


BÖHLER Ti 2 Ni T-FD

Seamless Cored Wire



All-positional rutile flux-cored wire for low-temperature applications with CTOD requirements down to -50 °C, for use with Argon-CO₂ shielding gas

| Features | User benefits | |
|-------------------------------------|---|--|
| » Fast freezing rutile slag system | » Productive positional welding |  |
| » Welder-friendly | » Low defect rate | |
| » Deep penetration | » Low defect rate | |
| » Smooth wetting | » Good fatigue resistance | |
| » Low spatter | » Less post weld cleaning | |
| » Dependable feedability | » Increased arc time | |
| » Copper-coated seamless cored wire | » Excellent current transfer » Resistance to moisture absorption | |
| » Low-hydrogen weld metal | » Low risk of HAC | |
| » CTOD tested at -50 °C | » Excellent mechanical properties | |

For industries requiring CVN impact toughness down to -60 °C and CTOD down to -50 °C.

Seamless tubular copper-coated cored wire from the Diamond Spark range. For single- or multi-layer welding of low-temperature steels up to 500 MPa yield strength and impact requirements down to -60 °C, using Ar-CO₂ shielding gas. CTOD tested at -50 °C. Alloyed with 2% Ni. Superb weldability in all welding positions. Seamless wire design, giving optimal protection against moisture reabsorption, assuring very low-hydrogen weld metal.

Exceptional weldability, productivity and low-hydrogen performance


BÖHLER Ti 2 Ni T-FD is an all-positional rutile cored wire with excellent weldability. It is characterized by a smooth spray-arc droplet transfer in all welding positions, with very low spatter losses. Slag is easily removed. Welds have a deep penetration and a nice appearance with smooth wetting onto plate edges. If desired, a single current/voltage setting can be applied for all welding positions. Its fast freezing slag enables deposition rates in positional welding up to three times as high as obtainable with any other manual arc welding process. Root runs are welded economically on ceramic weld metal support.

The seamless, copper-coated wire design adds sufficient stiffness and glide to overcome friction in liners, welding guns and contact tips. The copper-coating enhances current transfer between contact tip and wire resulting in a stable arc. Controlled wire cast and helix largely avoids “dog tailing”, promoting straight, well positioned welds. The seamless design offers the best possible protection against moisture reabsorption during storage and use of the wires and thereby against hydrogen induced cracking. Diffusible hydrogen level is typically 2-3 ml / 100 g weld metal.

Main applications

- » Monopiles, tripods and jackets for wind towers
- » Offshore structures
- » Pipelines

BÖHLER Ti 2 Ni T-FD

| Classifications | | Operating data <small>Allows welding with standard power sources.</small> | | |
|--------------------|--------------------|---|----------|-------------------|
| EN ISO 17632-A | AWS A5.36 | Welding positions | Polarity | Shielding gas |
| T50 6 2Ni P M 1 H5 | E81T1-M21A8-Ni2-H4 |  | DC+ | EN ISO 14175: M21 |

| Typical chemical composition, all weld metal, wt. % | | | | |
|---|------|------|-----|-----|
| Shielding gas | C | Si | Mn | Ni |
| M21 | 0.06 | 0.45 | 1.3 | 2.0 |

| Mechanical properties, all weld metal (single values typical) | | | | | | |
|---|-----------|---|---|-----------------------------------|--|-------------|
| Shielding gas | Condition | Yield strength R _{p0.2%} MPa | Tensile strength R _m MPa | Elongation A ₅ % | CVN Impact toughness ISO-V KV J -60 °C | CTOD tested |
| M21 | as welded | 580 (≥ 500) | 640 (570 - 690) | 25 (≥ 18) | 80 (≥ 47) | -50 °C |

| Steels to be welded | |
|--|---|
| EN | ASTM |
| 10Ni14, 12Ni14, 13MnNi6-3, 15NiMn6, S275N-S460N, S275NL-S460NL, S275M-S460M, S275ML-S460ML, P275NL1-P460NL1, P275NL2-P460NL2, L245NB-L415NB, L245MB-L450MB, L360QB-L450QB; S500Q, S500QL | A 203 Gr. D, E A 333 Gr. 3 A 334 Gr. 3 A 350 Gr. LF1, LF2, LF3 A 420 Gr. WPL3, WPL6 A 516 Gr. 60, 65 A 529 Gr. 50 |
| | A 572 Gr. 42, 65 A 633 Gr. A, D, E A 662 Gr. A, B, C A 707 Gr. L1, L2, L3 A 738 Gr. A A 841 A, B, C, API 5 L X42, X52, X60, X65, X52Q, X60Q, X65Q |

| Approvals |
|-------------------------|
| ABS, DNV-GL, LR, RS, CE |

| Overview spool types | | | | | |
|---|--|--|---|---|--|
| Plastic spool D200 | | | Plastic spool D300 | | |
|  | Precision layer wound Dimensions: Ø external 200 mm Ø internal 52 mm Width 47 mm | Available spool weight: 5 kg Available diameters: 1.2 mm 1.6 mm |  | Precision layer wound Dimensions: Ø external 300 mm Ø internal 52 mm Width 100 mm | Available spool weight: 15 kg Available diameters: 1.2 mm 1.6 mm |
| Wire basket spool K300 | | | | | |
|  | Precision layer wound Dimensions: Ø external 300 mm Ø internal 180 mm Width 100 mm | Available spool weight: 16 kg Available diameters: 1.2 mm 1.6 mm | | | |