

**CERTIFICATE****No. A/10-973937****Rev 00****Date 2010-06-16****Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

| Customer References |                              | Sandvik References  |                                           |
|---------------------|------------------------------|---------------------|-------------------------------------------|
| 708801/Holmgren     | Customer order<br>2010-06-16 | Order No. 201646    | Subs No. 176819                           |
| 003-00991 ITEMS     |                              | ABSMT No. 300-24185 | ABSMT Dispatch note 09154/54<br>C.Code 15 |

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

| Technical requirements                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PED/23/EC, EN 10216-5 TC1<br>SS 219711, DIN 17458 TC1, NFA 49-117-09/85<br>ASTM A-213-08 AW, ASME SA-213-ED-07 AD-09B AW, ASTM A-269-08<br>NACE MR0175/ISO 15156-3:2003, HRB Max 80 |

| EXTENT OF DELIVERY                                                                     |                             |        |            |         |       |            |       |      |
|----------------------------------------------------------------------------------------|-----------------------------|--------|------------|---------|-------|------------|-------|------|
| It                                                                                     | Product designation         | Heat   | Lot        | Pieces  | Kg    | M          |       |      |
| 01                                                                                     | THT-3R60-8-1<br>8.00 X 1.00 | 047430 | 93662      | 10      | 10.0  | 60.00      |       |      |
|                                                                                        |                             |        |            | Total   | 10    | 10.0 60.00 |       |      |
| KEY TO HEAT                                                                            |                             |        | KEY TO LOT |         |       |            |       |      |
| Heat Code                                                                              | Heat No.                    |        | Lot Code   | Lot No. |       |            |       |      |
| 047430                                                                                 | 524360                      |        | 93662      | 167375  |       |            |       |      |
| TEST RESULTS                                                                           |                             |        |            |         |       |            |       |      |
| Chemical composition (weight%)                                                         |                             |        |            |         |       |            |       |      |
| Heat                                                                                   | C                           | Si     | Mn         | P       | S     | Cr         | Ni    | Mo   |
| 047430                                                                                 | 0.020                       | 0.44   | 1.74       | 0.028   | 0.007 | 17.22      | 13.07 | 2.53 |
|                                                                                        | N                           |        |            |         |       |            |       |      |
| 047430                                                                                 | 0.039                       |        |            |         |       |            |       |      |
| Chemical composition, product (weight%)                                                |                             |        |            |         |       |            |       |      |
| Heat                                                                                   | C                           | Si     | Mn         | P       | S     | Cr         | Ni    | Mo   |
| 047430                                                                                 | 0.021                       | 0.43   | 1.74       | 0.029   | 0.007 | 17.18      | 13.01 | 2.55 |
|                                                                                        | N                           |        |            |         |       |            |       |      |
| 047430                                                                                 | 0.034                       |        |            |         |       |            |       |      |
| Quality assurance - Per Eriksson/ QA-manager Tube & Pipe<br>MTC Service / Certificates |                             |        |            |         |       |            |       |      |

**CERTIFICATE****No. A/10-973937****Rev 00****Date 2010-06-16****Page 2/2****Tensile test at room temperature**

|       | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
| Lot   | Rp0.2          | Rp1.0 | Rm               | A          | 4D |
| 93662 | 236            | 261   | 544              | 54         | 46 |
|       | 241            | 259   | 549              | 54         | 46 |

**Hardness test**

|       | Min | Max |
|-------|-----|-----|
| Lot   | HRB | HRB |
| 93662 | 62  | 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 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W  
NR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 NDE 8.00 X 1.00 MM HT 52  
4360 SG LOT 167375 DIN 2391/EN 10305-1 \*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 33336