

**CERTIFICATE****No. A/18-736094****Rev 00****Date 2018-04-16****Page 1/3**INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA H@GA
SWEDENINSPECTION STAMP
QA-TUBE**Customer References**

756292

Customer
order
2018-04-09

003-00991 ITEMS

Sandvik ReferencesOrder No. Subs No. ABSMT Dispatch note
510420 649295 19382/54
ABSMT No. C.Code
300-79283 29**Material description**SEAMLESS STAINLESS COLD FINISHED
INSTRUMENTATION TUBING**Steel making process**

Electric furnace

Steel/material DesignationsSandvik AISI
3R60 TP316/TP316L
EN no
1.4435**Technical requirements**ASTM A-213-17 AW, ASME SA-213-ED-17 AW, ASTM A-269-15A
NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17945:2015
PED 2014/68/EU EN 10216-5 TC1
HRB MAX 80**EXTENT OF DELIVERY**

It	Product designation	Heat	Lot	Pieces	Kg	M
02	THT-3R60-19.05-1.24	551673	38492	5	17.0	30.00
	19.05 X 1.24					
				Total	5	17.0
						30.00

TEST RESULTS**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
551673	0.017	0.39	1.65	0.026	0.007	17.34	13.15	2.63
	Ti	Al	N					
551673	<0.003	0.004	0.037					

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
551673	0.015	0.39	1.66	0.027	0.005	17.35	13.16	2.65
	N							
551673	0.040							

Quality assurance - Sofia Åkesson / Q-Manager
MTC Service / Certificates

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	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
38492	278	317	591	51	50
	278	315	595	49	47

Hardness test

	Min	Max
Lot	HRB	HRB
38492	74	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 A/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.4435 TP316/316L CFA SML NDE 19.05 X 1.24 MM 3/4" X 18 BWG/SWG HT 551673 SS LOT 38492 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.

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The certificate is produced with EDP and valid without signature.