

**CERTIFICATE****No. A/16-615011 Rev 00**
Date 2016-11-04 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
754076	Customer order 2016-11-04	Order No. Subs No. ABSMT Dispatch note 458990 619147 32407/54 ABSMT No. C.Code 300-54407 15
003-00991 ITEMS		

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 2014/68/EU EN 10216-5 TC1 HRB MAX 80

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Pieces	Kg	M		
03	THT-3R60-16-2 16.00 X 2.00	048295	94582	25	105.0	150.00		
				Total	25	105.0	150.00	
KEY TO HEAT				KEY TO LOT				
Heat Code		Heat No.		Lot Code		Lot No.		
048295		545826		94582		545826		
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048295	0.021	0.40	1.66	0.033	0.007	17.31	13.10	2.64
	N							
048295	0.042							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048295	0.020	0.40	1.66	0.033	0.005	17.34	13.08	2.62
	N							
048295	0.040							
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	2"
94582	248	289	568	44	46
	238	276	562	48	46
	240	280	567	48	46

Hardness test

Lot	Min	Max
	HRB	HRB
94582	68	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 A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 TP 316/TP 316L EN 1.4435 CFA SML NDE 16.00 X 2.00 MM HT 545826 SG LOT 545826 MADE BY SANDVIK *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) 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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 182497