

**CERTIFICATE**

No. A/15-518129 Rev 00
Date 2015-08-19 Page 1/2

INSPECTION CERTIFICATE acc to
EN 10 204 3.1

Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDEN

INSPECTION STAMP
QA-TUBE

Customer References 752204 003-00991 ITEMS Customer order 2015-08-18		Sandvik References Order No. Subs No. ABSMT Dispatch note 414314 595428 03002/54 ABSMT No. C.Code 300-34006 29																																																																																																		
Material description SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING Steel making process Electric furnace		Steel/material Designations Sandvik AISI 3R60 TP316/TP316L EN no 1.4435																																																																																																		
Technical requirements ASTM A-213-15A AW, ASME SA-213-ED-13 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 <table><thead><tr><th>It</th><th>Product designation</th><th>Heat</th><th>Lot</th><th>Pieces</th><th>Kg</th><th>M</th></tr></thead><tbody><tr><td>03</td><td>THT-3R60-12.7-1.24 12.70 X 1.24</td><td>048106</td><td>44945</td><td>10</td><td>21.0</td><td>60.00</td></tr><tr><td colspan="4">Total</td><td>10</td><td>21.0</td><td>60.00</td></tr></tbody></table> KEY TO HEAT <table><thead><tr><th>Heat Code</th><th>Heat No.</th></tr></thead><tbody><tr><td>048106</td><td>538074</td></tr></tbody></table> TEST RESULTS Chemical composition (weight%) <table><thead><tr><th>Heat</th><th>C</th><th>Si</th><th>Mn</th><th>P</th><th>S</th><th>Cr</th><th>Ni</th><th>Mo</th></tr></thead><tbody><tr><td>048106</td><td>0.018</td><td>0.38</td><td>1.65</td><td>0.031</td><td>0.0060</td><td>17.41</td><td>13.10</td><td>2.53</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048106</td><td colspan="8">0.048</td></tr></tbody></table> Chemical composition, product (weight%) <table><thead><tr><th>Lot</th><th>C</th><th>Si</th><th>Mn</th><th>P</th><th>S</th><th>Cr</th><th>Ni</th><th>Mo</th></tr></thead><tbody><tr><td>44945</td><td>0.020</td><td>0.39</td><td>1.61</td><td>0.030</td><td>0.006</td><td>17.29</td><td>13.10</td><td>2.52</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>44945</td><td colspan="8">0.045</td></tr></tbody></table> Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates				It	Product designation	Heat	Lot	Pieces	Kg	M	03	THT-3R60-12.7-1.24 12.70 X 1.24	048106	44945	10	21.0	60.00	Total				10	21.0	60.00	Heat Code	Heat No.	048106	538074	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048106	0.018	0.38	1.65	0.031	0.0060	17.41	13.10	2.53	N									048106	0.048								Lot	C	Si	Mn	P	S	Cr	Ni	Mo	44945	0.020	0.39	1.61	0.030	0.006	17.29	13.10	2.52	N									44945	0.045							
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**Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
44945	318	358	566	53	52

Hardness test

Lot	Min	Max
	HRB	HRB
44945	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 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 AW EN 1.4 435 TP316/316L CFA SMLS NDE 12.70 X 1.24 MM 1/2" X 18 BWG/SWG HT 538074 SS LO T 44945 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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 2014/1398