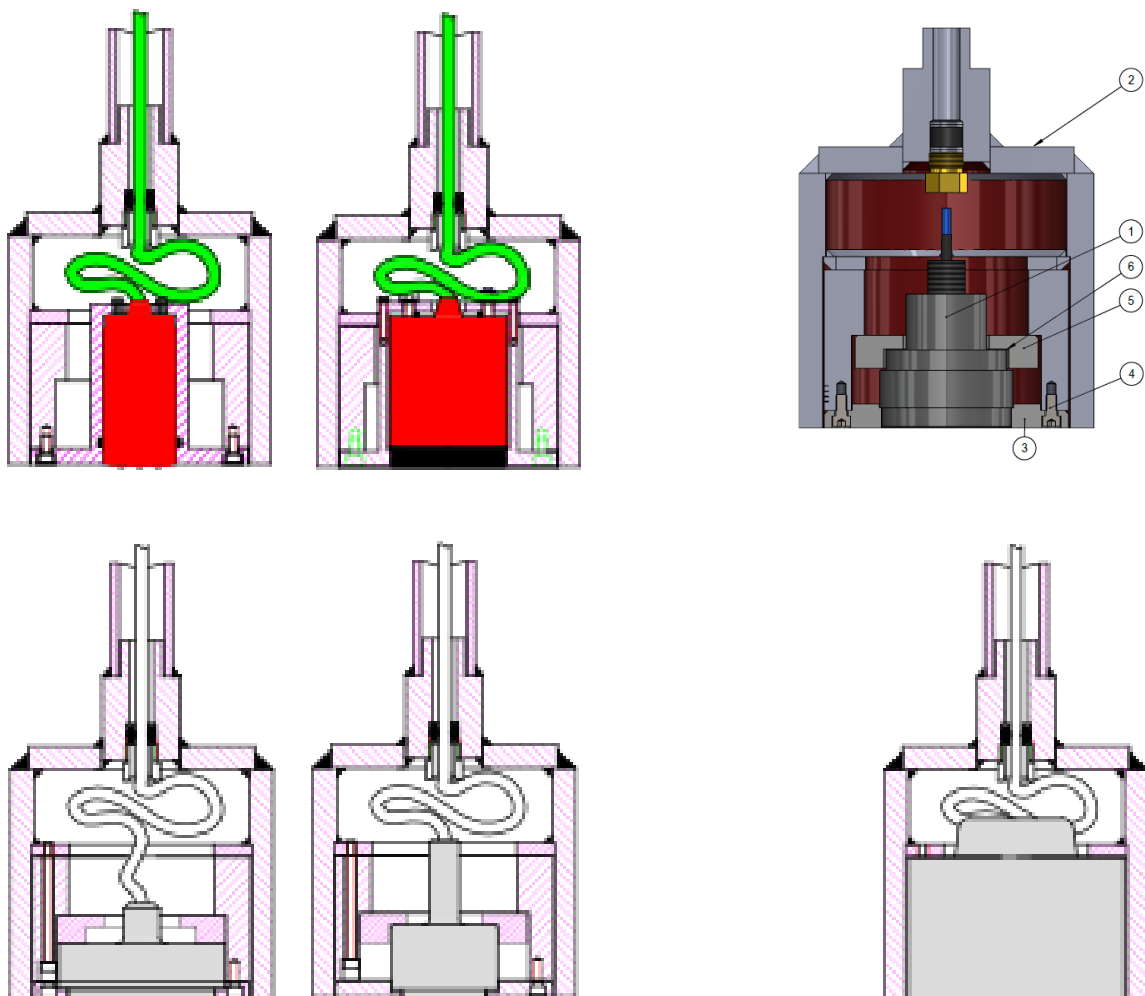


SKIPPER

Combo Tank Steel

ETNSTC/ETNSTCL/ETNSTCLF Installation Manual



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Contents

1. General information.....	4
2. Combo Transducer Tank.....	6
3. Welding Guidance Combo Tank	7
4. Cable Pipe for Transducer Tank.....	8
5. Transducer Mounting	9
6. 200 kHz Transducer in ETNSTC.....	10
7. 50 kHz Transducer in ETNSTC	11
10. 24/38 kHz Transducer in ETNSTCLF	12
12. 60mm Sensor in ETNSTCL	13
13. 100mm Sensor in ETNSTCL.....	14

1. General information

The SKIPPER ETNSTC Combo Tank is used for installation of:

1. Echo Sounder transducer type (24, 38, 50 and 200 kHz).
2. Speed Log sensors 100mm.
3. Speed Log sensors 60mm.

Caution!

Be aware that the sensor/transducer contains high precision parts and therefore proper handling when mounting is essential for the final result.

When handling the Tank, all lifting devices must be attached on the outside of the Tank. It is very important to not insert any chains, wire, rope or any other device into the Tank chamber. This to avoid damaging and any kind of pollution of the Tank

The SKIPPER ETNSTC Combo Tank is delivered final assembled. The parts necessary for the sensor and transducer mounting will be found packed with the sensor/transducer. First of all, it must be decided where the Tank should be installed. Normally, this will be in the fore part of the ship, in the centerline, or as close to the centerline as possible. Optimal system operation is achieved by fitting the sensor/transducer as deep as possible on the hull.

