

KONTROLLINTYG enligt  
EN 10 204 3.1

Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDEN

INSPEKTIONSSTÄMPEL  
QA-TUBE

|                                                                                                                                                                                                                     |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------|---------------|-------------|-----------|-----------|
| <b>Kundreferenser</b>                                                                                                                                                                                               |                                    | <b>Sandvik Referenser</b>                                                                                                                                                      |                               |                       |               |             |           |           |
| 707786                                                                                                                                                                                                              | kundorder<br>2009-09-10            | Order Nr. 165701<br>ABSMT Nr. 300-98761                                                                                                                                        | Subs Nr. 149012<br>Int.Kod 15 |                       |               |             |           |           |
| 003-00991 ITEMS                                                                                                                                                                                                     |                                    | ABSMT Packnota 33785/54                                                                                                                                                        |                               |                       |               |             |           |           |
| <b>Materialbeskrivning</b><br>SÖMLÖSA ROSTFRIA KALLBEARBETADE<br>INSTRUMENTRÖR                                                                                                                                      |                                    | <b>Stål/materialbeteckningar</b><br>Sandvik SS<br>3R60 2353<br>AISI AFNOR<br>TP316/TP316L Z2CND17-13<br>W.nr DIN<br>1.4435 X 2 CRNIMO 18 14 3<br>EN no<br><b>1.4436/1.4435</b> |                               |                       |               |             |           |           |
| <b>Smältmetod</b><br>Elektrisk ugn                                                                                                                                                                                  |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Tekniska fordringar/krav</b><br>PED/23/EG, EN 10216 TC1<br>SS 219711, DIN 17458 TC1, NFA 49-117-09/85<br>ASTM A-213-08 AW, ASME SA-213-ED-07 AD-08 AW, ASTM A-269-08<br>NACE MR0175/ISO 15156-3:2003, HRB Max 80 |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>LEVERANSOMFATTNING</b>                                                                                                                                                                                           |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Pos</b>                                                                                                                                                                                                          | <b>Produktbeteckning</b>           | <b>Charge</b>                                                                                                                                                                  | <b>AO</b>                     | <b>Antal</b>          | <b>Kg</b>     | <b>M</b>    |           |           |
| 01                                                                                                                                                                                                                  | THT-3R60-12.7-1.24<br>12.70 X 1.24 | 047260                                                                                                                                                                         | 99710                         | 20                    | 43.0          | 120.00      |           |           |
|                                                                                                                                                                                                                     |                                    |                                                                                                                                                                                |                               | Summa                 | 20            | 43.0 120.00 |           |           |
| <b>NYCKEL TILL CHARGE</b>                                                                                                                                                                                           |                                    |                                                                                                                                                                                |                               | <b>NYCKEL TILL AO</b> |               |             |           |           |
| <b>Charge kod</b>                                                                                                                                                                                                   | <b>Charge Nr.</b>                  |                                                                                                                                                                                |                               | <b>Ao kod</b>         | <b>Ao Nr.</b> |             |           |           |
| 047260                                                                                                                                                                                                              | 521867                             |                                                                                                                                                                                |                               | 99710                 | 4842615/1-2   |             |           |           |
| <b>PROVNINGSRESULTAT</b>                                                                                                                                                                                            |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Kemisk sammansättning (vikts%)</b>                                                                                                                                                                               |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Charge</b>                                                                                                                                                                                                       | <b>C</b>                           | <b>Si</b>                                                                                                                                                                      | <b>Mn</b>                     | <b>P</b>              | <b>S</b>      | <b>Cr</b>   | <b>Ni</b> | <b>Mo</b> |
| 047260                                                                                                                                                                                                              | 0.016                              | 0.37                                                                                                                                                                           | 1.62                          | 0.030                 | 0.010         | 17.38       | 13.18     | 2.67      |
|                                                                                                                                                                                                                     | <b>N</b>                           |                                                                                                                                                                                |                               |                       |               |             |           |           |
| 047260                                                                                                                                                                                                              | 0.043                              |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Kemisk sammansättning, produkt (vikts%)</b>                                                                                                                                                                      |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Ao</b>                                                                                                                                                                                                           | <b>C</b>                           | <b>Si</b>                                                                                                                                                                      | <b>Mn</b>                     | <b>P</b>              | <b>S</b>      | <b>Cr</b>   | <b>Ni</b> | <b>Mo</b> |
| 99710                                                                                                                                                                                                               | 0.018                              | 0.37                                                                                                                                                                           | 1.62                          | 0.028                 | 0.011         | 17.48       | 13.32     | 2.69      |
|                                                                                                                                                                                                                     | <b>N</b>                           |                                                                                                                                                                                |                               |                       |               |             |           |           |
| 99710                                                                                                                                                                                                               | 0.045                              |                                                                                                                                                                                |                               |                       |               |             |           |           |
| <b>Kvalitetssäkring - Per Eriksson/ QA-manager Tube &amp; Pipe</b><br><b>MTC Service / Certificates</b>                                                                                                             |                                    |                                                                                                                                                                                |                               |                       |               |             |           |           |

