Multi-Mode Clutch Module

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The BorgWarner Multi-Mode Clutch is a multi-mode rotation device. The flexible clutch design can provide up to four different modes and combinations:

1. **Overrun Mode** – freewheels in both rotation directions with very low drag
2. **Lock Mode** – transmits torque in both rotation directions similar to a dog clutch
3. **One-way Clockwise Mode** – Clutch race freewheels in clockwise rotation direction and locks in opposite direction
4. **One-way Counter Clockwise Mode** - Clutch race freewheels in counter clockwise rotation direction and locks in opposite direction

**How the Multi-Mode Clutch works:**
The TCU selects the operating mode. The actuator indexes the cam plate to block or unblock locking element(s) or engagement notches.

**Technical Features & Advantages**
- Improved fuel economy
- High torque capacity
- Flexible engagement control
- Better shift feel
- Lower system total mass
- Lower rotating mass
- Optimal mode biasing plate flexibility
- Engaging or disengaging locking elements
- Simplified manufacturing (Bearing grade steels NOT required)
- Small cross-section requirements – axially and radially
- Higher torque density
- Can reduce total number of clutches in transmission
- Can be used for either rotating or stationary clutch applications or as a friction clutch backing plate
- Has best-in-class hydraulic response
- Electro-mechanical actuation available