



INSPECTION CERTIFICATE acc to  
EN 10204 3.1

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

INSPECTION STAMP  
QA-TUBE

Customer References	Sandvik References
754953	Order No. Subs No. Dispatch note 478787 156771 171846 Suppl. No C.Code 156771 15

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik AISI 3R60 TP316/TP316L EN no 1.4435
<b>Steel making process</b> Electric furnace	

Technical requirements
ASTM A-213-17 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

EXTENT OF DELIVERY								
It	Product designation	Heat	Lot	Kg	M			
01	THT-3R60-10-1	048371	24809	1.3	6.00			
	10.00 X 1.00	048371	24812	45.9	204.00			
				Total	47.3	210.00		
KEY TO HEAT								
Heat Code	Heat No.							
048371	546699							
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048371	0.021	0.44	1.56	0.032	0.0070	17.24	13.01	2.63
	N							
048371	0.039							

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

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

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048371	0.018	0.45	1.56	0.031	0.0060	17.34	13.01	2.63
	N							
048371	0.043							

**Tensile test at room temperature**

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	4D
24809	361	401	595	46	43
24812	310	348	589	50	47

**Hardness test**

Lot	Min	Max
	HRB	HRB
24809	72	73
24812	67	72

**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 10.00 X 1.00 MM HT 546699 SS LOT 24809 MADE IN SWEDEN \*QA-TUBE\*

SANDVIK 3R60 ASTM A213/A269 ASME SA213 COLD EN10216-5 TC1 EN10305-1 AW EN 1.44 35 TP316/316L CFA SML NDE 10.00 X 1.00 MM HT 546699 SS LOT 24812 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.