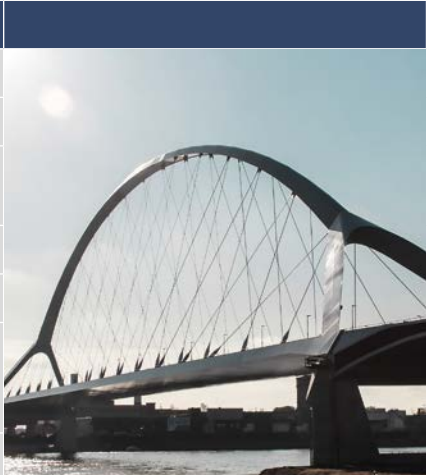


BÖHLER HL 51 T-MC

Seamless Cored Wire



All-positional metal-cored wire for steel up to 460 MPa yield strength with CVN impact requirements down to -60 °C

Features	User benefits	
» High weld metal recovery	» Productive welding	
» Welder-friendly	» Low defect rate	
» Wide parameter box	» Easy setting » Low defect rate	
» Low spatter	» Less post weld cleaning	
» Dependable feedability	» Increased arc time	
» Copper-coated seamless cored wire	» Excellent current transfer » Resistance to moisture absorption » Less tip abrasion	
» Low-hydrogen weld metal	» Low risk of HAC	

Multi-purpose metal-cored wire for use with Argon-CO₂ or pure CO₂ shielding gas.

Seamless copper-coated cored wire for single- or multi-layer welding of (fine grain) steels up to 460 MPa yield strength and CVN impact requirements down to -60 °C, using Argon-CO₂ or pure CO₂ shielding gas mixed shielding gas. Outstanding mechanical properties at low temperatures, also after post weld heat treatment. Excellent weldability in all welding positions. Seamless wire design, giving optimal protection against moisture reabsorption, assuring very low-hydrogen with less than 3 ml / 100 g weld in the pure weld metal.

Exceptional low-temperature weld metal toughness, welder-friendly and low-hydrogen performance

BÖHLER HL 51 T-MC is CTOD-tested at -10 °C and yields exceptionally good low-temperature CVN impact toughness down to -60 °C, in the as welded condition when using Ar-CO₂ shielding gas. The wire is characterised by a stable, spray arc droplet transfer over a wide parameter box and shows very low spatter losses and an excellent bead appearance with minor silicate islands. Multi-run welds can easily be performed. The wire is therefore very suited for mechanized or robotized welding, but also for manual operations when removal of slag is not desirable.


BÖHLER HL 51 T-MC is very suited for root pass welding. Use of ceramic weld metal support is an option for more economic root deposition. 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 1 - 3 ml / 100 g weld metal.

Typical applications

- » General steel constructions
- » Automated-robotized applications
- » Root pass welding for piping and butt-joints

BÖHLER HL 51 T-MC

Classifications		Operating data		
EN ISO 17632-A	AWS A5.36	Allows welding with standard power sources.		
T46 6 M M 1 H5 T42 5 M C 1 H5	E70T15-M21A8-CS1-H4 E70T15-C1A6-CS1-H4	Welding positions	Polarity	Shielding gas
			DC+ DC- Position PG (vertikal abwärts)	EN ISO 14175: M21, M20, C1

Typical chemical composition, all weld metal, wt. %			
Shielding gas	C	Si	Mn
M21	0.06	0.80	1.60
C1	0.05	0.60	1.50

Mechanical properties, all weld metal (single values typical)							
Shielding gas	Steels to be welded	Yield strength R _{p0.2%} MPa	Tensile strength R _m MPa	Elongation A ₅ %	CVN Impact toughness ISO-V KV J		CTOD tested -60 °C
					-40 °C	-50 °C	
M21	as welded	500 (≥ 460)	600 (550 - 660)	29 (≥ 20)	90	-	60 (> 47)
M21	620 °C / 2 h	420	510	24	90	-	-
C1	as welded	460 (≥ 420)	560 (500 - 640)	30 (≥ 20)	80	60 (> 47)	-

Steels to be welded	
EN	ASTM
S235JR-S355JR, S235JO-S355JO, S450JO, S235J2-S355J2, S275N-S460N, S275M-S460M, P235GH-P355GH, P275NL1-P460NL1, P215NL, P265NL, 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 350 Gr. LF1; 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; API 5 L Gr. B, X42, X52, X56, X60, X65

Approvals
TÜV, DB, DNV-GL, ABS, LR, BV, RINA, CWB, CE

Overview spool types					
Plastic spool D200			Wire basket spool BS300		
	Precision layer wound Dimensions: Ø external 200 mm Ø internal 52 mm Width 47 mm	Available spool weight: 5 kg Available diameters: 1.0 mm 1.2 mm		Precision layer wound Dimensions: Ø external 300 mm Ø internal 52 mm Width 100 mm	Available spool weight: 15 kg Available diameters: 1.0 mm 1.2 mm 1.4 mm
Wire basket spool K300			Plastic spool D300		
	Precision layer wound Dimensions: Ø external 300 mm Ø internal 180 mm Width 100 mm	Available spool weight: 16 kg Available diameters: 1.0 mm 1.2 mm 1.4 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 1.3 mm 1.6 mm
Round drum					
	Weight: app. 230 kg cored wire Dimensions: Height 780 mm Ø external 520 mm	Available diameters: 1.0 mm 1.2 mm 1.4 mm 1.6 mm			