

SANDVIK 23.12.2.L T1

FLUX CORED WIRE ELECTRODES

DATASHEET

Sandvik 23.12.2.L-T1 (309LMo-T1) is a high alloyed chromium-nickel-molybdenum flux core electrode for welding of dissimilar joints between stainless steel and mild or low alloyed steels. It is also used to create buffer layers with a composition of 18%Cr/8%Ni/2%Mo before overlay alloys are deposited.

The electrode has excellent arc stability, low spatter and fast burn off rate. It is also characterized by improved moisture resistance, self-peeling slag and easy post weld finishing. Sandvik 23.12.2.L-T1 (309LMo-T1) gives smooth, uniform beads and works in any standard weld position.

STANDARDS

- ISO 14174: T 23 12 2 L R C M 1
- AWS A5.22/ASME A5.22: E309LMo-T1-1/T1-4
- W.Nr.: 1.4333

Product Approvals

- AWS

Please note that the Werkstoff Nr. corresponds to the base material of the grade.

CHEMICAL COMPOSITION (NOMINAL) %

Chemical composition (nominal) %

C	Si	Mn	Cr	Ni	Mo
0.029	0.73	1.1	23.3	12.9	2.6

The all weld metal for Sandvik 23.12.2.L-T1 (309LMo-T1) is austenitic matrix with a ferrite content of 14-20 FN according to WRC-92.

APPLICATIONS

Sandvik 23.12.2.L (309LMo-T1) is used for welding steels of the following types:

- Welding of stainless steels to mild or low alloy steels
- Buffer layers on low alloy steels before overlays of 316 composition
- Welding of medium carbon hardenable steels, e.g. armour plate
- When a weld metal similar to the parent metal is not required, Sandvik 23.12.2.L-T1 (309LMo-T1) can be used for welding ferritic and martensitic steels

FORMS OF SUPPLY

Sandvik 23.12.2.L-T1 (309LMo-T1) is supplied in wire of diameters 0.9, 1.2, 1.6 mm (0.035, 0.047, 1/16 in.).

MECHANICAL PROPERTIES

Using Ar 75%/CO₂ 25%

Temperature	°C (°F)	20 (68)	-20
Proof strength, R _{p0.2}	MPa (ksi)	570 (79)	
Tensile strength, R _m	MPa (ksi)	750 (109)	
Elongation, A	%	30	
Hardness	HB		
Impact strength, Charpy V	J (ft/lb)		52 (38)

Using CO₂ 100%

Temperature	°C (°F)	20 (68)	-20
Proof strength, R _{p0.2}	MPa (ksi)	550 (78)	
Tensile strength, R _m	MPa (ksi)	715 (104)	
Elongation, A	%	35	
Hardness	HB		
Impact strength, Charpy V	J (ft/lb)		52 (38)

CORROSION RESISTANCE

Sandvik 23.12.2.L-T1 (309LMO-T1) is resistant to intergranular corrosion according to ASTM A262 practice E in the as-welded and quench-annealed condition.

FABRICATION

Welding data

Electrode positive is used to give good penetration in all types of welded joint. The following table shows common conditions for FCAW welding. Electrode extension is 12.5-19 mm (1/2"-3/4"). These parameters are for CO₂ shielding. If using Ar-CO₂ mixture, decrease voltage by up to 2V.

Wire diameter, mm (in)	Wire feed, m/min (in/min)	Current, A	Voltage, V	Gas, l/min (CFH)
0.9 (0.035)	6.7-13.5 (265-530)	100-170	23-26	12 (25)
1.2 (0.047)	5.8-14.4 (225-570)	170-300	25-30	12 (25)
1.6 (1/16)	3.9-8.2 (150-320)	170-300	25-29	18 (38)

Disclaimer: Recommendations are for guidance only, and the suitability of a material for a specific application can be confirmed only when we know the actual service conditions. Continuous development may necessitate changes in technical data without notice. This datasheet is only valid for Sandvik materials.