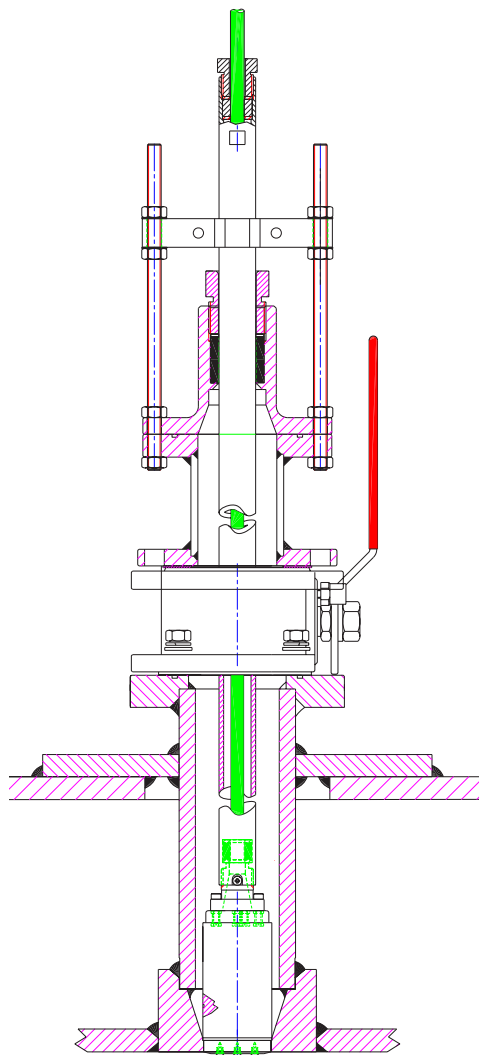


SKIPPER

Double Bottom Sea Valve

DB-60-SA

Operation and Installation Manual



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SKIPPER DB (Double Bottom) Sea Valve 60 mm

1. Installation

The SKIPPER DB 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 DB 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. Needed attention must be taken to allow easy replacement/pulling of new cable during maintenance”.

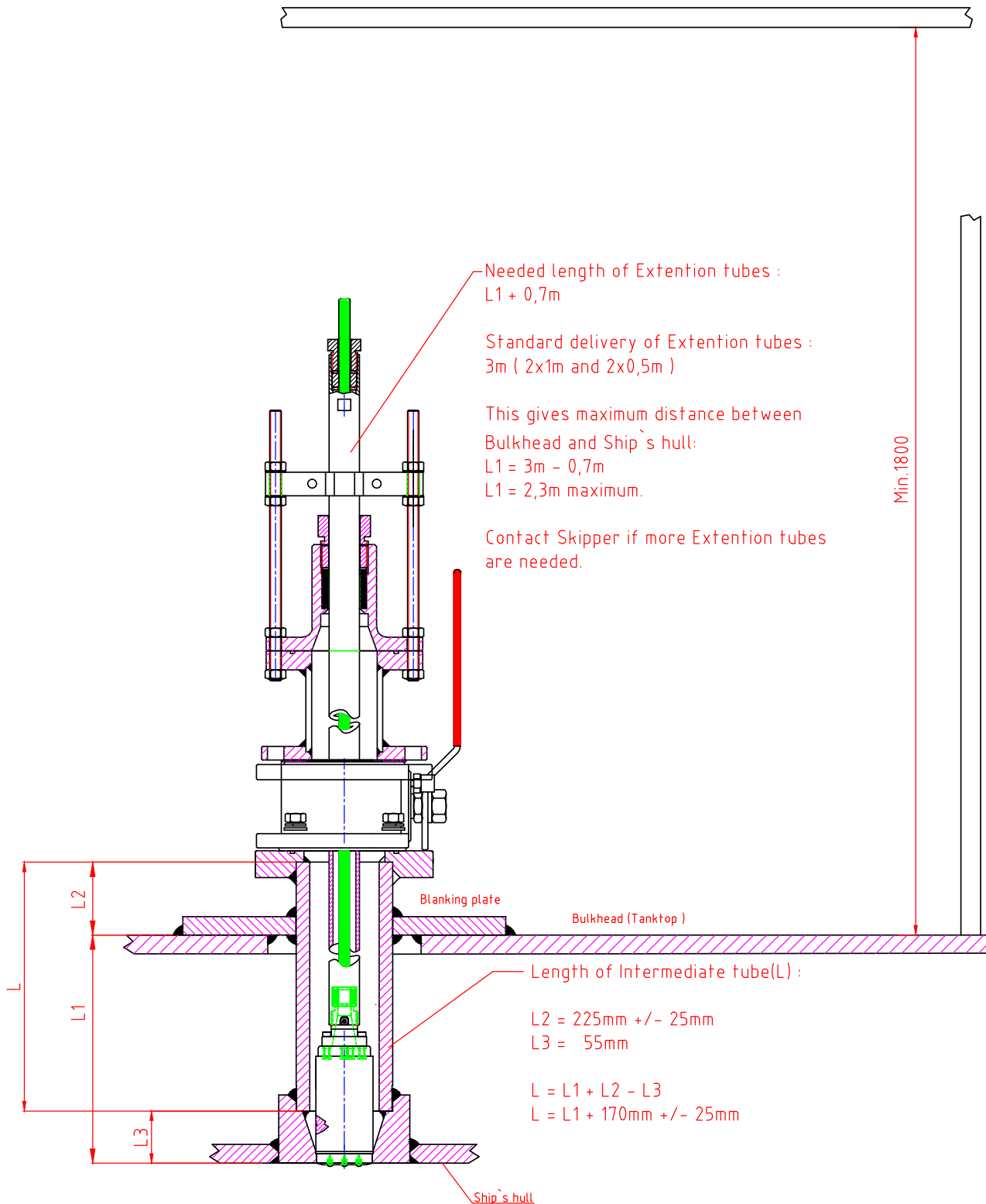
SKIPPER Electronics AS will recommend installation positions if GA-drawings (General arrangements), lines drawings and frame drawings are made available for study.

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.

