



INSPECTION CERTIFICATE acc to EN 10 204 3.1

Processkontroll Items AB  
Box 2088  
444 02 STORA HÖGA  
SWEDEN

INSPECTION STAMP  
QA-TUBE

<b>Customer References</b>  713014	<b>Sandvik References</b> Order No. Subs No. Dispatch note 338080 127887 131225 Suppl. No C.Code 127887 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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**Technical requirements**  
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

**EXTENT OF DELIVERY**

It	Product designation	Heat	Lot	Kg	M
01	THT-3R60-20-2 20.00 X 2.00	535541	58064	43.2	48.00
Total				43.2	48.00

**TEST RESULTS**

**Chemical composition (weight%)**

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
535541	0.016	0.37	1.64	0.028	0.009	17.35	13.16	2.53
	<b>N</b>							
535541	0.043							

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
535541	0.018	0.39	1.64	0.030	0.007	17.39	13.19	2.55
	<b>N</b>							
535541	0.046							

**Quality assurance - Ulrik Rodling / 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"
58064	288	336	590	53	55
	285	328	582	53	57
	281	322	579	56	57
	289	331	590	53	55

**Hardness test**

Lot	Min	Max
	HRB	HRB
58064	77	80

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

- Flattening test.
- Ring expansion 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 EN 1.4435 TP 316/316L COLD SMLS NDE 20.00 X 2.00 MM HT 535541 SS LOT 58064 MADE BY SANDVIK IN SWEDEN \*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.