



Gas Atomized Aluminum - Bronze Alloy  
Powder Used in both Plasma Spray and  
Combustion Spray Processes

# **Eutectic 19850**



- High quality machinable coatings for soft bearing applications
- Repeatable, high integrity coatings with minimum operator technique required
- May be used on steel and copper alloy parts to restore dimensions
- Excellent corrosion resistance in caustic solutions

# Eutectic 19850

Eutectic 19850 is a gas atomized aluminum bronze alloy powder designed to produce homogenous coatings with both Plasma spray and Combustion spray processes. 19850 meets the requirements of MIL-STD 1687. Each lot of powder is subjected to extensive quality checks to insure a consistent particle size distribution, chemical composition and reliable coating performance. Coatings have exceptional cohesive strength that permits thick coatings to be applied.

Coatings of 19850 are recommended to satisfy a number of broad application requirements:

**Machinability** – High quality machinable coatings for soft bearing applications. Coatings applied to properly grit blasted parts can be machined to a featheredge without chipping.

**Quality** – High integrity coatings can be produced repeatedly with minimum operator technique dependence.

**Versatility** – Can be used on steel and copper alloy parts to restore dimensions, provide self-lubricating surface, and offers excellent corrosion resistance in caustic solutions.

**Efficiency** – Deposit efficiencies of 85 to 90% at 20 lb/hr are normal when using the TeroDyn® System 2000 combustion spray torch.

## TECHNICAL DATA

Typical Values	
Typical Hardness:	70 HRB
Max. Service Temperature:	700°F (371°C)
Bond Strength (ASTM C633):	3000 psi on LCS
Porosity:	Less than 5%
Typical Surface Roughness:	As sprayed 530 µin AA Finished >15 µin AA
Hall Flow Rate:	15 seconds
Bulk Density:	4.3 g/cc
Powder Coverage:	0.037 lb/ft² @ 0.001 inch

## PROCEDURE FOR USE:

### Recommended Method: Single Point Turning

Cutting Tool: Kennametal Type K7B or equivalent

Work Speed: Up to 200 SFPM

Traverse Speed Roughing: Up to 0.007 inch per revolution

Finishing: 0.002 inch per revolution

In-Feed Roughing: Up to 0.030 inch

Finishing: <0.003 inch

Coolant: None\*

*\*For immersion service coating should be sealed with SealTec LT or Rotoguard Solution. Sealing should be done prior to machining. A second coat of sealer may be applied after machining if desired. Machining should be done without coolant unless coating is sealed.*

### Coating & Spray Parameters - Requires a Bond Coat of UltraBond 50000

#### TD 2000

Nozzle: RL 200

RotoJet: RSF-1 @ 20 psi

Module Adaptor: Aqua

Oxygen: 50 psi / 35 flow (FM-1 flowmeter)

Acetylene: 12 psi / 75 flow (FM-1 flowmeter)

T-Valve Setting: 14-18 clicks

Coating Rate: 20 lb/hr

Spray Distance: 7 to 8 inches

Deposit Efficiency: 90%

#### TD 3000

Nozzle: RL 210W

RPA 3 RotoJet: 10 psi on Bond Pass; 30 psi on Build-Up

Oxygen: 50 psi / 38 flow (3310 flowmeter)

Acetylene: 12 psi / 62 flow (3310 flowmeter)

Carrier Gas: (Ar or N2) 55 psi / 37 flow

Coating Rate: 5 lb/hr Bond Pass; 15 lb/hr Build-Up

Air Vibrator: RPA-3 @ 30 psi

Terometer: Adjust to achieve spray rate

Spray Distance: 8 to 11 inches

Deposit Efficiency: 90%

## TYPICAL APPLICATIONS

- Reclaiming copper-base parts
- Diesel engine cooler element parts
- Transmission gear shafts and piston guides
- Shifter forks
- Worn bearing fits

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 T5S-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 website for Material Safety Data Sheet (MSDS) information. DISREGARDING THESE INSTRUCTIONS MAY BE HAZARDOUS TO YOUR HEALTH.



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