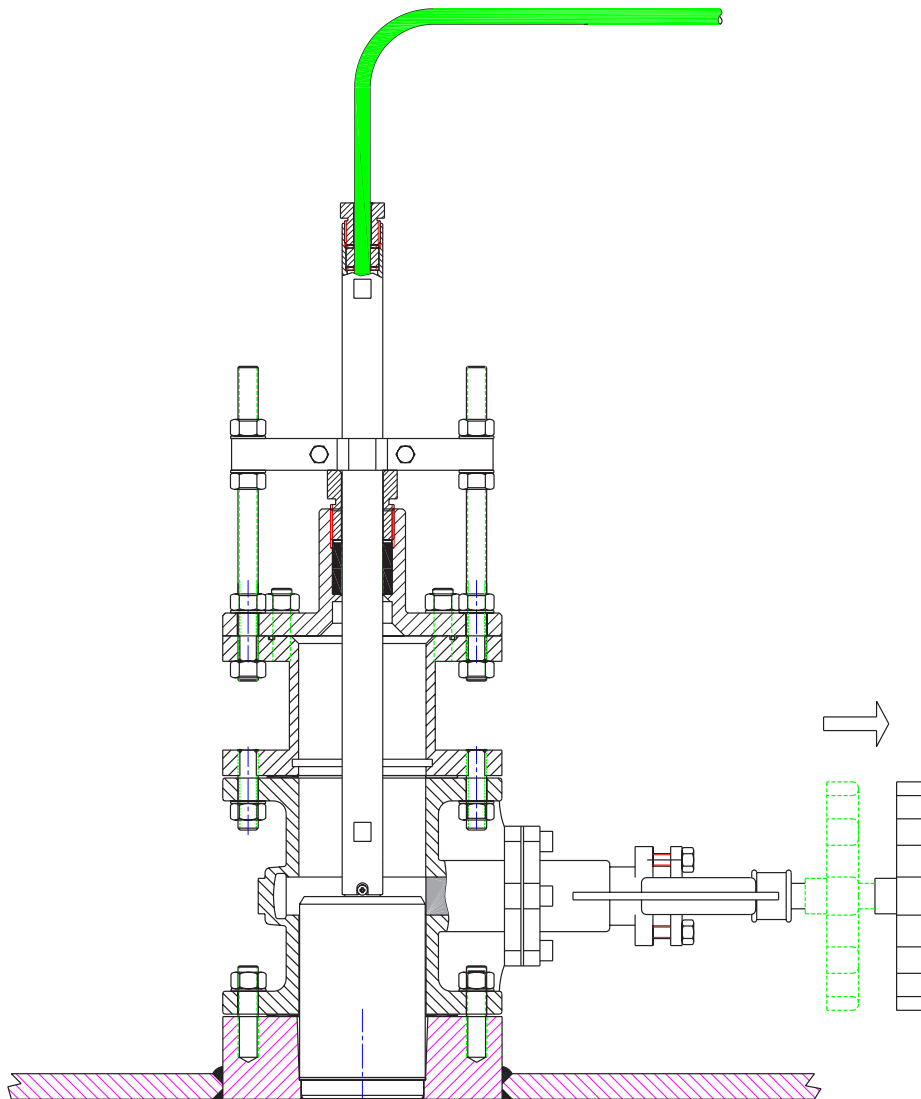


SKIPPER

Single Bottom Sea Valve

SB-100-SA

Operation and Installation Manual



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SKIPPER SB (Single Bottom) Sea Valve 100 mm

1. Installation

The SKIPPER SB Sea Valve 100 mm is used for installation of:

1. Echo Sounder transducer type (50 and 200 kHz).
2. DL850 Doppler Log.
3. 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 100 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).
- 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 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 Log and Echo Sounder are delivered with a fixed cable. Attention must be taken to allow easy replacement/pulling of new cable during maintenance”.

