

904L

Comparable specifications

ASME SFA A 5.9: ER385

EN ISO 14343-A: 20 25 5 Cu L

Werkstoff Nr.: 1.4539

Description and applications*

* Illustrative, not-exhaustive list

Super austenitic stainless steel filler metal characterized by a high resistance to stress corrosion cracking, pitting attacks in chloride environments, crevice corrosion and to general corrosion in acid environments.

The high Ni-content in conjunction with the addition of Cu also results in excellent resistance in sulphuric solutions. The microstructure is fully austenitic and is less sensitive to ferrite and sigma phase precipitation than conventional grades with high molybdenum contents.

This grade may be used for:

- joint welding of materials of similar composition;
- applications where improved corrosion resistance (e.g. far superior to ER316L) is needed - especially in sulphuric and phosphoric medias;
- applications in phosphates, phosphoric acid and chemical fertiliser industries, as well as in sulphuric acid industry;
- applications where pitting and crevice corrosion resistance higher than that of austenitic stainless steel (e.g. type ER317) is needed;
- applications where stress corrosion resistance higher than standard austenitic stainless steels is needed;
- usages in chemical industry (e.g. exchangers, condensers, flue gas cleaning);
- sea water applications (e.g. desalination, sea water handling);
- hydrometallurgy, food and beverage, pharmaceuticals, as well as in the pulp and paper industry.

Weldable base materials*

* Illustrative, not-exhaustive list

UNS N08904, ASTM B625, B673, B674, B677

All-weld metal mech. properties*

* For reference only values

Tensile strength (Rm): $\geq 510 \text{ N/mm}^2$

Yield Strength (Rp_{0.2}): $\geq 320 \text{ N/mm}^2$

Elongation: $\geq 25\%$

Chemical composition*

* For reference only values

| C | Mn | Si | S | P | Ni | Cr | Mo | Cu |
|-------|------|------|-------|-------|-------|-------|------|------|
| max | 1.00 | max | max | max | 24.00 | 19.50 | 4.20 | 1.20 |
| 0.025 | 2.50 | 0.50 | 0.020 | 0.020 | 26.00 | 21.50 | 5.20 | 2.00 |

Standard packaging data*

| Welding process | Product type | Ø mm (inches) | Packing type | Weight kg (lbs) | Length mm (inches) |
|-----------------|--------------------------|-----------------------------|-------------------------|-------------------------|---------------------|
| GMAW ** | filler wire | 0.80 - 1.20 (0.030 - 0.047) | spools BS300 / D300 | 15 (33) | n.a. |
| GTAW ** | filler rod | 1.60 - 4.00 (1/16 - 5/32) | cardboard boxes / tubes | 5 (11) | 1000 (39.4) |
| SAW ** | filler wire | 1.60 - 4.00 (1/16 - 5/32) | basket rims B450 | 25 (55) | n.a. |
| SMAW ** | core wire for electrodes | 1.60 - 5.00 (1/16 - 0.197) | wooden boxes | 500 - 750 (1100 - 1650) | 250 - 450 (10 - 18) |

* Other sizes and packing types are available upon request

** GMAW: gas metal arc welding; GTAW: gas tungsten arc welding; SAW: submerged arc welding; SMAW: shielded metal arc welding

Marking

Each filler rod for GTAW welding is durably marked with an identification traceable to the unique product type. Welding filler materials wound on spools or in coils are durably marked on the coil or spool with an identification traceable to the unique product type.

The outside of each unit package is suitably labelled with at minimum the following data: grade, diameter, heat, lot no., classifications.

Customized labels are available upon request.

Type approvals

Canadian Welding Bureau Cert. nr. NOV904L (GMAW / GTAW)

Lot classification

All our productions fulfil the **Class S3** requirements acc. to EN ISO 14344.