

**CERTIFICATE****No. A/18-719335****Rev 00****Date 2018-02-06****Page 1/3**INSPECTION CERTIFICATE acc to  
EN 10204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA H@GA  
SWEDENINSPECTION STAMP  
QA-TUBE

Customer References		Sandvik References		
755954	Customer order 2018-01-23	Order No. 503591	Subs No. 644389	ABSMT Dispatch note 14397/54
003-00991	ITEMS	ABSMT No. 300-75315	C.Code 15	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
<b>Steel making process</b> 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-3R60-10-1 10.00 X 1.00	551228	36475	30	43.0	180.00	
				Total	30	43.0	180.00

TEST RESULTS									
Chemical composition (weight%)									
Heat	C	Si	Mn	P	S	Cr	Ni	Mo	
551228	0.021	0.39	1.62	0.028	0.008	17.31	13.06	2.61	
	N								
551228	0.039								
Chemical composition, product (weight%)									
Heat	C	Si	Mn	P	S	Cr	Ni	Mo	
551228	0.016	0.39	1.63	0.029	0.007	17.40	13.10	2.62	
	N								
551228	0.047								

**Quality assurance - Sofia Åkesson / Q-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
36475	299	342	590	46	43

**Hardness test**

Lot	Min	Max
	HRB	HRB
36475	74	75

**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 AW EN 1.44 35 TP316/316L CFA SML NDE 10.00 X 1.00 MM HT 551228 SS LOT 36475 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 9001:2008.

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.



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The certificate is produced with EDP and valid without signature.