



**CERTIFICATE**

**No. A/11-160359 Rev 00**  
**Date 2011-05-04 Page 1/2**

INSPECTION CERTIFICATE acc to  
EN 10 204 3.1

Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDEN

INSPECTION STAMP  
QA-TUBE

<b>Customer References</b>		<b>Sandvik References</b>	
710033	Customer order 2011-04-27	Order No. 242604	Subs No. 502733
003-00991	ITEMS	ABSMT No. 300-42940	C.Code 15
		ABSMT Dispatch note 38322/54	

<b>Material description</b> SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	<b>Steel/material Designations</b> Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no <b>1.4435</b>
<b>Steel making process</b> 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-3R60-8-1 8.00 X 1.00	047700	95789	25	27.0	150.00
				Total	25	27.0 150.00

  

<b>KEY TO HEAT</b>		<b>KEY TO LOT</b>	
Heat Code	Heat No.	Lot Code	Lot No.
047700	527491	95789	356354

  

**TEST RESULTS**

**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047700	0.017	0.40	1.69	0.031	0.008	17.17	13.13	2.53
	<b>N</b>							
047700	0.041							

  

**Chemical composition, product (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047700	0.022	0.40	1.68	0.034	0.007	17.47	13.07	2.54
	<b>N</b>							
047700	0.034							

**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	%
95789	Rp0.2	Rp1.0	Rm	A
	285	317	592	64
	294	324	593	65

**Hardness test**

Lot	Min	Max
	HRB	HRB
95789	74	77

**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 8.00 X 1.00 MM HT 52 7491 SC LOT 356354 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 00042835