



DAIKOWS 310



SUPERAUSTENITIC STEELS

310

DESCRIPTION

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

This consumable is used to weld 310 fully austenitic stainless steels. Applications include heat shields, furnace and boiler parts, heat exchanger and ducting for the good resistance to high temperature oxidation of these alloys. Also suitable for dissimilar joints, buffer layers, weld overlay and cryogenic applications.

SPECIFICATIONS

| | | | |
|----------------|------------|------------------|-----------------|
| ISO 14343-A | S 25 20 | AWS A5.9 | ER310 |
| DIN | - | Werkstoff Number | - |
| Certifications | - | Shielding | DAIKOFLUX 900-W |
| Positions | PA, PB, PC | Current | DC/AC |

ASME QUALIFICATIONS

| | |
|--------------|---|
| F-No (QW432) | 6 |
| A-No (QW442) | - |

FERRITE

| |
|---|
| - |
|---|

PREN

| |
|-------|
| 26.33 |
|-------|

HARDNESS

| |
|-------|
| 85HRB |
|-------|

CHEM. COMP. %

DEFAULT

| | |
|----|-------|
| C | 0.1 |
| Mn | 1.8 |
| Ni | 21 |
| Cr | 26 |
| P | 0.02 |
| S | 0.005 |
| Mo | 0.1 |
| Si | 0.4 |
| Cu | 0.1 |

MECHANICAL PROPERTIES

MIN

VARIANT

| | | |
|-------------------------------|-----|--------------|
| Tensile strength R_m MPa | 550 | 560 |
| Yield strength $R_{p0.2}$ MPa | 350 | 360 |
| Elongation A ($L_0=5d_0$) % | 20 | 40 |
| Impact Charpy ISO-V | - | 50J @ -196°C |
| Impact Charpy ISO-V | - | - |

WELDING PARAMETERS

2.4 mm

| | |
|----------------|-----------------------|
| Ampere | 300A - 410A |
| Voltage | 27V - 33V |
| Packaging | Ø 2,0÷4,0mm |
| Packaging Type | K415 spool and drums. |

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit www.daikowelding.com.





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DESCRIPTION

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APPLICATION

Utilized for welding comparable wrought or cast 25%Cr-20%Ni (310) parent alloys with up to 0.25% carbon, this consumable is crafted to maximize resistance to solidification cracking and microfissuring. In the Mn version, the weld metal incorporates a manganese range elevated to 2-5%. The high alloy content of type 310 imparts valuable oxidation resistance, effective up to peak temperatures of approximately 1200°C, making it well-suited for applications like heat shields, furnace parts, and ducting. These consumables are versatile, accommodating mixed welding and dissimilar joints, even those requiring post-weld heat treatment (PWHT). It's important to note that the relatively high thermal expansion coefficient may induce thermal fatigue in transition joints subjected to thermal cycling, leading to a preference for nickel-base consumables in such cases. Additional applications include buffer layers and surfacing. The fully austenitic weld metal is beneficial for specialized applications requiring low magnetic permeability (typically <1.01). 310 weld metals inherently maintain toughness down to -196°C, making them suitable for cryogenic installations. No preheat is required. It is advisable to keep the interpass temperature below 150°C and the heat input below 1.5 kJ/mm, particularly crucial for high heat input processes 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.

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