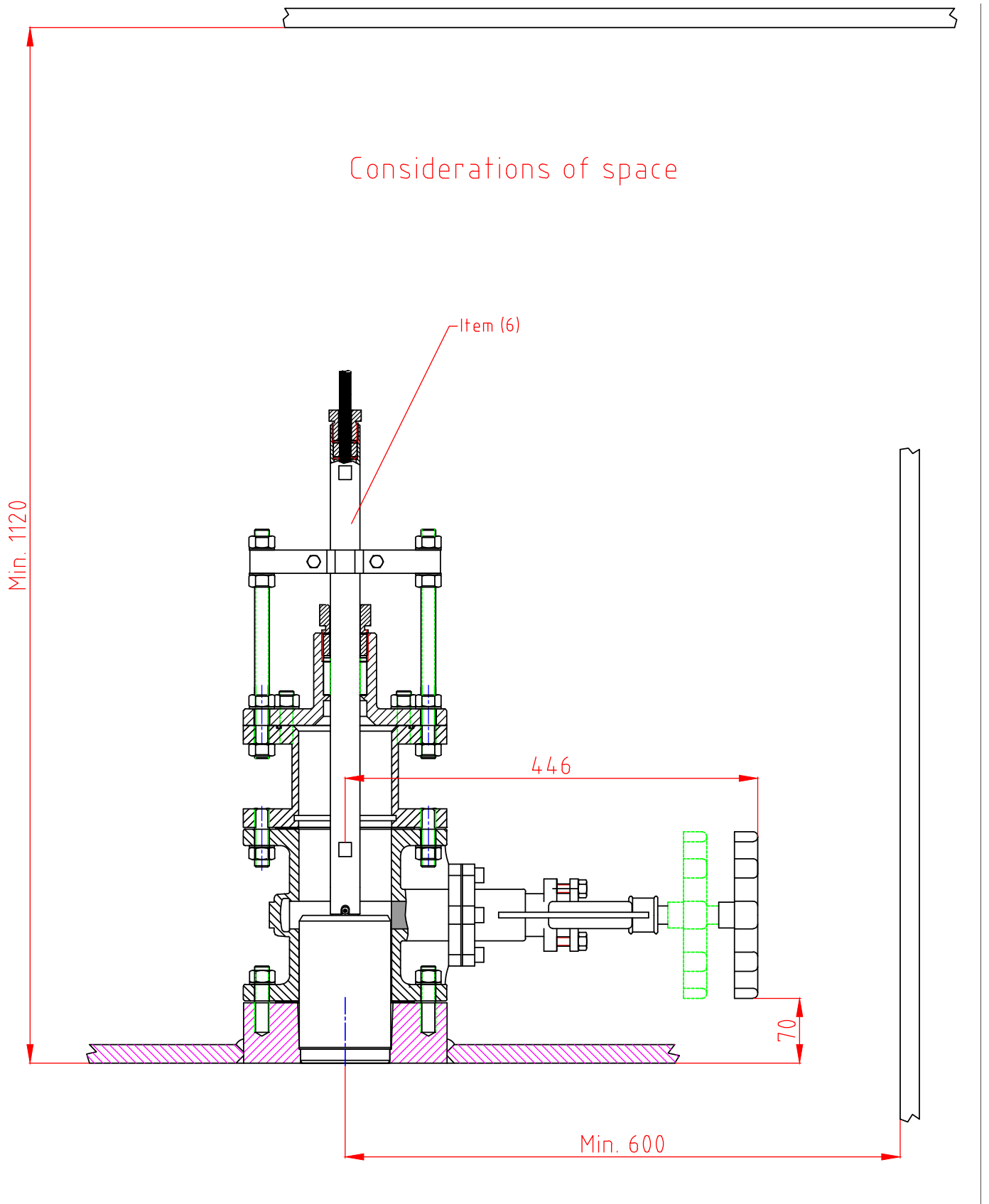
SKIPPER Electronics AS will recommend installation positions if GA-drawings (General arrangements), lines drawings and frame drawings are made available for study.

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 Single Bottom Sea Valve.

2. Space considerations



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 220 mm hole is cut in the hull.
- 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:

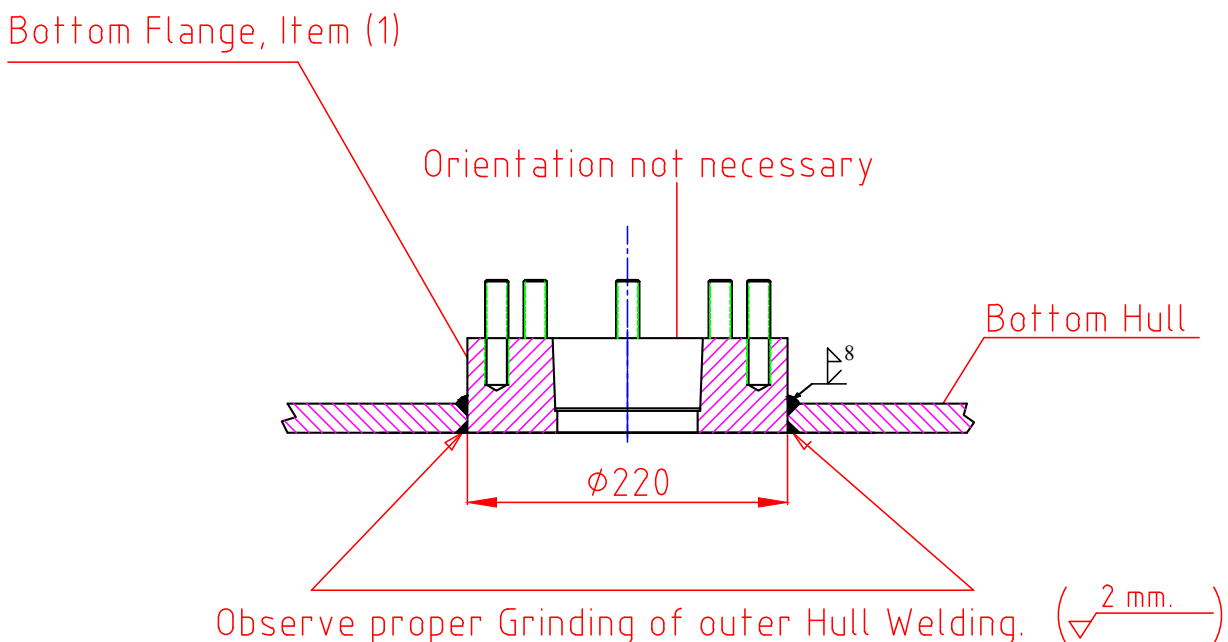
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

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.