- The active surface of the sensor must be installed with front face a maximum of +/-1 degree to the ships horizontal plane. (Speed Logs)
- The active surface of the transducer must be installed with front face a maximum of +/-7 degree to the ships horizontal plane. (Echo Sounder).

Do not mount sensor/transducers close to the bow thruster propeller outlets, or aft of other hull installations (outlets, vents or other protruding details) who may create aeration or turbulence.

It is necessary to select a part of the hull that is submerged and free from turbulence and aeration under all load and speed conditions, and to avoid positions where air is trapped in heavy weather.

If a flat, horizontal section is not available for the sensor/transducer fitting, the shipyard must construct a suitable bed. Welding seams in this area should be smoothed and rounded off, in order not to create turbulence or aeration at speed.

Protect the active element of the transducer/sensors during transport and installation, and **do not paint the surface.**

Important

”Sensors for Speed Log and Echo Sounder are delivered with a fixed cable. Needed attention must be taken to allow easy replacement/pulling of new cable during maintenance”.

SKIPPER Electronics AS will recommend installation positions if GA-drawings (General arrangements), lines drawings and frame drawings are made available for study.

Condition.

The welding to hull structures and structural support of the items may be subject to separate approval by classification societies for each installation on board a ship.

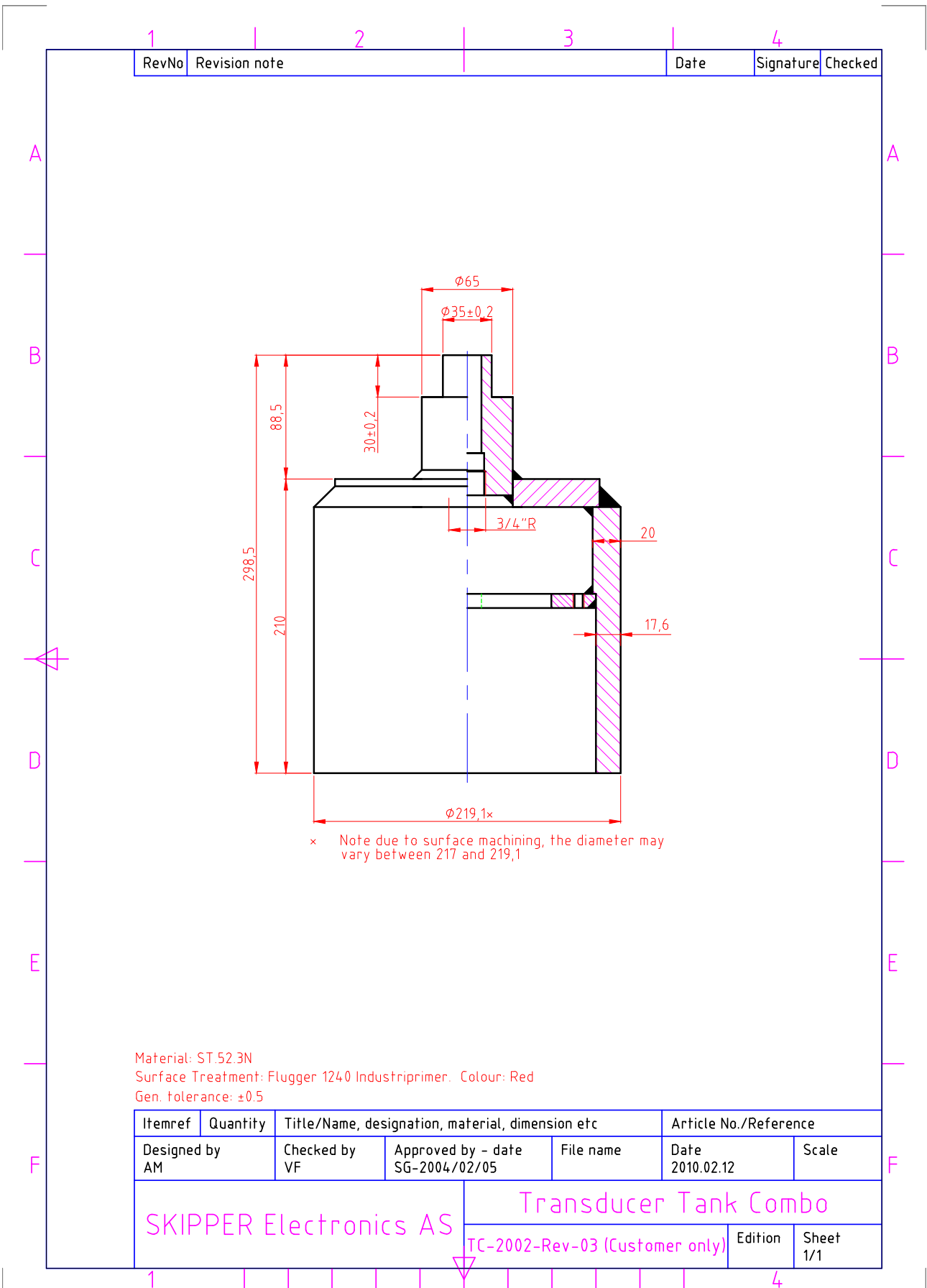
- Standard welding practice, methods and procedures should be observed, but may vary. (See welding notes).

WELDING NOTES!

All bottom parts and flanges for welding are precisely machined parts. During welding of these parts to the ship’s hull plates, careful attention must be paid to avoid construction strain on the bottom parts and flanges.

