

CERTIFICATE

No. A/14-459501

Date 2014-11-24 Page 1/2

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

751222

Customer References

Customer

order

2014-11-21

003-00991 ITEMS

Sandvik References

Order No. Subs No. ABSMT Dispatch note

388692 581853 35878/54

ABSMT No. C.Code

300-22267 15

Material description

SEAMLESS STAINLESS COLD FINISHED

HYDRAULIC TUBING

Steel/material Designations

Sandvik AISI

3R60 TP316/TP316L

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 Lot Pieces
 Kg
 M

 01 THT-3R60-20-2
 539731 32080 12
 64.0
 72.00

20.00 X 2.00

Total 12 64.0 72.00

TEST RESULTS

Chemical composition (weight%)

Heat C Si Mn P S CrΝi Mo 539731 0.024 0.42 1.54 0.029 0.008 17.59 13.08 2.56

N

539731 0.045

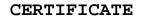
Chemical composition, product (weight%)

Mn Heat С Si P S \mathtt{Cr} Νi Mo 0.030 0.006 539731 0.026 0.42 1.54 17.60 2.57 13.08

N

539731 0.047

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



No. A/14-459501

Rev 00

Date 2014-11-24 Page 2/2



Tensile	test	at	room	temperature
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	Yield strength		Tensile strength	Elongation	
	MPA	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
32080	285	324	597	57	61
	287	326	599	54	57

Hardness test

	Min	Max
Lot	HRB	HRB
32080	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 20.00 X 2.00 MM HT 539731 SS LOT 32080 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, 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.