

**CERTIFICATE****No. A/13-363389****Rev 00****Date 2013-09-24****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		
713257	Customer order 2013-09-23	Order No. 345229	Subs No. 557749	ABSMT Dispatch note 07780/54
003-00991	ITEMS	ABSMT No. 300-92300	C.Code 15	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
Steel making process 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
01	THT-3R60-28-1.5 28.00 X 1.50	534282	52745	11	64.0	66.00
				Total	11	64.0 66.00

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
534282	0.018	0.38	1.61	0.027	0.009	17.32	13.14	2.52
N								
534282	0.045							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
534282	0.019	0.42	1.60	0.029	0.006	17.35	13.16	2.53
N								
534282	0.042							

Quality assurance - Ulrik Rodling / QA-manager
MTC Service / Certificates

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
52745	318	368	582	48	51
	282	324	573	52	55

Hardness test

Lot	Min	Max
	HRB	HRB
52745	75	77

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 28.00 X 1.50 MM HT 534282 SS LOT 52745 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.