

Product Type: HOBART 447A
 Classification: E6013
 Specifications: AWS A5.1/A5.1M:2004
 Diameter Tested:
 Date Tested: 03/26/09
 Date Generated: 1/21/2010

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 ISO9000, ANSI/AWS A5.01, and other specification and Military requirements, as applicable.

Test Settings

| Amps | Volts | Size | Polarity | Preheat | Interpass | Travel Speed |
|------|-------|------------|----------|---------------|---------------|--------------|
| 165 | 25 | 5/32X14 in | AC | 300 F (149 C) | 300 F (149 C) | + - 1 in/min |
| 200 | 21 | 3/16X14 in | AC | 300 F (149 C) | 300 F (149 C) | + - 1 in/min |
| 160 | 25 | 5/32X14 in | DCEN | 300 F (149 C) | 325 F (163 C) | + - 1 in/min |
| 180 | 21 | 3/16X14 in | DCEN | 300 F (149 C) | 300 F (149 C) | + - 1 in/min |

Mechanical Properties - Tensile

| Size / Polarity | Ref. No. | Testing Conditions | Ult. Tensile Strength | Yield Strength | Elong.% in 2" |
|-------------------|----------|--------------------|-----------------------|-----------------------|---------------|
| 5/32X14 in / AC | PA9803 | Aged 48 Hrs 220F | 76,000 psi (525 Mpa) | 68,000 psi (467 Mpa) | 25 |
| 5/32X14 in / DCEN | PA9825 | Aged 48 Hrs 220F | 72,000 psi (500 Mpa) | 63,000 psi (433 Mpa) | 27 |
| 3/16X14 in / AC | PA9805 | Aged 48 Hrs 220F | 73,000 psi (501 Mpa) | 63,000 psi (434 Mpa) | 28 |
| 3/16X14 in / DCEN | PA9806 | Aged 48 Hrs 220F | 72,000 psi (494 Mpa) | 64,000 psi (438 Mpa) | 26 |

| Size / Polarity | Ref. No. | Radiograph | Fillet Weld Test | | | |
|-------------------|----------|------------|------------------|------------|------------|----------|
| 5/32X14 in / AC | PA9803 | Conforms | Horizontal : | Overhead : | Vertical : | Conforms |
| 5/32X14 in / DCEN | PA9825 | Conforms | Horizontal : | Overhead : | Vertical : | Conforms |
| 3/16X14 in / AC | PA9805 | Conforms | Horizontal : | Overhead : | Vertical : | Conforms |
| 3/16X14 in / DCEN | PA9973 | Conforms | Horizontal : | Overhead : | Vertical : | Conforms |

Chemical Analysis

| Size / Polarity / 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 |
|----------------------------|------|------|---|---|------|----|------|------|------|-------|----|----|----|----|---|---|----|----|----|---|----|----|----|
| 3/16X14 in / DCEN / PA9806 | 0.06 | 0.38 | | | 0.30 | | 0.07 | 0.01 | 0.09 | < .01 | | | | | | | | | | | | | |
| 5/32X14 in / DCEN / PA9825 | 0.08 | 0.41 | | | 0.26 | | 0.03 | 0.01 | 0.05 | < .01 | | | | | | | | | | | | | |



Steve Knostman , Quality Engineer



Guo Hao , R & D Engineer

The information 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").