



CERTIFICATE

No. A/14-451489

Rev 00

Date 2014-10-17

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INSPECTION CERTIFICATE acc to
EN 10 204 3.1

Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDEN

INSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
751044	Customer order 2014-10-16	Order No. 385092	Subs No. 579876
003-00991	ITEMS	ABSMT No. 300-20626	ABSMT Dispatch note 33419/54 C.Code 15

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

Technical requirements
 ASTM A-213-13 AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-13
 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-3R60-12-1	539776	31773	40	67.0	240.00
	12.00 X 1.00	539985	32653	60	104.0	360.00
				Total	100	171.0 600.00

TEST RESULTS

Chemical composition (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
539776	0.017	0.38	1.61	0.030	0.010	17.34	13.06	2.53
539985	0.018	0.40	1.62	0.031	0.009	17.32	13.23	2.52
		N						
539776	0.041							
539985	0.037							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
539776	0.026	0.40	1.59	0.033	0.010	17.35	13.00	2.54
539985	0.019	0.42	1.61	0.031	0.010	17.30	13.17	2.53
		N						
539776	0.036							
539985	0.031							

Quality assurance - Lars-Åke Bergqvist / 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	4D
31773	330	373	584	47	43
	320	361	581	53	49
	307	351	574	51	49
32653	300	339	570	52	49

Hardness test

Lot	Min	Max
	HRB	HRB
31773	74	76
32653	74	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 at a temperature of Min 1040° C and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD EN 1.4435
TP316/316L CFA SMLS NDE 12.00 X 1.00 MM HT 539776 SS LOT 31773 MADE BY SANDVI
K IN SWEDEN *QA-TUBE*

SANDVIK 3R60 ASTM/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD EN 1.4435
TP316/316L CFA SMLS NDE 12.00 X 1.00 MM HT 539985 SS LOT 32653 MADE BY SANDVI
K 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.



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The certificate is produced with EDP and valid without signature.