



CERTIFICATE

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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

Customer References		Customer order 2017-02-01		Sandvik References				
754452				Order No.	Subs No.	ABSMT Dispatch note		
				467950	623957	38851/54		
003-00991 ITEMS				ABSMT No.	C.Code			
				300-58336	15			
Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING				Steel/material Designations				
				Sandvik AISI				
				3R60 TP316/TP316L				
				EN no				
				1.4435				
Steel making process Electric furnace								
Technical requirements								
ASTM A-213-15A AW, ASME SA-213-ED-13 AW, ASTM A-269-14								
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	Pieces	Kg	M		
02	THT-3R60-12-1.5	048191	49156	1	4.0	6.00		
	12.00 X 1.50							
				Total	1	4.0		
						6.00		
KEY TO HEAT								
Heat Code		Heat No.						
048191		542644						
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048191	0.021	0.39	1.68	0.032	0.0060	17.33	13.19	2.53
	N							
048191	0.038							
Quality assurance - Lars-Åke Bergqvist / QA-manager MTC Service / Certificates								

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Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
048191	0.021	0.40	1.69	0.030	0.0060	17.34	13.19	2.54
	N							
048191	0.045							

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
49156	322	362	574	55	53

Hardness test

Lot	Min	Max
	HRB	HRB
49156	77	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 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/ASME A/SA-213 A-269 EN 10216-5 TC1 EN 10305-1 COLD AW EN 1.4 435 TP316/316L CFA SMLS NDE 12.00 X 1.50 MM HT 542644 SS LOT 49156 MADE BY SANDVIK 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.