

Classification

| | |
|----------------|----------|
| EN ISO 14343-A | AWS A5.9 |
| S 20 25 5 Cu L | ER385 |

Characteristics and typical fields of application

Avesta 904L is intended for welding Outokumpu 904L and similar but can also be used for constructions in type ASTM 316 where a ferrite-free weld metal is required, such as cryogenic or non-magnetic applications. The impact strength at low temperature is excellent. A fully austenitic structure is more prone to hot or solidification cracking than type ASTM 316 welds, so welding should be performed minimizing the heat input, interpass temperature and penetration with parent metal.

Structure: Fully austenitic with extra low content of impurities.

Scaling temperature: Approx. 1000 °C (air).

Corrosion resistance:

Very good in non-oxidising environments such as sulphuric or phosphoric acids. Very good resistance to pitting and crevice corrosion in chloride containing environments. Excellent resistance to general corrosion and stress corrosion cracking.

Base materials

Outokumpu 904L, ASTM 904L, EN 1.4539 or similar steels like 20-25 Cr-Ni-Mo-Cu

Typical analysis of the solid wire and all-weld-metal (wt.-%)

| | C | Si | Mn | Cr | Ni | Mo | Cu | Ferrit |
|----------|------|------|-----|------|------|-----|-----|--------|
| wire | 0.01 | 0.35 | 1.7 | 20.0 | 25.5 | 4.5 | 1.5 | 0 FN |
| Flux 805 | 0.01 | 0.6 | 1.2 | 21.0 | 25.0 | 4.5 | - | - |

Mechanical properties of all-weld metal

| | Yield strength R _{p0.2} | Tensile strength R _m | Elongation A (L ₀ =5d ₀) | Impact work ISO-V KV J | |
|----------------|-------------------------------------|------------------------------------|--|---------------------------|--------|
| | MPa | MPa | % | +20 °C | -40 °C |
| u mit Flux 805 | 350 | 560 | 36 | 100 | 90 |

u untreated, As welded

Operating data

| | | | |
|---|-----------------------------|--|-----------------------------|
|  | Polarity DC (+) | Re-drying: 300 – 350 °C / min. 2 h | ø (mm) 2.4 3.2 |
|---|-----------------------------|--|-----------------------------|

Heat treatment: Generally none (in special cases quench annealing at 1070 – 1100 °C).

Interpass temperature: max. 100 °C.

Heat input: max. 1.5 kJ/mm.

Approvals

TÜV, CE