

## CERTIFICATE

No. A/14-437483

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Rev 00

INSPECTION CERTIFICATE acc to EN 10 204 3.1

Processkontroll Items AB Box 2088

444 02 STORA HÖGA

SWEDEN

INSPECTION STAMP QA-TUBE

Customer References

Customer

order

2014-08-15

003-00991 ITEMS

750758

Sandvik References

Order No. Subs No. ABSMT Dispatch note

576510 29001/54 378933

ABSMT No. C.Code

300-17790 15

Material description

SEAMLESS STAINLESS COLD FINISHED

HYDRAULIC TUBING

Steel/material Designations

Sandvik ATST

3R60 TP316/TP316L

13.00

51

49

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 Pieces Kg Lot М 04 THT-3R60-8-1 539674 30539 20 21.0 120.00

8.00 X 1.00

Total 20 21.0 120.00

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn P S CrΝi Mo 539674 0.38 1.60 0.032 0.008 17.45 13.01 2.53 0.016

N

539674 0.046

Chemical composition, product (weight%)

372

Heat C Si Mn P S  $\mathtt{Cr}$ Νi Mo 0.032 539674 0.017 0.40 1.59 0.008 17.53 2.50

N

539674 0.043

Lot

30539

Tensile test at room temperature

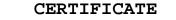
333

Yield strength Tensile strength Elongation

MPA MPa MPa % % 4D Rp0.2 Rp1.0 RmΑ

585

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



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Hardness test

 Min
 Max

 Lot
 HRB
 HRB

 30539
 78
 80

## 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 EN 1.4435 TP316/316L CFA SMLS NDE 8.00 X 1.00 MM HT 539674 SS LOT 30539 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, req.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.