

**CERTIFICATE****No. A/14-455499 Rev 00**
Date 2014-11-05 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 751114 003-00991 ITEMS Customer order 2014-10-30		Sandvik References Order No. Subs No. ABSMT Dispatch note 386452 580622 34528/54 ABSMT No. C.Code 300-21216 46																																																																																	
Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING Steel making process Electric furnace		Steel/material Designations Sandvik SS 3R60 2353																																																																																	
Technical requirements SS 219713 Condition No -24																																																																																			
EXTENT OF DELIVERY <table border="1"><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>048039</td><td>32250</td><td>10</td><td>11.0</td><td>60.00</td></tr><tr><td colspan="4">Total</td><td>10</td><td>11.0</td><td>60.00</td></tr></tbody></table> KEY TO HEAT <table border="1"><thead><tr><th>Heat Code</th><th>Heat No.</th></tr></thead><tbody><tr><td>048039</td><td>538505</td></tr></tbody></table> TEST RESULTS Chemical composition (weight%) <table border="1"><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>048039</td><td>0.020</td><td>0.41</td><td>1.71</td><td>0.031</td><td>0.0080</td><td>17.20</td><td>13.14</td><td>2.54</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048039</td><td>0.039</td><td colspan="7"></td></tr></tbody></table> Tensile test at room temperature <table border="1"><thead><tr><th rowspan="2">Lot</th><th colspan="2">Yield strength</th><th>Tensile strength</th><th>Elongation</th></tr><tr><th>MPa</th><th>MPa</th><th>MPa</th><th>%</th></tr><tr><th></th><th>Rp0.2</th><th>Rp1.0</th><th>Rm</th><th>A</th></tr></thead><tbody><tr><td>32250</td><td>312</td><td>345</td><td>567</td><td>54</td></tr></tbody></table> Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates				It	Product designation	Heat	Lot	Pieces	Kg	M	01	THT-3R60-8-1 8.00 X 1.00	048039	32250	10	11.0	60.00	Total				10	11.0	60.00	Heat Code	Heat No.	048039	538505	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048039	0.020	0.41	1.71	0.031	0.0080	17.20	13.14	2.54	N									048039	0.039								Lot	Yield strength		Tensile strength	Elongation	MPa	MPa	MPa	%		Rp0.2	Rp1.0	Rm	A	32250	312	345	567	54
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**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- PMI-test.
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to SS 114301/114305 E1
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

The raw material is free from radioactive contamination.

Material free from mercury contamination.

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 2014/821