

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

ABS : 3YSA, 3
 BV : SA3YM (C1,M21)
 CE : EN 13479
 DB : 42.039.06
 DNV-GL : III YMS
 LR : 3YS H15
 UKCA : EN 13479
 VdTÜV : 00899
 CWB : B-G 49A 3 C1 S6
 JIS : YGW12
 PRS : 3YS
 RINA : 3YS
 RINA : 3YS

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

Conditional Statement	Yield Strength	Tensile Strength	Elongation
80% Ar - 20% CO₂			
Stress relieved	380 MPa (55 ksi)	495 MPa (71.8 ksi)	28 %
As welded	480 MPa (69.6 ksi)	560 MPa (81.2 ksi)	26 %

Typical Charpy V-Notch Properties

Testing Temperature	Impact Value
80% Ar - 20% CO₂	
-20 °C (-4 °F)	130 J (96 ft-lb)
-20 °C (-4 °F)	90 J (66 ft-lb)
20 °C (68 °F)	120 J (88.5 ft-lb)
-30 °C (-22 °F)	90 J (66 ft-lb)
-40 °C (-40 °F)	90 J (66 ft-lb)
20 °C (68 °F)	130 J (96 ft-lb)

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
0.6 mm (.023 in.)	30-100 A	15-20 V	5.5-13 m/min (216.5-512 in./min)	0.7-1.7 kg/h (1.5-3.7 lbs/h)
0.8 mm (.030 in.)	60-200 A	18-24 V	3.2-13 m/min (126-512 in./min)	0.8-3.0 kg/h (1.8-6.6 lbs/h)

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Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate
0.9 mm (.035 in.)	70-250 A	18-26 V	3.0-12 m/min (118-472 in./min)	0.9-3.6 kg/h (2.0-7.9 lbs/h)
1.0 mm (.040 in.)	80-300 A	18-32 V	2.7-15 m/min (106-590.5 in./min)	1.0-5.6 kg/h (2.2-12.3 lbs/h)
1.2 mm (.045 in.)	120-380 A	18-34 V	2.5-15 m/min (98-590.5 in./min)	1.3-8.0 kg/h (2.9-17.6 lbs/h)
1.4 mm (.052 in.)	150-420 A	22-36 V	2.3-12 m/min (90.5-472 in./min)	1.6-8.7 kg/h (3.5-19.2 lbs/h)
1.6 mm (1/16 in.)	225-550 A	28-38 V	2.3-12 m/min (90.5-472 in./min)	2.1-11.4 kg/h (4.6-25.1 lbs/h)
2.0 mm (5/64 in.)	300-650 A	32-44 V	4-15 m/min (157.5-590.5 in./min)	3.2-12.5 kg/h (7.1-27.5 lbs/h)