

Federal-Mogul Powertrain Launches New Piston Ring Technology For Commercial Vehicles

eLine™ Improves Engine Efficiency and Helps Manufacturers Meet Future Emissions Targets

BURSCHEID, Germany, May 29, 2018 /[PRNewswire](#)/ -- Federal-Mogul Powertrain has developed a new piston ring for use in commercial vehicle diesel engines that enhances gas sealing capability by stabilizing ring dynamic motion and homogenizing oil film. The running surface profile of the new eLine™ rings for use in the 2nd groove has been designed to distribute oil more evenly around the cylinder bores and to modify the running face area for reduced gas pressure force. This results in enhanced engine efficiency, increased robustness and lower emissions. Bench tests with eLine in different diesel engines have shown a significant reduction in blow-by of up to 20 percent, which converts directly into either an increase in mean effective pressure or a decrease in fuel consumption.

"eLine is the first commercial vehicle piston ring technology that distributes oil circumferentially in a consistent layer," explained Dr. Steffen Hoppe, Director, Technology, Rings & Liners, Federal-Mogul Powertrain. "The design compensates for localized surplus oil drops, protects against local oil film breakdown, supports low oil viscosity strategies, improves the sealing of combustion gases and reduces wear. The specific running surface profile has also been designed to prevent radial ring instabilities, which are becoming more common due to the industry trend for increased peak combustion pressures."

Rings used in the 2nd groove of commercial vehicle engines are predominantly designed with a tapered running face profile. These can struggle to maintain a homogenous oil film in sub-optimal conditions, such as bore distortion or oil supply issues. The tapered profile also provides a comparably large running face area, which can result in radial ring instability when pressure between the inner and outer diameter of the ring becomes imbalanced.

The eLine piston ring has a circumferential groove towards its lower side, allowing surplus oil to be retained below the ring. The oil in this groove reservoir creates a circumferential pressure difference that generates controlled oil flow around the bore as the piston reciprocates, improving the uniformity of the oil film. The hydrodynamic function of the running surface profile has been developed in a way that allows for a reduced area for gas pressure force towards the upper side of the ring.

Federal-Mogul Powertrain's eLine piston rings are currently with customers for validation in preparation for short-term market introduction.

About Federal-Mogul

Federal-Mogul LLC is a leading global supplier of products and services to the world's manufacturers and servicers of vehicles and equipment in the automotive, light, medium and heavy-duty commercial, marine, rail, aerospace, power generation and industrial markets. The company's products and services enable improved fuel economy, reduced emissions and enhanced vehicle safety.

Federal-Mogul operates two independent business divisions, each with a chief executive officer reporting to Federal-Mogul's Board of Directors.

Federal-Mogul Powertrain designs and manufactures original equipment powertrain components and systems protection products for automotive, heavy-duty, industrial and transport applications.

Federal-Mogul Motorparts sells and distributes a broad portfolio of products through more than 20 of the world's most recognized brands in the global vehicle aftermarket, while also serving original equipment vehicle manufacturers with products including braking, wipers and a range of chassis components. The company's aftermarket brands include ANCO[®] wipers; Beck/Arnley[®] premium OE quality parts and fluids; BERU[®]* ignition systems; Champion[®] lighting, spark plugs, wipers and filters; Interfil[®] filters; AE[®], Fel-Pro[®], FP Diesel[®], Goetze[®], Glyco[®], National[®], Nüral[®], Payen[®], Sealed Power[®] and Speed-Pro[®] engine products; MOOG[®] chassis components; and Abex[®], Ferodo[®], Jurid[®] and Wagner[®] brake products and lighting.

Federal-Mogul was founded in Detroit in 1899 and maintains its worldwide headquarters in Southfield, Michigan. The company employs nearly 55,000 in 24 countries. For more information, please visit www.federalmogul.com.

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