

**CERTIFICATE****No. A/16-619887 Rev 00**
Date 2016-11-25 Page 1/2INSPECTION CERTIFICATE acc to
EN 10204 3.1INSPECTION STAMP
QA-TUBEPROCESSKONTROLL ITEMS AB
STORA H@GA INDUSTRIOMRÅDE
VALLENVÄGEN 5
444 02 STORA H@GA
SWEDEN**Customer References**Customer
order
2015-07-17

000-00000 ITEMS

Sandvik References

Order No. Subs No. ABSMT Dispatch note

ABSMT No. C.Code
300-00000 15**Material description**SEAMLESS STAINLESS COLD FINISHED
HYDRAULIC TUBING**Steel making process**

Electric furnace

Steel/material DesignationsSandvik AISI
3R60 TP316/TP316L
EN no
1.4435**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	Lot	Kg
01	THT-3R60-6-1 6.00 X 1.00	048225	54501	

Total

KEY TO HEAT

Heat Code	Heat No.
048225	543793

TEST RESULTS**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048225	0.016	0.38	1.55	0.030	0.0090	17.24	13.11	2.52
	N							
048225	0.047							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048225	0.015	0.40	1.54	0.032	0.0090	17.26	13.09	2.52
	N							
048225	0.050							

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

**CERTIFICATE****No. A/16-619887****Rev 00****Date 2016-11-25****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	4D
54501	331	374	564	53	53

Hardness test

Lot	Min	Max
	HRB	HRB
54501	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/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD AW EN 1.4 435 TP316/316L CFA SMLS NDE 6.00 X 1.00 MM HT 543793 SS LOT 54501 MADE BY SANDVIK 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, 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 9001:2008.

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.