

Creep resistant basic electrode

Classification

AWS A5.5-96 : E8018-B6 H4
EN 1599-97 : E CrMo5 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 5% Cr-0.5% Mo-steels
maximum service temperature 550°C

Developed for the petrochemical industry

Only available in vacuum sealed Sahara ReadyPack® (SRP)

Welding positions



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

Current type

AC / DC electr. + / -

Approvals

TÜV

+

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

C	Mn	Si	P	S	Cr	Mo	H_{DM}
0.07	0.8	0.6	0.020	0.010	5.3	0.6	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
Required: AWS A5.5-96	SR1)	min. 460	min. 550	min. 19	not required
	EN 1599-97 SR2)	min. 400	min. 590	min. 17	min. 47
Typical values	SR3)	580	680	22	110

Stress relieve: SR1) = 740 ±14°C/1h, SR2) = 730-760°C/1h, SR3) = 750°C/2h

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2	4.0
	Length (mm)	350	350	350
Unit: SRP	Pieces / unit (nominal)	70	52	29
	Net weight/unit (kg)	1.4	1.9	1.6

Identification Imprint: 8018-B6/SL502

Tip colour: brown

SL®502: rev. EN 15

Materials to be welded

Steel	Code	Type
Creep and hydrogen resistant steel	DIN ASTM	12CrMo19.5 and equivalent grades A182 F5 A213 T5 A335 P5 A336 F5 A369 FP5 A387 Grade 5

Creep Data

Test temperature	°C	400	450	500	550	600
Yield strength Rp-0.2%	N/mm ²	480	440	380		
Creep strength Rm/1000	N/mm ²			160	140	80
Creep strength Rm/10.000	N/mm ²			130	90	60
Creep resistance Rp1%/10.000	N/mm ²			100	50	30

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+	55	95	0.82	20.8	80	1.67
3.2 x 350	85 - 130	DC+	66	237	1.1	35.4	50	1.79
4.0 x 350	130 - 180	DC+	76	331	1.5	51.8	32	1.64

* 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	80	75	70	70	70
3.2	130	130	125	120	120	120
4.0	140	140	135	135	135	135

Remarks

Formerly not classified but produced to the E502 composition ranges in A5.4-81: E502

Recommended preheat and interpassttemperature 200 - 300°C

Postweld heattreatment 730 - 760°C (time depends on material thickness)