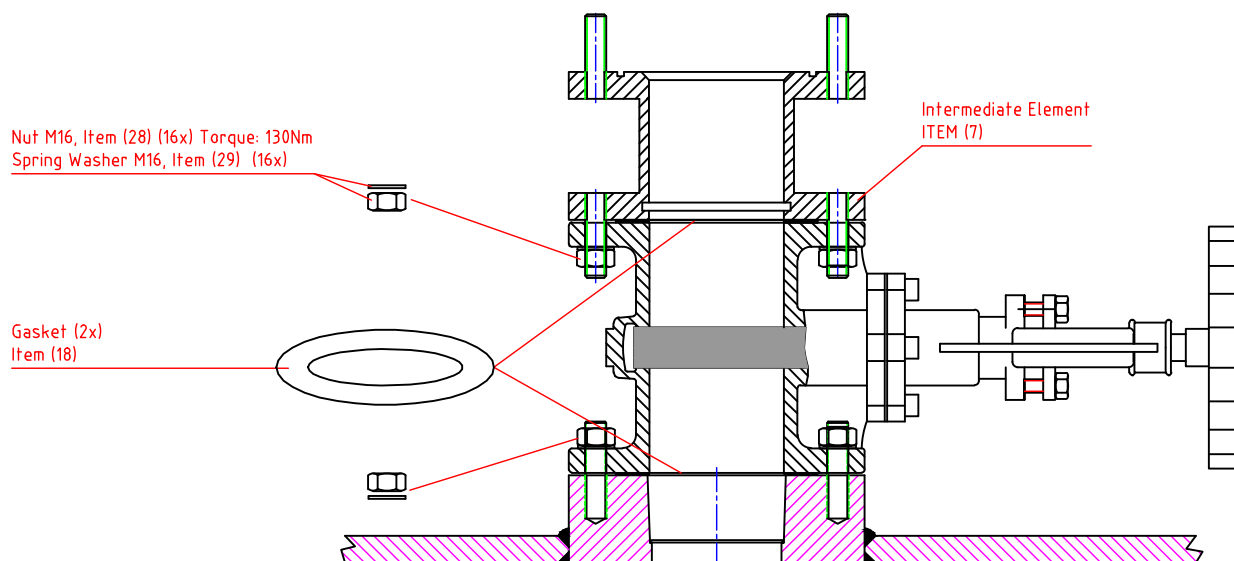
- Let parts cool down during welding.
- Over heating may change fit and form and result in non-conformity with intended sensor/transducer.
- Welding to thick hull steel plates will exert high stress on bottom parts and flanges.
- Especially care must be taken during welding of stainless steel flanges.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

Welding the bottom flange in ship's hull.

