

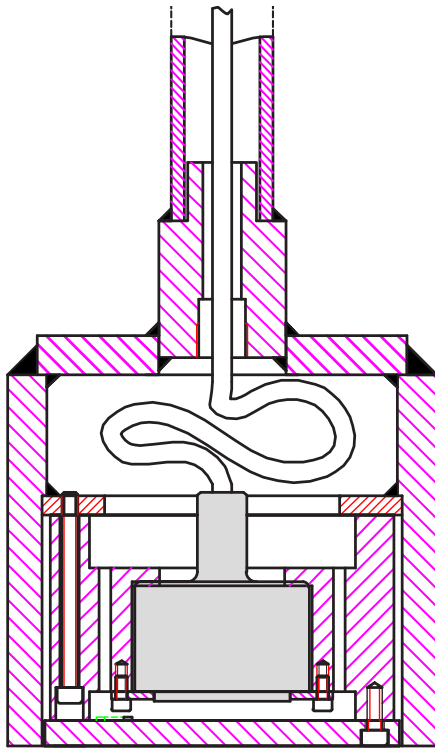
SKIPPER

Combo Tank Steel

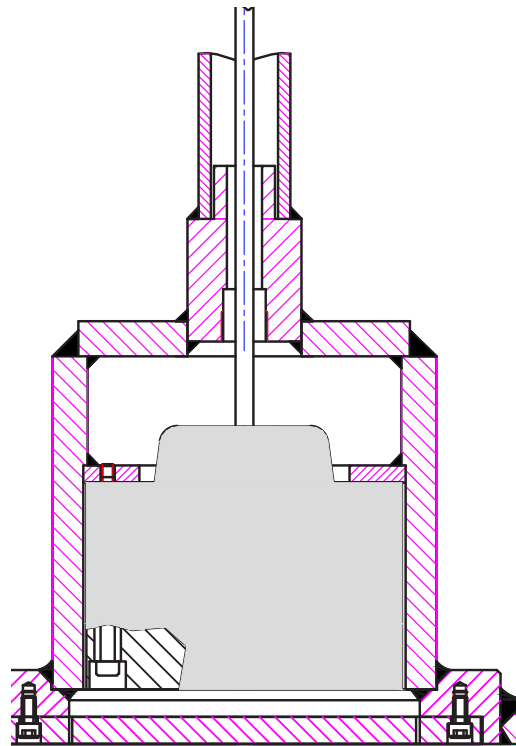
ETNSTCI/ETNSTCILF

Ice/sand protected tanks

Installation Manual



ETNSTCI



ETNSTCILF

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1. General information

The SKIPPER ETNSTCI/ETNSTCILF combo ice/sand protection tank is used for installation of:

1. Echo sounder transducer type (24, 38, 50 and 200 kHz).

Caution!

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

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 transducer as deep as possible on the hull.

- The active surface of the transducer must be installed with front face a maximum of +/-7 degree to the ships horizontal plane.

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 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 during transport and installation, and **do not paint the surface.**

Important

To comply with POLAR class requirements the Echo sounder transducer should be installed below any ice belt

An echo sounder transducer installed into a tank with ice protection plate in front will have certain disadvantages compared without a plate

- The plate will decrease the acoustic signal and decrease the general performance of the Echo sounder
- The area between transducer and protection plate must be filled with water with no air bobbles present at all time when echo sounder is in operation. Transducers pinging into air bubbles may become defective after few minutes of operation.

To install the transducer in a tank with ice protection plate in stead of in a sea valve flush with the hull result in worse performance (still inside IMO requirement) and higher risk of transducer damage. Transducer damage in a tank with Ice protection is normally not covered by any SKIPPER warranty.

”Transducers for 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) 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.

