

**CERTIFICATE****No. A/13-311631****Rev 00****Date 2013-02-04****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	
712340	Customer order 2013-01-22	Order No. 318637	Subs No. 542785
003-00991 ITEMS		ABSMT No. 300-79579	Dispatch note 41298/54
		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
02	THT-3R60-16-2	534345	53649	10	43.0	60.00
	16.00 X 2.00					
Total				10	43.0	60.00
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr
534345	0.020	0.36	1.60	0.030	0.008	17.26
	N					Ni
534345	0.042					13.11
						Mo
						2.53
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr
534345	0.022	0.37	1.59	0.031	0.008	17.36
	N					Ni
534345	0.043					13.19
						Mo
						2.54
Tensile test at room temperature						
Yield strength			Tensile strength		Elongation	
MPa		MPa	MPa		%	%
Lot	Rp0.2	Rp1.0	Rm		A	2"
53649	302	345	578		56	57

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

**Hardness test**

	Min	Max
Lot	HRB	HRB
53649	77	78

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 min 1040° C.

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 16.00 X 2.00 MM HT 534345 SS LOT 53649 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.