NAPA GASKETS by FEL-PRO

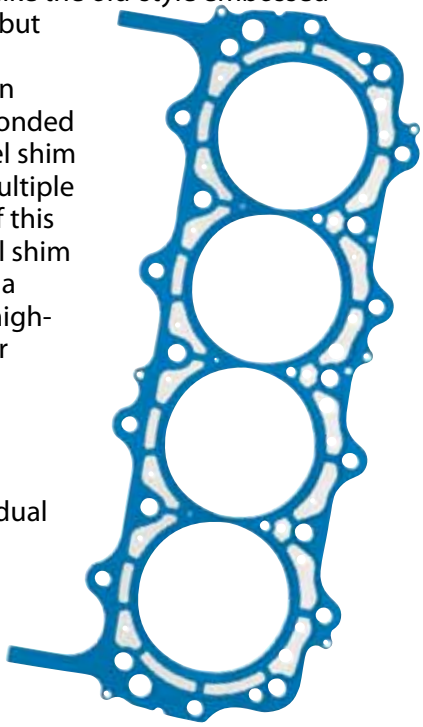
The Seal That Solves It.™

Engine Repair

PermaTorque MLS® Head Gaskets

What are MLS Head Gaskets?

The latest development in head gasket technology is the multi-layer steel (MLS) design. At first glance, these gaskets look like the old-style embossed steel shim gaskets, but they are radically different. First, a thin rubber coating is bonded to the stainless steel shim and, as required, multiple layers (up to five) of this rubber-coated steel shim are assembled into a single gasket. The high-temperature rubber coating provides excellent fluid sealability across the outer faces and between the individual layers, while also sealing minor head and block surface imperfections. MLS head gaskets provide the ultimate in torque retention and supply extra strength to support current lightweight aluminum casting designs. They are specified on most current domestic and imported engines in production.



Why is the PermaTorqueMLS Design a Better Replacement than OEM Gaskets?

Traditional original equipment manufacturer (OEM) type MLS head gaskets don't easily conform to surface irregularities, and require an incredibly smooth surface finish to provide a satisfactory seal. When the castings are new and the finish is fresh, most OEM-style MLS gaskets work quite well. But when the castings are old or resurfaced with a less than perfect finish, leaks usually result. To seal under these adverse conditions, Federal-Mogul engineers have developed the exclusive PermaTorqueMLS design. These MLS gaskets have many unique features that allow them to seal better than other MLS gaskets on the market today. They include:

- Full-hard stainless steel that maintains its shape despite thermal expansion, and resists the scrubbing action between head and block
- Precision-engineered embossed sealing beads placed at all critical sealing areas eliminate leak paths
- An exclusive extra-strong "stopper" layer incorporated to provide a superior primary combustion seal
- Special rubber coating, specifically formulated for the aftermarket repair environment, is more forgiving of surface finish requirements

Although PermaTorqueMLS head gaskets are more forgiving than other designs, the finish on both the head and block must be flatter and smoother than what has traditionally been required for composite-type gaskets.

The Correct Coverage for MLS-Equipped Vehicles

Unlike many competitors, NAPA Gaskets by Fel-Pro® offers the correct coverage for all MLS applications. That means that if the vehicle engine was equipped with an MLS gasket from the factory, the NAPA gasket replacement set will be a PermaTorqueMLS gasket. Some competitors try to substitute a composite or graphite gasket, but this type of gasket design may not hold up over time in an engine that was designed to use MLS. Not even the most advanced composite or graphite gasket can do the job of an MLS gasket. The shearing action created by the lateral head motion in many smaller, more powerful late-model engines can destroy the core and facing of a non-MLS gasket. In addition, the head's vertical motion, which occurs every time the cylinder fires, pounds the surface of a conventional gasket, creating localized escape paths for oil, water, or combustion gases.

Designed Exclusively for the Aftermarket

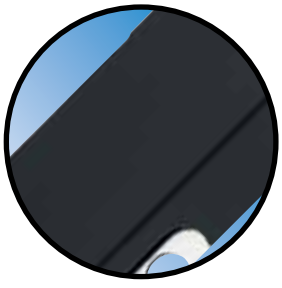
PermaTorqueMLS® head gaskets utilize many features that cannot be found in an OEM-dealer supplied MLS gasket. One of these is the exclusive blue coating which allows technicians to install PermaTorqueMLS gaskets in the not-so-perfect aftermarket repair environment. This coating fills in minor block and head surface imperfections for enhanced sealability. In addition, PermaTorqueMLS gaskets have precision-engineered embossed beads at all critical sealing areas. This feature, combined with the full-hard stainless steel material, helps the gasket maintain contact with the head and block, and to spring back to its proper shape in spite of often brutal pounding. Engineered by Federal-Mogul exclusively for the aftermarket, PermaTorqueMLS gaskets also incorporate a proprietary "stopper" layer featuring a very strong primary combustion seal created by folding the steel into a wedge shape.

Strategically placed sealing beads eliminate leak paths.

Where applicable, extra-strong "stopper" layer provides superior primary combustion seal.

Full-hard stainless steel material maintains its shape despite thermal expansion and "scrubbing" between block and head.

Unique application-specific coating enhances sealability.



MLS Gaskets and the Aftermarket Environment

Select PermaTorqueMLS gaskets feature a special coating formulated specifically for the aftermarket repair environment. While most MLS gaskets require a surface smoother than 40 Ra (240 Rz), these Fel-Pro® PermaTorqueMLS head gaskets will seal a surface finish as rough as 60 Ra (360 Rz). Regardless of the brand of MLS gasket chosen, for the gasket to seal properly the finish on the head and block must be flatter and smoother than what has traditionally been required for composite gaskets. It is important that technicians consult their machine shop for specific surface finish capabilities.