SB-60-SA
Operation and Installation Manual

Single Bottom Sea Valve
Weitergabe sowie vervielfältigung dieser unterlage, verwertung
und mitteilung ihres inhaltes nicht gestattet, soweit nicht
ausdrücklich zugestanden. Zuwiderhandlungen verpflichten zu
schadenersatz.

Toute communication ou reproduction de ce document,
toute exploitation ou communication de ou son contenu sont
interdites, sauf autorisation expresse. Tout manquement à
cette règle est illicite et expose son auteur au versement de
dommages et intérêts.

Copying of this document, and giving it to others and the use
or communication of contents thereof, are forbidden without
express authority. Offenders are liable to the payment of
damages.

Sin nuestra expresa autorización, queda terminantemente
prohibida la reproducción total o parcial de este documento,
así como su uso indebido y/o su exhibición o comunicación
terceros. De los infractores Se exigirá el correspondiente
resarcimiento de daños y perjuicios.
Contents

1. INSTALLATION .....................................................................................................................................4
2. SPACE CONSIDERATIONS ..................................................................................................................6
3. WELDING THE BOTTOM FLANGE ....................................................................................................7
4. SEA VALVE ASSEMBLY .....................................................................................................................8
5. ASSEMBLING OF FIRST EXTENSION TUBE AND SENSOR .................................................................9
6. SENSOR INSTALLATION ....................................................................................................................10
7. CLAMP UNIT MOUNTING ................................................................................................................11
8. FINAL ASSEMBLY ...............................................................................................................................12
9. SENSOR REMOVAL .............................................................................................................................13
10. RE-INSTALLATION ..............................................................................................................................14
11. EML224 SENSOR .............................................................................................................................15
12. EML224 SINGLE BOTTOM ...............................................................................................................16
The SKIPPER SB Sea Valve 60 mm is used for installation of EML224 Speed Log.

Caution!

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

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

The SKIPPER SB Sea Valve 60 mm is delivered partly assembled for transport. The parts necessary for final assembly will be found packed in a box delivered with the Sea Valve. First of all, it must be decided where the Sea Valve 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/sensor 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).

Do not mount 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 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.

The Sea Valve should be placed in a service accessible place, large enough for installation and disassembly of the sensor unit. See drawing: “Space considerations”. 
Important

"Sensors for Speed Logs are delivered with a fixed cable. 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.

Note: All “Item (X)” references on the following pages, can be found on drawing EML224 Single Bottom.
The Sea Valve should be placed in a service accessible place, large enough for installation and disassembly of the sensor unit.
3. Welding the bottom flange

- When the position has been decided, a 187 mm hole is cut in the hull.
- Disassemble the Sea Valve.
- The bottom flange, Item (1) is welded into the hull. Standard welding practice, methods and procedures should be observed, but may vary. (See welding notes).

**Attention:**
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

**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.

Welding the bottom flange in ship’s hull
4. Sea Valve assembly

Sea Valve assembly. (Orientation not necessary).

- Place 1.5 mm Klingersil gasket, Item (37) on top of Bottom Flange, Item (1).
- Then place the Ball Valve element on top of the Bottom Flange. The 12 mm nuts and washers should be mounted and tightened. (Align parts before tighten nuts).
- Place a 1.5 mm Klingersil gasket on top of the Ball Valve element.
- Mount the intermediate element, Item (12) on top of the Ball Valve element.
- All 4 bolts, Item (33) and washers, Item (38) should be mounted, and tightened. (Align parts before tighten bolts).
5. Assembling of first extension tube and sensor

- Gasket, Item (20)
- Washer, Item (19) 2x
- To be greased with Silicone Grease 6014 or equal

- Countersunk head Screw M4, Item (30)
- Stainless Steel
- To be locked with Loctite 222
- Torque: 1.5 Nm

The Extension Tube must be Mounted with a torque between: 15 and 30 Nm

- Sensor Premounted from Supplier

Ahead
6. Sensor installation

- Place the O-ring, Item (36) in the groove on top of the Intermediate Element, Item (12). Apply grease to the O-ring.
- Insert the 2 thread bolts, Item (16) through the flange and secure with 2 x M12 counter nuts, Item (28). Torque 98 Nm.
- Lower the Sensor and Top Flange carefully down to the top of Intermediate Element, Item (12).

The sensors sensitive area must be handled with care.
7. Clamp Unit mounting

- Mount Top Flange, Item (13). Secure with 2 each washers and nuts. Torque: 98 Nm.

Clamp unit to be mounted in the following order:
- 2 x M12 nuts, Item (28).
- Clamp unit, Item (15).
- 2 x M12 nuts, Item (28) with spring washer, Item (29).
8. Final assembly

Open Ball Valve, lower sensor unit and Extention tube.

- Check that the transducer sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

After the ship is afloat, it is necessary to let the air out of the Sea Valve. Loosen the nut M50, let the air out and tighten nut again.

- Protect sensor!
  - When launching ship, lift sensor 50 mm.
  - When dry docking ship, lift sensor 50 mm.
  - After the ship is afloat, it is necessary to let the air out of the Sea Valve. Loosen the nut M50, let the air out and tighten nut again.
  - Check that the transducer sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

Mounting order Nut M50 and Clamp Unit:

1. Tighten the nut M50, Item [18], Torque: 98 Nm
2. Push down the Clamp Unit, Item [15], onto the nut M50, and tighten the 2 screws M12, with lock washers; Torque: 60Nm
3. Screw the 2 nuts M12, slightly up to the Clamp Unit.
4. Tighten the 2 nuts M12 (with lock washer) on the opposite side; Torque: 98 Nm

The Clamp Unit must be fitted on Top at Nut M50 to lock the nut. (This is done to give extra security.)

To be greased with Silicone Grease 6070 or equal.
9. Sensor removal

Disassembling order:
1. Unscrew and lift the Clamp Unit aprox. 20 mm
   tighten the 2 screws M8
2. Loosen the Nut M50 carefully until water trickles out.
3. When disassembling Extension Tube at deep drafts,
   loosen the 2 screws M8 carefully.

If the Water pressure does not push the Extension Tube up,
use the 4 Nuts M16 to lend a hand.

When the Sensor Housing is fully twisted,
close the Gate Valve.
10. Re-installation

Same procedure as first-time mounting.

Mounting order Nut M50 and Clamp Unit:
1. Tighten the Nut M50, then tighten the Nut M50 and tighten the 2 screws M6 with lock washer, Torque: 40 Nm
2. Screw the 2 nuts M2 slightly up to the clamp unit
3. Tighten the 2 nuts M2 (with lock washer) on the opposite side, Torque: 90 Nm

Forward (Ahead)
11. EML224 Sensor

Premounted by SKIPPER Electronics

To be locked with Loctite 222.

Stud hole

Notice Stud hole M4

Ahead

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>Part. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>4</td>
<td>Screw M5x18 DIN912 St.Steel A4</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>1</td>
<td>Nipple- EML Sensor  DB-1023-Rev-00</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>1</td>
<td>EML224 Sensor   ZYL-01030</td>
<td></td>
</tr>
</tbody>
</table>

Date: 2014-08-06
12. EML224 Single Bottom

The image shows a diagram of the EML224 Single Bottom system, including various labeled components. The diagram includes annotations and measurements, with various parts numbered for reference. The text is primarily in Norwegian, with some English descriptions. The system appears to be related to electronics and includes parts such as washers, nuts, and bolts, which are listed in a table with part numbers and descriptions. The table contains information on quantities and materials, indicating the components used in the system.