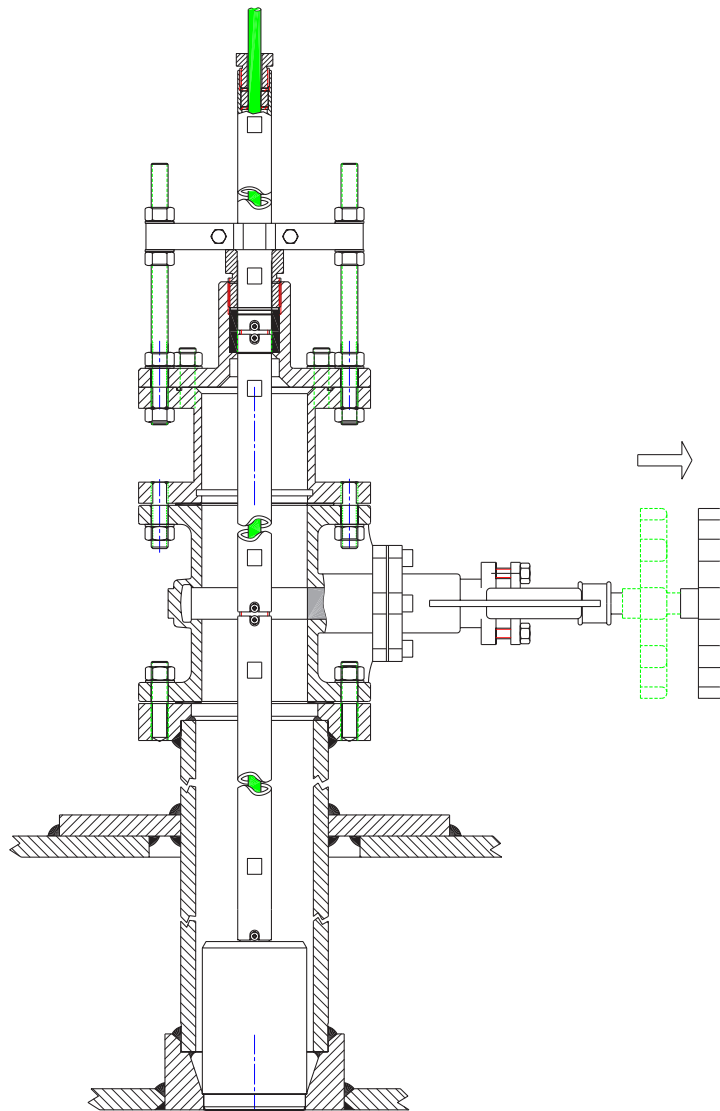


SKIPPER

Double Bottom Sea Valve

DB-100-SA

Operation and Installation Manual



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Document no: DM-BDB100-SA Rev 1003A
Edition: 20101020

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SKIPPER DB (Double Bottom) Sea Valve 100 mm

1. Installation

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

1. Echo Sounder transducer type (50 and 200 kHz).
2. DL850 (270 kHz) 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 DB 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) that 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 Sea Valve and 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”.

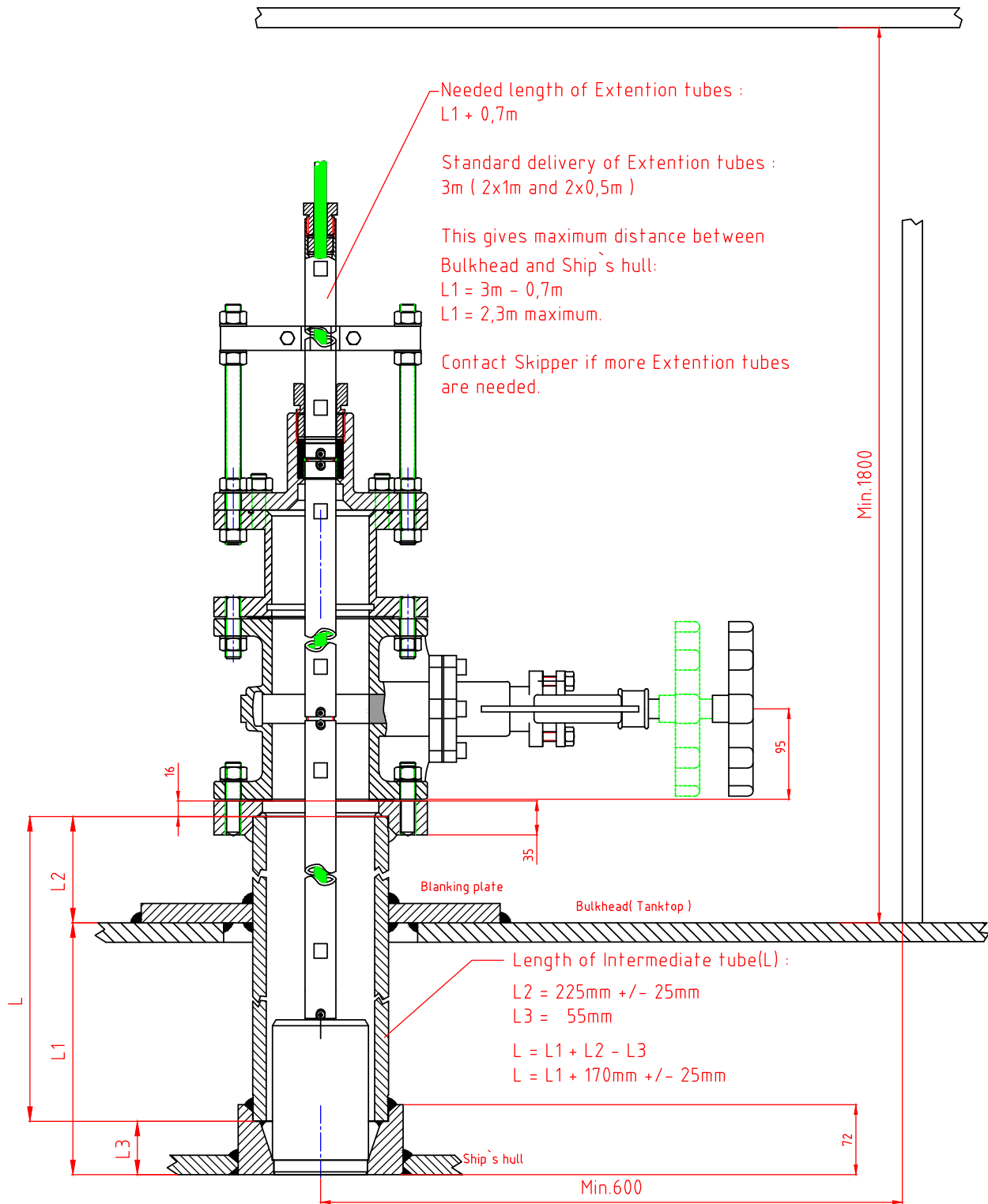
SKIPPER Electronics AS will recommend installation positions if GA-drawings (General arrangements), lines drawings and frame drawings are made available for study.

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.

