OK Tigrod 13.38

A non copper coated, low-alloyed, (9CrMoVN), rod for GTAW of high-temperature steels and steels for hot hydrogen service especially in oil refineries. Preferably used for 9 % Cr steels as e.g. P 91/T 91 steels. The alloy is modified as regards limits of impurity elements and is extremely "clean". This to receive improved strength levels both at room temperature and at higher temperatures. AWS have changed the classification for this product, earlier classification was A5.28 ER90S-B9.

Specifications	
Classifications	EN ISO 21952-A : W CrMo91 EN ISO 21952-B : W 62 I1 9C1MV SFA/AWS A5.28 : ER90S-B91
Approvals	CE : EN 13479 UKCA : EN 13479 VdTÜV : 07686

Approvals are based on factory location. Please contact ESAB for more information.

Alloy Type	Alloyed steel (9 % Cr - 1 % Mo - V - N) "9CrMoVN"
Shielding Gas	I1 (EN ISO 14175)

Tensile_Properties				
Testing Condition	**Conditional Statement**	**Yield Strength**	**Tensile Strength**	**Elongation**
Ar (I1) AWS				
PWHT 2 hour(s) 760 °C	Tested at 450°C	750 MPa	850 MPa	20 %
Ar (I1) EN				
PWHT (Tested	Tested at 482°C	500 MPa	560 MPa	16 %
PWHT (Tested	Tested at 450°C	510 MPa	580 MPa	14 %
Ar (I1) EN				
PWHT (Tested	Tested at 20°C	690 MPa	785 MPa	20 %
PWHT (Tested	Tested at 560°C	420 MPa	450 MPa	22 %
PWHT (Tested	Tested at 20°C	670 MPa	760 MPa	20 %

Charpy Testing		
Testing Condition	**Testing Temp**	**Impact Value**
Ar (I1) AWS		
PWHT 2 hour(s) 760 °C	20 °C	95 J
Ar (I1) EN		
PWHT 2 hour(s) 760 °C	20 °C	200 J
PWHT 4 hour(s) 735 °C	20 °C	210 J
PWHT 4 hour(s) 735 °C	0 °C	190 J
PWHT 2 hour(s) 760 °C	0 °C	180 J
PWHT 4 hour(s) 735 °C	-20 °C	130 J
PWHT 2 hour(s) 760 °C	-20 °C	150 J

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Charpy Testing		
Testing Condition	**Testing Temp**	**Impact Value**
PWHT 4 hour(s) 735 °C	-40 °C	60 J
PWHT 2 hour(s) 760 °C	-40 °C	90 J
PWHT 4 hour(s) 735 °C	-60 °C	30 J
PWHT 2 hour(s) 760 °C	-60 °C	70 J

Typical Weld Metal Analysis %									
C	**Mn**	**Si**	**S**	**P**	**Ni**	**Cr**	**Mo**	**V**	**Cu**
0.1	0.5	0.3	0.002	0.004	0.8	8.7	0.9	0.2	0.1

Typical Weld Metal Analysis %	
N	**Nb**
0.04	0.06

Typical Wire Composition %							
C	**Mn**	**Si**	**Ni**	**Cr**	**Mo**	**V**	**N**
0.1	0.5	0.3	0.5	8.7	0.9	0.20	0.05