

OK Flux 10.72

Agglomerated aluminate-basic flux for Submerged Arc Welding especially for applications with toughness requirements at low temperature. Excellent slag removal also in narrow V-joints. For wind tower productions, pressure vessels, general constructions etc. Extremely high current carrying capacity. For single or multi wire procedures. Suitable for DC and AC welding. Single layer and multi layer welding of unlimited plate thickness.

Specifications	
Classifications	EN ISO 14174 : S A AB 1 57 AC H5
Approvals	CE : EN 13479 DB : 51.039.12 UKCA : EN 13479

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

Diffusible Hydrogen	max 5 ml/100g weld metal (Redried flux)
Slag Type	Aluminate-basic
Alloy Transfer	No Silicon and moderately Manganese alloying
Density	nom: 1.2 kg/dm ³
Basicity Index	nom: 1.9

Flux_Consumption_SAW		
Volts	DC+ Weight	AC Weight
34 V	1.3 kg	1.2 kg
30 V	1.0 kg	0.9 kg
26 V	0.7 kg	0.6 kg
38 V	1.6 kg	1.4 kg

Condition : Dimension Ø 4.0 mm , Amps 580 A , Travel Speed 55 cm/min

Classifications_SAW				
Wire	AWS/EN	EN - As Welded	AWS - As Welded	AWS - PWHT
Spoolarc 29S	A5.17:EM13K	-	-	-
OK Autrod 12.20	A5.17:EM12/ 14171-A:S2	14171-A: S 38 5 AB S2	A5.17: F7A8-EM12	A5.17: F6P8-EM12
OK Autrod 12.22	A5.17:EM12K/ 14171-A:S2Si	14171-A: S 42 5 AB S2Si	A5.17: F7A8-EM12K	A5.17: F6P8-EM12K
OK Autrod 12.24	A5.23:EA2/ 14171-A:S2Mo; 24598-A:S S Mo	14171-A: S 46 3 AB S2Mo	A5.23: F8A5-EA2-A3	A5.23: F8P5-EA2-A3
OK Autrod 13.24	A5.23:ENi6/ 14171-A:S3Ni1Mo0,2	-	-	-
OK Autrod 13.27	A5.23:ENi2/ 14171-A:S2Ni2	14171-A: S 46 6 AB S2Ni2	A5.23: F8A8-ENi2-Ni2	A5.23: F7P8-ENi2-Ni2
OK Autrod 13.62	A5.23:EG/ 14171-A:SZ3TiB	-	-	-
OK Autrod 13.64	A5.23:EA2TiB/ 14171-A:S2MoTiB	-	A5.23: F8TA8-EA2TiB	-

Approvals_SAW						
Wire	CWB	CE	DB	VdTÜV	ABS	DNV
Spoolarc 81	•	-	-	-	-	-
OK Autrod 12.20	-	•	•	•	-	-
OK Autrod 12.22	-	•	•	•	•	•
OK Autrod 12.24	-	•	•	•	-	-
OK Autrod 13.27	-	•	-	-	-	-

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Typical Weld Metal Analysis %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
Spoolarc 29S As Welded									
0.06	1.96	0.56	0.012	0.017	0.05	0.08	0.03	0.005	0.016
Spoolarc 29S Stress Relieved 1 hr. @ 1150°F									
0.06	1.96	0.56	0.012	0.017	0.05	0.08	0.03	0.005	0.016
Spoolarc 75 As Welded									
0.07	1.84	0.55	0.005	0.016	0.84	0.04	0.01	0.008	-
Spoolarc ENi4 As Welded									
0.08	1.47	0.34	0.006	0.013	1.62	0.05	0.15	-	-
OK Autrod 12.20 AC, 580A, 29V									
0.06	1.4	0.2	-	-	-	-	-	-	-
OK Autrod 12.20 DC+, 580A, 29V									
0.05	1.5	0.2	-	-	-	-	-	-	-
OK Autrod 12.22 AC, 580A, 29V									
0.08	1.4	0.3	-	-	-	-	-	-	-
OK Autrod 12.22 DC+, 580A, 29V									
0.05	1.5	0.3	-	-	-	-	-	-	-
OK Autrod 12.24 AC, 580A, 29V									
0.06	1.5	0.2	-	-	-	-	0.5	-	-
OK Autrod 12.24 DC+, 580A, 29V									
0.05	1.6	0.2	-	-	-	-	0.5	-	-
OK Autrod 13.27 AC, 580A, 29V									
0.07	1.4	0.30	-	-	2.2	-	-	-	-
OK Autrod 13.27 DC+, 520A, 29V									
0.05	1.4	0.30	-	-	2.2	-	-	-	-

