

**CERTIFICATE****No. A/11-184843 Rev 00**
Date 2011-08-23 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		
710350	Customer order 2011-08-08	Order No. 255601	Subs No. 508561	ABSMT Dispatch note 47426/54
003-00991	ITEMS	ABSMT No. 300-48864	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
01	THT-3R60-25-2 25.00 X 2.00	529608	31473	6	41.0	36.00
				Total	6	41.0 36.00

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
529608	0.019	0.40	1.45	0.026	0.006	17.30	13.13	2.53
		N						
529608	0.050							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
529608	0.018	0.39	1.43	0.026	0.005	17.15	13.08	2.50
		N						
529608	0.049							

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

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
31473	Rp0.2	Rp1.0	Rm	A	2"
	278	320	589	58	62
	280	322	590	57	61

Hardness test

Lot	Min	Max
	HRB	HRB
31473	75	79

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Ring expansion 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 25.00 X 2.00 MM HT 52960 8 SS LOT 31473 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.