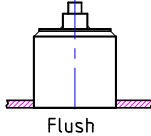
- Let parts cool down during welding.
- Over heating may change fit and form and result in non-conformity with intended sensor/transducer.
- Welding to thick hull steel plates will exert high stress on bottom parts and flanges.
- Especially care must be taken during welding of stainless steel flanges.
- Work must be performed by a qualified and certified welder.

2. Combo Transducer Tank

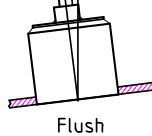


3. Welding Guidance Combo Tank

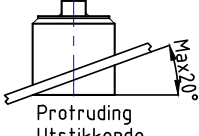
1		2	3	4
RevNo	Revision note		Date	Signature
	Max 1° for Speed Logs Max 7° for Echo Sounders			Checked



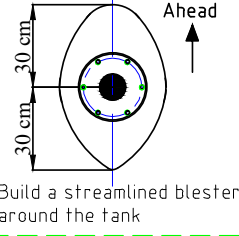
Flush



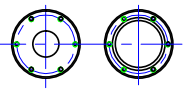
Flush



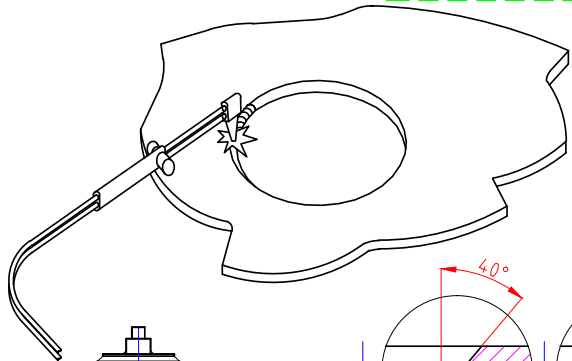
Protruding
Utstikkende



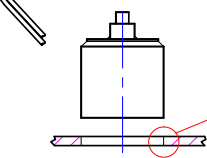
Build a streamlined blester
around the tank

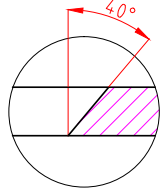


50 kHz 200 kHz

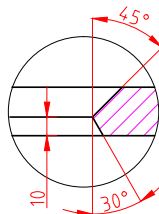


Material Tickness Top and Sides: 20mm
Materialtykkelse topp og sider: 20mm

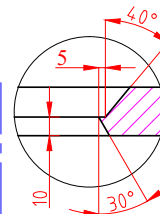




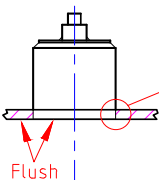
40°



45°



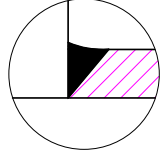
40°

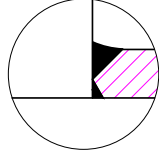


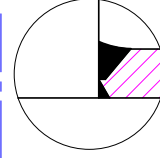
Flush

Shell: 20 - 30mm
Hud: 20 - 30mm

Shell: Thicker than 30mm
Hud: Tykkere enn 30mm







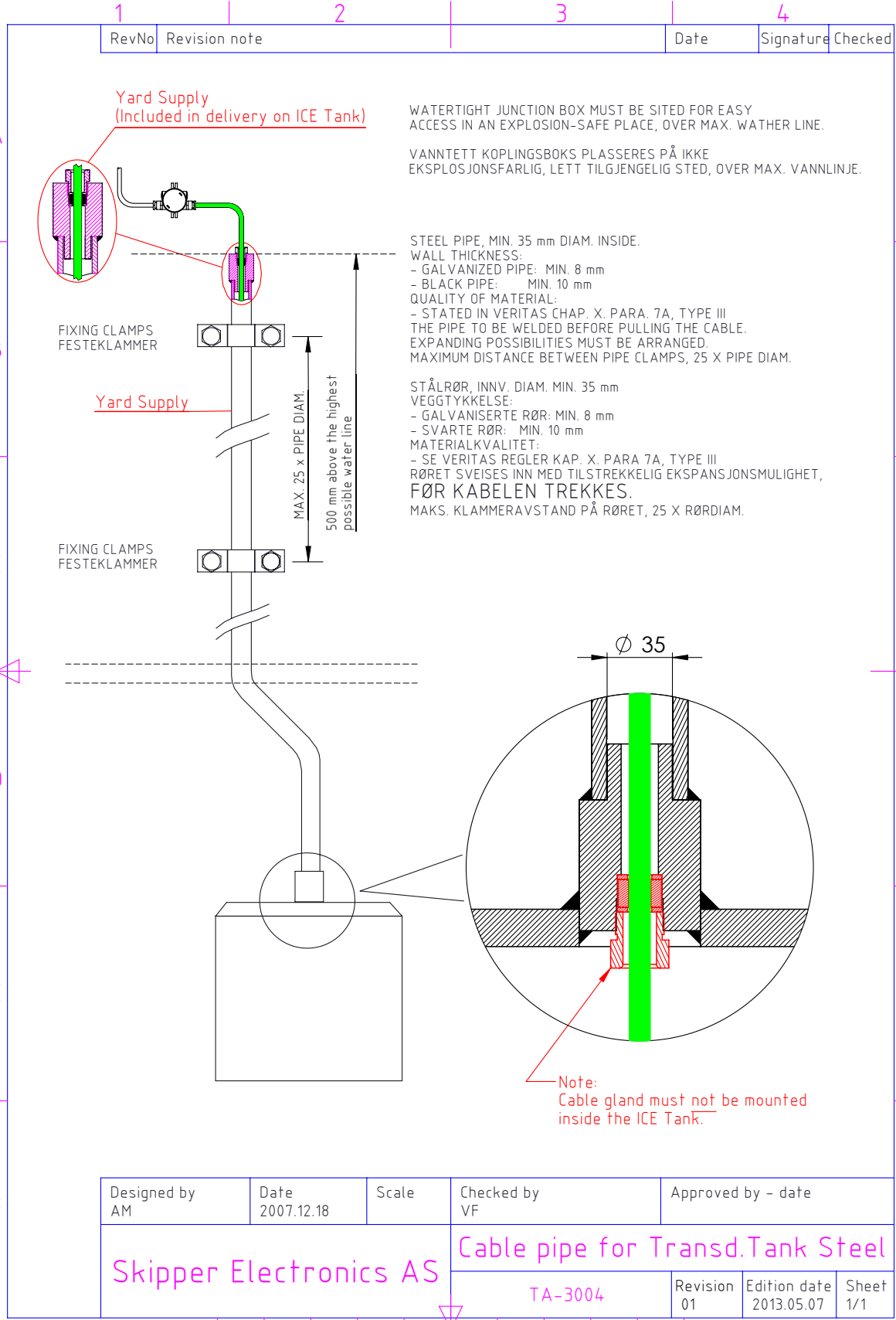
Weld the Tank according to procedure as shown.
Use low-Hydrogen electrodes, e.g OK 4800. In order to avoid contraction strain, hammer each Welding seam before applying next. Allow the Tank to cool down during welding.
DO NOT HAMMER THE LAST WELDING SEAM!
Grind flush all Weldings within 5M in front of, and 3M to the side of the Transducer. Finally, paint the Transducer Tank inside and outside with a non-corroicve coating.

