

CERTIFICATE

No. A/16-606670 Rev 00

Date 2016-09-29 Page 1/2

INSPECTION CERTIFICATE acc to EN 10204 3.1

Processkontroll Items AB Box 2088 444 02 STORA HÖGA SWEDEN

INSPECTION STAMP QA-TUBE

Customer References

Customer

order

2016-09-29

003-00991 ITEMS

753920/Holmgren

Sandvik References

Order No. Subs No. ABSMT Dispatch note

455197 617173 29673/54

ABSMT No. C.Code

300-52782 11

Material description

SEAMLESS STAINLESS COLD FINISHED

INSTRUMENTATION TUBING

Steel/material Designations

Sandvik ATST

3R60 TP316/TP316L

EN no 1.4435

Steel making process

Electric furnace

Technical requirements

ASTM A-632-04

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-3R60-3.18-0.71 048232 93667 1.0 24.00

3.18 X .71

Total 4 1.0

KEY TO HEAT KEY TO LOT

Lot Code Lot No. Heat Code Heat No.

048232 544065 93667 182502

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn \mathtt{Cr} Νi Mo P S

0.031 0.007 048232 0.018 0.45 1.55 17.36 13.15 2.54

N

048232 0.037

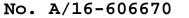
Chemical composition, product (weight%)

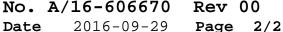
Heat C Si Mn P S \mathtt{Cr} Νi Mo 0.017 0.44 1.57 0.031 0.006 048232 17.28 13.08 2.53

N

048232 0.034

> Quality assurance - Lars-Ake Bergqvist / QA-manager MTC Service / Certificates







Tensile test at room temperature

| | Yield strength | | Tensile strength | Elongation | |
|-------|----------------|-------|------------------|------------|----|
| | MPa | MPa | MPa | % | % |
| Lot | Rp0.2 | Rp1.0 | Rm | A | 2" |
| 93667 | 324 | 365 | 580 | 55 | 44 |
| | 322 | 363 | 579 | 58 | 45 |

Hardness test

| | Min | Max | |
|-------|-----|-----|--|
| Lot | HRB | HRB | |
| 93667 | 74 | 77 | |

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
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM A632 EN10216-5 TC1 EN 1.4435 TP316/TP316L CFA SML 3.18 X 0.7 1 MM 1/8'' X 22 BWG HT 544065 SG LOT 182502 *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 (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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 182502