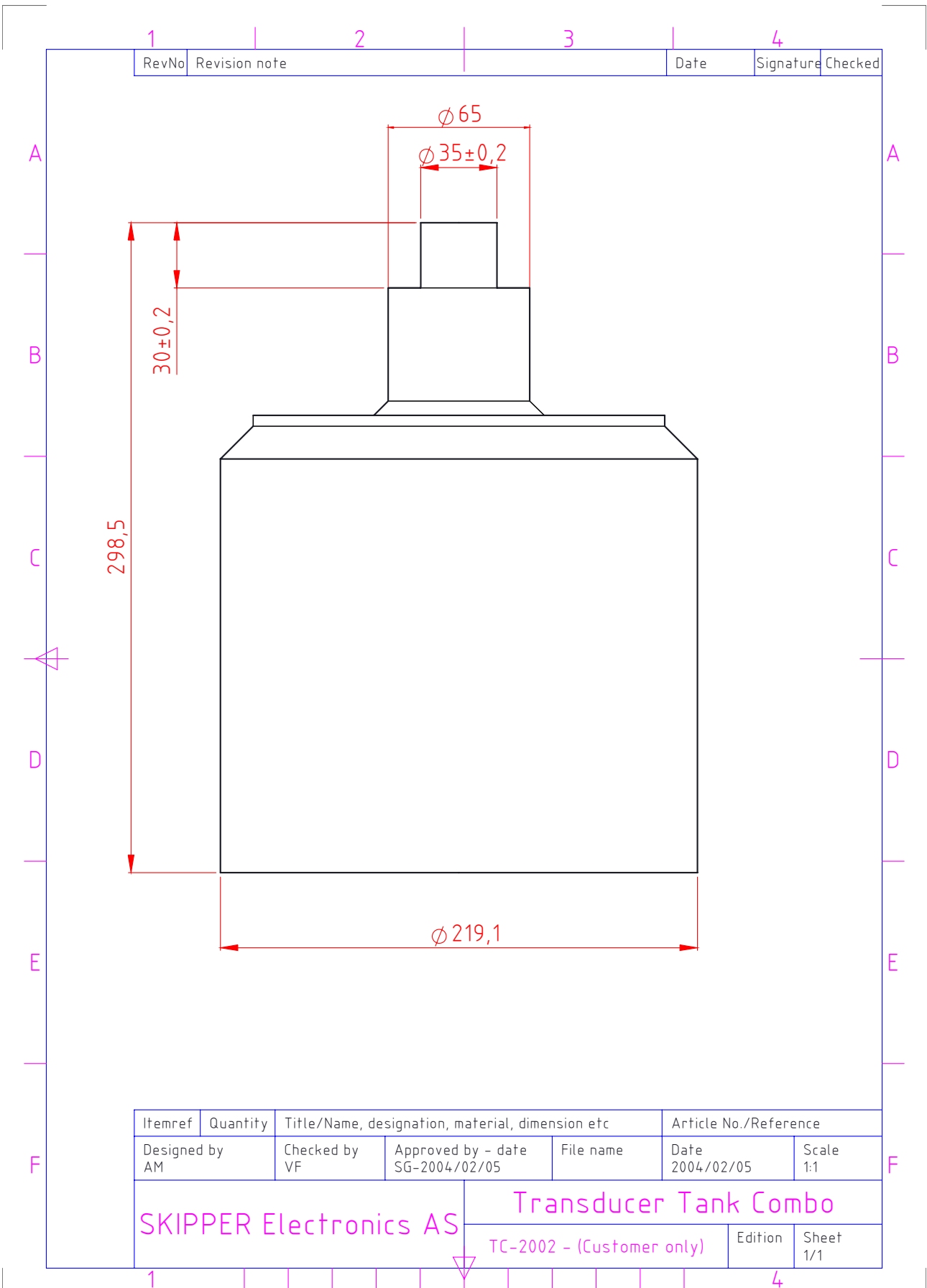
Standard welding practice, methods and procedures should be observed, but may vary. (See welding notes).

