

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	CSA W48-23
W 19 12 3 L Si	ER316LSi	ER316LSi

Characteristics and typical fields of application

TIG rod of W 19 12 3 L Si / ER316LSi type for welding austenitic stainless steel of 17Cr-12Ni-2.5Mo type or similar. Also suitable for welding steels that are stabilized with titanium or niobium, such as 1.4571 / 316Ti for service temperatures not exceeding 400°C. For higher temperatures a niobium-stabilized consumable such as Böhler SAS 4-IG (Si) is required. Excellent resistance to general, pitting and intercrystalline corrosion in chloride containing environments. Intended for severe service conditions, e.g. in dilute hot acids. Microstructure is austenite with 5 – 10% ferrite. Max. service temperature 400°C.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMo17-12-3, 1.4432 X2CrNiMo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4571 X6CrNiMoTi17-12-2
UNS S31600, S31603, S31635, S31640, S31653
AISI 316L, 316Ti, 316Cb

Typical analysis

	C	Si	Mn	Cr	Ni	Mo	Ferrit
wt.-%	0.02	0.9	1.7	18.5	12.0	2.6	7 FN (WRC-92)

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	-196°C
u	470 (≥ 320)	610 (≥ 510)	31 (≥ 25)	140	(≥ 32)

Operating data

	Polarity	DC-	Dimension mm
	Shielding gas (EN ISO 14175)	I1 R1 ≤ 5% H ₂	1.0 × 1000 1.0
	Rod marking	+ W 19 12 3 LSi / ER 316 LSi	1.2 × 1000 1.6 × 1000 2.0 × 1000 2.4 × 1000 3.2 × 1000

Heat input max. 2.0 kJ/mm, interpass temperature max. 150°C.

Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1050°C followed by water quenching.

Shielding gas: Ar, Ar + 20 – 30% He, Ar + 1 – 5% H₂

Approvals

TÜV (00488), DB (43.132.35), DNV, CE