**Dragprovning vid rumstemperatur**

|       | Sträckgräns |       | Brottgräns | Förlängning |    |
|-------|-------------|-------|------------|-------------|----|
|       | MPa         | MPa   | MPa        | %           | %  |
| Ao    | Rp0.2       | Rp1.0 | Rm         | A           | 2" |
| 99710 | 252         | 304   | 566        | 49          | 48 |
|       | 259         | 299   | 574        | 51          | 51 |

**Hårdhetsprovning**

| Ao    | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 99710 | 71  | 72  |

**Följande kontroller/provningar har utförts med tillfredställande res:**

- Plattningsprov
- Vidgningsprov
- PMI-provning.
- Interkristallin korrosionsprovning enligt ASTM A-262 PR.E
- Interkristallin korrosionsprovning enligt EN ISO3651-2, Metod A.
- Täthetsprovning: Induktivprovning enl EN 10246-2, ASME SA-1016.
- Visuell inspektion och dimensionskontroll.

**Värmebehandling:**

Upplösningsbehandlat och släckt.

**Märkning:**

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 TP 316/TP 316L EN 1.4435 COLD SMLS NDE 12.70 X 1.24 MM 1/2" X 18 BWG/SWG HT 521867 SZ LOT 4842615 /1-2 DIN 2391 \*QA-TUBE\*

Godkänd enligt AD 2000-Merkblatt W0 och certifierad enligt tryckkärlsdirektivet, Pressure Equipment Directive(97/23/EG) av TUEV NORD GmbH; anmält organ, reg.no. 0045.

Antalet prover är baserat på A0-storlek före ev.delning.

De levererade produkterna uppfyller specifikationer och krav i ordern.

Materialet är tillverkat enligt ett kvalitetssystem, godkänt och certifierat mot ISO 9001.

Intyget är ADB-framställt och giltigt utan underskrift.

