

Stainless steel electrode

Classification

AWS A5.4-92 : E309Mo-26*
EN 1600-97 : E 23 12 2 LR 53*

* Deviation: see remarks

Temperature Range

pressurized parts: -20 ... +350°C
scaling resistance: n.a.

General description

A rutile-basic synthetic high recovery (160%) electrode for shipbuilding
For welding carbon steel to stainless steel in the down hand position
Excellent for fillet welding
High resistance to porosity on primed plate material
Higher welding current can be used
High deposit rate
Smooth bead appearance and easy slag release
Weldable on AC and DC+ polarity

Welding positions



ISO/ASME PA/1G PB/2F

Current type

AC / DC electr. +

Approvals

ABS	BV	DNV	GL	RINA	RMRS
+	UP	309Mo	4431	309Mo	SS/CMn

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

C	Mn	Si	Cr	Ni	Mo	FN
0.05	0.7	1.0	23.7	12.8	2.4	15

Mechanical properties, all weld metal

Condition	0.2% Proof strength (N/mm ²)	Tensile strength (N/mm ²)	Elongation (%)	Impact ISO-V(J) +20°C
Required: AWS A5.4-92	not required	min. 550	min. 30	not required
EN 1600-97	min. 350	min. 550	min. 25	not required
Typical values	AW 550	740	28	50

Packaging, available sizes and identification

	Diameter (mm)	3.2	4.0	4.5	5.0
	Length (mm)	450	450	600	450
Unit: Box	Pieces / unit (nominal)	90	55	40	35
	Net weight/unit (kg)	6.1	5.9	7.3	5.8

Identification

Imprint: 309Mo-16 /Nichroma 160

Tip colour: sea green

Nichroma 160: rev. EN 15

Materials to be welded

Steel grades	EN 10088-1/-2	EN 102 13-4	W.Nr.	ASTM/ACI A240/A312/A351	UNS
	X2 CrNiMo 17-12-2 CF-3M	J92800	1.4404	(TP)316L	S31603
	X2 CrNiMo 18-14-3		1.4435	(TP)316L	S31603
	X4 CrNiMo 17-12-2		1.4401	(TP)316	S31600
	X4 CrNiMo 17-13-3		1.4436		
	X6 CrNiMoTi 17-12-2		1.4571	316Ti	S31635
	X10 CrNiMoTi 17-3		1.4573	316Ti	S31635
	X6 CrNiMoNb 17-12-2		1.4580	316Cb	S31640
		GX5 CrNiMo 19-11	1.4408		

- Welding dissimilar metals: mild steel or low alloyed steel to stainless CrNiMo-steel up to max. thickness of 12 mm.

- Build-up welding on mild or low alloyed steel

Calculation data

Sizes Diam. x length (mm)	Current range type (A)	Current	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
3.2 x 450	140 - 170	DC+	86	409	1.9	68.1	22	1.52
4.0 x 450	180 - 230	DC+	80	644	3.0	105.5	15	1.59
4.5 x 600	200 - 250	DC+						
5.0 x 450	230 - 300	DC+	90	1084	4.1	162.0	10	1.59

* stub end 35mm

Welding parameters, optimum fill passes

Welding position: Diameter (mm)	PA/1G Current (A)	PB/2F
3.2	175	140
4.0	200	180
5.0	230	230

Remarks

Deviations: chemical composition:

Si = max. 1.2%

C = max. 0.05%

AWS: Si = max. 0.90%

EN: C = max. 0.04%