Sveis tanken i henhold til viste prosedyre. Bruk lavhydrogen elektroder, f.eks. OK 4800.
For å unngå krympespenninger mest mulig, hamres hver sveiested for neste legges, og tanken holdes så kald som mulig under sveising.
SISTE SVEIESTRENG MÅ IKKE HAMRES!
Planslip alle sveisesømmer innenfor et areal av 5M i front og 3M til hver side for svingeren. Til slutt males svingertanken utvendig og innvendig med korrosjonshindrende maling.

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Matre	Checked by	Approved by - date	Date 2007.10..16
		Scale	

SKIPPER Electronics AS		Installation and welding guidance for Tranducer Tank	
TB-3001-Rev-03		Edition 12.05.24	Sheet 1/1

4. Cable Pipe for Transducer Tank



5. Transducer Mounting

1		2		3		4
RevNo	Revision note	Date	Signature	Checked		

A

B

C

D

E

F

Provide approx. 3/4m of Cable between Cable Gland and the Transducer Element.
Sørg for at kabellengden mellom kabelgjennomføring og svinger er ca. 3/4m.

Tube, Aluminium Rør, Aluminium Ref. TCA-2075

Tube, Steel Rør, Stål Ref. TA3004

Washer, stainless — Skive, rustfri

Rubber Gasket — Gummipakning

Washer, stainless — Skive, rustfri

Packing Nipple — Pakknippel

Sensor/Transducer Element with Cable. Svingerelement med kabel.

Mounting Ring Montasjering

Allen Screw M8x16 DIN912. Apply with lead or sim. on Threads. Syl.hode skruer M8x16 DIN912. Påfør blyhvitt el.lign. på gjenger.

Special Wrench/Tool for tightening of Packing Nipple. Spesialverktøy for stramming av pakknippel.

Allen key 6mm. Nøkkel 6mm.

A

B

C

D

E

F

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by AM	Checked by VF	Approved by - date	File name
		Date 2007.12.18	Scale
Skipper Electronics AS		Mounting of Transducer	
		TB-3003-Rev-01	Edition Sheet 1/1

6. 200 kHz Transducer in ETNSTC

1		2		3		4	
RevNo	Revision note				Date	Signature	Checked

Assembling order

Pos.(1) og (2) premounted Units

Assembled

* NOTE: DUE TO SURFACE MACHINING, THE DIAMETER MAY VARY BETWEEN 217 AND 219MM

10	6	Screw M8 x 16 DIN 912	St.steel A4
9	1	Ring 200 kHz or 50 kHz	TC-2005-Rev-01
8	1	Transducer 200 kHz 25/40meter	ETN200F / (+X=40m.)
7	1	PG-Nipple	TC-2013-Rev-00
6	2	Washer M12 DIN 125	St.steel A4
5	1	Gasket	SB-6029-Rev-00
4	1	Ring200 kHz	TC-2011-Rev-00
3	3	Screw M8x100 DIN912	St.steel A4
2	1	Main Adapter	TC-2004-Rev-00
1	1	Transducer Tank Combo	TC-2002-Rev-03
ITEM	QTY.	DESCRIPTION	Part.No. / MATERIAL

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Matre	Checked by VF	Approved by - date SG-04.03.15	File name Date 2007.11.22
SKIPPER Electronics A/S		200kHz Transducer in TC-2002	
		TC-0200-Rev-03	Edition Sheet 1/1