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			Checked

Max 1° for Speed Logs
Max 7° for Echo Sounders

Flush Flush Protruding Utstikkende

Ahead

Build a streamlined bleser around the tank

50 kHz

200 kHz

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

Welding sequence
Sveise rekkefølge

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

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

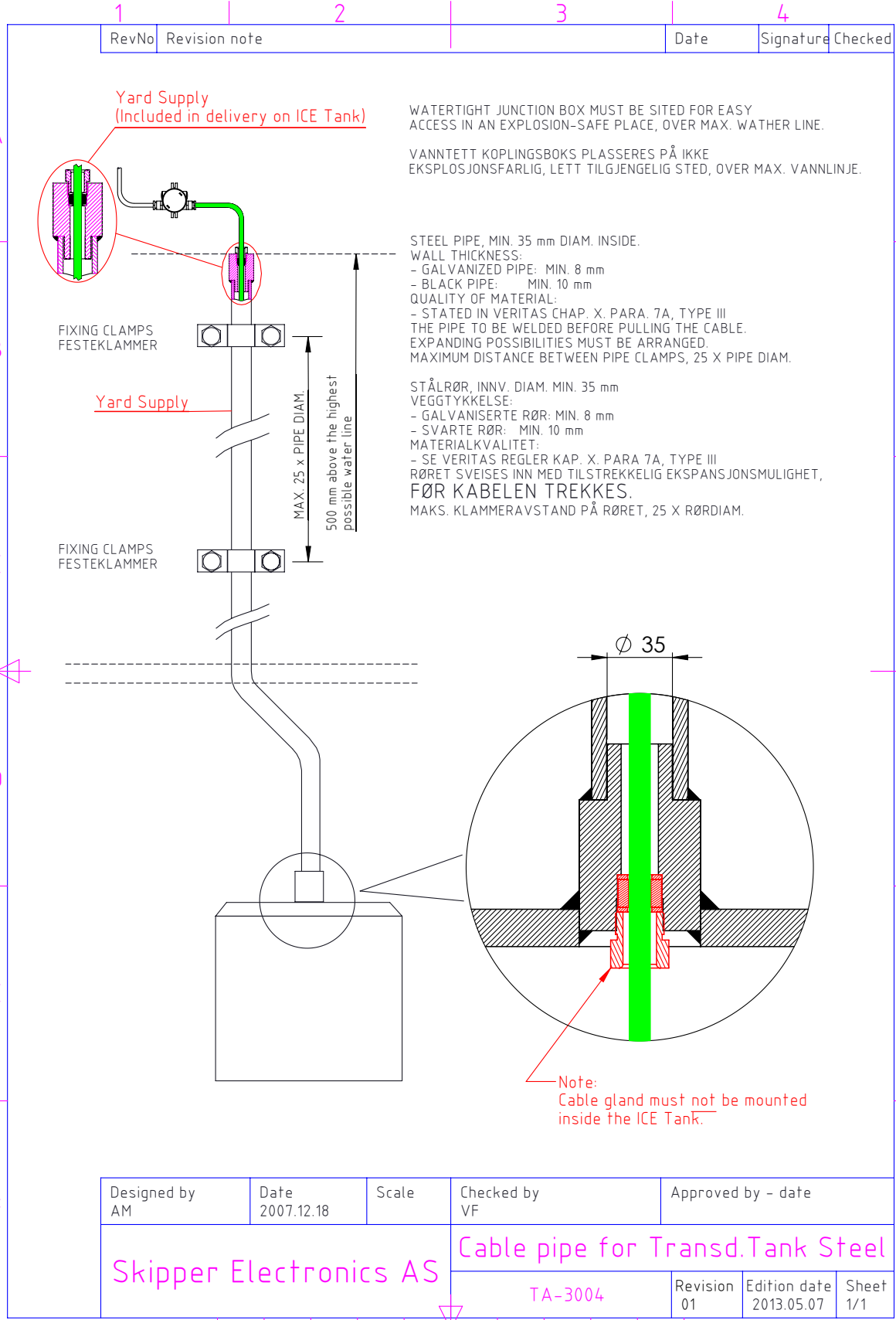
Flush

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-corroive coating.

Sveis tanken i henhold til viste prosedyre. Bruk lavhydrogen elektroder, f.eks. OK 4800. For å unngå krympespenninger mest mulig, hamres hver sveisestreg før 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.