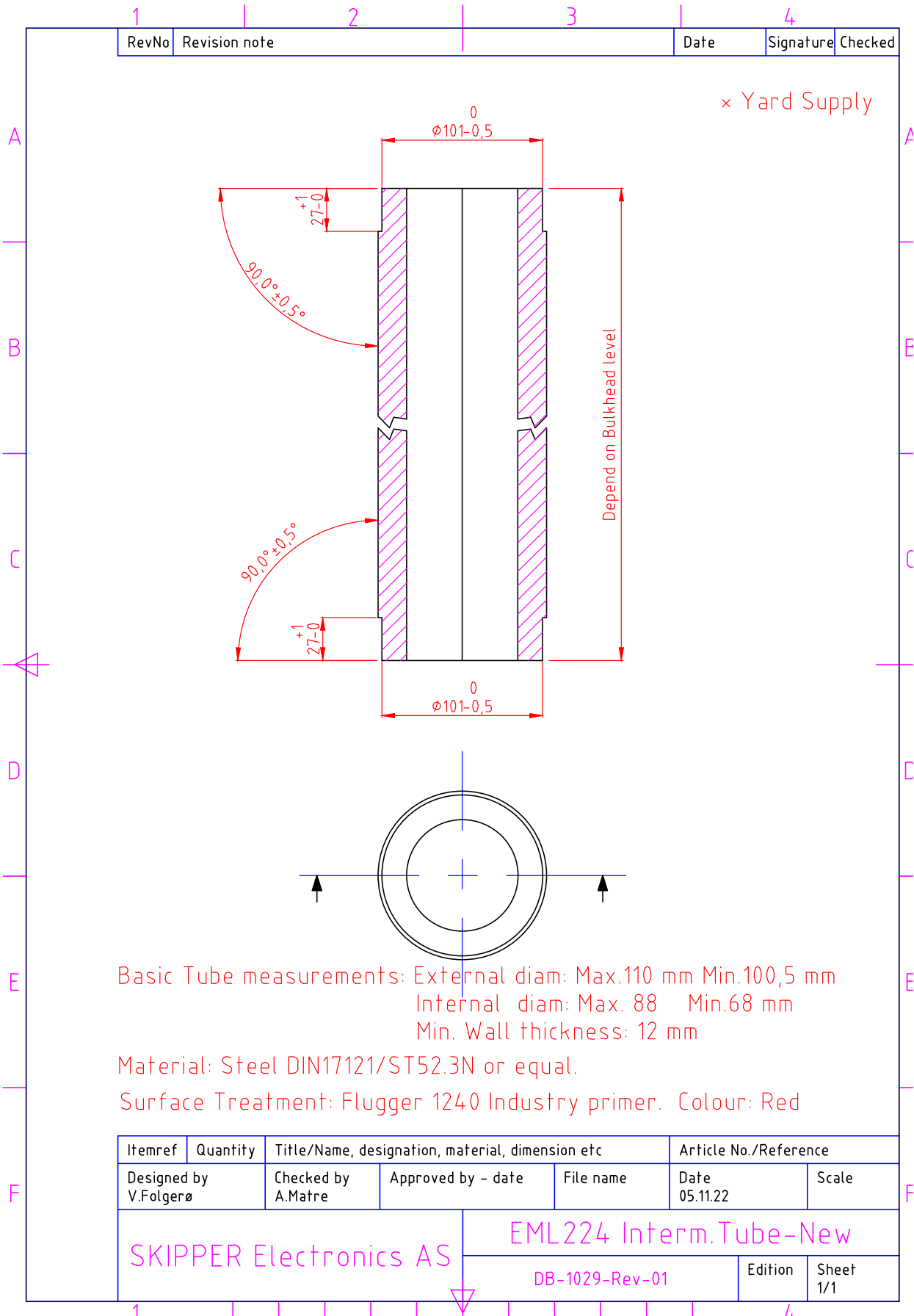
Note: All “Item (X)” references on the following pages, can be found on drawing 60 mm Double Bottom EML224.

