

**CERTIFICATE****No. V/11-069536****Rev 00****Date 2011-05-17****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**

710103

Sandvik References

Order No.	Subs No.	Dispatch note
245019	106693	107342
Suppl. No	C.Code	
106693	15	

Material descriptionSEAMLESS 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 requirementsPED/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 AW, ASTM A-269-08
NACE MR0175/ISO 15156-3:2009, HRB Max 80**EXTENT OF DELIVERY**

It	Product designation	Heat	Lot	Kg	M
02	THT-3R60-16-1.5	047598	95467	32.6	60.00
	16.00 X 1.50				

Total	32.6	60.00
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KEY TO HEAT

Heat Code	Heat No.
047598	525990

KEY TO LOT

Lot Code	Lot No.
95467	4847870/1-1

TEST RESULTS**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047598	0.018	0.38	1.71	0.030	0.007	17.21	13.15	2.54
	N							
047598	0.040							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047598	0.019	0.40	1.73	0.027	0.007	17.27	13.14	2.53
	N							
047598	0.039							

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

**CERTIFICATE****No. V/11-069536****Rev 00****Date 2011-05-17****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
95467	254	284	568	57	58
	253	286	570	55	55
	252	288	561	55	56
	251	285	556	56	56

Hardness test

	Min	Max
Lot	HRB	HRB
95467	74	75

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 16.00 X 1.50 MM HT 5
25990 SZ LOT 4847870/1-1 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; 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 A101585