

For welding steel such as:

| Outokumpu | EN | ASTM | SS* | BS* | NF* |
|-----------|--------|--------|------|--------|-----------------|
| 4436 | 1.4436 | 316 | 2343 | 316S33 | Z7 CND 18-12-03 |
| 4432 | 1.4432 | 316L | 2353 | 316S13 | Z3 CND 17-12-03 |
| 4429 | 1.4429 | S31653 | 2375 | 316S63 | Z3 CND 17-12 Az |
| 4571 | 1.4571 | 316Ti | 2350 | 320S31 | Z6 CNDT 17-12 |

* Obsolete national standards, replaced by EN 10088.

Characteristics

AVESTA 316L/SKR-4D is a thin-coated, rutile-acid type electrode specially developed for the welding of thin walled pipelines and sheets, mainly in the chemical process and papermaking industries.

AVESTA 316L/SKR-4D is characterised by its exceptionally good arc stability, weld pool control, slag removal and restriking properties. This makes it highly suitable for welding in restrained positions and under difficult site conditions, where it offers considerably higher productivity than manual TIG-welding.

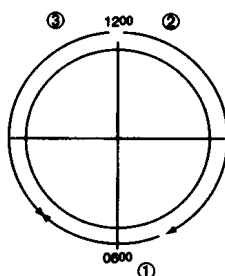
AVESTA 316L/SKR-4D is also recommended for root runs and multipass welds in general fabrication of ASTM 316-type stainless steels in all material thicknesses.

Welding directions

AVESTA 316L/SKR-4D is designed for the continuous welding of pipes.

The combination of low welding currents and good fluidity means that pipes with a wall thickness of 0.08 inch (2 mm) can be welded using an electrode with a diameter of 0.08 inch (2 mm).

Pipe welding can be performed in several different ways. One possibility is to start in the overhead position (1), followed by vertical down on both (2 and 3).



Another possibility is to start at the 7 o'clock position and weld vertical up to the 11 o'clock position on both sides. This requires an inverter power source with a remote control.

To bridge large root gaps DC- is often preferred.

Packaging data

| Diam. inch | Diam. mm | Length mm/inch | Weight/capsule, lbs | Electrodes/capsule, approx. | Weight/carton, lbs |
|------------|----------|----------------|---------------------|-----------------------------|--------------------|
| 1/16 | 1.6 | 250 / 10 | 3.0 | 252 | 18 |
| 5/64 | 2.0 | 250 / 10 | 3.5 | 186 | 21 |
| 5/64 | 2.0 | 300 / 12 | 3.7 | 163 | 22 |
| 3/32 | 2.5 | 300 / 12 | 4.0 | 112 | 24 |
| 1/8 | 3.25 | 350 / 14 | 9.1 | 128 | 27 |

Approvals: –

Standard designations

EN 1600 E 19 12 3 L R
AWS A5.4 E316L-17

Typical analysis % (All weld metal)

| C | Si | Mn | Cr | Ni | Mo |
|------|-----|-----|------|------|-----|
| 0.02 | 0.8 | 0.7 | 18.2 | 12.0 | 2.6 |

Ferrite 8 FN DeLong

Mechanical properties

Typical values (IIW)

| | | |
|-----------------------------------|-----------------------|----------|
| Yield strength, R _{p0.2} | 480 N/mm ² | 70 ksi |
| Tensile strength, R _m | 590 N/mm ² | 86 ksi |
| Elongation, A ₅ | 34 % | 34 % |
| Impact strength, KV | | |
| +20°C | 60 J | 44 ft-lb |
| -20°C | 55 J | 41 ft-lb |
| Hardness approx. | 210 Brinell | |

Welding data

| DC+/- or AC | Diam., inch | Current, A |
|-------------|-------------|------------|
| | 1/16 | 15– 40 |
| | 5/64 | 25– 55 |
| | 3/32 | 30– 85 |
| | 1/8 | 45–110 |

Interpass temperature: Max. 300°F (150°C).

Heat input: Max. 50.8kJ/in (2.0 kJ/mm).

Heat treatment: Generally none. In special cases quench annealing at 1922°F (1050°C).

Structure: Austenite with 6–12 % ferrite.

Scaling temperature: Approx. 1562°F (850°C) (air)

Corrosion resistance: Excellent resistance to general, pitting and intercrystalline corrosion in chlorine containing environments. Intended for severe service conditions, e.g. in dilute hot acids.

Welding positions

