

**CERTIFICATE****No. A/11-141227 Rev 00**
Date 2011-02-23 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	
709747	Customer order 2011-02-14	Order No. 232708	Subs No. 100954
003-00991 ITEMS		ABSMT No. 300-38226	Dispatch note 31512/54
		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 1.4435
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 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
02	THT-3R60-18-1.5	527496	24396	5	18.0	30.00
	18.00 X 1.50					
Total				5	18.0	30.00
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr
527496	0.018	0.38	1.70	0.033	0.007	17.41
	N					Ni
527496	0.041					13.09
						Mo
						2.52
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr
527496	0.018	0.38	1.70	0.032	0.007	17.42
	N					Ni
527496	0.035					13.02
						Mo
						2.52
Quality assurance - Ulrik Rodling / QA-manager Tube & Pipe						
MTC Service / Certificates						

**CERTIFICATE****No. A/11-141227****Rev 00****Date 2011-02-23****Page 2/2****Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
24396	319	364	596	50	50
	323	366	596	51	51

Hardness test

Lot	Min	Max
	HRB	HRB
24396	76	80

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 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 18.00 X 1.50 MM HT 52749
6 SS LOT 24396 DIN 2391/EN 10305-1 COLD *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.