Typical Weld Metal Analysis %			
Cu	Nb	Ti	Co
Spoolarc 29S As Welded			
0.122	0.002	0.004	0.009
Spoolarc 29S Stress Relieved 1 hr. @ 1150°F			
0.122	0.002	0.004	0.009
Spoolarc 75 As Welded			
0.080	-	0.002	-
Spoolarc ENi4 As Welded			
0.060	-	-	-

Typical Wire Composition %									
C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Ti
Spoolarc 29S									
0.08	1.15	0.5	0.006	0.013	-	-	-	0.06	-
Spoolarc 71									
0.10	1.22	0.55	0.01	0.01	-	-	-	-	0.07
Spoolarc 75									
0.08	0.89	0.46	0.01	0.00	0.98	0.04	0.01	0.07	-
Spoolarc 81									
0.09	0.95	0.26	0.01	0.01	-	-	-	-	-

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Typical Wire Composition %

C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Ti
Spoolarc ENi4									
0.17	0.73	0.19	0.00	0.00	1.74	-	0.17	0.06	-
OK Autrod 12.20									
0.10	1.06	0.07	-	-	-	-	-	-	-
OK Autrod 12.22									
0.09	1.01	0.19	-	-	-	-	-	-	-
OK Autrod 12.24									
0.09	1.08	0.14	-	-	-	-	0.48	-	-
OK Autrod 13.24									
0.12	1.52	0.23	-	-	0.88	-	0.19	-	-
OK Autrod 13.27									
0.10	1.02	0.14	-	-	2.19	-	-	-	-
OK Autrod 13.62									
0.07	1.55	0.28	-	-	-	-	0.01	-	0.14
OK Autrod 13.64									
0.07	1.22	0.28	-	-	-	-	0.49	-	0.14

Typical Wire Composition %

B									
OK Autrod 13.62									
0.013									
OK Autrod 13.64									
0.013									

SAW_Typical_Mech_Properties

Wire	Testing Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch Result
Spoolarc 29S	As Welded	532 MPa (77 ksi)	622 MPa (90 ksi)	25 %	57 J @ -40 °C (42 ft-lb @ -40 °F) 43 J @ -46 °C (32 ft-lb @ -50.8 °F) 41 J @ -51 °C (30 ft-lb @ -59.8 °F)
Spoolarc 75	As Welded	556 MPa (81 ksi)	646 MPa (94 ksi)	28 %	91 J @ -40 °C (67 ft-lb @ -40 °F) 83 J @ -51 °C (61 ft-lb @ -59.8 °F)
Spoolarc 81	As Welded	415 MPa (60 ksi)	500 MPa (73 ksi)	30 %	119 J @ -29 °C (88 ft-lb @ -20.2 °F) 100 J @ -40 °C (74 ft-lb @ -40 °F) 71 J @ -51 °C (53 ft-lb @ -59.8 °F) 50 J @ -62 °C (37 ft-lb @ -79.6 °F)
Spoolarc ENi4	As Welded	607 MPa (88 ksi)	677 MPa (98 ksi)	27 %	141 J @ -40 °C (104 ft-lb @ -40 °F) 107 J @ -51 °C (79 ft-lb @ -59.8 °F) 88 J @ -62 °C (65 ft-lb @ -79.6 °F)

