

Classification

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

Characteristics and typical fields of application

Avesta 2507/P100 is intended for welding super duplex alloys such as SAF 2507, ASTM S32760, S32550 and S31260. It can also be used for welding duplex type 2205 if extra high corrosion resistance is required, e.g. in root runs in tubes. Avesta 2507/P100 provides a ferritic-austenitic weldment that combines many of the good properties of both ferritic and austenitic steels. 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.

Structure: Austenite with 45 – 55 % ferrite.

Scaling temperature: Approx. 850 °C (air).

Corrosion resistance:

Excellent resistance to pitting and stress corrosion cracking in chloride containing environments. Pitting resistance is in accordance with ASTM G48-A, better than 40 °C.

Base materials

| Outokumpu | EN | ASTM | BS | NF | SS |
|-----------|--------|--------|----|-----------------|------|
| SAF 2507® | 1.4410 | S32750 | - | Z3 CND 25-06 Az | 2328 |

Typical analysis of the solid wire (wt.-%)

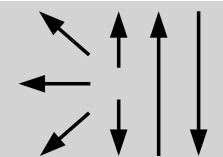
| | C | Si | Mn | Cr | Ni | Mo | N | Ferrite |
|-------|------|------|-----|------|-----|-----|------|----------------|
| wt.-% | 0.02 | 0.35 | 0.4 | 25.0 | 9.5 | 4.0 | 0.25 | 50 FN (WRC-92) |

Mechanical properties of all-weld-metal

| Heat treatment | Yield strength | Tensile strength | Elongation | Impact work | |
|----------------|-------------------|------------------|------------------------------------|-------------|--------|
| | R _{p0.2} | R _m | (L ₀ =5d ₀) | ISO-V KV J | |
| | MPa | MPa | % | +20 °C | -40 °C |
| u | 660 | 860 | 28 | 190 | 170 |

u untreated, as welded – Shielding gas Ar (99.95 %)

Operating data

|  | Polarity DC (+) | Shielding gas: Ar (99.95 %) Ar + 2 % N ₂ Gas flow rate: 4 – 8 l/min | ø (mm) |
|---|-----------------------------|--|---------------|
| | | | 1.6 |
| | | | 2.0 |
| | | | 2.4 |
| 3.2 | | | |

Heat treatment: Generally none (in special cases quench annealing at 1100 – 1150 °C).

Interpass temperature: max. 100 °C.

Heat input: 0.5 – 1.5 kJ/mm.

Approvals

TÜV, CE