

Smootharc™ S 309MoL

MMA Electrodes, Stainless Steel.



Electrodes

Description Smootharc S 309MoL is a rutile coated, AC/DC electrode that deposits a low carbon, 23Cr, 12Ni, 2.5Mo austenitic stainless steel weld metal with a ferrite content of FN 20. The high alloy content and ferrite level enable the weld metal to tolerate dilution from dissimilar and difficult-to-weld materials without hot cracking. The electrode is very easy to strike and restrike. Welding performance is excellent, with a very smooth, low spatter arc producing a finely rippled bead surface with excellent slag detachability.

Application Smootharc S 309MoL is recommended for welding corrosion-resistant CrNiMo steels to themselves and to mild and low alloy steels without hot cracking. The electrode is suitable for welding armour plate, austenitic manganese steel, medium and high carbon hardenable steels, tools, dies, springs etc. which may be of unknown composition.

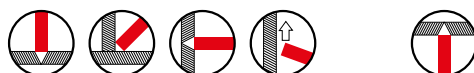
Smootharc S 309MoL is also recommended for welding dissimilar steels, such as stainless steels to carbon manganese or low alloy steels and for welding austenitic manganese steel to carbon manganese and low alloy steel.

Technique Stainless steel electrodes can be welded using either AC or DC, with as short an arc as possible to minimise alloy loss across the arc and to control ferrite level. When using AC, a slightly higher current setting may be required. When welding in the flat position, stringer beads should be used and, if weaving is required, this should be limited to 2 times the electrode diameter.

Storage Smootharc S 309MoL electrodes are packaged in hermetically sealed packs. For critical applications in damp environments, once the seal is broken, electrodes should be stored in heated cabinets at 70–120°C.

Re-Drying/Conditioning All electrode coatings are hygroscopic and, when left in an opened state for a period of time, will absorb moisture. Austenitic materials are generally insensitive to the presence of hydrogen. However, moisture in the electrode coating can lead to porosity in the weld metal. Start porosity is generally indicative of damp electrodes and is more common in fillet welds than in butt welds where pores only occur at high moisture contents. Electrodes that have been stored outside of their hermetically sealed packs, and have become damaged by moisture pick-up, can be redried at temperatures of 300–350°C for 1–2 hours. Redrying should be restricted to a maximum of three cycles.

Welding Positions



WARNING Welding can give rise to electric shock, excessive noise, eye and skin burns due to the arc rays, and a potential health hazard if you breathe in the emitted fumes and gases. Read all the manufacturer's instructions to achieve the correct welding conditions and ask your employer for the Safety Data Sheets. Refer to www.boc.com.au or www.boc.co.nz

Specifications

Coating type	Rutile
Classifications	AWS/ASME-SFA A5.4 E309MoL-17 AS/NZS 4854 B-ES309MoL-17
Welding current	AC, OCV 50V or DC+
Scaling temperature	Approx. 1000°C in air

**Chemical Composition, wt%
– All Weld Metal**

	C	Si	Mn	Cr	Ni	Mo
Typical	0.016	0.88	0.78	22.14	12.52	2.44

Ferrite content FN 20 (WRC-92)

**Mechanical Properties
– All Weld Metal**

	Typical (as welded)
Yield strength	555 MPa
Tensile strength	680 MPa
Elongation	33% min
Impact energy, CVN	50J @ -20°C

Packaging Data

	2.5 mm	3.2 mm
Diameter	2.5 mm	3.2 mm
Part No.	188096VP	188097VP
Length (mm)	300	350
Weight packet (kg)	1.7	2.0
Quantity (per pack) approx.	142	86

Welding Parameters

	2.5 mm	3.2 mm
Diameter	2.5 mm	3.2 mm
Current range (A)	40-80	80-120
Voltage (V)	27	28

Deposition Data

	2.5 mm	3.2 mm
Diameter	2.5 mm	3.2 mm
Weld metal kg/electrodes kg	0.64	0.65
No. of electrodes/weld metal kg	84	43
Weld metal kg/hour arc time	1.1	1.5
Burn off time/electrode (s)	38	55



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