PROVNINGSRESULTATEN ÖVERFÖRDA FRÅN CERTIFIKAT NR A090817

**CERTIFICATE****No. A/09-904643 Rev 00**  
**Date 2009-10-01 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>707786<br><br>003-00991 ITEMS<br><br>Customer order<br>2009-09-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                    | <b>Sandvik References</b><br>Order No. Subs No. ABSMT Dispatch note<br>165701 149012 33785/54<br>ABSMT No. C.Code<br>300-98761 15                                                |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
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| <b>Material description</b><br>SEAMLESS STAINLESS COLD FINISHED<br>INSTRUMENTATION TUBING<br><br><b>Steel making process</b><br>Electric furnace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                    | <b>Steel/material Designations</b><br>Sandvik SS<br>3R60 2353<br>AISI AFNOR<br>TP316/TP316L Z2CND17-13<br>W.nr DIN<br>1.4435 X 2 CRNIMO 18 14 3<br>EN no<br><b>1.4436/1.4435</b> |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| <b>Technical requirements</b><br>PED/23/EC, EN 10216 TC1<br>SS 219711, DIN 17458 TC1, NFA 49-117-09/85<br>ASTM A-213-08 AW, ASME SA-213-ED-07 AD-08 AW, ASTM A-269-08<br>NACE MR0175/ISO 15156-3:2003, HRB Max 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                    |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| <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>01</td><td>THT-3R60-12.7-1.24<br/>12.70 X 1.24</td><td>047260</td><td>99710</td><td>20</td><td>43.0</td><td>120.00</td></tr><tr><td colspan="4">Total</td><td>20</td><td>43.0</td><td>120.00</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>047260</td><td>521867</td><td>99710</td><td>4842615/1-2</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>047260</td><td>0.016</td><td>0.37</td><td>1.62</td><td>0.030</td><td>0.010</td><td>17.38</td><td>13.18</td><td>2.67</td></tr><tr><td></td><td>N</td><td colspan="7"></td></tr><tr><td>047260</td><td>0.043</td><td colspan="7"></td></tr></tbody></table><br><b>Chemical composition, product (weight%)</b> <table border="1"><thead><tr><th>Lot</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>99710</td><td>0.018</td><td>0.37</td><td>1.62</td><td>0.028</td><td>0.011</td><td>17.48</td><td>13.32</td><td>2.69</td></tr><tr><td></td><td>N</td><td colspan="7"></td></tr><tr><td>99710</td><td>0.045</td><td colspan="7"></td></tr></tbody></table> |                                    |                                                                                                                                                                                  |             | It     | Product designation | Heat   | Lot   | Pieces | Kg | M | 01 | THT-3R60-12.7-1.24<br>12.70 X 1.24 | 047260 | 99710 | 20 | 43.0 | 120.00 | Total |  |  |  | 20 | 43.0 | 120.00 | <b>KEY TO HEAT</b> |  | <b>KEY TO LOT</b> |  | Heat Code | Heat No. | Lot Code | Lot No. | 047260 | 521867 | 99710 | 4842615/1-2 | Heat | C | Si | Mn | P | S | Cr | Ni | Mo | 047260 | 0.016 | 0.37 | 1.62 | 0.030 | 0.010 | 17.38 | 13.18 | 2.67 |  | N |  |  |  |  |  |  |  | 047260 | 0.043 |  |  |  |  |  |  |  | Lot | C | Si | Mn | P | S | Cr | Ni | Mo | 99710 | 0.018 | 0.37 | 1.62 | 0.028 | 0.011 | 17.48 | 13.32 | 2.69 |  | N |  |  |  |  |  |  |  | 99710 | 0.045 |  |  |  |  |  |  |  |
| It                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Product designation                | Heat                                                                                                                                                                             | Lot         | Pieces | Kg                  | M      |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | THT-3R60-12.7-1.24<br>12.70 X 1.24 | 047260                                                                                                                                                                           | 99710       | 20     | 43.0                | 120.00 |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                    |                                                                                                                                                                                  |             | 20     | 43.0                | 120.00 |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| <b>KEY TO HEAT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                    | <b>KEY TO LOT</b>                                                                                                                                                                |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| Heat Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Heat No.                           | Lot Code                                                                                                                                                                         | Lot No.     |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 047260                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 521867                             | 99710                                                                                                                                                                            | 4842615/1-2 |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| Heat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | C                                  | Si                                                                                                                                                                               | Mn          | P      | S                   | Cr     | Ni    | Mo     |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 047260                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.016                              | 0.37                                                                                                                                                                             | 1.62        | 0.030  | 0.010               | 17.38  | 13.18 | 2.67   |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N                                  |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 047260                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.043                              |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| Lot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | C                                  | Si                                                                                                                                                                               | Mn          | P      | S                   | Cr     | Ni    | Mo     |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 99710                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.018                              | 0.37                                                                                                                                                                             | 1.62        | 0.028  | 0.011               | 17.48  | 13.32 | 2.69   |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N                                  |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| 99710                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.045                              |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |
| <b>Quality assurance - Per Eriksson/ QA-manager Tube &amp; Pipe</b><br><b>MTC Service / Certificates</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                    |                                                                                                                                                                                  |             |        |                     |        |       |        |    |   |    |                                    |        |       |    |      |        |       |  |  |  |    |      |        |                    |  |                   |  |           |          |          |         |        |        |       |             |      |   |    |    |   |   |    |    |    |        |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |        |       |  |  |  |  |  |  |  |     |   |    |    |   |   |    |    |    |       |       |      |      |       |       |       |       |      |  |   |  |  |  |  |  |  |  |       |       |  |  |  |  |  |  |  |

**CERTIFICATE****No. A/09-904643****Rev 00****Date 2009-10-01****Page 2/2****Tensile test at room temperature**

|       | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
| Lot   | Rp0.2          | Rp1.0 | Rm               | A          | 2" |
| 99710 | 252            | 304   | 566              | 49         | 48 |
|       | 259            | 299   | 574              | 51         | 51 |

**Hardness test**

|       | Min | Max |
|-------|-----|-----|
| Lot   | HRB | HRB |
| 99710 | 71  | 72  |

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

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- 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 TP 316/TP 316L EN 1.4435 COLD SMLS NDE 12.70 X 1.24 MM 1/2" X 18 BWG/SWG HT 521867 SZ LOT 4842615 /1-2 DIN 2391 \*QA-TUBE\*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (97/23/EC) by TUEV NORD GmbH; 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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO A090817