

Classifications

EN ISO 17632-A	EN ISO 17632-B	AWS A5.20 / SFA-5.20
T 46 5 P M21 1 H5	T 49 5 T1-1MA-H5	E71T-1M/T-9M/T-12M JH4
T 42 2 P C1 1 H5	T 49 2 T1-1CA-H5	E71T-1C/T-9C/T-12C H4

Characteristics and typical fields of application

High performance seamless rutile flux cored wire for single or multipass welding of Carbon, Carbon-Manganese steels and similar including fine grain steels with Argon-CO₂ shielding gas or pure CO₂. Main features: excellent weldability in all positions, excellent bead appearance, very low spatter losses, fast freeing slag with an easy removal. The good mechanical properties of this wire make it especially suitable for hardest applications in off-shore and ship building industry even at low temperatures. This product can be used in sour gas applications. (HIC tested acc. to NACE TM-0284). Test values for SSC are available upon request.

Base materials

S235JR-S355JR, S235J0-S355J0, S450J0, 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

Ship building steels: A, B, D, E, A 32-E 36

ASTM 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

Typical analysis

	Gas	C	Si	Mn	Ni
wt.-%	M21	0.06	0.45	1.30	0.35
wt.-%	C1	0.05	0.35	1.00	0.30

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

Condition	Yield strength R _e	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact energy ISO-V KV J			
				-20°C	-40°C	-46°C	-51°C
	MPa	MPa	%				
u	500 (≥ 460)	590 (550–620)	28 (≥ 20)	110	90 (≥ 47)		80 (≥ 47)
u1	450 (≥ 420)	550 (500–620)	24 (≥ 20)	100 (≥ 47)			
s1	510(≥460)	590 (550-620)	26 (≥20)			80 (≥ 27)	60 (≥ 27)
s2	500 (≥460)	580 (550-620)	22 (≥20)			62	60

u untreated, as welded – shielding gas M21

u1 untreated, as welded – shielding gas C1

s1 stress released, 620 °C x 1 hr - shielding gas M21

s2 stress released, 620 °C x 5 hr - shielding gas M21

Operating data

	Polarity	DC+	Dimension mm
	Shielding gas (EN ISO 14175)	M21, C1	1.0
			1.2
			1.4
			1.6

Welding with standard GMAW-facilities possible

Approvals

TÜV (12897), DB (42.052.25), DNV, LR, RINA, CWB, CE