

**CERTIFICATE****No. V/13-028865****Rev 00****Date 2013-05-16****Page 1/2**INSPECTION CERTIFICATE acc to  
EN 10 204 3.1Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDENINSPECTION STAMP  
QA-TUBE

<b>Customer References</b>  712805	<b>Sandvik References</b> Order No. Subs No. Dispatch note 331755 126491 129389 Suppl. No C.Code 126491 15
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<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
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<b>Technical requirements</b> ASTM A-213-11A AW, ASME SA-213-ED-10 AD-11A AW, ASTM A-269-10 NACE MR0175/ISO 15156-3:2009 PED 97/23/EC EN 10216-5 TC1 HRB MAX 80
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<b>EXTENT OF DELIVERY</b>									
<b>It</b>	<b>Product designation</b>				<b>Heat</b>	<b>Lot</b>	<b>Kg</b>	<b>M</b>	
02	THT-3R60-16-2				047904	98262	42.0	60.00	
	16.00 X 2.00								
					Total		42.0	60.00	
<b>KEY TO HEAT</b>					<b>KEY TO LOT</b>				
<b>Heat Code</b>		<b>Heat No.</b>			<b>Lot Code</b>		<b>Lot No.</b>		
047904		534541			98262		4855740/1-1		
<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>	
047904	0.018	0.41	1.59	0.028	0.012	17.33	13.12	2.53	
	<b>N</b>								
047904	0.046								
<b>Chemical composition, product (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>	
047904	0.018	0.42	1.63	0.025	0.003	17.46	12.98	2.51	
	<b>N</b>								
047904	0.045								

**Quality assurance - Per Eriksson / QA-manager**  
**MTC Service / Certificates**

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
98262	281	327	601	52	57

**Hardness test**

Lot	Min	Max
	HRB	HRB
98262	79	79

**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 10246-2, 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/ASME A/SA-213AW/A-269 EN 10216-5 TC1 EN 10305-1 TP 316/TP 316L EN 1.4435 M S PK1 NDE 16.00 X 2.00 MM HT 534541 SZ LOT 4855740/1-1 MADE BY SANDVIK \*QA-TUBE\*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (97/23/EC) 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.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO A130215