

**CERTIFICATE****No. A/15-532209 Rev 00**
Date 2015-10-21 Page 1/3INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References						
752469	Customer order 2015-10-12	Order No. 419768	Subs No. 598301					
003-00991	ITEMS	ABSMT No. 300-36612	Dispatch note 07441/54					
		C.Code 15						
Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING		Steel/material Designations Sandvik AISI 3R60 TP316/TP316L EN no 1.4435						
Steel making process 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		
02	THT-3R60-16-1.5	048164	93504	8	26.0	48.00		
	16.00 X 1.50							
				Total	8	26.0 48.00		
KEY TO HEAT		KEY TO LOT						
Heat Code	Heat No.	Lot Code	Lot No.					
048164	542271	93504	179999					
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048164	0.016	0.43	1.59	0.033	0.009	17.47	13.10	2.53
	N							
048164	0.036							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048164	0.020	0.46	1.60	0.031	0.008	17.36	13.14	2.53
	N							
048164	0.038							
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	2"
93504	275	317	583	43	45
	281	323	580	43	44

Hardness test

	Min	Max
Lot	HRB	HRB
93504	67	69

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-213AW/A-269 EN 10216-5 TC1 EN 10305-1 TP 316/TP 316L EN 1.4435 M S NDE 16.00 X 1.50 MM HT 542271 SG LOT 179999 MADE BY SANDVIK * 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.



CERTIFICATE

No. A/15-532209

Rev 00

Date 2015-10-21

Page 3/3

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 179999 REV01