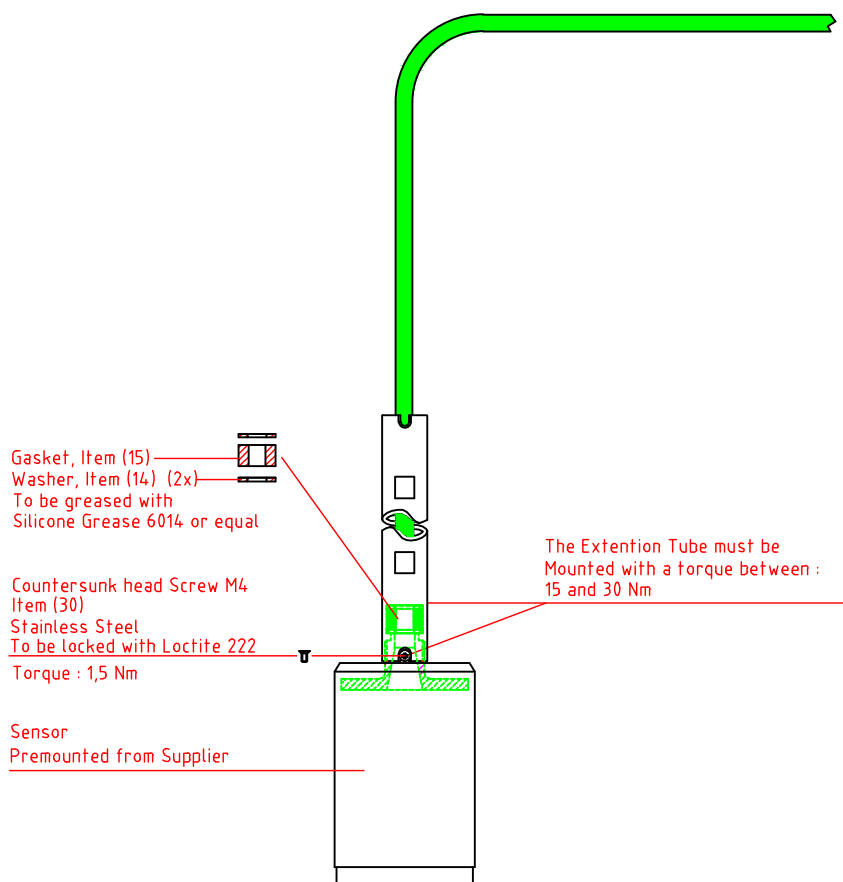


4. Sea Valve Assembly. (Orientation not necessary)

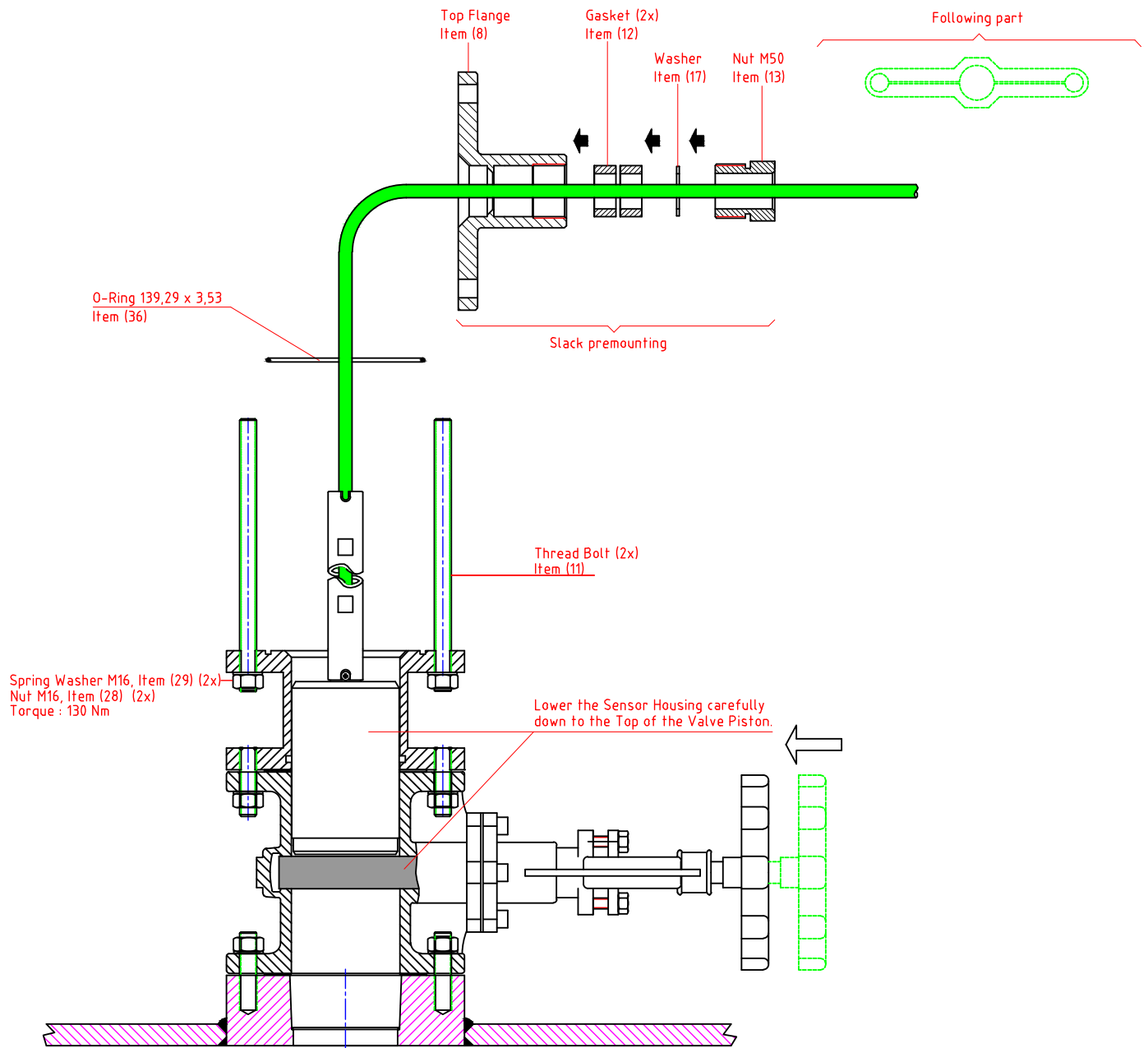
- Place 1.5 mm Klingersil gasket, Item (18) on top of Bottom Flange, Item (1).
- Then place the Gate Valve element, Item (40) on top of the Bottom Flange. The 16 mm nuts and washers should be mounted and tightened. (Align parts before tighten nuts).
- Place a 1.5 mm Klingersil gasket on top of the Gate Valve element, Item (40).
- Mount the intermediate element, Item (7) on top of the Sea Valve element.
- The flange with only 6 pinbolts to be upwards.
- All 8 nuts and washers should be mounted, and tightened. (Align parts before tighten nuts).



