



# DAIKOWM Ti 2



TITANIUM ALLOYS

Gr. 2

## DESCRIPTION

### Titanium alloy solid wire gr 2

Universal wire rod for the welding of titanium gr. 1, 2, 3 and 4. It is commonly referred to as commercially pure titanium with the level of impurities and mechanical properties increasing slightly from ERTi-1 to ERTi-4. This is the most widely used titanium consumable for industrial applications because of its good balance of strength, formability, and weldability. Often used in seawater and brackish water heat exchangers, chemical process heat exchangers, pressure vessels and piping systems, pulp bleaching systems, air pollution control scrubbers, and aerospace industry.

## SPECIFICATIONS

ISO	-	AWS A5.16	ERTi-2
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	I1, I3
Positions	PA, PB, PC, PD, PE, PF	Current	DC+

## ASME QUALIFICATIONS

F-No (QW432)	51
A-No (QW442)	-

## FERRITE

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## PREN

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## HARDNESS

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## CHEM. COMP. %

### DEFAULT

C	0.02
N	0.01
P	0.007
Fe	0.1

## MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength $R_m$ MPa	-	460
Yield strength $R_{p0.2}$ MPa	0	390
Elongation A ( $L_0=5d_0$ ) %	0	20
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

## WELDING PARAMETERS

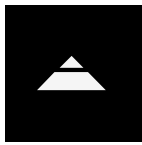
	1 mm	1.2 mm
Ampere	160A - 280A	240A - 300A
Voltage	18V - 27V	31V - 35V
Packaging	$\varnothing$ 0,8÷1,6mm	$\varnothing$ 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.

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](http://www.daikowelding.com).





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## APPLICATION

It is a GTAW and GMAW filler metal used for welding commercial pure titanium alloys commonly found in applications requiring high temperature resistance and resistance to chemical reagents. Although there are four grades of Commercial Pure Titanium filler metals, C.P. Grade 2 (ERTi-2) is the most popular because of its good balance of strength, formability and weldability. The most common application of Commercial Pure Titanium is the aircraft industry, where tensile strength and weight ratios are so critical. Other uses would include cryogenic and petrochemical applications such as chemical process heat exchangers, pressure vessels and piping systems, pulp bleaching systems, electro chemical and chemical storage tanks. Compared to the other grades of commercially pure titanium, Grade 2 is slightly weaker than Grade 3, but stronger than Grade 1 and equally resistant to corrosion. Grade 2 offers excellent balance of moderate strength and reasonable ductility. This material is also non-magnetic.

## ALLOY TYPE

Gr. 2 titanium, commercially pure.

## MICROSTRUCTURE

Pure alpha alloys (compact hexagonal lattice-HCP).

## MATERIALS

Suitable for welding Titanium grade 1, 2, 3 and 4.

**EN W.Nr.:** 3.7025, 3.7035, 3.7055, 3.7065.

**ASTM:** Ti-Gr 1, Ti-Gr 2, Ti-Gr 3, Ti-Gr 4.

**UNS:** R504007, R50400, R50550, R50700.

## 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.

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