7. 50 kHz Transducer in ETNSTC

1	2	3	4
RevNo	Revision note	Date	Signature
		Checked	

Assembling order

Pos.(1) and (2) premounted Units

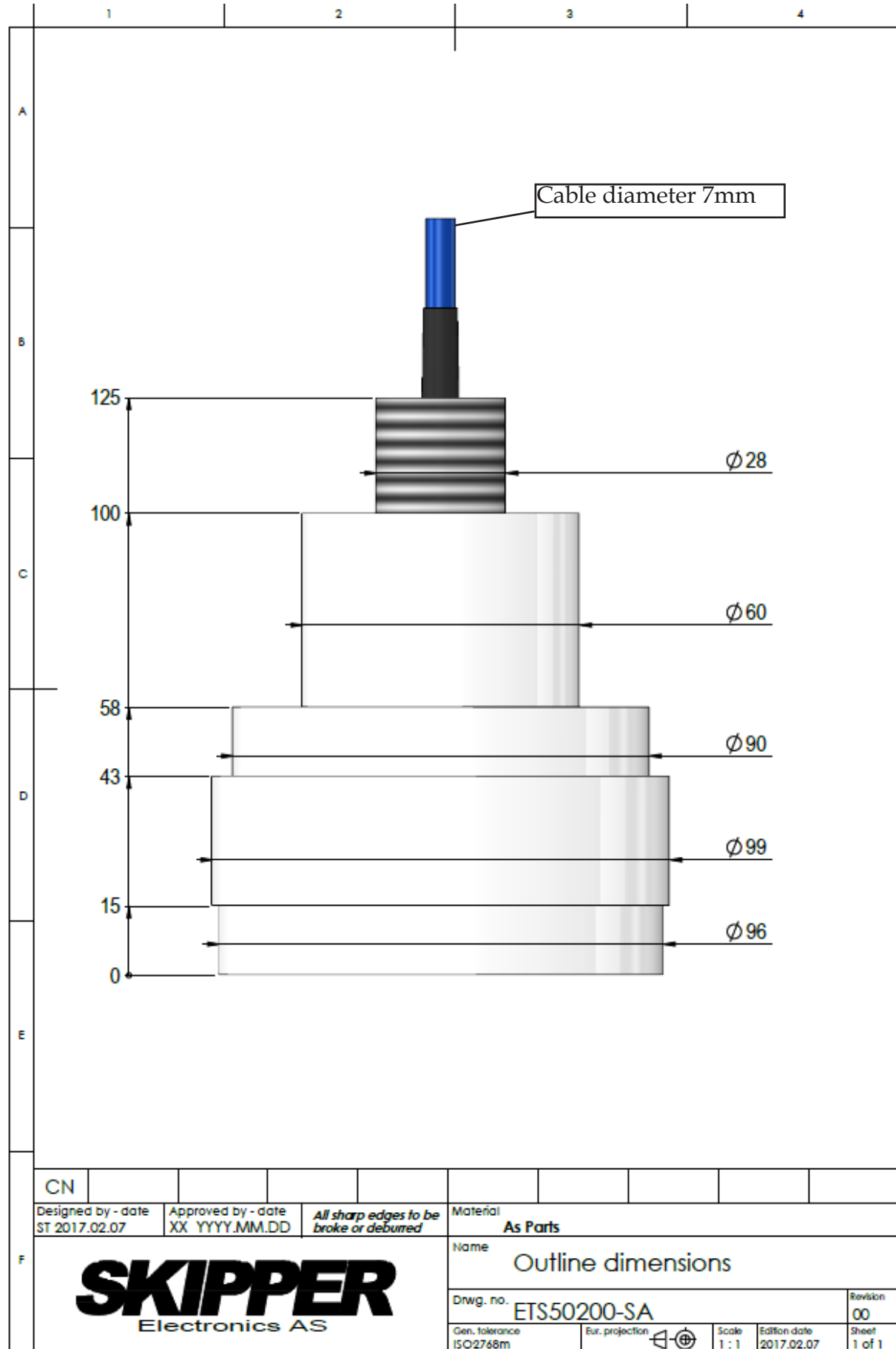
Assembled

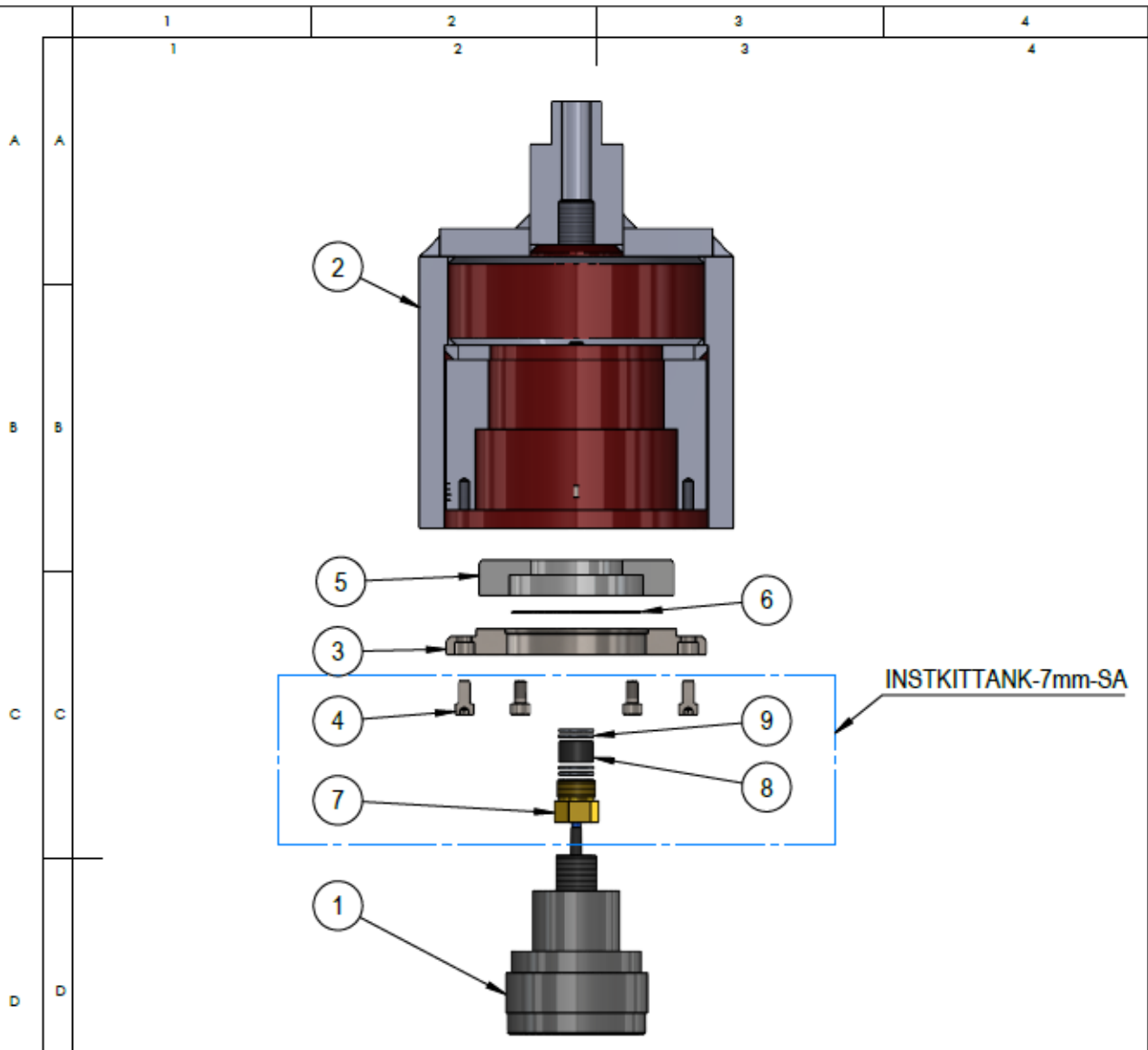
x NOTE: DUE TO SURFACE MACHINING, THE DIAMETER MAY VARY BETWEEN 217 AND 219 MM

ITEM	QTY.	DESCRIPTION	DWG.NO / MATERIAL
10	6	Screw M8 x 16 DIN 912	St.steel A4
9	1	Ring 50 kHz or 200 kHz	TC-2005-Rev-01
8	1	Transducer 50 kHz 25/40meter	ENT050BEL / (+X = 40m.)
7	1	PG-Nipple	TC-2013-Rev-00
6	2	Washer M12 DIN 125	St.steel A4
5	1	Gasket	SB-6029-Rev-00
4	1	Ring 50 kHz	TC-2010-Rev-00
3	3	Screw M8x100 DIN912	St.steel A4
2	1	Main Adapter	TC-2004-Rev-00
1	1	Transducer Tank Combo	TC-2002-Rev-03

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Matre	Checked by VF	Approved by - date SG.04.03.15	File name Date 2007.06.04
<p style="color: magenta; font-size: 1.2em;">SKIPPER Electronics A/S</p>		<p style="color: magenta; font-size: 1.2em;">50kHz Transducer in TC-2002</p>	
<p style="color: magenta;">TC-0050-Rev-02</p>		Edition	Sheet 1/1