5. Assembling of Extension Tube and Sensor



6. Sensor installation



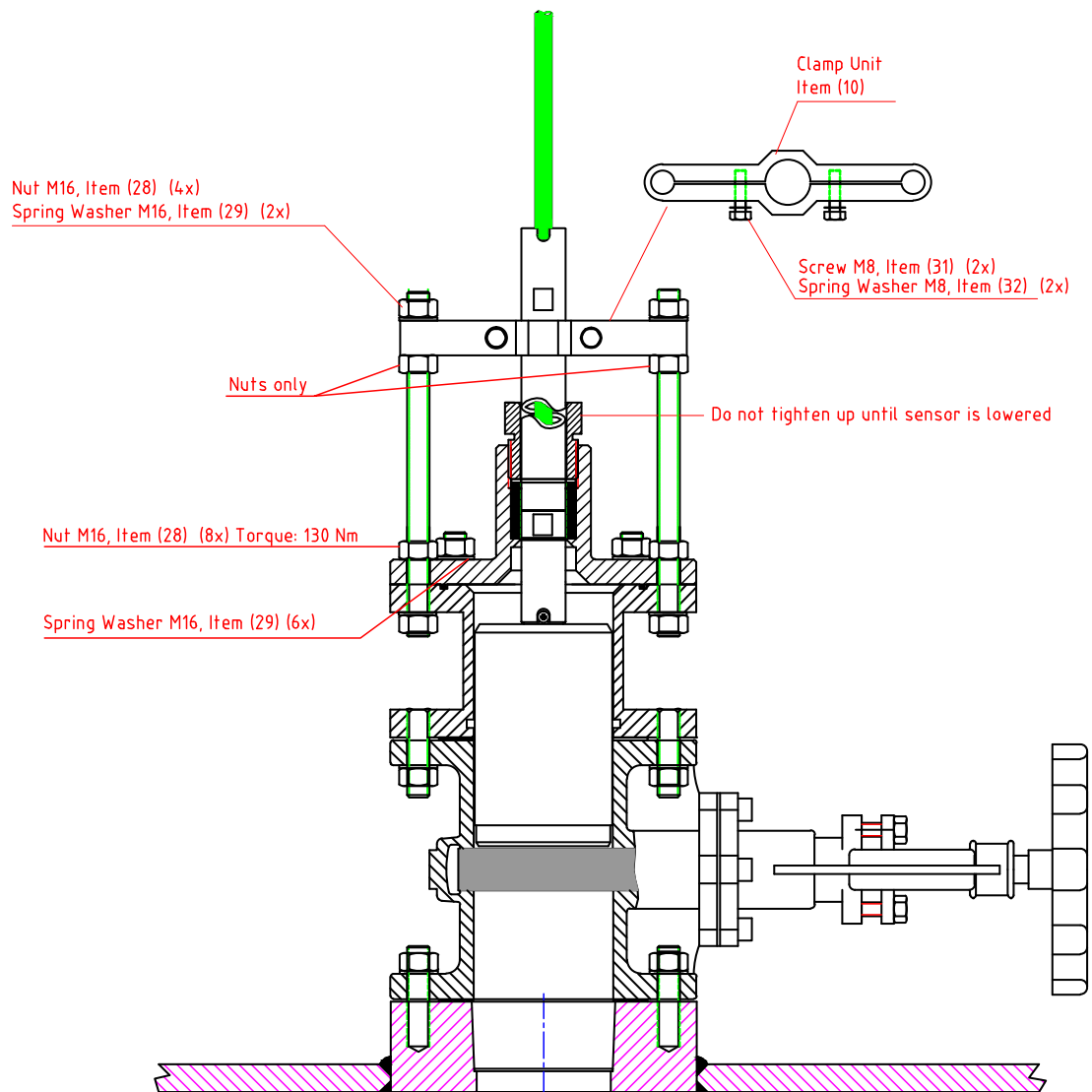
- Place the O-ring, Item (36) in the groove on top of the intermediate element. Apply grease to the O-ring.
- Insert the 2 Thread bolts, Item (11) through the flange and secure with 2 x M16 counternuts, Item (28). Torque 130 Nm.
- Lower the Sensor Housing, carefully down to the top of the Valve Piston.

