

STAR3 CYLINDERS - Design Features

Born to Be an Heavy Duty Air Cylinder !

Piston Rod

High Strength steel. STARNITE (Nitrocarburation) treatment on the rod gives better corrosion-resistant properties (out performs 12-micron, (.0005 in.) chromium electroplating by ratio up to 20:1.), Improved wear resistance, better lubrication retention, dent resistance without induction hardening (60Rc), environmentally friendly, no surface pitting, flaking, or hydrogen embrittlement. The finish created by the process is a lustrous black. (Available in Stainless Steel)

Tie rods

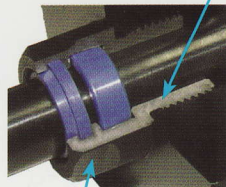
Corrosion resistant STARNITE (Nitrocarburation), stress proof steel maintains uniform compression on tube end seals. (Available in Stainless Steel)

Solid Aluminum Head & Cap

Machined from solid aluminum bar stock (6061 T6) and black anodized for corrosion resistance. (Available in Stainless Steel)

The New STARNITE Cast Iron Gland

This bushing has been designed for tough application with side load. The STARNITE Technology improves bearing resistance against wear with an hardened Layer on both parts.



Hard Anodized ID Aluminum Tube

(60 Rc) Provides superior wear resistance, and lower friction coefficient for maximum seal life. (Available in Stainless Steel)

Piston

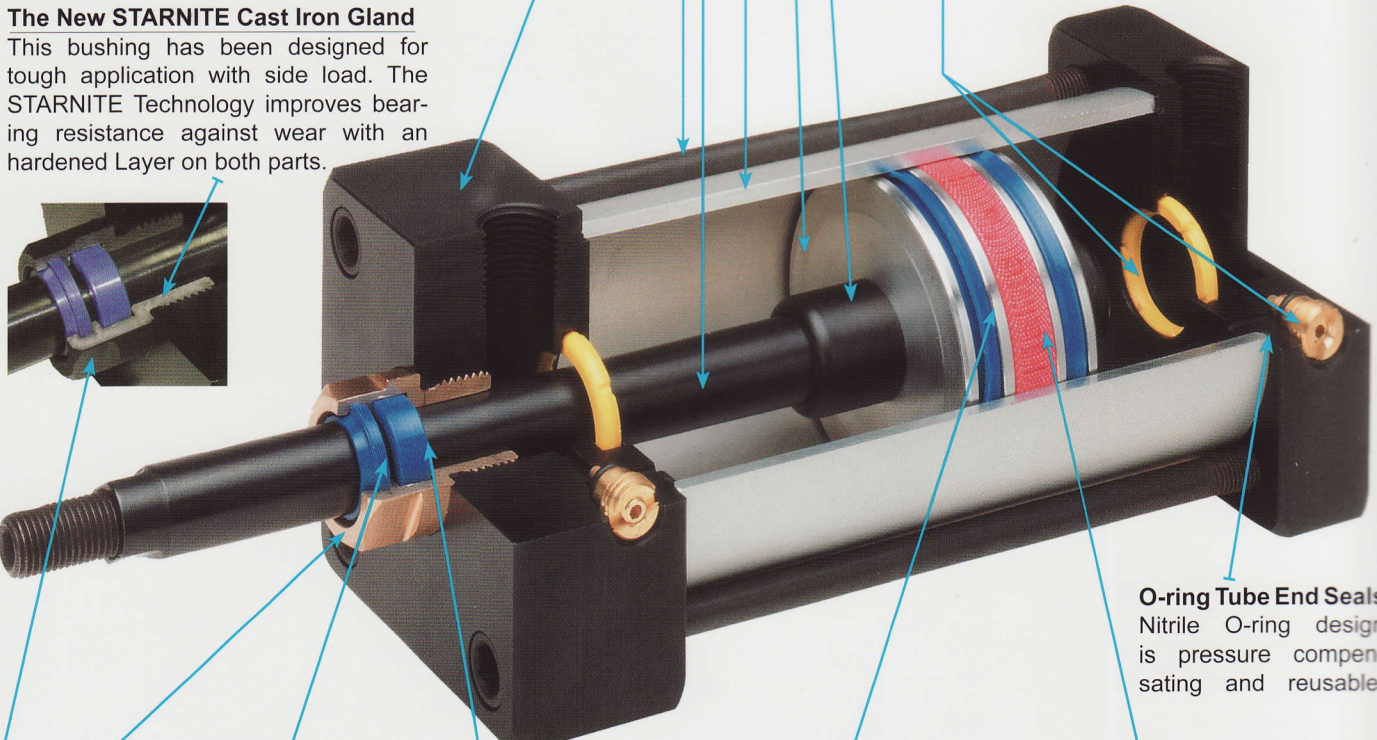
Machined from solid aluminum bar stock (6061-T6) Offers long bearing support

Cushion Spud

Machined from Steel and STARNITE for hardness and corrosion resistance, to ensure min wear and constant dampening of the piston thru time.

