

**CERTIFICATE**
**No. A/10-965380 Rev 00**  
**Date 2010-05-20 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

Customer References		Sandvik References	
708606	Customer order 2010-04-27	Order No. 194836	Subs No. 171464
003-00991	ITEMS	ABSMT No. 300-21245	C.Code 15
		ABSMT Dispatch note 06425/54	

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 <b>1.4436/1.4435</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-213-08 AW, ASME SA-213-ED-07 AD-09B AW, ASTM A-269-08  
 NACE MR0175/ISO 15156-3:2003, HRB Max 80

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Pieces	Kg	M		
02	THT-3R60-6-1.5 6.00 X 1.50	047375	93784	17	17.0	102.00		
				Total	17	102.00		
<b>KEY TO HEAT</b>				<b>KEY TO LOT</b>				
Heat Code	Heat No.	Lot Code	Lot No.					
047375	523476	93784	704142					
<b>TEST RESULTS</b>								
<b>Chemical composition (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047375	0.020	0.39	1.69	0.034	0.007	17.22	13.10	2.52
	N							
047375	0.049							
<b>Chemical composition, product (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047375	0.021	0.38	1.68	0.034	0.006	17.20	13.05	2.52
	N							
047375	0.049							

**Quality assurance - Per Eriksson/ 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	4D
93784	302	336	591	65	56
	317	356	605	61	54

**Hardness test**

Lot	Min	Max
	HRB	HRB
93784	79	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 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 NDE 6.00 X 1.50 MM HT 52 3476 SC LOT 704142 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 GmbH; 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 00040565