



G-TECH 309LR

SMAW

AUSTENITIC STAINLESS STEELS

309L

DESCRIPTION

Rutile coated electrode for dissimilar joining and buffer layer

Its rutile coating ensures excellent weldability in all positions, except for vertical down, and a high resistance to cracking providing smooth arc transfer. High current carrying capacity, minimum spatter formation and virtually self-cleaning slag produce a concave bead with minimal ripple as well as a smooth and clean weld profile. These electrodes are mainly used under high dilution conditions, particularly dissimilar welds between stainless and C-Mn steels. Also overlays on C-Mn steel or low alloy steel and for joining clad plate.

SPECIFICATIONS

ISO 3581-A	E 23 12 L R 32	AWS A5.4	E309L-17
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	-
Positions	PA, PB, PC, PD, PE, PF	Current	DC+, AC

ASME QUALIFICATIONS

F-No (QW432)	5
A-No (QW442)	8

FERRITE

8-15 FN

PREN

24.165

HARDNESS

85HRB

CHEM. COMP. %

	DEFAULT
C	0.02
Mn	8
Ni	13
Cr	24
P	0.02
S	0.01
Mo	0.05
Si	0.6
Cu	0.1

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R _m MPa	510	560
Yield strength R _{p0.2} MPa	320	400
Elongation A (L ₀ =5d ₀) %	25	30
Impact Charpy ISO-V	-	55J @ -20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	2.5 mm	3.2 mm	4 mm	
Ampere	50A - 80A	80A - 110A	110A - 150A	160A -
Voltage	-	-	-	
Packaging	56 pcs/kg	28 pcs/kg	19 pcs/kg	12 pcs/kg
Packaging Type	Carton box	Carton box	Carton box	Carton box

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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

Commonly employed for buffer layers and overlays on CMn, mild steel, or low alloy steels, and for joining 304L/321 clad plates, as well as in dissimilar welds. Subsequent layers are applied using a suitable filler to align with the cladding, such as 308L or 347. In dissimilar joints, the capacity to tolerate dilution is leveraged when joining stainless types 410, 304L, 321, and 316L to mild and low alloy steels, including stiffeners, brackets, and other attachments. Typically, service temperatures exceeding 400°C are avoided. This filler metal is also utilized for welding 12%Cr 'utility ferritics' like Cromwell 3CR12, to itself and other steels. If the service demands corrosion resistance below 400°C, it is feasible to weld wrought and cast steels of the 23Cr-12Ni type (e.g., ASTM 309 and CH8, BS 309S24, and 309C30). However, for high-temperature structural service, it is advisable to use weld metal with carefully managed higher carbon and lower ferrite. Preheat and interpass temperatures depend on the base material hardenability, with no preheat typically required for mild steels, and it can extend up to 250°C for hardenable steels.

ALLOY TYPE

24%Cr-13%Ni (309L) austenitic stainless for dissimilar joint buffer layers etc.

MICROSTRUCTURE

Austenite with ferrite in the range 8-20FN. GMAW tends to have lower ferrite (8-15 FN) than the MMA and FCW consumables.

MATERIALS

Mainly used under high dilution conditions, particularly dissimilar welds between stainless and CMn steels.

