U.S. CHROME
Performance Coatings since 1940

NiCom Nickel Silicon Carbide Dispersion Coating:

Cylinder Bores of large aluminum billet engine block plated with 0.004 thick NiCom after diamond plateau honing.

Coating Description

NiCom is an electro-composite coating consisting of a nickel metal matrix primary phase and/or hard particulate secondary phase dispersed uniformly within it. The process involves electroplating nickel in the presence of hard particulates, such as SiC, under conditions allowing the hard particulate to co-deposit with the nickel. The result is an electroplated composite material where engineering thickness can be achieved for both original equipment manufacturing (OEM) or overhaul and repair (O&R).

Electro-composite materials, such as NiCom, are viable alternatives to Hard Chromium Plating due to their excellent wear resistance. Superior sliding wear characteristics are achieved due to the hard particulates dispersed within the metal matrix. Mating components ride on the hard particles, which can vary from SiC to BN to diamond depending on the wear condition application, resulting in wear 5 to 10 times better than Cr.

Once the NiCom coating has been applied, it can be diamond honed or ground to finish dimension and surface finish requirements. Common applications of NiCom are found in bores of internal combustion engines with uses ranging from weed trimmers to snowmobiles to high performance race cars. Most any cylinder bore/piston application where sliding wear resistance is important is a candidate for NiCom electro-composites.

Features & Benefits:

1. Excellent sliding wear rear resistance usually 2 to 10 times better than chrome
2. Buildup possible up to 0.030+
3. Superior adhesion to all metals including aluminum and titanium
4. Outstanding corrosion resistance

Design Recommendations:

See Design Recommendation page

Typical Applications:

Internal combustion engines, aircraft, marine, and oil industry components.

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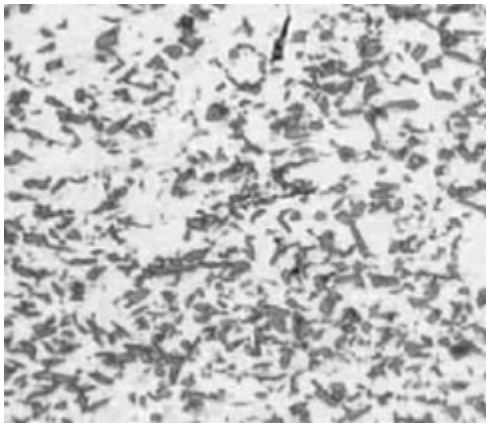
Properties:

• Frictional properties are very good and the coating has excellent oil retention due to the oleophyllic nature of nickel and silicon carbide. The coefficient of friction can be further enhanced by adding laminar lubricants to the deposit.

• Hardness: 500-625 HVN100

• Corrosion resistance is outstanding and is superior to electroless nickel and chromium. In the presence of chlorides (ph<6.0), brine, and sour gases it is superior to chromium and the other coatings.



Cross sectional view of NiCom (NiSiC).

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