Afrox Ferron 1

A basic coated AC/DC hydrogen-controlled electrode for use in all positions. Afrox Ferron 1 has a smooth, stable arc with good striking qualities, a slag which is easily removed and an excellent weld bead profile and appearance. The weld metal deposited is of high metallurgical and radiographic quality and complies with the requirements of the radiographic standard of AWS A5.1 grade 1.

Applications

Ferron 1 deposits weld metal capable of resisting cracking under conditions of high restraint and is suitable for welding CMn steels and low alloy steels in structural fabrications. The electrode is suitable for welding sulphur bearing steels and components to be vitreously enamelled.

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 a short distance ahead of the start 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 where possible in preference to one large weaved bead to ensure optimum mechanical properties.

Re-drying Procedure

Hydrogen-controlled electrodes must be re-baked prior to use, the baking temperature required being governed by the maximum hydrogen content tolerable in the deposited weld metal. For a maximum of 5-10 ml H_2/100 g, re-bake at a temperature of 350-370°C for 1-2 hours. (Please consult the section regarding the storage, handling and treatment of low hydrogen electrodes given on page 305 of this section.)

Ferron 1 is manufactured and tested in accordance with the requirements of AWS A5.1.

Classifications		
AWS	A5.1	E7018 H8
SABS	455	E5118/-3427H
EN	2560	E 42 3 B 32 H5

Approvals
Lloyds Register of Shipping Grade DXVudO,BF,3m,3Ym,H15
American Bureau of Shipping Grade 3Y, 3H
South African Bureau of Standards

Typical Chemical Analysis (All weld metal)			
% **Carbon**	0,05 - 0,09	% **Sulphur**	0,025 max
% **Manganese**	1,0 - 1,45	% **Phosphorous**	0,025 max
% **Silicon**	0,3 - 0,75		

Typical Mechanical Properties (All weld metal in the as welded condition)	
Yield Strength	420 MPa min
Tensile Strength	510 - 610 MPa
% **Elongation on 50 mm**	26 min
Charpy V-Notch at -20°C	100 J min
Charpy V-Notch at -29°C	90 J min

PRODUCT DATA SHEET

Typical Current Values (DC+/- or AC 70 OCV min)	
Diameter (mm)	**Current (A)**
2,5	70 - 100
3,15	100 - 140
4,0	145 - 180
5,0	190 - 280
6,3	260 - 370

Deposition Data

Note:

1) The deposition data given was established at the optimum current rating which would be approximately in the middle of the specified range.

2) The mass of weld metal deposited per arc hour is a theoretical value which does not take into account welder efficiency.

Diameter (mm)	Mass of an Electrode (g)	Burn-off Time (sec)	Mass of Metal Deposited per Electrode (g)	Mass of Weld Metal Deposited per Arc Hour (g)	No. Electrodes per kg of Weld Metal	kg Weld Metal per kg of Electrodes
2,5	22,4	70,3	14,0	716	72	0,62
3,15	35,6	79,9	22,3	1 002	45	0,62
4,0	50,6	71,1	33,3	1 686	31	0,65
5,0	99,8	101,5	69,0	2 447	15	0,69
6,3	157,6	116,9	108,8	3 351	10	0,69

Data for Welding Horizontal Fillet Welds					
Diameter (mm)	**Throat Thickness (mm)**	**Current (A)**	**Arc Time (sec)**	**Bead Length per Electrode (mm)**	**Welding Speed (m/h)**
2,5	2,5	85	64,2	146	8,2
3,15	3,1	125	75,0	186	8,9
4,0	5,0	175	69,6	204	10,6
5,0	5,9	225	96,6	258	9,6
6,3	6,0	320	99,0	368	13,4

Packing Data				
Diameter (mm)	**Electrode Length (mm)**	**Approx. No. Electrodes/kg**	**Pack mass (kg)**	**Item Number (multi-kg pack)**
2,5	350	45	3 x 4,0	W075312
3,15	350	28	3 x 4,0	W075313
4,0	350	20	3 x 4,0	W075314
5,0	450	10	3 x 6,0	W075315
6,3	450	6	3 x 6,0	W075317

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