

Classifications

EN ISO 17632-A	EN ISO 17632-B	AWS A5.18 / SFA-5.18
T42 4 M M21 1 H5	T494T15-1M21A-UH5	E70C-6M H4
T42 4 M M20 1 H5	T494T15-1M20A-UH5	

Characteristics and typical fields of application

diamondspark GUARD 420 MC is our newest generation of low Manganese fume emission seamless metal-cored wire for semi-automatic and fully automatic welding of unalloyed and fine-grained construction steels and is certified for use with Argon-CO₂ based shielding gases. This product produces less than 60% of Manganese emission rate (mg/s) when compared with conventional cored wires and lower fume emission rate when compared to traditional folded metalcored 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. This product is able to reduce operator exposure from air bourn Mn and will assist in meeting recently revised exposure limits. 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. This product offers reduced Mn fume produced at the arc as it offers lower Mn levels in its chemistry. 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.

Base materials

Steels up to a yield strength of 420 MPa

S235JR-S355JR, S235JO-S355JO, S235J2-S355J2, S275N-S420N, S275M-S420M, P235GH-P355GH, P355N, P285NH-P420NH, P195TR1-P265TR1, P195TR2-P265TR2, P195GH-P265GH, L245NB-L415NB, ship building steel: A, B, D, E, A 32-E 36
 ASTM A 106 Gr. A, B, C; A 181 Gr. 60; 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

Typical analysis

	Gas	C	Si	Mn
wt.-%	M21 - M20	0.07	0.80	0.70

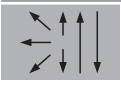
Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength R _y MPa	Tensile strength R _m MPa	Elongation A (L ₀ =5d ₀) %	Impact energy ISO-V KV J		
				-30°C	-40°C	-50°C
u	460 (≥420)	560 (500-640)	27 (≥22)	90	80 (≥47)	60 (≥27)
s	400	510	30	110	100	95

u untreated, as welded – shielding gas M21-M20 (Ar + 5 – 25% CO₂)

s stress relieved 620°C/1 hour - shielding gas M21-M20 (Ar + 5 – 25% CO₂)

Operating data

	Polarity	DC+	Dimension mm
	Shielding gas (EN ISO 14175)	M21; M20; (Ar + 5 – 25% CO ₂)	1.0
			1.2
			1.4
			1.6

Welding with conventional or pulsed power sources using DC+

Approvals

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