Disconnect-Cone Clutch Module for HEV and PHEV

D'NAX

Under Development / Patent Pending

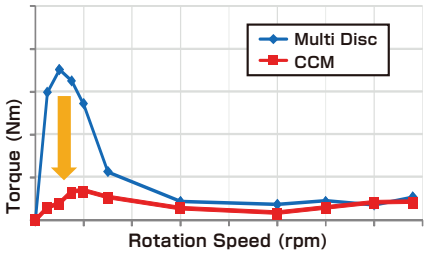
As a Next Generation Product that will contribute to CO2 reduction, we have independently developed the D-CCM, which uses a ball cam mechanism and cone clutch, to improve the efficiency of wet clutches that disconnect the engine power for HEV/PHEV vehicles. The pilot clutch uses a ball cam mechanism with hydraulic pressure to achieve a reduction in pressure. Not only does it reduce the pump loss of the entire unit, it is also designed to support electric oil pumps. For the main clutch a cone clutch is used that reduces the drag torque of the clutch to improve fuel efficiency and reduces the size and weight of the system.

Concept

Clutch module compatible with electric oil pumps

Target

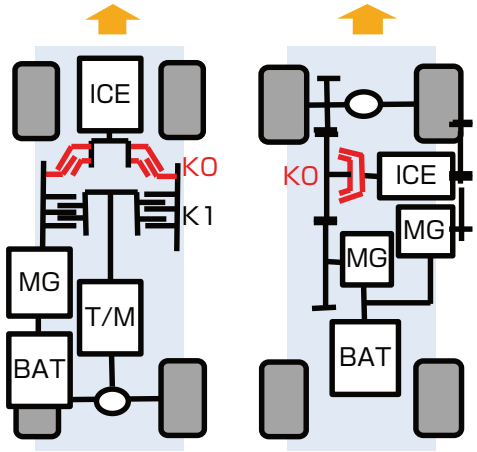
- Suppression of clutch oil pressure (40% reduction compared to conventional products)
  - Low oil pressure that can also be used with an electric oil pump
  - Oil pump loss reduction
  - Uses thin, lightweight and inexpensive clutch parts
- Improved fuel efficiency and electricity costs (up to 80% less compared to our company's products)
  - Drag torque reduction by using cone clutch



Use

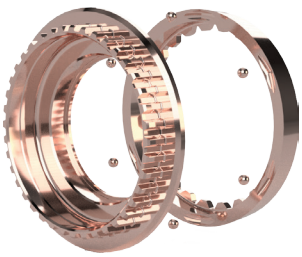
- ICE power disconnection for HEV and PHEV

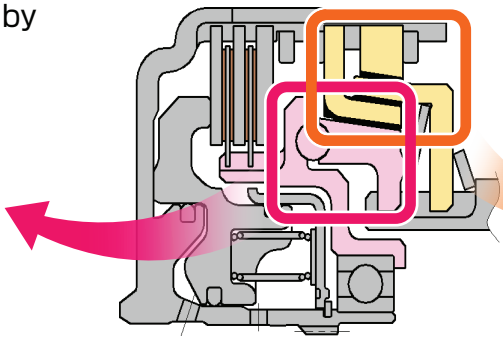
Examples of installation



Structure

The load is amplified by the ball cam





The load is amplified by the cone clutch

The load amplified by the ball cam is further amplified by the cone clutch.
The flood control is greatly reduced by the amount that the load is amplified.

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