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INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

| Customer References |                              | Sandvik References  |                        |
|---------------------|------------------------------|---------------------|------------------------|
| 707247              | Customer order<br>2009-04-22 | Order No. 148540    | Subs No. 136507        |
| 003-00991 ITEMS     |                              | ABSMT No. 300-91275 | Dispatch note 24319/54 |
|                     |                              | C.Code 03           |                        |

| Material description                     | Steel/material Designations |
|------------------------------------------|-----------------------------|
| SÖMLÖSA ROSTFRIA RÖR.                    | Sandvik AISI<br>3R60 TP316L |
| Steel making process<br>Electric furnace |                             |

| Technical requirements                                                                       |
|----------------------------------------------------------------------------------------------|
| ASTM A-213-06AE1/ASME SA-213 ED-07 AD-08, ASTM A-269-07A<br>Ringhals Spec 01.32M Version 4.0 |

| EXTENT OF DELIVERY                                                                     |                                    |            |         |        |       |              |       |      |
|----------------------------------------------------------------------------------------|------------------------------------|------------|---------|--------|-------|--------------|-------|------|
| It                                                                                     | Product designation                | Heat       | Lot     | Pieces | Kg    | M            |       |      |
| 02                                                                                     | XTHT-3R60-9.53-1.24<br>9.53 X 1.24 | 047188     | 98640   | 85     | 132.0 | 510.00       |       |      |
|                                                                                        |                                    |            |         | Total  | 85    | 132.0 510.00 |       |      |
| KEY TO HEAT                                                                            |                                    | KEY TO LOT |         |        |       |              |       |      |
| Heat Code                                                                              | Heat No.                           | Lot Code   | Lot No. |        |       |              |       |      |
| 047188                                                                                 | 521535                             | 98640      | 344848  |        |       |              |       |      |
| TEST RESULTS                                                                           |                                    |            |         |        |       |              |       |      |
| Chemical composition (weight%)                                                         |                                    |            |         |        |       |              |       |      |
| Heat                                                                                   | C                                  | Si         | Mn      | P      | S     | Cr           | Ni    | Mo   |
| 047188                                                                                 | 0.018                              | 0.36       | 1.66    | 0.026  | 0.008 | 17.31        | 13.11 | 2.53 |
|                                                                                        | N                                  |            |         |        |       |              |       |      |
| 047188                                                                                 | 0.037                              |            |         |        |       |              |       |      |
| Chemical composition, product (weight%)                                                |                                    |            |         |        |       |              |       |      |
| Lot                                                                                    | C                                  | Si         | Mn      | P      | S     | Cr           | Ni    | Mo   |
| 98640                                                                                  | 0.018                              | 0.35       | 1.64    | 0.027  | 0.007 | 17.34        | 13.06 | 2.54 |
|                                                                                        | N                                  |            |         |        |       |              |       |      |
| 98640                                                                                  | 0.032                              |            |         |        |       |              |       |      |
| Quality assurance - Per Eriksson/ QA-manager Tube & Pipe<br>MTC Service / Certificates |                                    |            |         |        |       |              |       |      |

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**Tensile test at room temperature**

|            | <b>Yield strength</b> | <b>Tensile strength</b> | <b>Elongation</b> |
|------------|-----------------------|-------------------------|-------------------|
|            | <b>MPa</b>            | <b>MPa</b>              | <b>%</b>          |
| <b>Lot</b> | <b>Rp0.2</b>          | <b>Rm</b>               | <b>4D</b>         |
| 98640      | 323                   | 623                     | 54                |
|            | 315                   | 620                     | 54                |

**Hardness test**

|            | <b>Min</b> | <b>Max</b> |
|------------|------------|------------|
| <b>Lot</b> | <b>HRB</b> | <b>HRB</b> |
| 98640      | 79.0       | 80.0       |

**Following controls/tests have been satisfactorily performed:**

- Flattening test according to ASME SA-1016.
- Flaring test according to ASME SA-1016.
- PMI-test.
- Intergranular corrosion test according to ASTM A-262 E.  
Sensitizing temperature: 675 degrees C, 60 minutes.
- Leak test: Eddy current test acc to ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed and quenched.

The number of tests are based on the size of the manufacturing lot before cutting to finished lengths.

The delivered products comply with the specifications and requirements of the order.

The material is manufactured according to a Quality system, approved and registered to ISO 9001.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 00037506