

STD LR 90ELL WPB 18; HEAT RE04RX

142002

CERTIFICATE OF MATERIAL TEST REPORT  
Trinity Fitting Group Inc.  
Hackney \* Ladish \* Flo-Bend

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BPCS

Order Number: 04-1044

(278563-003) DOC #00160389 04/09/13 Date: 09/14/04

Sold to: GFF INC  
5650 EAST PONCE DE LEON  
STONE MOUNTAIN GA 30083

Ship to: GFF, INC.  
5650 PONCE DE LEON AVE  
STONE MOUNTAIN GA 30083

| Heat Code | Quantity | Description / Specifications   |
|-----------|----------|--|
| RE04RX    | 4        | 18 STD LR 90 DEG EL A/SA 234 - 03 WPB<br>A106B 48 16685 AS ROLLED NACE MR0175    |
| EAO4NW    | 50       | 4 STD TEE A/SA 234 - 01 WPB<br>A106-B 55/29181 NORM. 1650 NACE MR0175            |
| EFO4DR    | 10       | 3 X 2 STD RED TEE A/SA 234 - 03 WPB<br>106-B 55/59134 NORM. 1650 NACE MR0175     |
| RBO4JBA   | 10       | 3 XH LR 45 DEG EL A/SA 234 - 02 WPB<br>A106B 55 29260 STRESS RELIEVE NACE MR0175 |

Chemical Analysis

| Heat Code | Test | C    | Mn    | P    | S    | Si   | Cu   | Ni   | Cr   | Mo   | Al    |
|-----------|------|------|-------|------|------|------|------|------|------|------|-------|
| RE04RX    | M    | .180 | 1.010 | .012 | .002 | .250 | .013 | .070 | .100 | .040 | .0200 |
| EAO4NW    | M    | .180 | .690  | .009 | .005 | .310 | .080 | .040 | .040 | .020 | .0240 |
| EFO4DR    | M    | .200 | .700  | .013 | .010 | .300 | .060 | .040 | .040 | .010 | .0130 |
| RBO4JBA   | M    | .180 | .800  | .012 | .001 | .290 | .040 | .020 | .030 | .010 | .0200 |

Chemical Analysis (cont.)

| Heat Code | N     | V      | B      | Ti     | Cb    | Sn   | W    | Pb    | Co    | CE   |
|-----------|-------|--------|--------|--------|-------|------|------|-------|-------|------|
| RE04RX    |       | .000   | .0000  |        | .000  | .010 |      |       |       | .381 |
| EAO4NW    | .0040 | < .010 | <.0005 | <.0100 | <.010 | .006 | .003 | .001  | <.050 | .317 |
| EFO4DR    | .0032 | < .010 | <.0005 | <.0100 | <.010 | .005 | .002 | <.001 | <.130 | .335 |
| RBO4JBA   |       | < .010 |        |        | <.010 |      |      |       |       | .327 |

Physical Properties

| Heat Code | Tensile KSI | Type | Thickness | Yield KSI | % Elong. (4D) | % RA | Hardness HB |
|-----------|-------------|------|-----------|-----------|---------------|------|-------------|
| RE04RX    | 76.6        |      |           | 54.3      | 42.0          |      | 197         |
| EAO4NW    | 71.6        | L    |           | 47.1      | 31.0          | 69.0 | 138         |
| EFO4DR    | 76.9        | L    |           | 49.7      | 27.0          | 65.0 | 136         |
| RBO4JBA   | 68.6        | L    |           | 40.7      | 34.0          | 60.0 | 127         |

Charpy Results

| Heat Code | Size x 10mm | Type | Temp. (F) | Foot Pounds | Later. Expansion | % Shear |
|-----------|-------------|------|-----------|-------------|------------------|---------|
| RE04RX    |             |      |           |             |                  |         |
| EAO4NW    |             |      |           |             |                  |         |
| EFO4DR    |             |      |           |             |                  |         |
| RBO4JBA   |             |      |           |             |                  |         |

Test: M=Mill Product  
Type: L=Longitudinal

We certify that the material herein described has been manufactured, heat treated, sampled, tested, and inspected in accordance with the above standards and specifications and satisfies those requirements. We certify these flanges and fittings capable of passing a hydrostatic test compatible with their rating. The above figures are correct as contained in the records of the Company. This information has been electronically transmitted to our customer.  
/S/ Glinda LaFleur