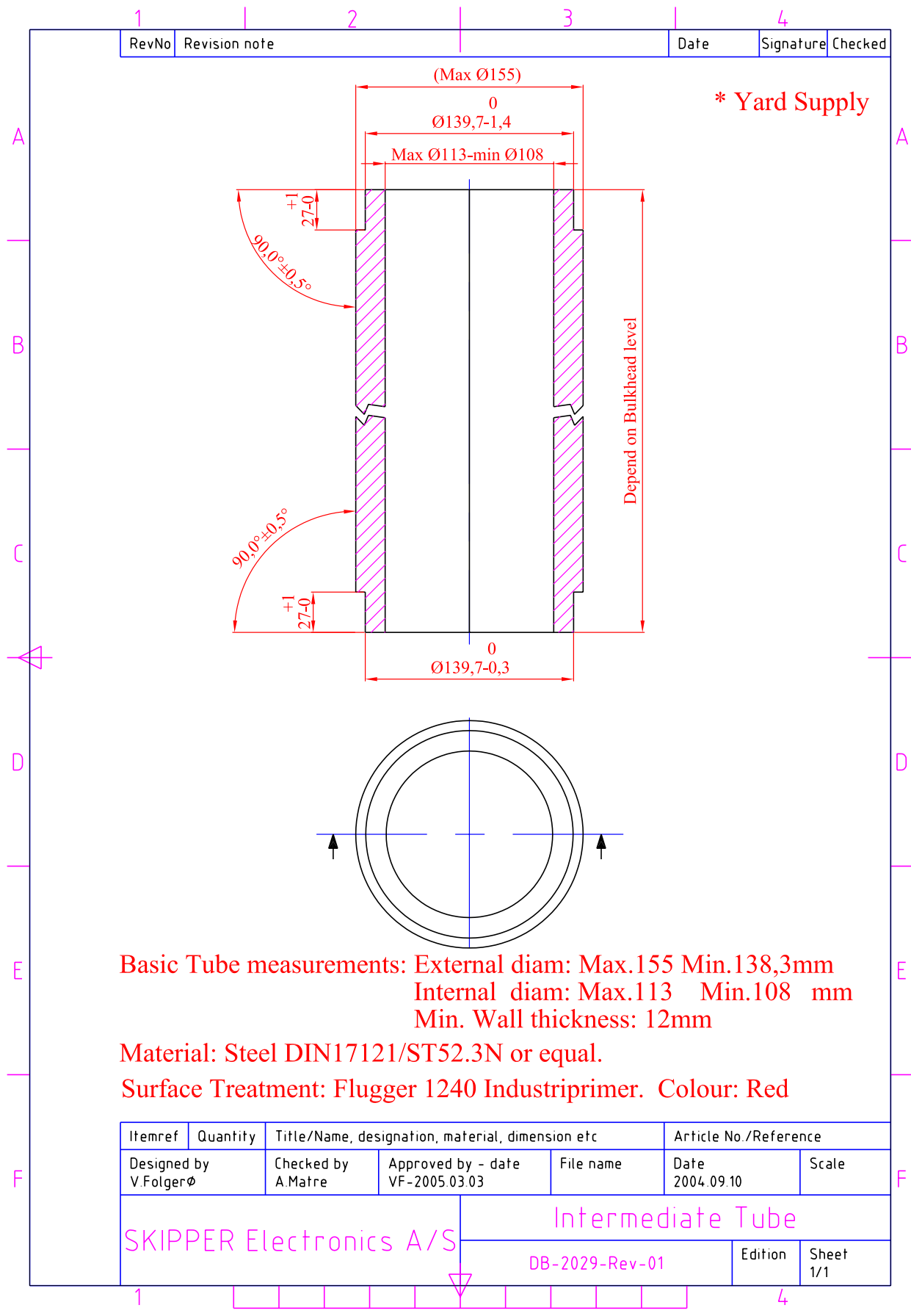
Note: All “Item (X)” references on the following pages, can be found on drawing 100 mm Double Bottom Sea Valve.

2. Space considerations

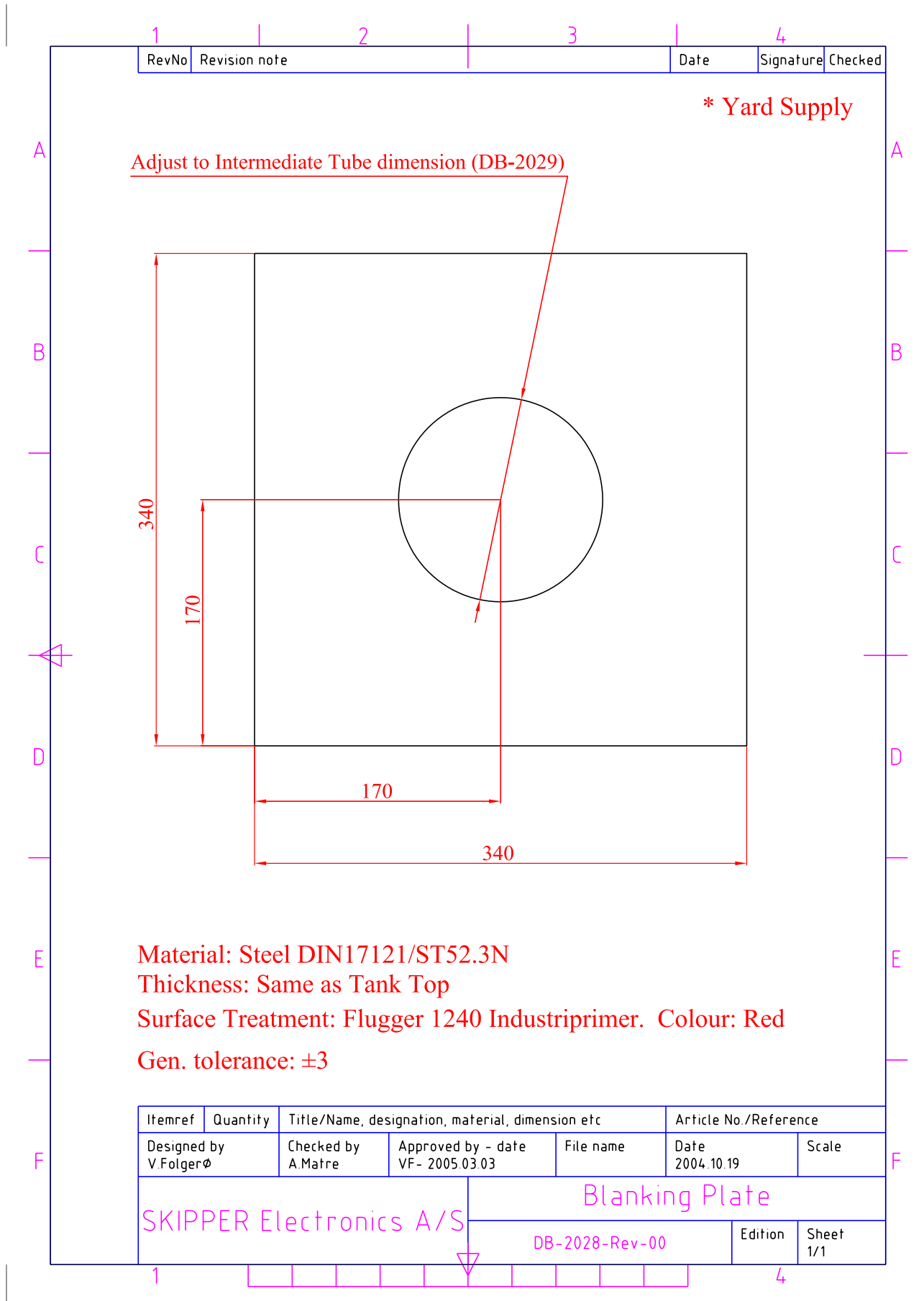


The Sea Valve should be placed in a service accessible place, large enough for installation and disassembly of the sensor unit.

