

# Technical Data

## HA 101

## ALUMINUM ARC SPRAY WIRE

Product Code: 10101  
**Technical Data Sheet**

Revision: # 005  
 Dated: 01/01/2014

### INTRODUCTION

HA 101 is a high purity non-heat treatable aluminum alloy wire used for the twin wire arc spray (TWAS) thermal spray process. HA 101 offers extremely high corrosion resistance to atmospheric, and marine environments and is highly resistant to chemical attack and weathering. HA 101 has a bright clean, chrome like finish comparable to stainless steel and has excellent conductance and is widely used in the semiconductor and electronics industries. HA 101 is designed to operate in all twin wire arc spray devices, such as HAI's ARCote 9140, 9140U, 9140UW, TAFE 8830/8835, 9000, 9935, and Metco SmartArc arc spray systems.

### CHEMICAL COMPOSITION

Element	Al	Fe	Ga	Mn	B	Zn	Si
<b>Nominal Weight %</b>	99.5	<0.2	0.01	<0.01	<0.01	<0.02	0.05

### PHYSICAL PROPERTIES

#### Wire Physical Properties

Wire Size(s) diameter	1/16", 1/8", 3/16"	1.6 mm, 2mm,
Standard 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

#### Coating Physical Properties

Micro Hardness R <sub>h</sub>	30 - 65	
Porosity	1 - 2 %	
Melting Point	1215°F	657°C
Service Temperature	538°F	267°C
Bond Strength (on grit blasted steel)	4379 psi @ 0.02" thick	30.2 MPa @ 0.5 mm thick
Deposit Efficiency	Approx. 75%	Approx. 75%

### SPECIFICATIONS

AWS C2.25, MIL-W-6712C

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### USEFUL SPRAY DATA

#### Spraying

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	2.51 gm./cc	--
Coating Weight	0.013 lbs/ft <sup>2</sup> /mil	--

#### Spray Parameters

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	2 - 3 mils	

### APPLICATION

#### Service Environment

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

#### Overheating

Although the twin wire 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 101 is an aluminum based product and dust overspray can explode, burn and smolder.

#### SPECIAL SAFETY INSTRUCTIONS

Aluminum and Aluminum based alloys are highly sensitive to air and oxygen and as such special care is required to make sure the material does not explode, 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.