



DAIKOWM 310Mo



SUPERAUSTENITIC STEELS
310

DESCRIPTION

Solid wire for 25%Cr-20%Ni stainless steels

The chemical composition has been meticulously adjusted to cater to specific applications within Urea plants, particularly for joining and surfacing alongside steels that closely match or resemble it. Recognized as a 310L modified austenitic stainless steel, it integrates low levels of carbon and silicon, along with heightened nitrogen content, to reinforce and stabilize the austenitic phase. Furthermore, its composition, abundant in chromium, molybdenum, and nitrogen, imparts exceptional resistance in humid corrosive conditions

SPECIFICATIONS

| | | | |
|----------------|------------------------------------|-----------|-----------|
| EN ISO 14343-A | G 25 22 2 N L | AWS A5.9 | (ER310Mo) |
| Certifications | CE | Shielding | M12, M13 |
| Positions | PA, PB, PC, PD, PE, PF, PG | Current | DC+ |
| Packaging Type | Drums, B300, D200 and D100 spools. | | |

ASME QUALIFICATIONS

PREN

HARDNESS

| | | | |
|--------------|---|-------|-------|
| F-No (QW432) | 6 | 26.33 | 85HRB |
| A-No (QW442) | - | | |

CHEM. COMP. %

DEFAULT

MECHANICAL PROPERTIES

MIN. PER STANDARD

PRODUCT

| | | | | |
|----|-------|---|------------------------------------|------------------------------------|
| C | 0.1 | Tensile strength R _m MPa | 550 | 560 |
| Mn | 4.5 | Yield strength R _{p0.2} MPa | 350 | 360 |
| Ni | 22 | Elongation A (L ₀ =5d ₀) % | 20 | 40 |
| Cr | 25 | Impact Charpy ISO-V | - | 50J @ -196°C |
| N | 0.14 | Impact Charpy ISO-V | - | - |
| P | 0.02 | | | |
| | | WELDING PARAMETERS | 1.0 mm | 1.2 mm |
| S | 0.005 | Ampere | 160A - 220A | 200A - 270A |
| Mo | 2.2 | Voltage | 25V - 29V | 26V - 30V |
| Si | 0.13 | Packaging | Ø 0,8÷1,6mm | Ø 0,8÷1,6mm |
| Cu | 0.1 | Packaging Type | Drums, B300, D200 and D100 spools. | Drums, B300, D200 and D100 spools. |





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DESCRIPTION

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APPLICATION

The product is primarily used for welding 25% Cr-20% Ni (310) alloys, which can be wrought or cast, and contain up to 0.25% carbon. To ensure maximum resistance to cracking and microfissures during solidification, the manganese content in the welding metal is increased to 2-5%. The high alloy content of type 310 provides excellent oxidation resistance up to maximum temperatures of about 1200 °C, making it ideal for heat shields, furnace components, and ducts. These consumables are also suitable for mixed welds and dissimilar joints, including those where PWHT application is necessary. However, it is important to consider that the relatively high thermal expansion coefficient may cause thermal fatigue in transition joints subjected to thermal cycling. In such situations, the use of nickel-based consumables is generally recommended. Further applications include cushioned layers and overlays. The fully austenitic welding metal is suitable for specialized applications requiring low magnetic permeability (typically <1.01). Additionally, 310 welding metals intrinsically withstand temperatures down to -196 °C, making them suitable for cryogenic installations. Preheating is not necessary. It is preferable to maintain the interpass temperature below 150 °C and heat input below 1.5 kJ/mm; this is crucial especially for processes with high heat input, such as SAW.

ALLOY TYPE

25%Cr-20%Ni (310) stainless steel.

MICROSTRUCTURE

Fully austenitic.

MATERIALS

EN W. N.: 1.4826 (GX40CrNiSi22-10), 1.4828 (X15CrNiSi2012), 1.4837 (GX40CrNiSi25-12), 1.4840 (GX15CrNi2520), 1.4841 (X15CrNiSi25-21), 1.4846 (X 40 CrNi 25-21), 1.4847 (X 8 CrNiAlTi 20-20), 1.4848 GX40CrNiSi25-20), 1.4335 (X1CrNi25-21), 1.4435 (X2CrNiMo18-14-3), 1.4446 (X1CrNiMoN22-25-3), 1.4547 (X3CrNiMoTi25-25)

ASTM: 310, 310S, CK20, 305, 314, 725LN, 316L

UNS: S31000, S31008, S31050, S31603

