

Classifications

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|----------------------|---------------------------|
| EN ISO 3581-A | AWS A5.4 / SFA-5.4 |
| E 23 12 L R 3 2 | E309L-17 |

Characteristics and typical fields of application

Rutile coated electrode of E 23 12 L / E309L-17 type for dissimilar welding and surfacing. Designed for first class weld seams and easy handling on AC or DC. High current carrying capacity with minimum spatter formation. Self-releasing slag, smooth and clean weld profile. Operating temperature from -60°C to 300°C and for weld claddings up to 400°C.

Base materials

Primarily used for surfacing (buffer layer) unalloyed or low-alloyed steels and when joining mainly non-molybdenum-alloyed stainless steels to carbon steels, austenitic and heat resistant steels, etc.

Typical analysis

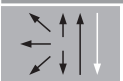
| | C | Si | Mn | Cr | Ni |
|-------|------|-----|-----|------|------|
| wt.-% | 0.02 | 0.7 | 0.8 | 23.2 | 12.5 |

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 | -60°C |
| u | 440 (≥ 320) | 570 (≥ 520) | 35 (≥ 25) | 55 | 40 (≥ 32) |

u untreated, as welded

Operating data

|  | Polarity | DC+ / AC | Dimension mm | Current A | |
|--|---------------------------------|----------|------------------------------|------------------|-----------|
| | Electrode identification | | Q E 309L-17 / 309L-17 / E 23 | 2.5 × 300 | 60 – 80 |
| | | | 12 L R | 3.2 × 350 | 80 – 110 |
| | | | | 4.0 × 350 | 110 – 140 |

Preheating and interpass temperature as required by the base metal.

Suggested heat input is max. 2.0 kJ/mm.

Re-drying at 250 – 300°C for min. 2 h if necessary.

Post-weld heat treatment generally not needed. For constructions that include low-alloyed steels in mixed joints, stress relieving may be advisable. Always consult the supplier of the parent metal or seek other expert advice to ensure that the correct heat treatment process is carried out.

Approvals

TÜV (19715), ABS, DNV, CE