

**CERTIFICATE****No. V/10-048062 Rev 00**
Date 2010-09-10 Page 1/2INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References	Sandvik References
709087	Order No. Subs No. Dispatch note 211824 184638 097486 Suppl. No C.Code 184638 15

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no 1.4436/1.4435
Steel making process	
Electric furnace	

Technical requirements
PED/23/EC, EN 10216-5 TC1 SS 219711, DIN 17458 TC1, NFA 49-117-09/85 ASTM A-213-08 AW, ASME SA-213-ED-07 AD-09B AW, ASTM A-269-08 NACE MR0175/ISO 15156-3:2003, HRB Max 80

EXTENT OF DELIVERY								
It	Product designation			Heat	Lot	Kg	M	
01	THT-3R60-25-2			047288	92567	41.4	36.00	
25.00 X 2.00								
Total						41.4	36.00	
KEY TO HEAT				KEY TO LOT				
Heat Code		Heat No.		Lot Code		Lot No.		
047288		515532		92567		4843629/1-1		
TEST RESULTS								
Chemical composition (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047288	0.018	0.41	1.54	0.034	0.009	17.24	13.05	2.52
	N							
047288	0.039							
Chemical composition, product (weight%)								
Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047288	0.018	0.44	1.56	0.032	0.010	17.29	13.15	2.53
	N							
047288	0.039							
Quality assurance - Per Eriksson/ QA-manager Tube & Pipe								
MTC Service / Certificates								

**CERTIFICATE****No. V/10-048062****Rev 00****Date 2010-09-10****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
92567	252	285	567	53	58
	247	283	558	54	56
	250	277	562	53	57
	249	282	567	54	57

Hardness test

	Min	Max
Lot	HRB	HRB
92567	75	76

Following controls/tests have been satisfactorily performed:

- Ring expansion test
- Flaring test
- PMI-test.
- Intergranular corrosion test acc to ASTM A-262 PR.E
- Intergranular corrosion test acc. to EN ISO3651-2, Method A.
- Leak test: Eddy current test acc to EN 10246-2, ASME SA-1016.
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK 3R60 ASTM/ASME A/SA-213AW/A-269 NFA 49-117 EN 10216-5 TC1 SS 2353-22
WNR 1.4435 TP 316/TP 316L Z2CND17-13 EN 1.4435 M S PK1 25.00 X 2.00 MM HT 5155
32 SZ LOT 4843629/1-1 DIN 2391 *QA-TUBE*

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

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO A091186