



Certificate of Conformance to Requirements for Welding Electrode

Product Type: FabCOR 86R
Classification: E70C-6M H4
Specifications: AWS A5.18/A5.18M; ASME SFA 5.18
Diameter Tested: 1/16"
Date Tested: 5/29/2020
Date Generated: 8/10/2020

This is to certify that the product named above and supplied on the referenced order number is of the same classification, manufacturing process, and material requirements as the material which was used for the test that was concluded on the date shown, the results of which are shown below. All tests required by the specifications shown for classification were performed at that time and the material tested met all requirements. It was manufactured and supplied by the Quality System Program of Hobart Brothers, which meets the requirements of ISO 9001, ANSI/AWS A5.01, and other specification and Military requirements, as applicable. This document supplies actual test results of non-specific inspection in conformance with the requirements of EN 10204, type 2.2 certification.

THE STEEL USED IN THIS LOT OF MATERIAL WAS MELTED AND MANUFACTURED IN THE U.S.A.

Test Settings

| Shielding Medium | Amps / Polarity | Volts | WFS in/min(m/min) | ESO in(mm) | Preheat F(C) | Interpass F(C) | Travel Speed in/min(cm/min) |
|------------------|-----------------|-------|----------------------|------------|--------------|----------------|--------------------------------|
| M21-ArC-25 | 350 / DCEP | 27 | 270 (6.9) | .75 (19) | Room Temp | 300(149) | 12 (30.5) |
| M20-ArC-10 | 350 / DCEP | 27 | 270 (6.9) | .75 (19) | Room Temp | 300(149) | 12 (30.5) |
| M22-ArO-5 | 350 / DCEP | 26 | 270 (6.9) | .75 (19) | Room Temp | 300(149) | 12 (30.5) |

Mechanical Properties - Tensile

| Shielding Medium | Ref. No. | Testing Conditions | Ult. Tensile Strength psi (MPa) | Yield Strength psi (MPa) | Elong.% in 2" |
|------------------|----------|--------------------|---------------------------------|--------------------------|---------------|
| M21-ArC-25 | PD9354 | Aged 48 Hrs 220F | 83,000 (574) | 73,000 (501) | 29 |
| M20-ArC-10 | PD9359 | Aged 48 Hrs 220F | 85,000 (586) | 75,000 (516) | 29 |
| M22-ArO-5 | PD9363 | Aged 48 Hrs 220F | 82,000 (566) | 72,000 (495) | 29 |

Mechanical Properties - Impact

| Shielding Medium | Ref. No. | Testing Conditions | Temp. F (C) | Individuals ft.lb.(J) | Avg. ft.lb.(J) | Type |
|------------------|----------|--------------------|-------------|------------------------|----------------|----------------|
| M21-ArC-25 | PD9354 | As Welded | -20 (-29) | 64,61,55 (87,83,75) | 60 (81) | Charpy-V-Notch |
| M21-ArC-25 | PD9354 | As Welded | -40 (-40) | 31,31,32 (42,42,43) | 31 (42) | Charpy-V-Notch |
| M20-ArC-10 | PD9359 | As Welded | -40 (-40) | 54,57,46 (73,77,62) | 52 (71) | Charpy-V-Notch |
| M20-ArC-10 | PD9359 | As Welded | -20 (-29) | 59,81,75 (80,110,102) | 72 (97) | Charpy-V-Notch |
| M22-ArO-5 | PD9363 | As Welded | -40 (-40) | 71,61,64 (96,83,87) | 65 (89) | Charpy-V-Notch |
| M22-ArO-5 | PD9363 | As Welded | -20 (-29) | 87,88,77 (118,119,104) | 84 (114) | Charpy-V-Notch |

| Ref.No. | Radiographic Inspection | Fillet Weld Test | | | | | |
|---------|-------------------------|------------------|------------|------------|--|--|--|
| PD9354 | Conforms | Horizontal : | Overhead : | Vertical : | | | |
| PD9359 | Conforms | Horizontal : | Overhead : | Vertical : | | | |
| PD9363 | Conforms | Horizontal : | Overhead : | Vertical : | | | |

Chemical Analysis

| Shielding Medium / Ref. No | C | Mn | P | S | Si | Cu | Cr | V | Ni | Mo | Al | Ti | Nb | Co | B | W | Sn | Fe | Sb | N | Mg | Zn | Be | Sb | As |
|----------------------------|------|------|-------|-------|------|------|------|-------|------|------|----|----|----|----|---|---|----|----|----|---|----|----|----|----|----|
| M21-ArC-25 / PD9354 | 0.04 | 1.69 | 0.008 | 0.011 | 0.81 | 0.06 | 0.04 | < .01 | 0.03 | 0.01 | | | | | | | | | | | | | | | |
| M20-ArC-10 / PD9359 | 0.03 | 1.73 | 0.007 | 0.010 | 0.81 | 0.06 | 0.04 | < .01 | 0.03 | 0.01 | | | | | | | | | | | | | | | |
| M22-ArO-5 / PD9363 | 0.03 | 1.67 | 0.008 | 0.011 | 0.80 | 0.06 | 0.04 | < .01 | 0.03 | 0.01 | | | | | | | | | | | | | | | |

Diffusible Hydrogen Collected per AWS A4.3

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|------------|--|
| M20-ArC-10 | 1.8 ml/100g of weld metal for 1/16 in diameter 42% relative humidity |
| M22-ArO-5 | 0.8 ml/100g of weld metal for 1/16 in diameter 42% relative humidity |
| M21-ArC-25 | 4.0 ml/100g of weld metal for 1/16 in diameter 61% relative humidity |

Dave Thomas

Dave Thomas, Quality Assurance Rep.

Certification and Limited Warranty - Data for the above supplied product are those obtained when welded and tested in accordance with the above specification. All tests for the above classification were satisfied. Other tests and procedures may produce different results.

