

No. A/19-860045 Rev 00

Date 2019-11-28 Page

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B02

A02/Z03
INSPECTION CERTIFICATE acc to

EN 10204 3.1

A06
PROCESSKONTROLL ITEMS AB
BOX 2088
444 02 STORA HÖGA
SWEDEN

A03/Z02

INSPECTION STAMP QA-TUBE

Customer References

Customer 758574 order

2019-10-11

003-00991 ITEMS

Sandvik References
Order No. Subs No. ABSMT Dispatch note

543719 676026 08892/54

ABSMT No. C.Code 300-12351 15

Material description B01/B04

SEAMLESS STAINLESS COLD FINISHED

HYDRAULIC TUBING

Steel/material Designations
Sandvik AISI

3R60 TP316/TP316L

EN no 1.4435

Steel making process

Technical requirements

Electric furnace

C70

A07

B03

ASTM A-213-18B AW, ASME SA-213-ED-17 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:-2015, NACE MR0103/ISO 17945-1:-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-3R60-6-1 556769 17289 80 59.0 480.00 6.00 x 1.00

Total 80 59.0 480.00

TEST RESULTS

Chemical composition (weight%)

Heat С Si Mn Р s  $\mathtt{Cr}$ Νi Мо 556769 0.018 0.44 1.59 0.031 0.011 17.21 13.06 2.62

Co N

556769 0.11 0.036

Chemical composition, product (weight%)

Si Heat C Mn P S  $\mathtt{Cr}$ Νi Mo 0.44 1.59 0.032 0.008 17.14 556769 0.023 13.02 2.60

N

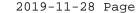
556769 0.039

Quality assurance - Sofia Åkesson / Q-Manager MTC Service / Certificates

A05/Z02









Tensile test at room temperature

Yield strength Tensile strength Elongation MPA MPa MPa % Rp0.2 Rp1.0 Lot Rm Α 4D 17289 296 330 579 56 53

## Hardness test

Lot	Min	Max
	HRB	HRB
17289	73	75

## Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- 100% PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- 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 AW EN 1.4435 TP316/3 16L CFA SML NDE 6.00 X 1.00 MM HT 556769 SS LOT 17289 MADE IN SWEDEN \*OA-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 9001:2015.

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.

