

**CERTIFICATE****No. A/12-281802 Rev 00**
Date 2012-09-27 Page 1/2INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
711943	Customer order 2012-09-27	Order No. 306327	Subs No. 535733
003-00991 ITEMS		ABSMT No. 300-73419	ABSMT Dispatch note 31970/54 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-213-10A 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-3R60-18-1.5 18.00 X 1.50	532379	43028	8	29.0	48.00
Total				8	29.0	48.00
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr
532379	0.017	0.43	1.65	0.031	0.008	17.30
	N					Ni
532379	0.037					13.22
						Mo
						2.54
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr
532379	0.020	0.43	1.65	0.030	0.009	17.34
	N					Ni
532379	0.033					13.18
						Mo
						2.54
Quality assurance - Per Eriksson / QA-manager MTC Service / Certificates						

**CERTIFICATE****No. A/12-281802****Rev 00****Date 2012-09-27****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
43028	277	319	584	51	51
	273	315	579	53	53

Hardness test

	Min	Max
Lot	HRB	HRB
43028	73	75

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 and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW A-269 EN 10216-5 TC1 EN 10305-1 SS 2353 EN 1.4435 TP316/316L M S PK1 NDE 18.00 X 1.50 MM HT 532379 SS LOT 43028 COLD 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.