



Nitrotec[®]

The Alternative to Cr Plating



improved corrosion resistance



High wear resistance



Reduction of the friction coefficient



Improved fatigue strength



High surface hardness



Aesthetic attractive anthracite / black appearance



Good dimensional and shape accuracy



Cost reduction on material possible



Nitrotec®

The Alternative to Cr Plating

Chrome Plating

- ✗ Microcracking - leading to poor corrosion resistance and blisters
- ✗ Poor adhesion
- ✗ Non uniform coverage – resulting in high and low spots and poor penetration in tube bores and holes
- ✗ Environmentally unfriendly

Nitrotec®

- | | |
|---------------------------------|---------------------------------|
| ✓ Environmentally benign | ✓ Excellent dimensional control |
| ✓ Superior corrosion resistance | ✓ Uniform Coverage |
| ✓ Wear resistance | ✓ Good penetration down bores |
| ✓ Increased fatigue strength | ✓ No adhesion problems |

PISTON RODS

Material: 0.1-0.4% Low Carbon Steel

A traditional technique for the manufacture of Gas Piston Rods is to machine the Rod from hard chrome plated low or medium carbon steel bar. Nitrotec® processing is capable of producing all of the design requirements for the application:

Beneficial Properties: Wear resistance, Bearing characteristics, Surface topography, Corrosion resistance, Aesthetic finish

The Nitrotec 'S' surface treatment provides a minimum of 25 µm compound layer with a surface finish of 0.15 µm maximum, which is competitive with chrome plating.



Nitrotec 'S'



Material:- Typically 0.15-0.4% carbon steels.

Nitrotec 'S' is a treatment followed by a mechanical polish to regain the surface finish followed by a post oxidising treatment. This polished finish produces an improvement in both frictional characteristics and corrosion resistance. This is demonstrated by the 2 struts shown after neutral salt spray test where 15 microns of hard chrome plating lasted 24 hours yet the Nitrotec 'S' strut exhibited no corrosion after 240 hours neutral salt spray test.

SWIVEL HUB

Material:- 0.32-0.40% carbon steel, 1.3-1.7% manganese steel (forged), hardened and tempered to 201-255 Hb.

Many service complaints were being received about oil leaks around the seal which wiped over the bowl. The leaks were caused by the corrosion of the chrome plating, which was lifting up in flakes and cutting into the seal. The result being that the oil leak from the bowl depleting the oil reservoir inside the hub. One engi-



neering solution experimented with was to fit the unit with a leather gaiter, packed with grease. Unfortunately, corrosion occurred again giving rise to quality issues. A Nitrotec® treatment on the component with the correct surface finish produced greatly improved corrosion resistance, with an added bonus of improving fatigue strength to uplift available axle load.

