

**CERTIFICATE****No. A/17-678007****Rev 00****Date 2017-08-17****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**

755230

Customer
order
2017-08-04

003-00991 ITEMS

Sandvik ReferencesOrder No. Subs No. ABSMT Dispatch note
487147 634568 01897/54
ABSMT No. C.Code
300-67117 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-213-17 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
02	THT-3R60-10-1	048442	28578	3	4.0	18.00
	10.00 X 1.00	048442	28579	2	3.0	12.00
		048442	28587	24	34.0	144.00
			Total	29	41.0	174.00

KEY TO HEAT

Heat Code	Heat No.
048442	548257

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048442	0.019	0.40	1.61	0.026	0.0070	17.25	13.11	2.63
	N							
048442	0.035							

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

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Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048442	0.020	0.42	1.62	0.028	0.0080	17.22	13.27	2.65
	N							
048442	0.039							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
28578	323	362	600	48	45
28579	304	341	589	48	45
28587	303	337	593	51	47

Hardness test

Lot	Min	Max
	HRB	HRB
28578	74	76
28579	71	74
28587	72	74

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- 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 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 10.00 X 1.00 MM HT 548257 SS LOT 28578 MADE IN SWEDEN *QA-TUBE*

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 10.00 X 1.00 MM HT 548257 SS LOT 28579 MADE IN SWEDEN *QA-TUBE*

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 10.00 X 1.00 MM HT 548257 SS LOT 28587 MADE 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.



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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.