

diamondspark GUARD 420 RC

Seamless Low Manganese Fume Emission flux-cored wire



All-positional flux-cored wire for steel up to 420 Mpa yield,
for Argon-CO₂ shielding gases, for structural steel constructions

Product Features	Product benefits	User benefits
<ul style="list-style-type: none"> » Low Mn Fume emission » Low FER diamondspark FCW 	<ul style="list-style-type: none"> » Lower Mn emission in welding fume » Reduction of hazardous particles at source 	<ul style="list-style-type: none"> » Provide highest level of protection in combination with existing safety tools » Compliance with the most stringent safety rule in term of Mn emission
<ul style="list-style-type: none"> » Designed chemistry 	<ul style="list-style-type: none"> » Good CVN impact toughness down to -30°C » High travel speed in vertical up 	<ul style="list-style-type: none"> » Good margin to cover both strength and impact requirements » Productive positional welding » Reduction harmful elements
<ul style="list-style-type: none"> » Stable arc 	<ul style="list-style-type: none"> » Welder-friendly » Smooth wetting » Low spatter 	<ul style="list-style-type: none"> » Low defect rate » Good fatigue resistance » Less post weld cleaning
<ul style="list-style-type: none"> » Excellent feedability 	<ul style="list-style-type: none"> » Dependable feedability » Low contact tip wear 	<ul style="list-style-type: none"> » No starting defects » Less down-time for maintenance
<ul style="list-style-type: none"> » Seamless design 	<ul style="list-style-type: none"> » Copper-coated seamless cored wire » Low-hydrogen weld metal » Resistance against moisture pick-up 	<ul style="list-style-type: none"> » High rust surface resistance » Low risk of HAC » No porosity observed

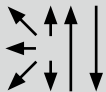
diamondspark GUARD 420 RC is able to reduce operator exposure from airborne Mn and will assist in meeting recently revised exposure limits. This product offers reduced Mn fume produced at the arc due to its lower manganese levels in its chemistry. diamondspark GUARD 420 RC is the latest technology in seamless flux-cored wires developed by Böhler Welding and due its innovative chemistry, produces less than 70% of manganese in the welding fumes (mg/s) when compared to traditional flux-cored wires whilst producing lower fumes than conventional flux cored wires. diamondspark GUARD 420 RC design criteria helps to maintain the same level of welding productivity and welding performance of conventional diamondspark flux-cored wires with a substantial reduction of Mn present in the welding fume. Features include: good weldability in all positions with high performance welding speed, very low spatter losses, good bead appearance, fast freezing and easy to remove slag and low hydrogen content (< 4 ml/100 g deposit) in the weld deposit. 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

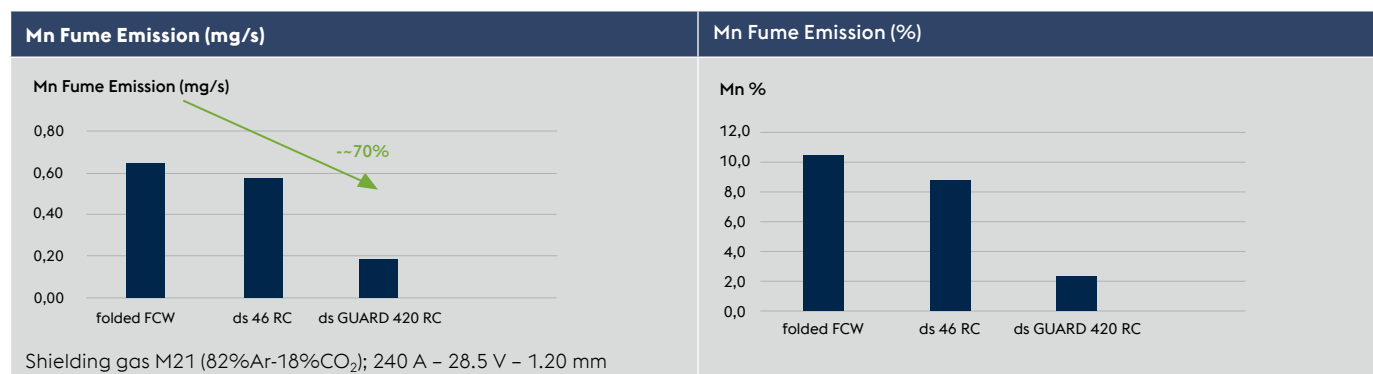
- » General Steel constructions
- » Shipbuilding

diamondspark GUARD 420 RC


Classifications			Operating data	Allows welding with standard power sources.	
EN ISO 17632-A	EN ISO 17632-B	AWS A5.20/SFA-5.20	Welding positions	Polarity	Shielding gas
T42 3 P M21 1 H5	T493T1-1M21A-UH5	E71T-1M/T-9M/T-12M H4		DC+	EN ISO 14175: M21,M20 (Ar + 15 – 25% CO ₂)

Typical chemical composition, all weld metal, wt. %				
Shielding gas	C	Si	Mn	Ni
M21 – M20 (Ar + 15 – 25% CO ₂)	0.06	0.4	0.3	0.4

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	
M21 - M20 (Ar + 15 – 25% CO ₂)	as welded	440 (≥ 420)	510 (500 - 640)	24 (≥ 22)	100	80 (≥ 47)



Approvals
TÜV; ABS, BV; DNV; LR, CWB (E491T1-M21A3-CS2-H4 / E491T1-M20A3-CS2-H4), CE

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: 1.2 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

Welding Machines	
<p>For the best welding performance with our diamondspark flux-cored wires, we recommend our BÖHLER Arc synergic programs on voestalpine Böhler welding machines: URANOS NX PME; URANOS NX GSM; TERRA NX PME</p>	