

**CERTIFICATE****No. A/12-225253 Rev 00**
Date 2012-02-03 Page 1/2INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References 711064 003-00991 ITEMS Customer order 2012-02-03		Sandvik References Order No. Subs No. ABSMT Dispatch note 278318 519500 13772/54 ABSMT No. C.Code 300-59504 15																																																																																																										
Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING Steel making process Electric furnace		Steel/material Designations Sandvik AISI 3R60 TP316/TP316L EN no 1.4435																																																																																																										
Technical requirements ASTM A-213-09A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-08 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>01</td><td>THT-3R60-8-1 8.00 X 1.00</td><td>047823</td><td>97270</td><td>10</td><td>10.0</td><td>60.00</td></tr><tr><td colspan="4">Total</td><td>10</td><td>10.0</td><td>60.00</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>047823</td><td>530594</td><td>97270</td><td>171973</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>047823</td><td>0.019</td><td>0.35</td><td>1.62</td><td>0.030</td><td>0.008</td><td>17.32</td><td>13.06</td><td>2.53</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>047823</td><td>0.043</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>047823</td><td>0.025</td><td>0.34</td><td>1.60</td><td>0.030</td><td>0.008</td><td>17.16</td><td>13.10</td><td>2.53</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>047823</td><td>0.041</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>				It	Product designation	Heat	Lot	Pieces	Kg	M	01	THT-3R60-8-1 8.00 X 1.00	047823	97270	10	10.0	60.00	Total				10	10.0	60.00	KEY TO HEAT		KEY TO LOT		Heat Code	Heat No.	Lot Code	Lot No.	047823	530594	97270	171973	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	047823	0.019	0.35	1.62	0.030	0.008	17.32	13.06	2.53		N								047823	0.043								Heat	C	Si	Mn	P	S	Cr	Ni	Mo	047823	0.025	0.34	1.60	0.030	0.008	17.16	13.10	2.53		N								047823	0.041							
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Quality assurance - Per Eriksson / QA-manager MTC Service / Certificates																																																																																																												

**CERTIFICATE****No. A/12-225253****Rev 00****Date 2012-02-03****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation
	MPa	MPa	MPa	%
Lot	Rp0.2	Rp1.0	Rm	A
97270	274	313	624	46
	274	315	624	51

Hardness test

	Min	Max
Lot	HRB	HRB
97270	68	70

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 and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW/A-269 EN 10216-5 TC1 EN 10305-1 TP 316/TP 316L EN 1.4435 M S PK1 NDE 8.00 X 1.00 MM HT 530594 SG LOT 171973 MADE BY SANDVIK IN SWEDEN *QA-TUBE*

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.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 38090