

**CERTIFICATE**

No. V/10-035330 Rev 00
Date 2010-04-09 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 708517	Sandvik References Order No. Subs No. Dispatch note 192250 169448 090889 Suppl. No C.Code 169448 29																																																																																																						
Material description SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING Steel making process Electric furnace	Steel/material Designations Sandvik AISI 3R60 TP316/TP316L EN no 1.4436/1.4435																																																																																																						
Technical requirements ASTM A-213-08 AW, ASME SA-213-ED-07 AD-09B AW, ASTM A-269-08 NACE MR0175/ISO 15156-3:2003 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>Kg</th><th>M</th></tr></thead><tbody><tr><td>01</td><td>THT-3R60-9.53-1.65 9.53 X 1.65</td><td>047365</td><td>93153</td><td>17.5</td><td>54.00</td></tr><tr><td colspan="4">Total</td><td>17.5</td><td>54.00</td></tr></tbody></table> <table><thead><tr><th colspan="2">KEY TO HEAT</th><th colspan="2">KEY TO LOT</th></tr><tr><th>Heat Code</th><th>Heat No.</th><th>Lot Code</th><th>Lot No.</th></tr></thead><tbody><tr><td>047365</td><td>047278</td><td>93153</td><td>167019</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>047365</td><td>0.019</td><td>0.37</td><td>1.60</td><td>0.027</td><td>0.008</td><td>17.24</td><td>13.14</td><td>2.52</td></tr><tr><td></td><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>047365</td><td>0.039</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> Chemical composition, product (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>047365</td><td>0.019</td><td>0.35</td><td>1.60</td><td>0.020</td><td>0.005</td><td>17.20</td><td>13.05</td><td>2.60</td></tr><tr><td></td><td>N</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>047365</td><td>0.038</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>		It	Product designation	Heat	Lot	Kg	M	01	THT-3R60-9.53-1.65 9.53 X 1.65	047365	93153	17.5	54.00	Total				17.5	54.00	KEY TO HEAT		KEY TO LOT		Heat Code	Heat No.	Lot Code	Lot No.	047365	047278	93153	167019	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	047365	0.019	0.37	1.60	0.027	0.008	17.24	13.14	2.52		N								047365	0.039								Heat	C	Si	Mn	P	S	Cr	Ni	Mo	047365	0.019	0.35	1.60	0.020	0.005	17.20	13.05	2.60		N								047365	0.038							
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Quality assurance - Per Eriksson/ QA-manager Tube & Pipe MTC Service / Certificates																																																																																																							

**CERTIFICATE****No. V/10-035330****Rev 00****Date 2010-04-09****Page 2/2****Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
93153	293	330	553	46	46
	294	331	553	46	46
	290	329	553	47	46
	290	324	553	48	46
	289	328	553	47	46
	280	317	551	47	46

Hardness test

Lot	Min	Max
	HRB	HRB
93153	70	73

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 ASTM A-1016.
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW/A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22
WNR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 9.53 X 1.65 MM HT 04727
8 SG LOT 167019 DIN 2391 *QA-TUBE*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (97/23/EC) by
TUEV NORD GmbH; 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.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 32750