3. Intermediate Tube



4. Blanking plate



5. Welding the bottom flange

- When the position has been decided, a 170 mm hole is cut in the hull, and a (200 mm) hole is cut in the bulkhead (tanktop).
- 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:

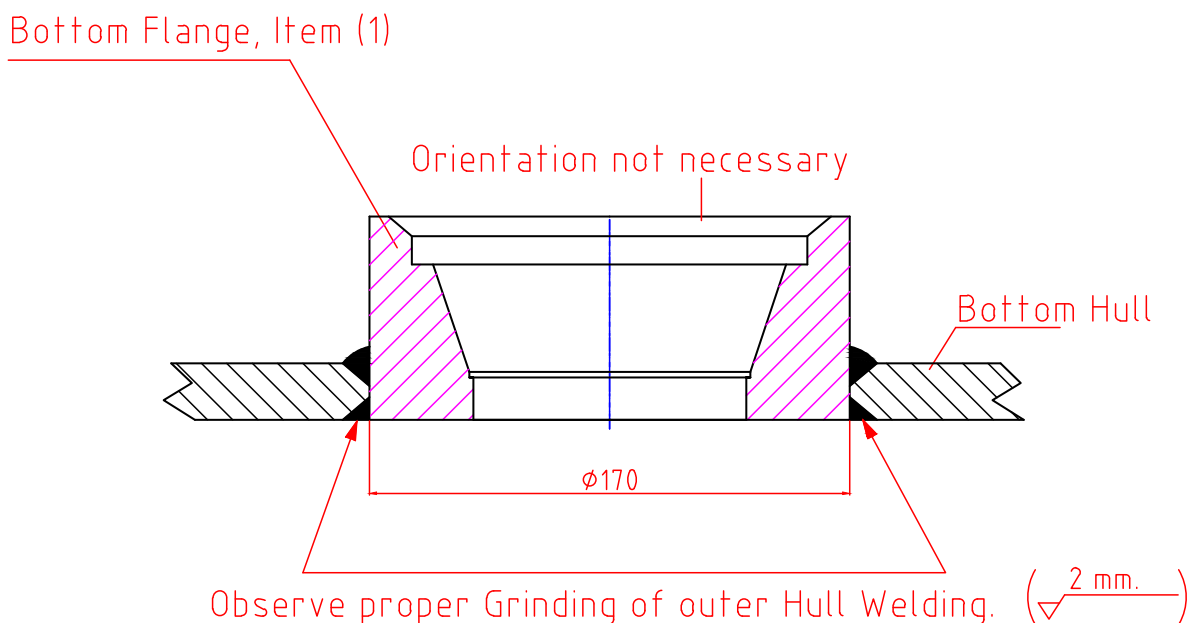
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

WELDING NOTES!

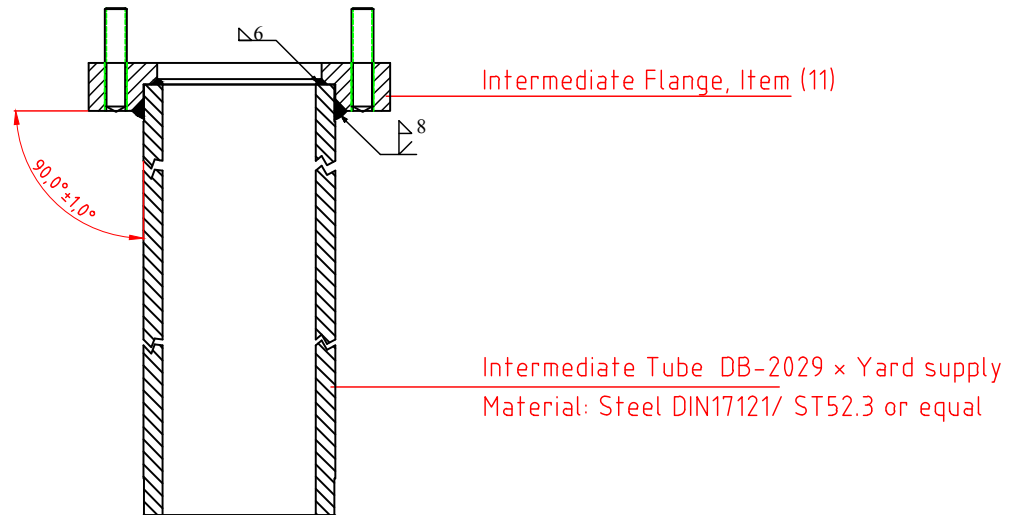
All bottom parts and flanges for welding are precisely machined parts. During welding of these parts to the ship's hull plates, careful attention must be paid to avoid construction strain on the bottom parts and flanges.

- 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.

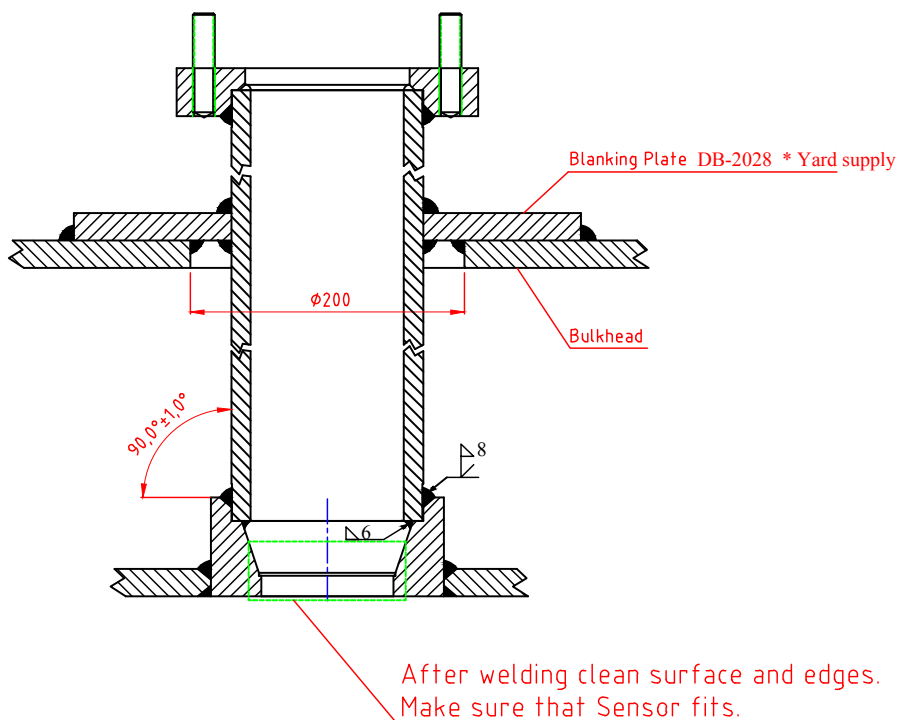
Welding the Bottom Flange in Ship's Hull



- Intermediate Flange, Item (11) is welded into Intermediate Tube, Item (10) (*Yard supply).
- Standard welding practice, methods and procedures should be observed. (See welding notes).

