# Thermanit 25/09

TIG rod, high-alloyed, superduplex stainless

## Classifications

| EN ISO 14343-A | AWS A5.9 / SFA-5.9 |
|---|---|
| W 25 9 4 N L | ER2594 |

## Characteristics and typical fields of application

TIG rod of W 25 9 4 N L / ER2594 type designed for welding superduplex steel and equivalent steel grades such as 1.4410 / UNS S32750, 1.4507 / UNS S32550. Can also be used for joints between superduplex and austenitic alloys or carbon steels and for welding duplex type 1.4462 / UNS S32205 if extra high corrosion resistance is required. The properties of the weld metal match those of the parent metal, offering high tensile strength and toughness as well as excellent resistance to stress corrosion cracking and localized corrosion in chloride containing environments. Meets the corrosion test requirements per ASTM G 48 Methods A, B and E (40ºC). Welding without filler metal (i.e. TIG-dressing) is not allowed since the ferrite content will increase drastically and both mechanical and corrosion properties will be negatively affected.

## Base materials

1.4410 X2CrNiMoN25-7-4, 1.4467 X2CrMnNiMoN26-5-4, 1.4468 GX2CrNiMoN25-6-3
1.4507 X2CrNiMoCuN25-6-3, 1.4515 GX2CrNiMoCuN26-6-3, 1.4517 GX2CrNiMoCuN25-6-3-3
UNS S32750, J93380, S32520, S32550, S39274, S32950

## Typical analysis

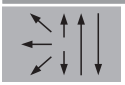
| | C | Si | Mn | Cr | Ni | Mo | W | N | Cu | $PRE_N$ | FN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| wt.-% | 0.02 | 0.35 | 0.4 | 25 | 9.5 | 4.0 | ≤ 0.50 | 0.25 | ≤ 0.50 | > 41.5 | 50 |

## Mechanical properties of all-weld metal - typical values (min. values)

| Condition | Yield strength $R_{p0.2}$ | Tensile strength $R_m$ | Elongation A ($L_0$=5$d_0$) | Impact energy ISO-V KV J | |
|---|---|---|---|---|---|
| | MPa | MPa | % | 20°C | –40°C |
| u | 620 (≥ 550) | 760 (≥ 700) | 28 (≥ 25) | 190 (≥ 120) | 170 (≥ 100) |

u untreated, as-welded – shielding gas Ar

## Operating data



| Polarity | DC- |
|---|---|
| Shielding gas (EN ISO 14175) | Ar<br>Ar + 2% N2<br>Ar + 30% He + 2% N2 |

| Dimension mm | Current A | Voltage V |
|---|---|---|
| 1.6 × 1000 | 80 – 120 | 10 – 13 |
| 2.0 × 1000 | 100 – 130 | 14 – 16 |
| 2.4 × 1000 | 130 – 160 | 16 – 18 |
| 3.2 × 1000 | 160 – 200 | 17 – 20 |

Suggested heat input is 0.3 – 1.5 kJ/mm, interpass temperature max. 100ºC.
Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1100 – 1150ºC followed by water quenching.

## Approvals

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