



THERMAL SPRAYING MOLYBDENUM WIRES

Thermal sprayed molybdenum bond very well to metals, especially steel, and has several desirable characteristics such as high thermal conductivity, low thermal expansion, good bearing properties and high resistance to galling, scuffing and "pick-up" as well as good wear and abrasion resistance. As a further advance, molybdenum can be alloyed to improve erosion resistance. Molybdenum coatings have a hardness of up to 66hrc depending on the coating method used and are perfect for the manufacture of wear-resistant coatings.

APPLICATIONS

Molybdenum based coatings are used in aerospace, automotive, marine, and numerous heavy industry applications. Typical applications include coating of journal and bearing shafts, piston rings, valves, cylinder rods and gears. Molybdenum is also ideally suited for bearing seats for waste salvation in maintenance. The coating is sufficiently porous to operate under-lubrication. Molybdenum has successfully been applied to titanium and aluminum. When molybdenum is sprayed, oxides are produced inside the coating. These oxides are beneficial for service performance because they have a low friction coefficient and contribute to overall coating hardness. On steel substrates no traditional bond coat material such as NiAl is required. When sprayed under the correct conditions, molybdenum is self-bonding to ferrous and aluminium based alloys. This bond is normally higher than the cohesive strength of the deposit, therefore when tested to destruction rupture occurs within the deposit.

LIMITATIONS

Operating limits for pure molybdenum in oxidizing conditions is about 300°C. In reducing environments temperature exposure can be increased.

Molybdenum cannot be used on copper, copper alloys with more than 20% Cu, chromed or nitrated parts. However, molybdenum can be used on hardened base to obtain improved sealing properties.



VORAX OFFER INDUSTRIAL EQUIPMENT FOR METAL SPRAYING ALONG WITH ENGINEERING WIRES

PHYSICAL PROPERTIES OF COATING

- Adhesion: up to 38 MPa
- Density: 8.8 - 9.8 g/cm³
- Melting point: approx. 2500°C
- Hardness: 250 - 800 HV10
- Micro hardness: 800 - 1700 HV300

FINISHING

Sprayed molybdenum coatings must be finished by grinding. Where used as a bond coat no further treatment is required prior to the application of subsequent coatings.

WIRE DETAILS

- Diameter: 2.0mm, 2.3mm, 3.17mm (1/8"), 4.76mm (3/16")
- Composition: Molybdenum 99.9% min. purity

WHY VORAX?

- ✓ Full spectre of powders and wires for thermal spraying
- ✓ Highest quality industrial equipment
- ✓ Years of experience in wear resistant technologies

For more on advanced materials and technologies contact

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experts in wear resistant technologies

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