

**CERTIFICATE****No. V/17-058014 Rev 00**
Date 2017-05-15 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**

754848

Sandvik ReferencesOrder No. Subs No. Dispatch note
477950 156593 171717
Suppl. No C.Code
156593 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-3R60-25-2 25.00 X 2.00	547817	21756	27.6	24.00
Total				27.6	24.00

TEST RESULTS**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
547817	0.027	0.38	1.63	0.028	0.009	17.37	13.18	2.64
N								
547817	0.039							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
547817	0.026	0.39	1.60	0.028	0.008	17.27	13.16	2.62
N								
547817	0.037							

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

**CERTIFICATE****No. V/17-058014****Rev 00****Date 2017-05-15****Page 2/3****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
21756	280	320	606	51	54
	274	311	602	53	54
	275	312	599	53	56
	278	317	603	52	55

Hardness test

	Min	Max
Lot	HRB	HRB
21756	75	77

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 AW EN 1.44 35 TP316/316L CFA SML NDE 25.00 X 2.00 MM HT 547817 SS LOT 21756 MADE IN SWEDEN *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.



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.