

## Classifications

| EN ISO 3581-A    | EN ISO 3581-B | AWS A5.4 |
|------------------|---------------|----------|
| E 19 12 3 LR 1 5 | ES316L-16     | E316L-17 |

## Characteristics and typical fields of application

Rutile-basic electrode, stainless steel. Especially designed with a fast freezing slag for vertical-down welding in sheet metal fabrication.

Highly economical, yielding fast travel speed resulting in low heat input and little distortion respectively associated straightening work. When using same electrode diameter and same wall thickness you can save 50 % of welding time compared to vertical up position. No overheating of the base metal and therefore no risk of impaired corrosion resistance compared with the vertical-up welding mode. The product is ideally suited to save time and costs in the sheet metal fabrication.

Resistant to intergranular corrosion up to service temperatures of +400 °C.

## Base materials

1.4401 X5CrNiMo17-12-2, 1.4404 X2CrNiMo17-12-2, 1.4435 X2CrNiMo18-14-3, 1.4436 X3CrNiMo17-13-3, 1.4571 X6CrNiMoTi17-12-2, 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12, 1.4409 GX2CrNiMo 19-11-2

UNS S31603, S31653; AISI 316L, 316Ti, 316Cb

## Typical analysis of all-weld metal (wt.-%)

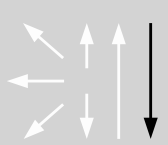
|       | C    | Si  | Mn  | Cr   | Ni   | Mo  |
|-------|------|-----|-----|------|------|-----|
| wt.-% | 0.03 | 0.7 | 0.7 | 19.0 | 12.0 | 2.7 |

## Mechanical properties of all-weld metal

| Condition | Yield strength<br>R <sub>p0.2</sub> | Tensile strength<br>R <sub>m</sub> | Elongation<br>A (L <sub>0</sub> =5d <sub>0</sub> ) | Impact work<br>ISO-V KV J |         |
|-----------|-------------------------------------|------------------------------------|----------------------------------------------------|---------------------------|---------|
|           | MPa                                 | MPa                                | %                                                  | +20 °C                    | -120 °C |
| u         | <b>470</b> (≥ 320)                  | <b>600</b> (≥ 510)                 | <b>35</b> (≥ 25)                                   | <b>55</b>                 | ≥ 32    |

u untreated, as welded

## Operating data

|  | Polarity: | Redrying if necessary:    | Electrode identification:             | ø (mm)     | L mm       | Amps A               |
|-------------------------------------------------------------------------------------|-----------|---------------------------|---------------------------------------|------------|------------|----------------------|
|                                                                                     | DC (+)    | 120 – 200 °C,<br>min. 2 h | FOX EAS 4 M-VD<br>316L-17 E19 12 3 LR | 2.5<br>3.2 | 300<br>300 | 75 – 85<br>105 – 115 |

## Approvals

TÜV (9089.), DNV (316L), GL (4550), LTSS, SEPROZ, CE