

OK Flux 10.71

Agglomerated aluminate-basic flux for Submerged Arc Welding. General purpose flux with excellent welding performance, suitable for all kinds of steels. High impact toughness values. Fits to a large range of SAW wires. For general constructions, pressure vessels, shipbuilding, pipe mills, wind tower productions, transport industries, etc. Designed for single and multi wire procedures, for butt and fillet welds. 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 67 AC H5
Approvals	CE : EN 13479 DB : 51.039.05 NAKS/HAKC : RD 03-613-03

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

Diffusible Hydrogen	max 5 ml H/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: 1.5

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
ESAB SA10K	A5.17:EH10K	-	A5.17: F7A4-EH10K	A5.17: F7P6-EH10K
OK Autrod 12.08L	A5.17:EL8/EL12/ 14171-A: S1	-	A5.17: F6A2-EL8	-
OK Autrod 12.10	A5.17:EL12/ 14171-A:S1	14171-A: S 35 4 AB S1	A5.17: F6A4-EL12	A5.17: F6P5-EL12
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 12.22L	A5.17:EM12K/ 14171-B: SU21	-	A5.17: F7A4-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: F8A2-EA2-A4	A5.23: F7P0-EA2-A4
OK Autrod 12.24L	A5.23:EA2/ 14171-B: SU2M3	-	A5.23: F8A2-EA2-A4	A5.23: F7P0-EA2-A4
OK Autrod 12.30	14171-A:S3	14171-A: S 46 3 AB S3	-	-
OK Autrod 12.32	A5.17:EH12K/ 14171-A: S3Si	14171-A: S 46 4 AB S3Si	A5.17: F7A5-EH12K	A5.17: F7P5-EH12K
OK Autrod 12.33L	A5.23:EA3K	-	A5.23: F9A0-EA3K-G	A5.23: F8P0-EA3K-G
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-A3	A5.23: F8P2-EA4-A3
OK Autrod 12.40L	A5.17:EH14/ 14171-B:SU41	-	A5.17: F7A4-EH14	A5.17: F7P5-EH14
OK Autrod 13.24	A5.23:ENi6/ 14171-A: S3Ni1Mo0,2	14171-A: S 50 4 AB S3Ni1Mo0,2	A5.23: F8A5-ENi6-Ni6	A5.23: F8P4-ENi6-Ni6
OK Autrod 13.27	A5.23:ENi2/ 14171-A:S2Ni2	14171-A: S 46 5 AB S2Ni2	A5.23: F8A6-ENi2-Ni2	A5.23: F7P6-ENi2-Ni2

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Classifications				
Wire	SFA/AWS - EN ISO	EN - As Welded	AWS - As Welded	AWS - PWHT
OK Autrod 13.36	A5.23:EG/ 14171-A: S2Ni1Cu	14171-A: S 46 3 AB S2Ni1Cu	A5.23: F8A2-EG-G	-
OK Autrod 13.62	A5.23:EG/ 14171-A:SZ3TiB	-	-	-
OK Autrod 13.64	A5.23:EA2TiB/ 14171-A: S2MoTiB	-	A5.23: F8TA6-EA2TiB	-
Spoolarc 29S	A5.17:EM13K	-	-	-

Approvals																	
Wire	DNV	IBR	IRS	LR	M N Dastur	CE	CWB	VdTÜV	ABS	BV	DB	GL	RINA	PRS	RS	ClassNK	
OK Autrod 12.08L	-	-	●	-	-	-	-	-	●	-	-	-	-	-	-	-	
OK Autrod 12.10	●	-	-	●	-	●	-	●	●	●	●	●	-	●	●	-	
OK Autrod 12.20	●	-	-	●	-	●	-	●	●	●	●	●	●	●	●	-	
OK Autrod 12.22	●	-	-	●	-	●	-	●	●	●	●	●	-	-	●	●	
OK Autrod 12.22L	-	-	-	●	-	-	-	-	-	-	-	-	-	-	-	-	
OK Autrod 12.24	●	-	-	●	-	●	-	●	●	●	●	●	●	●	●	●	
OK Autrod 12.30	-	-	-	-	-	●	-	●	-	-	●	-	-	-	-	-	
OK Autrod 12.32	-	-	-	-	-	●	-	●	-	-	●	-	-	-	-	-	
OK Autrod 12.40L	●	●	●	●	●	-	-	-	-	-	-	-	-	-	-	-	
OK Autrod 13.27	-	-	-	-	-	-	-	●	-	-	-	-	-	-	-	-	
OK Autrod 13.36	-	-	-	-	-	●	-	-	-	-	-	-	-	-	-	-	
Spoolarc 75	-	-	-	-	-	-	●	-	-	-	-	-	-	-	-	-	
Spoolarc 81	-	-	-	-	-	-	●	-	-	-	-	-	-	-	-	-	