2. Space considerations

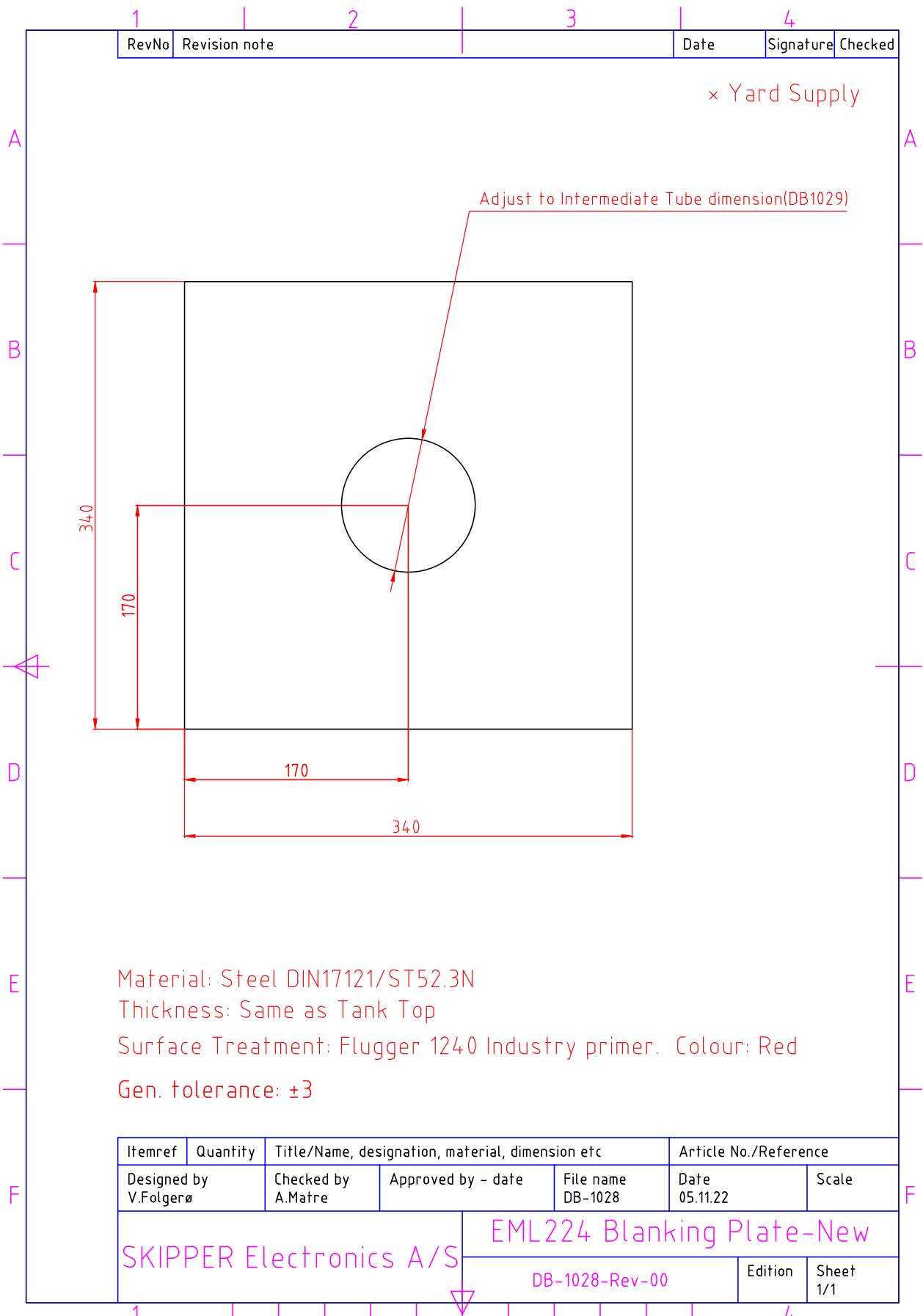


The Ball Valve should be placed in a service accessible place, large enough for installation and disassembly of the sensor unit.

3. Intermediate Tube



4. Blanking Plate



5. Welding the bottom flange

- When the position has been decided, a 138 mm hole is cut in the hull, and a 161 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:

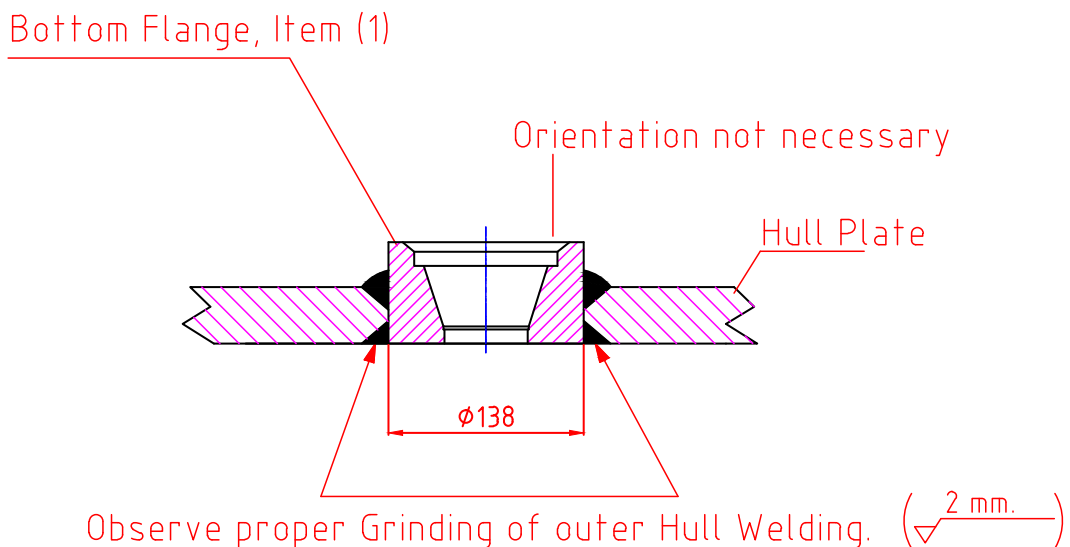
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

WELDING NOTES!

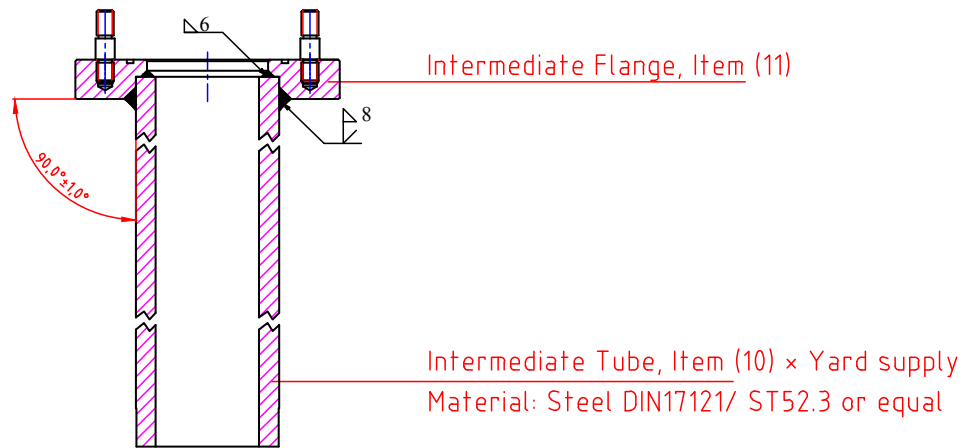
All bottom parts and flanges for welding are precisely machined parts. During welding of these parts to the ship's hull plates, careful attention must be paid to avoid construction strain on the bottom parts and flanges.

- 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.

