


BÖHLER HL 51 L-MC

Laser-sealed



Ultra low-hydrogen metal-cored wire for welding structural steel up to of 460 MPa YS

Features	User benefits	
» Ultra low-hydrogen weld metal	» Optimal protection against hydrogen cracking	 <p>© PALGFINGER AG Austria</p>
» Wide parameter envelop	» Easy arc setting » More spray arc welding	
» Dependable starting	» No starting defects	
» Stable arc / no spatter	» No weld cleaning	
» Excellent feedability	» Stable arc » Less downtime for maintenance	
» Low contact tip wear	» Less downtime for maintenance	
» Straight welds with smooth tie-in	» High fatigue resistance	
» Low amount of silicate islands	» No weld cleaning	
» No undercut at high travel speed	» Productive welding	

Exceptional weldability, productivity and low-hydrogen performance

BÖHLER HL 51 L-MC is a seamless, laser-sealed metal-cored wire from the Diamond Spark range. It has been developed for the high duty cycle, mechanized and robotic welding of unalloyed and fine-grained constructional steel up to 460 MPa yield and impact requirements down to -40°C. The ultra-low weld metal hydrogen content – at the level of solid wires – combined with absolute resistance against moisture reabsorption during storage and use – gives the best possible protection against hydrogen assisted / induced cracking.

BÖHLER HL 51 L-MC is especially designed for semi-automatic and fully automatic welding of constructional steels. It has an extra high weld recovery of 95 - 97% and allows easy arc setting and spray arc welding over a wider envelop of welding parameters than solid wire. The high rigidity, controlled cast & helix and perfect surface finish of the wire result in excellent feedability, low contact tip wear, an extremely stable, spatter-free arc and perfectly positioned, straight welds with smooth tie-in. High resistance to weld porosity.

Minimum oxide residues permit the welding of multi passes without the need for inter-run cleaning. Ideal for horizontal and flat fillet welds. Typical applications are long, straight fillet welds in bridges, building and vehicles.

With the innovative laser-sealed cored wires, fabricators have the ultimate precision tool for the most demanding of welding applications at their disposal. These advanced products yield ultra-low hydrogen weld metal – at the level of solid wires – and perform at high levels of welding productivity, while the unique fabrication technology and product concept enable superb characteristics for high duty cycle welding in mechanized and robotic applications.

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Classifications		Operating data		
EN ISO 17632-A	AWS A5.36	Allows welding with standard power sources		
T46 4 M M21 1 H5	E71T15-M21A4-CS2-H4 E71T15-M20A4-CS2-H4	Welding positions	Polarity	Shielding gas
			DC+	EN ISO 14175: M20, M21

Typical chemical composition, all weld metal, wt. %			
Shielding gas	C	Si	Mn
M21	0.07	0.7	1.5

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		
					+20 °C	-40 °C	-46 °C
Ar + 5 - 25% CO ₂	as welded	490 (≥ 460)	600 (550 - 740)	27 (≥ 20)	170	120 (≥ 47)	70 (≥ 27)
PWHT	620 °C / 2 h	450	550	29	180	100	

Steels to be welded	
EN	ASTM
Steels up to a yield strength of 460 MPa	Steels up to a yield strength of 67 ksi

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

Hydrogen performance	
» BÖHLER HL51 L-MC shows a solid wire like low-hydrogen performance 2-3 ml / 100 g.	» The wire stays factory dry beyond 75 hours of unprotected exposure.

Overview diameters and packaging			
BS300 16 kg	EcoDrum 250 kg		
	Wire basket Precision layer wound		Octagonal drum Weight: 250 kg Flux cored wire
	Dimensions: ø external 300 mm ø internal 180 mm Width 100 mm		Dimensions: Height 780 mm ø 510 mm
	Available diameters: 1.0 mm 1.4 mm 1.2 mm 1.6 mm		Available diameters: 1.0 mm 1.4 mm 1.2 mm 1.6 mm

Accessories for safe and efficient internal transport and installation of drums			
A range of accessories for efficient internal transport and installation of the drums is available, including a choice of four different "click and go" liner types to connect the drums with the wire feed unit.			