

**CERTIFICATE****No. A/19-807038 Rev 00**

Date 2019-03-01 Page 1/3

INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References	Sandvik References
757577	Order No. Subs No. ABSMT Dispatch note
	532432 667072 40354/54
	ABSMT No. C.Code
	300-93440 15
003-00991 ITEMS	

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-213-18 AW, ASME SA-213-ED-17 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17945:2015 PED 2014/68/EU EN 10216-5 TC1 HRB MAX 80

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Pieces	Kg	M		
01	THT-3R60-16-2	553361	46767	7	29.0	42.00		
	16.00 X 2.00	554279	50406	1	4.0	6.00		
		554279	50407	42	175.0	252.00		
		554598	52511	20	83.0	120.00		
		Total		70	291.0	420.00		
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
553361	0.020	0.47	1.55	0.030	0.008	17.33	13.07	2.60
554279	0.018	0.42	1.63	0.030	0.009	17.25	13.10	2.63
554598	0.019	0.37	1.84	0.032	0.009	17.28	13.09	2.61
	N							
553361	0.041							
554279	0.035							
554598	0.033							

Quality assurance - Sofia Åkesson / Q-Manager MTC Service / Certificates

**Chemical composition, product (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
553361	0.023	0.45	1.55	0.030	0.008	17.34	13.10	2.62
554279	0.018	0.39	1.63	0.030	0.010	17.29	13.11	2.64
554598	0.017	0.38	1.87	0.033	0.008	17.34	13.13	2.64
N								
553361	0.039							
554279	0.034							
554598	0.036							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPA	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
46767	281	319	594	52	52
	284	323	595	52	52
	262	298	572	57	58
50406	282	319	585	55	56
	275	315	583	54	55
	278	315	582	53	54
52511	266	301	585	53	55
	266	300	583	56	57

Hardness test

Lot	Min	Max
	HRB	HRB
46767	74	77
50406	75	78
50407	77	77
52511	76	78

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- 100% PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- Leak test: Eddy current test acc to EN ISO 10893-1, 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 A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4435 TP316/3 16L CFA SML NDE 16.00 X 2.00 MM HT 553361 SS LOT 46767 MADE IN SWEDEN *QA-TUBE *

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4435 TP316/3 16L CFA SML NDE 16.00 X 2.00 MM HT 554279 SS LOT 50406 MADE IN SWEDEN *QA-TUBE *

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4435 TP316/3 16L CFA SML NDE 16.00 X 2.00 MM HT 554279 SS LOT 50407 MADE IN SWEDEN *QA-TUBE *

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 AW EN 1.4435 TP316/3 16L CFA SML NDE 16.00 X 2.00 MM HT 554598 SS LOT 52511 MADE IN SWEDEN *QA-TUBE *



The raw material is free from radioactive contamination.

Material free from mercury contamination.

No welding or weld repair.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (2014/68/EU, Annex 1 para 4.3) 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 9001:2015.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of AB Sandvik Materials Technology. Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.

The certificate is produced with EDP and valid without signature.