7. Clamp Unit mounting

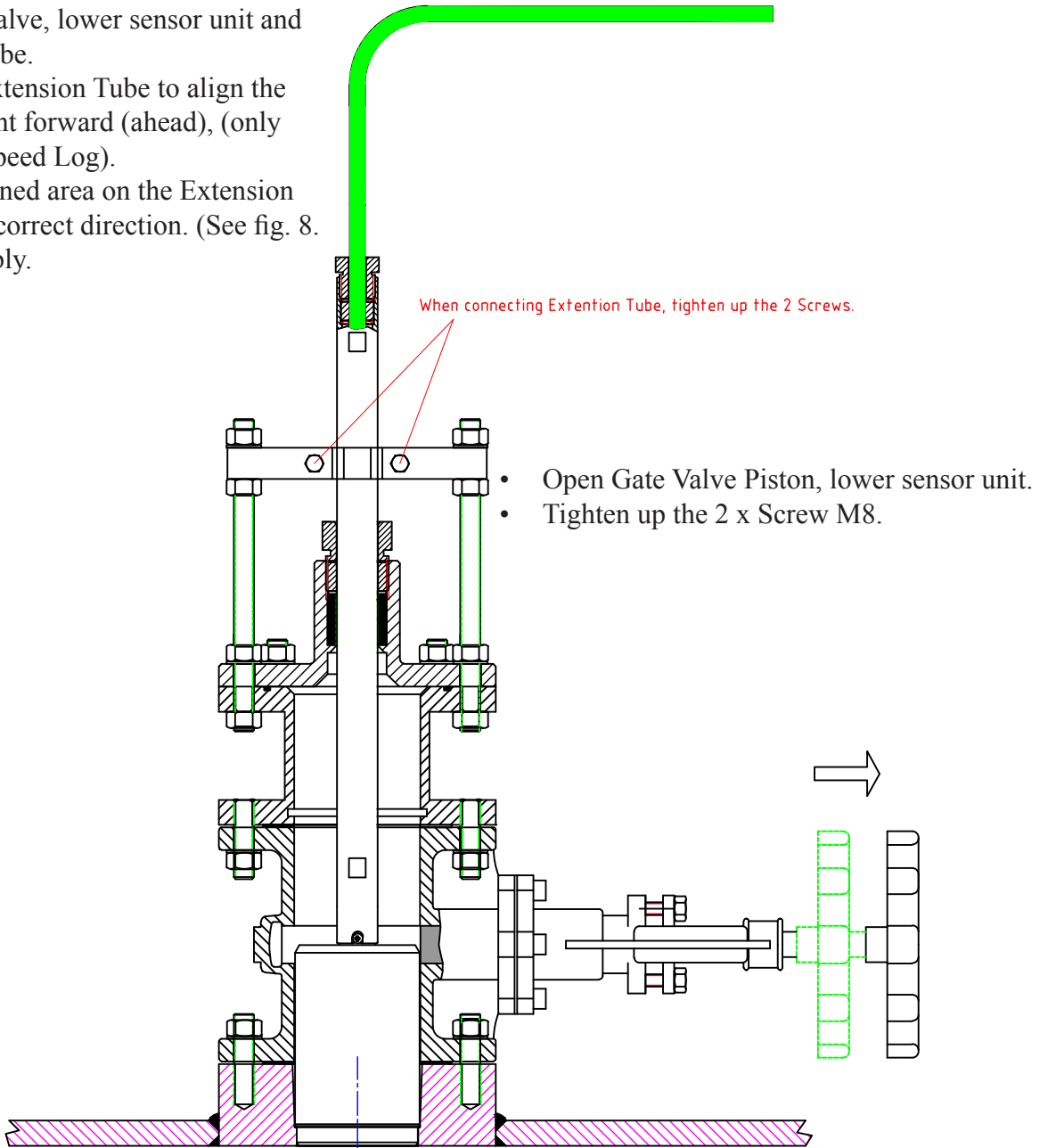
Mount Top Flange, Item (8). Secure with 8 each washers, Item (29) and nuts, Item (28). Torque: 98 Nm.

Mount in following order:

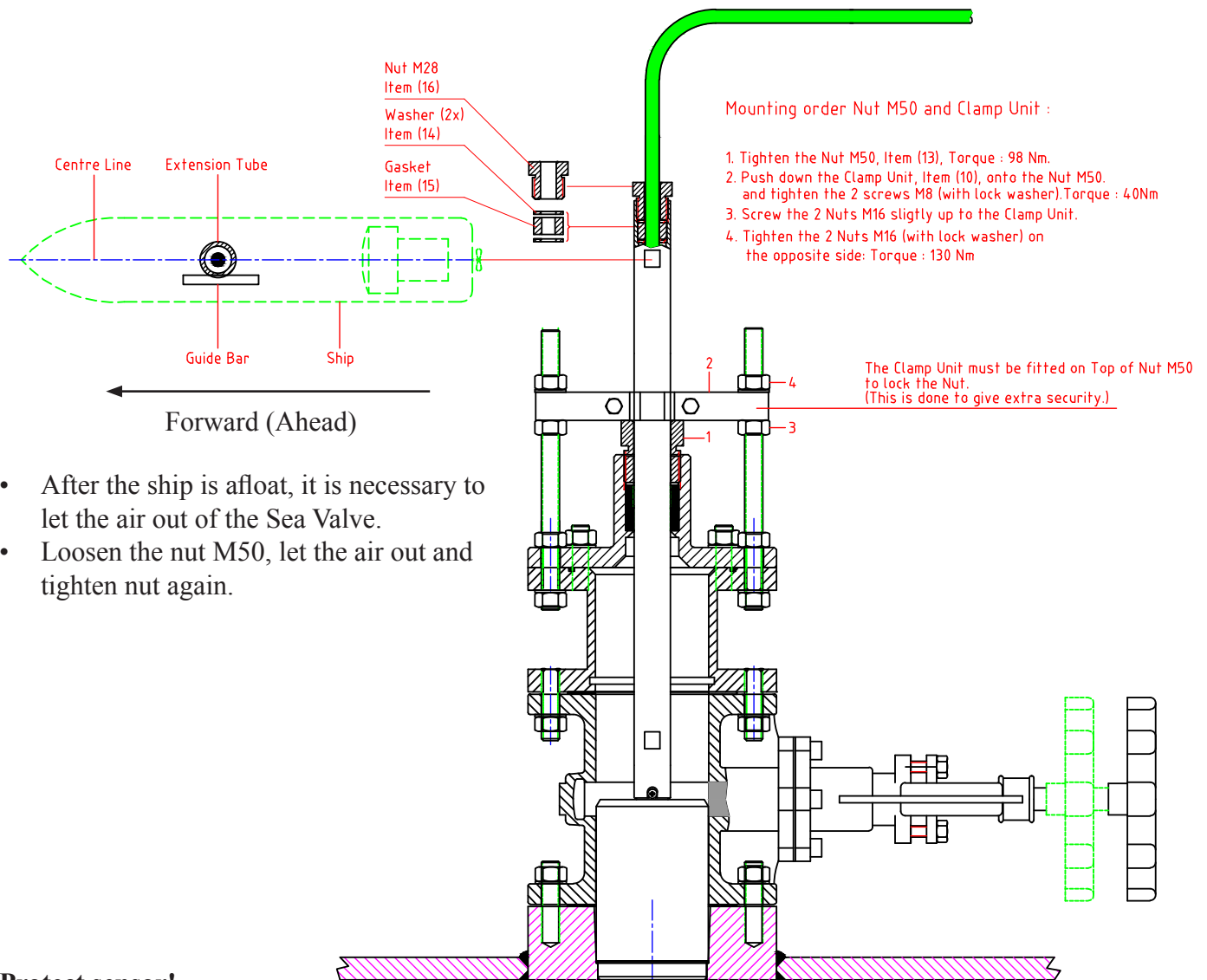
- 2 x gasket, Item (12).
- Washer, Item (17).
- Nut M50, Item (13).
- 2 x M16 nuts, Item (28).
- Clamp Unit, Item (10).
- 2 x M16 nuts, Item (28) with spring washer, Item (29).



