

**CERTIFICATE****No. A/17-643706****Rev 00****Date 2017-03-12****Page 1/3**INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA H@GA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
754402	Customer order 2017-01-24	Order No. 467025	Subs No. 623432
003-00991 ITEMS		ABSMT No. 300-57892	Dispatch note 40953/54
		C.Code 46	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik SS 3R60 2353 AISI EN no TP316/TP316L 1.4435
Steel making process Electric furnace	

Technical requirements
SS 219713 Condition No -24 ASTM A-213-15C AW, ASME SA-213-ED-15 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17945:2015 PED 2014/68/EU EN 10216-5 TC1 HRB MAX 80

EXTENT OF DELIVERY								
It	Product designation			Heat	Lot	Pieces	Kg	M
01	THT-3R60-16-2 16.00 X 2.00			048349	94610	50	207.0	300.00
Total						50	207.0	300.00
KEY TO HEAT				KEY TO LOT				
Heat Code		Heat No.		Lot Code		Lot No.		
048349		546689		94610		183131		
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048349	0.019	0.45	1.58	0.031	0.010	17.29	13.05	2.62
	N							
048349	0.037							
Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates								

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Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048349	0.019	0.45	1.59	0.032	0.010	17.36	13.08	2.64
	N							
048349	0.035							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation
	MPa	MPa	MPa	%
Lot	Rp0.2	Rp1.0	Rm	A
94610	274	312	565	47
	274	311	570	47
	280	319	576	45

Hardness test

Lot	HRB
94610	74
	76

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to SS 114301/114305 E1, EN 10893-1 and ASME SA-1016
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 TP 316/TP 316L EN 1.4435 CFA SML NDE 16.00 X 2.00 MM HT 546689 SG LOT 183131 MADE BY SANDVIK *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.



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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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 183131