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SAW_Typical_Mech_Properties

Wire	Testing Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch Result
OK Autrod 12.20	As Welded AWS DC+	415 MPa (60 ksi)	500 MPa (73 ksi)	30 %	125 J @ -30 °C (93 ft-lb @ -22 °F) 100 J @ -40 °C (74 ft-lb @ -40 °F) 70 J @ -50 °C (52 ft-lb @ -58 °F) 50 J @ -62 °C (37 ft-lb @ -79.6 °F)
OK Autrod 12.20	As Welded EN AC	420 MPa	500 MPa (73 ksi)	33 %	140 J @ -30 °C (104 ft-lb @ -22 °F) 130 J @ -40 °C (96 ft-lb @ -40 °F) 80 J @ -50 °C (59 ft-lb @ -58 °F)
OK Autrod 12.22	As Welded AWS DC+	440 MPa (64 ksi)	530 MPa (77 ksi)	31 %	120 J @ -30 °C (89 ft-lb @ -22 °F) 100 J @ -40 °C (74 ft-lb @ -40 °F) 70 J @ -50 °C (52 ft-lb @ -58 °F) 50 J @ -62 °C (37 ft-lb @ -79.6 °F)
OK Autrod 12.22	As Welded EN AC	425 MPa	560 MPa (81 ksi)	27 %	140 J @ -30 °C (104 ft-lb @ -22 °F) 130 J @ -40 °C (96 ft-lb @ -40 °F) 80 J @ -50 °C (59 ft-lb @ -58 °F)
OK Autrod 12.24	As Welded AWS DC+	500 MPa (73 ksi)	590 MPa (86 ksi)	25 %	60 J @ -30 °C (44 ft-lb @ -22 °F) 40 J @ -40 °C (30 ft-lb @ -40 °F) 35 J @ -46 °C (26 ft-lb @ -50.8 °F)
OK Autrod 12.24	As Welded EN AC	535 MPa	600 MPa (87 ksi)	24 %	70 J @ -30 °C (52 ft-lb @ -22 °F) 50 J @ -40 °C (37 ft-lb @ -40 °F) 40 J @ -50 °C (30 ft-lb @ -58 °F)
OK Autrod 13.24	As Welded AWS DC+	530 MPa (77 ksi)	660 MPa (96 ksi)	28 %	90 J @ 0 °C (67 ft-lb @ 32 °F) 35 J @ -40 °C (26 ft-lb @ -40 °F)
OK Autrod 13.27	As Welded EN AC	520 MPa (75 ksi)	610 MPa (88 ksi)	27 %	120 J @ -30 °C (89 ft-lb @ -22 °F) 100 J @ -40 °C (74 ft-lb @ -40 °F) 80 J @ -50 °C (59 ft-lb @ -58 °F) 60 J @ -60 °C (44 ft-lb @ -76 °F)
OK Autrod 13.27	As Welded AWS DC+	490 MPa (71 ksi)	610 MPa (88 ksi)	30 %	100 J @ -40 °C (74 ft-lb @ -40 °F)

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SAW_Typical_Mech_Properties					
Wire	Testing Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch Result
					80 J @ -51 °C (59 ft-lb @ -59.8 °F) 50 J @ -62 °C (37 ft-lb @ -79.6 °F)
OK Autrod 13.62	As Welded (acc. AWS) Plate thickness: 12mm; Heat Input: 2.2 kJ/mm; Side 1: 600A, 32V, 53cm/min; Side 2: 700A, 32V, 60cm /min; DC+	500 MPa (73 ksi)	610 MPa (88 ksi)	27 %	50 J @ -62 °C (37 ft-lb @ -79.6 °F)
OK Autrod 13.64	As Welded (acc. to AWS) Plate thickness 12mm Heat input 2.2kJ /mm 700A, 32V, 60cm /min DC+	560 MPa (81 ksi)	660 MPa (96 ksi)	27 %	50 J @ -62 °C (37 ft-lb @ -79.6 °F)