

Smootharc™ S 312

MMA Electrodes, Stainless Steel.



Electrodes

Description Smootharc S 312 is a rutile coated, AC/DC electrode that deposits a 29Cr/9Ni austenitic/ferritic stainless steel weld metal with a ferrite content of FN 50. The resultant weld metal is high strength with high ductility and the structure is highly resistant to hot cracking and extremely tolerant of dilution from medium and high carbon steels. 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 312 is a universal electrode specifically designed for welding steels of poor weldability. The electrode is suitable for welding armour plate, austenitic manganese steel, medium and high carbon hardenable steels, tools, dies, springs etc that may be of unknown composition. It is also suitable for welding dissimilar steels (e.g. stainless to mild steel).

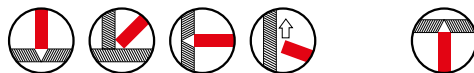
Technique Stainless steel electrodes can be welded using either AC or DC, with as short an arc as possible to minimise alloy loss across the arc and to control ferrite level. When using AC, a slightly higher current setting may be required. When welding in the flat position stringer beads should be used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

Storage Smootharc S 312 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 E312-17 AS/NZS 4854 A-E 29 9 R 32
Welding current	AC, OCV 50V or DC+
Scaling temperature	Approx. 1100°C in air

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

	C	Si	Mn	Cr	Ni
Typical	0.12	0.96	0.79	28.86	8.91

Ferrite content FN 9 (WRC-92)

**Mechanical Properties
– All Weld Metal**

	Typical (as welded)
Yield strength	590 MPa
Tensile strength	760 MPa
Elongation	25% min

Packaging Data

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Part No.	188122VP	188123VP	188124VP
Length (mm)	300	350	350
Weight packet (kg)	1.7	2.0	2.0
Quantity (per pack) approx.	153	94	62

Welding Parameters

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Current range (A)	40–80	80–120	100–160
Voltage (V)	25	26	27

Deposition Data

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Weld metal kg/electrodes kg	0.64	0.64	0.65
No. of electrodes/weld metal kg	90	47	31
Weld metal kg/hour arc time	1.1	1.5	2.1
Burn off time/electrode (s)	36	51	55