

# diamondspark 54 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

Product features	Product benefits	User benefits
» Designed chemistry	» Excellent Mechanical properties at low temperature	» Guarantee of quality performance during Welding Procedure Qualification process
» Designed filling ratio	» High weld metal recovery	» Productive welding
» Stable arc	» Low spatter » Wide parameter box » Welder-friendly	» Less post weld cleaning » Easy setting » Low defect rate
» 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 tip abrasion » Low risk of HAC

Seamless copper-coated metal cored wire for single- or multilayer welding of Carbon, Carbon-Manganese and similar types of steels, including fine grain steels with Argon-CO<sub>2</sub> or pure CO<sub>2</sub> shielding gas.

Out- standing mechanical properties at low temperatures down to - 60 °C, 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.

This product can be used in sour gas applications. (HIC tested acc. to NACE TM-0284). Test values for SSC are available upon request. This wire is CTOD-tested

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.


diamondspark 54 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.



### Typical applications

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

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Classifications			Operating data		
EN ISO 17632-A	AWS A5.36/SFA-5.36	AWS A5.18/SFA-5.18	Welding positions	Polarity	Shielding gas
T46 6 M M21 1 H5	E71T15-M21A8-CS1-H4	E70C-6M H4		DC+ DC- Position PG (vertical down)	EN ISO 14175: M21, M20, C1
T42 5 M C1 1 H5	E71T15-C1A6-CS1-H4				

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 <sub>p0.2%</sub> MPa	Tensile strength R <sub>m</sub> MPa	Elongation A <sub>5</sub> %	CVN Impact toughness ISO-V KV J			CTOD tested -60 °C
					-40 °C	-50 °C	-60 °C	
M21	as welded	500 (≥460)	600 (550-660)	29 (≥20)	90	-	60 (>47)	-10 °C
M21	620 °C / 2h	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, F, A 40-F 46  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 S200			Wire basket spool BS300		
	Precision layer wound	Available spool weight: 5 kg		Precision layer wound	Available spool weight: 16 kg
	Dimensions: Ø external 200 mm Ø internal 52 mm Width 47 mm	Available diameters: 1.0 mm 1.2 mm		Dimensions: Ø external 300 mm Ø internal 52 mm Width 100 mm	Available diameters: 1.0 mm 1.2 mm 1.4 mm 1.6 mm
BASEdrum™ 250 kg					
	Round drum Weight: 250 kg	Available diameters: 1.0 mm 1.2 mm 1.4 mm 1.6 mm			
	Dimensions: Height 780 mm Ø external 520 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>	