

N12 POWER CYLINDERS AND LINERS

COOPER-BESSEMER™ TWO-CYCLE ENGINES

Overview

Cooper N12 power cylinders and liners offer an alternative to chrome-plated power parts for two-cycle Cooper-Bessemer engines.

These cylinders and liners are high-quality, high-performing, environmentally safe, low-cost products that solve problems related to design, production, materials and cost.

Benefits

- Enhanced cylinder and liner surface lubricity
- Precision-bore geometry – exactness is critical for wear and performance
- Environmentally friendly – no chromates are rejected into the lubricating oil, making it easier to dispose
- Improved surface integrity compared to chrome
- Anti-scuffing
- Sour gas application compatible
- Restoration friendly – cylinders can easily be coated or plated for repairs
- Proven technology – field tested and proven to perform as well as chrome
- Shorter lead times due to lack of plating requirement such as chrome

Interchangeability

N12 cylinders and liners are sold as kits containing all associated piston rings, head gasket kits, seals and O-rings.

Cooper has established a customer core credit program in which the customer will receive a monetary concession on the purchase of a new N12 cylinder or liner in exchange for the previous core, regardless of condition.

Upgrade summary

N12 cylinders and liners feature a wear-resistant, cast-iron bore surface with a hardness similar to chrome. A precision bore finishing process combines concentricity and straightness with a plateau-hone finish for ideal oil retention. The ideal surface exhibits a smooth surface (plateau) with engineered grooves (valleys) in a crosshatch pattern. The smooth plateau surface coupled with a material hardness that is equal to or higher than chrome acts as a wear-resistant surface, and the grooves act as oil-retention reservoirs.

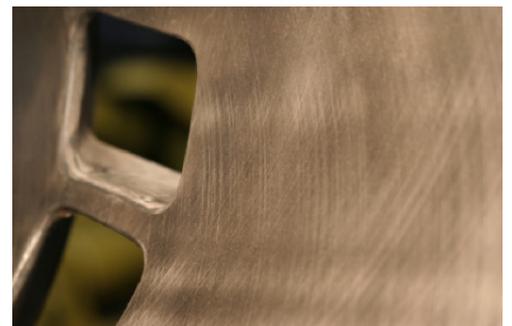
We use a uniquely modified manufacturing technology in our N12 power cylinders and liners for its numerous advantages. Our case-hardening and plateau-hone finishing processes have been used in various industries, including automotive, agriculture, military, aerospace, energy, off-highway equipment and oil and gas, demonstrating proven solutions to problems related to design, production, materials and cost. A newly designed piston ring package complements these products by incorporating the latest wear-resistant, low-friction geometry and materials designed specifically for two-cycle, port-interrupted, large-bore engines. Together, optimal wear characteristics and sealing performance are achieved. N12 cylinders and liners require this new ring set and are available packaged together in a kit.

The case hardened material decreases coefficient of friction on the surface. Combined with a plateau-hone micro-finish surface, wear of the bore and rings is reduced and the life is extended. N12 power cylinders and liners are produced with state-of-the-art honing equipment to ensure accuracy and consistency. Each cylinder and liner is inspected before and after every hone operation to meet very precise engineering specifications.



Chrome cylinders and liners utilize a plating process that relies heavily on a bond between two dissimilar metals, while the N12 process hardens the underlying cylinder material, eliminating the problems associated with low bond strength. Chrome plating processes are prone to failure at the surface where the two materials meet, leading to the loss of the harder material at the surface and the potential for increased wear and failure of the cylinder. Re-chroming of the surface exacerbates this problem because of the thickness of the metal plating. Cooper's N12 product eliminates these risks.

Additionally, N12 cylinders and liners excel in terms of natural lubricity and high-strength material capability combined with a precise plateau finish to protect against scuffing. Surface material has a significantly high corrosion resistance, making it a great choice for engines burning fuels containing H₂S.



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