

Technical Data

HA 111

ALUMINUM ARC SPRAY WIRE

Product Code: 10111
Technical Data Sheet

Revision: # 002
 Dated: 01/01/2014

INTRODUCTION

HA 111 is a commercially pure non-heat treatable aluminum alloy wire used for the twin wire arc spray (TWAS) thermal spray process. HA 111 is soft, ductile and has excellent workability. It has excellent resistance to corrosion and is widely used in the chemical and food processing industries. As with most pure aluminum products, HA 111 offers extremely high corrosion resistance to atmospheric, and marine environments and is highly resistant to chemical attack and weathering. 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	Cu	Si	Zn
Nominal Weight %	99.0	0.5	.01	0.07	0.02

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 _h	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

Technical Data

HA 111

ALUMINUM ARC SPRAY WIRE

Product Code: 10111
Technical Data Sheet

Revision: # 002
 Dated: 01/01/2014

USEFUL SPRAY DATA

Spraying

Spray Rate	6 lbs./hour/100 amps	2.7 kgs./hour/100 amps
Coverage	0.3 oz./ft. ² /0.001"	0.37 kg/m ² /100 microns
Coating Density	2.51 gm./cc	--
Coating Weight	0.013 lbs/ft ² /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.