



**CERTIFICATE**

**No. A/11-172775**

**Rev 00**

**Date 2011-06-20**

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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>	
710233/Holmgren	Customer order 2011-06-20	Order No. 249849	Subs No. 506136
003-00991 ITEMS		ABSMT No. 300-46310	Dispatch note 42773/54
		C.Code 15	

<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-3R60-12-1 12.00 X 1.00	047730	96175	167	272.0	1002.00
				Total	167	272.0 1002.00

  

<b>KEY TO HEAT</b>		<b>KEY TO LOT</b>	
Heat Code	Heat No.	Lot Code	Lot No.
047730	527984	96175	357631

  

**TEST RESULTS**

**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047730	0.019	0.37	1.65	0.032	0.008	17.22	13.09	2.53
	N							
047730	0.044							

  

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047730	0.021	0.38	1.65	0.032	0.008	17.26	13.04	2.54
	N							
047730	0.035							

**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	%
	Rp0.2	Rp1.0	Rm	A
96175	313	338	600	64
	281	306	567	63
	281	306	568	60
	268	294	569	64
	274	300	565	60
	270	295	566	64

**Hardness test**

Lot	Min	Max
	HRB	HRB
96175	70	73

**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 12.00 X 1.00 MM HT 5  
27984 SC LOT 357631 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 00042825