



DAIKOFCW C276



NICKEL ALLOYS
C276

DESCRIPTION

Rutile flux cored wire for flat and horizontal position for Nickel based C276 alloy

Rutile flux cored wire for welding and cladding in flat and horizontal position that matches the composition and properties of alloy C276. It is also used for surfacing of steel. The weld metal has high resistance in a wide range of media and exceptional resistant to pitting and crevice corrosion. Applications include pumps, valves, pipework and vessels in chemical process plant, equipment for flue gas desulphurisation and for offshore in oil & gas field. Useful properties from -269°C to above 1000°C are achieved.

SPECIFICATIONS

AWS A5.34	ENiCrMo4TO-4	Shielding	M21
Positions	PA, PB, PC	Current	DC+
Packaging Type	BS300 spool		

ASME QUALIFICATIONS

		PREN
F-No (QW432)	43	73.74
A-No (QW442)	-	

CHEM. COMP. %

DEFAULT

C	0.015
Mn	0.6
Ni	58
Cr	15
P	0.007
S	0.004
Mo	16
Si	0.2
Cu	0.03
Fe	5.3
W	3.6

MECHANICAL PROPERTIES

	PRODUCT
Tensile strength R_m MPa	720
Yield strength $R_{p0.2}$ MPa	460
Elongation A ($L_0=5d_0$) %	45
Impact Charpy ISO-V	50J @ -196°C

WELDING PARAMETERS

	1.2 mm	1.6 mm
Ampere	130A - 280A	200A - 350A
Voltage	22V - 30V	28V - 32V
Packaging	Ø 1,2÷1,6mm	Ø 1,2÷1,6mm
Packaging Type	BS300 spool	BS300 spool



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APPLICATION

The weld deposit perfectly matches the C276 base alloy, composed of Ni-15%Cr-16%Mo-4%W-5%Fe. The carbon (C) and silicon (Si) content is carefully controlled to minimize the formation of carbide precipitates and intermetallic phases. Cast alloy variants generally present higher levels of carbon and silicon, but repair welds are typically heat-treated for solutionizing to ensure optimal corrosion resistance. The C276 alloy offers excellent corrosion resistance in a wide range of acids and salts, under both oxidizing and reducing conditions. These include hydrochloric acid, hydrofluoric acid, hypochlorites, chlorides, wet chlorine gas, sulfuric acid, phosphoric acid, and numerous organic acids. It demonstrates exceptional pitting and crevice corrosion resistance in saltwater and shows high resistance to chloride-induced stress corrosion cracking, superior to alloy 62. Its excellent mechanical properties at temperatures down to -196 °C make it ideal for welding cryogenic plants with a Ni content between 5-9%. Typical applications include use in **pumps, valves, piping, and vessels** for aggressive environments in chemical processing plants, as well as in flue gas desulfurization equipment and the offshore oil and gas sector. No preheat is necessary; the interpass temperature should preferably be maintained below 100 °C, and the heat input must be limited to 1.5 kJ/mm.

ALLOY TYPE

Alloy C276 is a Ni-15%Cr-16%Mo-4%W-5%Fe nickel base alloy.

MICROSTRUCTURE

In the as-welded condition the weld metal consists of austenite with some carbides.

MATERIALS

EN W.Nr.: 2.4819 (NiMo16Cr15W), 2.4883 (G-NiMo16Cr)

ASTM: A494 CW-12MW, A743/A744 CW-12M

UNS: N10276

PROPRIETARY: Hastelloy® Alloy C-276 (Haynes International Inc), Inconel® Alloy C-276 (Special Metals), Nicrofer 5716hMoW (VDM)

