

## CERTIFICATE

No. A/17-641768

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Rev 00

INSPECTION CERTIFICATE acc to EN 10204 3.1

Processkontroll Items AB Box 2088

Date

444 02 STORA H@GA

SWEDEN

INSPECTION STAMP QA-TUBE

Customer References

Customer

471089 order

2017-03-01

003-00991 ITEMS

754603

Sandvik References

Order No. Subs No. ABSMT Dispatch note

625686 40343/54

ABSMT No. C.Code

300-59887 29

Material description

SEAMLESS STAINLESS COLD FINISHED

INSTRUMENTATION TUBING

Steel/material Designations

Sandvik ATST

TP316/TP316L 3R60

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 17945:2015

PED 2014/68/EU EN 10216-5 TC1

HRB MAX 80

EXTENT OF DELIVERY

It Product designation Heat Lot Pieces Kg M 02 THT-3R60-25.4-2.11 546760 16203 1 7.0 6.00

25.40 X 2.11

1 7.0 Total 6.00

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn  $\mathtt{Cr}$ Νi Mo P S 0.031 0.0051 17.47 546760 0.021 0.40 1.59 13.07 2.71

> Τi Αl N

546760 < 0.003 0.007 0.041

Chemical composition, product (weight%)

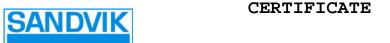
Heat C Si Mn P S  $\mathtt{Cr}$ Νi Mo 0.022 0.032 0.005 546760 0.41 1.60 17.54 13.06 2.72

N

546760 0.036

Quality assurance - Lars-Ake Bergqvist / QA-manager

MTC Service / Certificates



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Tensile test at room temperature

Yield strength Tensile strength Elongation MPa MPa MPa % Rp0.2 Rp1.0 Rm2" Α 16203 304 340 590 56 60

#### Hardness test

Lot

Max Min HRB HRB Lot 16203 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 25.40 X 2.11 MM 1'' X 14 BWG HT 546760 SS LOT 16203 MAD E 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 WO 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.

The certificate is produced with EDP and valid without signature.