

**CERTIFICATE****No. A/18-726831 Rev 00**
Date 2018-03-09 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	
755805	Customer order 2017-12-11	Order No. 499970	Subs No. 642137
003-00991 ITEMS		ABSMT No. 300-73596	Dispatch note 16614/54
		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-213-17 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				
02	THT-3R60-16-2	048631	95821	50	211.0	300.00				
	16.00 X 2.00									
				Total	50	211.0 300.00				
KEY TO HEAT		KEY TO LOT								
Heat Code	Heat No.	Lot Code	Lot No.							
048631	551038	95821	0002001938							
TEST RESULTS										
Chemical composition (weight%)										
Heat	C	Si	Mn	P	S	Cr				
048631	0.020	0.40	1.63	0.029	0.007	17.34				
	N									
048631	0.048									
	Ni	Mo								
	13.02	2.63								
Quality assurance - Sofia Åkesson / Q-Manager										
MTC Service / Certificates										

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Chemical composition, product (weight%)

Lot	C	Si	Mn	P	S	Cr	Ni	Mo
95821	0.015	0.43	1.62	0.030	0.005	17.28	12.99	2.62
	N							
95821	0.049							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
95821	302	345	584	42	46
	302	344	576	42	46
	282	323	577	45	47

Hardness test

Lot	Min	Max
	HRB	HRB
95821	78	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 EN10305-1 TP 316/TP 316L EN 1.4435 COLD SML NDE 16.00 X 2.00 MM **SAKNAS** HT 551038 SG LOT 000200 1938 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 0002001938