

**CERTIFICATE****No. A/17-681618****Rev 00****Date 2017-09-01****Page 1/3**INSPECTION CERTIFICATE acc to  
EN 10204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA H@GA  
SWEDENINSPECTION STAMP  
QA-TUBE

<b>Customer References</b>		<b>Sandvik References</b>		
755322	Customer order 2017-09-01	Order No. 489774	Subs No. 636062	ABSMT Dispatch note 03064/54
003-00991	ITEMS	ABSMT No. 300-68430	C.Code 29	

<b>Material description</b>	<b>Steel/material Designations</b>
SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
<b>Steel making process</b> Electric furnace	

<b>Technical requirements</b>
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

<b>EXTENT OF DELIVERY</b>						
It	Product designation	Heat	Lot	Pieces	Kg	M
01	THT-3R60-19.05-2.41 19.05 X 2.41	547233	18775	8	47.0	48.00
				Total	8	47.0 48.00

<b>TEST RESULTS</b>								
<b>Chemical composition (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
547233	0.023	0.39	1.69	0.030	0.009	17.38	13.10	2.63
	Ti	Al	N					
547233	<0.003	0.005	0.034					

<b>Chemical composition, product (weight%)</b>									
Heat	C	Si	Mn	P	S	Cr	Ni	Mo	
547233	0.020	0.39	>1.5	0.029	0.005	17.26	13.17	2.60	
	N								
547233	0.034								

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

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
18775	270	311	593	55	56
	281	318	597	55	57

**Hardness test**

Lot	Min	Max
	HRB	HRB
18775	72	79

**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 A/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.4435 TP316/316L CFA SML NDE 19.05 X 2.41 MM 3/4'' X 13 BWG HT 547233 SS LOT 18775 M ADE 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.



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The certificate is produced with EDP and valid without signature.