Thermanit 309L Si

Solid wire, high-alloyed, austenitic stainless, special applications

Classifications

EN 12072	CSA W48-23 / AWS A5.9M	AWS A5.9 / SFA-5.9
G 23 12 L Si	ER309LSi	ER309LSi

Characteristics and typical fields of application

Solid wire of G 23 12 L Si / ER309LSi type for joining unalloyed and low-alloyed steels and cast steel grades or stainless heat resistant Cr-steels to austenitic steels. Well-suited for depositing intermediate layers when welding cladded materials. Favorably high Cr and Ni contents, low C content. For depositing intermediate layers when welding the side of plates clad with low-carbon unstabilized or stabilized austenitic CrNiMo(N) austenitic metals. Application temperature max. 300ºC.

Base materials

Primarily used for surfacing (buffer layer) unalloyed or low-alloyed steels and when joining non-molybdenum-alloyed stainless and carbon steels. Joints and mixed joints between austenitic steels such as
1.4301 X5CrNi18-10, 1.4306 X2CrNi19-11, 1.4308 GX5CrNi19-10, 1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4408 GX5CrNiMo19-11-2, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-12-3, 1.4541 X6CrNiTi18-10, 1.4550 X6CrNiNb18-10, 1.4552 GX5CrNiNb19-11, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4581 GX5CrNiMoNb19-11-2 1.4583 X10CrNiMoNb18-12, 1.4948 X6CrNi18-10
UNS S30400, S30403, S30809, S31600, S31603, S31635, S32100, S34700, S31640
AISI 304, 304L, 316, 316L, 316Ti, 321, 347
or mixed joints between austenitic and heat resistant steels such as
1.4713 X10CrAlSi7, 1.4724 X10CrAlSi13, 1.4742 X10CrAlSi18, 1.4826 GX40CrNiSi22-10, 1.4828 X15CrNiSi20-12 1.4832 GX25CrNiSi20-14, 1.4837 GX40CrNiSi25-12
with ferritic steels to pressure boiler steels P295GH and fine grained structural steels to P355N, ship building steel grades A – E, AH 32 – EH 36, A40 – F40, etc.

Typical analysis

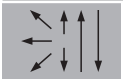
	C	Si	Mn	Cr	Ni
wt.-%	0.03	0.9	2.0	24	13.0

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	-20°C
u	420 (≥ 320)	550 (≥ 510)	30 (≥ 25)	115 (≥ 90)	95(≥ 75)

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

Operating data



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

Dimension mm
0.8
1.0
1.2
1.6

Preheating and interpass temperature as required by the base metal.
Shielding gas: Ar + 2 – 3% CO_2 or Ar + 1 – 2% O_2

Approvals

TÜV (19606), DB (43.132.79), ABS, CWB, DNV, CE