

| Product Type: | FabCO 110K3-M .045 33 SP |
|------------------|----------------------------|
| Classification: | E111T1-K3MJ H4 |
| Specifications: | AWS A5.29-98; ASME SFA5.29 |
| Diameter Tested: | .045" |
| Date Tested: | 5/17/2016 |
| Date Generated: | 7/14/2016 |
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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.

| Shielding Medium Amps / Polarity Voits in/min(m/min) ESO In(min) Prefeat F(C) Interpass F(C) in/min(m/min) SG-AC-25 235 / DCEP 27 380 (9.7) 3/4 (19) 300(149) 300(149) 10 (25.4) Mechanical Properties - Tensile Mechanical Properties - Tensile Yield Strength psi (MPa) Elong.% in 2" SG-AC-25 pd1438 As Welded 127,000 (876) 122,000 (841) 16 Mechanical Properties - Impact Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Fillet Weld Test Fillet Weld Test Fillet Weld Test | Test Settings | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------|-----------------|-------|-------|--|--------|---------------------|-----------------|----------|-------|-------------------|----------|---------------|----------------|----------------|----------|------|--------------------------------|---------------------|------|--|--|
| Mechanical Properties - Tensile Shielding Medium Ref. No. Testing Conditions Ult. Tensile Strength psi (MPa) Yield Strength psi (MPa) Elong.% in 2" SG-AC-25 pd1438 As Welded 127,000 (876) 122,000 (841) 16 Mechanical Properties - Impact Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Fillet Weld Test Vertical : Conforms Vertical : Co PD1438 Conforms Horizontal : Overhead : Conforms Vertical : Co PD1438 0.08 1.92 0.008 0.01 0.25 0.36 <td colspan="3">Shielding Medium Amps / Polarity</td> <td>V</td> <td>/olts</td> <td>-</td> <td>n/min)</td> <td colspan="4">in) ESO in(mm)</td> <td colspan="3">Preheat F(C)</td> <td colspan="3">Interpass F(C)</td> <td>.)</td> <td colspan="4">Travel Speed in/min(cm/min)</td> | Shielding Medium Amps / Polarity | | | V | /olts | - | n/min) | in) ESO in(mm) | | | | Preheat F(C) | | | Interpass F(C) | | | .) | Travel Speed in/min(cm/min) | | | | |
| Shielding Medium Ref. No. Testing Conditions Ult. Tensile Strength psi (MPa) Yield Strength psi (MPa) Elong.% in 2" SG-AC-25 pd1438 As Welded 127,000 (876) 122,000 (841) 16 Mechanical Properties - Impact Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Forizontal : Overhead : Conforms Vertical : Co PD1438 Conforms Horizontal : Vertical analysis Vertical : Co Shielding Medium / Ref. No C Mn P S Si Cu Cr V Ni Mo AI | SG-AC-25 235 / DCEP 27 | | | | 27 | 380 | (9.7) | | 3/4 (19) | | | | 300(149) | | | 300(149) | | | | 10 (25.4) | | | |
| MPa M | | | | | | | | | | | | | | | | | | | | | | | |
| Mechanical Properties - Impact Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Fillet Weld Test Fillet Weld Test Vertical : Conforms Vertical : Co PD1438 Conforms Horizontal : Overhead : Conforms Vertical : Co 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 SG-AC-25 PD1438 0.08 1.92 0.008 0.011 0.22 1.80 0.30 0.01 0.06 V V N Mg SG | Shielding | Testing | Condition | s | Ult | 0 1 | | | | Yield St | n psi | (MPa | a) | Elong.% in 2" | | | | | | | | | |
| Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Horizontal : Vertical : Overhead : Conforms Vertical : Co PD1438 Conforms Horizontal : Vertical : Overhead : Conforms Vertical : Co 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.22 1.80 0.30 0.01 0.06 Vertical : Vertical : Vertical : Vertical : Vertical : Vertical : Vertical | SG-AC-25 pd1438 As | | | | | Welded | | | 127,000 (876) | | | | 12 | (84 | 1) | | 16 | | | | | | |
| SG-AC-25 PD1438 As Welded -20 (-29) 49,49,48 (66,66,65) 49 (66) Charpy-V- SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Fillet Weld Test Vertical : Conforms Vertical : Co PD1438 Conforms Horizontal : Overhead : Conforms Vertical : Co 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.02 1.80 0.30 0.01 0.06 Ti Ti Nb Co B W Sn Fe Sb N Mg | Mechanical Properties - Impact | | | | | | | | | | | | | | | | | | | | | | |
| SG-AC-25 PD1438 As Welded -40 (-40) 41,45,45 (56,61,61) 44 (59) Charpy-V- Ref.No. Radiographic Inspection Fillet Weld Test Vertical : Conforms Vertical : Conforms< | Shielding Medium Ref. No. Testing Conditions Temp. F (C) Individuals ft.lb.(J) Avg. ft.lb.(J) Type | | | | | | | | | | | | | | | | | | | | | | |
| Ref.No. Radiographic Inspection Fillet Weld Test PD1438 Conforms Horizontal : Overhead : Conforms Vertical : Co 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.25 0.36 0.11 0.02 1.80 0.00 0.01 0.06 I <tdi< td=""> I <tdi< td=""> I I I</tdi<></tdi<> | SG-A | As We | elded -20 (-29) | | | | | 49,49,48 (66,66,65) | | | | 49 (66) | | | | Charpy-V-Notch | | | | | | | |
| PD1438 Conforms Horizontal : Overhead : Conforms Vertical : Co 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.25 0.36 0.11 0.02 1.80 0.00 0.01 0.06 Image: Conformation of the state of the s | SG-AC-25 PD1438 As W | | | | As We | Welded -40 (-40) | | | | | | ,45,45 (56,61,61) | | | | 44 (59) | | | | Charpy-V-Notch | | | |
| 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.25 0.36 0.11 0.02 1.80 0.30 0.01 0.06 Image: Colspan="2">Image: Colspan="2" Image: Colspan="2" | Ref.No. Radiographic Inspection | | | | | Fillet Weld Test | | | | | | | | | | | | | | | | | |
| 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 SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.25 0.36 0.11 0.02 1.80 0.30 0.01 0.06 1 | PD1438 Conforms | | | | | Horizontal : | | | | | | Overhead : 0 | | | | | Conforms | | | Vertical : Conforms | | | |
| SG-AC-25 / PD1438 0.08 1.92 0.008 0.011 0.25 0.36 0.11 0.02 1.80 0.30 0.01 0.06 1 1 1 1 1 1 1 1 1 | Chemical Analysis | | | | | | | | | | | | | | | | | | | | | | |
| | Shielding Medium / Ref. No C Mn P | | | Р | S | Si | Cu | Cr | V | Ni | Мо | AI | Ti | Nb | Co | B | w s | n Fe | Sb N | Mg Z | n Be | | |
| Diffusible Hydrogen Collected per AWS A4 3 | SG-AC-25 / PD1438 0.08 1.92 0.008 | | | 0.008 | 0.011 | 0.25 | 0.36 | 0.11 | 0.02 | 1.80 | 0.30 | 0.01 | 0.06 | | | | | | T . L | | | | |
| Bindshie nydrogen Obliedled per Awo A4.5 | | | | | | | | | | | | | | | | | | | | | | | |
| SG-AC-25 2.6 ml/100g of weld metal for .045 in diameter 78% relative humidity | SG-AC-25 | | | | | 2.6 ml/100g of weld metal for .045 in diameter 78% relative humidity | | | | | | | | | | | | | | | | | |

Javel A. 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. Hobart Brothers produces welding consumables under continuing quality assurance programs audited and approved by the American Bureau of Shipping ("ABS").