

Creep resistant basic electrode

Classification

AWS A5.5-96 : E8018-B2 H4
EN 1599-97 : E CrMo1 B 32 H5

General description

Basic coated electrode for welding of Cr Mo-creep resistant steels
Extra low hydrogen in the weldmetal $H_{DM} < 5\text{ml}/100\text{g}$
Excellent weldability for welding pipe and plate on site
Reliable X-ray soundness
Good mechanical properties in the as welded and stress relieved condition
Applicable for service temperature from -20 to 500°C
SL19G(STC) meets the actual "step cool" requirements including the Bruscato factor of $X < 15$
Only available in vacuum sealed Sahara ReadyPack® (SRP)

Welding positions



Current type

AC / DC electr. + / -

Approvals

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

C	Mn	Si	P	S	Cr	Mo	Bruscato	H_{DM}
0.06	0.7	0.35	0.010	0.010	1.2	0.55	max. 15 ppm	3 ml/100g

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	-20°C
Required: AWS A5.5-96	SR1)	min. 460	min. 550	min. 19	not required	
EN 1599-97	SR2)	min. 355	min. 510	min. 20	min. 47	
Typical values:	SR3)	570	640	24	180	150

Stress relieving: SR1) = 690±14°C/1h, SR2) = 660-700°C/1h, SR3) = 700°C/1h

Shifting CVN at 55 J(DeltaT55): +10°C after "STC" (step cool treatment)

Packaging, available sizes and identification

	Length (mm)	350	350	350
	Diameter (mm)	2.5	3.2	4.0
Unit: SRP	Pieces / unit	69	50	28
	Net weight/unit (kg)	1.4	2.0	1.5

Identification

Imprint: 8018-B2/SL19G(STC)

Tip colour: red

SL®19G(STC): rev. EN 15

Materials to be welded

Steel	Code	Type
Creep resisting steel	EN 10028-2	13 CrMo 4-5
	EN 10083-1	25 CrMo 4
	EN 10222-2	14 CrMo 4-5
Tool steel	DIN 17210	16 MnCr 5

Creep Data

Test temperature	°C	400	450	500	550	600
Yield strength Rp0.2%	N/mm ²	460	440	430		
Creep strength Rm/1000	N/mm ²			300	140	80
Creep strength Rm/10.000	N/mm ²		350	240	110	50
Creep resistance Rp1%/10.000	N/mm ²		250	170	80	35

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							
3.2 x 350	80 - 145	DC+	68	227	1.3	37.9	41	1.56
4.0 x 350	120 - 185	DC+	79	367	1.6	54.9	29	1.59

* 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
3.2	130	120	130	120	120	120
4.0	150	145	140	140	140	140

Remarks

Recommended preheat temperature: 200 - 250 °C

Recommended stress relieving temperature range: 660 - 700°C (time depends on material thickness)

Stepcooling requirements: Bruscato factor $X = (10 P + 5 Sb + 4 Sn + As)/100 \leq 15$ ppm and Mn + Si < 1.1

Application Advice

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