High Power Density® (HPD®)

HPD: The evolution of the engine brake

Constant evolution of engine, powertrain and complete vehicle technology requires an engine brake that can answer increased retarding demands. Jacobs® High Power Density (HPD) technology provides the lightest, most cost-effective, highest retarding power technology available.

Jacobs®

BENEFITS

- Up to 100% performance improvements at low engine speeds compared to traditional compression release brakes; up to 40% improvements at higher engine speeds
- Makes up for decreased aerodynamic drag and decreased rolling resistance of the latest trucks
- Compensates for the trend toward lower engine speed operation and specification of smaller displacement engines
- Operates at engine speeds drivers use, avoiding downshifting during retarding
- An alternative to a driveline retarder with lower cost and weight, no maintenance, low impact to the vehicle and without thermal fade
- A modular system to fit your application needs
- Compatible with other valvetrain technologies including cylinder deactivation
- Fully integrated into the engine control module (ECM) and compatible with the latest cruise control and safety features
- Increases engine brake performance on alternative fuel engines with lower compression ratios such as natural gas and hydrogen

LEARN MORE

High Power Density® (HPD®) engine brake

↑ 100%

Double the braking power at cruise speeds versus conventional compression release engine brakes.

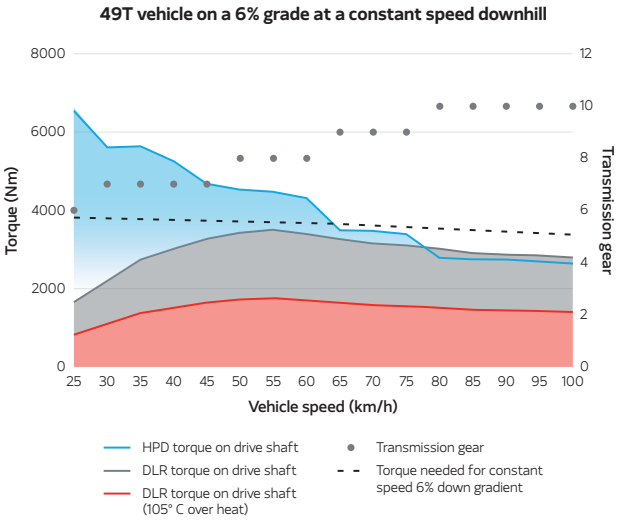
↓ 175 kg

The integrated design allows for **reduced package and mass** compared to driveline retarders providing increased payload for the retarding performance you need.

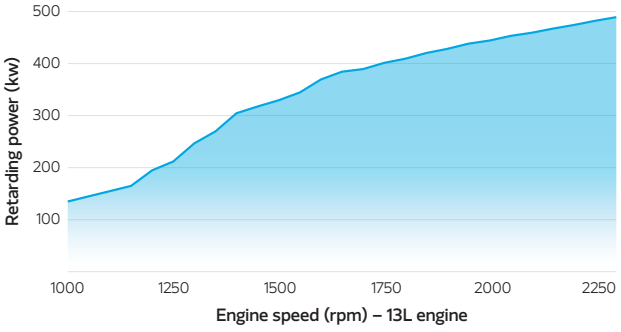
↓ €3.500

Lower total cost of ownership than a vehicle with a driveline retarder with similar power.

HPD VERSUS DRIVELINE RETARDER TORQUE COMPARISON



RETARDING PERFORMANCE



MODULAR HPD SYSTEM

Standard compression release

- Standard dedicated cam compression release braking system
- Hardware includes rocker brake, normal exhaust and intake bridges, BGR/CR cam and brake rocker biasing
- Standard performance based on the air handling and load carrying capability of the engine

1.5 stroke HPD

- Hardware includes the same standard rocker brake, cylinder deactivation bridge on exhaust main event, cam design with multiple CR/BGR events and exhaust biasing
- Performance throughout the full RPM range is significantly improved
- Cost efficient upgrade that does not require significant changes to the overall valvetrain

2 stroke HPD

- HPD expanded to the intake system to create full 2 stroke
- Includes rocker brakes and cylinder deactivation bridges on intake and exhaust, cam design with optimized intake/exhaust events and full rocker biasing
- Intake optimization improves airflow and performance increases especially at low RPM
- Slightly more complex system to achieve highest performance level possible

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Bulletin 6482470 Produced in U.S.A. Rev. 9/24