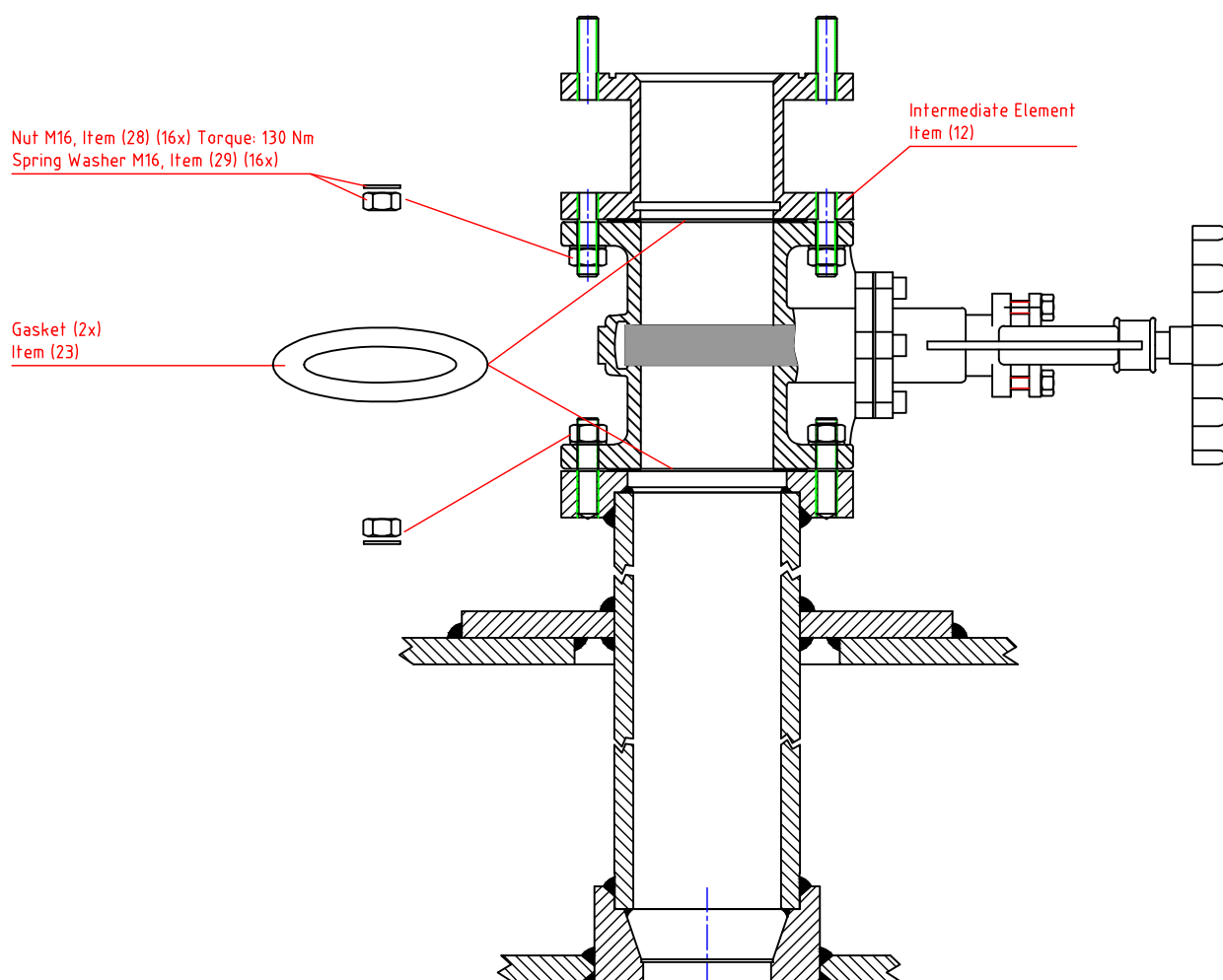


- Blanking Plate, Item (9) (*Yard supply) is placed over the 200 mm hole in the bulkhead.
- Intermediate Tube, Item (10) is tread into the Blanking Plate, Item (9) and through the 200 mm hole in the bulkhead.
- Standard welding practice, methods and procedures should be observed. (See welding notes).

