

OK Autrod 12.51

A copper coated, G3Si1/ER70S-6 solid wire for GMAW of all general structural and engineering unalloyed and low-alloyed carbon-manganese steels. The electrode may be welded with either a gas mixture or with pure CO₂ as the shielding gas. OK Autrod 12.51 delivered in the unique Esab Octagonal Marathon Pac is an excellent choice in mechanised welding applications

Specifications	
Classifications	EN ISO 14341-A : G 38 3 C1 3Si1 EN ISO 14341-A : G 42 4 M20 3Si1 EN ISO 14341-A : G 42 4 M21 3Si1 EN ISO 14341-A : G 3Si1 SFA/AWS A5.18 : ER70S-6 CSA W48 : B-G 49A 3 C1 S6 JIS Z 3312 : YGW 12(C1)
Approvals	CWB : B-G 49A 3 C1 S6 JIS : YGW12 PRS : 3YS RINA : 3YS RINA : 3Y S ABS : 3YSA BV : SA3YM (C1,M21) CE : EN 13479 DB : 42.039.06 DNV-GL : III YMS LR : 3YS H15 UKCA : EN 13479 VdTÜV : 00899 RINA : 3YS RINA : 3Y S

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

Alloy Type	Carbon-manganese steel (Mn/Si-alloyed)
Shielding Gas	M20, M21, C1 (EN ISO 14175)

Typical Tensile Properties			
Condition	Yield Strength	Tensile Strength	Elongation
EN M21			
As Welded	460 MPa	560 MPa	26 %
Stress Relieved 15 hour(s) 620 °C	370 MPa	495 MPa	28 %
EN C1			
As Welded	440 MPa	540 MPa	25 %
AWS C1			
As Welded	430 MPa	530 MPa	30 %
EN M20			
As Welded	480 MPa	590 MPa	26 %

Typical Charpy V-Notch Properties		
Condition	Testing Temperature	Impact Value
EN M21		
As Welded	20 °C	130 J
Stress Relieved 15 hour(s) 620 °C	20 °C	120 J
As Welded	-20 °C	120 J

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Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
Stress Relieved 15 hour(s) 620 °C	-20 °C	90 J
As Welded	-30 °C	100 J
As Welded	-40 °C	90 J
EN C1		
As Welded	20 °C	110 J
As Welded	-30 °C	75 J
AWS C1		
As Welded	-30 °C	75 J
EN M20		
As Welded	-40 °C	100 J

Typical Weld Metal Analysis %

C	Mn	Si	S	P
C1				
0.08	0.94	0.63	0.012	0.013
M21				
0.10	1.11	0.72	0.012	0.013

Typical Wire Composition %

C	Mn	Si
0.078	1.46	0.85

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
0.6 mm	30-100 A	15-20 V	5.5-13.0 m/min	0.7-1.7 kg/h
0.8 mm	60-200 A	18-24 V	3.2-10.0 m/min	0.8-2.3 kg/h
0.9 mm	70-250 A	18-26 V	3.0-12.0 m/min	0.9-3.5 kg/h
1.0 mm	80-300 A	18-32 V	2.7-15.0 m/min	1.0-5.5 kg/h
1.14 mm	100-350 A	18-34 V	2.6-15.0 m/min	1.2-7.0 kg/h
1.2 mm	120-380 A	18-35 V	2.5-15.0 m/min	1.3-8.0 kg/h
1.32 mm	130-400 A	19-35 V	2.4-15.0 m/min	1.5-8.5 kg/h
1.4 mm	150-420 A	22-36 V	2.3-12.0 m/min	1.6-8.7 kg/h
1.6 mm	225-550 A	28-38 V	2.3-10.0 m/min	2.1-9.4 kg/h