

AI-1779VC

Specifications

DIN EN 14700: T Ni20

(DIN 8555: MF21-55-CGZ) for high abrasion & corrosion

Description and Applications

AI-1779VC refers to a flux cored nickel wire filled with Fused Tungsten Carbide (FTC) granules set within a Nickel matrix including elements of Boron, Silicon and ultra-hard (3000HV0.1) refractory carbides. It is designed for semi-automatic welding. **AI-1779VC** is a special alloy for the protection of wear surfaces against extreme abrasion combined with high corrosion. The as-welded deposit consists of approximately 62% FTC and 38% Ni-Si-Boride-Carbide matrix. The resulting weld requires a low melting range of between 900 – 1050°C (1,652 – 1,922°F) and features a self fluxing characteristic that produces a slag-free, smooth surface. The deposits feature a matrix strengthened to over 60HRC with hard carbides to better protect the tungsten granules from wash-out by abrasive silica particles. It is also highly resistant to corrosive media, acids and alkalis.

Applications: **AI-1779VC** is designed for welding on all types of steel and for hardfacing cast iron and for repairing oil tools such as stabilizers, openers, gauge bars etc. **AI-1779VC** can be replaced by **AI-1542VC** in applications where low magnetic porosity is required. **AI-1779VC** is recommended for all applications in petroleum drilling, mining, geothermal, minerals processing, brick & tile making, food processing and other high abrasion / high corrosion areas.

Typical Weldmetal Analysis

MATRIX (Ni-Si-Borides-Hard Carbides)

Mechanical Properties of Weldmetal

	As Welded
Hardness	FTC: ~ 2360 HV0.1 MATRIX: ~ 60-62HRc / MATRIX CARBIDES: 3000 HV0.1
Melting Point	MATRIX: 1,070°C FTC: 2,860°C
Density	MATRIX: 8.1 g/cm ³ FTC: 16.0 – 17.0 g/cm ³
Structure	FTC with Ni-Si +Borides +Interspersed Refractory Carbides
Machinability	Deposit can only be effectively ground using a diamond wheel
Shielding Gas	98% Ar + 2% O2 or 100% Ar



Welding Parameters

Diameter (mm)	Current type	Amps
1.2	DC(+)	150-220
1.6	DC(+)	180-300

Welding Instructions

Keep the area to be hard faced free of rust, scale, oil, damp and other contamination. Avoid overheating the base material and choose starting amperage and voltage as low as possible within the recommended range to reduce heat input into the tool and to avoid dissolution or destruction of the fused tungsten carbide.

Controlled post-weld cooling is highly beneficial.

Welding Positions

(1G, 1F) Downhand/flat position, (2F) Horizontal position, (2G) Horizontal vertical position.

Disclaimer

All figures in this datasheet should be considered indicative only. No guarantee is made as to their accuracy.

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