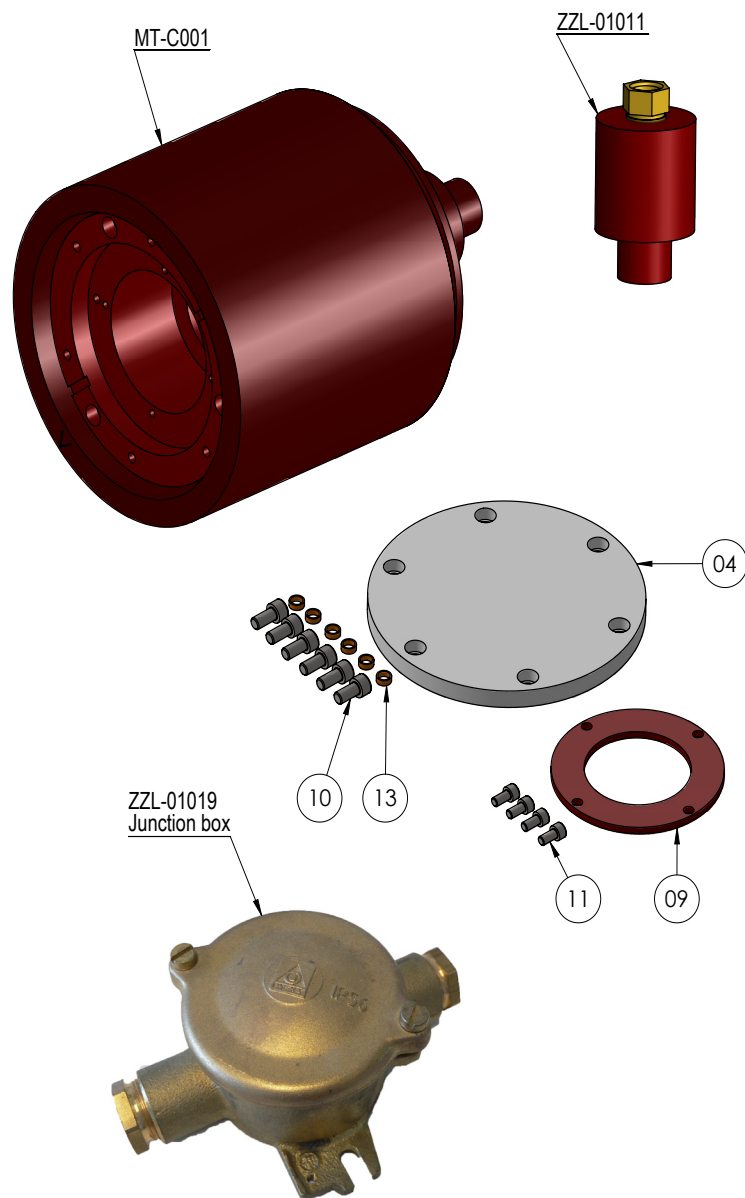
Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Matre	Checked by	Approved by - date	Date 2007.10..16
SKIPPER Electronics AS		Installation and welding guidance for Tranducer Tank	
