

Self Bonding Nickel-Based Powder for Corrosion and Erosion for Plasma, Combusion and HVOF Systems

# ThermoTec 18997

- Self bonding alloy for exceptional corrosion resistance
- Coatings have excellent anti-galling properties
- Can be applied with conventional plasma or high energy combustion systems

## ThermoTec 18997

ThermoTec 18995 is a water atomized Ni-Mo-Fe-W alloy powder containing Titanium for better erosion resistance.

ThermoTec 18997 coatings provide optimum protection from corrosion in a wide variety of industrial components as well as superior erosion resistance due to the addition of Titanium oxides. The alloy exhibits outstanding bond strength with all coating processes on carbon and stainless steel substrates.

ThermoTec 18997 can be used as a bond coat but is primarily used as a one-step superalloy because of its unique properties.

#### Finishing Procedure:

Thermotec 18997 can be finished by machining or by grinding, but best results are obtained using cylindrical grinding techniques. Good machined finishes can be obtained using carbide tools such as D shape, K68 and low turning speeds in the range of 50 to 80 surface feet per minute

Cylindrical grinding should use a coarse grain, low-bond strength silicon carbide wheel. Roughing can be done at 0.004 in. per revolution crossfeed with infeed of 0.010 to 0.030 in. Finishing can be done at less than 0.004 in. per revolution crossfeed with infeed of less than 0.005 in. (turning speed can be increased somewhat for finishing). Coolants should be avoided unless the coating is first treated with a sealer such Oxygen: as Rotoguard, Acetylene: Sealtec-LT, or Coating Rate: MicroSeal.

TD 2000 RL 201W RPA 3@ 30 psi air 50 psi / 35 flow (FM-1 flowmeter) 12 psi / 75 flow (FM-1 flowmeter) 16 clicks 20 lb/hr 90% 8 to 10 inches

#### TD 3000

Nozzle: Oxygen: Acetylene: Carrier Gas: Terometer: 120 - 150 Coating Rate: 20 lbs/hr Deposit Efficiency: 90% Spray Distance: Powder Consumption: 0.037 lb/ft<sup>2</sup> @ 0.001" Coverage Speed:

#### PLASMA

	Operating Mode	Subco
	operating moue.	54050
	Spray Gun:	SG 100
	Anote:	145
	Cathode:	129
	Gas Injector:	113
Operating Voltage:		40
Operating Current:		800
Arc Gas		Argon
Flow Rate (SCFH)		108
Critical Orifice		#56
Pressure Regulator P1 psig:		50
Powder Gas:		Argon
Critical Orifice:		#77
Pressure Regulator P1 psig:		40
Hopper Setting:		2.5

ubsonic G 100 45 29 113 10 800 Helium (aux) rgon 08 50 #80 ŧ56

100

### **TECHNICAL DATA**

Typical Values*		
Typical Macrohardness:	37 HRC	
Microhardness:	400	
Coating Density:	7.0 g/cc	
Coating Weight:	0.036 lb/ft <sup>2</sup>	
Porosity:	< 2%	
Bond Strength:	>5000 psi	
Max Serv. Temperature:	1200°F (cont) 1500°F (intermitent)	
Melting Point:	2750°F	
Hall Flow Rate (sec/50g)	40 sec/g	
Nominal Particle Size:	170 +5 μm	

\* Values shown for conventional Plasma system.

Coating thicknesses in excess of 0.150 inches are not recommended.

### **COATING**/

#### **SPRAY PARAMETERS**

Nozzle: RotoJet: Module Adaptor: 5 T-Valve Setting: Deposit Efficiency: Spray Distance: Powder Consumption: 0.037 lb/ft<sup>2</sup>@ 0.001" 540 ft<sup>2</sup>/hr@0.001" Coverage Speed:

> RL 210W or RL 3310 50 psi / 38 flow (3310 flowmeter) 12 psi / 60 flow (3310 flowmeter)

Nitrogen @55 psi/37 flow (5102 flowmeter) 9 to 11 inches 540 ft²/hr @0.001"

### TYPICAL APPLICATIONS

This premium grade multi-component Ni base powder has been specifically designed to provide resistance to steam erosion and corrosion control in a reducing acid environment.

Coatings of ThermoTec 18997 have exhibited excellent service life in areas such as red liquor recovery boilers, evaporators, wet scrubbers and soot blowers.

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

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