



DAIKOWT Ti 12



TITANIUM ALLOYS
Gr. 12

DESCRIPTION

Grade 12 titanium alloy rod

Rod with excellent corrosion resistance and good mechanical properties due to small additions of nickel and molybdenum. Mainly used in the chemical field for the welding of pressure vessels and tubes. Offers high weldability, resistance to high temperatures, and excellent corrosion resistance in oxidizing environments. It is employed in chemical processes, heat exchangers, valves, pumps, and steel and chemical plants.

SPECIFICATIONS

AWS A5.16	ERTi-12	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-
Packaging Type	5kg carton tube		

ASME QUALIFICATIONS

F-No (QW432)	54
A-No (QW442)	-

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
C	0.08	Tensile strength R_m MPa	-	490
Ni	0.7	Yield strength $R_{p0.2}$ MPa	0	350
N	0.01	Elongation A ($L_0=5d_0$) %	0	25
P	0.006	Impact Charpy ISO-V	-	-
Mo	0.3	Impact Charpy ISO-V	-	-
Fe	0.1			
		WELDING PARAMETERS	1.6 mm	3.2 mm
		Ampere	190A - 250A	220A - 280A
		Voltage	-	-
		Packaging	Ø 1,0÷2,4 mm	Ø 1,0÷2,4 mm
		Packaging Type	5kg carton tube	5kg carton tube





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APPLICATION

These consumables offer exceptional metal-to-metal wear resistance, combined with remarkable resistance to corrosion, erosion, and thermal shocks. They are designed to operate effectively at service temperatures up to 800°C. The chromium, nickel, and molybdenum alloy-based composition ensures excellent mechanical properties, enhancing both corrosion and wear resistance. The resulting weld deposit exhibits high creep resistance, ideal for high-temperature environments. The presence of ferrite in the joint makes this consumable particularly suitable for applications such as heavy structural construction, oil rigs, boilers, pressure vessels, and cryogenic storage tanks. Additionally, it offers superior low-temperature impact values compared to other similar consumables. It is commonly used for repairing valves and valve seats in the oil and gas industry, as well as in conveyors and augers for rubber and plastic, saw teeth for the wood industry, cams, shafts, tappets, and pushrods for engines, etc.

ALLOY TYPE

Gr. 12 titanium.

MICROSTRUCTURE

Single-phase and near single-phase alpha alloys (compact hexagonal lattice-HCP).

MATERIALS

Grade 12, Ti-0.3Mo-0.8Ni.

WELDING & PWHT

Before welding, thoroughly clean the joint surface and the adjacent area, removing grease, oil, marker marks, sulfur compounds, and other contaminants. Avoid contact with copper or copper-containing materials in the joint area. Although not essential, it is preferable for the alloy to be in the solution annealed condition during welding. Generally, preheating is not necessary provided the base metal to be welded is above 0°C. Interpass temperatures should be kept low.

