

Technical Data

HA 595

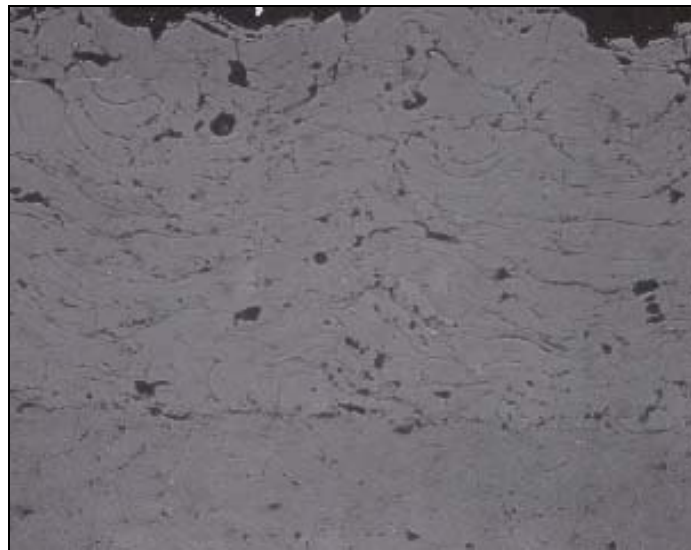
HIGH CHROME STEEL SUPERALLOY

Product Code: 22595
Technical Data Sheet

Revision: # 004
 Dated: 10/4/13

INTRODUCTION

HA 595 is a Proprietary Iron Based High Chrome super alloy wire material designed for Twin Wire Arc Spraying (TWAS). The unique feature of this material is that during the arc spraying process the material undergoes a Solid → Molten → Re-solidified coating structure within fraction of seconds. Due to this rapid solidification process, along with the unique material formulation, HA 595 coatings have “Amorphous-Like” characteristics. The Benefit is that these coatings have high hardness, superior properties to wear, corrosion and hard particle abrasion. HA 595 is designed to operate in all arc spray devices, such as HAI’s ARCote 9140, 9140U, 9140UW, TAFE 8830/8835, 9000, 9935, and Metco SmartArc arc spray systems.



HA 595 Photomicrograph 200X

CHEMICAL COMPOSITION

Nominal Values

Element	Fe	Si	Cr	Mn	B
Max Weight %	BAL	2.00	29.00	2.00	4.00
Min Weight %	BAL	1.00	25.00	1.00	3.00

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PHYSICAL PROPERTIES

Wire Physical Properties

Wire Size(s) diameter	1/16" Diameter	1.6 mm Diameter
Spool Size	OD 12"x 4" wide"; Bore ID 2"	Ø300x100 mm; Bore Ø50 mm
Spool Weight	25 lb. each	11.4 kg each
Length of Wire per lb. (1/16")	102ft	31m

Coating Physical Properties

Micro Hardness R _b	698 – 750 [HV ₃₀₀]	698 – 750 [HV ₃₀₀]
Porosity	< 2 % (as sprayed)	< 2 % (as sprayed)
Melting Point	2200° F	1204°C
Bond Strength	>7,500 psi @ 0.02" thick	51.71 MPa @ 20mm thick
Deposit Efficiency	Approx. 80%	Approx. 80%

SPECIFICATIONS

AWS C2.25, MIL-W-6712C

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USEFUL SPRAY DATA

Spraying

Spray Rate	8 -10 lbs./hour/100 amps	3.64 - 4.54kg./hour/100 amps
Coverage	1 oz./ft. ² /0.001"	1.2 kg/m ² /100 microns
Coating Density	6.7 gm./cc	--
Coating Weight		--

Spray Parameters

Atomizing Air Pressure: Primary Air	50 PSI	-
Atomizing Air Pressure: Secondary Air	40 PSI	-
Arc Load Voltage	33 - 34 Volts	-
Ampere	100 - 200 Amps	-
Standoff Distance	3 - 5 inch	-
Transverse speed	250 inch/min	-
Coating thickness/Pass-mills	5 mils	-

APPLICATION

Service Environment

Special care is required to maintain a clean surface prior to arc spraying. Coatings sprayed with HA 595 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 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 595 is a high chrome steel based product and dust overspray can burn and smolder.

SPECIAL SAFETY INSTRUCTIONS

High chrome steel 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 high chrome steel and high chrome steel based dusts.