

**CERTIFICATE****No. A/10-983694 Rev 00**
Date 2010-07-27 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	
708942/Holmgren	Customer order 2010-07-27	Order No. 206732	Subs No. 180682
003-00991 ITEMS		ABSMT No. 300-26341	ABSMT Dispatch note 12401/54
		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 1.4436/1.4435
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-07 AD-09B AW, ASTM A-269-08 NACE MR0175/ISO 15156-3:2003, HRB Max 80

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Pieces	Kg	M		
01	THT-3R60-14-2	047470	94571	49	173.0	294.00		
	14.00 X 2.00							
				Total	49	173.0 294.00		
KEY TO HEAT		KEY TO LOT						
Heat Code	Heat No.	Lot Code	Lot No.					
047470	524214	94571	4846006/1-2					
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047470	0.019	0.40	1.70	0.028	0.009	17.22	13.06	2.52
	N							
047470	0.034							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047470	0.019	0.41	1.69	0.029	0.009	17.31	13.16	2.55
	N							
047470	0.035							
Quality assurance - Per Eriksson/ QA-manager Tube & Pipe								
MTC Service / Certificates								

**CERTIFICATE****No. A/10-983694****Rev 00****Date 2010-07-27****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
94571	236	263	538	63	61
	237	269	540	62	60
	235	268	537	62	60

Hardness test

	Min	Max
Lot	HRB	HRB
94571	73	74

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 3R60 ASTM/ASME A/SA-213AW/A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W
NR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 NDE 14.00 X 2.00 MM HT 5
24214 SZ LOT 4846006/1-2 DIN 2391/EN 10305-1 *QA-TUBE*

Approved acc. AD 2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (97/23/EC) by
TUEV NORD GmbH; 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 A100754