		TB-3001-Rev-03	Edition 12.05.24
		Sheet 1/1	

4. Cable pipe for transducer tank



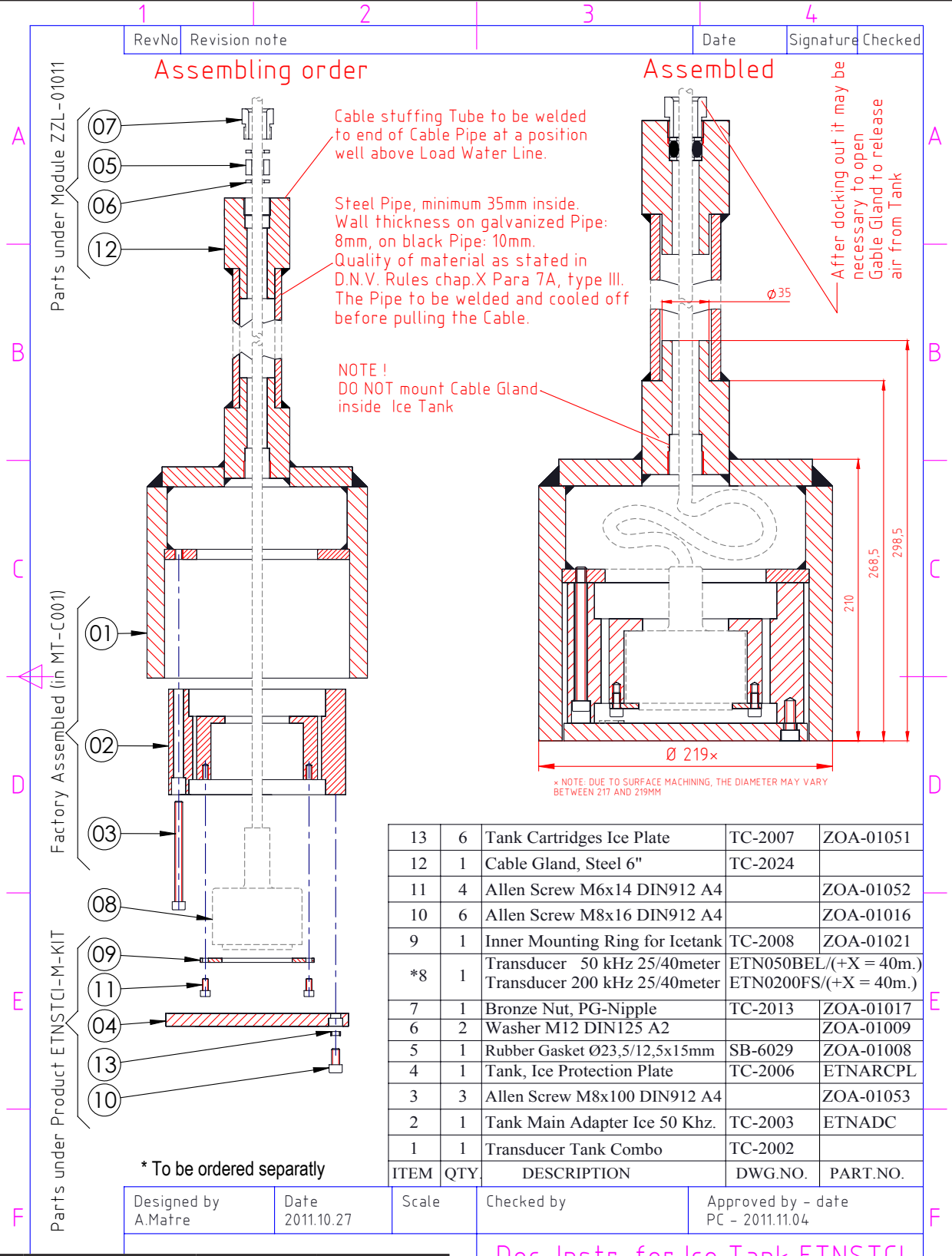
5. ETNSTCI Ice tank for high frequency transducer sound (100 mm) 50/200 kHz.

