HARDCOAT ANODIZE ON PISTON

WTB.00012-A

Wössner forged pistons are engineered for high performance and reliability, using premium materials and manufacturing methods. In some applications we have added a hardcoat anodize treatment to the piston to enhance the pistons abilities to manage heat and wear. This technical bulletin is provided to help you understand how this treatment is providing enhanced performance

A piston with this treatment does not require different or additional set up to operate in the engine. The piston can be assembled into the engine using the same guidelines and practice as outlined in the OEM service manual

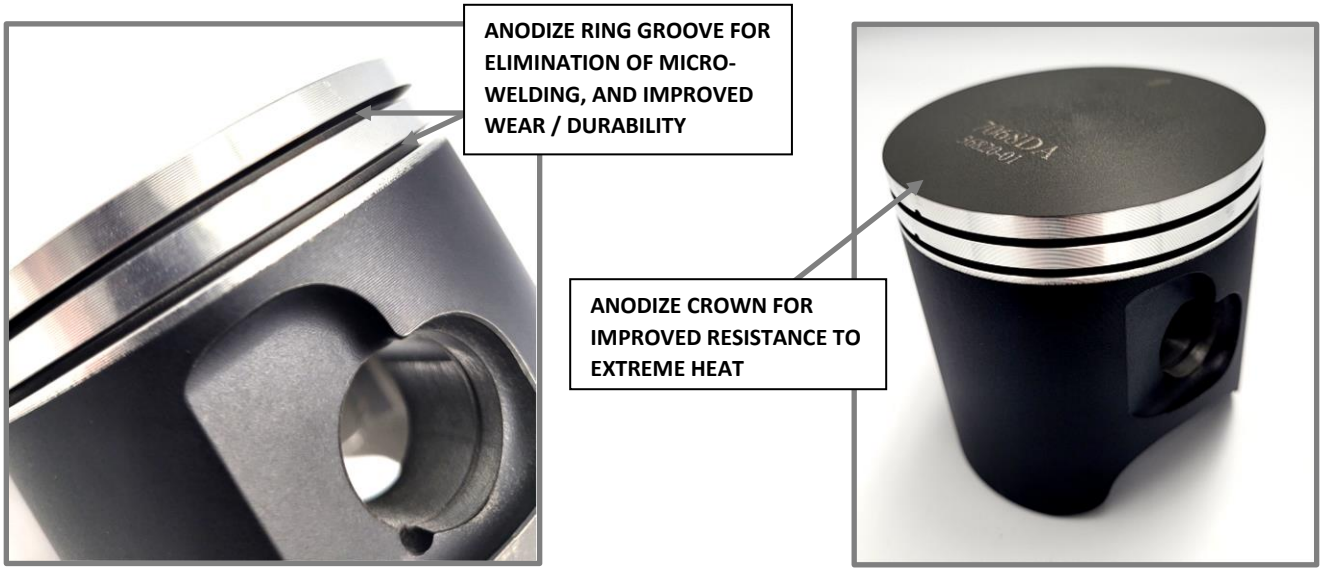
Hardcoat anodize is applied to the piston during the manufacturing process. This is near the last step before the piston is finish turned, ring pins installed, and wrist pin hole is honed

The treatment is a conversion of the base aluminum material and protrudes into the base material as well as slightly above the surface. This conversion is known as an “anodic oxide layer”, and forms a hardened surface that will improve:

- Piston crown hardness, thermal insulation and heat dissipation capability
- Ring groove hardness, abrasion resistance, durability, and oil retention, while preventing ring micro-welding

Why is this important to the piston:

- In some applications, the piston crown requires additional protection from thermal distress, such as engines with forced induction, heavy / constant thermal loads, or varied load environments
- The treatment will enhance the piston’s ability to absorb operating temperatures, or even sudden increases of temperature due to the state of tune, fuel quality, or load increases that are not immediately compensated for
- Ring groove wear is improved due to the treatments ability to handle additional sliding wear as compared to non-treated surfaces
- Ring micro-welding is the affect of aluminum material transferring from the piston ring groove to the ring under high stress environments, causing the ring to no longer move freely and seal combustion. Mico-welding is eliminated when the ring groove is treated with hardcoat anodize, providing an environment where the ring can operate properly under extreme conditions (REF SAE 960745)



Hardcoat anodize facts:

- Has been tested and proven to improve thermal diffusivity by up to 10%
- The treatment is inert, and can handle temperature spikes of up to 2000C for brief periods