

OK 21.03

Features

OK 21.03

SMAW

OK 21.03 is designed for gouging, cutting and piercing mild and alloyed steel, cast iron and non-ferrous metals, with the exception of pure copper, using standard welding equipment. The electrode can be used in a wide variety of applications, such as bevelling, the preparation of cracked areas before welding and the back-gouging of root runs. The arc is struck with the electrode perpendicular to the workpiece, after which the electrode is pointed in the direction of travel at an angle of about 15-20° and pushed forward. Gouging speed 100-150 cm/minute depending on the depth of the groove. Deep grooves can be made by repeated gouging.

Welding can follow without further preparation, but, when gouging in stainless steel, a thin layer with increased carbon content is obtained and it should be removed by grinding. When using OK 21.03 indoors, it is necessary to have very good ventilation or fume extraction.

Welding current

AC, DC- OCV 70 V



OK 46.00

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OK 46.00

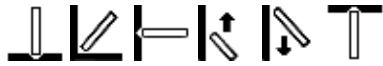
SMAW

Type Rutile

OK 46.00 is the best, all-round, rutile electrode and it is relatively insensitive to rust or other surface impurities. It deposits smooth weld beads in all positions, including vertical down, and the slag is easy to remove. OK 46.00 is very easy to strike and restrike, making it ideal for short welds, root runs and tacking.

Welding current

AC, DC+/-, OCV 50 V



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Classifications	Approvals		Typical all weld metal composition, %		Typical mech. properties all weld metal	
<u>EN ISO 2560-A</u>	ABS	2	C	0,08	<u>Yield stress, MPa</u> 400	
<u>E 38 0 RC 11</u>	BV	2	Si	0,3	<u>Tensile strength, MPa</u>	
<u>SFA/AWS A5.1</u>	DB	10.039.05	Mn	0,4	510	
<u>E6013</u>	DNV	2	P	³0,03	<u>Elongation, %</u> 28	
	GL	2	S	³0,03	<u>Elongation, %</u> 28	
	LR	2			<u>Charpy V</u>	
	VdTÜV	00623			Test temps, °C	
	CE	EN 13479			Impact values, J	
	Class NK	KMW2			0	70
	BKI	2			-20	35
	GOST-R					
	NAKS/HAKC					

Redrying temperature, °C

70-80

Redrying time, hours

1

Recovery

95%

Diameter, mm	1,6	2,0	2,5	3,2	4,0	5,0
Length, mm	300	300	350	350	350	350
Arc voltage, V	26	25	22	22	22	24
Welding current, A	30-60	50-70	60-100	80-150	100-200	150-290
N. Kg weld metal/kg electrodes	0,63	0,60	0,65	0,65	0,60	0,60
B. No. of electrodes/kg weld metal	263	172	86	53	39	24
H. Kg weld metal/hour arc time	0,38	0,55	0,80	1,30	1,60	2,30
T. Burn-off time, s/electrode	36	38	50	57	65	87

OK 46.16

Features Specifications

OK 46.16

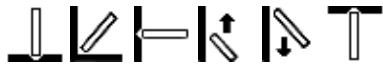
SMAW

Type Rutile

OK 46.16 is an all positional, rutile electrode for welding mild steels. It gives less spatter than most other rutile electrodes, the slag is easy to remove and the weld bead is smooth and even. It is easy to strike and restrike and therefore also good for tack welding.

