


BÖHLER alform[®] 700 L-MC

Laser-sealed

Ultra low-hydrogen metal-cored wire for high strength steel fabrication



Features	User benefits	
» Ultra low-hydrogen weld metal	» Optimal protection against hydrogen cracking	
» 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	
» No undercut at high travel speed	» Productive welding	

Part of the Alform[®] Welding System

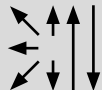
BÖHLER alform[®] 700-MC is a seamless laser-sealed metal-cored wire from the Diamond Spark range. It has been developed for the mechanized and robotic welding of structural steel up to a yield strength of 690 MPa. It is a laser-sealed metal-cored wire which is part of the alform[®] welding system – the world's first system with welding consumables exactly fine-tuned for a specific steel quality. The carbon equivalents of both BÖHLER alform[®] 700-MC and the thermo-mechanically rolled high strength steel grade Alform 700 M by voestalpine are designed to provide a wider $t/8/5$ window and thereby a wider envelope of applicable welding parameters. Sound high strength welds with excellent low-temperature toughness can be welded with higher productivity. In addition, 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.

Although all-positional, its metal-cored formulation is optimized for productive welding in PA and PB position, using Ar-CO₂ mixed gas. It allows easy arc setting and spray arc welding over a wider envelop of welding parameters than solid wire and undercut-free fillet welds are deposited at up to 50% higher travel speed. 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. The amount of silicate islands remaining on the weld surface depends on the amount of CO₂ in the shielding gas, but very clean welds are already obtained with standard M21 mixed gas.

BÖHLER alform[®] 700-MC is typically used for the high efficiency welding of high strength steel components in crane and vehicle manufacturing, offshore fabrication and pennstocks.

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.

BÖHLER alform® 700 L-MC

Classifications		Operating data		
EN ISO 18276-A	AWS A5.36	Allows welding with standard power sources.		
T 69 6 Mn2NiCrMo M M 1 H5	E110T15-M21A8-K4-H4	Welding positions	Polarity	Shielding gas
			DC+	EN ISO 14175: M21

Typical chemical composition, all weld metal, wt. %							
Shielding gas	C	Si	Mn	Cr	Ni	Mo	
M21	0.07	0.7	1.6	0.35	2.0	0.3	

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
Ar + 18% CO ₂	As welded	770 (≥ 690)	830 (770-900)	19 (≥17)	130	85 (≥47)

Steels to be welded	
EN	ASTM
S550Q-S690Q, S550QL-S690QL, P550Q-P690Q, P550QL-P690Q, aldur 700Q, aldur 700QL; alform® 700M	A 514 Gr. F, H, Q ; A 709 Gr. 100 Type E, F, H, Q; A 709 Gr. HPS 100W

Approvals
TÜV (12822.), DB (42.014.51), DNV GL, CE

Hydrogen performance	
» BÖHLER alform® 700-MC shows a solid wire like low-hydrogen performance.	» The wire stays factory dry beyond 75 hours of nprotected exposure.

Overview diameters and packaging			
BS300 16 kg		Octagonal drum 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 1.2 mm 1.6 mm		Available diameters: 1.0 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.		
		