

**CERTIFICATE**

No. A/14-454529 Rev 00
Date 2014-10-31 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 751121 003-00991 ITEMS Customer order 2014-10-31		Sandvik References Order No. Subs No. ABSMT Dispatch note 386605 580716 34412/54 ABSMT No. C.Code 300-21286 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-213-13 AW, ASME SA-213-ED-10 AD-11A 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>02</td><td>THT-3R60-10-1.5</td><td>048074</td><td>34820</td><td>15</td><td>28.0</td><td>90.00</td></tr><tr><td></td><td>10.00 X 1.50</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td colspan="4"></td><td>Total</td><td>15</td><td>28.0 90.00</td></tr></tbody></table> KEY TO HEAT Heat Code Heat No. 048074 539374 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>048074</td><td>0.021</td><td>0.40</td><td>1.56</td><td>0.028</td><td>0.0070</td><td>17.36</td><td>13.40</td><td>2.54</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>048074</td><td>0.033</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>048074</td><td>0.025</td><td>0.42</td><td>1.57</td><td>0.031</td><td>0.0050</td><td>17.50</td><td>13.48</td><td>2.56</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>048074</td><td>0.043</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	02	THT-3R60-10-1.5	048074	34820	15	28.0	90.00		10.00 X 1.50										Total	15	28.0 90.00	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048074	0.021	0.40	1.56	0.028	0.0070	17.36	13.40	2.54		N								048074	0.033								Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048074	0.025	0.42	1.57	0.031	0.0050	17.50	13.48	2.56		N								048074	0.043							
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Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates																																																																																																							

**Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
34820	283	321	555	55	53

Hardness test

Lot	Min	Max
	HRB	HRB
34820	74	75

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 EN 1.4435
TP316/316L CFA SMLS NDE 10.00 X 1.50 MM HT 539374 SS LOT 34820 MADE BY SANDVI
K 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.