

OK Flux 10.77

Agglomerated aluminate-basic flux for Submerged Arc Welding especially for production of mild and high-strength line pipe steels (mainly spiral pipe production). Shallow reinforcement, low transition angles, smooth surface finish even at high welding speeds. Designed for single and multi wire procedures. Suitable for DC and AC welding.

Specifications	
Classifications	EN ISO 14174 : S A AB 1 67 AC H5
Approvals	CE : EN 13479 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	Slightly Silicon and moderately Manganese alloying
Density	nom: 1.2 kg/dm ³
Basicity Index	nom: 1.3

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 83	A5.23:EA3K	-	-	-
OK Autrod 12.20	A5.17:EM12/ 14171-A:S2	14171-A: S 38 4 AB S2	A5.17: F7A4-EM12	A5.17: F6P4-EM12
OK Autrod 12.22	A5.17:EM12K/ 14171-A:S2Si	14171-A: S 38 4 AB S2Si	A5.17: F7A5-EM12K	A5.17: F6P5-EM12K
OK Autrod 12.24	A5.23:EA2/ 14171-A:S2Mo; 24598-A:S S Mo	14171-A: S 46 2 AB S2Mo	A5.23: F8A4-EA2-A2	A5.23: F7P2-EA2-A2
OK Autrod 12.34	A5.23:EA4/ 14171-A:S3Mo; 24598-A:S S MnMo	14171-A: S 50 3 AB S3Mo	A5.23: F8A4-EA4-A4	A5.23: F8P2-EA4-A4
OK Autrod 13.62	A5.23:EG/ 14171-A:SZ3TiB	-	-	-
OK Autrod 13.64	A5.23:EA2TiB/ 14171-A:S2MoTiB	-	A5.23: F8TA6-EA2TiB	-

Approvals	
Wire	CE
OK Autrod 12.20	•
OK Autrod 12.22	•
OK Autrod 12.24	•

Typical Weld Metal Analysis %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
Spoolarc 83 As Welded									
0.06	2.65	0.71	0.012	0.022	0.08	0.08	0.05	0.010	0.016
OK Autrod 12.20 AC, 580A, 29V									
0.07	1.3	0.2	-	-	-	-	-	-	-

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Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
OK Autrod 12.20 DC+, 580A, 29V									
0.06	1.4	0.3	-	-	-	-	-	-	-
OK Autrod 12.22 AC, 580A, 29V									
0.08	1.3	0.3	-	-	-	-	-	-	-
OK Autrod 12.22 DC+, 580A, 29V									
0.07	1.4	0.4	-	-	-	-	-	-	-
OK Autrod 12.24 AC, 580A, 29V									
0.07	1.3	0.3	-	-	-	-	0.5	-	-
OK Autrod 12.24 DC+, 580A, 29V									
0.07	1.3	0.3	-	-	-	-	0.5	-	-
OK Autrod 12.34 DC+, 580A, 29V									
0.08	1.5	0.3	-	-	-	-	0.5	-	-
OK Autrod 12.34 AC, 580A, 29V									
0.08	1.6	0.3	-	-	-	-	0.5	-	-

Typical Weld Metal Analysis %

Cu	Nb	Ti	Co
Spoolarc 83 As Welded			
0.120	0.004	0.004	0.041

Typical Wire Composition %

C	Mn	Si	S	P	Ni	Mo	Cu	Ti	B
Spoolarc 83									
0.08	1.69	0.63	0.011	0.01	0.09	0.4	0.17	-	-
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 12.34									
0.13	1.51	0.16	-	-	-	0.48	-	-	-
OK Autrod 13.64									
0.07	1.22	0.28	-	-	-	0.49	-	0.14	0.013

Typical Mechanical Properties

Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
Spoolarc 83	As Welded	660 MPa	758 MPa	24 %	54 J @ -40 °C
OK Autrod 12.20	As Welded AWS DC+	420 MPa	500 MPa	28 %	80 J @ -20 °C 65 J @ -30 °C 55 J @ -40 °C
OK Autrod 12.20	As Welded EN AC	430 MPa	510 MPa	28 %	115 J @ -20 °C 95 J @ -30 °C 70 J @ -40 °C
OK Autrod 12.22	As Welded AWS DC+	420 MPa	520 MPa	26 %	130 J @ -20 °C 110 J @ -30 °C 80 J @ -40 °C 50 J @ -46 °C

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Typical Mechanical Properties

Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
OK Autrod 12.22	As Welded EN AC	430 MPa	520 MPa	28 %	155 J @ -20 °C 125 J @ -30 °C 80 J @ -40 °C 50 J @ -46 °C
OK Autrod 12.24	As Welded AWS DC+	495 MPa	580 MPa	25 %	90 J @ 0 °C 60 J @ -18 °C 60 J @ -20 °C 50 J @ -29 °C 40 J @ -40 °C
OK Autrod 12.24	As Welded EN AC	520 MPa	590 MPa	25 %	100 J @ 0 °C 80 J @ -20 °C 45 J @ -40 °C
OK Autrod 12.34	As Welded EN AC	570 MPa	630 MPa	25 %	90 J @ -20 °C 70 J @ -30 °C 50 J @ -40 °C
OK Autrod 12.34	As Welded AWS DC+	540 MPa	630 MPa	25 %	70 J @ -20 °C 60 J @ -29 °C 45 J @ -40 °C
OK Autrod 13.62	As Welded (acc. AWS) Plate thickness 12mm; Heat Input 2.2kJ/mm; Side 1 600A, 32V, 53cm/min; Side 2 700A, 32V, 60cm/min; DC+	510 MPa	600 MPa	25 %	150 J @ 0 °C 60 J @ -51 °C
OK Autrod 13.64	As Welded (acc. to AWS) Plate thickness 12mm Heat input 2.2kJ /mm 700A, 32V, 60cm /min DC+	550 MPa	650 MPa	24 %	60 J @ -51 °C