Thermanit GE-316L Si

Solid wire, high-alloyed, austenitic stainless

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9
G 19 12 3 L Si	ER316LSi

Characteristics and typical fields of application

Solid wire of G 19 12 3 L Si / ER316LSi type for joining and surfacing application with matching and similar non-stabilized austenitic CrNi(N) and CrNiMo(N) steels and cast steel grades. Corrosion resistance similar to matching low-carbon and stabilized austenitic CrNi-Mo-steels and cast steel grades. Max. service temperature 400ºC. Low temperature service down to –196ºC.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMoN17-12-3, 1.4432 X2CrNi-Mo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12
UNS S31600, S31603, S31635, S31640, S31653
AISI 316L, 316Ti, 316Cb

Typical analysis

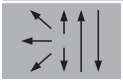
	C	Si	Mn	Cr	Ni	Mo
wt.-%	0.02	0.8	1.7	18.4	12.4	2.8

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	430 (≥ 320)	580 (≥ 510)	38 (≥ 25)	120 (≥ 75)	45 (≥ 32)

u untreated, as-welded – shielding gas Ar + 2.5% CO_2

Operating data



Polarity	DC+
Shielding gas (EN ISO 14175)	M 11 M 12 M13

Dimension mm
0.8
0.9
1.0
1.2
1.6

Suggested heat input is max. 2.0 kJ/mm and interpass temperature max. 150ºC. Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1050ºC followed by water quenching.
Shielding gas: Ar + 2% CO_2, Ar + 2 – 3% CO_2 or Ar + 0 – 5% H_2 + 0 – 5% CO_2

Approvals

TÜV (00489), DB (43.132.10), DNV, ABS, BV, LR, CE