

**CERTIFICATE****No. V/17-057662****Rev 00****Date 2017-05-11****Page 1/3**INSPECTION CERTIFICATE acc to
EN 10204 3.1Processkontroll Items AB
Box 2088
444 02 STORA H@GA
SWEDENINSPECTION STAMP
QA-TUBE**Customer References**

754909

Sandvik ReferencesOrder No. Subs No. Dispatch note
478046 156621 171631
Suppl. No C.Code
156621 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 requirementsASTM A-213-15C 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	Kg	M
01	THT-3R60-16-1 16.00 X 1.00	048295	94577	9.0	24.00

Total	9.0	24.00
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KEY TO HEAT

Heat Code	Heat No.
048295	545826

KEY TO LOT

Lot Code	Lot No.
94577	182695

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
048295	N 0.042							

Quality assurance - Lars-Åke Bergqvist / QA-manager
MTC Service / Certificates

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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							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
94577	260	300	544	45	45
	268	308	550	46	46
	254	294	543	48	47
	251	290	544	49	49
	256	295	545	48	47
	272	310	548	47	46

Hardness test

Lot	Min	Max
94577	67	70

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 TP 316/TP 316L EN 1.4435 CFA SML NDE 16.00 X 1.00 MM HT 545826 SG LOT 182695 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, 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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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.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 182695