

**CERTIFICATE****No. V/11-076571****Rev 00****Date 2011-09-02****Page 1/2**INSPECTION CERTIFICATE acc to
EN 10 204 3.1Processkontroll Items AB
Box 2088
444 02 STORA HÖGA
SWEDENINSPECTION STAMP
QA-TUBE

Customer References 710447	Sandvik References Order No. Subs No. Dispatch note 258090 110444 110532 Suppl. No C.Code 110444 15																																																																								
Material description SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING Steel making process Electric furnace	Steel/material Designations Sandvik SS 3R60 2353 AISI AFNOR TP316/TP316L Z2CND17-13 W.nr DIN 1.4435 X 2 CRNIMO 18 14 3 EN no 1.4435																																																																								
Technical requirements PED/23/EC, EN 10216-5 TC1 SS 219711, DIN 17458 TC1, NFA 49-117-09/85 ASTM A-213-09A AW, ASME SA-213-ED-10 AW, ASTM A-269-08 NACE MR0175/ISO 15156-3:2009, HRB Max 80																																																																									
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Quality assurance - Ulrik Rodling / QA-manager Tube & Pipe MTC Service / Certificates																																																																									

**CERTIFICATE****No. V/11-076571****Rev 00****Date 2011-09-02****Page 2/2****Tensile test at room temperature**

	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
Lot	Rp0.2	Rp1.0	Rm	A	2"
24630	297	341	592	55	58
	299	340	592	55	58
	296	337	584	56	58
	298	338	589	55	58
	298	341	591	55	58
	301	341	591	56	59

Hardness test

	Min	Max
Lot	HRB	HRB
24630	76	78

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
- 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 W
NR 1.4435 Z2CND17-13 EN 1.4435 TP316/316L M S PK1 NDE 28.00 X 2.00 MM HT 52762
8 SS LOT 24630 DIN 2391/EN 10305-1 COLD *QA-TUBE*

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.

The certificate is produced with EDP and valid without signature.