

Classifications

EN ISO 3581-A	AWS A5.4 / SFA-5.4
E 20 16 3 Mn N L B 2 2	E316LMn-15

Characteristics and typical fields of application

Basic coated non-magnetic electrode of E 20 16 3 Mn N L B / E316LMn-15 type. Particularly suited to corrosion conditions in urea synthesis plants and for joining and surfacing applications with matching austenitic CrNi(N) and CrNiMo(Mn,N) steels and cast steel grades. Max. service temperature 350°C. Corrosion resistance similar to low carbon CrNiMo(Mn,N)-steels. Seawater resistant and good resistance to nitric acid. Huey test in accordance with ASTM A 262: Max. 3.3 µm / 48 h (0.54 g/m²h), selective attack max. 200 µm. Resulting all-weld metal microstructure is austenite with max. 0.6% ferrite.

Base materials

1.3941(G)X4CrNi18-3, 1.3945 X2CrNiN18-13, 1.3948 X4CrNiMnMoN19-13-8, 1.3952 (G)X2CrNiMoN18-14-3, 1.3953 (G)X2CrNiMo18-15, 1.3955 GX12Cr18-11, 1.3965 X8CrMnNi18-8, 1.4315 X5CrNiN19-9, 1.4429 X2CrNiMoN17-13-3, 1.4435 X2CrNiMo18-14-3, 1.4561 X1CrNiMoTi18-13-2, 1.6903 10CrNiTi18-10

Cryogenic 3.5 – 5% Ni-steels

UNS S31603, S31653

AISI 316L, 316LN

Typical analysis


	C	Si	Mn	Cr	Ni	Mo	N
wt.-%	< 0.04	< 0.5	6.0	20	16.5	3	0.18

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

Condition	Yield strength R _{p0.2}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact energy ISO-V KV J	
	MPa	MPa	%	20°C	-140°C
u	460 (≥ 320)	650 (≥ 550)	40 (≥ 25)	95	50

u untreated, as-welded

Operating data

	Polarity	DC+	Dimension mm	Current A
	Electrode identification	Thermanit 19/15 H E 20 16 3 Mn L B	2.5 × 300	55 – 75
			3.2 × 350	70 – 110
			4.0 × 350	90 – 140

Suggested heat input max. 1.5 kJ/mm and interpass temperature max. 100°C.

When cladding high temperature and cast steel grades, preheating is according to the parent material (150°C).

In case of excessive hardening of the parent material, stress relieving can be performed at 510°C for max. 20 h, annealing above 530°C only prior to the final pass.

Approvals

TÜV (01813), DB (30.138.08), CE