

BÖHLER TI 52 T-FD SR (CO₂)

All-positional rutile flux-cored wire for welding high strength steel with stress relieve requirement, using 100% 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 -10 °C (AW and SR)	■ Excellent mechanical properties



For industries using high strength steel with impact requirements down to -40°C, as welded and stress relieved

Seamless rutile cored wire for single- or multi-layer welding of low-temperature steels up to 420 MPa yield strength and impact requirements down to -40°C in the as welded and stress relieved conditions, using 100% CO₂ shielding gas. Alloyed with <0.5% Ni to meet the NACE MR0175 requirement for SSC safe service in sour environments in oil and gas exploration and processing, including hardness requirement below 248 HV10. Superb weldability in all welding positions. Seamless wire design, giving optimal protection against moisture reabsorption, assuring very low-hydrogen weld metal. CTOD tested at -10 °C.

Exceptional weldability, productivity and low-hydrogen performance

BÖHLER Ti 52 T-FD SR (CO₂) 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

- Shipbuilding
- Offshore constructions
- General steel structures
- Pressure vessels

Classifications	
EN ISO 17632-A	T42 4 P C 1 H5
EN ISO 17632-B	T494T12-1CAP-H5
AWS A5.36	E71T12-C1AP4-CS2-H4
AWS A5.36M	E491T12-C1AP4-CS2-H4

Operating data		
Welding positions	Polarity	Shielding gas
	DC+	EN ISO 14175: C1

Typical chemical composition, all weld metal				
Shielding gas	% C	% Si	% Mn	% Ni
C1	0.04	0.40	1.3	0.40


Mechanical properties, all weld metal (single values typical)							
Shielding gas	Condition	Yield strength Rp0.2% MPa	Tensile strength Rm MPa	Elongation A5 %	CVN Impact toughness ISO-V J		CTOD tested
					-40 °C	-50 °C	
C1	As welded	500 (≥ 420)	570 (500 - 640)	24 (≥ 20)	110 (≥ 47)	100 (≥ 47)	-10 °C
	PWHT: 620 °C/3h	460 (≥ 420)	550 (500 - 640)	28 (≥ 20)	85 (≥ 47)	75 (≥ 47)	
	PWHT: 620 °C/13h	460 (≥ 420)	550 (500 - 640)	29 (≥ 20)	95 (≥ 47)	90 (≥ 47)	

Steels to be welded			
EN	Shipbuilding Steels	ASTM	API 5 L
S235JR-S355JR, S235JO-S355JO, S450JO, S235J2-S355J2, S275N-S460N, S275M-S460M, P235GH-P355GH, P355N, P285NH-P460NH, P195TR1-P265TR1, P195TR2-P265TR2, P195GH-P265GH, L245NB-L415NB, L450QB, L245MB-L450MB, GE200-GE240	A, B, D, E, A 32-E 36	A 106 Gr. A, B, C; A 181 Gr. 60, 70; A 283 Gr. A, C; A 285 Gr. A, B, C; A 414 Gr. A, B, C, D, E, F, G; A 501 Gr. B; A 513 Gr. 1018; A 516 Gr. 55, 60, 65, 70; A 573 Gr. 58, 65, 70; A 588 Gr. A, B; A 633 Gr. C, E; A 662 Gr. B; A 711 Gr. 1013; A 841 Gr. A	Gr. B, X42, X52, X56, X60, X65

Approvals
ABS, BV, DNV GL, LR, CE

D200 	Plastic spool D200 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
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BS300 	Wire basket 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
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K300 	Wire basket 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
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D300 	Plastic spool D300 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
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