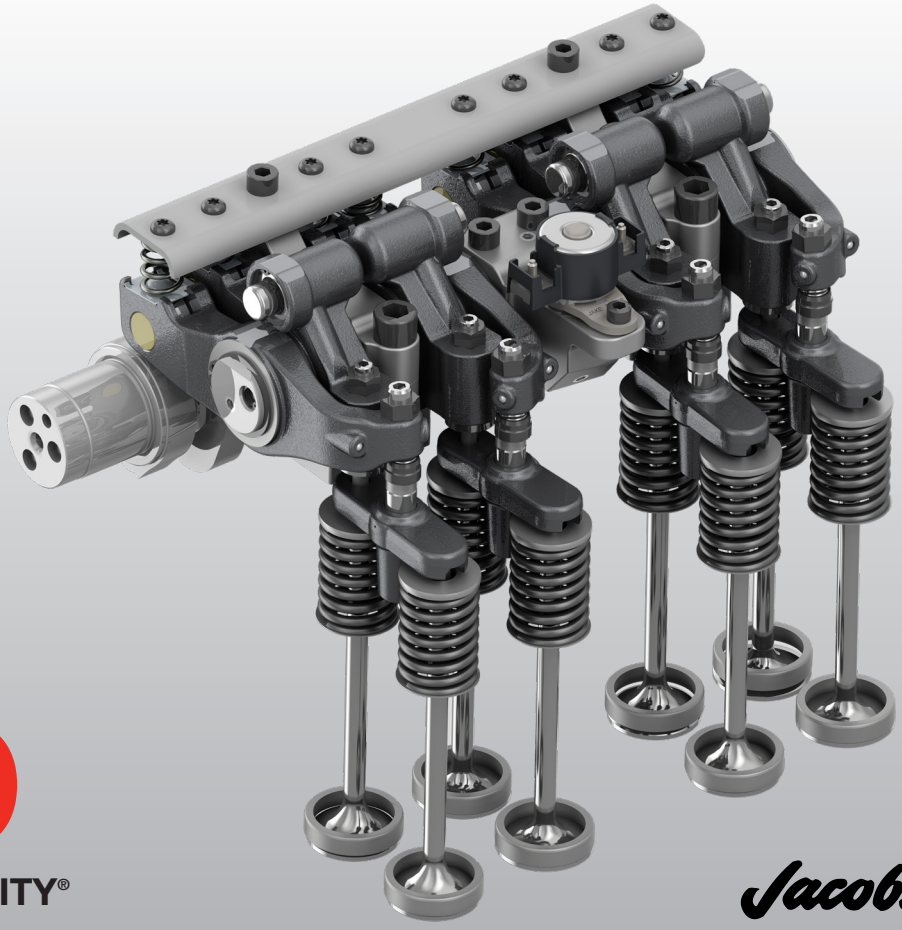


# HPD

## HIGH POWER DENSITY®

Jacobs®

## BENEFITS

- World-class engine braking power with double the braking power compared to traditional compression release brakes
- 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 the 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 Jacobs® Cylinder Deactivation
- Fully integrated into the engine ECM and compatible with the latest cruise control and safety features
- Increases engine brake performance on Natural Gas vehicles

## 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 power retarding technology available.

**LEARN MORE**
HPD ENGINE BRAKE

# HIGH POWER DENSITY ENGINE BRAKE

### ▲100%

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

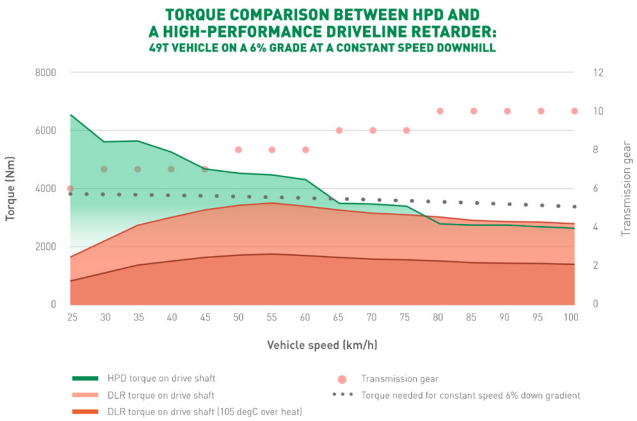
### ▼175 kg

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

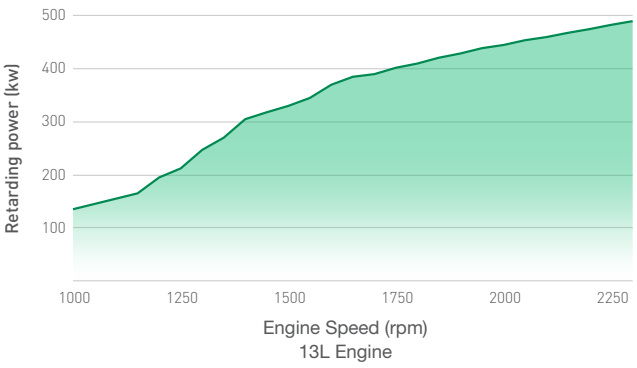
### ▼€3.500

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

## HPD VS. DRIVELINE RETARDER




## RETARDING PERFORMANCE

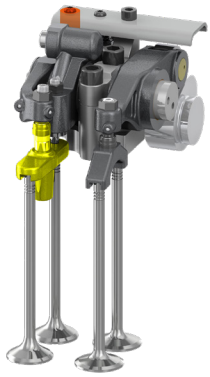



# MODULAR HPD SYSTEM

## STANDARD COMPRESSION RELEASE

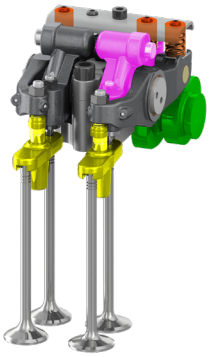
- Standard dedicated cam compression release braking system
- Hardware includes rocker brake, normal exhaust and intake bridges, BGR/CR cam, and brake rocker biasing
- Standard performance based on the air handling and load carrying capability of the engine

## 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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