- Open Gate Valve, lower sensor unit and Extension Tube.
- Rotate the Extension Tube to align the sensor to point forward (ahead), (only needed for Speed Log).
- Use the flattened area on the Extension Tube to find correct direction. (See fig. 8. Final Assembly.



8. Final Assembly



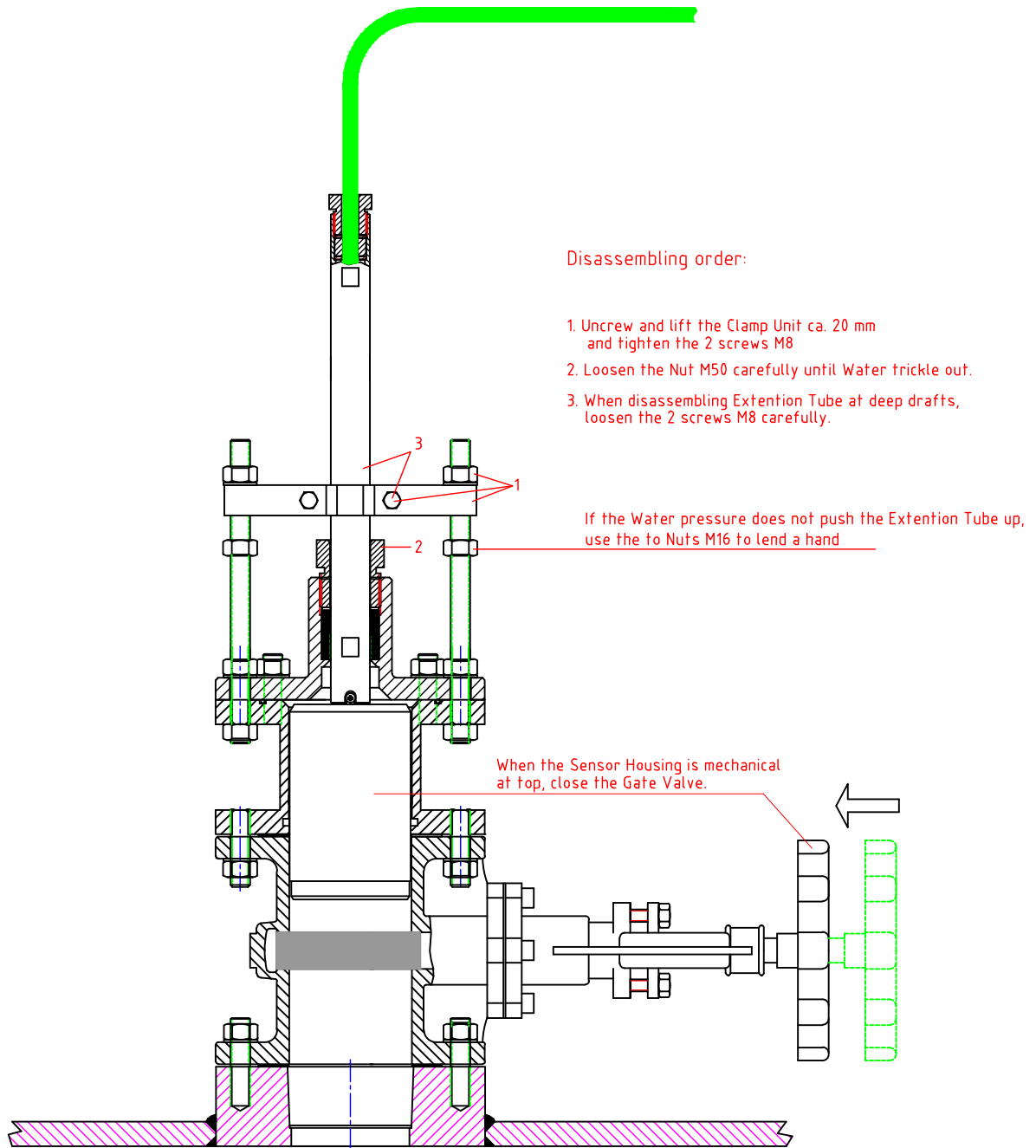
- After the ship is afloat, it is necessary to let the air out of the Sea Valve.
- Loosen the nut M50, let the air out and tighten nut again.

