

**CERTIFICATE****No. A/13-337215****Rev 00****Date 2013-05-24****Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

Customer References		Sandvik References		
712862	Customer order 2013-05-24	Order No.	Subs No.	ABSMT Dispatch note
003-00991	ITEMS	333054	550758	49200/54
		ABSMT No.	C.Code	
		300-86370	15	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
<b>Steel making process</b> Electric furnace	

Technical requirements
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

EXTENT OF DELIVERY						
It	Product designation	Heat	Lot	Pieces	Kg	M
03	THT-3R60-10-1.5 10.00 X 1.50	535449	58676	25	48.0	150.00
				Total	25	48.0 150.00

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
535449	0.018	0.38	1.67	0.034	0.008	17.27	13.13	2.56
	N							
535449	0.042							

Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
535449	0.016	0.40	1.66	0.034	0.005	17.26	13.13	2.55
	N							
535449	0.041							

Tensile test at room temperature						
Lot	Yield strength		Tensile strength		Elongation	
	MPa	MPa	MPa		%	%
	Rp0.2	Rp1.0	Rm		A	2"
58676	294	333	551		52	50

**Quality assurance - Per Eriksson / QA-manager**  
**MTC Service / Certificates**

**Hardness test**

	<b>Min</b>	<b>Max</b>
<b>Lot</b>	<b>HRB</b>	<b>HRB</b>
58676	73	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 535449 SS LOT 58676 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.

The certificate is produced with EDP and valid without signature.