

diamondspark 46 MC

Seamless metal-cored wire



All-positional metal-cored wire for high strength steel up to 460 MPa yield strength

Product Features	Product benefits	User benefits
» Designed chemistry	» Important reduction of silicates on single and multi-run welds	» No need for interrun cleaning
» Stable arc	» Low spatter » Wide parameter box » Welder-friendly	» Less post weld cleaning » Easy setting » Low defect rate
» Designed filling ratio	» High weld metal recovery	» Productive welding
» Excellent feedability	» Dependable feedability	» Increased arc time
» Seamless design	» Copper-coated seamless cored wire » Low-hydrogen weld metal	» Excellent current transfer » Resistance to moisture absorption » Less contact tip wear » Low risk of HAC

Seamless metal-cored wire from the diamondspark range designed for multi-pass welds without the need of interrun cleaning. For manual and mechanized welding of unalloyed and fine-grain constructional steels with service temperatures from -30 °C to +450 °C. Very suited for flat and horizontal fillet welds.

diamondspark 46 MC features a stable, spray arc droplet transfer over a wide parameter box and shows very low spatter losses and an excellent bead appearance.


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 construction such as bridges and stadiums
- » Earth moving and road construction machinery (yellow goods)
- » Medium and thin-plate welding e.g. in automotive industry and shipbuilding

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Classifications			Operating data		
EN ISO 17632-A	AWS A5.36/SFA-5.36	AWS A5.18/SFA-5.18	Allows welding with standard power sources		
T46 3 M M21 1 H5	E71T15-M21A5-CS1-H4	E70C-6M H4		DC+	Shielding gas EN ISO 14175: M20, M21
T46 3 M M20 1 H5	E71T15-M20A5-CS1-H4				

C Typical chemical composition, all weld metal, wt. %			
Shielding gas	C	Si	Mn
M21	0.06	0.8	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	-30 °C	-50 °C
M21	as welded	480 (≥460)	580 (≥550-660)	29 (≥22)	120	90 (≥47)	70 (≥27)

Steels to be welded		
EN	Shipbuilding steel	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	A, B, D, E, A 27-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 516 Gr. 55, 65, 70; A 573 Gr. 58, 65, 70; A 588 Gr. A, B; A 633 Gr. C; 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, ABS, BV, DNV-GL, CWB, LR, CE, RINA

Overview spool types			
Plastic spool S200		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: 16 kg Available diameters: 1.0 mm 1.2 mm 1.4 mm 1.6 mm
BASEdrum™ 250 kg			
	Round drum Weight: 250 kg Dimensions: Height 780 mm Ø external 520 mm	Available diameters: 1.0 mm 1.2 mm 1.4 mm 1.6 mm	

Welding Machines	
<p>For the best welding performance with our diamondspark flux-cored wires, we recommend our dedicated synergic lines available on voestalpine Böhler welding machines: Uranos 3200 PME; Uranos 4000 PME; Uranos 5000 PME; Uranos 3200 GSM; Uranos 4000 GSM; Uranos 5000 GSM.</p>	