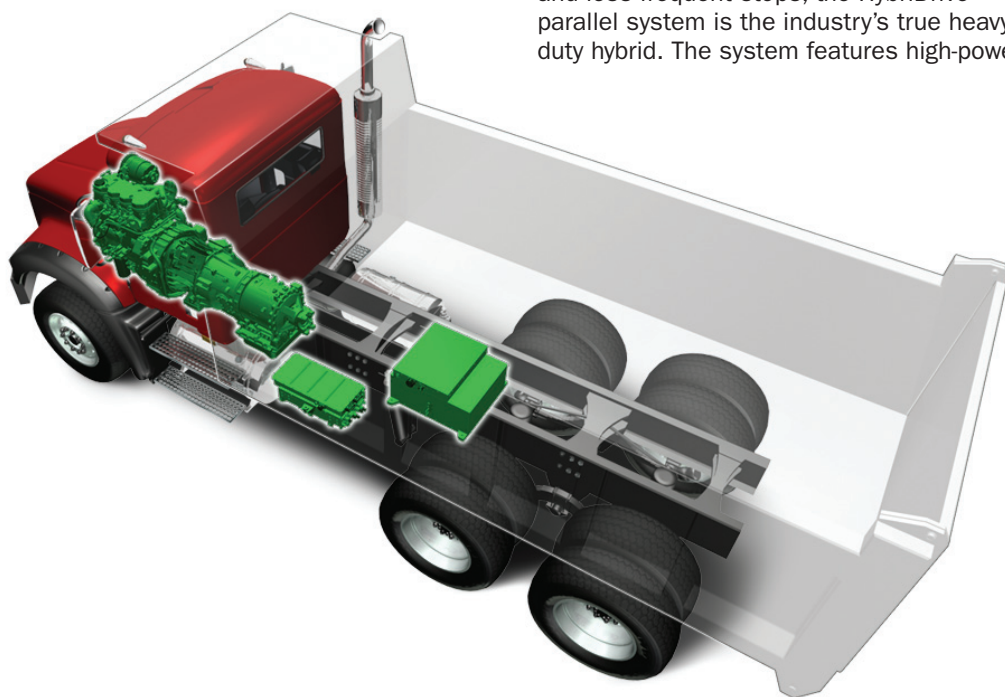


# HybriDrive®

## THE HEAVY-DUTY HYBRID

**The heavy-duty HybriDrive® parallel propulsion system is built to withstand the rugged demands and frequent stop-and-go operation of heavy-duty vocational trucks.**

A world leader in the design and production of hybrid electric series propulsion systems for transit buses, BAE Systems has now applied this proven technology to heavy-duty trucks — Classes 6, 7, and 8. Designed to address the needs of vehicles with duty cycles that require higher operating speeds and less frequent stops, the HybriDrive parallel system is the industry's true heavy-duty hybrid. The system features high-power



and torque capabilities, efficient fuel use during demanding stop-and-go operations, and a scalable architecture that enables modification for a wide range of duty cycles and platforms.

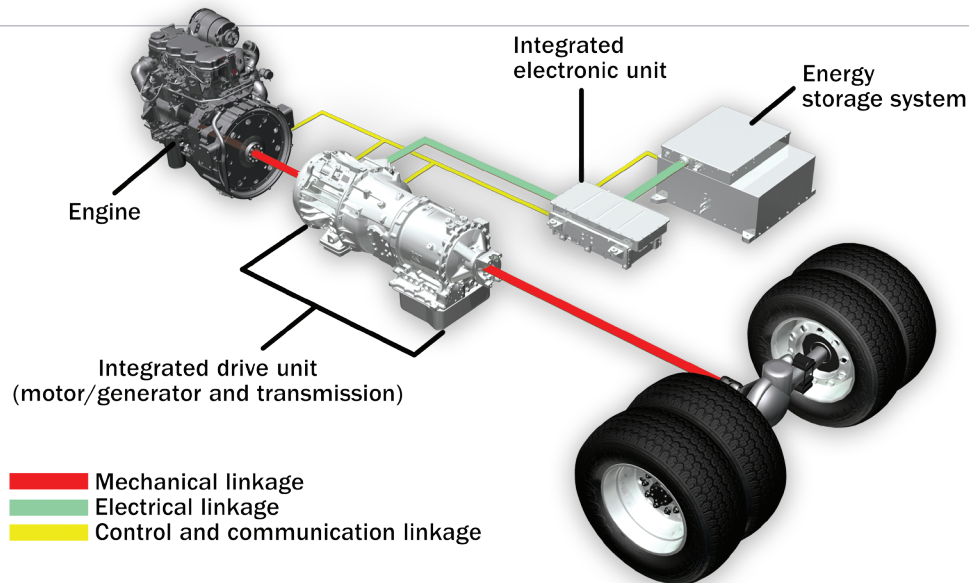
With more than 200 million miles of revenue service, more than 10 million gallons of diesel fuel saved, and more than 100,000 tons of carbon dioxide emissions prevented, the market-leading HybriDrive series system has proven itself to be one of the most efficient hybrid systems for the transit bus sector and has provided significant environmental benefits.

HybriDrive series and parallel technologies both use simplified and proven components and controls to deliver their capabilities. While the series system does not use a transmission, the HybriDrive parallel system is based on a single electric machine integrated between the engine and the transmission. The system can be installed with minimal impact to the vehicle, and enhances propulsion through an optimized blending of internal combustion engine power and electric power. The system's energy management and control capabilities ensure all energy flow — such as propulsion and recuperation — occurs in the most efficient fashion.

The HybriDrive system offers decreased emissions, superior driveability, and significant fuel savings.

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## THE HEAVY-DUTY HYBRID



The HybriDrive® system is composed of four main components:

### 1. Energy storage system

The energy storage system provides power during acceleration using proven lithium-ion batteries. Lithium-ion is lighter, longer-lasting, easier to maintain, less expensive, and more efficient than competing alternatives. The system is flexible and can be integrated between the truck's frame rails and saddle bag or at the back of the cab.

### 2. Integrated electronic unit

- Power inverter
- System/motor controller

The integrated electronic unit is the controller for the HybriDrive system. Based on vehicle speed, it controls when power is drawn from the engine and electronic power sources and efficiently blends them to provide optimum fuel usage. It also controls when energy should be stored during deceleration.

### 3. Integrated drive unit

- Motor/generator
- Hybrid transmission

The integrated drive unit receives signals from the integrated electronic unit and connects with the appropriate power source for efficiency.

When the vehicle is accelerating, it is drawing power from the electrical power source (stored power). Once the vehicle is at an ideal speed, the power is drawn from the engine. During vehicle deceleration, energy is converted and stored in the electronic storage system.

For additional fuel and emissions savings, the HybriDrive system has an efficient "stop/start" function. When the vehicle is in idle position, the integrated electronic unit signals the engine to power off to eliminate drive line losses.

### 4. Engine

The HybriDrive system can be configured to operate with any heavy- or medium-duty engine.

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