

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.

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

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
Grain Size (met)	0.2-1.6 mm (10x65 mesh) or 0.315 -2.0 mm (9x48 mesh)

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

Dimensions	Amps	Travel Speed
Ø 4.0 mm	580 A	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

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Classifications

Wire	SFA/AWS - EN ISO	EN - As Welded	AWS - As Welded	AWS - PWHT
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
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	

Approvals

Wire	CE	VdTÜV	DB	ABS	BV	DNV	GL	LR	ClassNK	RS	IBR	IRS	M N Dastur	PRS	RINA
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	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Typical Mechanical Properties

Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
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
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 125 J @ 0 °C 95 J @ -20 °C 75 J @ -30 °C

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Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
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 135 J @ 20 °C 125 J @ 0 °C 80 J @ -20 °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 140 J @ 0 °C 100 J @ -20 °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 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

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Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
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 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
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 150 J @ 20 °C 130 J @ 0 °C 95 J @ -20 °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 120 J @ 20 °C 105 J @ 0 °C 70 J @ -20 °C 60 J @ -30 °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	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+ (1 hour(s))	440 MPa	530 MPa	29 %	100 J @ -18 °C 80 J @ -29 °C 55 J @ -40 °C 45 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

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Typical Mechanical Properties					
Wire	Condition	Yield Strength	Tensile Strength	Elongation	Charpy V-Notch
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 120 J @ 20 °C 85 J @ -20 °C 70 J @ -30 °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 100 J @ -20 °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 120 J @ 20 °C 70 J @ -20 °C 55 J @ -29 °C
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 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 40 J @ -51 °C

Typical Weld Metal Analysis %								
C	Mn	Si	S	P	Ni	Cr	Mo	Cu
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 DC+ , 580A, 29V								
0.04	1.0	0.3	-	-	-	-	-	-
OK Autrod 12.10 AC , 580A, 29V								
0.05	0.85	0.2	-	-	-	-	-	-
OK Autrod 12.20 AC, 580A, 29V								
0.06	1.2	0.2	-	-	-	-	-	-
OK Autrod 12.20 DC+, 580A, 29V								

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Typical Weld Metal Analysis %

C	Mn	Si	S	P	Ni	Cr	Mo	Cu
0.05	1.35	0.3	-	-	-	-	-	-
OK Autrod 12.22 AC, 580A, 29V								
0.06	1.2	0.4	-	-	-	-	-	-
OK Autrod 12.22 DC+, 580A, 29V								
0.05	1.4	0.5	-	-	-	-	-	-
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 DC+ 550A, 29V								
0.08	1.35	0.40	0.020	0.025	-	-	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	-	0.5
OK Autrod 13.36 DC+, 580A, 29V								
0.08	1.3	0.5	-	-	0.7	0.3	-	0.5