Welding current

AC, DC+/-, OCV 50 V



Classifications	Approvals		Typical all weld metal composition, %		Typical mech. properties all weld metal
			C	Si	Mn
<u>SFA/AWS A5.1</u>	ABS	2	0,08	0,4	Yield stress, MPa
E7014	BV	2			440
<u>EN ISO 2560-A</u>	DB	10.039.37	0,5		<u>Tensile strength, MPa</u>
					505

E 38 0 RC 11	DNV	2	P 30,03 S 30,03	<u>Elongation, %</u>	
	GL	2		28	
	LR	2		<u>Elongation, %</u>	
	PRS	2		28	
	VdTÜV	02528		<u>Charpy V</u>	
	CE	EN 13479		Test temps, °C	Impact values, J
			+20	75	
			0	70	
			-20	40	

Redrying temperature, °C

70

Redrying time, hours

1

Recovery

100%

Diameter, mm	2,0	2,5	3,2	4,0	4,0	5,0	6,0
Length, mm	300	350	350	350	450	450	450
Arc voltage, V	24	22	23	24	24	26	26
Welding current, A	50-70	60-100	80-150	100-200	100-200	150-260	200-385
N. Kg weld metal/kg electrodes	0,57	0,58	0,58	0,59	0,61	0,63	0,58
B. No. of electrodes/kg weld metal	167	84,0	52,0	34,0	26,0	17,0	12,0
H. Kg weld metal/hour arc time	0,54	0,7	1,3	1,8	1,8	2,3	3,8
T. Burn-off time, s/electrode	40	40	59	65	77	105	80

OK 48.04

Features Specifications

OK 48.04

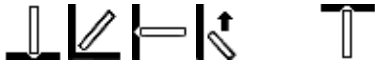
SMAW

Type Lime-basic

OK 48.04 is an AC/DC, general purpose, LMA electrode for welding mild and low-alloy steels. It has very good welding properties and deposits a high quality weld metal with very good mechanical properties. The electrode can be used for welding restrained structures where high welding stresses cannot be avoided.

Welding current

AC, DC+(-), OCV 65



Classifications	Approvals		Typical all weld metal composition, %		Typical mech. properties all weld metal	
			C	0,06	Yield stress, MPa	
<u>SFA/AWS A5.1</u>	ABS	3H5, 3Y	Si	0,5	480	
E7018	BV	3YHH	Mn	1,1	<u>Tensile strength, MPa</u>	
<u>EN ISO 2560-A</u>	DB	10.039.34	P	³0,03	560	
E 42 4 B 32 H5	DNV	3 YH10	S	³0,03	<u>Elongation, %</u>	
	GL	3YH10			30	
	LR	3, 3YH15			<u>Elongation, %</u>	
	PRS	3YH10			30	
	RS	3YHH			<u>Charpy V</u>	
	Sepros	UNA 409819			Test temps, °C	Impact values, J
	VdTÜV	00050			-20	150
CE	EN 13479			-40	100	

Redrying temperature, °C

350

Redrying time, hours

2

Recovery

125%

Diameter, mm	2,0	2,5	3,2	3,2	4,0	5,0	6,0
Length, mm	300	350	350	450	450	450	450
Arc voltage, V	23	23	22	25	26	26	26
Welding current, A	50-80	70-110	110-150	110-150	150-200	190-260	0,73
N. Kg weld metal/kg electrodes	0,61	0,64	0,63	0,67	0,68	0,72	9,0
B. No. of electrodes/kg weld metal	125	67,0	42,3	30,0	20,0	13,0	3,80
H. Kg weld metal/hour arc time	0,67	1,0	1,37	1,5	2,0	2,8	113
T. Burn-off time, s/electrode	44	59	62,4	92	101	106	-

OK 53.04

Features Specifications

OK 53.04

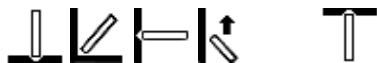
SMAW

Type Lime-basic

OK 53.04 is an LMA electrode for welding in all positions, excellent on AC in the vertical position. It has very good running characteristics, gives a low amount of spatter loss and a thin slag, which is easy to remove. The electrode is also characterized by good arc stability at low amperage. For root runs in single V joints welding on DC- is recommended because of the cooler weld pool.

