

Stainless steel electrode

Classification

AWS A5.4-92 : E316L-15
EN 1600-97 : E 19 12 3 L R 21

Temperature Range

pressure parts: -60...+400°C
oxidation resistance: n.a.

General description

A rutile-basic stainless steel electrode for welding 316L or equivalent steels
Molybdenum level min. 2.7%
Specially developed for vertical down welding on DC
Root passes in grooves with root opening
High general corrosion resistance

Welding positions



ISO/ASME PG/3G down

Current type

AC / DC electr. +

Approvals

ABS	BV	CTL	DNV	GL	LR	TÜV
+	316L	+	316L	4429	316L	+

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

C	Mn	Si	Cr	Ni	Mo	FN
0.020	0.7	0.85	18.0	11.5	2.8	4-10

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	-60°C
Required: AWS A5.4-92		not required	min. 490	min. 30	not required		
EN 1600-97		min. 320	min. 510	min. 25	not required		
Typical values	AW	500	620	35	50	45	35

Packaging, available sizes and identification

	Diameter (mm)	2.5	3.2
	Length (mm)	300	300
Unit: Box	Pieces / unit (nominal)	190	130
	Net weight/unit (kg)	2.9	3.1

Identification Imprint: 316L-15/Vertarosta 316L Tip colour: brown

Vertarosta® 316L: 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
Extra low carbon C <0.03%	X2 CrNiMo 17-12-2		1.4404	(TP)316L CF-3M	S31603 J92800
	X2 CrNiMo 18-14-3		1.4435	(TP)316L	S31603
	X2 CrNiMoN 17-11-2		1.4406	(TP)316LN	S31653
	X2 CrNiMoN 17-13-3		1.4429		
Medium carbon C >0.03%	X4 CrNiMo 17-12-2		1.4401	(TP)316	S31600
	X4 CrNiMo 17-13-3		1.4436		
Ti-, Nb stabilized		GX5 CrNiMo 19-11	1.4408	CF 8M	J92900
	X6 CrNiMoTi 17-12-2		1.4571	316Ti	S31635
	X6 CrNiMoNb 17-12-2		1.4580	316Cb	S31640
	X6 CrNiNb 18-10		1.4550	(TP)347	S34700
		GX5 CrNiNb 19-10	1.4552	CF-8C	J92710

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 300	60 - 70	DC+	44	71	0.83	14.9	98	1.47
3.2 x 300	80 - 110	DC+	47	118	1.3	23.9	59	1.41

* stub end 35mm

Welding parameters, optimum fill passes

Welding positions	3G (down)
Diameter (mm)	Current (A)
2.5	70
3.2	100