

Piston Coatings - Silk Screen Print

Soon you will be seeing a cosmetic difference occurring with many aftermarket pistons. This bulletin explains why.

Petrol Pistons

Traditionally, petrol pistons were either tin or lead plated to provide an initial resistance against scuffing during the early hours of an engine's life.

The practice of plating pistons was made redundant (except in special cases) when turned piston profiles replaced the traditional form ground profiles. Extensive research identified the correct tool geometry and feed rate (pitch) to provide an oil retentive surface with a fast bedding ability.

However, further advancements in piston design to meet demands for reduction in friction, noise and reciprocating mass have resulted in shorter piston skirt lengths which in turn increase the piston skirt side loads. In order to overcome the resultant noise and friction problems generated by a shorter piston skirt a new coating has been employed. This is a (MOS2) Molybdenum disulphide silk screen-printed coating.

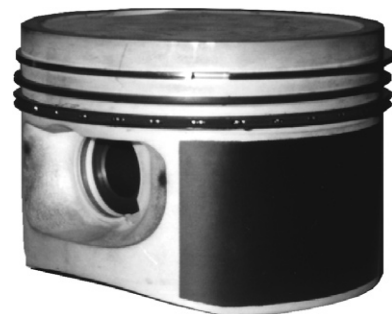
In addition to piston noise reduction, the application of this low friction MOS2 coating has been proved to enhance fuel economy and, unlike the limited life of tin or lead plating, MOS2 coatings have demonstrated superior durability surviving the most extreme gas-line tests lasting the life of the engine.

Diesel Pistons

Diesel pistons have traditionally employed a sprayed coating consisting of a blend of Molybdenum and Graphite to provide a scuff resistant surface in boundary lubrication conditions. Because the traditional graphite based spray coating is not permanent, piston scuff can occur as the graphite coating is worn down to reveal the peaks of the turned, aluminium alloy piston. To improve the scuff resistance and durability of the pistons, AE will introduce the silk screen-printed wear resistance coating Molybdenum disulphide (MOS2), which will protect the pistons throughout the life of the engine.

An additional advantage of the Molybdenum di-sulphide coating is that the coating can be applied by the silk screen printing method rather than the traditional spray method, this enables the coating to be applied to specific areas of the piston where required, enhancing the aesthetic appearance of the piston.

Note the coating free areas, which are indicative of a silk screen printing process. These gaps, which are positioned in non-contact areas of the piston, are necessary to prevent overlapping occurring, which would result in a double coating thickness being applied.



PETROL PISTON - Silk Screen print over tin plate



DIESEL PISTON - Silk Screen print over phosphate