ETNSTCI/ETNSTCILF
Ice/sand protected tanks
Installation Manual

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Document no: DM-BETNSTCI-LF
Edition: 2013-05-07
Rev: 1319
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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**

"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

30±0.2

35±0.2

φ 65

φ 219.1

29.5

2. Combo transducer tank

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Checked by VF
Approved by - date SG-2004/02/05
File name Date 2004/02/05
Scale 1:1
3. Welding guidance combo tank

Weld the tank according to procedure as shown. Use low-hydrogen electrodes, e.g. OK 4800. 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-corrosive coating.

Svæs tanken i henhold til viktige prosedure. Bruk lavhydrogen elektroder, tils. OK 4800. For å unngå krympespenninger mest mulig, hammeres hver sveiserstreng før neste legges, og tanken holdes så kald som mulig under sveising. SVEISESTRENGER MÅ IKKE HAMMERES!

Planskip alle sveisersammer innenfor et areal av 5M i front og 3M til hver side for svengeren. Til slutt males svingtanken utvendig og innvendig med korresjonshindrende maling.

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Installation and welding guidance for Transducer Tank
4. Cable pipe for transducer tank

Yard Supply (Included in delivery on ICE Tank)

WATERTIGHT JUNCTION BOX MUST BE SITED FOR EASY ACCESS IN AN EXPLOSION-SAFE PLACE, OVER MAX. WATER LINE.

VANNETT KOPPLINGSBOKS PÅ IKKE EKSPLOSJONSFARLIG, LETT TILGJENGELIG STED, OVER MAX. VANNLINJE.

STEEL PIPE, MIN. 35 mm DIAM. INSIDE.
WALL THICKNESS:
- GALVANIZED PIPE: MIN. 8 mm
- BLACK PIPE: MIN. 10 mm
QUALITY OF MATERIAL:
- STATED IN VERITAS CHAP. X. PARA. 7A, TYPE III
THE PIPE TO BE WELDED BEFORE PULLING THE CABLE.
EXPANDING POSSIBILITIES MUST BE ARRANGED.
MAXIMUM DISTANCE BETWEEN PIPE CLAMPS, 25 X PIPE DIAM.

Stålør, innv. diam. min. 35 mm
Veggtykkelse:
- Galvaniserte rør: min. 8 mm
- Svarte rør: min. 10 mm
Materialkvalitet:
- Se Veritas regler kap. x, para 7a, type III
Røret sveises inn med tilstrekkelig ekspansjonsmulighet, før kablen trekkes.
Maks. klammeravstand på røret, 25 x rørdiam.

Note: Cable gland must not be mounted inside the ICE Tank.

Yard Supply

Fixed clamps
Festeklammer

MAX. 25 x PIPE DIAM.
500 mm above the highest possible water line

SEVERAL CLAMPS ARE REQUIRED FOR THE WATER JUNCTION BOX TO BE INSTALLED.

 Sioux Supply
(Included in delivery on ICE 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

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 DNV Rules chap X Para 7A, type III. The pipe to be welded and cooled off before pulling the cable.

NOTE! DO NOT mount cable gland inside ice tank.

* Assembled

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* To be ordered separately

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

Design: 2011.10.27
Checked: 2011.11.04

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Doc. Instr. for Ice Tank ETNSTCI
DI-ETNSTCI

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

1. Weld the bottom flange and weld 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

- Welding Guidance for Transducer Tank
  - See Drawing TB-3001
  - Observe proper Grinding of outer Hull Welding
  - Material AISI 316L / WNO 1.4404

- Parts under Module ZZL-0101

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

- DO NOT mount Cable Gland inside the Ice Tank

- 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 pulling the Cable
- Cable stuffing Tube to be welded to end of Cable Pipe at a position well above Load Water Line.
- After docking out it may be necessary to open Cable Gland to release air from Tank

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