G-TECH 310Mo

SMAW

SUPERAUSTENITIC STEELS
310

DESCRIPTION

Rutile coated electrode for 310 2%Mo bearing stainless steels

It is used widely in diverse welding industries. It has excellent weldability and conductivity properties. It is suitable for joining corrosion-proof, resistant against sulphuric acid, highly heat-proof and nonscaling CrNi steels which are subject to service temperatures up to 1200°C. The weld metal alloy is highly hotcrack- proof. Keep temperature as low as possible during welding. Annealing to 250°C and post-weld tempering to 700°C is required on ferritic base materials. Excellent weldability with a spatter free arc, self-releasing slag producing a very smooth bead appearance.

SPECIFICATIONS

EN ISO 3581-A	E Z 25 20 3 R 12	**AWS A5.4**	E310Mo-16
Shielding	-	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC+, AC	**Packaging Type**	Carton box

ASME QUALIFICATIONS

F-No (QW432)	5
A-No (QW442)	-

PREN

33.91

CHEM. COMP. %	DEFAULT
C	0.1
Mn	2.8
Ni	20
Cr	25
P	0.02
S	0.01
Mo	2.7
Si	0.6
Cu	0.1

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	550	580
Yield strength $R_{p0.2}$ MPa	0	400
Elongation A (L_0=5d_0) %	28	40
Impact Charpy ISO-V	-	70J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 mm	5.0 mm
Ampere	50A - 80A	80A - 110A	110A - 150A	150A - 200A
Voltage	-	-	-	-
Packaging	56 pcs/kg	29 pcs/kg	19 pcs/kg	12 pcs/kg
Packaging Type	Carton box	Carton box	Carton box	Carton box

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.

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310

DESCRIPTION

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

V 01/2024

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