



DAIKOWT Ti 5

GTAW

TITANIUM ALLOYS

Gr. 5

DESCRIPTION

Titanium alloy solid rod gr 5

This Titanium is commonly referred to as "6-4" titanium and shows excellent weldability. It can be heat treated to a higher strength or toughness. Grade 5 is used in aircraft components such as landing gear, wing spars, and compressor blades. Its corrosion resistance is generally comparable to Grade 2 and it is often used in corrosion service where higher strength is required, particularly in shafts, high strength bolting, and keys. The weld deposit is ductile and offers excellent corrosion resistance in oxidizing environments.

SPECIFICATIONS

ISO	-	AWS A5.16	ERTi-5
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS

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

FERRITE

Ferrite	-
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PREN

PREN	-
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HARDNESS

Hardness	-
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CHEM. COMP. %

	DEFAULT
C	0.01
N	0.006
Al	6
V	4
P	0.004
Fe	0.1

MECHANICAL PROPERTIES

	MIN	VARIANT
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

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit www.daikowelding.com.





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DESCRIPTION

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APPLICATION

DAIKO Ti 5 is a titanium grade 5 (Ti 6Al-4V), commonly called "6-4," is the most common and widely used alloy grade. It has an ultimate tensile strength of 895 MPa minimum, good weldability, and can be heat treated to a higher strength or toughness. Grade 5 is used in aircraft components such as landing gear, wing spars, and compressor blades. Its corrosion resistance is generally comparable to Grade 2 and it is often used in corrosion service where higher strength is required, particularly in shafts, high strength bolting, and keys. It is characterized by good hot formability and weldability. It is also resistant to salt water, marine atmosphere and a variety of corrosive media temperatures 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, being a reactive metal, is susceptible to embrittlement by oxygen, nitrogen, and hydrogen at elevated temperatures. As a result, safeguarding the metal from atmospheric contamination becomes crucial. This protection is achieved by shielding the metal with welding-grade inert gas. Throughout arc welding, it is imperative to maintain this shielding until the titanium has cooled below about 430°C. To ensure optimal welding conditions, the titanium metal itself must be free of thick oxide and undergo thorough chemical cleaning prior to welding initiation. Contamination from oxide, water, grease, or dirt can also lead to embrittlement. For titanium welding rods, ensure they're clean and free of heavy oxide, moisture, grease, and dirt. Cleaning between passes is usually unnecessary if the weld bead stays bright and silvery. Discoloration like straw or light blue can be removed with a stainless steel wire brush. However, contaminated weld beads with dark blue, gray, or white powdery discoloration must be completely ground off. The joint requires meticulous preparation and cleaning before proceeding with additional welding.

