

**S**emiCote® 5300 system is an economical and easy-to-use PC touchscreen controlled mass-flow Plasma Spray System. It's designed to be used with our HA 4002 series of powders designed for corrosion and erosion resistance for parts used in vacuum chamber and Semi Conductor (IC) manufacturing, where both corrosive chemistries and high energy plasma bombardment reduce component lifetime and create contamination problems.

The system comes complete with the Control Console, Gas Control Module, Power Supply, Plasma Spray Gun (internal powder injection), Powder Feeder and Cooling System. The entire system is integrated to provide reliable and reproducible results with simple operation. The system is also designed, as a standard feature, to integrate with robotics.

In the SemiCote® 5300 process, the plasma is created by an electric arc striking between the nozzle and electrode within the plasma gun (Fig 2). The exhaust arc gas is formed into a plasma jet as it emerges from the nozzle. Powder particles are injected either internally or externally into this jet where they melt and then strike the surface at high velocity to produce a strong adherent coating. Virtually, any powder material can be sprayed including metals, carbides, ceramics, composites, abrasives, and plastics.

The system has been designed to give the most consistent and highest quality ceramic plasma spray coating in the industry today.



**System Features**

- Primary, Secondary, and Powder Feed Gas Mass-Flow Controlled.
- PC Touchscreen Control Console, Integrated for Robotics.
- Separate Gas Module
- Closed Loop Powder Feed Unit, Integrated with Control Console
- High efficient, low ripple, stable arc through out the full range of plasma gun capabilities
- Compact, Lightweight Spray Gun

**Components**

**Control Console:**

Model 5300C is a mass flow control console to precisely meter the flow of gases to the gun.

**Gas Control Module:**

Model 5300GCM included as a separate unit

**Power Supply:**

Model 5300P is a three-phase, constant current, Inverter Power Supply

**Gun:**

Model 5300G is a lightweight, compact, robot-mount gun.

**Powder Feeder**

Model 5300F is a closed loop, constant volume feeder designed to deliver consistent flow of powder.



Fig 2. Spray Operating



Fig 3. As-Coated

**System Specifications**

**Control Console:**

H x W x D (ft.) - 5' x 2' x 2 1/2' Weight - 200 lbs.

**Power Supply:**

Power Req. - 3 Phase, 480V, 200A, 60 Hz H x W x D(ft.) - 2 1/4' x 2' x 3' Weight - 668 lbs.

**Gun**

L x W x D (in.) - 6" x 3" x 3" Weight - 4 lbs.

**Powder Feeder:**

H x W x D (ft.) - 3.4' x 1.5' x 1.5' Weight - 249 lbs.

**Chiller:**

Power Req. - 3 Phase, 480V, 60A, 60 Hz Fluid Pump/GPM - 10 @ 250 psi Capacity - 10 tons H x W x D (ft.) - 3.8' x 2.8' x 5' Weight - 1500 lbs.



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