

**CERTIFICATE****No. A/12-300976 Rev 00**
Date 2012-12-18 Page 1/2INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
712250	Customer order 2012-12-18	Order No. 315539	Subs No. 540935
003-00991 ITEMS		ABSMT No. 300-77952	Dispatch note 37997/54
		C.Code 11	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED INSTRUMENTATION TUBING	Sandvik AISI 3R60 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	047874	97968	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.					
047874	532171	97968	173427					
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047874	0.018	0.39	1.64	0.027	0.007	17.24	13.10	2.54
N								
047874	0.036							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047874	0.017	0.41	1.65	0.029	0.006	17.33	13.21	2.54
N								
047874	0.037							
Quality assurance - Per Eriksson / QA-manager								
MTC Service / Certificates								

**CERTIFICATE****No. A/12-300976****Rev 00****Date 2012-12-18****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
97968	260	293	533	45	43
	229	290	533	43	38

Hardness test

	Min	Max
Lot	HRB	HRB
97968	62	67

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 532171 SG LOT 173427 *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 39552