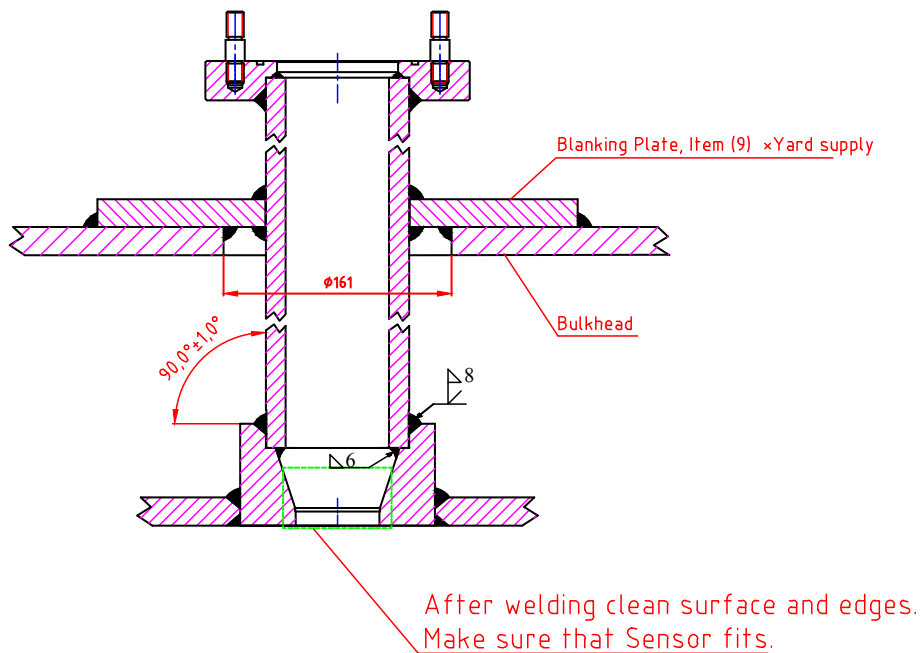
Welding the Bottom Flange in ship's hull



- 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).

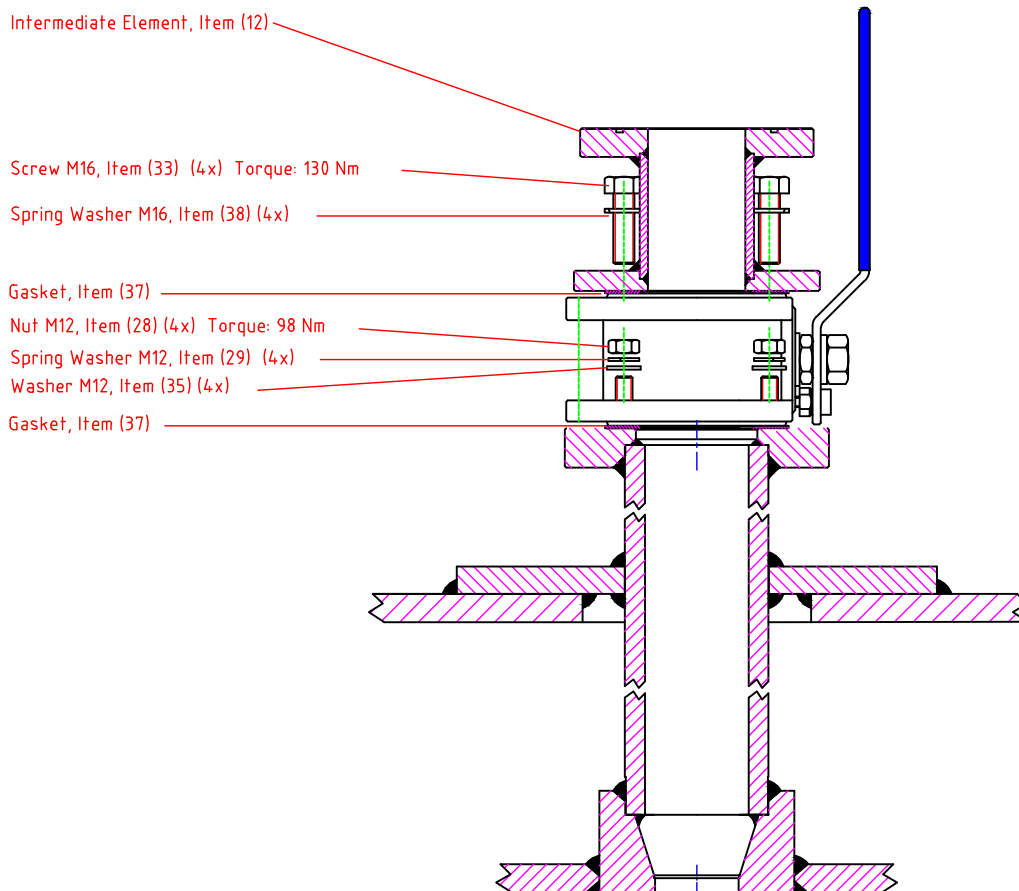


- Blanking Plate, Item (9) (*Yard supply) is placed over the 161 mm hole in the bulkhead.
- Intermediate Tube, Item (10) is tread into the Blanking Plate, Item (9) and through the 161 mm hole in the bulkhead.
- Standard welding practice, methods and procedures should be observed. (See welding notes).

