

W-NI40

(Ni based cored wire with 40% tungsten carbide)

Description:

FT-W-NI40 is a cored wire filled with 40% Fused Tungsten Carbide (FTC or “cast” tungsten carbide) in a nickel-based matrix alloy. The wire can be used with manual, semi-auto or fully automatic welding process (GMAW) to create coatings that are highly resistant to abrasion with some resistance to erosion and corrosion.

The weld overlay contains blocky cast tungsten carbide particles (W_2C -WC both angular and spherical) embedded in a Ni-B-Si alloy.

The Ni-B-Si self-fluxing matrix alloy has a low melting point (1650-1950 F) with very good flowability producing a clean and smooth surface.

Application

FT-W-NI40 is designed to repair and hard surface a wide range of ferritic and austenitic steel. It has proven very effective to protect components in the oil and gas industry such as downhole motor components (fixed bend housing, adjusting rings, stators...) as well as industrial processing equipment, mixers, screws, pumps and more.

FT-W-NI40 matrix has a low melting point (1,800F to 1,900F) which allows a welding coating with a low voltage and amperage, reducing heat input, dilution and carbide dissolution. In turn this will favor reparability and minimize part distortion. The coatings produced with **FT-W-NI40** are not machinable but can be ground

Properties:

Fused tungsten carbide (FTC) hardness: 2,100-2,350 HV_{0.1}

Spherical Fused tungsten carbide (SFTC) hardness: 2,400-3,000 HV_{0.1}

Matrix Alloy NiBSi: Hardness 45-48 HRC (outside dilution)

Welding Parameters recommendations:

To ensure a minimal degradation of tungsten carbide properties during welding process, please weld W-NIFD with lower amperage and voltage settings.

The surface to be hard-faced should be clean and any oil, rust, scale or other contamination should be removed.

Please follow weld procedure specification guided by metal composition and part configuration, the following parameters are for general guidance.

Wire diameter	Carbide % (weight)	Spool size	Current (Amps)	Voltage
1/16" - (1.6 mm)	40	33 lbs (15kg)	120-160	17-20V

Other diameters and composition available on request.