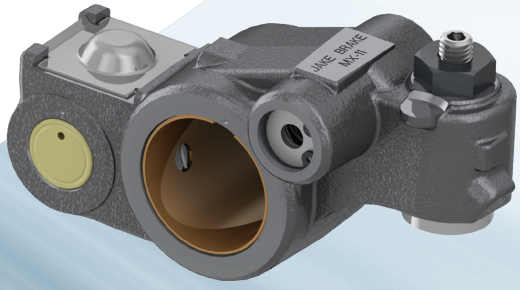
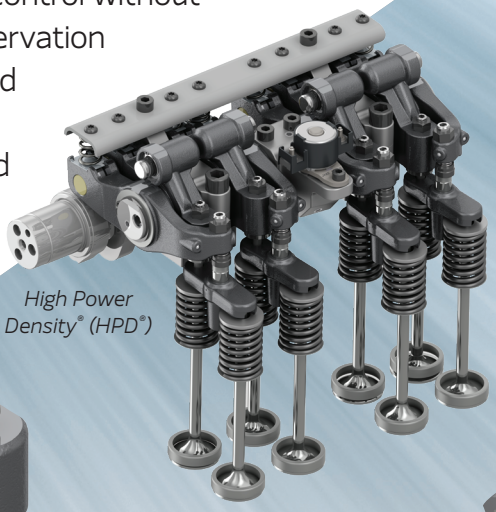
Compression Release Engine Brakes

More slowing power from your horsepower

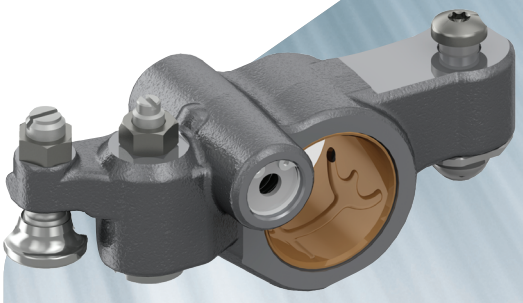
The Jacobs Engine Brake® is an engine retarder that uses the engine to aid in slowing and controlling the vehicle. When activated, the engine brake alters the operation of the engine's exhaust valves so the engine works as a power-absorbing air compressor. This provides a retarding, or slowing, action to the vehicle's drive wheels, enabling improved vehicle control without using the service brakes. This conservation significantly reduces brake wear and results in decreased service brake maintenance, shorter trip times and lower total cost of ownership.



Dedicated cam rocker brake

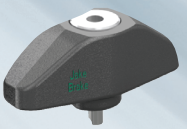


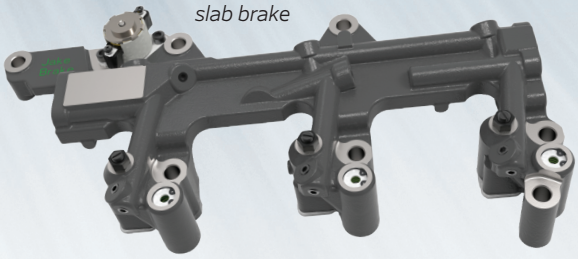
High Power Density® (HPD®)



Lost motion integrated rocker brake

Lost motion bridge brake





Bolt-on slab brake

Jacobs®

LEARN MORE & SEE
the Jake Brake® in action

FLEXIBLE SOLUTIONS

A variety of compression release engine brakes are available to meet the needs of your application. Whether your constraints are around packaging or cost, there is a solution available for your engine.

Dedicated cam rocker brake – Benchmark for all heavy-duty engine brake systems

Lost motion integrated rocker brake – Engine brake and exhaust function integrated into one rocker arm

Lost motion bridge brake – Engine brake function integrated into the exhaust bridge

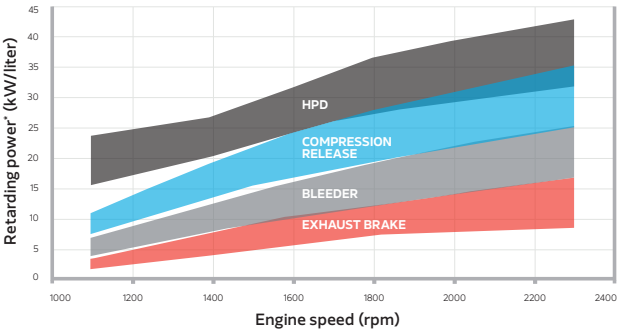
Bolt-on slab brake – Traditional solution with minimal or no impact to the standard valvetrain

High Power Density® (HPD®) – Combination of engine braking and cylinder deactivation to achieve higher retarding power

BENEFITS

- Provide 85% of the vehicle's braking needs
- Increase productivity by maintaining a higher average downhill speed
- Reduce slowing time/distance of a heavily loaded vehicle from 90 to 70 kph in 30% less time/distance than with wheel brakes alone
- Eliminate "brake fade" due to high temperatures on friction brakes; keeping them cool for maximum effectiveness when needed
- Flexible solutions available for your application

PERFORMANCE



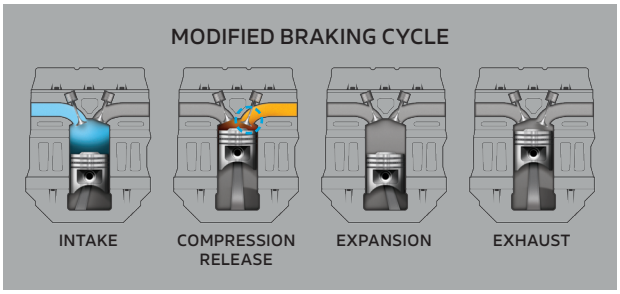
*Demonstrated engine brake performance ranges from various engine tests and simulation results.

HOW IT WORKS

When activated and the engine is not fueling, the compression release brake opens the exhaust valves near the top of the compression stroke, releasing the highly compressed air through the exhaust system. The vehicle energy is used to push the engine to compress the air, but little energy is returned to the piston and, as the cycle repeats, the energy of the truck's forward motion is dissipated, causing the truck to slow down.

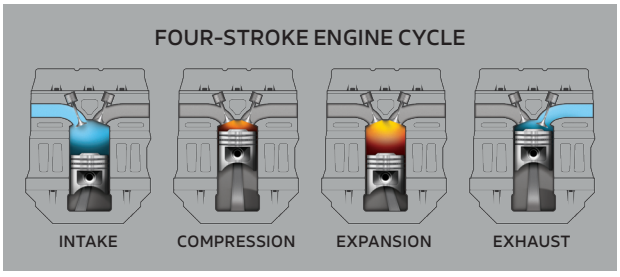
Engine brake on (no fuel)

By removing air from the cylinder at the peak of compression, the rebound effect of the compressed air is removed causing the engine to produce braking power.



Engine brake off

The absorbed power during compression is returned to the piston by the rebound of the expansion cycle.



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