



CERTIFICATE

No. A/12-235376

Rev 00

Date 2012-03-13

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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		
711217	Customer order 2012-03-13	Order No.	Subs No.	ABSMT Dispatch note
003-00991	ITEMS	283500	522560	17314/54
		ABSMT No.	C.Code	
		300-62102	29	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
Steel making process Electric furnace	

Technical requirements
 ASTM A-213-09A AW, ASME SA-213-ED-10 AW, ASTM A-269-08
 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-3R60-19.05-1.24 19.05 X 1.24	529443	31152	8	26.0	48.00
				Total	8	26.0 48.00

TEST RESULTS

Chemical composition (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
529443	0.020	0.45	1.62	0.029	0.008	17.24	13.10	2.53
	N							
529443	0.042							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
529443	0.023	0.45	1.60	0.030	0.009	17.30	13.08	2.51
	N							
529443	0.039							

Quality assurance - Per Eriksson / 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"
31152	327	370	601	49	47
	328	371	601	49	47

Hardness test

Lot	Min	Max
	HRB	HRB
31152	73	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 and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 EN 1.4435 TP316/316L CO LD SMLS NDE 19.05 X 1.24 MM 3/4'' X 18 BWG/SWG HT 529443 SS LOT 31152 DIN 2391 /EN 10305-1 *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.

The certificate is produced with EDP and valid without signature.