

Classifications

EN ISO 17633-A	EN ISO 17633-B	AWS A5.22	Wst.-Nr.
T 23 12 2 L R M21 3 T 23 12 2 L R C1 3	TS309LMo-FB0	E309LMoT0-4 E309LMoT0-1	1.4459

Characteristics and typical fields of application

Thermanit TG 309 Mo L is an austenitic CrNiMo flux cored wire with rutile slag characteristic. It is suited for GMAW welding with mixed gas M21 and C1 acc. to EN ISO 14175. It is appropriate for joint welding high alloyed CrNi(Mo, N) steels/cast steel grades with unalloyed/low alloyed steels (austenite ferrite joints) with a maximum application temperature of 300 °C (572 °F). It is also suited for joint welding of high alloyed CrNi(Mo, N) steels/cast steel grades with stainless and heat resistant Cr steels/cast steel grades. For intermediate layers when welding the clad side of plates and cast materials clad with non stabilized and stabilized CrNi(Mo, N) austenitic metal. In the whole field of application this flux cored wire provides high resistance to hot cracking even at high degree of dilution.

The content of molybdenum provides a better corrosion resistance and simultaneously increases the ductility of austenitic joining combinations at higher temperatures. Weldable almost spatter free and due to the very slow freezing slag the weld metal shows fine and smooth bead appearance.

Very good slag detachability and notch free seams with low annealing colouring, easy to clean and pickle.

Root welding is proven on ceramic backing strips.

Base materials

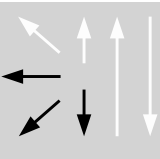
Joints and mixed joints between austenitic steels like::

1.4301 – X5CrNi18-10	1.4541 – X6CrNiTi18-10
1.4306 – X2CrNi19-11	1.4550 – X6CrNiNb18-10
1.4308 – GX5CrNi19-10	1.4552 – GX5CrNiNb19-11
1.4401 – X5CrNiMo17-12-2	1.4571 – X6CrNiMoTi17-12-2
1.4404 – X2CrNiMo17-12-2	1.4580 – X6CrNiMoNb17-12-2
1.4408 – GX5CrNiMo19-11-2	1.4581 – GX5CrNiMoNb19-11-2
1.4435 – X2CrNiMo18-14-3	1.4583 – X10CrNiMoNb18-12
1.4436 – X3CrNiMo17-13-3	1.4948 – X6CrNi18-10

or mixed joints between austenitic and heat resistant steels

1.4713 – X10CrAlSi7	1.4828 – X15CrNiSi20-12
1.4724 – X10CrAlSi13	1.4832 – GX25CrNiSi20-14
1.4742 – X10CrAlSi18	1.4837 – GX40CrNiSi25-12
1.4826 – GX40CrNiSi22-10	

with ferritic steels to pressure boiler steels P295GH and also fine grained structural steels to P355N, shipbuilding steels Grad A - E, AH 32 - EH 36, A40 – F40.

Typical analysis of all-weld metal (wt.-%)							
	C	Si	Mn	Cr	Ni	Mo	Gas
wt-%	0.03	0.6	1.4	23.0	12.5	2.7	M21
Structure: Austenite with part ferrite							
Mechanical properties of all-weld metal							
Heat-treatment	Shielding gas	Yield strength R _{p0.2}	Yield strength R _{p1.0}	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact work ISO-V KV J	
		MPa	MPa	MPa	%	+20 °C	-60 °C
aw	M21	450	500	550	30	47	32
Operating data							
		Polarity: DC (+)	Shielding gas: (EN ISO 14175) M21, C1 Consumption: 15 – 20 l/min	ø (mm) 1.2	Spool B300	Amps A 100 – 180	Voltage V 18 – 29
Approvals							
TÜV (07688), DB (43.132.17) ABS, GL, LR, CE							