



**CERTIFICATE**

**No. V/17-055667**

**Rev 00**

**Date 2017-04-21**

**Page 1/3**

INSPECTION CERTIFICATE acc to  
EN 10204 3.1

Processkontroll Items AB  
Box 2088  
444 02 STORA H@GA  
SWEDEN

INSPECTION STAMP  
QA-TUBE

<b>Customer References</b>
754823

<b>Sandvik References</b>
Order No. Subs No. Dispatch note
476259 156237 171106
Suppl. No C.Code
156237 15

<b>Material description</b>
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING

  

<b>Steel making process</b>
Electric furnace

<b>Steel/material Designations</b>
Sandvik AISI
3R60 TP316/TP316L
EN no
1.4435

<b>Technical requirements</b>
ASTM 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

<b>EXTENT OF DELIVERY</b>						
It	Product designation	Heat	Lot	Kg	M	
02	THT-3R60-12-1.5 12.00 X 1.50	048373	24271	47.3	120.00	
Total				47.3	120.00	

  

<b>KEY TO HEAT</b>	
Heat Code	Heat No.
048373	546175

  

<b>TEST RESULTS</b>								
<b>Chemical composition (weight%)</b>								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048373	0.019	0.46	1.53	0.031	0.0060	17.31	13.24	2.63
	N							
048373	0.044							

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

**Chemical composition, product (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048373	0.016	0.46	1.55	0.031	0.0050	17.44	13.25	2.66
	N							
048373	0.044							

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
24271	336	377	613	49	46

**Hardness test**

Lot	Min	Max
	HRB	HRB
24271	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 12.00 X 1.50 MM HT 546175 SS LOT 24271 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.