

To address the needs of the world community to conserve fossil fuels and reduce greenhouse gas emissions, Bosch Rexroth Corporation is developing a platform of advanced hydraulic hybrid solutions for Commercial Vehicle applications worldwide.

Parallel Hydraulic Hybrid Technology

The parallel Hydrostatic Regenerative Braking (HRB) system uses a hydraulic pump/motor, connected to the driveline, to capture kinetic energy during vehicle braking. When braking, the pump/motor acts as a pump, absorbs energy from the driveline and imparts a retarding force on the drivewheels, pumping hydraulic fluid into a nitrogen-pressurized accumulator. During acceleration, the pressurized gas pushes fluid out of the accumulator, and the pump/motor then acts as a hydraulic motor, assisting the engine and reducing the fuel required to launch the vehicle. This process is commonly referred to as regenerative braking.



Target Applications

The HRB system is designed for class 7 and 8 trucks. The primary application for the HRB system is refuse trucks. Today, we have 12 refuse vehicles field testing and have confirmed fuel savings up to 20%.



Our next target market for the HRB system will be bus applications and the technology is being further developed for other commercial markets.



Bosch Rexroth will have a hydraulic hybrid refuse truck at the 2010 AF&V conference. It will be available for ride-along's during the commercial truck ride-and-drive event.

The HRB system is targeted for 4th quarter 2010.

Benefits

- Significant reductions in fuel consumption and emissions
- Reduced maintenance and replacement costs due to reduction in brake and engine wear
- Improved acceleration which will improve performance and load capacity
- Hydraulic systems are fuel neutral and can be applied to vehicles of all fuel types (CNG, LNG, bio-based diesel)
- High power hydraulic systems are robust and reliable
- Hydraulic systems have established maintenance, repair and recycling protocol