

**CERTIFICATE****No. A/12-229108****Rev 00****Date 2012-02-20****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		
711118	Customer order 2012-02-17	Order No.	Subs No.	ABSMT Dispatch note
		280373	520742	15158/54
003-00991 ITEMS		ABSMT No.	C.Code	
		300-60533	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-213-09A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-08	
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	530161	34781	4	17.0	24.00
	16.00 X 2.00	530790	37609	11	47.0	66.00
Total				15	64.0	90.00

TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
530161	0.018	0.39	1.63	0.031	0.010	17.28	13.13	2.52
530790	0.024	0.41	1.78	0.029	0.009	17.27	13.07	2.55
N								
530161	0.038							
530790	0.038							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
530790	0.026	0.41	1.78	0.029	0.008	17.23	13.08	2.55
N								
530790	0.032							

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

**CERTIFICATE**

No. A/12-229108 Rev 00
Date 2012-02-20 Page 2/2

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
530790	0.026	0.41	1.78	0.029	0.008	17.23	13.08	2.55
	N							
530790	0.032							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
34781	278	314	551	63	63
	282	317	553	57	58
37609	278	316	562	60	61

Hardness test

Lot	Min	Max
	HRB	HRB
34781	72	76
37609	71	73

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 NFA 49-117 EN 10216-5 TC1 SS 2353-22 W
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 16.00 X 2.00 MM HT 53016
1 SS LOT 34781 DIN 2391/EN 10305-1 COLD *QA-TUBE*
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 16.00 X 2.00 MM HT 530790 SS LOT 37609 COLD MADE
BY SANDVIK IN SWEDEN *QA-TUBE*

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.

The certificate is produced with EDP and valid without signature.