DAIKOWT 276

GTAW

NICKEL ALLOYS
C276

DESCRIPTION

Nickel-base alloy rod C276

Custom rod for alloy C276, also ideal for overlay on steel. Ensures resistance in a very wide range of corrosive environments and against pitting and crevice corrosion. Suitable for pumps, valves, piping, and vessels for chemical processing, flue gas desulfurization, and offshore oil and gas applications. Maintains useful mechanical properties between -269 °C and over 1000 °C.

SPECIFICATIONS

EN ISO 18274	S Ni 6276	**AWS A5.14**	ERNiCrMo-4
Shielding	I1	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC-	**Packaging Type**	5kg carton tube

ASME QUALIFICATIONS

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

PREN

74.51

CHEM. COMP. %	DEFAULT
C	0.01
Mn	0.2
Ni	59
Cr	16.1
Nb	3.7
V	0.05
P	0.008
S	0.002
Mo	16
Si	0.2
Cu	0.01
Fe	5.2
W	3.4

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	690*	720
Yield strength $R_{p0.2}$ MPa	0	500
Elongation A (L_0=5d_0) %	0	43
Impact Charpy ISO-V	-	100J @ -196°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	1.6 mm	2.4 mm
Ampere	80A - 120A	130A - 160A
Voltage	10V - 13V	14V - 18V
Packaging	Ø 1,0÷4,0mm	Ø 1,0÷4,0mm
Packaging Type	5kg carton tube	5kg carton tube

DAIKO

C276

DESCRIPTION

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)