



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	
708823	Customer order 2010-06-22	Order No. 202352	Subs No. 177344
003-00991	ITEMS	ABSMT No. 300-24468	C.Code 15
		ABSMT Dispatch note 12156/54	

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
02	THT-3R60-12-1	047446	93999	60	100.0	360.00
	12.00 X 1.00	047446	94000	14	24.0	84.00
			Total	74	124.0	444.00

KEY TO HEAT		KEY TO LOT	
Heat Code	Heat No.	Lot Code	Lot No.
047446	523686	93999	4845676/1-1
		94000	4845676/1-2

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047446	0.019	0.38	1.61	0.032	0.009	17.24	13.09	2.54
	N							
047446	0.038							

Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047446	0.018	0.40	1.61	0.033	0.011	17.18	13.13	2.53
	N							
047446	0.040							

Quality assurance - Per Eriksson/ 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	2"
93999	290	324	556	53	49
	307	325	590	52	50
	296	320	549	52	50
	290	336	578	51	51
94000	288	330	569	51	51
	298	320	562	58	52

Hardness test

Lot	Min	Max
	HRB	HRB
93999	74	77
94000	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 12.00 X 1.00 MM HT 5
23686 SZ LOT 4845676/1-1 DIN 2391/EN 10305-1 *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 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 NDE 12.00 X 1.00 MM HT 5
23686 SZ LOT 4845676/1-2 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 A100616
A100616