

**CERTIFICATE**

No. A/16-559649 Rev 00
Date 2016-02-24 Page 1/2

INSPECTION CERTIFICATE acc to
EN 10204 3.1

Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDEN

INSPECTION STAMP
QA-TUBE

Customer References 753050 003-00991 ITEMS Customer order 2016-02-17		Sandvik References Order No. Subs No. ABSMT Dispatch note 432177 605146 15506/54 ABSMT No. C.Code 300-42425 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-213-15C AW, ASME SA-213-ED-15 AW, ASTM A-269-15A 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-3R60-12-1 12.00 X 1.00</td><td>048207</td><td>52901</td><td>100</td><td>172.0</td><td>600.00</td></tr><tr><td colspan="4">Total</td><td>100</td><td>172.0</td><td>600.00</td></tr></tbody></table> KEY TO HEAT <table><thead><tr><th>Heat Code</th><th>Heat No.</th></tr></thead><tbody><tr><td>048207</td><td>542915</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>048207</td><td>0.019</td><td>0.43</td><td>1.68</td><td>0.030</td><td>0.0080</td><td>17.33</td><td>13.10</td><td>2.53</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048207</td><td colspan="8">0.035</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>048207</td><td>0.019</td><td>0.42</td><td>1.66</td><td>0.032</td><td>0.0050</td><td>17.46</td><td>13.15</td><td>2.53</td></tr><tr><td colspan="2">N</td><td colspan="7"></td></tr><tr><td>048207</td><td colspan="8">0.038</td></tr></tbody></table>				It	Product designation	Heat	Lot	Pieces	Kg	M	02	THT-3R60-12-1 12.00 X 1.00	048207	52901	100	172.0	600.00	Total				100	172.0	600.00	Heat Code	Heat No.	048207	542915	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048207	0.019	0.43	1.68	0.030	0.0080	17.33	13.10	2.53	N									048207	0.035								Heat	C	Si	Mn	P	S	Cr	Ni	Mo	048207	0.019	0.42	1.66	0.032	0.0050	17.46	13.15	2.53	N									048207	0.038							
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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"
52901	309	347	577	48	45

Hardness test

Lot	Min	Max
	HRB	HRB
52901	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 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 AW EN 1.4 435 TP316/316L CFA SMLS NDE 12.00 X 1.00 MM HT 542915 SS LOT 52901 MADE BY SANDVIK 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.