

**CERTIFICATE****No. A/14-461970****Rev 00****Date 2014-12-03****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 | | | | | | |
| 751257 | Customer order 2014-12-01 | Order No. 389530 | Subs No. 582318 ABSMT No. C.Code 300-22614 29 | | | | | |
| 003-00991 ITEMS | | ABSMT Dispatch note 36638/54 | | | | | | |
| Material description SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING | | Steel/material Designations Sandvik AISI 3R60 TP316/TP316L EN no 1.4435 | | | | | | |
| Steel making process Electric furnace | | | | | | | | |
| Technical requirements ASTM A-213-13 AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-13 NACE MR0175/ISO 15156-3:2009 PED 97/23/EC EN 10216-5 TC1 HRB MAX 80 | | | | | | | | |
| EXTENT OF DELIVERY | | | | | | | | |
| It | Product designation | Heat | Lot | Pieces | Kg | M | | |
| 01 | THT-3R60-12.7-1.24 12.70 X 1.24 | 540672 | 36220 | 10 | 22.0 | 60.00 | | |
| | | | | Total | 10 | 22.0 | 60.00 | |
| TEST RESULTS | | | | | | | | |
| Chemical composition (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 540672 | 0.019 | 0.35 | 1.62 | 0.029 | 0.007 | 17.22 | 13.04 | 2.50 |
| | N | | | | | | | |
| 540672 | 0.035 | | | | | | | |
| Chemical composition, product (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 540672 | 0.022 | 0.38 | 1.61 | 0.029 | 0.009 | 17.27 | 12.93 | 2.50 |
| | N | | | | | | | |
| 540672 | 0.038 | | | | | | | |
| Tensile test at room temperature | | | | | | | | |
| | Yield strength | | Tensile strength | | Elongation | | | |
| | MPa | MPa | MPa | | % % | | | |
| Lot | Rp0.2 | Rp1.0 | Rm | | A 2" | | | |
| 36220 | 299 | 341 | 576 | | 54 52 | | | |
| Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates | | | | | | | | |

**Hardness test**

| | Min | Max |
|-------|-----|-----|
| Lot | HRB | HRB |
| 36220 | 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
- Leak test: Eddy current test acc to EN 10246-2, 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/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD AW EN 1.4
435 TP316/316L CFA SMLS NDE 12.70 X 1.24 MM 1/2'' X 18 BWG/SWG HT 540672 SS LO
T 36220 MADE BY SANDVIK IN SWEDEN *QA-TUBE*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

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

The number of tests are based on the size of the manufacturing lot
before cutting to finished lengths.

The delivered products comply with the specifications and
requirements of the order.

The material is manufactured according to a Quality system,
approved and registered to ISO 9001:2008.

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.

The certificate is produced with EDP and valid without signature.