diamondspark GUARD 420 MC

Seamless Low Manganese Fume Emission metal-cored wire

All-positional metal-cored wire for steel up to 420 MPa yield
for M20-M21 shielding gases, for structural steel constructions

Product Features	Product benefits	User benefits
» Low Mn Fume emission » Low FER diamondspark MCW	» Lower Mn emission in welding fume » Reduction of hazardous particles at source	» Provide highest level of protection in combination with existing safety tools » Compliance with the most stringent safety rule in term of Mn emission
» Designed chemistry	» Low silicon island formation » No Nickel added	» Easy silicate removal » High impact properties down to -46°C (≥ 27J)
» Stable arc	» Welder-friendly » Smooth wetting » Low spatter	» Low defect rate » Good fatigue resistance » Less post weld cleaning
» Excellent feedability	» Dependable feedability » Low contact tip wear	» No starting defects » Increased arc time
» Seamless design	» Copper-coated seamless cored wire » Low-hydrogen weld metal » Little to no helix	» Excellent current transfer » Resistance to moisture absorption » Low risk of HAC » Very straigh, high targeting accuracy

diamondspark GUARD 420 MC is able to reduce operator exposure from airborne Mn and will assist in meeting recently revised exposure limits. This product offers reduced Mn fume produced at the arc due to its lower manganese levels in its chemistry. diamondspark GUARD 420 MC is the latest technology in seamless metal cored wires developed by Bohler Welding and due to its innovative chemistry, produces less than 60% of manganese in the welding fumes (mg/s) when compared to traditional metal cored wires whilst producing lower fumes than conventional flux cored wires. diamondspark GUARD 420 MC design criteria helps to maintain the same level of welding productivity and welding performance of conventional diamondspark metal-cored wires with a substantial reduction of Mn present in the welding fume. Features include: high resistance to porosity, good weld puddle fluidity as well as a low hydrogen content (< 2 ml/100 g deposit) in the weld deposit. This product is ideal for high productivity horizontal and flat position welding.Please note, revised exposure limits may also require the use of auxiliary fume capture devices combined with the use of a welding respirator to be fully compliant.

Typical applications

» General Steel constructions
» Earth moving and road construction machinery

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Classifications			Operating data	Allows welding with standard power sources.	
EN ISO 17632-A	**EN ISO 17632-B**	**AWS A5.18/SFA-5.18**	**Welding positions**	**Polarity**	**Shielding gas**
T42 4 M M21 1 H5 T42 4 M M20 1 H5	T494T15-1M21A-UH5 T494T15-1M20A-UH5	E70C-6M H4		DC+	EN ISO 14175: M21,M20 (Ar + 5 – 25% CO_2)

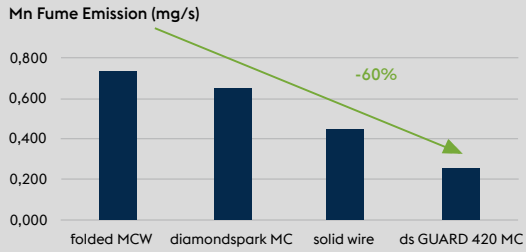
Typical chemical composition, all weld metal, wt. %

Shielding gas	C	Si	Mn
M21 – M20 (Ar + 5 – 25% CO_2)	0.07	0.80	0.70

Mechanical properties, all weld metal (single values typical)

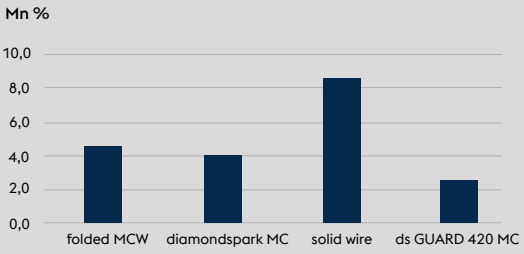
Shielding gas	Condition	Yield strength $R_{p0.2\%}$ MPa	Tensile strength R_m MPa	Elongation A_5 %	CVN Impact toughness ISO-V KV J -30 °C	-40°C	-46°C
M21 - M20	as welded	460 (≥ 420)	560 (500 - 640)	27 (≥22)	90	80 (≥ 47)	60 (≥ 27)
M21 - M20	PWHT: 620°C / 1h	400	510	30	110	100	95

Mn Fume Emission (mg/s)



Shielding gas M21 (82%Ar-18%CO_2); 270 A – 30 V – 1.20 mm

Mn Fume Emission (%)



Approvals

TÜV; ABS, BV; DNV; LR, CWB (E491T15-M21A5-CS2-H4 / E491T15-M20A5-CS2-H4), CE

Overview spool types

BASEdrum™ 250 kg

Round drum
Weight: 250 kg

Dimensions:
Height: 780 mm
Ø external: 520 mm

Available diameters

1.2 mm 1.4 mm
1.6 mm

Wire basket spool BS300

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

Welding Machines

For the best welding performance with our diamondspark flux-cored wires, we recommend our dedicated synergic lines available on voestalpine Böhler welding machines: Uranos NX PME; URANOX NX GSM; TERRA NX PME

voestalpine Böhler Welding
www.voestalpine.com/welding

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ONE STEP AHEAD.