

Meltio Nickel 625

Material Group: Nickel Alloys

A Ni-based superalloy with excellent mechanical properties at a wide range of temperatures. Among superalloys, Ni625 excels for its weldability, making it an ideal choice for cladding or repair of components working at high temperatures or requiring increased corrosion protection.

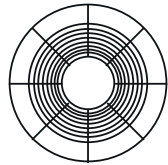
Nomenclature Standards

AWS A 5.9 _____	ERNiCrMo-3
EN ISO 14343-A _____	S Ni 6625 (NiCr22Mo9Nb)
Material N° _____	2.4831

Nickel 625 Chemical Composition

Ni	C	Si	Mn	Cr	Fe	Mo	Nb	S
Base	0.02	0.2	0.2	22	1	9	3.3	0.01

Spool Specs

	Diameter	1 mm
	Weight	15 kg
	Volume	1829 cm³
	Density	8.2 g/cm³
	Spool Type	BS300

Stainless Steel 316L Substrate Chemical Composition

Fe	C	Si	Mn	Cr	Ni	Mo
Base	0.02	0.9	1.7	18.5	12	2.7

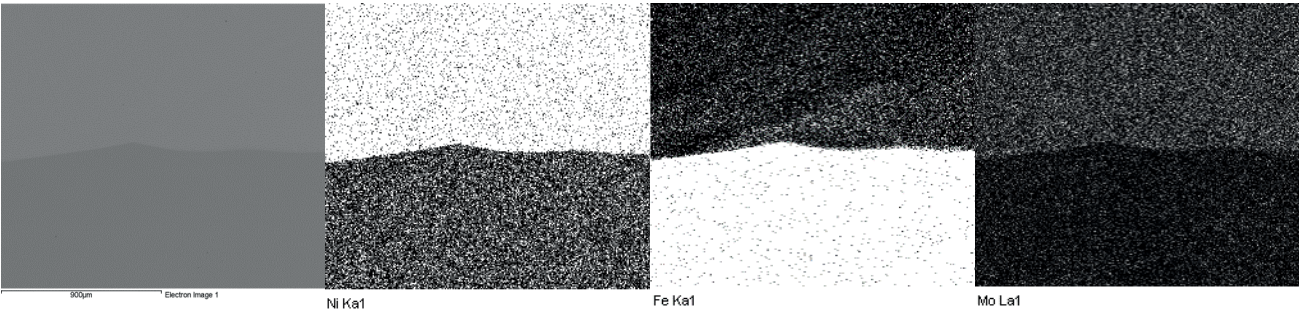
Elemental Mapping of Nickel 625 Cladding on Stainless Steel 316L

Cladding under Electron
Beam Microscope

Iron EDX Map:

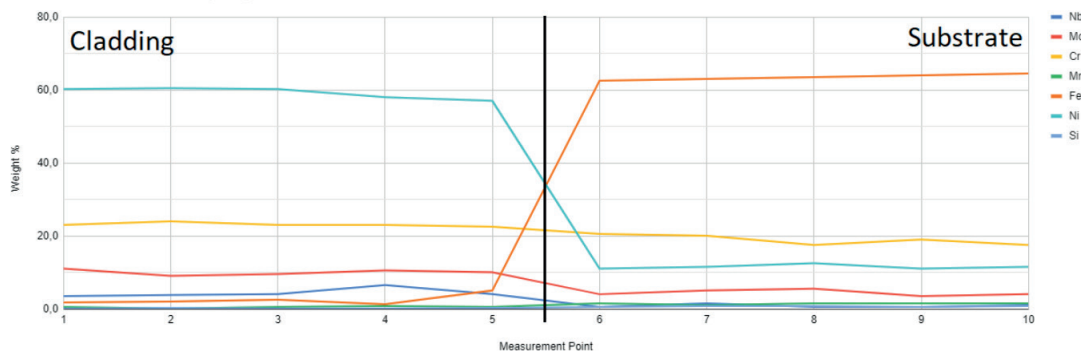
Nickel EDX Map:

Molybdenum EDX Map:



Nickel 625 Cladding Elements

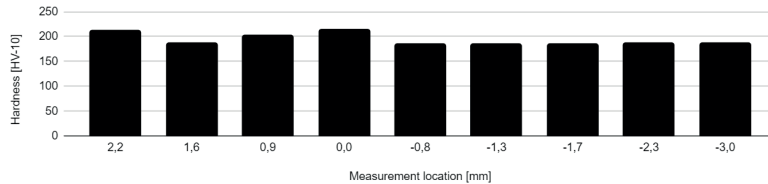
Element Concentration by Depth



* Nickel 625 cladding on Meltio 316L Stainless steel. Both Materials deposited using Meltio Wire LMD.

Hardness Profile

Hardness Profile Cladding of Nickel 625 on Stainless Steel 316



Hardness Profile

Hardness (HV10)	Distance (mm)	Material
212	2.2	Nickel 625
186	1.6	
201	0.9	
213	0.0	Interlayer
184	-0.8	Stainless Steel 316L
184	-1.3	
185	-1.7	
187	-2.3	
187	-3.0	

Printing Parameters Used

Print Speed	Deposition Width	Layer Height	Laser Power
600 mm/min	1 mm	0.8 mm	1100 W

Shielding gas: Argon > 99.996% purity.

Machine Used: Meltio M450

Laser System: 6x200W Fiber coupled diode lasers. 976nm wavelength.

* Data represent typical reference values from Worought (ASTM A36) and Cast (ASTM A352) material classification compared to Meltio (M450) horizontal (XY) and vertical (XZ) specimens extracted from 3D printed walls and tensile tested according to UNE EN ISO 6892-1

**Any technical information or assistance provided herein is given and accepted at your risk, and neither Meltio nor its affiliates make any warranty relating it or because of it. Neither Meltio nor its affiliates shall be responsible for the use of this information, or any product, method or apparatus mentioned, and you must make your own determination for its suitability and completeness for your own use. Specifications are subject to change without notice.