

**CERTIFICATE****No. A/16-612846****Rev 00****Date 2016-10-26****Page 1/2**INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

| | | | | | | | | |
|---|------------------------------------|--|---|--------|------------|-------|-------|------|
| Customer References | | Sandvik References | | | | | | |
| 754029 | Customer order 2016-10-26 | Order No. 458022 | Subs No. 618631 ABSMT No. C.Code 300-53984 29 | | | | | |
| 003-00991 ITEMS | | ABSMT Dispatch note 31743/54 | | | | | | |
| 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-213-15C AW, ASME SA-213-ED-15 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17495:2015 PED 2014/68/EU 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 | 546263 | 16775 | 5 | 11.0 | 30.00 | | |
| Total | | | | 5 | 11.0 | 30.00 | | |
| TEST RESULTS | | | | | | | | |
| Chemical composition (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 546263 | 0.023 | 0.37 | 1.61 | 0.032 | 0.009 | 17.43 | 13.15 | 2.77 |
| | Ti | Al | N | | | | | |
| 546263 | <0.003 | 0.003 | 0.046 | | | | | |
| Chemical composition, product (weight%) | | | | | | | | |
| Heat | C | Si | Mn | P | S | Cr | Ni | Mo |
| 546263 | 0.028 | 0.38 | 1.59 | 0.030 | 0.009 | 17.43 | 13.16 | 2.76 |
| | N | | | | | | | |
| 546263 | 0.040 | | | | | | | |
| Tensile test at room temperature | | | | | | | | |
| | Yield strength | | Tensile strength | | Elongation | | | |
| | MPa | MPa | MPa | | % | % | | |
| Lot | Rp0.2 | Rp1.0 | Rm | | A | 2" | | |
| 16775 | 309 | 344 | 592 | | 50 | 49 | | |
| Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates | | | | | | | | |

**Hardness test**

| | Min | Max |
|-------|-----|-----|
| Lot | HRB | HRB |
| 16775 | 76 | 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 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 A/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.4435
TP316/316L CFA SML NDE 12.70 X 1.24 MM 1/2'' X 18 BWG/SWG HT 546263 SS LOT 167
75 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) 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.