

## Classifications

EN ISO 18276-A	EN ISO 18276-B	AWS A5.29 / SFA-5.29
T 69 6 Mn2NiMo P M21 1 H5	T 76 6 T1-1M21A-N4M2-UH5	E111T1-K3M-JH4

## Characteristics and typical fields of application

Seamless rutile, Nickel-Molybdenum alloyed, flux cored wire for single- or multilayer welding of high strength steels to be used with Argon-CO<sub>2</sub> shielding gas. This core wire with its easy to remove and fast freezing slag shows excellent weldability in all positions, excellent bead appearance and very low spatter losses. The low diffusible hydrogen content of the pure weld metal (2-3ml/100g) and the outstanding mechanical properties at low temperatures (-60°C) make this wire perfect suitable for applications using high- and ultra-high strength steel grades. In particular this product is dedicated to be performed after PWHT for Q&T and also for TMCP steels thanks to his particular formulation that reduce the embrittlement of the weld metal after such treatments with good toughness till -40°C.

## Base materials

Thermo mechanically treated and quenched and tempered fine grain steels up to 690 MPa. S550Q-S690Q, S550QL-S690QL, P550Q-P690Q, P550QL-P690QL ASTM A 514 Gr. F, H, Q ; A 709 Gr. 100 Type E, F, H, Q; A 709 Gr. HPS 100W

## Typical analysis

	Gas	C	Si	Mn	Ni	Mo
wt.-%	M21	0.04	0.25	1.80	2.30	0.40

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

Condition	Yield strength	Tensile strength	Elongation A	Impact energy ISO-V KV J		
	R <sub>p0.2</sub> MPa	R <sub>m</sub> MPa	(L <sub>0</sub> =5d <sub>0</sub> ) %	-40 °C	-46 °C	-60 °C
u	740 (≥ 690)	800 (770-900)	18 (≥ 17)	70	65	55 (≥47)
s	730 (≥ 690)	790 (770-900)	19 (≥ 17)	47	35(≥27)	
s1	730 (≥690)	780 (770-900)	19 (≥17)	55	40(≥27)	

u untreated, as welded – shielding gas M21

s stress relieved 570°C x 3h – shielding gas M21 (recommended max. T. (°C) for Q&T steels)

s1 stress relieved 510°C x 3h – shielding gas M21 (recommended max. T. (°C) for TMCP steels)

## Operating data

	<b>Polarity</b>	DC+	<b>Dimension mm</b>
	<b>Shielding gas (EN ISO 14175)</b>	M21	

Welding with standard GMAW-facilities possible

## Approvals

CE