

CERTIFICATE

No. A/16-606669

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Rev 00

INSPECTION CERTIFICATE acc to EN 10204 3.1

Processkontroll Items AB Box 2088 444 02 STORA HÖGA

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 29672/54

ABSMT No. C.Code 300-52782 15

Material description Steel/material Designations

Sandvik SEAMLESS STAINLESS COLD FINISHED ATST

HYDRAULIC TUBING 3R60 TP316/TP316L

> EN no 1.4435

SWEDEN

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 Pieces Lot Kα M

02 THT-3R60-12-1 048259 59233 90 149.0 540.00

12.00 X 1.00

Total 90 149.0 540.00

KEY TO HEAT

Heat Code Heat No.

048259 544655

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn Νi Mo Ρ S Cr

0.031 0.0100 17.19 048259 0.019 0.41 1.58 13.10 2.53

N

048259 0.036

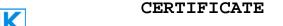
Chemical composition, product (weight%)

Heat C Si Mn P S \mathtt{Cr} Νi Mo 1.57 0.032 0.0110 17.21 048259 0.023 0.37 13.02 2.52

N

048259 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 MPAMPa % Rp0.2 Rp1.0 Rm 2" Lot Α 59233 282 326 570 46 43

Hardness test

Max Min HRB HRB Lot 59233 74 76

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 A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 12.00 X 1.00 MM HT 544655 SS LOT 59233 MADE BY SANDV IK 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.