Welding current

AC, DC+ OCV 70 V



Classifications	Approvals	Typical all weld metal composition, %	Typical mech. properties all weld metal								
<u>SFA/AWS A5.1</u> E7016 <u>EN 499</u> E 42 4B 12 H5 <u>ISO 2560</u> E 51 4 B 24	ABS 3H5, 3Y	C 0,07	<u>Yield stress, MPa</u> 500								
	BV 3Y HH	Si 0,5	<u>Tensile strength, MPa</u> 590								
	DNV 3YH10	Mn 1,1	<u>Elongation, %</u> 27								
	GL 3YHH		<u>Elongation, %</u> 27								
	LR 3, 3YH		<u>Charpy V</u>								
			<table border="1"> <thead> <tr> <th>Test temps, °C</th> <th>Impact values, J</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>150</td> </tr> <tr> <td>-30</td> <td>130</td> </tr> <tr> <td>-40</td> <td>110</td> </tr> </tbody> </table>	Test temps, °C	Impact values, J	-20	150	-30	130	-40	110
Test temps, °C	Impact values, J										
-20	150										
-30	130										
-40	110										

Redrying temperature, °C
350

Redrying time, hours
2

Recovery
105

Diameter, mm	2,5	3,2	4,0	5,0
Length, mm	350	350	350	450
Arc voltage, V	23	23	23	23
Welding current, A	70-110	90-140	120-190	150-240
N. Kg weld metal/kg electrodes	0,56	0,60	0,61	0,63
B. No. of electrodes/kg weld metal	81,0	48,0	33,0	16,0
H. Kg weld metal/hour arc time	0,9	1,2	1,7	2,4
T. Burn-off time, s/electrode	50	62	66	98

OK 53.70

Features Specifications

OK 53.70

SMAW

Type Lime-basic

A low-hydrogen AC/DC electrode for the one-sided welding of pipes and general structures. The root penetration is good, leaving a flat bead with easily removable slag. The stable arc and the well-balanced slag system make the electrode easy to weld in all positions. Suitable for welding transmission pipelines made from pipe steels up to API 5LX56. It is also suitable for welding the root in higher strength pipes, API 5LX60, 5LX65, 5LX70.

Welding current

AC, DC+(-) OCV 60 V

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Classifications	Approvals		Typical all weld metal composition, %		Typical mech. properties all weld metal	
			C	Si		
<u>SFA/AWS</u> <u>A5.1</u> E7016-1 <u>GOST 9467-</u> <u>75</u> E50A <u>EN ISO 2560-</u> <u>A</u> E42 5 B 12 H5	ABS	3Y H5	C	0,06	<u>Yield stress, MPa</u>	
	CE	EN	Si	0,5	440	
		13479	Mn	1,2	<u>Tensile strength, MPa</u>	
	DNV	3 YH5	P	0,015	530	
	LR	3, 3Y H5	S	0,015	<u>Elongation, %</u>	
					30	
	Sepros	UNA			<u>Elongation, %</u>	
		485155			30	
	vniist				<u>Charpy V</u>	
					Test temps, °C Impact values, J	
				-20	150	
				-40	120	
				-50	100	

Redrying temperature, °C

350

Redrying time, hours

2

Recovery

100%

Diameter,		2,5	3,2	3,2	4,0
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mm					
Length, mm	-	350	350	450	400
Arc voltage, V	-	26	24	24	24
Welding current, A	-	60-85	80-130	80-130	115-190
N. Kg weld metal/kg electrodes	-	0,63	0,59	0,59	0,63
B. No. of electrodes/kg weld metal	-	87,7	54,5	42	25
H. Kg weld metal/hour arc time	-	0,7	1,1	1,1	1,7
T. Burn-off time, s/electrode	-	57	61	78	86

OK 55.00

Features Specifications

OK 55.00

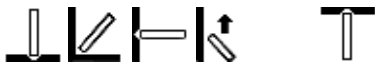
SMAW

Type Lime-basic

OK 55.00 is a reliable, high-quality, LMA electrode, particularly suitable for welding high strength low-alloy steels. The good, low-temperature impact strength of the weld metal should be noted. The weld metal is also very resistant to hot cracking. The electrode is also suitable for welding high strength ship's steel, grades A, D and E.

