



**CERTIFICATE**

**No. A/17-631986**

**Rev 00**

**Date 2017-01-23**

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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>		<b>Sandvik References</b>	
754246	Customer order 2016-12-15	Order No. 463692	Subs No. 621524
003-00991	ITEMS	ABSMT No. 300-56384	C.Code 15
		ABSMT Dispatch note 37389/54	

<b>Material description</b> SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	<b>Steel/material Designations</b> Sandvik SS 3R60 2353/2343 AISI EN no TP316/TP316L 1.4435
<b>Steel making process</b> 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, SS219713 Condition NO -24

<b>EXTENT OF DELIVERY</b>								
<b>It</b>	<b>Product designation</b>	<b>Heat</b>	<b>Lot</b>	<b>Pieces</b>	<b>Kg</b>	<b>M</b>		
01	THT-3R60-6-1 6.00 X 1.00	048296	18611	30	23.0	180.00		
				<b>Total</b>	<b>30</b>	<b>23.0</b>	<b>180.00</b>	
<b>KEY TO HEAT</b>								
<b>Heat Code</b>	<b>Heat No.</b>							
048296	545345							
<b>TEST RESULTS</b>								
<b>Chemical composition (weight%)</b>								
<b>Heat</b>	<b>C</b>	<b>Si</b>	<b>Mn</b>	<b>P</b>	<b>S</b>	<b>Cr</b>	<b>Ni</b>	<b>Mo</b>
048296	0.021	0.38	1.70	0.033	0.0070	17.17	13.13	2.63
	<b>N</b>							
048296	0.034							

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

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048296	0.024	0.39	1.69	0.033	0.0070	17.25	13.14	2.63
	N							
048296	0.035							

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
18611	341	385	578	51	50

**Hardness test**

Lot	Min	Max
	HRB	HRB
18611	76	78

**Following controls/tests have been satisfactorily performed:**

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E and ISO 3651-2 A
- 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 6.00 X 1.00 MM HT 545345 SS LOT 18611 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.