

**CERTIFICATE****No. A/16-619338 Rev 00**  
**Date 2016-11-23 Page 1/2**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>  754113  003-00991 ITEMS  Customer order 2016-11-16		<b>Sandvik References</b> Order No. Subs No. ABSMT Dispatch note 460318 619797 33710/54 ABSMT No. C.Code 300-54977 15																																																																																																		
<b>Material description</b> SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING     <b>Steel making process</b> Electric furnace		<b>Steel/material Designations</b> Sandvik AISI 3R60 TP316/TP316L EN no 1.4435																																																																																																		
<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 17495:2015 PED 2014/68/EU EN 10216-5 TC1 HRB MAX 80																																																																																																				
<b>EXTENT OF DELIVERY</b> <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>02</td><td>THT-3R60-12-1 12.00 X 1.00</td><td>048308</td><td>17550</td><td>90</td><td>154.0</td><td>540.00</td></tr><tr><td colspan="4">Total</td><td>90</td><td>154.0</td><td>540.00</td></tr></tbody></table> <b>KEY TO HEAT</b> <table border="1"><thead><tr><th>Heat Code</th><th>Heat No.</th></tr></thead><tbody><tr><td>048308</td><td>545962</td></tr></tbody></table> <b>TEST RESULTS</b> <b>Chemical composition (weight%)</b> <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>048308</td><td>0.024</td><td>0.37</td><td>1.73</td><td>0.030</td><td>0.0090</td><td>17.35</td><td>13.09</td><td>2.63</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048308</td><td>0.038</td><td colspan="7"></td></tr></tbody></table> <b>Chemical composition, product (weight%)</b> <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>048308</td><td>0.022</td><td>0.38</td><td>1.74</td><td>0.031</td><td>0.0070</td><td>17.51</td><td>13.12</td><td>2.64</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048308</td><td>0.031</td><td colspan="7"></td></tr></tbody></table>				It	Product designation	Heat	Lot	Pieces	Kg	M	02	THT-3R60-12-1 12.00 X 1.00	048308	17550	90	154.0	540.00	Total				90	154.0	540.00	Heat Code	Heat No.	048308	545962	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048308	0.024	0.37	1.73	0.030	0.0090	17.35	13.09	2.63	N									048308	0.038								Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048308	0.022	0.38	1.74	0.031	0.0070	17.51	13.12	2.64	N									048308	0.031							
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<b>Quality assurance - Lars-Åke Bergqvist / QA-manager</b> <b>MTC Service / Certificates</b>																																																																																																				

**Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
17550	284	326	561	52	49

**Hardness test**

Lot	Min	Max
	HRB	HRB
17550	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 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 A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 12.00 X 1.00 MM HT 545962 SS LOT 17550 MADE 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.

The certificate is produced with EDP and valid without signature.