

Classifications

| EN ISO 14343-A | AWS A5.9 / SFA-5.9 | EN ISO 14174 |
|----------------|--------------------|--------------|
| S 19 9 L | ER308L | S A FB 2 DC |

Characteristics and typical fields of application

Thermanit JE-308L - Marathon 203 is a wire/flux combination for submerged arc welding of stainless steel grades such as 1.4306 / 304L. Solid SAW wire of S 19 9 L / ER308L type for joining and surfacing applications with matching and similar stabilized and unstabilized austenitic CrNi(N) and CrNiMo(N)-steels and cast steel grades. Max. service temperature 350°C. Corrosion resistance similar to matching low-carbon and stabilized austenitic 18Cr-8Ni(N)-steels and cast steel grades. Good toughness at subzero temperatures as low as -196°C. The former product name of the SAW wire was "BÖHLER EAS 2-UP".

Marathon 203 is an agglomerated basic flux with relative high basicity index, however with good welding properties with nice bead appearance and good slag detachability. For more information regarding this sub-arc welding flux, see the separate datasheet. The former product name of the SAW flux was "BÖHLER BB 203".

Base materials

1.4301 X5CrNi18-10, 1.4306 X2CrNi19-11, 1.4307 X2CrNi18-9, 1.4311 X2CrNiN18-9, 1.4312 GX10CrNi18-8, 1.4541 X6CrNiTi18-10, 1.4546 X5CrNiNb18-10, 1.4550 X6CrNiNb18-10
UNS S30400, S30403, S30453, S32100, S34700
AISI 304, 304L, 304LN, 302, 321, 347

Typical analysis

| wt.-% | C | Si | Mn | Cr | Ni |
|----------------|-------|------|-----|------|------|
| wire | 0.015 | 0.45 | 1.6 | 20.0 | 10.0 |
| all-weld metal | 0.015 | 0.55 | 1.3 | 19.5 | 9.8 |

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 | -196°C |
| u | (≥ 320) | (≥ 550) | (≥ 30) | (≥ 65) | 40 |

u untreated, as-welded

Operating data

| Dimension mm | Current A | Voltage V |
|--------------|-----------|-----------|
| 1.6 | 200 – 300 | 26 – 30 |
| 2.4 | 300 – 400 | 29 – 33 |
| 3.2 | 350 – 500 | 29 – 33 |
| 4.0 | 425 – 575 | 30 – 34 |

Suggested heat input is max. 2.0 kJ/mm and interpass temperature max. 150°C. Polarity: DC+

Post-weld heat treatment generally not needed. In special cases, solution annealing can be performed at 1050°C followed by water quenching.

Approvals

TÜV (09170), CE