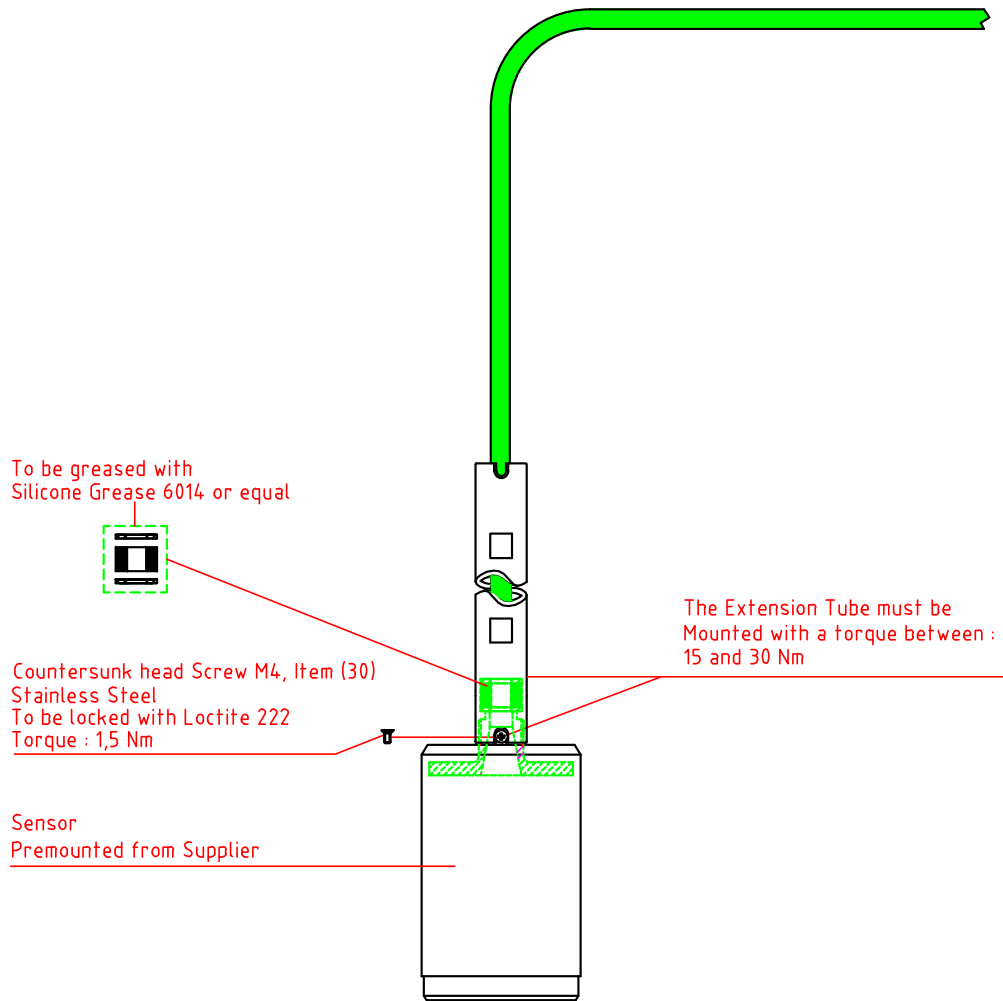


6. Sea Valve Assembly

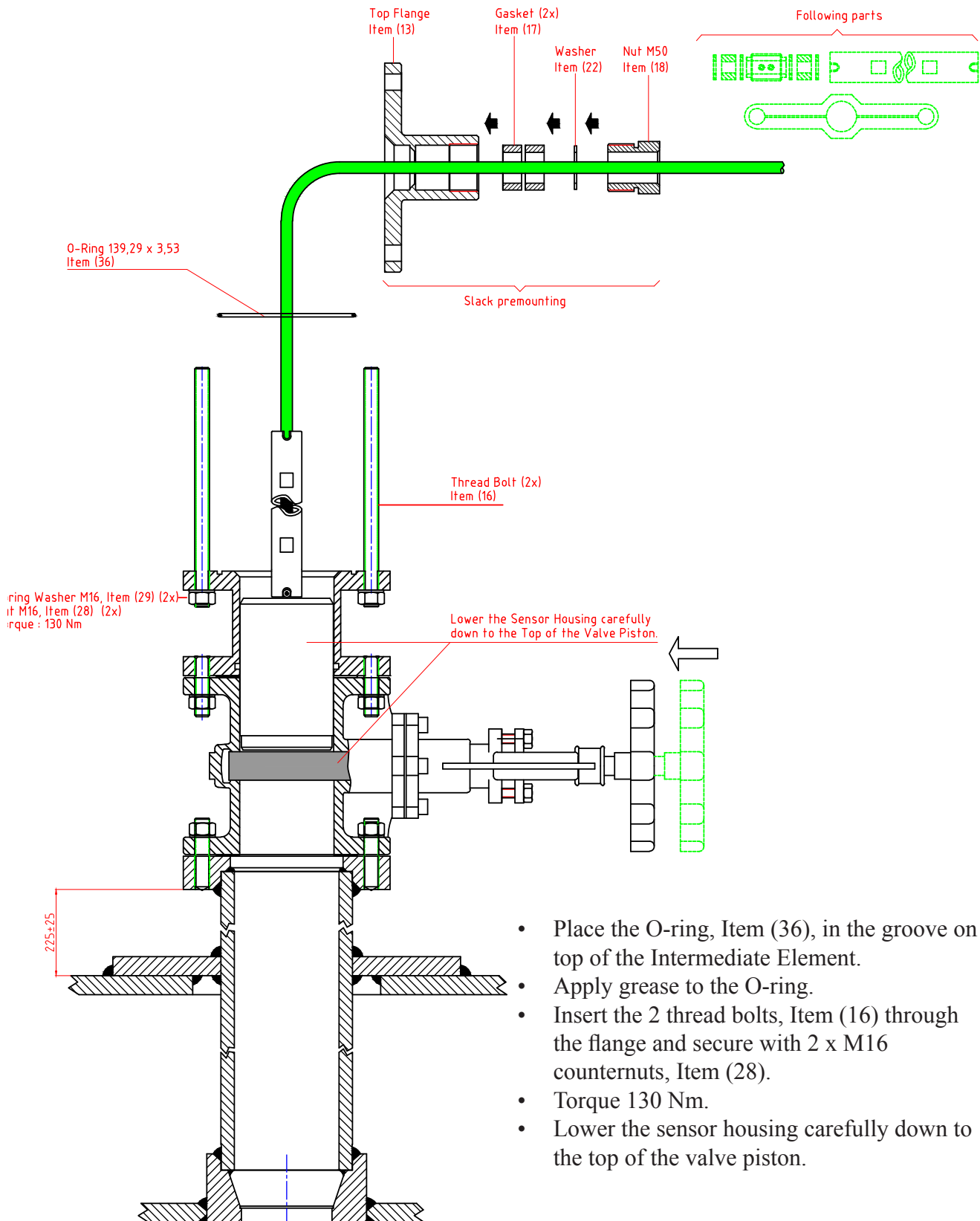
- Place 1.5 mm Klingersil gasket, Item (23) on top of Intermediate Flange, Item (11).
- Then place the Valve element on top of the Intermediate Flange. The 16 mm nuts and washers should be mounted and tightened. (Align parts before tighten nuts).
- Place a 1.5 mm Klingersil gasket on top of the Valve element.
- Mount the intermediate element, Item (12) on top of the 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).



