

**CERTIFICATE****No. A/17-701599 Rev 00**
Date 2017-11-21 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	
755681	Customer order 2017-11-08	Order No. 496762	Subs No. 640099
003-00991 ITEMS		ABSMT No. 300-71807	ABSMT Dispatch note 09413/54
		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-15 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-3R60-10-1.5	550598	33339	14	26.0	84.00
	10.00 X 1.50					
Total				14	26.0	84.00
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr
550598	0.019	0.38	1.63	0.034	0.009	17.27
	N					
550598	0.038					
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr
550598	0.022	0.40	1.62	0.036	0.006	17.29
	N					
550598	0.039					
Quality assurance - Lars-Åke Bergqvist / QA-manager						
MTC Service / Certificates						

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Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
33339	302	334	583	46	45

Hardness test

Lot	Min	Max
	HRB	HRB
33339	75	77

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- 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 1.50 MM HT 550598 SS LOT 33339 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.

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The certificate is produced with EDP and valid without signature.