Welding current

AC, DC+ OCV 65 V



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Classifications	Approvals		Typical all weld metal composition, %		Typical mech. properties all weld metal
<u>SFA/AWS</u>	ABS	3H5, 3Y	C	0,07	<u>Yield stress, MPa</u>
<u>A5.1</u>	BV	3Y H5	Si	0,5	480
<u>E7018-1H4 R</u>	DNV	4YH5	Mn	1,4	<u>Tensile strength, MPa</u>

<u>EN ISO 2560-A</u> E 46 5 B 32 H5 <u>CSA W48</u> E4918-1	GL	3YH5	P	≤0,03	590
	LR	3, 3Y H5	S	≤0,03	<u>Elongation, %</u>
	VdTÜV	00632	Cr	≤0,1	28
	CE	EN 13479	Ni	≤0,1	<u>Elongation, %</u>
	CWB	CSA W48	Mo	≤0,1	28
	DB	10.039.03	V	≤0,03	<u>Charpy V</u>
	RS	3YH5	Nb	≤0,02	Test temps, °C
		Cu	≤0,1	Impact values, J	
		Al	≤0,03	-20	115
		Sn	≤0,01	-50	50
		Ti	≤0,03		
		Pb	≤0,02		
		As	≤0,03		

Redrying temperature, °C

350

Redrying time, hours

2

Recovery

125%

Diameter, mm	2,5	3,2	3,2	4,0	4,0	5,0	6,0
Length, mm	350	350	450	350	450	450	450
Arc voltage, V	23	23	24	23	24	24	25
Welding current, A	80-110	110-140	110-140	140-200	140-200	200-270	215-360
N. Kg weld metal/kg electrodes	0,64	0,62	0,69	0,62	0,70	0,72	0,72
B. No. of electrodes/kg weld metal	65,8	41,1	30,0	28,0	19,0	13,0	9,0
H. Kg weld metal/hour arc time	0,86	1,22	1,4	1,77	2,0	3,0	4,0
T. Burn-off time, s/electrode	64	72	88	73	94	94	98

OK Femax 33.80

Features Specifications

OK Femax 33.80

SMAW

Type Rutile

High-recovery rutile electrode for the high productivity welding of fillets in the horizontal-vertical position. Particularly suitable for welding thick plates and for long run-out lengths. Good bead appearance. Easy slag removal.

Welding current

AC, DC(+ -) OCV 50 V



Classifications	Approvals		Typical all weld metal composition, %	Typical mech. properties all weld metal
<u>SFA/AWS</u> <u>A5.1</u> E7024 <u>EN ISO 2560-</u> <u>A</u> E 42 0 RR 73	ABS	2	C <0,12 Si 0,45 Mn 0,7 P ³0,03 S ³0,02	<u>Yield stress, MPa</u> 450
	BV	2		<u>Tensile strength, MPa</u> 550
	DB	10.039.28		<u>Elongation, %</u> 26
	DNV	2		<u>Elongation, %</u> 26
	GL	2Y		<u>Charpy V</u>
	LR	2, 2Y		Test temps, °C Impact values, J 0 50
	PRS	2		
	RS	2		
	Sepros	UNA 408919		
	VdTÜV	00634		
	CE	EN 13479		
	CWB	CSA W 48		

Recovery

180%

Diameter, mm	2,5	3,2	4,0	5,0	6,0
Length, mm	350	450	450	450	450
Arc voltage, V	27	28	30	30	35
Welding current, A	85-125	130-170	180-230	250-340	300-430
N. Kg weld metal/kg electrodes	0,64	0,68	0,68	0,67	0,68
B. No. of electrodes/kg weld metal	53,0	21,0	13,5	9,1	6,4
H. Kg weld metal/hour arc time	1,6	2,5	3,8	5,8	7,1
T. Burn-off time, s/electrode	43	69	69	68	79