7. Assembling of first extension tube and sensor



8. Sensor installation

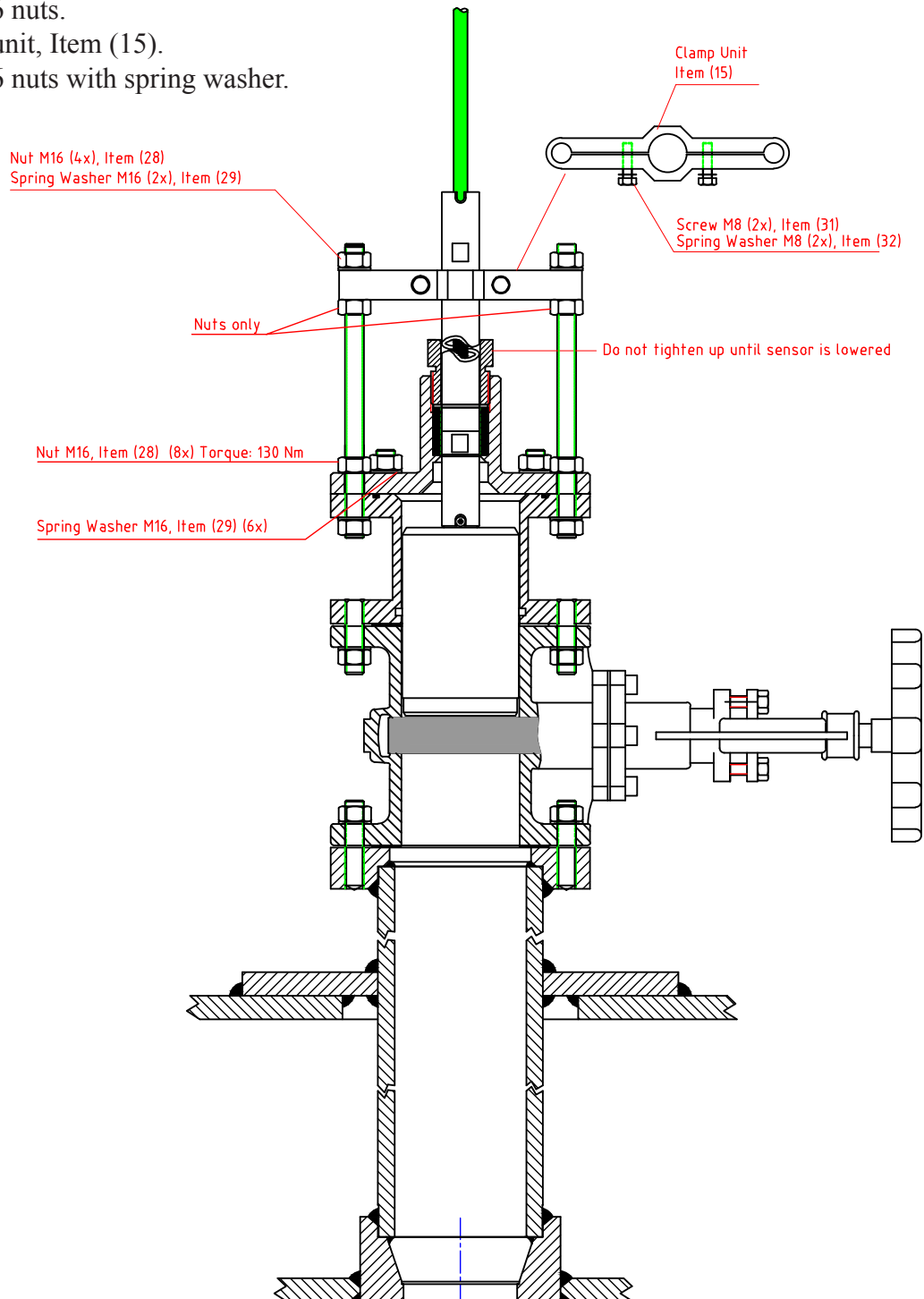


9. Clamp Unit mounting

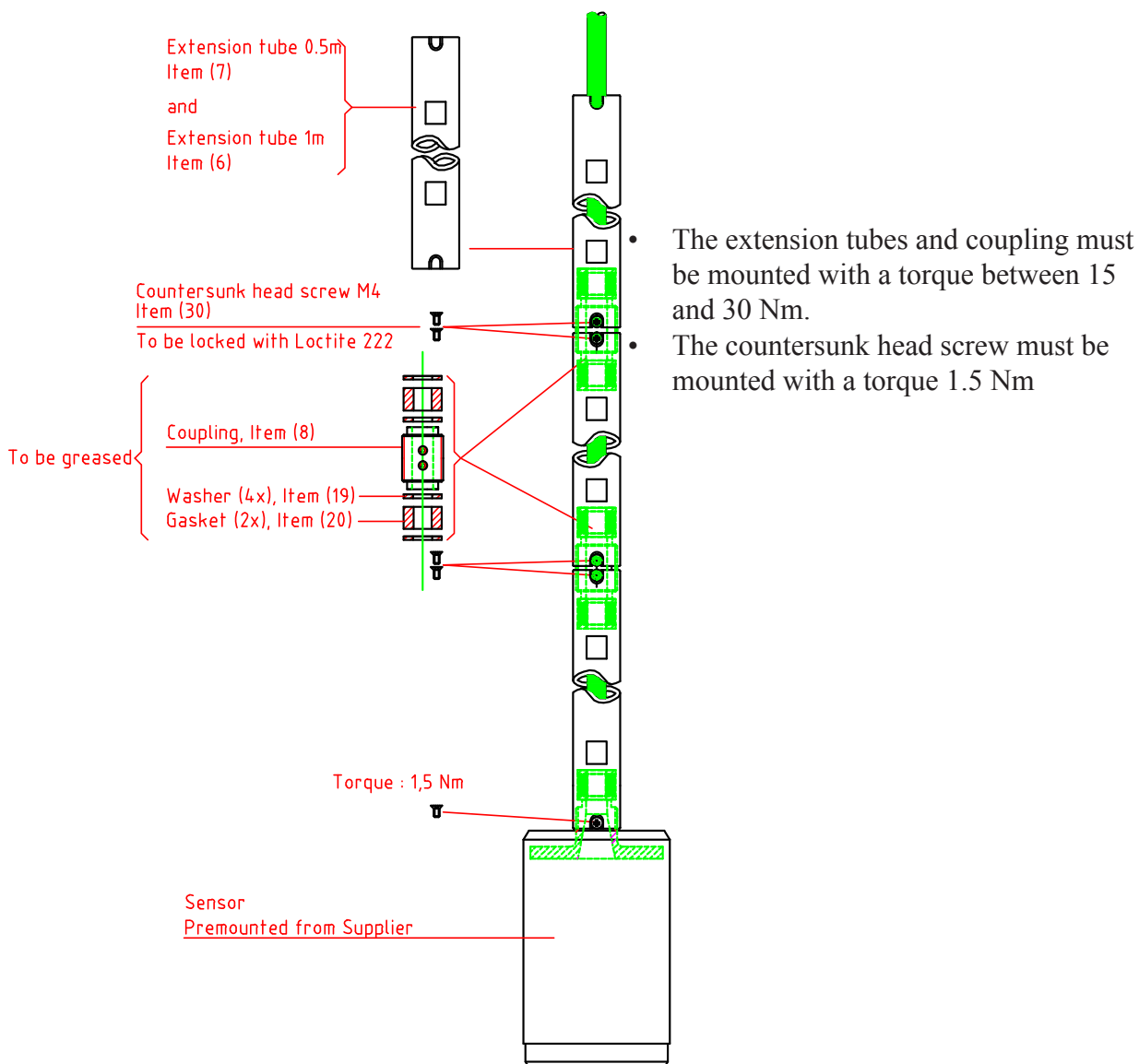
Mount Top Flange, Item (13). Secure with 8 each washers and nuts. Torque: 130 Nm.

Mount in following order:

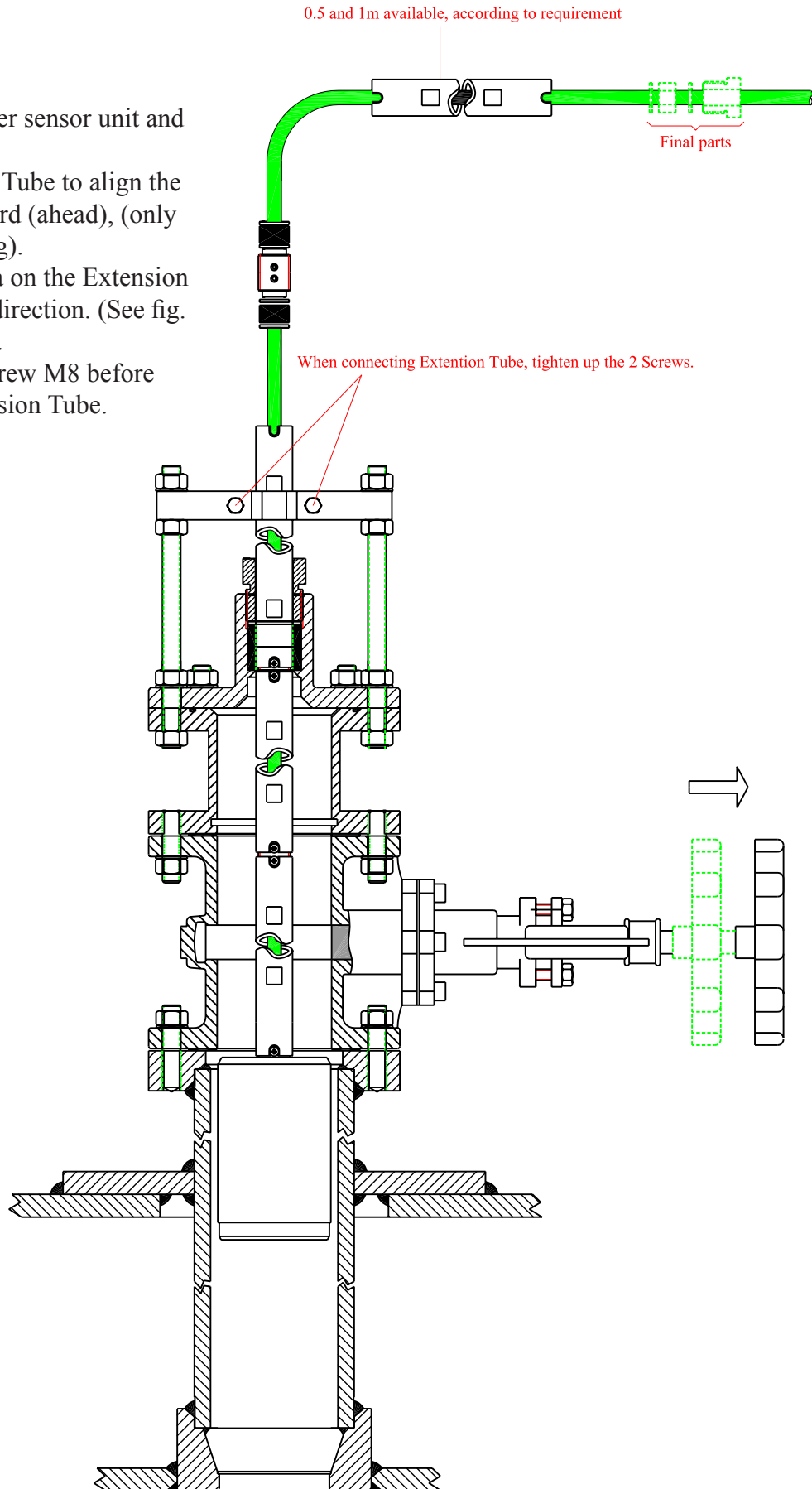
- 2 x gasket, Item (17).
- Washer, Item (22).
- Nut M50, Item (18).
- 2 x M16 nuts.
- Clamp unit, Item (15).
- 2 x M16 nuts with spring washer.



