

**CERTIFICATE**

A03/Z02

No. A/20-913103**Date**

2020-09-28

Rev**00****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

Customer References A07 760029 Customer order 2020-09-24 003-00991 ITEMS		Sandvik References A08 Order No. Subs No. ABSMT Dispatch note 559724 689034 25348/54 ABSMT No. C.Code 300-24140 29																																																																																							
Material description B01/B04 SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING Metallurgical process C70 Electric furnace		Steel/material Designations B02 Sandvik AISI 3R60 TP316/TP316L EN no 1.4435																																																																																							
Technical requirements B03 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																																																																																									
EXTENT OF DELIVERY B07-B13 <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>03</td><td>THT-3R60-12.7-1.24</td><td>559355</td><td>27689</td><td>10</td><td>22.0</td><td>60.00</td></tr><tr><td></td><td>12.70 X 1.24</td><td>559908</td><td>30212</td><td>5</td><td>11.0</td><td>30.00</td></tr><tr><td colspan="4">Total</td><td>15</td><td>33.0</td><td>90.00</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>559355</td><td>0.020</td><td>0.45</td><td>1.57</td><td>0.034</td><td>0.009</td><td>17.28</td><td>13.15</td><td>2.64</td></tr><tr><td>559908</td><td>0.018</td><td>0.40</td><td>1.56</td><td>0.034</td><td>0.010</td><td>17.19</td><td>13.06</td><td>2.64</td></tr></tbody></table> <table><thead><tr><th></th><th>Co</th><th>N</th></tr></thead><tbody><tr><td>559355</td><td>0.16</td><td>0.038</td></tr><tr><td>559908</td><td>0.10</td><td>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>559908</td><td>0.022</td><td>0.41</td><td>1.55</td><td>0.034</td><td>0.011</td><td>17.25</td><td>13.06</td><td>2.63</td></tr></tbody></table> <table><thead><tr><th></th><th>N</th></tr></thead><tbody><tr><td>559908</td><td>0.038</td></tr></tbody></table>				It	Product designation	Heat	Lot	Pieces	Kg	M	03	THT-3R60-12.7-1.24	559355	27689	10	22.0	60.00		12.70 X 1.24	559908	30212	5	11.0	30.00	Total				15	33.0	90.00	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	559355	0.020	0.45	1.57	0.034	0.009	17.28	13.15	2.64	559908	0.018	0.40	1.56	0.034	0.010	17.19	13.06	2.64		Co	N	559355	0.16	0.038	559908	0.10	0.035	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	559908	0.022	0.41	1.55	0.034	0.011	17.25	13.06	2.63		N	559908	0.038
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Quality assurance - Sofia Åkesson / Q-Manager A05/Z02 MTC Service / Certificates																																																																																									

A01

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



Lot	C	Si	Mn	P	S	Cr	Ni	Mo
27689	0.021	0.44	1.54	0.034	0.009	17.22	13.11	2.64
	N							
27689	0.038							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
27689	328	364	592	48	46
30212	374	408	591	45	46

Hardness test

Lot	Min	Max
	HRB	HRB
27689	79	79
30212	74	80

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 A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4436 EN 1.44 35 TP316/316L CFA SML NDE 12.70 X 1.24 MM 1/2'' X 18 BWG/SWG HT 559355 SS LOT 27689 MADE IN SWEDEN *QA-TUBE*

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4436 EN 1.44 35 TP316/316L CFA SML NDE 12.70 X 1.24 MM 1/2'' X 18 BWG/SWG HT 559908 SS LOT 30212 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 9001:2015.





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The certificate is produced with EDP and valid without signature.

