# AVESTA 300-SERIES

## Matchless in Stainless with stainless steel flux-cored wires for flat and horizontal welding

### Excellent welding performance and surface appearance

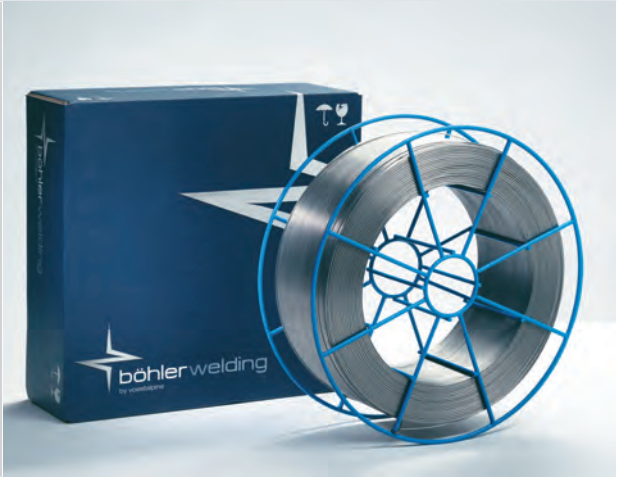
Böhler Welding offers stable, reliable and consistent high-quality cored wires. Produced in Europe, they are fulfilling both EN ISO and AWS codes chasing the most stringent requirements. Precise alloy and slag concept ensure excellent corrosion resistance and mechanical properties in accordance with the EN ISO 9001 quality system.

**Advantages with our flat and horizontal wires**

**Unique features – Matchless in Stainless**

- Easy to handle with fantastic parameter range
- Excellent welding performance and very low spatter formation
- Wide arc ensures good wetting with even penetration and uniform side-wall fusion
- Smooth weld profiles with finely rippled surface pattern
- Shiny weld metal surface; also when welding with 100% $CO_2$
- Self-releasing slag makes post-weld cleaning easier
- Low temper discoloration shortens the time needed for pickling
- High deposition rates result in high productivity
- Productive welding of high-quality root passes on ceramic backing material
- Increased travel speed to finish the job faster
- Enables considerable savings in time and money

Wire basket spools enable recycling




**Fillet weld between a tube and flange. Flat position (PB/2F). Base material 1.4307 / 304L. Filler wire Ø 1.2 mm Avesta FCW-2D 308L/MVR. Shielding gas Ar + 18 % $CO_2$.**

## Typical applications

- Avesta FCW-2D 308L/MVR is mainly used for welding of 1.4307 / 304L type stainless steels with very good corrosion resistance under fairly severe conditions, e.g. in oxidizing acids and cold or dilute reducing acids. Suitable for service temperatures from –196 °C to 350 °C.
- Avesta FCW-2D 316L/SKR is mainly used for welding of 1.4404 and 1.4432 / 316L type stainless steels with excellent resistance to general, pitting and intergranular corrosion in chloride containing environments. Intended for severe conditions, e.g. in dilute hot acids. Suitable for service temperatures from –120 °C to 400 °C.
- Avesta FCW-2D 309L is primarily intended for welding of dissimilar joints of Cr and CrNi(Mo)-steels and unalloyed or low-alloyed steels, as well as the first layer in overlay welding of unalloyed or low-alloyed base metals. Corrosion resistance superior to T 19 9 L / E308L type fillers. Maximum service temperature 300 °C.

096/2018/EN/GL

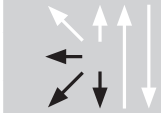
# AVESTA 300-SERIES

| Article numbers for wire basket spools | | | | |
|---|---|---|---|---|
| **Product name** | **EN ISO 17633-A** | **AWS A5.22 / SFA-5.22** | **1.2 mm** | **1.6 mm** |
| Avesta FCW-2D 308L/MVR | T 19 9 L R M21 (C1) 3 | E308LT0-4/1 | 30088 | 30087 |
| Avesta FCW-2D 316L/SKR | T 19 12 3 L R M21 (C1) 3 | E316LT0-4/1 | 30090 | 30091 |
| Avesta FCW-2D 309L | T 23 12 L R M21 (C1) 3 | E309LT0-4/1 | 30092 | 30094 |

| Typical all-weld metal chemical composition (wt. %) using Ar + 18 % $CO_2$ as shielding gas | | | | | | |
|---|---|---|---|---|---|---|
| **Product name** | **C** | **Si** | **Mn** | **Cr** | **Ni** | **Mo** |
| Avesta FCW-2D 308L/MVR | 0.03 | 0.7 | 1.5 | 19.5 | 10.5 | |
| Avesta FCW-2D 316L/SKR | 0.03 | 0.7 | 1.3 | 18.4 | 12.1 | 2.6 |
| Avesta FCW-2D 309L | 0.03 | 0.7 | 1.2 | 23.1 | 12.5 | |

| Typical mechanical properties, all-weld metal in as-welded condition using Ar + 18 % $CO_2$ as shielding gas | | | | | | |
|---|---|---|---|---|---|---|
| **Product name** | **Yield strength $R_{p0.2\%}$ MPa** | **Tensile strength $R_m$ MPa** | **Elongation $A_5$ %** | **CVN Impact toughness ISO-V J** | | |
| | | | | **20 °C** | **–60 °C** | **–120 °C** |
| Avesta FCW-2D 308L/MVR | 360 (≥ 320) | 530 (≥ 520) | 40 (≥ 30) | 60 | | 37 (≥ 32) |
| Avesta FCW-2D 316L/SKR | 390 (≥ 320) | 560 (≥ 510) | 39 (≥ 30) | 52 | | 37 (≥ 32) |
| Avesta FCW-2D 309L | 390 (≥ 320) | 560 (≥ 520) | 35 (≥ 30) | 49 | 48 (≥ 32) | |

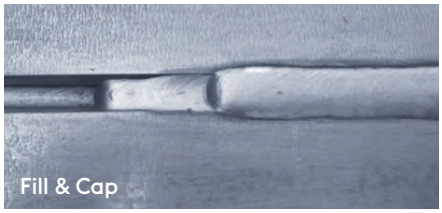
**Operating data**



| Ø mm | Wire feed m/min | Current A | Voltage V | Arc length mm | Polarity |
|---|---|---|---|---|---|
| 1.2 | 5.5 – 15.0 | 140 – 250 | 23 – 29 | ~3 | DC+ |
| 1.6 | 4.5 – 9.0 | 190 – 280 | 24 – 27 | ~3 | DC+ |

| Approvals | |
|---|---|
| **Product name** | **Approvals** |
| Avesta FCW-2D 308L/MVR | ABS, CE, CWB, DB (43.014.38), TÜV (10744) |
| Avesta FCW-2D 316L/SKR | ABS, CE, CWB, DNV GL, TÜV (10745) |
| Avesta FCW-2D 309L | ABS, BV (C1 + Ø 1.2 mm), CE, CWB, DB (43.014.41), DNV GL, RINA (M21), TÜV (10747) |


Root


Fill & Cap

**1.4404 / 316L welded with 1.2 mm Avesta FCW-2D 316L/SKR**
Three passes in V-joint against ceramic backing using 100 % $CO_2$ as shielding gas.

| Operating data | | | |
|---|---|---|---|
| **Pass** | **Wire feed m/min** | **Current A** | **Voltage V** |
| Root | 6.9 | 153 | 25.0 |
| Fill | 8.7 | 182 | 26.9 |
| Cap | 8.7 | 188 | 26.9 |

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ONE STEP AHEAD.