

Classifications

EN ISO 14343-A
AWS A5.9 / SFA-5.9

W 19 12 3 Nb

ER318

Characteristics and typical fields of application

Solid wire TIG rod of W 19 12 3 Nb / ER318 type for joining and surfacing application with matching and similar stabilized and non-stabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Corrosion resistance similar to matching stabilized CrNiMo-steels. 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.-%	0.04	0.4	1.7	19.5	11.5	2.7	≥ 12×C

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	-120°C
u	450 (≥ 350)	630 (≥ 550)	32 (≥ 25)	100 (≥ 60)	(≥ 32)

u untreated, as-welded – shielding gas Ar

Operating data

	Polarity	DC-	Dimension mm
	Shielding gas (EN ISO 14175)	l1	1.0 × 1000
	Rod marking	+ W 19 12 3 Nb / ER 318	1.2 × 1000
			1.6 × 1000
			2.0 × 1000
			2.4 × 1000
			3.2 × 1000
			4.0 × 1000
			5.0 × 1000

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

Post-weld heat treatment generally not needed. In special cases solution annealing at 1050°C followed by water quenching. Pay attention to tendency to embrittlement.

Approvals

— Σ ≤ | , TÜV (19607 / 08201), DB (43.132.81), DNV, CE