Check seal Cushion and Needle valves

(No charge adders - Standard on 1½" to 5" Bore) Precision Cushion spuds combine with a new style of floating cushion seal provide smooth deceleration at end of the stroke. Needle valves make adjustments easy. (brass or stainless steel)



O-ring Tube End Seals

Nitrile O-ring design is pressure compensating and reusable.

Rod Gland

Bronze Or Starnite Cast iron gland is externally removable without cylinder disassembly for easy maintenance. Designed to provide maximum rod bearing. (Also available in Acetal,)

Wiper

The New Wiper wipes dirt out for less maintenance and longer life of the cylinder. (Urethane) (temperature: -50° to 230°F)

Rod lips seal

Our New Design with a real rod u-cup is completely self compensating for zero leakage at all pressures (all seals can be used in a non lube application) (temperature: -50° to 230°F)

Piston Seal

Lip-type low friction urethane piston seals are pressure energized and wear compensating for low friction and long life (temperature: -50° to 230°F) (Viton™ also Available up to 400°F) (all seals can be used in a non lube application)

Piston Wear Ring

Nylon material is designed for low friction, and to ensure minimum wear in the cylinder's tubing in side load application. Eliminates metal-to-metal contact.

*All Blue seals can withstand most chemical washdown, No Fluorocarbon Required

STARNITE THE ANSWER TO WEAR, CORROSION AND FATIGUE PROBLEMS

The STARNITE process improves component properties.

High wear resistance, as well as excellent sliding and running properties, is obtained through STARNITE treatment. The service life of cylinders parts is extended. The finish created by the STARNITE process is a lustrous black.

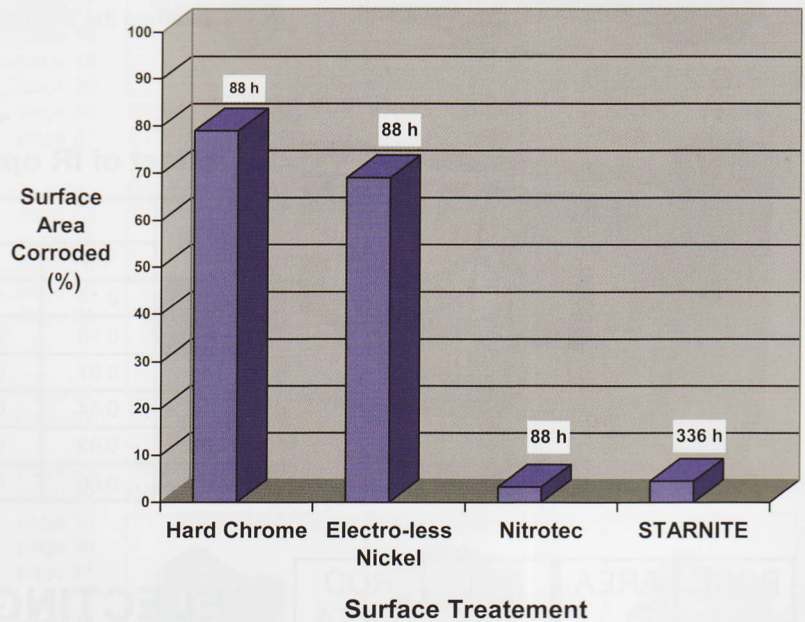
During the process, which takes place at 1075°F, the metal surface is enriched with nitrogen and carbon. A two part nitride layer consisting of a monophase compound layer and a diffusion layer is formed. Total depth ranges from 0.008-0.040", depending on composition of the base material and treating time. Hardness in the compound layer ranges from approximately HV 700 (60 Rc) to about HV 1600 for high alloyed tools steel. As part of the salt-bath nitriding and QPQP (Quench-Polish & Quench & Polish) sequence, finish-machine parts are polished and chemically processed to produce a highly corrosion-resistant surface with a finish suitable for bearing or seal-type applications.

ENVIRONMENTALLY & ECONOMICALLY SAFE

Great concern exists in North America community regarding many critical materials because of North America's reliance on metals that are not native to this continent. Some 91% of the chromium used here is imported (9% balance from recycling). STARNITE process provides at least a partial solution to this problem and because it is not a plating or a coating but in the steel itself the process offers superior performance.

Corrosion resistance developed by the STARNITE technique out performs 12-micron (.0005 in.) chromium electroplating by ratio up to 20:1, and 20 micron (.0008 in.) nickel plating by a factor of 8:1.

Corrosion Resistance Evaluation
Test conditions; Spool Shaft, ASTM B-117,
(88h) test hours



Chrome plated Vs STARNITE

Chromed plated cylinders

- Chrome plate can flake and blister.
- Flakes and slivers will destroy seals and glands.
- Loose chrome will cause massive leaking and rapid system failure.
- Chrome lacks dimensional uniformity.

STARNITE Process on cylinders

- Superior corrosion resistance.
- Improved wear resistance.
- Better lubrication retention.
- Dent resistance without induction hardening.
- Environmentally Friendly
- No surface pitting, flaking, or hydrogen embrittlement.
- INCREASED SERVICE LIFE.