10. Extension tube mounting order



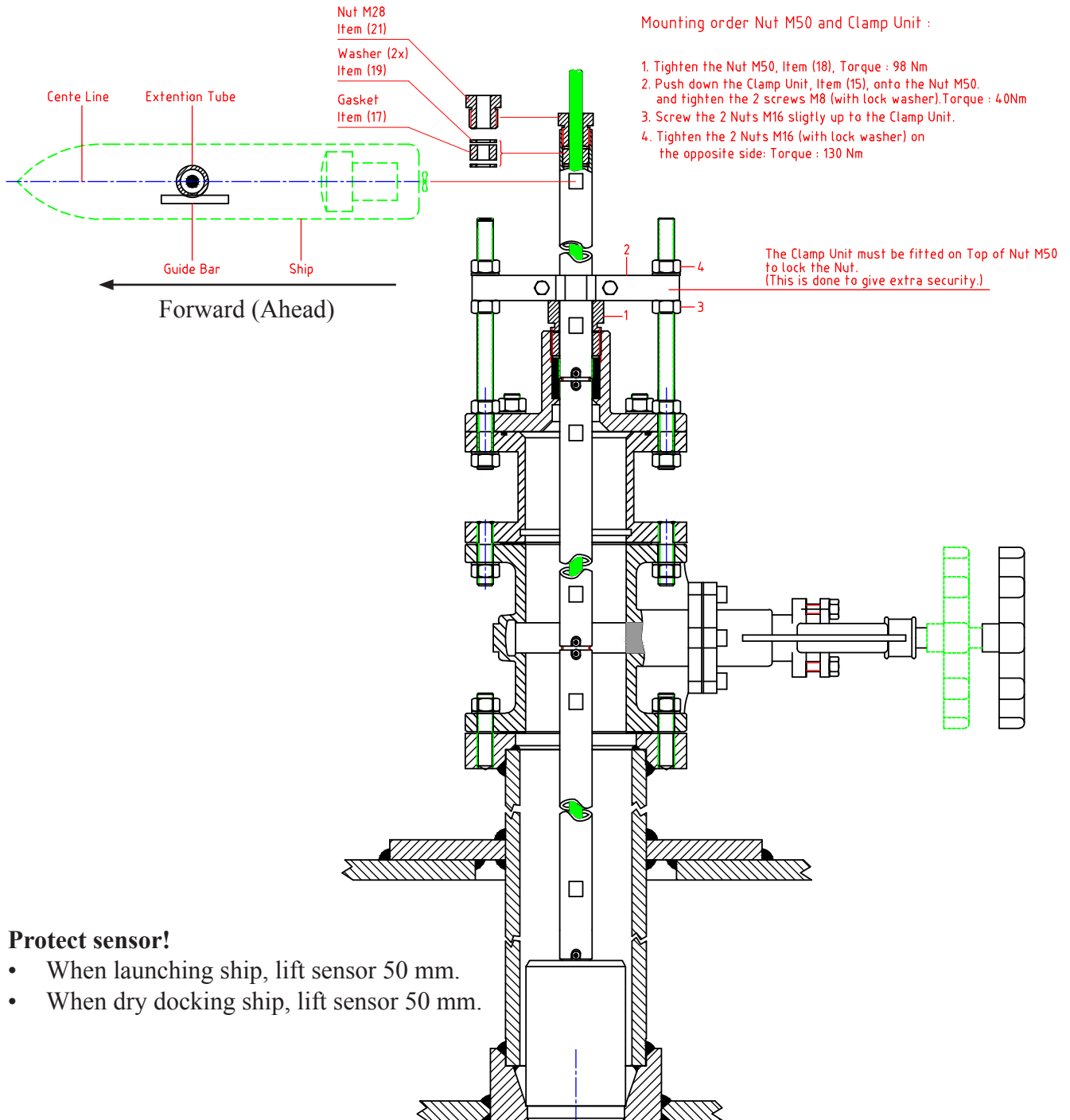
- Open Sea Valve, lower sensor unit and first Extension Tube.
- Rotate the Extension Tube to align the sensor to point forward (ahead), (only needed for Speed Log).
- Use the flattened area on the Extension Tube to find correct direction. (See fig. "11. Final assembly").
- Tighten up the 2 x screw M8 before mounting next Extension Tube.



11. 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.

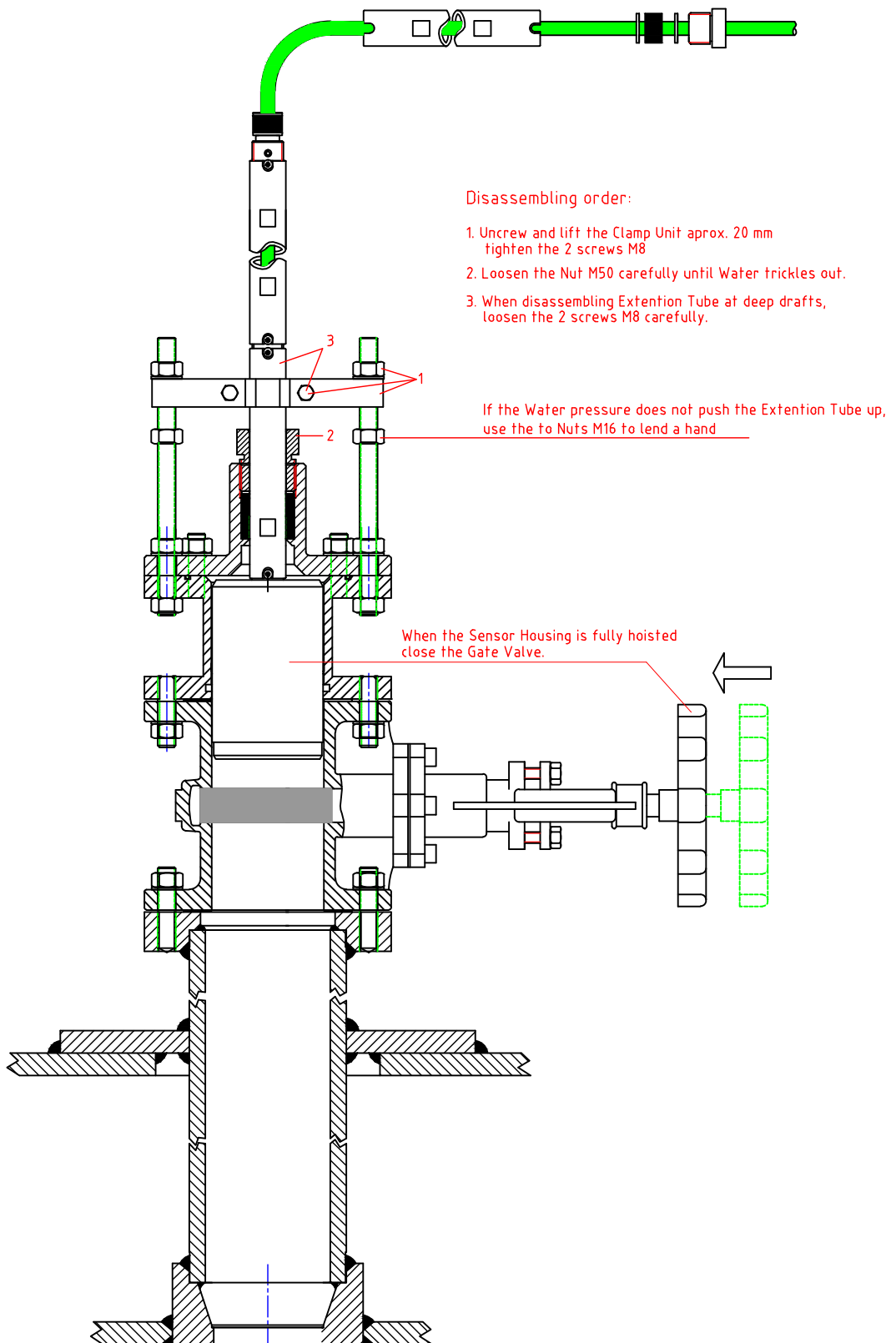


Protect sensor!

