

**CERTIFICATE****No. A/16-582552 Rev 00**
Date 2016-06-01 Page 1/2INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
753466	Customer order 2016-05-25	Order No. 442686	Subs No. 610711 ABSMT No. C.Code 300-47310 15
003-00991	ITEMS	ABSMT Dispatch note 22352/54	

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-213-15C AW, ASME SA-213-ED-15 AW, ASTM A-269-15A NACE MR0175/ISO 15156-3:2015, NACE MR0103/ISO 17495:2015 PED 97/23/EC EN 10216-5 TC1 HRB MAX 80

EXTENT OF DELIVERY						
It	Product designation	Heat	Lot	Pieces	Kg	M
02	THT-3R60-8-1	048226	55031	20	21.0	120.00
	8.00 X 1.00					
				Total	20	21.0 120.00
KEY TO HEAT						
Heat Code		Heat No.				
048226		543931				
TEST RESULTS						
Chemical composition (weight%)						
Heat	C	Si	Mn	P	S	Cr Ni Mo
048226	0.020	0.43	1.60	0.030	0.0100	17.28 13.11 2.53
	N					
048226	0.045					
Chemical composition, product (weight%)						
Heat	C	Si	Mn	P	S	Cr Ni Mo
048226	0.030	0.44	1.59	0.031	0.0070	17.28 13.06 2.52
	N					
048226	0.047					
Quality assurance - Lars-Åke Bergqvist / QA-manager						
MTC Service / Certificates						

**Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	4D
55031	289	326	569	54	50

Hardness test

Lot	Min	Max
	HRB	HRB
55031	69	71

Following controls/tests have been satisfactorily performed:

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- 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/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD AW EN 1.4 435 TP316/316L CFA SMLS NDE 8.00 X 1.00 MM HT 543931 SS LOT 55031 MADE BY SANDVIK IN SWEDEN *QA-TUBE*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (97/23/EC) 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.