

**CERTIFICATE****No. A/13-337216****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. 333054	Subs No. 550758
003-00991 ITEMS		ABSMT No. 300-86370	ABSMT Dispatch note 49200/54
		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
04	THT-3R60-18-1.5	534464	52478	5	18.0	30.00
	18.00 X 1.50					
Total				5	18.0	30.00
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr
534464	0.019	0.40	1.73	0.029	0.006	17.51
	N					Ni
534464	0.040					13.20
						Mo
						2.54
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr
534464	0.023	0.41	1.72	0.028	0.005	17.53
	N					Ni
534464	0.048					13.16
						Mo
						2.50

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

**CERTIFICATE****No. A/13-337216****Rev 00****Date 2013-05-24****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
52478	295	338	591	49	49
	294	342	594	49	49

Hardness test

	Min	Max
Lot	HRB	HRB
52478	76	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 18.00 X 1.50 MM HT 534464 SS LOT 52478 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.