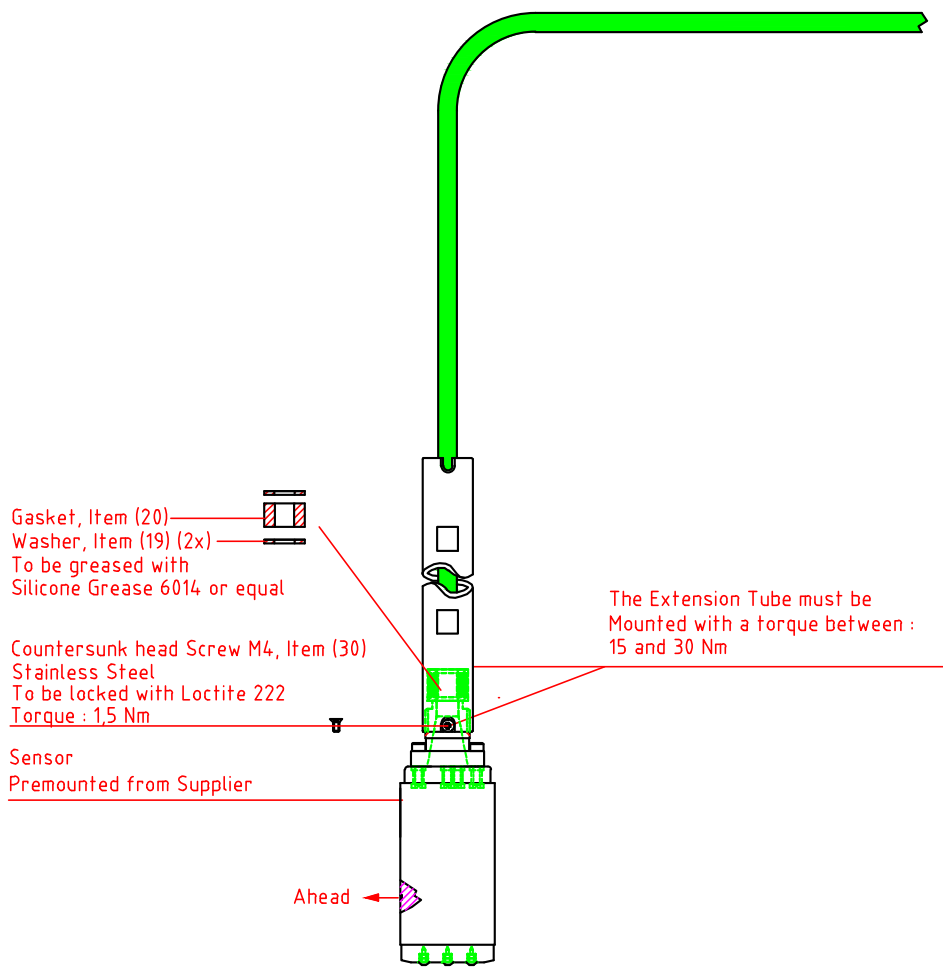


6. Sea Valve assembly

- Place a 1.5 mm Klingersil gasket, Item (37) on top of Intermediate Flange, Item (11).
- Then place the Ball Valve element on top of the Intermediate 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).



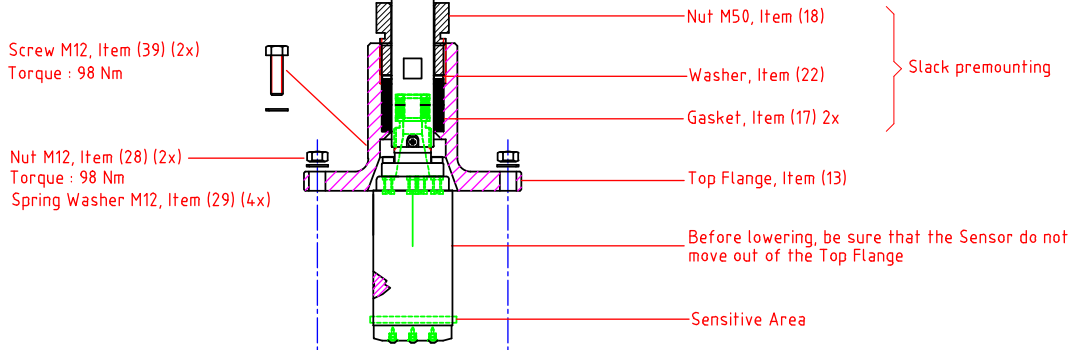
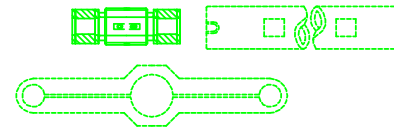
7. Assembling of first tube and sensor



8. Sensor installation

Sensor installation

Following parts



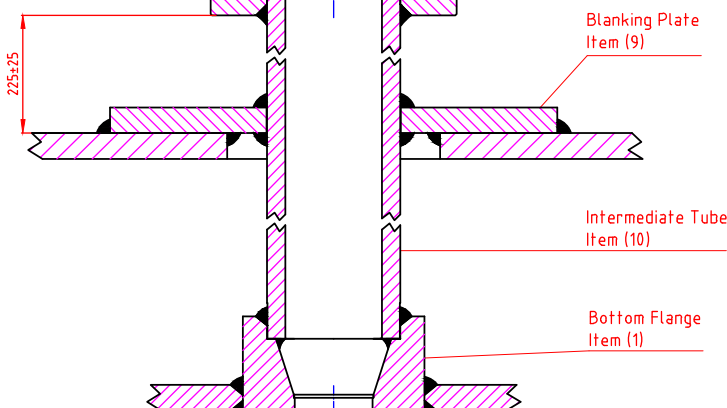
O-ring $\phi 105,0 \times 4,00\text{mm}$.
Item (36)

Nut M12, Item (28) (2x)
Torque : 98 Nm

Thread Bolt (2x)
Item (16)

- 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 counternuts, 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.