Protect sensor!

- When launching ship, lift sensor 50 mm.
- When dry docking ship, lift sensor 50 mm.

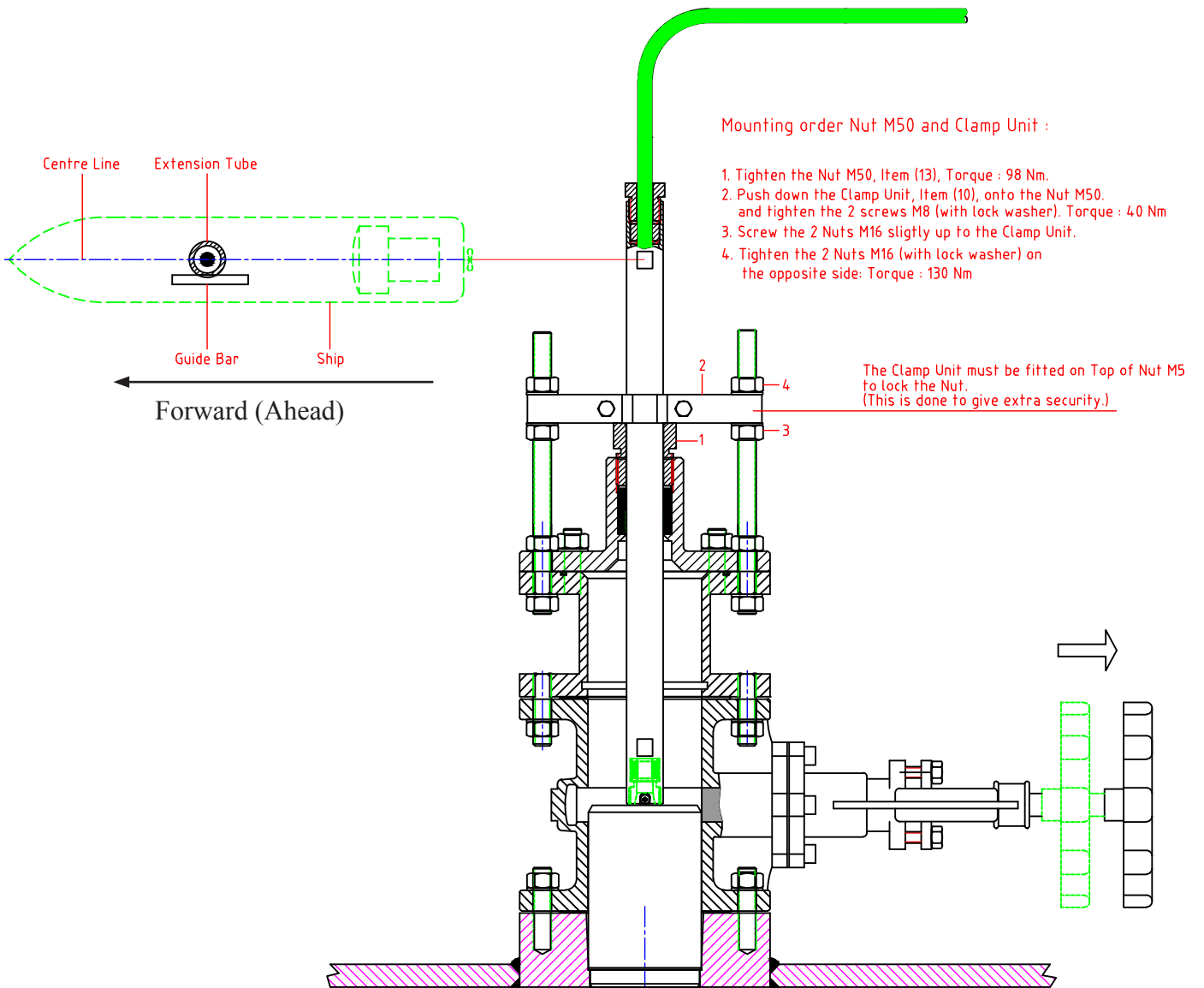
Check that the transducer sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

9. Sensor Removal



10. Re-Installation

Same procedure as first-time mounting.



11. DB-100 Sensors

All units premounted by Skipper Electronics

Transducer for echo sounder
 ETN050G 50kHz 25m cable
 ETN050XG 50kHz 40m cable
 ETN200SG 200kHz 25m cable
 ETN200SXG 200kHz 40m cable

Transducer for echo sounder with Ice Protection
 ETN050XGI 50kHz 40m cable
 ETN050GI 50kHz 25m cable

Doppler log sensor
 DL850S27G-LA
 DL850S27G-SA

Scale: 2:1

Electro magnetic log sensor
 EML224SDBB-SB

Before inserting the Sensor, be sure that the Ahead Mark is in right position.

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Haare	Checked by VF	Approved by - date GT-20061222	Date 30.11.2009
File name		Scale	
DB-100-Sensors			
SKIPPER Electronics A/S		DB-2046-Rev-03	Edition 8
			Sheet 1/1

