

**CERTIFICATE****No. A/12-228960 Rev 00**  
**Date 2012-02-17 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>711118<br><br>003-00991 ITEMS<br><br>Customer order<br>2012-02-17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     | <b>Sandvik References</b><br>Order No. Subs No. ABSMT Dispatch note<br>280373 520742 15158/54<br>ABSMT No. C.Code<br>300-60533 15 |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------|--------|---------------------|-------|-------|--------|----|----|----|---------------|--------|-------|------|------|-------|-------|--------------|--------|-------|---|------|-------|-------|--|--|--|----|------|--------|-------|--|--|--|--|--|--|--|------|---|----|----|---|---|----|----|----|--------|-------|------|------|-------|-------|-------|-------|------|--|---|--|--|--|--|--|--|--|--------|-------|--|--|--|--|--|--|--|
| <b>Material description</b><br>SEAMLESS STAINLESS COLD FINISHED<br>HYDRAULIC TUBING<br><br><br><br><b>Steel making process</b><br>Electric furnace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                     | <b>Steel/material Designations</b><br>Sandvik AISI<br>3R60 TP316/TP316L<br>EN no<br>1.4435                                        |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Technical requirements</b><br>ASTM A-213-10A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-10<br>NACE MR0175/ISO 15156-3:2009<br>PED 97/23/EC EN 10216-5 TC1<br>HRB MAX 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>EXTENT OF DELIVERY</b> <table><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>01</td><td>THT-3R60-12-2</td><td>530784</td><td>39380</td><td>2</td><td>6.0</td><td>12.00</td></tr><tr><td></td><td>12.00 X 2.00</td><td>530784</td><td>39381</td><td>8</td><td>24.0</td><td>48.00</td></tr><tr><td colspan="4">Total</td><td>10</td><td>30.0</td><td>60.00</td></tr></tbody></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                                                                                                                                   |       | It     | Product designation | Heat  | Lot   | Pieces | Kg | M  | 01 | THT-3R60-12-2 | 530784 | 39380 | 2    | 6.0  | 12.00 |       | 12.00 X 2.00 | 530784 | 39381 | 8 | 24.0 | 48.00 | Total |  |  |  | 10 | 30.0 | 60.00  |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| It                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Product designation | Heat                                                                                                                              | Lot   | Pieces | Kg                  | M     |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | THT-3R60-12-2       | 530784                                                                                                                            | 39380 | 2      | 6.0                 | 12.00 |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12.00 X 2.00        | 530784                                                                                                                            | 39381 | 8      | 24.0                | 48.00 |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                                                                                                                                   |       | 10     | 30.0                | 60.00 |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>TEST RESULTS</b><br><b>Chemical composition (weight%)</b> <table><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>530784</td><td>0.025</td><td>0.37</td><td>1.65</td><td>0.030</td><td>0.008</td><td>17.28</td><td>13.06</td><td>2.52</td></tr><tr><td></td><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>530784</td><td>0.041</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table><br><b>Chemical composition, product (weight%)</b> <table><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>530784</td><td>0.027</td><td>0.38</td><td>1.64</td><td>0.032</td><td>0.006</td><td>17.36</td><td>13.07</td><td>2.52</td></tr><tr><td></td><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>530784</td><td>0.033</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> |                     |                                                                                                                                   |       | Heat   | C                   | Si    | Mn    | P      | S  | Cr | Ni | Mo            | 530784 | 0.025 | 0.37 | 1.65 | 0.030 | 0.008 | 17.28        | 13.06  | 2.52  |   | N    |       |       |  |  |  |    |      | 530784 | 0.041 |  |  |  |  |  |  |  | Heat | C | Si | Mn | P | S | Cr | Ni | Mo | 530784 | 0.027 | 0.38 | 1.64 | 0.032 | 0.006 | 17.36 | 13.07 | 2.52 |  | N |  |  |  |  |  |  |  | 530784 | 0.033 |  |  |  |  |  |  |  |
| Heat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | C                   | Si                                                                                                                                | Mn    | P      | S                   | Cr    | Ni    | Mo     |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 530784                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.025               | 0.37                                                                                                                              | 1.65  | 0.030  | 0.008               | 17.28 | 13.06 | 2.52   |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N                   |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 530784                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.041               |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| Heat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | C                   | Si                                                                                                                                | Mn    | P      | S                   | Cr    | Ni    | Mo     |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 530784                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.027               | 0.38                                                                                                                              | 1.64  | 0.032  | 0.006               | 17.36 | 13.07 | 2.52   |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N                   |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| 530784                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.033               |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |
| <b>Quality assurance - Per Eriksson / QA-manager</b><br><b>MTC Service / Certificates</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                                                                                                                                   |       |        |                     |       |       |        |    |    |    |               |        |       |      |      |       |       |              |        |       |   |      |       |       |  |  |  |    |      |        |       |  |  |  |  |  |  |  |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |

**CERTIFICATE****No. A/12-228960****Rev 00****Date 2012-02-17****Page 2/2****Tensile test at room temperature**

|       | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
| Lot   | Rp0.2          | Rp1.0 | Rm               | A          | 2" |
| 39380 | 269            | 308   | 561              | 56         | 54 |
| 39381 | 262            | 298   | 551              | 52         | 50 |

**Hardness test**

| Lot   | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 39380 | 70  | 72  |
| 39381 | 74  | 77  |

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

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Leak test: Eddy current test acc to EN 10246-2, ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed and quenched.

**Marking:**

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 EN 10305-1 SS 2353 EN 1.4435 TP316/316L M S PK1 NDE 12.00 X 2.00 MM HT 530784 SS LOT 39380 COLD MADE BY SANDVIK IN SWEDEN \*QA-TUBE\*

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 EN 10305-1 SS 2353 EN 1.4435 TP316/316L M S PK1 NDE 12.00 X 2.00 MM HT 530784 SS LOT 39381 COLD MADE BY SANDVIK IN SWEDEN \*QA-TUBE\*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (97/23/EC) by TUEV NORD; notified body, reg.no. 0045.

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.