Thermanit GE-316L

Solid wire, high-alloyed, austenitic stainless

Classifications

EN ISO 14343-A	AWS A5.9 / SFA-5.9	CSA W48-23
G 19 12 3 L	ER316L	ER316L

Characteristics and typical fields of application

GMAW solid wire of type 316L / 19 12 3 L for joining and surfacing application with matching and similar unstabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Corrosion resistance similar to matching low-carbon and stabilized austenitic 17Cr-12Ni-2Mo-steels. The wire shows very good wetting and feeding characteristics, with excellent weld metal toughness down to –196°C.
Max. service temperature 400°C.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4429 X2CrNiMoN17-12-3
1.4432 X2CrNiMo17-12-3, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-13-3, 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

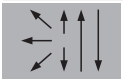
	C	Si	Mn	Cr	Ni	Mo
wt.-%	0.02	0.4	1.7	18.4	12.4	2.8

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 (≥ 47)	(≥ 32)

u untreated, as-welded – shielding gas Ar + 2,5% CO_2

Operating data



Polarity	DC+
Shielding gas (EN ISO 14175)	M11 M12 M13

Dimension mm
0.9
1.0
1.2

Suggested heat input is max. 2.0 kJ/mm and 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 + 0 – 5% H_2 + 0 – 5% CO_2, Ar + 2% CO_2, Ar + 2 – 3% CO_2

Approvals

TÜV (19684), CWB, DNV