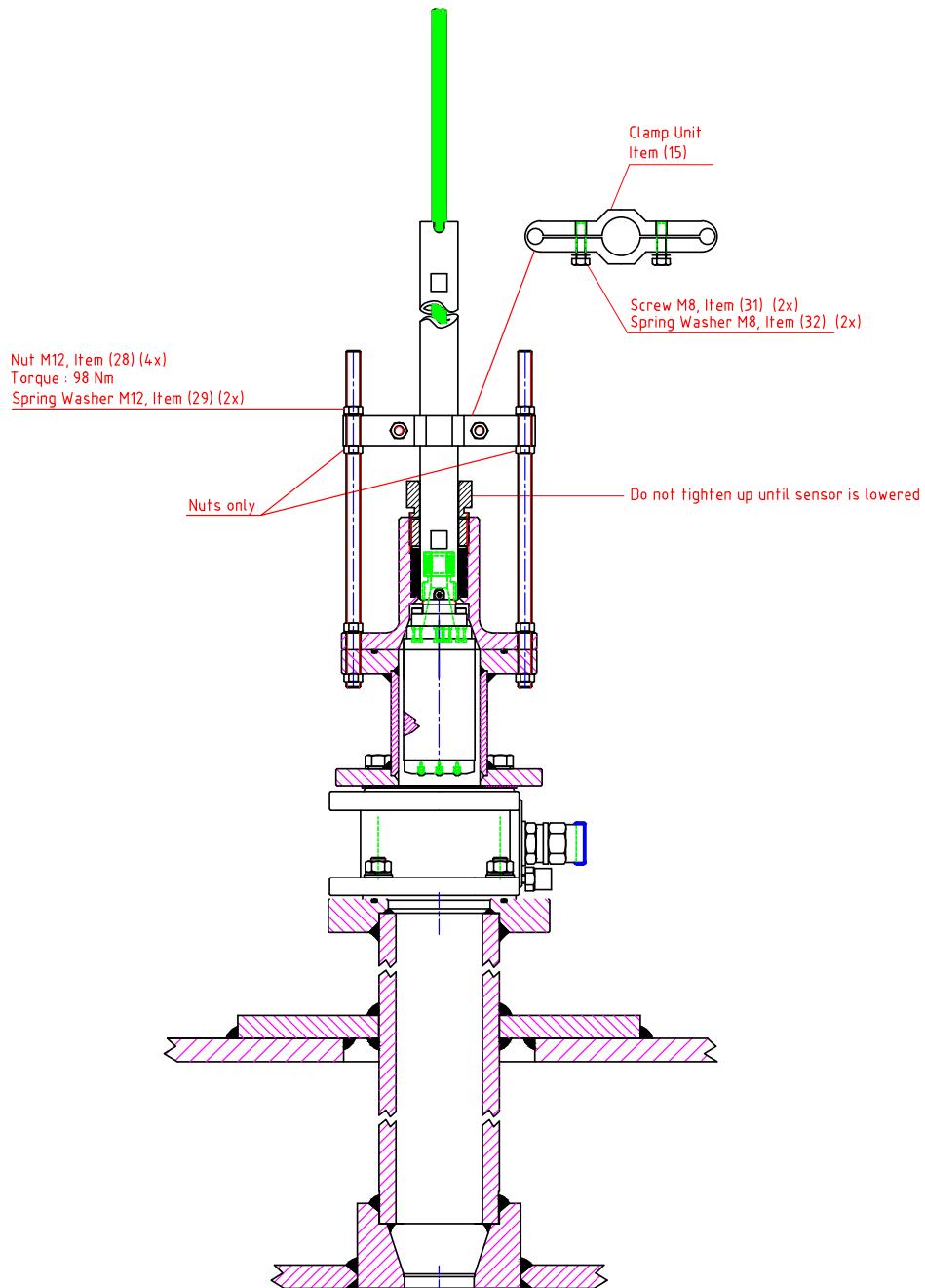


9. Clamp Unit mounting

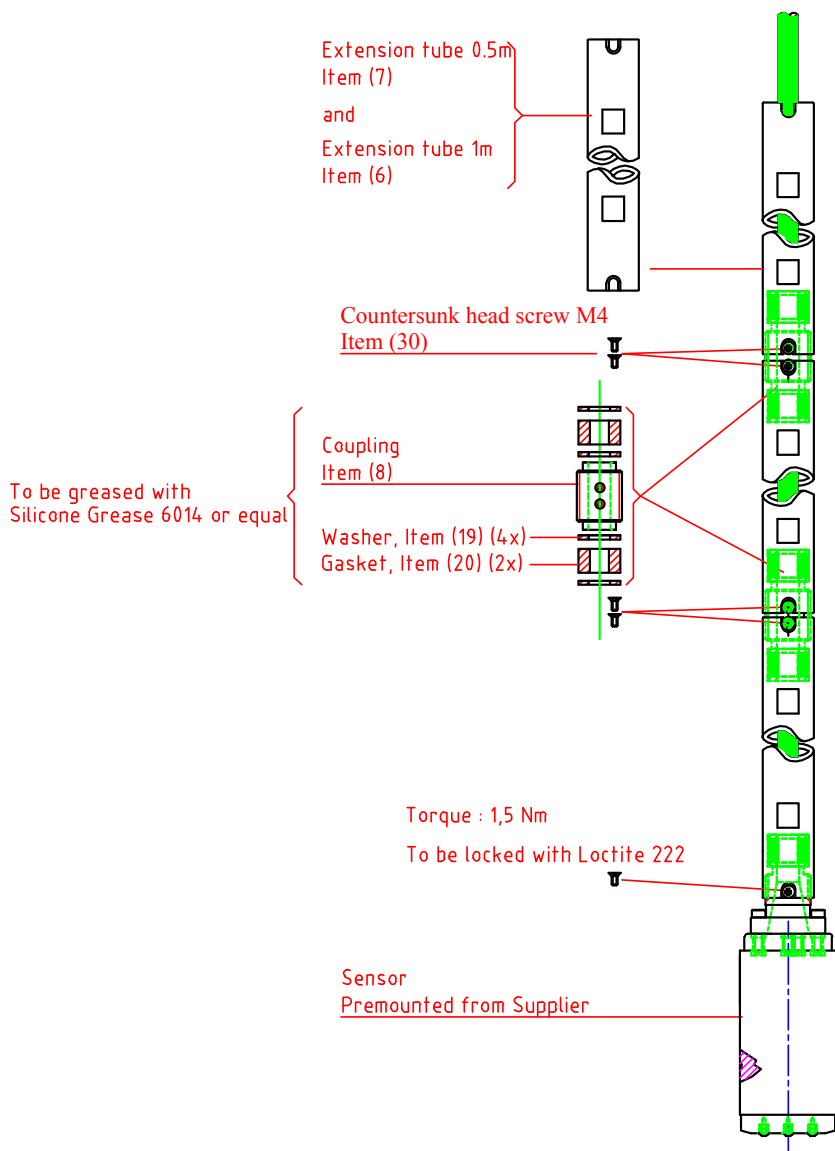
Mount Top Flange, Item (13). Secure with 2 each washers, nuts and M12 x 40 bolts. Torque: 98 Nm.

Mount 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).

