DAIKOWM Ti 7

GMAW

TITANIUM ALLOYS
Gr. 7

DESCRIPTION

Titanium alloy solid wire gr 7

Same mechanical properties as Grade 2 but the 0.12% Palladium addition improves corrosion performance under mildly reducing conditions or where crevice or under-deposit corrosion is a problem. ERTi-7 can be considered for welding Grade 2 or 16 where improved corrosion performance is desired. The weld deposit is ductile and offers excellent corrosion resistance in oxidizing environments. The unique combination of mechanical strength and corrosion resistance makes the alloy a preferred choice in many applications to prevent or solve problems.

SPECIFICATIONS

AWS A5.16	ERTi-7	**Shielding**	I1, I3
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC+
Packaging Type	Drums, B300, D200 and D100 spools.		

ASME QUALIFICATIONS

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

CHEM. COMP. %	DEFAULT
C	0.02
N	0.009
P	0.006
S	0.2
Fe	0.1

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	-	420
Yield strength $R_{p0.2}$ MPa	0	280
Elongation A (L_0=5d_0) %	0	20
Impact Charpy ISO-V	-	-
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	1.0 mm	1.2 mm
Ampere	160A - 280A	240A - 300A
Voltage	18V - 27V	31V - 35V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
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DESCRIPTION

APPLICATION

The DAIKOW Ti 7 offers the same mechanical properties as the DAIKOW Ti 2, with significantly improved corrosion resistance. It is particularly effective in applications requiring enhanced anticorrosion protection, such as welding grades 2 or 16. This result is achieved by adding palladium, which provides strong corrosion resistance and low density. With an alloy containing 0.12% palladium, the DAIKOW Ti 7 exhibits excellent performance against crevice corrosion or in situations of inconsistent deposits. It finds ideal use in industrial applications such as valves, heat exchangers, pipelines, and fittings, where reliability and durability are essential.

ALLOY TYPE

Gr. 7 titanium.

MICROSTRUCTURE

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

MATERIALS

Grade 7, Ti-0.15Pd and in some case for welding titanium base metal grades of 2, 16, and 26.
UNS: R52400

WELDING & PWHT

Since titanium is a highly reactive metal, it is susceptible to embrittlement caused by oxygen, nitrogen, and hydrogen when exposed to high temperatures. To prevent atmospheric contamination, it's crucial to shield the metal with inert gases during welding. During the arc welding process, titanium must be protected from the surrounding atmosphere until the temperature drops below about 430 °C. It is essential that titanium is free of heavy oxides and properly chemically cleaned before welding, as impurities such as oxides, water, grease, or dirt can cause embrittlement. Consequently, titanium welding rods must be chemically clean and free from heavy oxides, absorbed moisture, grease, and dirt. Cleaning between passes is not required if the weld bead remains shiny and silver. Any discoloration of the weld towards yellowish or bluish hues can be removed with a clean stainless steel wire brush. Contaminated weld beads, identified by dark blue, gray, or white hues, must be completely removed by grinding. Subsequently, the joint must be re-prepared and thoroughly cleaned before repeating the welding.