

**CERTIFICATE****No. A/18-713468 Rev 00**
Date 2018-01-16 Page 1/3INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA H@GA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References
755833	Customer order 2017-12-18	Order No. Subs No. ABSMT Dispatch note 500566 642537 12793/54 ABSMT No. C.Code 300-73934 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-213-17 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-3R60-16-1.5	048534	95744	6	19.0	36.00		
	16.00 X 1.50	048557	95777	2	6.0	12.00		
				Total	8	25.0 48.00		
KEY TO HEAT			KEY TO LOT					
Heat Code	Heat No.		Lot Code	Lot No.				
048534	547817		95744	0002001614				
048557	549944		95777	0002001939				
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048534	0.027	0.38	1.63	0.028	0.009	17.37	13.18	2.64
048557	0.018	0.38	1.57	0.033	0.008	17.23	13.10	2.62
	N							
048534	0.039							
048557	0.047							
Quality assurance - Sofia Åkesson / Q-Manager								
MTC Service / Certificates								

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Lot	C	Si	Mn	P	S	Cr	Ni	Mo
95744	0.026	0.40	1.62	0.029	0.008	17.40	13.25	2.65
95777	0.018	0.39	1.57	0.034	0.004	17.22	13.07	2.65
	N							
95744	0.040							
95777	0.045							

Tensile test at room temperature

Lot	Yield strength		Tensile strength		Elongation	
	MPa	MPa	MPa		%	%
	Rp0.2	Rp1.0	Rm		A	2"
95744	302	344	601		41	44
	301	342	599		44	46
95777	295	340	583		44	48
	288	336	574		45	48

Hardness test

Lot	Min	Max
	HRB	HRB
95744	79	80
95777	68	69

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 EN10305-1 TP 316/TP 316L EN 1.4435 COLD SML NDE 16.00 X 1.50 MM **SAKNAS** HT 547817 SG LOT 000200 1614 MADE BY SANDVIK *QA-TUBE*

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 TP 316/TP 316L EN 1.4435 COLD SML NDE 16.00 X 1.50 MM **SAKNAS** HT 549944 SG LOT 000200 1939 MADE BY SANDVIK *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 9001:2008.

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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 0002001614
0002001939