

**CERTIFICATE****No. V/12-014351****Rev 00****Date 2012-12-11****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**

712206

Sandvik ReferencesOrder No. Subs No. Dispatch note
314801 122968 124462
Suppl. No C.Code
122968 15**Material description**SEAMLESS STAINLESS COLD FINISHED
HYDRAULIC TUBING**Steel/material Designations**Sandvik AISI
3R60 TP316/TP316L
EN no
1.4435**Steel making process**

Electric furnace

Technical requirementsASTM A-213-09A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-08
NACE MR0175/ISO 15156-3:2009
PED 97/23/EC EN 10216-5 TC1
HRB MAX 80**EXTENT OF DELIVERY**

It	Product designation	Heat	Lot	Kg	M
01	THT-3R60-8-1.5 8.00 X 1.50	047812	97139	14.6	60.00

Total	14.6	60.00
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KEY TO HEAT

Heat Code	Heat No.
047812	529692

KEY TO LOT

Lot Code	Lot No.
97139	170372

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047812	0.017	0.38	1.64	0.030	0.008	17.28	13.10	2.52
047812	N	0.035						

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047812	0.019	0.37	1.64	0.029	0.008	17.24	13.09	2.53
047812	N	0.035						

Quality assurance - Per Eriksson / QA-manager
MTC Service / Certificates

**CERTIFICATE****No. V/12-014351****Rev 00****Date 2012-12-11****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	4D
97139	267	307	607	47	42
	248	296	604	48	43
	246	294	602	48	43
	254	303	613	48	43
	248	294	602	48	43

Hardness test

	Min	Max
Lot	HRB	HRB
97139	60	66

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- 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 EN 10216-5 TC1 EN 10305-1 TP 316/TP 316L EN 1.4435 M S PK1 NDE 8.00 X 1.50 MM HT 529692 SG LOT 170372 MADE BY SANDVIK *QA-TUBE*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

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 9001:2008.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 37829