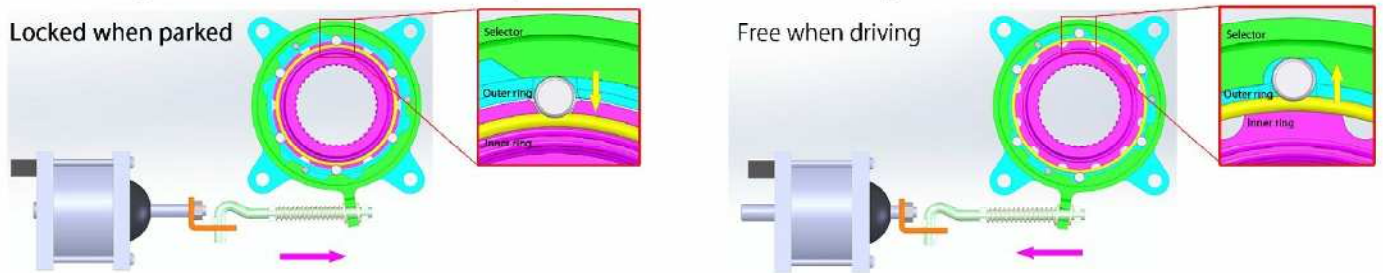
● Parking lock system

This mechanism locks the rotation inside the transmission or e-Axle, so the wheels do not rotate when the shift lever of automatic and xEV vehicles is set to park. Below, we propose a unique system using a roller ratchet clutch.

● Workings

The main components consist of an inner ring, outer ring, selector, roller, and spring. The clutch roller position is controlled by the selector, which switches between the free mode and the lock mode.

Operated by a combination of an actuator and a rod, this mechanism realizes simple mode switching: free (OFF) when driving, and locked (ON) when parked.

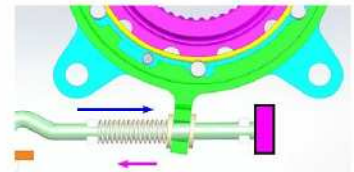


● Features

All functions specific to parking locks are integrated into a compact clutch unit

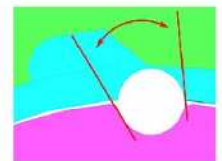
• Lock standby mode

A spring built into the rod also provides a lock standby mechanism to allow switching even when only partially -engaged.



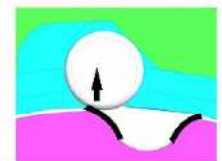
• Starting from lock mode

The rollers between the inner and outer rings are angled so that the rollers are released when the selector is released, even under heavy load conditions on slopes, etc., for smooth switching.



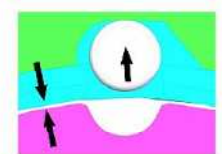
• Malfunction prevention

The inner ring chamfer provides a safety feature that prevents sudden locking due to activation system malfunctions.



• Low drag torque

Due to a small gap between the inner and outer rings, the roller and inner ring are not in contact with each other when traveling, resulting in low drag torque.



• Low backlash and secure locking when stopped

The selector prevents roller pop-out and is not released by input from the tires.

