



INTYG

Nr. A/09-907127 Rev 00  
Datum 2009-10-09 Sida 1/2KONTROLLINTYG enligt  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPEKTIONSSTÄMPEL  
QA-TUBE

| Kundreferenser |                         | Sandvik Referenser      |                 |
|----------------|-------------------------|-------------------------|-----------------|
| 707805         | kundorder<br>2009-09-15 | Order Nr. 166222        | Subs Nr. 149395 |
| 003-00991      | ITEMS                   | ABSMT Nr. 300-98942     | Int.Kod 15      |
|                |                         | ABSMT Packnota 34738/54 |                 |

| Materialbeskrivning                           | Stål/materialbeteckningar   |
|---|---|
| SÖMLÖSA ROSTFRIA KALLBEARBETADE<br>HYDRAULRÖR | 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>1.4436/1.4435 |
| <b>Smältmetod</b><br>Elektrisk ugn            |   |

| Tekniska fordringar/krav   |
|--|
| 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 |

| LEVERANSOMFATTNING             |                   |            |             |                |        |            |       |      |
|--------------------------------|-------------------|------------|-------------|----------------|--------|------------|-------|------|
| Pos                            | Produktbeteckning | Charge     | AO          | Antal          | Kg     | M          |       |      |
| 01                             | THT-3R60-16-2     | 047260     | 99733       | 2              | 8.0    | 12.00      |       |      |
|                                | 16.00 X 2.00      | 047261     | 99910       | 1              | 4.0    | 6.00       |       |      |
|                                |                   |            |             | Summa          | 3      | 12.0 18.00 |       |      |
| NYCKEL TILL CHARGE             |                   |            |             | NYCKEL TILL AO |        |            |       |      |
| Charge kod                     | Charge Nr.        | Charge kod | Charge Nr.  | AO kod         | AO Nr. |            |       |      |
| 047260                         | 521867            | 99733      | 4842608/1-2 |                |        |            |       |      |
| 047261                         | 522367            | 99910      | 4842627/1-2 |                |        |            |       |      |
| PROVNINGSRESULTAT              |                   |            |             |                |        |            |       |      |
| Kemisk sammansättning (vikts%) |                   |            |             |                |        |            |       |      |
| Charge                         | 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 |
| 047261                         | 0.026             | 0.35       | 1.67        | 0.027          | 0.009  | 17.43      | 13.10 | 2.51 |
| N                              |                   |            |             |                |        |            |       |      |
| 047260                         | 0.043             |            |             |                |        |            |       |      |
| 047261                         | 0.036             |            |             |                |        |            |       |      |

Kvalitetssäkring - Per Eriksson/ QA-manager Tube & Pipe  
MTC Service / Certificates

**Kemisk sammansättning, produkt (vikts%)**

| Charge | C        | Si   | Mn   | P     | S     | Cr    | Ni    | Mo   |
|--------|----------|------|------|-------|-------|-------|-------|------|
| 047260 | 0.018    | 0.37 | 1.62 | 0.029 | 0.011 | 17.39 | 13.27 | 2.68 |
| 047261 | 0.023    | 0.36 | 1.68 | 0.027 | 0.010 | 17.47 | 13.16 | 2.52 |
|        | <b>N</b> |      |      |       |       |       |       |      |
| 047260 | 0.043    |      |      |       |       |       |       |      |
| 047261 | 0.033    |      |      |       |       |       |       |      |

**Dragprovning vid rumstemperatur**

| Ao    | Sträckgräns |       | Brottgräns | Förlängning |    |
|-------|-------------|-------|------------|-------------|----|
|       | MPa         | MPa   | MPa        | %           | %  |
|       | Rp0.2       | Rp1.0 | Rm         | A           | 2" |
| 99733 | 240         | 272   | 557        | 55          | 58 |
|       | 239         | 282   | 558        | 54          | 59 |
| 99910 | 256         | 295   | 580        | 57          | 56 |

**Hårdhetsprovning**

| Ao    | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 99733 | 74  | 75  |
| 99910 | 77  | 78  |

**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 NFA 49-117 EN 10216-5 TC1 SS 2353-22  
WNR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 16.00 X 2.00 MM HT 5218  
67 SZ LOT 4842608/1-2 D4/T3 \*QA-TUBE\*  
SANDVIK 3R60 ASTM/ASME A/SA-213AW/A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22  
WNR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 16.00 X 2.00 MM HT 5223  
67 SZ LOT 4842627/1-2 D4/T3 \*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 AO-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 A090847  
A090908



