

## MATERIAL TEST REPORT

### EN 10204-3.1

|                 |                                         |                  |          |
|-----------------|-----------------------------------------|------------------|----------|
| Customer :      | บริษัท บี เจ สมุทร เอ็นจิเนียริ่ง จำกัด | Certificate no : | 6007592  |
| Product :       | A270 Welded Stainless Steel Tube        | P.O. no.:        | 21700240 |
| Surface Finish: | ID#320 OD#240                           | Material Grade : | SS316L   |
| Size :          | 38.1x1.20                               | Quantity :       | 4 pcs.   |
|                 |                                         | Invoice no :     | -        |

### Chemical composition %

Results acc.to pre-material inspection certificate (Heat Analysis)

| Item | Heat number | C     | Si    | Mn    | P     | S     | Ni     | Cr     | Mo    | N     |
|------|-------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|
| 1    | 1410735     | 0.021 | 0.440 | 1.170 | 0.030 | 0.001 | 10.020 | 16.130 | 2.060 | 0.040 |

### Material inspection

Results acc.to pre-material inspection certificate (Heat Analysis)

1410735 ASTM A269-10,ASTM A270-10,ASME SA-249-E10 1040 °C, bright annealed, quenched in gas, solution annealed

|                                        |         |    |
|----------------------------------------|---------|----|
| Positive material identification (PMI) | 1410735 | OK |
|----------------------------------------|---------|----|

### Mechanical tests

Results acc.to pre-material inspection certificate (Heat Analysis)

| Item | Heat number | Yield Strength<br>(0.2%) N/mm2 Mpa | Tensile Strength<br>N/mm2 Mpa | Elongation<br>% IN 2" | Hardness<br>HRB |
|------|-------------|------------------------------------|-------------------------------|-----------------------|-----------------|
| 1    | 1410735     | 207.00                             | 500.00                        | 47.00                 | 81.00           |

| Heat number | Flare test | Flange test | Flattening test | Reverse bend test | Eddy current test | Reverse flattening test |
|-------------|------------|-------------|-----------------|-------------------|-------------------|-------------------------|
| 1410735     | -          | Pass        | -               | -                 | Pass              | Pass                    |

### Final Inspection

|                             |    |                     |    |                                    |    |
|-----------------------------|----|---------------------|----|------------------------------------|----|
| Control of material marking | OK | Dimensional control | OK | Roughness inside ID Ra ≤ 0.80 μm.  | OK |
| Appearance control          | OK | P.M.I.              | OK | Roughness outside OD Ra ≤ 0.80 μm. | OK |

We(G HWA) hereby confirm the product(s) stated above, is(are) manufactured in conformity with the demands of the specification and agreements in the order.

This is a computer-generated document and is valid without signature.

References: 3-A 33-02, 3-A 53-06, 3-A 63-03, 3-A 65-01, AS 1528, BS 4825, DIN 11850, DIN 11851,

DIN 11852, DIN 11865, DIN 11866, ISO 1127, ISO 2037, ISO 2851, SMS 3008, etc.





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