



CERTIFICATE

No. A/11-206917 Rev 00
Date 2011-11-21 Page 1/2

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	
710789	Customer order 2011-11-18	Order No. 268717	Subs No. 514401
003-00991	ITEMS	ABSMT No. 300-55139	Dispatch note 07445/54 C.Code 15

Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Steel/material Designations 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	Kg	M
01	THT-3R60-10-1 10.00 X 1.00	047790	97030	167	234.0	1002.00
				Total	167	234.0 1002.00

KEY TO HEAT		KEY TO LOT	
Heat Code	Heat No.	Lot Code	Lot No.
047790	529367	97030	170916

TEST RESULTS

Chemical composition (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047790	0.019	0.40	1.61	0.029	0.009	17.25	13.10	2.54
	N							
047790	0.037							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047790	0.021	0.41	1.60	0.030	0.008	17.22	13.03	2.51
	N							
047790	0.028							

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

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
97030	235	275	570	51	45
	231	271	565	48	45
	254	293	575	49	47
	324	364	591	47	45
	316	357	590	47	45

Hardness test

Lot	Min	Max
	HRB	HRB
97030	62	65

Following controls/tests have been satisfactorily performed:

- Flattening 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 ASTM/ASME A/SA-213AW/A-269 NFA 49-117 EN 10216-5 TC1

-22 TP 316/TP 316L

M S PK1 NDE 10.00 X 1.00 MM HT 529367 SG LOT 170916 DIN 2391/EN 10305-1 *QA

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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 37386