

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		
Volts	kg Flux / kg Wire DC+	kg Flux / kg Wire AC
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				
Wire	SFA/AWS - EN ISO	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						
Combined with 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

Typical Mechanical Properties

Combined with Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
Spoolarc 29S	As Welded	532 MPa	622 MPa	25 %	57 J @ -40 °C 43 J @ -46 °C 41 J @ -51 °C
Spoolarc 75	As Welded	556 MPa	646 MPa	28 %	91 J @ -40 °C 83 J @ -51 °C
Spoolarc 81	As Welded	415 MPa	500 MPa	30 %	119 J @ -29 °C 100 J @ -40 °C 71 J @ -51 °C 50 J @ -62 °C
Spoolarc ENi4	As Welded	607 MPa	677 MPa	27 %	141 J @ -40 °C 107 J @ -51 °C 88 J @ -62 °C
OK Autrod 12.20	As Welded AWS DC+	415 MPa	500 MPa	30 %	125 J @ -30 °C 100 J @ -40 °C 70 J @ -50 °C 50 J @ -62 °C
OK Autrod 12.20	As Welded EN AC	420 MPa	500 MPa	33 %	140 J @ -30 °C 130 J @ -40 °C 80 J @ -50 °C
OK Autrod 12.22	As Welded AWS DC+	440 MPa	530 MPa	31 %	120 J @ -30 °C 100 J @ -40 °C 70 J @ -50 °C 50 J @ -62 °C
OK Autrod 12.22	As Welded EN AC	425 MPa	560 MPa	27 %	140 J @ -30 °C

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Typical Mechanical Properties					
Combined with Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
					130 J @ -40 °C 80 J @ -50 °C
OK Autrod 12.24	As Welded AWS DC+	500 MPa	590 MPa	25 %	60 J @ -30 °C 40 J @ -40 °C 35 J @ -46 °C
OK Autrod 12.24	As Welded EN AC	535 MPa	600 MPa	24 %	70 J @ -30 °C 50 J @ -40 °C 40 J @ -50 °C
OK Autrod 13.24	As Welded AWS DC+	530 MPa	660 MPa	28 %	90 J @ 0 °C 35 J @ -40 °C
OK Autrod 13.27	As Welded EN AC	520 MPa	610 MPa	27 %	120 J @ -30 °C 100 J @ -40 °C 80 J @ -50 °C 60 J @ -60 °C
OK Autrod 13.27	As Welded AWS DC+	490 MPa	610 MPa	30 %	100 J @ -40 °C 80 J @ -51 °C 50 J @ -62 °C
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	610 MPa	27 %	50 J @ -62 °C
OK Autrod 13.64	As Welded (acc. to AWS) Plate thickness 12mm Heat input 2.2kJ /mm 700A, 32V, 60cm /min DC+	560 MPa	660 MPa	27 %	50 J @ -62 °C