

**CERTIFICATE****No. A/17-681012 Rev 00**  
**Date 2017-08-30 Page 1/3**INSPECTION CERTIFICATE acc to  
EN 10204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA H@GA  
SWEDENINSPECTION STAMP  
QA-TUBE

| Customer References |                              | Sandvik References                                                                                   |
|---------------------|------------------------------|------------------------------------------------------------------------------------------------------|
| 755315/Holmgren     | Customer order<br>2017-08-30 | Order No. Subs No. ABSMT Dispatch note<br>489499 635898 02889/54<br>ABSMT No. C.Code<br>300-68298 15 |
| 003-00991 ITEMS     |                              |                                                                                                      |

| Material description                                 | Steel/material Designations                          |
|------------------------------------------------------|------------------------------------------------------|
| SEAMLESS STAINLESS COLD FINISHED<br>HYDRAULIC TUBING | Sandvik AISI<br>3R60 TP316/TP316L<br>EN no<br>1.4435 |
| Steel making process<br>Electric furnace             |                                                      |

| Technical requirements                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASTM A-213-17 AW, ASME SA-213-ED-15 AW, ASTM A-269-15A<br>NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17945:2015<br>PED 2014/68/EU EN 10216-5 TC1<br>HRB MAX 80 |

| EXTENT OF DELIVERY                                                                |                                 |      |        |       |        |       |        |      |
|-----------------------------------------------------------------------------------|---------------------------------|------|--------|-------|--------|-------|--------|------|
| It                                                                                | Product designation             |      | Heat   | Lot   | Pieces | Kg    | M      |      |
| 01                                                                                | THT-3R60-12-1.5<br>12.00 X 1.50 |      | 549464 | 29121 | 25     | 61.0  | 150.00 |      |
| Total                                                                             |                                 |      |        |       | 25     | 61.0  | 150.00 |      |
| TEST RESULTS                                                                      |                                 |      |        |       |        |       |        |      |
| Chemical composition (weight%)                                                    |                                 |      |        |       |        |       |        |      |
| Heat                                                                              | C                               | Si   | Mn     | P     | S      | Cr    | Ni     | Mo   |
| 549464                                                                            | 0.019                           | 0.39 | 1.62   | 0.030 | 0.012  | 17.19 | 13.05  | 2.63 |
|                                                                                   | N                               |      |        |       |        |       |        |      |
| 549464                                                                            | 0.041                           |      |        |       |        |       |        |      |
| Chemical composition, product (weight%)                                           |                                 |      |        |       |        |       |        |      |
| Heat                                                                              | C                               | Si   | Mn     | P     | S      | Cr    | Ni     | Mo   |
| 549464                                                                            | 0.017                           | 0.39 | 1.61   | 0.030 | 0.010  | 17.23 | 13.02  | 2.61 |
|                                                                                   | N                               |      |        |       |        |       |        |      |
| 549464                                                                            | 0.045                           |      |        |       |        |       |        |      |
| Quality assurance - Lars-Åke Bergqvist / QA-manager<br>MTC Service / Certificates |                                 |      |        |       |        |       |        |      |

**CERTIFICATE****No. A/17-681012****Rev 00****Date 2017-08-30****Page 2/3****Tensile test at room temperature**

|       | Yield strength |       | Tensile strength | Elongation |    |
|-------|----------------|-------|------------------|------------|----|
|       | MPa            | MPa   | MPa              | %          | %  |
| Lot   | Rp0.2          | Rp1.0 | Rm               | A          | 2" |
| 29121 | 282            | 322   | 588              | 52         | 51 |

**Hardness test**

| Lot   | Min | Max |
|-------|-----|-----|
|       | HRB | HRB |
| 29121 | 70  | 75  |

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

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- Leak test: Eddy current test acc to EN ISO 10893-1, ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed at a temperature of Min 1040° C and quenched.

**Marking:**

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 12.00 X 1.50 MM HT 549464 SS LOT 29121 MADE IN SWEDEN \*QA-TUBE\*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

No welding or weld repair.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (2014/68/EU, Annex 1 para 4.3) 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 9001:2008.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of AB Sandvik Materials Technology. Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.



**CERTIFICATE**

**No. A/17-681012**

**Rev 00**

**Date 2017-08-30**

**Page 3/3**

The certificate is produced with EDP and valid without signature.