



**CERTIFICATE**

A03/Z02

**No. A/21-971772**

**Rev**

**00**

**Date**

2021-09-14

**Page**

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A02/Z03

INSPECTION CERTIFICATE acc to  
EN 10204 3.1

A06

PROCESSKONTROLL ITEMS AB  
BOX 2088  
444 02 STORA HÖGA  
SWEDEN

INSPECTION STAMP

QA-TUBE

<p><b>Customer References</b> <span style="float:right">A07</span></p> <p>761382 <span style="float:right"><b>Customer order</b></span></p> <p style="text-align:right">2021-07-07</p> <p>003-00991 ITEMS -W</p>	<p><b>Sandvik References</b> <span style="float:right">A08</span></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>Order No.</b></td> <td style="width:33%;"><b>Subs No.</b></td> <td style="width:33%;"><b>SMT Dispatch note</b></td> </tr> <tr> <td>573033</td> <td>700156</td> <td>44848/54</td> </tr> <tr> <td><b>SMT No.</b></td> <td><b>C.Code</b></td> <td></td> </tr> <tr> <td>300-33838</td> <td>15</td> <td></td> </tr> </table>	<b>Order No.</b>	<b>Subs No.</b>	<b>SMT Dispatch note</b>	573033	700156	44848/54	<b>SMT No.</b>	<b>C.Code</b>		300-33838	15																																																						
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<p><b>Material description</b> <span style="float:right">B01/B04</span></p> <p>SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING</p> <p><b>Metallurgical process</b> <span style="float:right">C70</span></p> <p>Electric furnace</p>	<p><b>Steel/material Designations</b> <span style="float:right">B02</span></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>Sandvik</b></td> <td style="width:50%;"><b>AISI</b></td> </tr> <tr> <td>3R60</td> <td>TP316/TP316L</td> </tr> <tr> <td><b>EN no</b></td> <td></td> </tr> <tr> <td>1.4435</td> <td></td> </tr> </table>	<b>Sandvik</b>	<b>AISI</b>	3R60	TP316/TP316L	<b>EN no</b>		1.4435																																																										
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<p><b>Technical requirements</b> <span style="float:right">B03</span></p> <p>ASTM A-213-19 AW, ASME SA-213-ED-19 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:-2015, NACE MR0103/ISO 17945-1:-2015 PED 2014/68/EU EN 10216-5 TC1 HRB MAX 80</p>																																																																		
<p><b>EXTENT OF DELIVERY</b> <span style="float:right">B07-B13</span></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;">It</th> <th style="width:35%;">Product designation</th> <th style="width:10%;">Heat</th> <th style="width:10%;">Lot</th> <th style="width:10%;">Pieces</th> <th style="width:10%;">Kg</th> <th style="width:10%;">M</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>THT-3R60-12-1 12.00 X 1.00</td> <td>041334</td> <td>93308</td> <td>80</td> <td>132.0</td> <td>480.00</td> </tr> <tr> <td colspan="4"></td> <td style="text-align:right">Total</td> <td>80</td> <td>132.0 480.00</td> </tr> </tbody> </table> <p><b>KEY TO HEAT</b></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>Heat Code</b></td> <td style="width:50%;"><b>Heat No.</b></td> </tr> <tr> <td>041334</td> <td>561993</td> </tr> </table> <p><b>KEY TO LOT</b></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>Lot Code</b></td> <td style="width:50%;"><b>Lot No.</b></td> </tr> <tr> <td>93308</td> <td>2031723-11</td> </tr> </table> <p><b>TEST RESULTS</b></p> <p><b>Chemical composition (weight%)</b></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Heat</th> <th style="width:10%;">C</th> <th style="width:10%;">Si</th> <th style="width:10%;">Mn</th> <th style="width:10%;">P</th> <th style="width:10%;">S</th> <th style="width:10%;">Cr</th> <th style="width:10%;">Ni</th> <th style="width:10%;">Mo</th> </tr> </thead> <tbody> <tr> <td>041334</td> <td>0.018</td> <td>0.46</td> <td>1.62</td> <td>0.030</td> <td>0.009</td> <td>17.41</td> <td>13.09</td> <td>2.65</td> </tr> <tr> <td></td> <td><b>N</b></td> <td colspan="7"></td> </tr> <tr> <td>041334</td> <td>0.039</td> <td colspan="7"></td> </tr> </tbody> </table>		It	Product designation	Heat	Lot	Pieces	Kg	M	01	THT-3R60-12-1 12.00 X 1.00	041334	93308	80	132.0	480.00					Total	80	132.0 480.00	<b>Heat Code</b>	<b>Heat No.</b>	041334	561993	<b>Lot Code</b>	<b>Lot No.</b>	93308	2031723-11	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	041334	0.018	0.46	1.62	0.030	0.009	17.41	13.09	2.65		<b>N</b>								041334	0.039							
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<p><b>Quality assurance - Sofia Åkesson / Q-Manager</b> <span style="float:right">A05/Z02</span></p> <p>MTC Service / Certificates</p>																																																																		

A01

AB SANDVIK MATERIALS TECHNOLOGY Reg No. 556234-6832 VAT No. SE556234683201  
SE-81181 SANDVIKEN SWEDEN www.materials.sandvik mtc\_service.smt@sandvik.com



**Chemical composition, product (weight%)**

Lot	C	Si	Mn	P	S	Cr	Ni	Mo
93308	0.020	0.44	1.64	0.033	0.009	17.25	12.76	2.55
	N							
93308	0.047							

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
93308	281	314	573	59	56
	289	321	571	58	56

**Hardness test**

Lot	Min	Max
	HRB	HRB
93308	76	76

**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- Flaring test
- 100% PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- 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/ASME A/SA213 A269 COLD EN 10216-5 TC1 AW TP 316/TP 316L EN 1.4435 CFA SML 12.00 X 1.00 MM . HT 561993 SZ LOT 2031723-11 MADE BY SANDVIK IN CZECHIA \*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 9001:2015.





No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of 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 C-2593/50

