Castolin Eutectic®
Eutectic Castolin

Agglomerated & Sintered
Tungsten Carbide, Nickel
HVOF Thermal Spray Powder

# TeroJet 55590

- High bond strength on a wide variety of base metals
- Excellent resistance to abrasion
- Suitable for HVOF or Plasma Non-Transferred Arc applications
- Hard, dense coatings with excellent corrosion resistance
- Better corrosion resistance and toughness than tungsten carbide cobalt coatings

# TeroJet 55590

TeroJet 55590 is an agglomerated and sintered Tungsten Carbide-Nickel powder designed specifically for thermal spraying. Optimum coating results will be achieved using HVOF.

The use of a nickel matrix improves corrosion resistance as compared to WC-12Co HVOF coatings. In addition, the absence of cobalt renders coatings of 55590 suitable for selective nuclear applications. The HVOF coatings produced are hard, dense and will exhibit high bond strengths to a wide variety of base metals. Exceptional resistances to low stress abrasion, fretting wear and hard particle erosion can also be expected.

## TECHNICAL DATA

| Typical Values | |
|---|---|
| **Microhardness:** | 1000 - 1200 DPH 100g |
| **Hardness / R15N:** | 90-93 (HRC 59-67 converted) |
| **Bond Strength:** | >10,000 psi (ASTM C633) |
| **Porosity:** | < 2 % |
| **Coating Density:** | 15.3 g/cc |
| **Bulk Density:** | 4.0 - 4.4 g/cc |
| **Service Temperature:** | 900°F / 482°C (Max) |
| **As-Sprayed Roughness:** | 175 micro-inches AA |
| **As-Ground Roughness:** | < 10 micro-inches AA |
| **As-Ground and Lapped:** | < 5 micro-inches AA |
| **Wear Resistance:** (ASTM G65, Sch. A) | 9-11 x $10^{-3}$ $mm^3$ volume loss |

**Powder Properties:**

Tungsten Carbide with Nickel matrix

## PROCEDURE FOR USE:

### Finishing Procedure

Coatings of TeroJet 55590 may be finished by grinding using diamond wheels or belts with flood coolant. Follow the tool manufacturer's recommendations for speeds and feeds.

## TYPICAL APPLICATIONS

- Knife Blades
- Oil Field Apparatus
- Pump Seals
- Turbine Components
- Exhaust Fan Blades
- Extrusion Dies
- Bearing and Splined Mandrels

When applying 55590 powder via the HVOF process, respiratory, hearing and eye protection is required. For general guidelines consult AWS Publication C2.1-73 and AWS TSS-85, "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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11-2022