



CERTIFICATE

No. A/13-356015

Rev 00

Date 2013-08-23

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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		Sandvik References	
713125	Customer order 2013-08-23	Order No. 342149	Subs No. 555995
003-00991	ITEMS	ABSMT No. 300-90797	C.Code 11
		ABSMT Dispatch note 05522/54	

Material description SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING	Steel/material Designations Sandvik 3R60	AISI TP316/TP316L
Steel making process Electric furnace		

Technical requirements ASTM A-632-04 NACE MR0175/ISO 15156-3:2009 PED 97/23/EC EN 10216-5 TC1 HRB MAX 80

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Pieces	Kg	M		
01	THT-3R60-3.18-0.71 3.18 X .71	047933	98781	10	3.0	60.00		
				Total	10	3.0 60.00		
KEY TO HEAT			KEY TO LOT					
Heat Code	Heat No.		Lot Code	Lot No.				
047933	534779		98781	175473				
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047933	0.018	0.37	1.69	0.028	0.008	17.18	13.10	2.52
	N							
047933	0.036							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047933	0.022	0.37	1.64	0.029	0.005	17.18	13.08	2.52
	N							
047933	0.042							

Quality assurance - Ulrik Rodling / QA-manager
MTC Service / Certificates

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
98781	229	261	533	47	42
	218	251	528	45	40

Hardness test

Lot	Min	Max
	HRB	HRB
98781	71	74

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
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM A-632 TP 316/316L EN 10216-5 TC1 MS PK1 WNR 1.4435 EN 1.4435 COLD SMLS 3.18 X 0.71 MM 1/8" X 22 BWG HT 534779 SG LOT 175473 *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.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 41656