

**CERTIFICATE****No. A/11-210347****Rev 00****Date 2011-12-06****Page 1/2**INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
Roger Wibbling	Customer order 2011-11-30	Order No. 270115	Subs No. 515051
003-00991 ITEMS		ABSMT No. 300-55749	ABSMT Dispatch note 08678/54
		C.Code 15	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no 1.4435
Steel making process Electric furnace	

Technical requirements
PED/23/EC, EN 10216-5 TC1 SS 219711, DIN 17458 TC1, NFA 49-117-09/85 ASTM A-213-09A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-08 NACE MR0175/ISO 15156-3:2009, HRB Max 80

EXTENT OF DELIVERY					
It	Product designation	Heat	Lot	Pieces	M
01	THT-3R60-25-3	530099	33225	26	156.00
	25.00 X 3.00	530790	35534	41	246.00
Total				67	402.00

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
530099	0.024	0.43	1.77	0.029	0.008	17.31	13.12	2.53
530790	0.024	0.41	1.78	0.029	0.009	17.27	13.07	2.55
N								
530099	0.040							
530790	0.038							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
530099	0.025	0.43	1.77	0.032	0.007	17.30	13.13	2.52
530790	0.026	0.41	1.78	0.029	0.008	17.23	13.08	2.55
N								
530099	0.040							
530790	0.032							

Quality assurance - Ulrik Rodling / QA-manager Tube & Pipe
MTC Service / Certificates

**CERTIFICATE****No. A/11-210347****Rev 00****Date 2011-12-06****Page 2/2****Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
33225	281	323	588	59	65
	280	322	588	57	65
	284	325	590	56	61
35534	273	311	587	56	61
	277	316	589	58	63
	275	315	588	56	62

Hardness test

Lot	Min	Max
	HRB	HRB
33225	75	78
35534	77	80

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Ring expansion test
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- 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 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 25.00 X 3.00 MM HT 53009
9 SS LOT 33225 DIN 2391/EN 10305-1 COLD *QA-TUBE*

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 25.00 X 3.00 MM HT 53079
0 SS LOT 35534 DIN 2391/EN 10305-1 COLD *QA-TUBE*

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.