

**Classifications**

<b>EN ISO 3581-A</b>	<b>AWS A5.4 / SFA-5.4</b>
E 19 12 3 Nb R 3 2	E318-17

**Characteristics and typical fields of application**

Rutile coated, cored wire alloyed stabilized electrode of E 19 12 3 Nb R / E318-17 type. Mainly for welding titanium and niobium-stabilized 1.4571 / 316Ti and 1.4580 / 316Cb austenitic stainless steel grades. Designed for first class weld seams and easy handling on AC or DC. High current carrying capacity with minimum spatter formation. Self-releasing slag, smooth and clean weld profile. Safety against formation of porosity due to moisture resistant coating. The corrosion resistance corresponds to that of 316Ti with good resistance to general and pitting corrosion. Max. service temperature 400°C.

**Base materials**

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-13-3, 1.4437 GX6CrNiMo18-12, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4581 GX5CrNiMoNb19-11-2, 1.4583 X10CrNiMoNb18-12  
 UNS S31600, S31603, S31635, S31640, S31653  
 AISI 316, 316L, 316Ti, 316Cb

**Typical analysis**

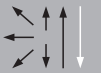
	C	Si	Mn	Cr	Ni	Mo	Nb
wt.-%	0.03	0.8	0.8	19	12	2.7	0.31

**Mechanical properties of all-weld metal - typical values (min. values)**

Condition	Yield strength R <sub>p0.2</sub>	Tensile strength R <sub>m</sub>	Elongation A (L <sub>0</sub> =5d <sub>0</sub> )	Impact energy ISO-V KV J	
	MPa	MPa	%	20°C	-90°C
u	460 (≥ 350)	620 (≥ 550)	35 (≥ 25)	60	50 (≥ 32)

u untreated, as-welded

**Operating data**

	Polarity	DC+ / AC	Dimension mm	Current A
	Electrode identification	FOX SAS 4-A 318-17 E 19 12	2.0 × 300	40 – 60
		3 Nb R	2.5 × 350	50 – 90
			3.2 × 350	80 – 120
			4.0 × 350	110 – 160
			5.0 × 450	140 – 200

Suggested heat input max. 1.5 kJ/mm and interpass temperature max. 150°C.

Preheating and post-weld heat-treatment not necessary. In special cases, solution annealing can be performed at 1050°C followed by water quenching.

Re-drying if necessary at 120 – 200°C for min. 2 h.

**Approvals**

TÜV (00777), DB (30.014.07), CE