

**CERTIFICATE****No. V/17-072217 Rev 00**
Date 2017-09-21 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**

755426

Sandvik ReferencesOrder No. Subs No. Dispatch note
491647 159521 175675
Suppl. No C.Code
159521 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-213-17 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-3R60-12-1.5 12.00 X 1.50	549464	29122	99.3	252.00
Total				99.3	252.00

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
549464	0.019	0.39	1.62	0.030	0.012	17.19	13.05	2.63
	N							
549464	0.041							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
549464	0.017	0.39	1.61	0.030	0.010	17.23	13.02	2.61
	N							
549464	0.045							

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

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	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
29122	293	332	598	48	47

Hardness test

Lot	Min	Max
	HRB	HRB
29122	72	76

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 12.00 X 1.50 MM HT 549464 SS LOT 29122 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.

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The certificate is produced with EDP and valid without signature.