



G-TECH 307

SMAW

AUSTENITIC STAINLESS STEELS

307

DESCRIPTION

Rutile-basic coated electrode for dissimilar joints and buffer layers

Versatile electrode for numerous applications - welding of "hard-to-weld" steels, dissimilar welding as well as repair and maintenance and for tough buffer and intermediate layers for cladding. The weld metal offers exceptionally high ductility and elongation together with outstanding crack resistance. Resistance to hot cracking is provided by the high manganese content. Good resistance to embrittlement when operating at service temperatures from -100°C up to 650°C. The weld metal work hardens and offers good resistance to cavitation.

SPECIFICATIONS

ISO 3581-A	E 18 9 Mn Mo R 12	AWS A5.4	E307-16
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PE, PF	Current	DC+, AC

ASME QUALIFICATIONS

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

FERRITE

~5 FN

PREN

20.98

HARDNESS

-

CHEM. COMP. %

	DEFAULT
C	0.09
Mn	4.5
Ni	9.8
Cr	19
Mo	0.6
Si	0.8

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R _m MPa	500	590
Yield strength R _{p0.2} MPa	350	400
Elongation A (L ₀ =5d ₀) %	25	20
Impact Charpy ISO-V	-	60J @ -20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 mm	
Ampere	50A - 80A	80A - 110A	110A - 150A	150A -
Voltage	-	-	-	
Packaging	56 pcs/kg	28 pcs/kg	19 pcs/kg	12 p
Packaging Type	Carton box	Carton box	Carton box	Carto



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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APPLICATION

These consumables are versatile for mixed welding applications, including mild, stainless, hardenable, and armor steels, with or without preheat. Their high manganese content provides tolerance to dilution, resisting hot cracking. This makes them a viable alternative to high nickel weld metal in joints between cast iron and stainless steels. Post-weld heat-treated weldments maintain ductility with satisfactory toughness down to -50°C. They offer reasonable scaling resistance up to 850°C. These consumables can function as buffer layers for welding or reclaiming 13% Mn steel in rock crushing plants and earth-moving equipment. They also work well as buffer layers on cast iron before hard surfacing. Additionally, they serve as surfacing consumables, work-hardening from 200 to 400 HV, suitable for repairing alloy rails, crossing parts, frogs, etc., without requiring preheat. However, note that the work-hardening rate is lower than 13% Mn steel, and overlays of more than one layer may collapse under heavy rolling loads.

ALLOY TYPE

Strong tough austenitic weld metal composition for dissimilar joints and buffer layers.

MICROSTRUCTURE

Consists of austenite with approximately 5FN.

MATERIALS

Dissimilar combinations of C-Mn, stainless, hardenable, wear-resistant and armour steels. Suitable for 13% Mn steel also known as Hadfield steel.

WELDING & PWHT

Preheating is typically unnecessary unless dealing with substantial section thickness, with an exception for higher carbon hardenable steels where consideration of Heat-Affected Zone (HAZ) properties in relation to service conditions is imperative. When welding 13%Mn steels, the objective is to minimize embrittlement and cracking, necessitating the implementation of specific controls. These controls include avoiding preheating, restricting the maximum interpass temperature to 150°C, adhering to low heat input practices, employing small weld beads, and resorting to water cooling if deemed necessary.

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