DAIKOWT Ti 5

GTAW

TITANIUM ALLOYS
Gr. 5

DESCRIPTION

Titanium alloy rod gr. 5

Titanium rod "6-4" (grade 5) with excellent weldability, heat-treatable to improve strength and toughness. Used for the production of aerospace components such as landing gear, wing spars, and compressor blades. Offers corrosion resistance comparable to grade 2 and is the preferred choice for services requiring high strength, such as shafts, high-strength fasteners, and keys. The weld deposit is ductile and ensures excellent corrosion resistance in oxidizing environments.

SPECIFICATIONS

AWS A5.16	ERTi-5	**Shielding**	I1
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC-
Packaging Type	5kg carton tube		

ASME QUALIFICATIONS

F-No (QW432)	55
A-No (QW442)	-

CHEM. COMP. %	DEFAULT
C	0.01
N	0.006
Al	6
V	4
P	0.004
Fe	0.1

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	-	1000
Yield strength $R_{p0.2}$ MPa	0	900
Elongation A (L_0=5d_0) %	0	8
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

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

Gr. 5

DESCRIPTION

APPLICATION

The DAIKO Ti 5 is a grade 5 titanium (Ti 6Al-4V), commonly referred to as "6-4." It is the most widely used titanium alloy globally due to its fracture strength, which is at least 895 MPa. It is valued for its good weldability and the ability to be heat-treated to improve its strength or toughness. It is used in aeronautical components such as landing gears, wing spars, and compressor blades. Its corrosion resistance is similar to that of grade 2, making it ideal for applications requiring corrosion resistance, such as shafts, high-strength fasteners, and keys. This alloy stands out for its good hot formability and weldability, in addition to being resistant to salt water, the marine atmosphere, and various temperatures of corrosive media below 300°C.

ALLOY TYPE

Gr. 5 titanium.

MICROSTRUCTURE

Alpha (compact hexagonal lattice-HCP) and Beta alloys (body centered cubic lattice-BCC) .

MATERIALS

Grade 5, Ti-6Al-4V.
EN W.Nr.: 3.7165
ASTM: Ti-Gr 5

WELDING & PWHT

Titanium is a reactive metal and sensitive to embrittlement caused by oxygen, nitrogen, and hydrogen at high temperatures. For this reason, it is essential to protect it from atmospheric contamination using inert gases during welding. During arc welding, titanium must be shielded from the surrounding atmosphere until it cools below 430°C. It is crucial that the titanium metal is free of thick oxide and is chemically clean before welding, as contamination from oxide, water, grease, or dirt can lead to embrittlement. Titanium welding rods must also be chemically clean and free from heavy oxide, absorbed moisture, grease, and dirt. Cleaning between passes is unnecessary if the weld bead remains shiny and silvery. Discoloration towards yellowish or bluish hues can be removed with a clean stainless steel wire brush. Contaminated weld beads, indicated by a dull blue, gray or white color, must be completely eliminated through grinding. Thereafter, the joint must be thoroughly prepared and cleaned before rewelding.