



Unibraze 7018-1

(E7018-1 H4R)

DESCRIPTION:

UNIBRAZE 7018-1 is a general purpose electrode that allows you to tackle a wide variety of welding projects with ease. You will get superior weldability from this low hydrogen, mild steel electrode that provides you with excellent start and restart capabilities in addition to a smooth and virtually spatter free arc. UNIBRAZE 7018-1 has a very flat bead shape with a fine ripple appearance. The weld puddle smoothly washes into the sidewalls with no undercut. Slag removal is one of the best and in many cases is self-peeling. UNIBRAZE 7018-1 also has the ability to operate smoothly even when the welding surface is somewhat dirty or rusty. UNIBRAZE 7018-1 is designated as a low moisture absorbing product and can be exposed to higher temperatures and humidity for over 8 hours and meet AWS requirements. Extremely high impact levels are available with UNIBRAZE 7018-1 even at -50°F giving it the AWS E7018-1 designation.

APPLICATIONS:

Low alloy structurals; alloy and high carbon castings, and enameling steels requiring low hydrogen and weld metals with tensile strength of 70,000 psi; power and petrochemical plants (pressure vessels, fittings, piping and tie-ins); steel structures or field erections (building and bridges); mining equipment (buggies, conveyors, bucket repair, general maintenance, and build-up of idler rolls on dozers); piping and some pipelines; rail car and locomotive construction; heavy equipment fabrication and repair (earthmoving and construction equipment, etc.); shipbuilding, barge offshore drilling rigs; boiler code applications; some truck chassis; infrastructure repair and rebuilding to State and Federal Transportation Codes; general maintenance work, nuclear work, farm machine (manufacture and repair); general fabrication.

FEATURES:

- Superior weld appeal
- Effortless starts and restarts
- Low moisture absorption rate
- Low spatter
- Good wetting action
- Very stable arc
- Easy slag removal
- Compatible with Smoothcor tubular wires
- Flat bead

BENEFITS:

- Promotes arc time for increased productivity; weld easily, reducing welder fatigue
- No starting porosity; ideal for tacking; increases welding productivity
- Reduces worry of moisture pick-up resulting in low hydrogen cracking; required less trips to the oven for dry electrodes; increase quality and reliability of weld
- Ideal for all positions; produces good looking welds; reduces clean-up time
- Produces a nice flat bead contour; prevents cold laps; eliminates undercutting
- Easy to control; runs smooth in all positions with excellent vertical-up capability
- When used for tacking with Smoothcor wires, Smoothcor slag over tacks is easy to remove

TYPICAL WELD METAL PROPERTIES (Chem Pad):

Weld Metal Analysis		AWS Spec: (max)
Carbon (C)	0.02	0.15
Manganese (Mn)	1.06	1.60
Phosphorus (P)	0.011	0.035
Sulphur (S)	0.014	0.035
Silicon (Si)	0.50	0.75
Chromium (Cr)	0.01	0.08
Nickel (Ni)	0.07	0.30
Molybdenum (Mo)	0.01	0.30
Mn + Ni + Cr + Mo + V	1.28	1.75

TYPICAL CHARPY-V-NOTCH IMPACT VALUES:

		AWS Spec: (min)
Avg. at -20°F (-29°C)	94 ft•lbs (127 Joules)	20 ft•lbs
Avg. at -50°F (-46°C)	74 ft•lbs (100 Joules)	20 ft•lbs

Notice: The results reported are based upon testing of the product under controlled laboratory conditions in accordance with American Welding Society Standards. Actual use of the product may produce different results due to varying conditions. An example of such conditions would be electrode size, plate chemistry, environment, weldment design, fabrication methods, welding procedure and service requirements. Thus the results are not guarantees for use in the field. The manufacturer disclaims any warranty of merchantability or fitness for any particular purpose with respect to its product.



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TYPICAL MECHANICAL PROPERTIES:

Tensile Strength	78,500 psi (541 MPa)	AWS Spec: (min)	70,000 psi
Yield Strength	65,500 psi (452 MPa)		58,000 psi
Elongation % in	2" 28%		22%
Reduction of Area	72%		not required
Hardness BHN	162		not required

TYPE OF CURRENT: DCEP or AC

CONFORMANCES AND APPROVALS:

- AWS A5.1, E7018 H4R, E7018-1 H4R • ASME SFA5.1, F-4, A-1 E7018
- ABS 3H5, 3Y
- Lloyd's BF3, 3YH5

RECOMMENDED WELDING PROCEDURES:

GENERAL:	Electrode positive, work negative, (DCEP) or AC
ARC:	Very short (less than half the diameter of the electrode)
FLAT:	Angle electrode 10° - 15° from 90°
VERTICAL-UP:	Use weaving technique
VERTICAL-DOWN:	Not recommended
OVERHEAD:	Use slight weaving motion within puddle
STORAGE:	220°F to 350°F, (to ensure a low hydrogen weld deposit, storage in oven is recommended)
RECONDITIONING:	If exposed to atmosphere for extended periods, the electrode should be reconditioned for one hour at 575°F

RECOMMENDED OPERATING PARAMETERS:

Diameter		Type of Power	Minimum Amps	Optimum* Amps	Maximum Amps
Inches	mm				
3/32	2.4	DCEP or AC	80	90	100
1/8	3.2	DCEP or AC	90	130	150
5/32	4.0	DCEP or AC	110	170	230
3/16	4.8	DCEP or AC	150	220	300
1/4	6.4	DCEP or AC	270	340	380

*For out of position welding, reduce amperages shown by 15%.

TYPICAL DEPOSITION DATA (at optimum):

Diameter		Type of Power	Amps	Volts	Deposition Rate lbs/hr	Deposition Efficiency*%
Inches	mm					
3/32	2.4	DCEP	90	22	1.80	62.7
1/8	3.2	DCEP	130	26.5	2.60	73.1
5/32	4.0	DCEP	170	28	3.90	62.5
3/16	4.8	DCEP	220	28.5	5.20	69.2
1/4	6.4	DCEP	340	32	8.00	70.6

*Allowance made for 2" stub loss included.

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