

# Technical Data

## HAI ARC SPRAY – HA101B ALUMINUM 12% SILICON WIRE

Product Code: 21101-1  
**Technical Data Sheet**

Revision: # 002  
 Dated: 2/13/13

### 1. INTRODUCTION

HA 101B is a high purity Aluminum 12% Silicon wire for the arc spray process. HA 101B offers good resistance to atmospheric, marine, and high temperature corrosion.

HA 101B does not gall like pure aluminum coating, it is more dense, has a finer texture, and faster spray adhesion than pure aluminum coatings.

HA 101B is designed to operate in all Arc Spray devices, such as HAI's ARCote 9140, 9140U, 9140UW, TAFA 8830/8835, 9000, 9935, and Sulzer Metco SmartArc arc spray systems.

### 2. CHEMICAL COMPOSITION

**Table 1:**

Element	Al	Si	Fe	Cu	Mg	Mn	TAO*
<b>Max Weight [%]</b>	BAL.	11.0 – 13.0	<1.00	<0.50	<0.30	<0.50	<0.20

\*Designates Total All Other impurities

### 3. PHYSICAL PROPERTIES

#### 3.1. Wire Physical Properties

Wire Size(s) diameter	1/16", 1/8", 3/16"	1.6 mm, 2mm
Spool Size	OD 12"x 4" wide"; Bore ID 2"	Ø300x100 mm; Bore Ø50 mm
Spool Weight	19 lb. each	8.6 kg each
Length of Wire per lb. (1/16")	282 ft	86m

#### 3.2. Coating Physical Properties

Micro Hardness R <sub>b</sub>	72	
Porosity	1-2 %	
Melting Point	1080° F	583°C
Bond Strength (on grit blasted steel)	3,787 psi @ 0.02" thick	63.6 MPa @ 0.5 mm thick
Deposit Efficiency	Approx. 69%	Approx. 69%

### 4. SPECIFICATIONS

MIL-W-6712C, PWA 36935, GE B50TF92S2 CLA, SNECMA DMR33-027

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### 5. USEFUL SPRAY DATA

Spray Rate	6 lbs./hour/100 amps	2.7 kgs./hour/100 amps
Coverage	0.3 oz./ft. <sup>2</sup> /0.001"	0.37 kg/m <sup>2</sup> /100 microns
Coating Density	2.41 gm./cc	--
Coating Weight	0.013 lbs/ft <sup>2</sup> /mil	--

### 6. Spray Parameters

	Metallic Substrates
Atomizing Air Pressure: Primary Air	60 PSI
Atomizing Air Pressure: Secondary Air	-
Arc Load Voltage	28-30 Volts
Ampere	50-300 Amps
Standoff Distance	4-5 inch
Transverse speed	250 inch/min
Coating thickness/Pass-mills	3-5 mils

### 7. APPLICATION

#### 7.1. Service Environment

Special care is required to maintain a clean surface prior to arc spraying. Coatings sprayed with HA 101B will bond fairly well without a bond coat. However, in some instances a Ni Al 95/5 (HA 775) layer maybe required for self-bonding to the surface of the part.

#### 7.2. Overheating

Although the Arc spray process is considered a "Cool" process, please take special care not to overheat or burn the surface(s) of the part of component. HA 101B is an aluminum silicon based product and dust overspray can burn and smolder.

### SPECIAL SAFETY INSTRUCTIONS

Aluminum based alloys are highly sensitive to air and oxygen and as such special care is required to make sure the material does not burn or smolder in the dust collector or dust collection barrels.

Please consult your local Fire & Safety Official for instructions on how to handle aluminum and aluminum based dusts.