

**CERTIFICATE****No. A/11-179703 Rev 00**  
**Date 2011-07-25 Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

| <b>Customer References</b><br><br>710048<br><br>003-00991 ITEMS<br><br>Customer order<br>2011-05-03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               | <b>Sandvik References</b><br>Order No. Subs No. ABSMT Dispatch note<br>243153 503010 45399/54<br>ABSMT No. C.Code<br>300-43212 46 |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------|------------|---------------------|--------|-------|--------|----|---|----|-------------------------------|--------|-------|----|------|--------|-------|--|--|--|----|------|--------|--------------------|--|-------------------|--|-----------|----------|----------|---------|--------|--------|-------|--------|------|---|----|----|---|---|----|----|----|--------|-------|------|------|-------|-------|-------|-------|------|---|--|--|--|--|--|--|--|--|--------|-------|--|--|--|--|--|--|--|-----|----------------|--|------------------|------------|-----|-----|-----|---|--|-------|-------|----|---|-------|-----|-----|-----|----|-----|-----|-----|----|
| <b>Material description</b><br>SEAMLESS STAINLESS COLD FINISHED<br>HYDRAULIC TUBING<br><br><br><br><br><b>Steel making process</b><br>Electric furnace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               | <b>Steel/material Designations</b><br>Sandvik SS<br>3R60 2353                                                                     |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| <b>Technical requirements</b><br>SS 219713<br>Condition No -24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                                                                                                   |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| <b>EXTENT OF DELIVERY</b> <table border="1"><thead><tr><th>It</th><th>Product designation</th><th>Heat</th><th>Lot</th><th>Pieces</th><th>Kg</th><th>M</th></tr></thead><tbody><tr><td>02</td><td>THT-3R60-8-1.5<br/>8.00 X 1.50</td><td>047749</td><td>96228</td><td>41</td><td>61.0</td><td>246.00</td></tr><tr><td colspan="4">Total</td><td>41</td><td>61.0</td><td>246.00</td></tr></tbody></table><br><table border="0"><tr><td colspan="2"><b>KEY TO HEAT</b></td><td colspan="2"><b>KEY TO LOT</b></td></tr><tr><td>Heat Code</td><td>Heat No.</td><td>Lot Code</td><td>Lot No.</td></tr><tr><td>047749</td><td>528358</td><td>96228</td><td>358032</td></tr></table><br><b>TEST RESULTS</b><br><b>Chemical composition (weight%)</b> <table border="1"><thead><tr><th>Heat</th><th>C</th><th>Si</th><th>Mn</th><th>P</th><th>S</th><th>Cr</th><th>Ni</th><th>Mo</th></tr></thead><tbody><tr><td>047749</td><td>0.017</td><td>0.38</td><td>1.66</td><td>0.030</td><td>0.009</td><td>17.30</td><td>13.07</td><td>2.52</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>047749</td><td>0.044</td><td colspan="7"></td></tr></tbody></table><br><b>Tensile test at room temperature</b> <table border="1"><thead><tr><th rowspan="2">Lot</th><th colspan="2">Yield strength</th><th>Tensile strength</th><th>Elongation</th></tr><tr><th>MPa</th><th>MPa</th><th>MPa</th><th>%</th></tr><tr><th></th><th>Rp0.2</th><th>Rp1.0</th><th>Rm</th><th>A</th></tr></thead><tbody><tr><td rowspan="2">96228</td><td>303</td><td>335</td><td>602</td><td>63</td></tr><tr><td>286</td><td>322</td><td>582</td><td>59</td></tr></tbody></table><br><b>Quality assurance - Ulrik Rodling / QA-manager Tube &amp; Pipe</b><br><b>MTC Service / Certificates</b> |                               |                                                                                                                                   |                  | It         | Product designation | Heat   | Lot   | Pieces | Kg | M | 02 | THT-3R60-8-1.5<br>8.00 X 1.50 | 047749 | 96228 | 41 | 61.0 | 246.00 | Total |  |  |  | 41 | 61.0 | 246.00 | <b>KEY TO HEAT</b> |  | <b>KEY TO LOT</b> |  | Heat Code | Heat No. | Lot Code | Lot No. | 047749 | 528358 | 96228 | 358032 | Heat | C | Si | Mn | P | S | Cr | Ni | Mo | 047749 | 0.017 | 0.38 | 1.66 | 0.030 | 0.009 | 17.30 | 13.07 | 2.52 | N |  |  |  |  |  |  |  |  | 047749 | 0.044 |  |  |  |  |  |  |  | Lot | Yield strength |  | Tensile strength | Elongation | MPa | MPa | MPa | % |  | Rp0.2 | Rp1.0 | Rm | A | 96228 | 303 | 335 | 602 | 63 | 286 | 322 | 582 | 59 |
| It                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Product designation           | Heat                                                                                                                              | Lot              | Pieces     | Kg                  | M      |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | THT-3R60-8-1.5<br>8.00 X 1.50 | 047749                                                                                                                            | 96228            | 41         | 61.0                | 246.00 |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                               |                                                                                                                                   |                  | 41         | 61.0                | 246.00 |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| <b>KEY TO HEAT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               | <b>KEY TO LOT</b>                                                                                                                 |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| Heat Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Heat No.                      | Lot Code                                                                                                                          | Lot No.          |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| 047749                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 528358                        | 96228                                                                                                                             | 358032           |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| Heat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | C                             | Si                                                                                                                                | Mn               | P          | S                   | Cr     | Ni    | Mo     |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| 047749                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.017                         | 0.38                                                                                                                              | 1.66             | 0.030      | 0.009               | 17.30  | 13.07 | 2.52   |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                               |                                                                                                                                   |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| 047749                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.044                         |                                                                                                                                   |                  |            |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| Lot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Yield strength                |                                                                                                                                   | Tensile strength | Elongation |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MPa                           | MPa                                                                                                                               | MPa              | %          |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rp0.2                         | Rp1.0                                                                                                                             | Rm               | A          |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
| 96228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 303                           | 335                                                                                                                               | 602              | 63         |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 286                           | 322                                                                                                                               | 582              | 59         |                     |        |       |        |    |   |    |                               |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |        |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |   |  |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |                |  |                  |            |     |     |     |   |  |       |       |    |   |       |     |     |     |    |     |     |     |    |

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

- Flattening test.
- PMI-test.
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to SS 114301/114305 E1
- 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 00042775