**CERTIFICATE**

**No. A/09-907127**

**Rev 00**

**Date 2009-10-09**

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INSPECTION CERTIFICATE acc to  
EN 10 204 3.1

Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDEN

INSPECTION STAMP  
QA-TUBE

|                            |                              |                              |                 |
|----------------------------|------------------------------|------------------------------|-----------------|
| <b>Customer References</b> |                              | <b>Sandvik References</b>    |                 |
| 707805                     | Customer order<br>2009-09-15 | Order No. 166222             | Subs No. 149395 |
| 003-00991                  | ITEMS                        | ABSMT No. 300-98942          | C.Code 15       |
|                            |                              | ABSMT Dispatch note 34738/54 |                 |

|   |  |
|---|--|
| <b>Material description</b><br>SEAMLESS STAINLESS COLD FINISHED<br>HYDRAULIC TUBING | <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>Steel making process</b><br>Electric furnace                                     |  |

**Technical requirements**  
 PED/23/EC, EN 10216 TC1  
 SS 219711, DIN 17458 TC1, NFA 49-117-09/85  
 ASTM A-213-08 AW, ASME SA-213-ED-07 AD-08 AW, ASTM A-269-08  
 NACE MR0175/ISO 15156-3:2003, HRB Max 80

**EXTENT OF DELIVERY**

| It | Product designation | Heat   | Lot          | Pieces   | Kg          | M            |
|----|---------------------|--------|--------------|----------|-------------|--------------|
| 01 | THT-3R60-16-2       | 047260 | 99733        | 2        | 8.0         | 12.00        |
|    | 16.00 X 2.00        | 047261 | 99910        | 1        | 4.0         | 6.00         |
|    |                     |        | <b>Total</b> | <b>3</b> | <b>12.0</b> | <b>18.00</b> |

|                    |          |                   |             |
|--------------------|----------|-------------------|-------------|
| <b>KEY TO HEAT</b> |          | <b>KEY TO LOT</b> |             |
| Heat Code          | Heat No. | Lot Code          | Lot No.     |
| 047260             | 521867   | 99733             | 4842608/1-2 |
| 047261             | 522367   | 99910             | 4842627/1-2 |

**TEST RESULTS**

**Chemical composition (weight%)**

| 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 |
| 047261 | 0.026    | 0.35 | 1.67 | 0.027 | 0.009 | 17.43 | 13.10 | 2.51 |
|        | <b>N</b> |      |      |       |       |       |       |      |
| 047260 | 0.043    |      |      |       |       |       |       |      |
| 047261 | 0.036    |      |      |       |       |       |       |      |

**Quality assurance - Per Eriksson/ QA-manager Tube & Pipe**  
**MTC Service / Certificates**

**Chemical composition, product (weight%)**

| Heat   | C        | Si   | Mn   | P     | S     | Cr    | Ni    | Mo   |
|--------|----------|------|------|-------|-------|-------|-------|------|
| 047260 | 0.018    | 0.37 | 1.62 | 0.029 | 0.011 | 17.39 | 13.27 | 2.68 |
| 047261 | 0.023    | 0.36 | 1.68 | 0.027 | 0.010 | 17.47 | 13.16 | 2.52 |
|        | <b>N</b> |      |      |       |       |       |       |      |
| 047260 | 0.043    |      |      |       |       |       |       |      |
| 047261 | 0.033    |      |      |       |       |       |       |      |

**Tensile test at room temperature**

| Lot   | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
|       | Rp0.2          | Rp1.0 | Rm               | A          | 2" |
| 99733 | 240            | 272   | 557              | 55         | 58 |
|       | 239            | 282   | 558              | 54         | 59 |
| 99910 | 256            | 295   | 580              | 57         | 56 |

**Hardness test**

| Lot   | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 99733 | 74  | 75  |
| 99910 | 77  | 78  |

**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 NFA 49-117 EN 10216-5 TC1 SS 2353-22  
WNR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 16.00 X 2.00 MM HT 5218  
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67 SZ LOT 4842627/1-2 D4/T3 \*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.



CERTIFICATE

No. A/09-907127

Rev 00

Date 2009-10-09

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TEST RESULTS TRANSFERRED FROM CERTIFICATE NO A090847  
A090908