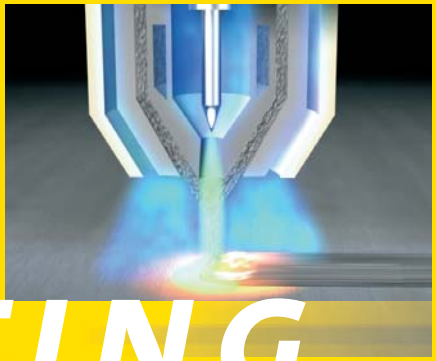
Non-Magnetic Nickel-Base Alloy

OilTec Powder OTP-042






COATING

- Non-Magnetic Nickel based matrix with cast and crushed Tungsten Carbide
- Excellent carbide distribution throughout the overlay
- Low dilution means full coating properties for extended wear resistance

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DESCRIPTION:

OTP-042 is a proprietary nickel based, composite hardfacing powder containing tungsten carbide. This alloy is designed to be applied over those surfaces of steels, stainless steels, cast irons and nickel based alloys that are subject to abrasion, corrosion, impact or any combination thereof. Deposits are hard and smooth, and resist abrasion and friction because the tungsten carbide particles are evenly distributed throughout the matrix. This alloy is particularly important in the Oil and Gas industry because of its non-magnetic properties.

APPLICATIONS:

- stabilizer and hardbanding applications - resists abrasion
- oil sand processing equipment - resists particle abrasion and corrosion
- decanter and transport screws - resists abrasion and corrosion
- downhole tools - resists abrasion and non-magnetic
- shovel bucket teeth, shrouds and adapters - resists abrasion

TECHNICAL DATA:

Typical Coating Properties

Typical Composition: Matrix: proprietary Ni based alloy
Tungsten carbide: cast and crushed WC-W2C
Carbide to Matrix Ratio: 25/75
Melting Temp.: matrix: approximately 2200°F (1200°C)
Maximum Operating Temp.: matrix: approx. 1200°F (650°C)
Bonding Mechanism: metallurgical
Hardness: Matrix: 30-35 HRC Carbide: 2400 HV
Magnetic Properties[1]: 1.005 per API Specification 7, Section 8.3.2.2.1
G65 Wear Test Results: 126 mm^3 volume loss
Density: 0.372 lbs/in^3 (10.3 g/cm^3)
Thickness Limit: up to 3 mm per pass
Color: grey
Spray Rate: 5-15 lbs/hr (2.2-6.8 kgs/hr)

1) In order to achieve this result, the part must remain cool during the entire welding process. No preheat is recommended. Part cooling is recommended.

PROCEDURE FOR USE:

Remove damaged material. Clean areas to be welded. Match heat input during welding to component, its material and dimensions, and follow the prepared welding procedure for the specific base metal chemistry. Keep dilution with base metal low. Allow workpiece to slowly cool upon completion of welding.

PARAMETERS - EUTRONIC GAP 3000:

System: GAP3000 AC/DC
Torch: E52
Anode: dictated by part geometry (1.2, 2.0 or 3mm / 90° or 180°)
Cathode: standard
Shielding Gas Nozzle: standard or high deposit
Pilot Gas: Argon@60 psi (413 kpa) and 5.3 scfh (2.5 l/min)
Plasma Gas: Argon @ 60 psi (413 kpa) and 3.2-4.2 scfh (1.5-2.0 l/min)
Carrier Gas: EP1 Argon @ 60 psi (413 kpa) and 5.3-17.0 scfh (2.5-8 l/min)
EP2 Argon @ 60 psi (413 kpa) and 5.3 scfh (2.5 l/min)
Powder Feeder: EP1 or EP2
Powder Wheel Speed: dictated by part geometry: 20-100 %
Powder Feed Rate: dictated by part geometry: 5-15 lbs/hr (2.2-6.8 kgs/hr)
Amperage[2]: dictated by part geometry: 90-200 A
Voltage[2]: dictated by part geometry: 19-26 V
Finishing: OTP-042 is normally finished by grinding.

2) amperage and voltage should be kept as low as possible to maintain WC integrity, while maintaining a well bonded overlay.

HEALTH & SAFETY:

Observe normal spraying practices, respiratory protection and proper air flow pattern advised. For general spray practices, see AWS Publications AWS C2. 1-73, "Recommended Safe Practices for Thermal Spraying and AWS TSS-85, "Thermal Spraying, Practice, Theory and Application." Thermal spraying is a completely safe process when performed in accordance with proper safety measures. Become familiar with local safety regulations before starting spray operations. DO NOT operate your spraying equipment or use the spray material supplied, before you have thoroughly read the equipment instruction manual.
Refer to the Eutectic web site for Material Safety Data Sheet (MSDS) information.

DISREGARDING THESE INSTRUCTIONS MAY BE HAZARDOUS TO YOUR HEALTH

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