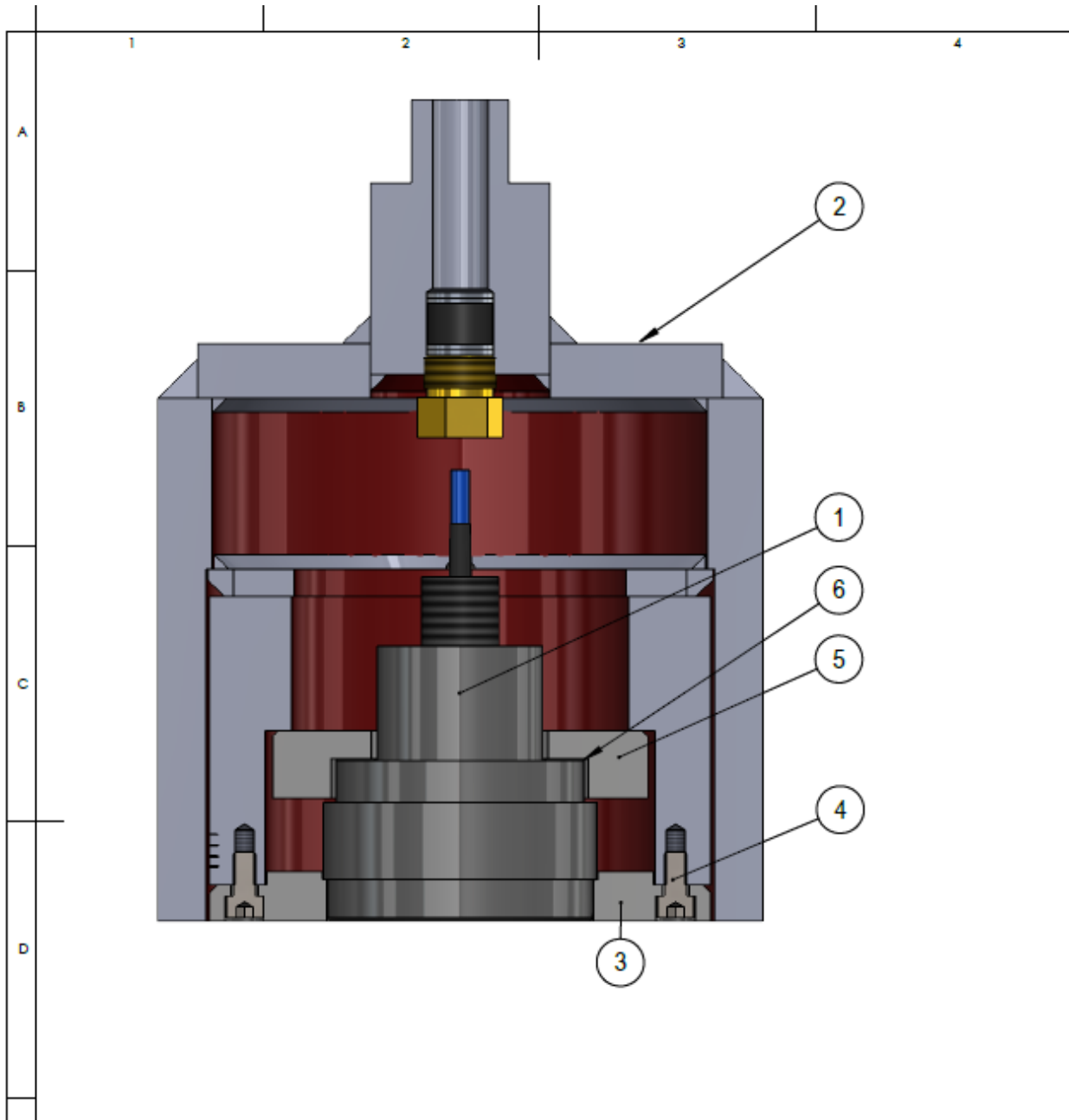
8. 50/200 kHz Transducer ETS50200 in ETNSTC





POS.	PART NR.	DESCRIPTION	QTY.
1	ETS50200-SA	Transducer 50/200kHz in 100mm housing w/25m cable	1
2	ETNSTCL	Combo Tank with Adapter	1
3	ETS50200SR	Mounting Ring 50-200 kHz	1
4	ZOA-01016	Allen screw M8X16/912/A4 6knt	6
5	ETNAPL	Adapter PP 50/200kHz TC-2005	1
6	ZOA-01087	Rubber gasket Ø60 ø62 x 1mm	1
7	ZOA-01017	Bronze Nut, PG-Nipple TC-2013	1
8	DB-2018	Gasket Ø23,5 ø8 x 15mm	1
9	ZOA-01009	Washer M12. DIN125A. A4.	4

CN									
Designed by - date ST 2018.05.11	Approved by - date GT 2018.05.11	<i>All sharp edges to be broke or deburred</i>		Material N/A					
				Name ETS50200 i ETNSTCL Exploded					
				Drwg. no. ETS50200T-SA				Revision 00	
Gen. tolerance ISO2768m		Eur. projection ⌀		Scale 2:3		Edition date 2018.06.21		Sheet 2 of 2	



POS	PART NUMBER	DESCRIPTION	QTY.
1	ETS50200-SA	Transducer 50/200kHz in 100mm housing w/25m cable	1
2	ETNSTCL	Combo Tank with Adapter	1
3	ETS50200SR	Mounting Ring 50-200 kHz	1
4	ZOA-01016	M8 x 16 DIN912 A4	6
5	ETNAPL	Adapter PP 50/200kHz TC-2005	1
6	ZOA-01087	Rubber gasket Ø90 ø62 x 1mm for ETS50200	1

CN							
Designed by - date ST 2017.10.26	Approved by - date GT 2017.10.26	<i>All sharp edges to be broke or deburred</i>		Material As parts			
				Name ETS50200-SA in ETNSTCL			
				Dwg. no. ETS50200T-SA			Revision 00
Gen. tolerance ISO2768m		Eur. projection ⊖		Scale 1 : 2	Edition date 2017.1026	Sheet 1 of 2	

