

Stainless steel electrode

Classification

AWS A5.4-92 : E309L-16
EN 1600-97 : E 23 12 L R 32

Temperature Range

pressurized parts: -120...+350°C
scaling resistance: n.a.

General description

A rutile-basic high CrNi alloyed buffer electrode
For welding stainless steel to mild steel and root passes in clad steel
Applicable for root passes in N alloyed AISI 304LN steels
Excellent weldability and slag release
High resistance to embrittlement
Weldable on AC and DC+ polarity
Also 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

ABS	BV	CTL	RMRS	TÜV
+	309L	+	SS/CMn	+

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

C	Mn	Si	Cr	Ni	FN
0.02	0.8	0.8	23.5	12.5	12-20

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	-20°C	-120°C
Required: AWS A5.4-92 EN 1600-97		not required min. 320	min. 520 min. 510	min. 30 min. 25	not required not required		
Typical values	AW	480	560	40	60	50	40

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2	4.0	5.0
	Length (mm)	350	350	350	350
Unit: Box	Pieces / unit (nominal)	135	150	100	65
	Net weight/unit (kg)	2.8	5.0	5.0	5.0
Unit: SRP	Pack Pieces / unit	69	56	31	
	Net weight/unit (kg)	1.4	1.9	1.5	

Identification

Imprint: 309L-16/Arosta 309S

Tip colour: sea green

Arosta® 309S: rev. EN 15

Materials to be welded

Steel grades	EN 10088-1/-2	W.Nr.	ASTM/ACI A240/A312/A351	UNS
Corrosion resisting and cladsteel	X2 CrNiN 18-10	1.4311	(TP)304LN	S30453
	X2 CrNi 19-11	1.4306	(TP)304L	S30403
	X4 CrNi 18-10	1.4301	CF-3 (TP)304	J92500 S30400

- Dissimilar metals (mild and low alloyed steel to CrNi or CrNiMo stainless steel)
- Build-up welding on mild and low alloyed steel
- Butterlayer CrNi cladsteel

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
2.5 x 350	40 - 75	DC+	50	88	0.93	21.0	77	1.61
3.2 x 350	60 - 110	DC+	58	160	1.3	32.5	46	1.49
4.0 x 350	80 - 150	DC+	64	241	1.8	48.3	31	1.49
5.0 x 350	140 - 220	DC+	68	372	2.8	78.0	19	1.49

* 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	70	70	70	60	60	60
3.2	100	100	100	70	70	70
4.0	140	140	140	80		
5.0	180	180	180			