

OK Autrod 12.51

OK Autrod 12.51 is a copper-coated solid wire with higher levels of deoxidizers (manganese and silicon). The high content of deoxidizers allow welding over heavier amounts of dirt, rust, and mill scale while providing a more fluid puddle and smoother bead profile.

Classifications Weld Metal:	EN ISO 14341-A:G 38 3 C1 3Si1, EN ISO 14341-A:G 42 4 M21 3Si1
Classifications Wire Electrode:	EN ISO 14341-A:G 3Si1, SFA/AWS A5.18:ER70S-6, CAN/CSA-ISO 14341-B:G 49A 3 C1 S6, JIS Z 3312:YGW 12(C1)
Approvals:	CE EN 13479, DNV III YMS (M21), VdTÜV 00899, BV SA3YM (M21), JIS YGW12, CWB B-G 49A 3 C1 S6 (B-G 49A 3 C G6), DNV III YMS (C1), GL 3YS (C1), BV SA3YM (C1), DB 42.039.06, RINA 3YS (C1), RINA 3YS (M21), NAKS/HAKC 1.0MM-2.0MM, NAKS/HAKC 1.2MM-1.6MM, ABS 3YSA (C1 & M21), LR 3YS H15 (C1 & M21), PRS 3YS (C1 & M21), RS 3YMS (C1 & M21)

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

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
80% Ar - 20% CO2			
As welded	480 MPa (70 ksi)	560 MPa (81 ksi)	26 %
Stress relieved 15 hr 620 °C (1148 °F)	380 MPa (55 ksi)	495 MPa (72 ksi)	28 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
80% Ar - 20% CO2		
As welded	20 °C (68 °F)	130 J (96 ft-lb)
As welded	-20 °C (-4 °F)	130 J (96 ft-lb)
As welded	-30 °C (-22 °F)	90 J (66 ft-lb)
As welded	-40 °C (-40 °F)	90 J (66 ft-lb)
Stress relieved 15 hr 620 °C (1148 °F)	20 °C (68 °F)	120 J (75 ft-lb)
Stress relieved 15 hr 620 °C (1148 °F)	-20 °C (-4 °F)	90 J (66 ft-lb)

Typical Wire Composition %

C	Mn	Si
0.078	1.46	0.85

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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 lb/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 lb/h)
0.9mm (.035 in.)	70-250 A	18-26 V	3.0-12 m/min (118-475 in./min)	0.9-3.6 kg/h (2.0-7.9 lb/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 lb/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 lb/h)
1.4 mm (.052 in.)	150-420 A	22-36 V	2.3-12 m/min (90.5-475 in./min)	1.6-8.7 kg/h (3.5-19.2 lb/h)
1.6 mm (1/16 in.)	225-550 A	28-38 V	2.3-12 m/min (90.5-475 in./min)	2.1-11.4 kg/h (4.6-25.1 lb/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 (7.0-27.5 lb/h)