

BÖHLER Ti 52 T-FD SR (CO₂)

Seamless Cored Wire



Ultra low hydrogen seamless rutile flux cored wire for welding high strength steel with stress relieve requirement using 100% CO₂ shielding gas.

Product features	Product Benefits	Customer benefits
<ul style="list-style-type: none"> » Seamless design » Extremely clean manufacturing process 	<ul style="list-style-type: none"> » Ultra-low-hydrogen weld metal » Total resistance against moisture absorption during storage and use 	<ul style="list-style-type: none"> » Optimal protection against hydrogen cracking
<ul style="list-style-type: none"> » Fast freezing rutile slag system 	<ul style="list-style-type: none"> » Enhancing travel speed and arc stability in positional welding 	<ul style="list-style-type: none"> » Productive positional welding
<ul style="list-style-type: none"> » Wide parameter window 	<ul style="list-style-type: none"> » More spray arc welding 	<ul style="list-style-type: none"> » Easy arc setting
<ul style="list-style-type: none"> » Excellent feedability 	<ul style="list-style-type: none"> » Low contact tip wear 	<ul style="list-style-type: none"> » Less down-time for maintenance
<ul style="list-style-type: none"> » Stable arc 	<ul style="list-style-type: none"> » Low spatter 	<ul style="list-style-type: none"> » Less post-weld cleaning
<ul style="list-style-type: none"> » Copper coated 	<ul style="list-style-type: none"> » Excellent current transfer » Rust resistance 	<ul style="list-style-type: none"> » Easy handling » Safer storage
<ul style="list-style-type: none"> » Designed chemistry 	<ul style="list-style-type: none"> » Excellent CVN impact toughness down to -50 °C also after long terms stress relieving » Excellent CVN impact toughness down to -30 °C and excellent mechanical strength in case of PWHT at high T. (up to 705 °C x 16 h). Applicable in case of dissimilar weld with Cr-Mo creep resistant steels » CTOD tested @ -10 °C in both as welded and stress relieved conditions » Meeting NACE MR 0175 including HIC and SSC 	<ul style="list-style-type: none"> » Wide margin to cover both strength and CVN impact requirements also when PWHT is applied, including medium thickness pressure vessels- » Suitable for dissimilar weld between C-steel and CrMo steel (such as gr.11, gr. 22 and gr.22V) without buttering, e.g. for reactors skirts. » Suitable for challenging O&G Upstream applications, e.g. welding of offshore platforms modules. » Suitable for sour service

BÖHLER Ti 52 T-FD SR (CO₂) is a seamless all-positional rutile cored wire with excellent weldability, productivity and low-hydrogen performance.


It is typically alloyed with 0.4% Ni and weld metal can meet impact requirements down to -50 °C in the as welded and long terms stress relieved conditions up to 12 hrs and more, using 100% CO₂ shielding gas. It is CTOD tested at -10 °C and weld metal hardness is below 248 HV10 . Additionally it is H.I.C and S.S.C. proven as well, hence meeting the NACE MR0175 for service in sour environments Therefore it is ideal for demanding applications in the O&G Upstream and for process vessels and processing pipeworks, where PWHT is requested also for several hours. Finally It is also proven in case of high temperature PWHT (up to 705 °C x 16 h) with excellent tensile and impact energy properties at -30 °C making it suitable for dissimilar weld between carbon steels and creep resistant steels (such as gr. 11, gr. 22, 22V) without buttering.



Typical applications

- » Pressure vessels
- » Offshore constructions
- » Process piping

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Classifications		Operating data		
EN ISO 17632-A	AWS A5.36	Welding positions	Polarity	Shielding gas
T 42 4 P C1 1 H5	E71T12-C1AP4-CS2-H4		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 R _{p0.2%} MPa	Tensile strength R _m MPa	Elongation A ₅ %	CVN Impact toughness ISO-V KV J			CTOD tested
					-29 °C	-40 °C	C-50 °C	
C1	As welded	500 (≥420)	570 (500-640)	24 (≥22)	-	110 (≥47)	100 (≥47)	-10 °C
	PWHT: 620°C/3h	460	550	28	-	85	75	-
	PWHT: 620°C/13h	460	550	29	-	95	90	-
	PWHT: 690°C/ 4h	443	582	29	60	55	-	-
	PWHT: 705°C/16h	430	576	30	65	50	-	-

Mechanical properties, Dissimilar Joint in PF position: ASTM A587 Gr.22 - A516 Gr.70								
Shielding gas	Condition	Yield strength R _{p0.2%} MPa	Tensile strength R _m MPa	Elongation A ₅ %	CVN Impact toughness ISO-V KV J			Hardness HV10
					-29 °C	-40 °C	-50 °C	
C1	PWHT: 690°C/16h	436	556	28	90	80	-	185-210

Steels to be welded	
EN	ASTM
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	ASTM 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

Approvals
ABS, BV, DNV-GL, LR, CE

Overview spool types					
Wire basket spool K300			Plastic spool D300		
	Precision layer wound	Available spool weight: 16 kg		Precision layer wound	Available spool weight: 15 kg
	Dimensions: Ø external 300 mm Ø internal 180 mm Width 100 mm	Available diameters: 1.2 mm 1.4 mm		Dimensions: Ø external 300 mm Ø internal 52 mm Width 100 mm	Available diameters: 1.2 mm 1.4 mm