Typical Wire Composition %										
C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Ti	
ESAB SA10K										
0.11	1.55	0.20	0.015	0.020	-	-	-	-	-	
OK Autrod 12.08L										
0.06	0.50	0.02	0.015	0.020	-	-	-	-	-	
OK Autrod 12.10										
0.07	0.52	0.08	-	-	-	-	-	-	-	
OK Autrod 12.20										
0.10	1.06	0.07	-	-	-	-	-	-	-	
OK Autrod 12.22										
0.09	1.01	0.19	-	-	-	-	-	-	-	
OK Autrod 12.22L										
0.10	1.00	0.20	0.010	0.015	-	-	-	-	-	
OK Autrod 12.24										
0.09	1.08	0.14	-	-	-	-	0.48	-	-	
OK Autrod 12.24L										
0.10	1.20	0.15	0.015	0.020	-	-	0.50	-	-	
OK Autrod 12.30										
0.11	1.61	0.13	-	-	-	-	-	-	-	
OK Autrod 12.32										
0.13	1.77	0.30	-	-	-	-	-	-	-	
OK Autrod 12.33L										
0.08	1.80	0.55	0.015	0.020	-	-	0.42	-	-	

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Typical Wire Composition %									
C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Ti
OK Autrod 12.34									
0.13	1.51	0.16	-	-	-	-	0.48	-	-
OK Autrod 12.40L									
0.15	1.80	0.05	0.010	0.015	0.01	0.05	0.01	0.10	-
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 13.36									
0.10	0.95	0.29	-	-	0.78	0.29	-	0.48	-
OK Autrod 13.64									
0.07	1.22	0.28	-	-	-	-	0.49	-	0.14
Spoolarc 29S									
0.08	1.15	0.5	0.006	0.013	-	-	-	0.06	-
Spoolarc 53									
0.10	1.65	0.30	0.01	0.01	-	-	-	-	-
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	-	-	-	-	-

Typical Wire Composition %									
B									
OK Autrod 13.64									
0.013									

Typical Weld Metal Analysis %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
Alloy Shield 70 Ni1S As Welded									
0.06	1.63	0.50	0.012	0.017	0.86	0.05	0.02	0.004	0.018
Alloy Shield 70S As Welded									
0.06	1.79	0.67	0.009	0.019	-	-	-	-	-
ESAB SA10K DC+ 550A, 29V									
0.07	1.75	0.50	-	-	-	-	-	-	-
OK Autrod 12.08L DC+ 550A, 29V									
0.06	0.90	0.20	-	-	-	-	-	-	-
OK Autrod 12.10 AC , 580A, 29V									
0.05	0.85	0.2	-	-	-	-	-	-	-
OK Autrod 12.10 DC+ , 580A, 29V									
0.04	1.0	0.3	-	-	-	-	-	-	-
OK Autrod 12.20 AC, 580A, 29V									
0.06	1.2	0.2	-	-	-	-	-	-	-
OK Autrod 12.20 DC+, 580A, 29V									
0.05	1.35	0.3	-	-	-	-	-	-	-
OK Autrod 12.22 DC+, 580A, 29V									

