

**CERTIFICATE****No. A/15-514842 Rev 00**  
**Date 2015-07-30 Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

Customer References		Sandvik References		
752026	Customer order 2015-06-17	Order No. 408708	Subs No. 592647	ABSMT Dispatch note 02158/54
003-00991	ITEMS	ABSMT No. 300-31467	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-213-15A AW, ASME SA-213-ED-13 AW, ASTM A-269-13 NACE MR0175/ISO 15156-3:2009 PED 97/23/EC 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	048140	44846	17	24.0	102.00		
				Total	17	24.0 102.00		
KEY TO HEAT								
Heat Code	Heat No.							
048140	540919							
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048140	0.019	0.40	1.60	0.031	0.0070	17.34	13.09	2.54
	N							
048140	0.036							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048140	0.022	0.41	1.59	0.032	0.0070	17.36	13.04	2.55
	N							
048140	0.041							

**Quality assurance - Lars-Åke Bergqvist / QA-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
44846	281	319	566	53	49

**Hardness test**

Lot	Min	Max
	HRB	HRB
44846	72	74

**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 10246-2, 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 10.00 X 1.00 MM HT 540919 SS LOT 44846 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.