

STD LR 90ELL WPB 18; HEAT RL04MT

APPROVED MATERIAL TEST REPORT

Trinity Fitting Group Inc.

Hackney \* Ladish \* Flo-Bend

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203601

BPCS

Order Number: 04-1064

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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    | 2        | 18 STD LR 90 DEG EL A/SA 234 - 03 WPB<br>A106B 48 16685 AS ROLLED - HOT FORMED NACE MRO175 |
| RE04RW    | 2        | 18 STD LR 90 DEG EL A/SA 234 - 03 WPB<br>A106B 55 16683 AS ROLLED NACE MRO175              |
| RL04MT    | 2        | 18 STD LR 90 DEG EL A/SA 234 - 03 WPB<br>A106B 55 18925 AS ROLLED/ HOT FORMED NACE MR0175  |
| RL04MC    | 3        | 18 XH LR 90 DEG EL A/SA 234 - 03 WPB<br>Y56 48 18749 AS ROLLED - HOT FORMED 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 |
| RE04RW    | M    | .180 | 1.030 | .011 | .002 | .220 | .119 | .070 | .100 | .030 | .0200 |
| RL04MT    | M    | .170 | 1.020 | .011 | .002 | .230 | .016 | .070 | .070 | .050 | .0200 |
| RL04MC    | M    | .140 | 1.270 | .009 | .001 | .230 | .149 | .050 | .040 | .065 | .0240 |

Chemical Analysis (cont.)

| Heat Code | N     | V    | B     | Ti    | Cb   | Sn   | W | Pb | Co | CE   |
|-----------|-------|------|-------|-------|------|------|---|----|----|------|
| RE04RX    |       | .000 | .0000 |       | .000 | .010 |   |    |    | .381 |
| RE04RW    |       | .000 | .0000 | .0000 | .000 | .009 |   |    |    | .390 |
| RL04MT    | .0000 | .000 | .0000 | .0000 | .000 | .011 |   |    |    | .369 |
| RL04MC    |       | .058 | .0000 |       | .006 | .008 |   |    |    | .397 |

Physical Properties

| Heat Code | Tensile KSI | Type | Thickness | Yield KSI | % Elong. (4D) | % RA | Hardness HB |
|-----------|-------------|------|-----------|-----------|---------------|------|-------------|
| RE04RX    | 76.6        |      |           | 54.3      | 42.0          |      | 197         |
| RE04RW    | 78.3        |      |           | 54.3      | 44.0          |      | 197         |
| RL04MT    | 75.3        |      |           | 53.3      | 43.0          |      | 149         |
| RL04MC    | 82.6        |      |           | 53.4      | 46.0          |      | 169         |

Charpy Results

| Heat Code | Size x 10mm | Type | Temp. (F) | Foot Pounds | Later. Expansion | % Shear |
|-----------|-------------|------|-----------|-------------|------------------|---------|
| RE04RX    |             |      |           |             |                  |         |
| RE04RW    |             |      |           |             |                  |         |
| RL04MT    |             |      |           |             |                  |         |
| RL04MC    |             |      |           |             |                  |         |

Test: M=Mill Product

Type:

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