1. Weld the tank at the selected suitable position according to welding instruction/notes. See [“Welding notes!” on page 5](#)
2. Install the cable pipe (yard supply) between the transducer tank top and a position above Max waterline.
3. Install the transducer and accessories according to instructions. **Note:** Do not mount cable glands inside the tank.
4. After undocking of the ship, it may be necessary to open the cable gland on top of the cable pipe to bleed out the air to ensure that water will fill the transducer tank. If the tank is not filled with water, the performance of the transducer will be heavily reduced. See [“Bleeding the tank” on page 13](#)



See item ref. on [page 10](#)

6. 50 or 200 kHz Transducer in ice tank ETNSTCI TC-2002



Pos	Part number	Size	Torque
03	ZOA-01053	M8	25Nm
10	ZOA-01016	M8	20Nm
11	ZOA-01052	M6	10Nm

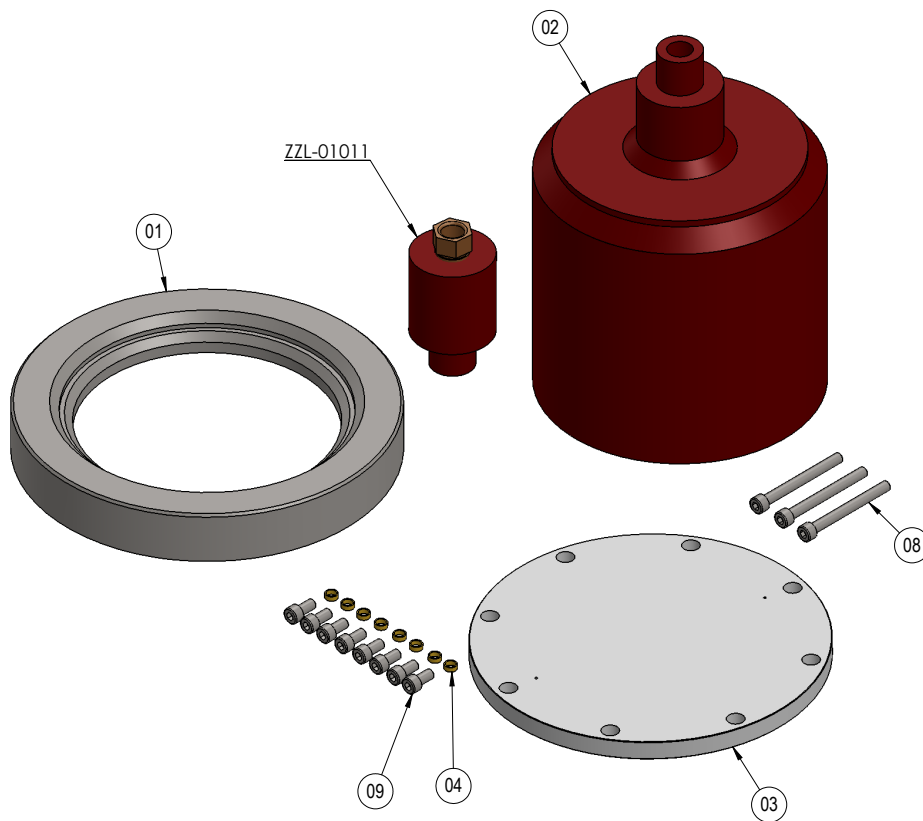
Doc. Instr. for Ice Tank ETNSTCI

DI-ETNSTCI

Revision 00 Edition date 4 Sheet 01

7. ETNSTCILF Ice tank for low frequency transducer sound (191 mm) 38/24 kHz

1. Weld the bottom flange and weld the the tank to the bottom flange according to welding instructions/ note. See [“Welding notes!” on page 5.](#)
2. Install the cable pipe (yard supply) between the transducer tank top and a position above Max waterline.
3. Install the transducer and accessories according to instructions. **Note:** Do not mount cable glands inside the tank.
4. After undocking of the ship, it may be necessary to open the cable gland on top of the cable pipe to bleed out the air to ensure that water will fill the transducer tank. If the tank is not filled with water, the performance of the transducer will be heavily reduced. See [“Bleeding the tank” on page 13](#)



See item ref. on [page 12](#)

8. 24/38 kHz Transducer in ice tank ETNSTCILF TC-2002

1	2	3	4	5	6	7	8
A	B	C	D	E	F		

Welding Guidance for Transducer Tank:
See Drawing TB-3001

01

42

ϕ 292

Observe proper Grinding of outer Hull Welding

Material: AISI 316L / WNO 1.4404

Parts under Module ZZL-01011

02

03

04

05

06

07

08

09

12

13

After docking out it may be necessary to open Gable Gland to release air from Tank

Cable stuffing Tube to be welded to end of Cable Pipe at a position well above Load Water Line.

Steel Pipe, minimum 35mm inside. Wall thickness on galvanized Pipe: 8mm, on black Pipe: 10mm. Quality of material as stated in D.N.V. Rules chap X, Para 7A, Type III. The Pipe to be welded and cooled off before putting the Cable.

DO NOT mount Cable Gland inside the Ice Tank

NB! The 2 opposite Slots must not be filled with Grease or similar. (This is done to secure Water penetration)

07	Bronze Nut, PG-Nipple	TC-2013	ZOA-01017
06	Washer M12 DIN125 A2		ZOA-01009
05	Rubber Gasket 023,5/12,5x1,5mm	SB-6029	ZOA-01008
04	Tank Cartridges Ice Plate	TC-2007	ZOA-01051
03	Tank, Protection Plate Ice 24/38kHz	TC-2025	
02	Transducer Tank Combo	TC-2002	
01	Tank, Bottom Flange Ice 24/38kHz	TC-2026	
ITEM QTY.	DESCRIPTION	Dwg.No.	Part. No.

*13	1	Transducer 24/38kHz	ETN024T / ETN038T
12	1	Cable Gland, Steel 6"	TC-2024
09	8	Allen Screw M8x1,6 DIN912 A4	ZOA-01016
08	3	Allen Screw M8x1,00 DIN912 A4	ZOA-01053
ITEM QTY.	DESCRIPTION	Dwg.No.	Part. No.

