

Creep resistant basic electrode

Classification

AWS A5.5-96 : E9018-B3 H4
EN 1599-97 : E CrMo2 B 32 H5

General description

Basic, very low hydrogen all position electrode $H_{DM} < 5\text{ml}/100\text{g}$ (SRP)

For welding creep and hydrogen resistant CrMo-steels

maximum service temperature 600°C

DC-welding preferred

115-120% recovery

Also available in vacuum sealed Sahara ReadyPack® (SRP)

Welding positions



Current type

AC / DC electr. + / -

Approvals

CTL	RINA	TÜV
+	C2M1	+

Chemical composition (w%), typical, all weld metal

C	Mn	Si	P	S	Cr	Mo	H_{DM}
0.06	0.8	0.6	0.015	0.01	2.3	1.0	3 ml/100 g

Mechanical properties, all weld metal (for creep data see overleaf)

	Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J)	
					+20°C	-10°C
Required: AWS A5.5-96	SR1)	min. 530	min. 620	min. 17	not required	
EN 1599-97	SR2)	min. 400	min. 500	min. 18	min. 47	
Typical values :	SR3)	530	650	22	150	90

Stress relieving: SR1) = 690±14°C/1h, SR2) = 690-750°C/1h, SR3) = 695°C/1h

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2	4.0	5.0
	Length (mm)	350	350	350	450
Unit: Box	Pieces / unit (nominal)	110	120	85	55
	Net weight/unit (kg)	2.6	4.7	4.8	6.2
Unit: SRP	Pieces / unit	67	50	28	23
	Net weight/unit (kg)	1.4	2.0	1.5	2.6

Identification Imprint: 9018-B3/SL20G Tip colour: white

SL®20G: rev. EN 15

Materials to be welded

Steel	Code	Type
Creep and hydrogen resistant steel	EN 10028-2	10 CrMo 9-10
	EN 10222-2	12 CrMo 9-10

Creep Data

Test temperature	°C	400	450	500	550	600
Yield strength Rp0.2%	N/mm ²	480	460	430		
Creep strength Rm/1000	N/mm ²			240	160	100
Creep strength Rm/10.000	N/mm ²			210	110	60
Creep resistance Rp1%/10.000	N/mm ²			160	85	45

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (s)*	Energy E(kJ)	Dep.rate H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
2.5 x 350	60 - 90	DC+	63	114	0.72	21.0	79	1.67
3.2 x 350	80 - 130	DC+	70	233	1.3	37.6	40	1.49
4.0 x 350	120 - 180	DC+	75	348	1.7	56.7	28	1.56
5.0 x 450	160 - 240	DC+	100	754	2.6	107.6	14	1.47

* stub end 35mm

Welding parameters, optimum fill passes

Welding position Diameter (mm)	PA/1G Current (A)	PB/2F	PC/2G	PF/3G up	PE/4G	PF/5G up
2.5	80	85	80	85	80	80
3.2	130	120	130	120	120	120
4.0	150	145	140	140	140	140
5.0	225	225	210			

Remarks

Recommended preheat temperature: 200 - 300°C

Recommended stress relieving range: 690 - 750°C (time depends on material thickness)

Application Advice

Electrodes after removal from cardboard boxes redry 2-4h 350 ± 25°C