

Classifications

| | |
|-----------------------|---------------------------|
| EN ISO 14343-A | AWS A5.9 / SFA-5.9 |
| W 19 12 3 Nb | ER318 |

Characteristics and typical fields of application

Solid wire TIG rod of W 19 12 3 Nb / ER318 type for joining and surfacing application with matching and similar stabilized and non-stabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Corrosion resistance similar to matching stabilized CrNiMo-steels. Max. service temperature 400°C.

Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4409 GX2CrNiMo19-11-2, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-13-3, 1.4437 GX6CrNiMo18-12, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4581 GX5CrNiMoNb19-11-2, 1.4583 X10CrNiMoNb18-12
UNS S31600, S31603, S31635, S31640, S31653, AISI 316, 316L, 316Ti, 316Cb

Typical analysis

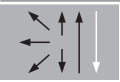
| | C | Si | Mn | Cr | Ni | Mo | Nb |
|-------|------|-----|-----|------|------|-----|--------|
| wt.-% | 0.04 | 0.4 | 1.7 | 19.5 | 11.5 | 2.7 | ≥ 12×C |

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 |
| u | 400 | 600 | 30 | 100 |

u untreated, as-welded – shielding gas Ar

Operating data

|  | Polarity | DC- | Dimension mm |
|--|------------------------------|-----|--------------|
| | Shielding gas (EN ISO 14175) | I1 | |
| Rod marking | + W 19 12 3 Nb / ER 318 | | 1.2 × 1000 |
| | | | 1.6 × 1000 |
| | | | 2.0 × 1000 |
| | | | 2.4 × 1000 |
| | | | 3.2 × 1000 |
| | | | 4.0 × 1000 |
| | | | 5.0 × 1000 |

Suggested heat input max. 1.5 kJ/mm and interpass temperature max. 100°C.

Post-weld heat treatment generally not needed. In special cases solution annealing at 1050°C followed by water quenching. Pay attention to tendency to embrittlement.

Approvals

TÜV (19607 / 08201), DB (43.132.81), DNV, CE