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Typical Weld Metal Analysis %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
0.05	1.4	0.5	-	-	-	-	-	-	-
OK Autrod 12.22 AC, 580A, 29V									
0.06	1.2	0.4	-	-	-	-	-	-	-
OK Autrod 12.22L DC+ 550A, 29V									
0.08	1.35	0.40	-	-	-	-	-	-	-
OK Autrod 12.24 AC, 580A, 29V									
0.06	1.3	0.25	-	-	-	-	0.5	-	-
OK Autrod 12.24 DC+, 580A, 29V									
0.05	1.4	0.4	-	-	-	-	0.5	-	-
OK Autrod 12.24L									
-	-	-	0.020	0.025	-	-	-	-	-
OK Autrod 12.24L DC+ 550A, 29V									
0.08	1.35	0.40	-	-	-	-	0.45	-	-
OK Autrod 12.30 AC, 580A, 29V									
0.10	1.6	0.3	-	-	-	-	-	-	-
OK Autrod 12.30 DC+, 580A, 29V									
0.09	1.65	0.4	-	-	-	-	-	-	-
OK Autrod 12.32 DC+, 580A, 29V									
0.09	2.0	0.5	-	-	-	-	-	-	-
OK Autrod 12.32 AC, 580A, 29V									
0.10	1.9	0.35	-	-	-	-	-	-	-
OK Autrod 12.33L DC+									
0.06	1.95	0.75	-	-	-	-	0.40	-	-
OK Autrod 12.34 AC, 580A, 29V									
0.10	1.5	0.25	-	-	-	-	0.5	-	-
OK Autrod 12.34 DC+, 580A, 29V									
0.09	1.6	0.4	-	-	-	-	0.5	-	-
OK Autrod 12.40L DC+ 550A, 29V									
0.07	1.95	0.40	-	-	-	-	-	-	-
OK Autrod 13.24 AC , 580A, 29V									
0.09	1.50	0.45	-	-	0.9	-	0.2	-	-
OK Autrod 13.24 DC+, 580A, 29V									
0.07	1.70	0.5	-	-	0.9	-	0.2	-	-
OK Autrod 13.27 AC, 580A, 29V									
0.06	1.3	0.3	-	-	2.2	-	-	-	-
OK Autrod 13.27 DC+, 580A, 29V									
0.05	1.4	0.4	-	-	2.2	-	-	-	-
OK Autrod 13.36 AC , 580A, 29V									
0.09	1.2	0.4	-	-	0.7	0.3	-	-	-
OK Autrod 13.36 DC+, 580A, 29V									
0.08	1.3	0.5	-	-	0.7	0.3	-	-	-
OK Autrod 13.64									
0.05	1.4	0.5	-	-	-	-	0.5	-	-
Spoolarc 53 As Welded									
0.06	1.83	0.57	0.009	0.015	0.02	0.04	-	-	-
Spoolarc 71 As Welded									
0.07	1.63	0.74	0.010	0.016	0.018	0.032	0.012	0.006	0.019

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Typical Weld Metal Analysis %									
C	Mn	Si	S	P	Ni	Cr	Mo	V	Al
Spoolarc 71 Stress Relieved 1 hr. @ 1150°F									
0.07	1.63	0.74	0.010	0.016	0.018	0.032	0.012	0.006	0.019
Spoolarc 75 As Welded									
0.06	1.49	0.67	0.006	0.015	0.84	0.03	0.01	-	-
Spoolarc 81 As Welded									
0.07	1.32	0.44	0.011	0.017	0.04	0.05	0.02	-	-

Typical Weld Metal Analysis %				
Cu	Nb	Ti	Co	B
Alloy Shield 70 Ni1S As Welded				
0.067	-	0.004	0.008	-
Alloy Shield 70S As Welded				
0.060	-	-	-	-
OK Autrod 13.36 AC , 580A, 29V				
0.5	-	-	-	-
OK Autrod 13.36 DC+, 580A, 29V				
0.5	-	-	-	-
OK Autrod 13.64				
-	-	0.15	-	0.015
Spoolarc 53 As Welded				
0.080	-	-	-	-
Spoolarc 71 As Welded				
0.109	0.002	0.012	0.006	-
Spoolarc 71 Stress Relieved 1 hr. @ 1150°F				
0.109	0.002	0.012	0.006	-
Spoolarc 75 As Welded				
0.110	-	-	-	-
Spoolarc 81 As Welded				
0.080	-	-	-	-

Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
Alloy Shield 70 Ni1S	As Welded	501 MPa	598 MPa	28 %	99 J @ -29 °C
Alloy Shield 70S	As Welded	526 MPa	612 MPa	26 %	35 J @ -46 °C
ESAB SA10K	PWHT DC+ (5 hour(s))	410 MPa	500 MPa	34 %	40 J @ -29 °C
ESAB SA10K	As Welded DC+	490 MPa	580 MPa	26 %	70 J @ -18 °C 45 J @ -29 °C 30 J @ -40 °C
ESAB SA10K	PWHT DC+ (1 hour(s))	430 MPa	530 MPa	32 %	120 J @ -18 °C 100 J @ -29 °C 75 J @ -40 °C 40 J @ -51 °C
OK Autrod 12.08L	As Welded DC+	390 MPa	450 MPa	25 %	120 J @ 0 °C 100 J @ -18 °C 70 J @ -29 °C
OK Autrod 12.08L	PWHT DC+ (1 hour(s))	300 MPa	390 MPa	35 %	125 J @ 0 °C 110 J @ -18 °C 80 J @ -29 °C

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Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
OK Autrod 12.10	As Welded EN AC	385 MPa	470 MPa	30 %	150 J @ 0 °C 120 J @ -20 °C 85 J @ -30 °C 70 J @ -40 °C
OK Autrod 12.10	As Welded AWS DC+	360 MPa	465 MPa	30 %	125 J @ 0 °C 95 J @ -20 °C 75 J @ -30 °C 65 J @ -40 °C
OK Autrod 12.20	As Welded AWS DC+	410 MPa	510 MPa	29 %	135 J @ 20 °C 125 J @ 0 °C 80 J @ -20 °C 55 J @ -40 °C
OK Autrod 12.20	As Welded EN AC	430 MPa	535 MPa	33 %	150 J @ 20 °C 130 J @ 0 °C 115 J @ -20 °C 70 J @ -40 °C
OK Autrod 12.22	As Welded AWS DC+	425 MPa	520 MPa	29 %	140 J @ 0 °C 100 J @ -20 °C 60 J @ -40 °C 40 J @ -46 °C
OK Autrod 12.22	As Welded EN AC	460 MPa	550 MPa	28 %	145 J @ 0 °C 125 J @ -20 °C 90 J @ -40 °C
OK Autrod 12.22L	As Welded DC+	450 MPa	540 MPa	29 %	60 J @ -18 °C 45 J @ -29 °C 30 J @ -40 °C
OK Autrod 12.22L	PWHT DC+ (6 hour(s))	360 MPa	490 MPa	36 %	60 J @ -29 °C
OK Autrod 12.22L	PWHT DC+ (1 hour(s))	390 MPa	490 MPa	32 %	90 J @ -18 °C 65 J @ -29 °C 40 J @ -40 °C 30 J @ -46 °C
OK Autrod 12.22L	PWHT DC+ (10 hour (s))	360 MPa	480 MPa	33 %	100 J @ -29 °C
OK Autrod 12.24	As Welded EN AC	550 MPa	620 MPa	23 %	130 J @ 20 °C 110 J @ 0 °C 70 J @ -20 °C 40 J @ -40 °C
OK Autrod 12.24	As Welded AWS DC+	500 MPa	580 MPa	24 %	125 J @ 20 °C 100 J @ 0 °C 60 J @ -18 °C 40 J @ -29 °C
OK Autrod 12.24L	As Welded DC+	550 MPa	610 MPa	23 %	90 J @ 0 °C 65 J @ -18 °C 40 J @ -29 °C
OK Autrod 12.24L	PWHT DC+ (1 hour(s))	480 MPa	560 MPa	26 %	80 J @ 0 °C 50 J @ -18 °C
OK Autrod 12.30	As Welded EN DC+	490 MPa	580 MPa	29 %	130 J @ 20 °C 110 J @ 0 °C 90 J @ -20 °C 60 J @ -30 °C
OK Autrod 12.30	As Welded EN AC	510 MPa	590 MPa	28 %	140 J @ 20 °C 120 J @ 0 °C 100 J @ -20 °C 70 J @ -30 °C