*** To be ordered separately**

Designed by HK

Date 2011.10.27

Scale

Checked by

Approved by - date
PC - 2011.11.04

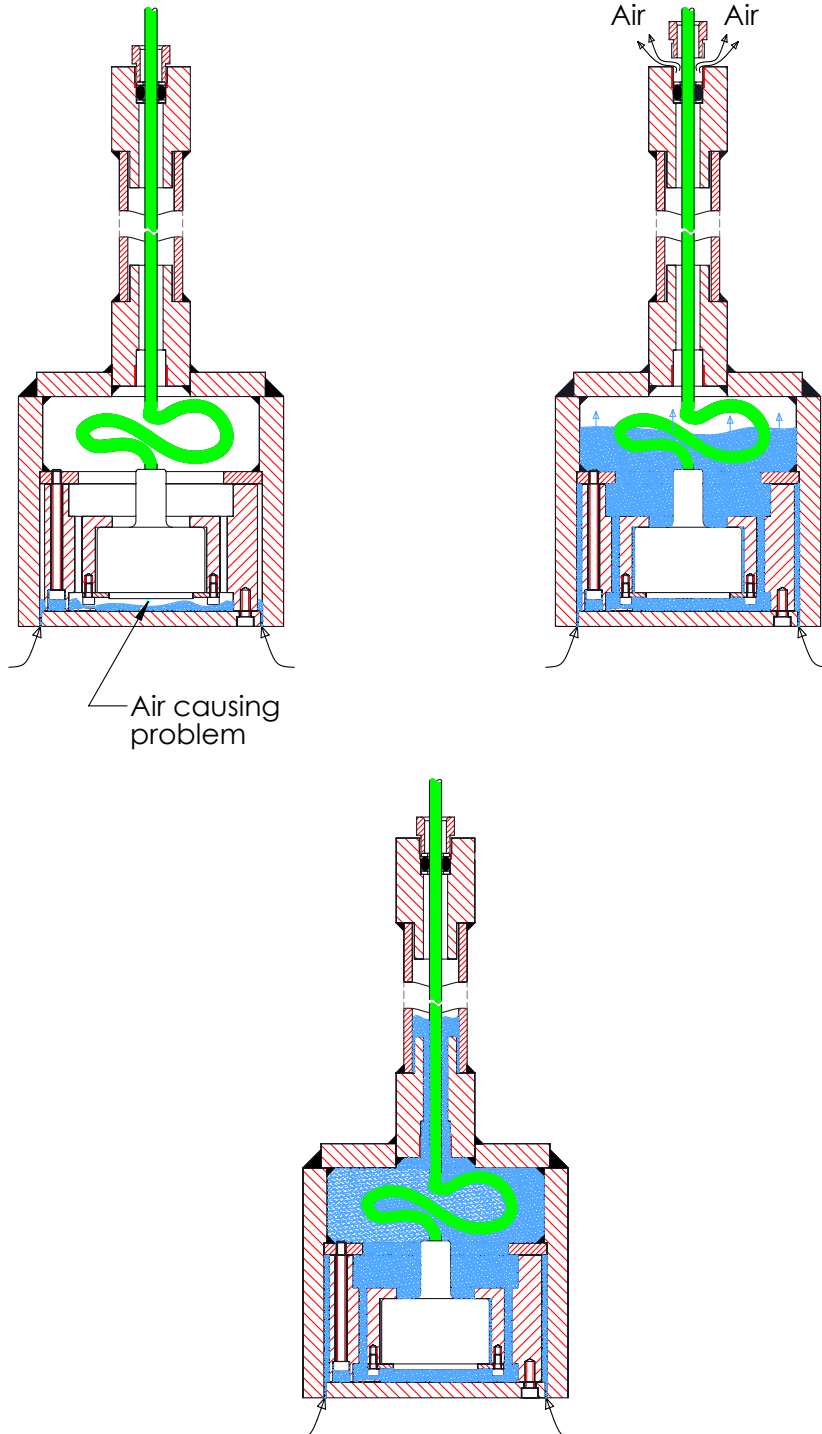
SKIPPER Electronics AS	Doc. Instr. for Ice Tank ETNSTCILF	Revision 00	Edition date	Sheet 1 of 1
DI-ETNSTCILF		8		

9. Bleeding the tank

After undocking of the ship, it may be necessary to open the cable gland on top of the cable pipe to bleed out the air to ensure that water will fill the transducer tank. If the tank is not filled with water, the performance of the transducer will be heavily reduced.

Note: Air can be trapped inside the tank due to aerated water/airbubbles from heavy seas, thrusters etc. Routine for bleeding the tank /cable pipe should be considered.

The message “Lost bottom” on the echo sounder screen, in conditions where the sounder should see the bottom, may be an indicator that the tank needs bleeding.



10. Notes
