

New engine braking technology offers road haulage industry improved fuel economy, emissions and total cost of ownership

Higher levels of engine braking performance at lower engine speeds match industry trends such as down speeding and engine downsizing

- 100% increase in braking power at cruise speeds over conventional compression release brake
- 175 kg increased payload for the retarding performance needed
- €3,500 lower total cost of ownership over comparable retarder devices
- Increased foundation brake life, truck uptime, and higher resale value
- Responsive and smooth in operation
- Average return on investment of six months

Millbrook, UK – Jacobs Vehicle Systems®, the world's leading manufacturer of heavy-duty diesel engine retarding systems and valve actuation mechanisms has launched its new High Power Density (HPD) Engine Brake to vehicle and engine OEMs in Europe.

The production-ready Jacobs' HPD Engine Brake realises one-and-a-half times the braking performance of traditional compression release braking over the engine's entire operating range and more than two times the braking performance at lower rpm (the same retardation at 1400 rpm as at 2100 rpm previously). It delivers 2000 Nm of retarding torque at 1300 rpm and beyond and 611 kW power at 2500 rpm in a 13-litre engine. This provides large engine displacement retarding power in small and medium displacement diesel and natural gas engines. While delivering revolutionary braking performance, the HPD system is quiet in operation, being fully integrated into the customer engine's overhead design. It can assist with exhaust after treatment thermal management by preventing the catalyst from cooling during descents.

Jacobs' HPD Engine Brake was developed in response to the drive by global engine suppliers to provide higher levels of engine braking performance at lower engine speeds and improve thermal management to match industry trends such as down speeding and downsizing of engines, which are driven by the need for better fuel economy and lower total cost of ownership. Engine brake retarding performance is becoming increasingly important because key strategies for improving fuel efficiency are reducing the natural retarding of the vehicle caused by wind resistance, engine, drive train, and rolling resistance from the tyres.

Jacobs' HPD Engine Brake transforms the four stroke engine into a two stroke compression device by deactivating the main intake and exhaust valve events and supplementing with two stroke valve events. Whereas a conventional engine brake has one compression release and one brake gas recirculation event per cam rotation, this innovative and patented two-stroke technology achieves two braking events per cam rotation. It is fully variable with controlled boost modulation, which allows the driver to achieve the right balance between retardation, speed and efficiency.

Another effect of market demand for improved fuel economy is the conversion of some fleet vehicles to natural gas engines, whose smaller turbochargers and lower compression ratios

can diminish brake retarding power by up to 25 per cent. HPD compensates for this loss so that fleets can still haul standard load sizes safely.

During a week-long test drive event at Millbrook Proving Grounds in Bedfordshire, UK, Sergio Sgarbi, Jacobs Vehicle Systems, said: "The UK market is already switched on to the benefits of engine braking. Approximately 90 per cent of all heavy-duty trucks in the UK use it, with Jacobs' compression release engine braking having been adopted by Daimler, Renault, DAF, Deutz and Volvo. Our High Power Density Engine Brake is a significant technological step forward that, because it uses standard, proven technology components, also offers a cost advantage. At a fraction of the price of hydraulic retarder devices it delivers on average a return on investment of six months compared to an average two-and-a-half years for hydraulic retarder devices. It also provides €3,500 lower total cost of ownership over comparable retarder devices."

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About Jacobs Vehicle Systems:

Jacobs Vehicle Systems is headquartered in Bloomfield, Conn., where it has a 260,000 square foot design, testing and manufacturing facility, with support sites in Europe, Japan and China. Jake Brake[®] products are used by North American heavy-duty diesel engine manufacturers as well as Hino, Hyundai and Mitsubishi in Asia and DAF and Daimler in Europe. Registered to the ISO 14001 and TS16949 standards, Jacobs Vehicle Systems is the world's leading producer of vehicle retarding and valve actuation technologies and can be found at www.jacobsvehiclesystems.com or www.jvsengineering.com.

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For Jacobs Vehicle Systems company background click [here](#)

For Jacobs Vehicle Systems product information click [here](#)

Media enquiries, and to request a test drive of the HPD-equipped demonstration truck

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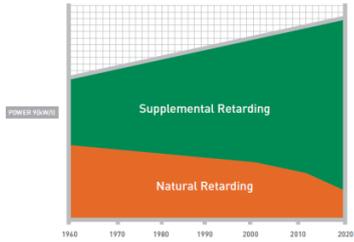
Images



Jacobs Vehicle Systems[®], the world's leading manufacturer of heavy-duty diesel engine retarding systems and valve actuation mechanisms staged a technology demonstration event at Millbrook Proving Ground in the UK in

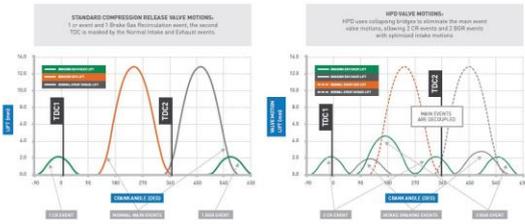
		<p>April, as part of the European launch of its latest High Power Density (HPD) engine braking technology.</p>
		
		
		
		<p>The production-ready Jacobs HPD Engine Brake is quiet in operation, being fully integrated into the customer engine's overhead design.</p>
		<p>The Jacobs' HPD Engine Brake realises one-and-a-half times the braking performance of traditional compression release braking over the engine's entire operating range and more than two times the braking performance at lower rpm.</p>

RETARDING REQUIREMENTS OVER TIME



Engine brake retarding performance is becoming increasingly important because key strategies for improving fuel efficiency are reducing the natural retarding of the vehicle caused by wind resistance, engine, drive train, and rolling resistance from the tyres.

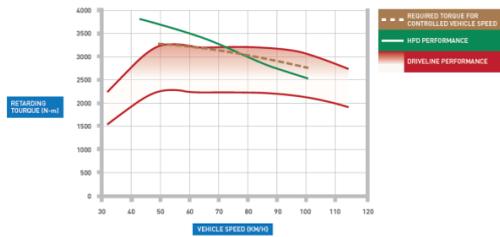
HOW HPD WORKS



Whereas a conventional engine brake has one compression release and one brake gas recirculation event per cam rotation, the Jacobs HPD Engine Brake's innovative and patented two-stroke technology achieves two braking events per cam rotation.

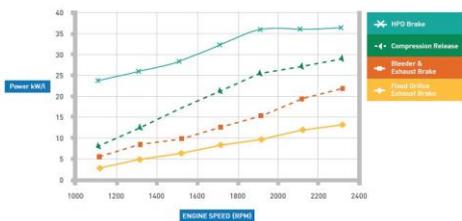
HPD COMPARED TO DRIVELINE RETARDER

40 Tonne Vehicle, 6% Grade, 10.5 Liter Engine, 10th Gear



HPD performance compared to a driveline retarder.

ENGINE BRAKE TECHNOLOGY COMPARISON



Jacobs' HPD Engine Brake outperforms other commercial vehicle braking technologies.



Jacobs' HPD Engine Brake logo