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Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
OK Autrod 12.32	As Welded EN AC	530 MPa	615 MPa	28 %	140 J @ 20 °C 120 J @ 0 °C 100 J @ -20 °C 60 J @ -40 °C
OK Autrod 12.32	As Welded AWS DC+	480 MPa	580 MPa	28 %	150 J @ 20 °C 130 J @ 0 °C 95 J @ -20 °C 65 J @ -40 °C 40 J @ -46 °C
OK Autrod 12.33L	As Welded DC+	630 MPa	700 MPa	25 %	65 J @ 0 °C 35 J @ -18 °C
OK Autrod 12.33L	PWHT DC+ (1 hour(s))	550 MPa	650 MPa	30 %	70 J @ 0 °C 40 J @ -18 °C
OK Autrod 12.34	As Welded AWS DC+	535 MPa	620 MPa	27 %	120 J @ 20 °C 105 J @ 0 °C 70 J @ -20 °C 60 J @ -30 °C 45 J @ -40 °C
OK Autrod 12.34	As Welded EN AC	560 MPa	635 MPa	23 %	135 J @ 20 °C 120 J @ 0 °C 100 J @ -20 °C 80 J @ -30 °C 60 J @ -40 °C
OK Autrod 12.40L	PWHT DC+ (1 hour(s))	470 MPa	570 MPa	28 %	100 J @ -18 °C 80 J @ -29 °C 55 J @ -40 °C 45 J @ -46 °C
OK Autrod 12.40L	As Welded DC+	490 MPa	580 MPa	27 %	75 J @ -18 °C 60 J @ -29 °C 40 J @ -40 °C
OK Autrod 12.40L	PWHT DC+ (18 hour (s))	440 MPa	550 MPa	35 %	100 J @ -30 °C 75 J @ -46 °C
OK Autrod 12.40L	PWHT DC+ (22 hour (s))	440 MPa	550 MPa	30 %	100 J @ -30 °C 75 J @ -46 °C
OK Autrod 13.24	As Welded EN AC	610 MPa	680 MPa	25 %	150 J @ 20 °C 120 J @ -20 °C 100 J @ -30 °C 90 J @ -40 °C
OK Autrod 13.24	As Welded AWS DC+	560 MPa	630 MPa	25 %	120 J @ 20 °C 85 J @ -20 °C 70 J @ -30 °C 60 J @ -40 °C 40 J @ -46 °C
OK Autrod 13.27	As Welded EN AC	530 MPa	620 MPa	28 %	120 J @ -20 °C 90 J @ -40 °C 60 J @ -50 °C
OK Autrod 13.27	As Welded AWS DC+	500 MPa	600 MPa	28 %	100 J @ -20 °C 60 J @ -40 °C 50 J @ -51 °C
OK Autrod 13.36	As Welded AWS DC+	490 MPa	580 MPa	27 %	120 J @ 20 °C 70 J @ -20 °C 55 J @ -29 °C

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Typical Mechanical Properties

Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
OK Autrod 13.36	As Welded EN AC	515 MPa	590 MPa	27 %	150 J @ 20 °C 90 J @ -20 °C 80 J @ -30 °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	610 MPa	28 %	40 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	28 %	40 J @ -51 °C
Spoolarc 29S	As Welded	542 MPa	638 MPa	29 %	42 J @ -40 °C
Spoolarc 53	As Welded	502 MPa	584 MPa	31 %	96 J @ -46 °C
Spoolarc 71	As Welded	524 MPa	602 MPa	28 %	73 J @ -40 °C
Spoolarc 75	As Welded	527 MPa	612 MPa	28 %	79 J @ -40 °C
Spoolarc 81	As Welded	439 MPa	531 MPa	29 %	106 J @ -46 °C