

Smootharc™ 18

MMA Electrodes, Low Hydrogen, Hydrogen Controlled.



Electrodes

Description Smootharc™ 18 is a basic-coated low hydrogen AC/DC electrode for which the outstanding all round operability has been optimised. The smooth, soft arc, easy slag control, all positional welding with low spatter and excellent slag removal provide maximum operator appeal. The electrode is suitable for welding mild and higher strength steels. It combines strength and toughness and is particularly suitable for heavily restrained sections where there can be risk of cracking due to weld stress.

Application With its excellent general operability and good positional welding characteristics, the Smootharc™ 18 is used for general fabrication work as well as pipe welding where the fine spray transfer provides precise weld pool control. The fine arc spray also makes it an ideal electrode for the experienced welder, and for positional work in demanding applications.

The electrode produces a finely rippled bead surface and smooth transition with the base material. This, together with the exceptionally good slag detachability, even in root runs, gives the Smootharc™ 18 superior radiographic quality. It is also an ideal electrode for use on AC machines with an OCV of 70V.

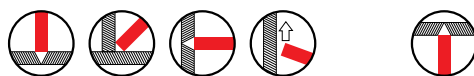
Technique As with all basic hydrogen-controlled electrodes, as short an arc as possible should be kept at all times. When starting with a new electrode, the arc should be initiated ahead of the start of the weld or crater and worked back over this distance before continuing the weld in the required direction. On larger size joints, several stringer beads should be used in preference to one large weaved bead to ensure optimum mechanical properties.

DC- should be used for root passes where poor fit-up is a factor that should be taken into account.

Storage BOC Smootharc™ 18 electrodes, when removed from a freshly opened pack, will have <4 ml/100g weld metal hydrogen. Once the seal is broken, electrodes should be stored in heated cabinets at 80–120°C.

Re-Drying/Conditioning Basic (low hydrogen) type electrodes are re-dried at temperatures of 350–400°C for 1–2 hours to achieve a hydrogen level of 5–10 ml/100g of weld metal and restricted to five re-dries. To achieve extreme low hydrogen levels, <4 ml/100g, 420–440°C is recommended for 1–2 hours and restricted to one re-dry.

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	Basic
Classifications	AWS/ASME-SFA AS.1 E7018-1 H4 AS/NZS 4855 B-E 49 18-1 A H5
Welding current*	AC, OCV 70V or DC+
Metal recovery	120%
Hydrogen content /100g weld metal	<4ml

*DC- is recommended for root passes

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

	C	Si	Mn	P	S
Typical	0.05	0.56	1.18	0.015	0.007

**Mechanical Properties
– All Weld Metal**

	Typical (as welded)	PWHT Typical*
Yield strength	530 MPa	490 MPa
Tensile strength	600 MPa	510 MPa
Elongation	26%	29%
Impact energy, CVN	47J @ -40°C	130J @ -20°C

*PWHT 620°C 1 hour

Packaging Data 2 kg pack

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Part No.	184155VP	184156VP	184157VP
Weight packet (kg)	2.0	2.0	2.0
Quantity (per pack) approx.	84	50	36

Welding Parameters

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Length (mm)	350	350	350
Current range (A)	80–110	110–155	140–205
Voltage (V)	23	24	25

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	0.71	0.72	0.74
No. of electrodes/weld metal kg	60	35	25
Weld metal kg/hour arc time	1.0	1.6	2.1
Burn off time/electrode (s)	54	57	73

**Data for Welding
Horizontal Fillet Joints**

	2.5 mm	3.2 mm	4.0 mm
Diameter	2.5 mm	3.2 mm	4.0 mm
Throat thickness (mm)	3.0	4.2	5.0
Leg length (mm)	4.3	6.0	7.0
Current (A)	85	125	175
Arc time (s)	61	74	81
Bead length/electrode (mm)	163	215	226
Weld speed (m/hr)	9.6	10.6	10.1

Note: operator technique will influence the values shown



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