

DAIKOWM 310Mn



SUPERAUSTENITIC STEELS

310

DESCRIPTION

Solid wire for 25%Cr-20%Ni-3%Mn stainless steels

Modified 310 wire rod for joining and surfacing of matching and similar heat resisting, rolled, forged and cast steels used in annealing shops, hardening shops, steam boiler construction, crude oil industry and the ceramics industry. Manganese is added to the formulation to improve hot working properties and increase strength, toughness and hardenability. The temperature range between 650 to 900°C should be avoided due to the risk of embrittlement.

SPECIFICATIONS

ISO 14343-A	G 25 20	AWS A5.9	(E310)
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	M12, M13
Positions	PA, PB, PC, PD, PE, PF, PG	Current	DC+

ASME QUALIFICATIONS

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

FERRITE

-

PREN

25.1

HARDNESS

85HRB

CHEM. COMP. %

DEFAULT

C	0.12
Mn	3.3
Ni	20.4
Cr	25.1
P	0.01
S	0.005
Si	1

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R_m MPa	550	610
Yield strength $R_{p0.2}$ MPa	350	400
Elongation A ($L_0=5d_0$) %	20	35
Impact Charpy ISO-V	-	90J @ 20°C
Impact Charpy ISO-V	-	32J @ -196°C

WELDING PARAMETERS

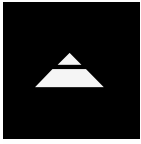
	1 mm	1.2 mm
Ampere	160A - 220A	200A - 270A
Voltage	25V - 29V	26V - 30V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.

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.





310

DESCRIPTION

SUPERAUSTENITIC STEELS

310

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 (X40CrNi25-21), 1.4847 (X8CrNiAlTi20-20), 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.

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.

DAIKO