

**CERTIFICATE****No. A/13-382079****Rev 00****Date 2013-12-06****Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

<b>Customer References</b>		<b>Sandvik References</b>						
713549	Customer order 2013-12-06	Order No. 353480	Subs No. 562511 ABSMT No. C.Code 300-96256 15					
003-00991 ITEMS		ABSMT Dispatch note 13159/54						
<b>Material description</b> SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING		<b>Steel/material Designations</b> Sandvik AISI 3R60 TP316/TP316L EN no 1.4435						
<b>Steel making process</b> Electric furnace								
<b>Technical requirements</b> ASTM A-213-11A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-10 NACE MR0175/ISO 15156-3:2009 PED 97/23/EC EN 10216-5 TC1 HRB MAX 80								
<b>EXTENT OF DELIVERY</b>								
It	Product designation	Heat	Lot	Pieces	Kg	M		
01	THT-3R60-10-1.5	537235	21231	15	28.0	90.00		
	10.00 X 1.50							
			Total	15	28.0	90.00		
<b>TEST RESULTS</b>								
<b>Chemical composition (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
537235	0.020	0.37	1.66	0.030	0.009	17.35	13.28	2.53
	N							
537235	0.034							
<b>Chemical composition, product (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
537235	0.019	0.38	1.65	0.031	0.006	17.33	13.22	2.54
	N							
537235	0.035							
<b>Tensile test at room temperature</b>								
	Yield strength		Tensile strength		Elongation			
	MPa	MPa	MPa		%			
Lot	Rp0.2	Rp1.0	Rm		A 2"			
21231	291	325	559		56 53			
<b>Quality assurance - Ulrik Rodling / QA-manager</b>								
<b>MTC Service / Certificates</b>								

**Hardness test**

	Min	Max
Lot	HRB	HRB
21231	72	74

**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Leak test: Eddy current test acc to EN 10246-2, ASME SA-1016.
- Visual inspection and dimensional control.

**Heat Treatment:**

Solution annealed at a temperature of Min 1040° C and quenched.

**Marking:**

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 EN 10305-1 EN 1.4435 TP 316/316L COLD SMLS NDE 10.00 X 1.50 MM HT 537235 SS LOT 21231 MADE BY SANDVIK IN SWEDEN \*QA-TUBE\*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

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 9001:2008.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of AB Sandvik Materials Technology. Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.

The certificate is produced with EDP and valid without signature.