# Thermanit TG 316 L

Flux cored wire, high-alloyed, rutile

## Classifications

| EN ISO 17633-A | EN ISO 17633-B | AWS A5.22 | Mat. No. |
|---|---|---|---|
| T 19 12 3 L R M21 3<br>T 19 12 3 L R C1 3 | TS316L-FB0 | E316LT0-4<br>E316LT0-1 | 1.4430 |

## Characteristics and typical fields of application

Thermanit TG 316 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 for joining of matching and similar, non stabilized and stabilized, corrosion resistant CrNi(N) and CrNiMo(N) steels/cast steel grades. The weld metal is stainless and resistant to intercrystalline corrosion (wet corrosion up to 400 °C / 752 °F), cold toughness down to –120 °C (–184 °F) and resistant to scaling up to 800 °C (1472 °F).

Thermanit TG 316 L provides almost spatter free welding behaviour and due to the slow freezing rutile slag, the weld metal shows very 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

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 – X3CrNiMo17-13-3
1.4541 – X6CrNiTi18-10
1.4550 – X6CrNiNb18-10
1.4552 – GX5CrNiNb19-11
1.4583 – X10CrNiMoNb18-12
1.4571 – X6CrNiMoTi17-12-2
1.4573 – GX3CrNiMoCuN24-6-5
1.4580 – X6CrNiMoNb17-12-2
1.4581 – GX5CrNiMoNb19-11-2
1.4948 – X6CrNi18-10

## Typical analysis of all-weld metal (wt.-%)

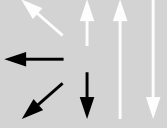
| | C | Si | Mn | Cr | Ni | Mo | Gas |
|---|---|---|---|---|---|---|---|
| wt-% | 0.03 | 0.7 | 1.5 | 19.0 | 12.0 | 2.7 | M21 |

**Structure:** Austenite with part ferrite

## Mechanical properties of all-weld metal

| Heat-treat-ment | Shielding gas | Yield strength $R_{p0.2}$ | Yield strength $R_{p1.0}$ | Tensile strength $R_m$ | Elongation A ($L_0$=5$d_0$) | Impact work ISO-V KV J | |
|---|---|---|---|---|---|---|---|
| | | MPa | MPa | MPa | % | +20 °C | –120 °C |
| aw | M21 | 350 | 400 | 520 | 30 | 47 | 32 |

## Operating data



| Polarity: | Shielding gas: | ø (mm) | Spool | Amps A | Voltage V |
|---|---|---|---|---|---|
| DC ( + ) | (EN ISO 14175) M21, C1<br>Consumption: 15 – 20 l/min | 0.9<br>1.2<br>1.6 | B300<br>B300<br>B300 | 100 – 180<br>120 – 280<br>200 – 350 | 18 – 29<br>20 – 30<br>22 – 32 |

## Approvals

TÜV (07539), DB (43.132.16), GL, CE