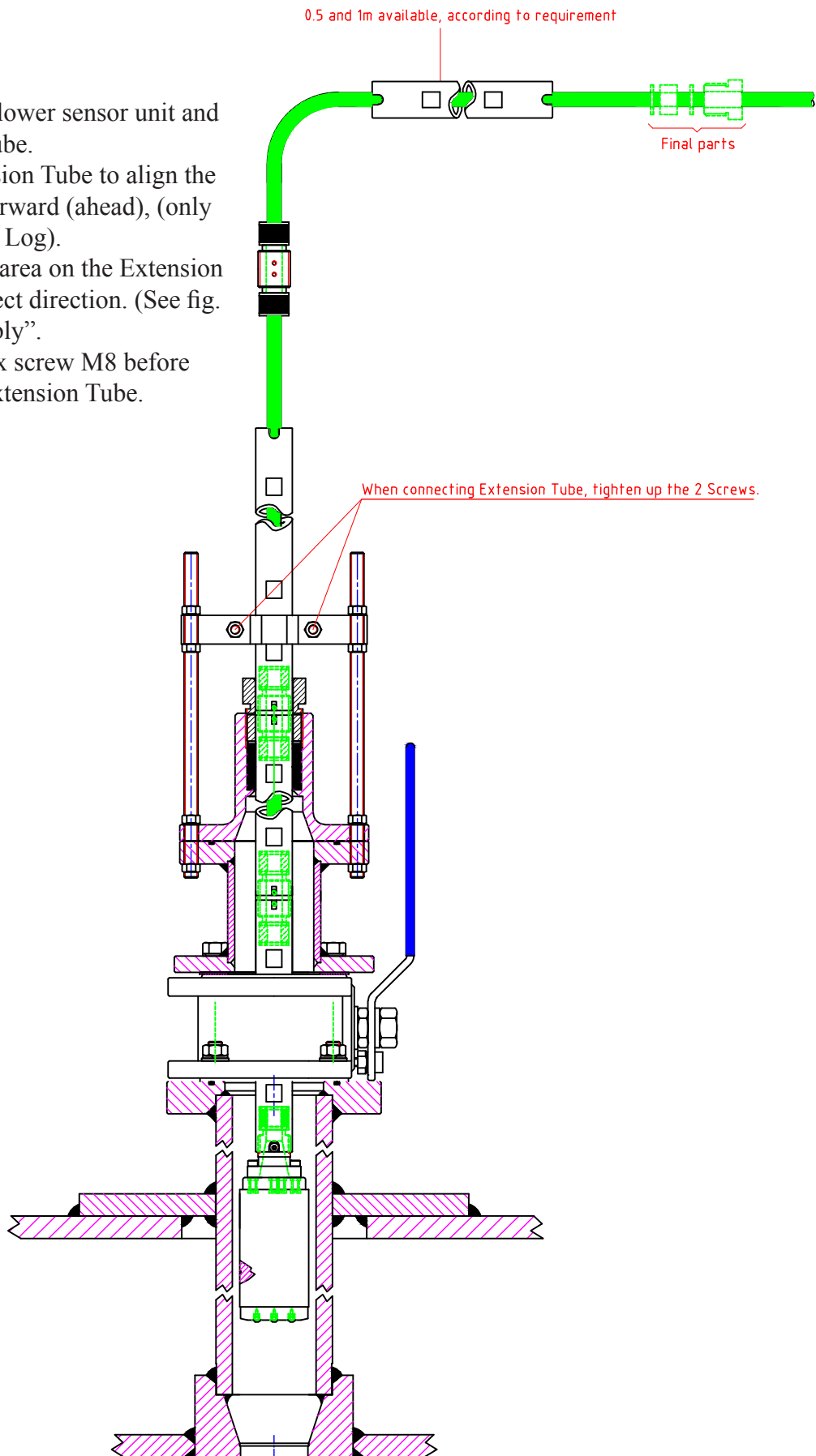


10. Extension tube mounting order



- The Extension tubes and coupling must be mounted with a torque between 15 and 30 Nm.
- The counter sunk head screw must be mounted with a torque 1.5 Nm.

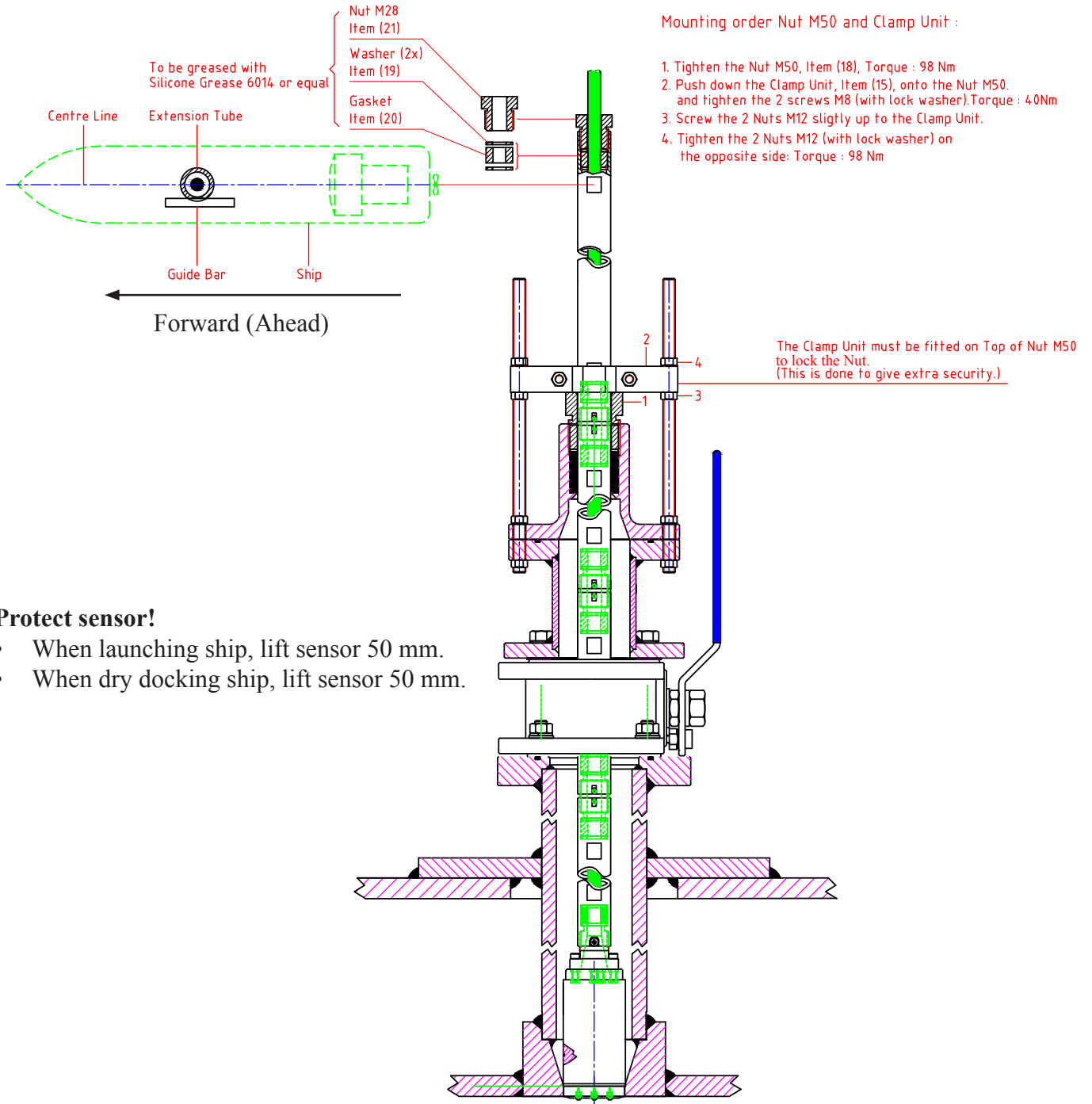
- Open Sea Valve, lower sensor unit and first Extension Tube.
- Rotate the Extension Tube to align the sensor to point forward (ahead), (only needed for Speed Log).
- Use the flattened area on the Extension Tube to find correct direction. (See fig. "11. Final assembly").
- Tighten up the 2 x screw M8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

