

Classifications

EN ISO 18276-A	EN ISO 18276-B	AWS A5.28 / SFA-5.28
T 69 6 Mn2NiCrMo M M21 1 H5	T 76 6 T15-1M21A-N4C1M2-UH5	E110C-K4H4

Characteristics and typical fields of application

diamondspark 700 MC metal cored wire manufactured with seamless technology is developed for shielded arc welding of thermo mechanically and quenched and tempered fine grained structural steels. The metallurgy combined with a very precise production technology results in high strength combined with very good toughness behaviour and excellent welding performance. This tubular wire possesses higher rigidity – as a result it offers exact ignition and excellent feeding characteristic. Due to the manufacturing technology, this metal cored wire ensures low diffusible hydrogen content of <2 ml / 100g. This metal cored wire is designed for welding under mixture gas (Ar + CO₂) in PA and PB-position. Good results were also achieved after using alternative gases CO₂, 8 – 10 % CO₂ + Ar and different welding positions (PG). This filler material is used for high strength steel constructions, crane and vehicle manufacturing, for ship building, offshore applications and also for penstocks.

Base materials

Thermo mechanically treated and quenched and tempered fine grain steels up to 100ksi, (690 MPa).

ASTM A 514 Gr. F, H, Q ; A 709 Gr. 100 Type E, F, H, Q; A 709 Gr. HPS 100W
S550Q-S690Q, S550QL-S690QL, P550Q-P690Q, P550QL-P690QL

Typical analysis

	Gas	C	Si	Mn	Cr	Ni	Mo
wt.-%	M21	0.07	0.7	1.6	0.35	2.0	0.3

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

Condition	Yield strength R _{p0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact energy ISO-V KV J	
	Mpa	Mpa	%	-40°C	-60°C
u	770 (≥690)	830 (770-900)	19 (≥17)	130	85 (≥47)
s	720 (≥690)	780 (≥770)	22 (≥17)	60	40 (≥34)

u untreated, as welded – shielding gas M21

s stress relieved 570°C x 3h – shielding gas M21

Operating data

	Polarity	DC+	Dimension mm
	Shielding gas	M21; M20	1.0
	(EN ISO 14175)		1.2
			1.6

Preheating and interpass temperature as required by the base metal

Approvals

TÜV (12822), DB (42.052.28), ABS, BV, CWB, DNV, LR, CE