

# Creep resistant basic electrode

## Classification

AWS A5.5 : E7018-A1-H4R  
EN 1599 : E Mo B 32 H5

## General description

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

For welding creep resisting and fine grained steels

Service temperature from -40 up to 500°C

DC-welding preferred

115 - 120% recovery

Also available in vacuum sealed Sahara ReadyPack® (SRP)

## Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3Gup PE/4G PF/5Gup

## Current type

AC / DC + / -

## Approvals

DB	DNV	TÜV
x	0,3 Mo PT.2	+

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

C	Mn	Si	P	S	Mo	$H_{DM}$
0.05	0.8	0.6	0.02	0.01	0.55	2 ml/100g

## Mechanical properties, all weld metal

	Condition	0.2% Proof strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)	
					+20°C	-20°C
Required: AWS A5.5	SR <sup>1</sup> )	min. 390	min. 480	min. 25	not required	
EN 1599	SR <sup>2</sup> )	min. 355	min. 510	min. 22	min. 47	
Typical values	SR <sup>3</sup> )	560	620	25	140	50
	AW	550	610	25	160	70

Stress relieved: SR<sup>1</sup>) = 620±14°C/1h, SR<sup>2</sup>) = 570-620°C/1h, SR<sup>3</sup>) = 620°C/1h

## Packaging and available sizes

	Diameter (mm)	2.5	3.2	4.0	5.0
	Length (mm)	350	350	350	450
Unit: Box	Pieces / unit	110	120	85	55
	Net weight/unit (kg)	2.5	4.5	4.7	6.0
Unit: SRP	Pieces / unit	67	50	28	23
	Net weight/unit (kg)	1.4	2.0	1.5	2.6

## Identification

Imprint: 7018-A1 / SL 12 G

Tip Color: blue

SL®12G: rev. EN 21

**Materials to be welded**

Steel grades/Code	Type
<b>Creep resistant steels</b>	
EN 10028-2	P295 G H, P355 G H, 16 Mo 3
EN 10222-2	17 Mo 3, 14 Mo 6
<b>Fine grained steel</b>	
EN 10113-2	S275, S355, S420
EN 10113-3	S275, S355, S420

**Creep data**

Test temperature	(°C)	400	450	500	550
Yield strength Rp-0,2%	(N/mm <sup>2</sup> )	420	380	330	
Creep strength Rm/1000	(N/mm <sup>2</sup> )		360	300	-200
Creep strength Rm/10.000	(N/mm <sup>2</sup> )		320	180	-80
Creep resistance Rp1%/10.000	(N/mm <sup>2</sup> )		230	150	-65

**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+	65	118	0.7	22.8	84	1.92
3.2 x 350	80 - 130	DC+	69	230	1.3	37.9	42	1.59
4.0 x 350	120 - 180	DC+	81	373	1.6	54.8	28	1.56
5.0 x 450	160 - 240	DC+	106	799	2.4	107.4	14	1.52

\* stub end 35 mm

**Welding parameters, optimum fill passes**

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

**Remarks/ Application advice**

Recommended tempering heat treatment range: 580 - 630°C (time depends on material thickness)  
Redry electrodes 2-4h at 350 ± 25°C after removal from cardboard boxes