10. 24/38 kHz Transducer in ETNSTCLF

1	2	3	4
RevNo	Revision note	Date	Signature
		Date	Checked

Assembling order

Assembled

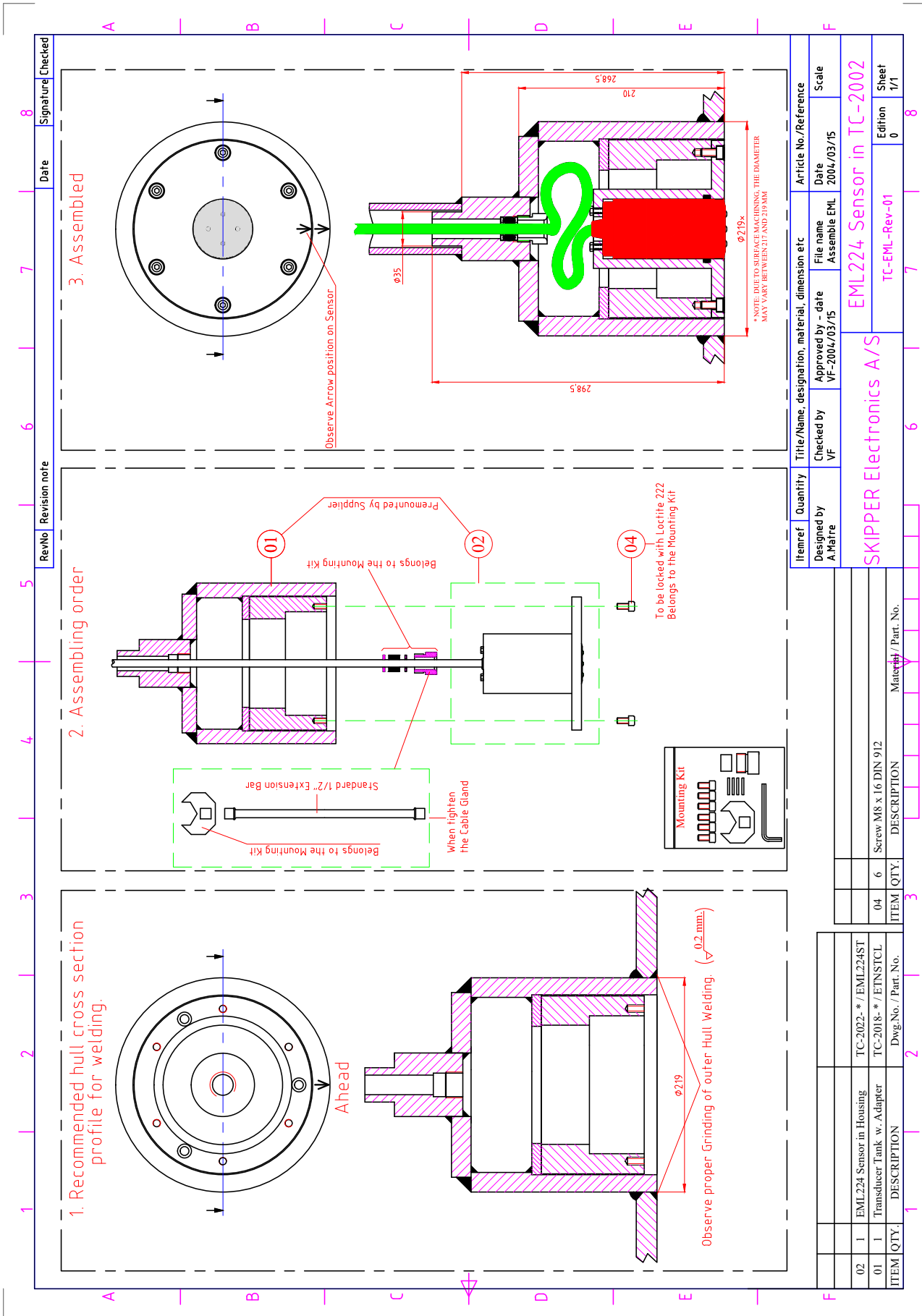
* NOTE: DUE TO SURFACE MACHINING, THE DIAMETER MAY VARY BETWEEN 217 AND 219MM

View A

8	3	Screw M8 x 100 DIN 912	St.steel A4
7	2	Washer M12 DIN 125	St.steel A4
4	1	Gasket	SB-6029-Rev-00
3	1	PG-Nipple	TC-2013-Rev-00
2	1	Transducer Tank Combo	TC-2002-Rev-01
1	1	24 kHz Transducer	ETN24M
	1	38 kHz Transducer	ETN38M
ITEM	QTY.	DESCRIPTION	Part.No. / MATERIAL

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Matre	Checked by VF	Approved by - date VF-2005.04.12	Date 05.04.12
SKIPPER Electronics A/S		24/38kHz Transducer in TC-2002	
		TC-2438-Rev-01	Edition Sheet 1/1

12. 60mm Sensor in ETNSTCL



RevNo

Revision note

Date

Signature

Checked

Itemref

Quantity

Title/Name, designation, material, dimension etc

Article No./Reference

Designed by

Approved by - date

File name

Scale

Checked by

VF-2004/03/15

Assembly EML

2004/03/15

VF

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

Designed by

Approved by - date

File name

Scale

Checked by

VF-2004/03/15

Assembly EML

2004/03/15

VF

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

TC-2002

Material / Part. No.

DESCRIPTION

ITEM QTY.

04

6

Screw M8 x 16 DIN 912

DESCRIPTION

ITEM QTY.

02

1

EML224 Sensor in Housing

TC-2022-*/EML224ST

DESCRIPTION

ITEM QTY.

01

1

Transducer Tank w. Adapter

TC-2018-*/ETNSTCL

DESCRIPTION

ITEM QTY.

01

1

Transducer Tank w. Adapter

TC-2018-*/ETNSTCL

13. 100mm Sensor in ETNSTCL