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

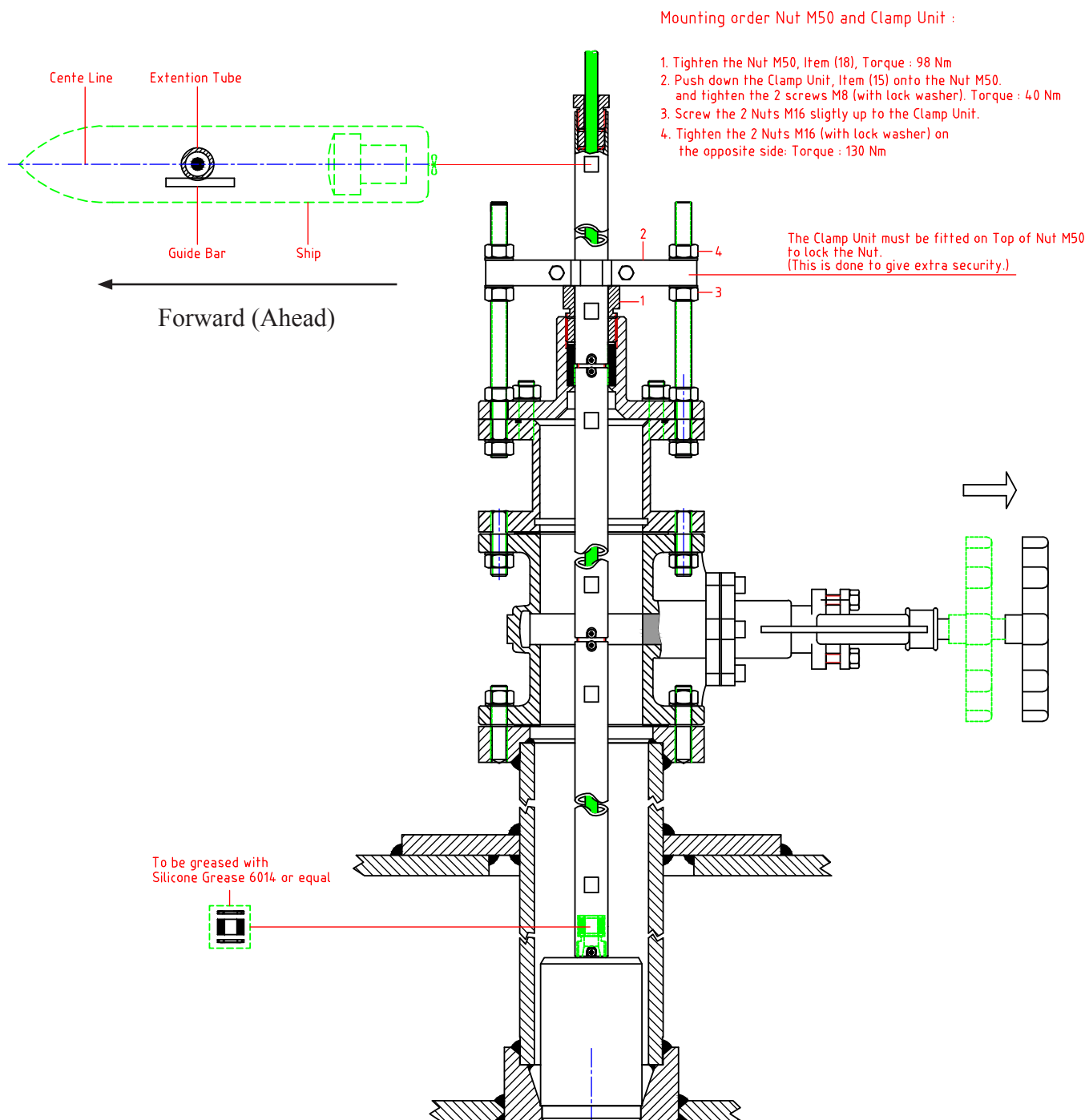
Check that the transducer/sensor housing, when fully inserted, is flush with the lower surface of the bottom flange.

12. Sensor removal



13. Re-installation

Same procedure as first-time mounting.



14. DB-100 Sensors

All units premounted by Skipper Electronics

1	2	3	4	5	6	7	8				
		RevNo		Revision note		Date		Signature		Checked	

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

Ring J90 DIN 472 A4 St. steel
 Cover DB-2023-Rev-02
 Press Element DB-2041-Rev-02
 Housing DB-2022-Rev-00

ETN050BEL 50kHz 25m cable
 ETN050BELX 50kHz 40m cable
 ETN200FS 200kHz 25m cable
 ETN200FSX 200kHz 40m cable

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

Ring J90 DIN 472 A4 St. steel
 Cover DB-2023-Rev-02
 Press Element DB-2049-Rev-01
 Housing DB-2022-Rev-00

ETN050BELX 50kHz 40m cable
 ETN050BEL 50kHz 25m cable
 Protection Plate DB-2050-Rev-00

Doppler log sensor
 DL850S27G-LA
 DL850S27G-SA

Lock Nut M8 DIN 985 St. steel A4(2x)
 DB-2023-Rev-02
 SB-3029-REV-00
 TC-2019-Rev-00

Scale: 2:1
 Notice Stud hole M4

Electro magnetic log sensor
 EML224SDB-SB

Screw M5 x 20 DIN 912(4x)
 Washer M5 DIN127B
 DB-2047-Rev-01
 EML224 Sensor
 O-ring 59,69mm x 5,33
 Grease on O-ring

Cross-cut A-A
 Notice Stud hole M4

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.Matre	Checked by VF	Approved by - date GT-20061222	Date 30.11.2009
SKIPPER Electronics A/S		File name DB-100-Sensors	Scale
		DB-2046-Rev-03	Edition 1/1

15. 100 mm Double Bottom Sea Valve

Material Specifications:
 AISI 316L/WND 1.4404 EN10204, 3.1
 Steel DIN17121/ST52.3N Surface Treatment: Fluogger 1240 Industry primer. Colour: Red
 Material: Steel DIN17121/ST52.3N

Notes:
 *) Mounted partly on Valve or in mounting Kit: DB-100-XA-M-KIT
 □) Spare parts in service Kit: Module-SB-DB-S-KIT: 1042A
 **) Yard Supply

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
42	1	Gate Valve Element	ZCC-01011
36	1	O-ring 139,29 x 3,53 (NBR 70 shore)	ZOA-01024
32	2	Spring Washer M8 DIN 127B A4 St. steel	ZOA-01083
31	2	Screw M8 x 30 DIN 933 A4 St. steel	ZOA-01069
30	7	Screw M4 x 8 DIN 7991 A4 St. steel	ZOA-01036
29	28	Spring Washer M16 DIN 127B A4 St. steel	ZOA-01036
28	30	Nut M16 DIN934 A4 St. steel	ZOA-01036
EM	QTY	DESCRIPTION	MATERIAL PART. NO.

EM	QTY	DESCRIPTION	DWG. NO.	PART. NO.
□	*	23 2 Gasket	DB-2042-Rev-001	DB-2042
□	*	22 1 Washer	DB-2040-Rev-001	DB-2040
□	*	21 1 Nut M28	DB-2039-Rev-001	DB-2039
□	*	20 8 Gasket	DB-2038-Rev-001	DB-2038
□	*	19 16 Washer	DB-2037-Rev-001	DB-2037
□	*	18 1 Nut M50	DB-2036-Rev-001	DB-2036
□	*	17 2 Gasket	DB-2035-Rev-001	DB-2035
□	*	16 2 Thread Bolt	DB-2034-Rev-001	DB-2034
□	*	15 1 Clamp Unit	DB-2033-Rev-001	DB-2033
□	*	13 1 Top Flange	DB-2031-Rev-001	DB-2031
□	*	12 1 Intermediate Element	SB-3021-Rev-02	SB-3021
□	*	11 1 Intermediate Flange	DB-2030-Rev-001	DB-2030
□	**	10 1 Intermediate Tube	DB-2029-Rev-001	DB-2029
□	**	9 1 Blanking Plate	DB-2028-Rev-001	DB-2028
□	*	8 3 Coupling	DB-2027-Rev-001	DB-2027
□	*	7 2 Extension Tube-0.5m	DB-2026-Rev-001	DB-2026
□	*	6 2 Extension Tube-1m	DB-2025-Rev-001	DB-2025
□	*	2 1 DB-100-Sensors	DB-2046-Rev-001	DL850S27G
□	*	1 1 Bottom Flange	DB-2021-Rev-001	DB-2021

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by	A.Maire	File name	2007.04.12
Checked by		Approved by - date	

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
DB-100-XA		Double Bottom Gate Valve	DB-100-XA

RevNo	Revision note	Date	Signature	Checked
8				