



**CERTIFICATE**

**No. A/17-644980**

**Rev 00**

**Date 2017-03-16**

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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>		
754662/Holmgren	Customer order 2017-03-14	Order No. 472513	Subs No. 626450	ABSMT Dispatch note 41438/54
003-00991	ITEMS	ABSMT No. 300-60490	C.Code 15	

<b>Material description</b> SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	<b>Steel/material Designations</b> Sandvik AISI 3R60 TP316/TP316L EN no 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 17945:2015  
 PED 2014/68/EU EN 10216-5 TC1  
 HRB MAX 80

<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>		
02	THT-3R60-12-1 12.00 X 1.00	048316	23308	90	153.0	540.00		
				<b>Total</b>	90	153.0 540.00		
<b>KEY TO HEAT</b>								
<b>Heat Code</b>	<b>Heat No.</b>							
048316	546369							
<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>
048316	0.018	0.39	1.64	0.032	0.0090	17.26	13.15	2.63
	<b>N</b>							
048316	0.033							

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

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048316	0.016	0.39	1.65	0.030	0.0100	17.18	13.24	2.59
	N							
048316	0.030							

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
23308	301	346	582	44	41

**Hardness test**

Lot	Min	Max
	HRB	HRB
23308	75	76

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

- Flattening test.
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- 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 1.00 MM HT 546369 SS LOT 23308 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.