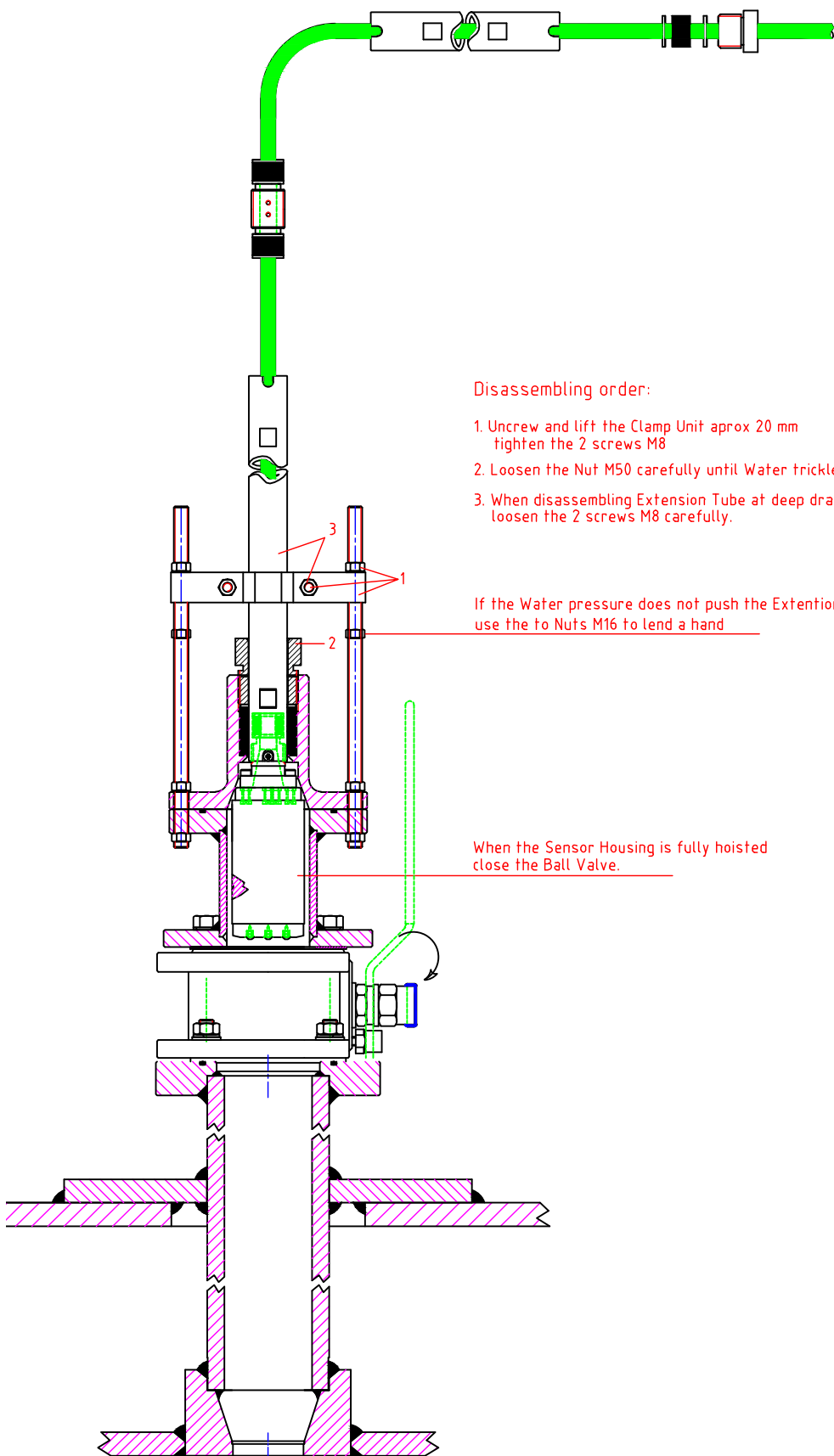


Protect sensor!

- 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



Disassembling order:

- 1. Uncrew and lift the Clamp Unit aprox 20 mm tighten the 2 screws M8
- 2. Loosen the Nut M50 carefully until Water trickle out.
- 3. When disassembling Extension Tube at deep drafts, loosen the 2 screws M8 carefully.

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

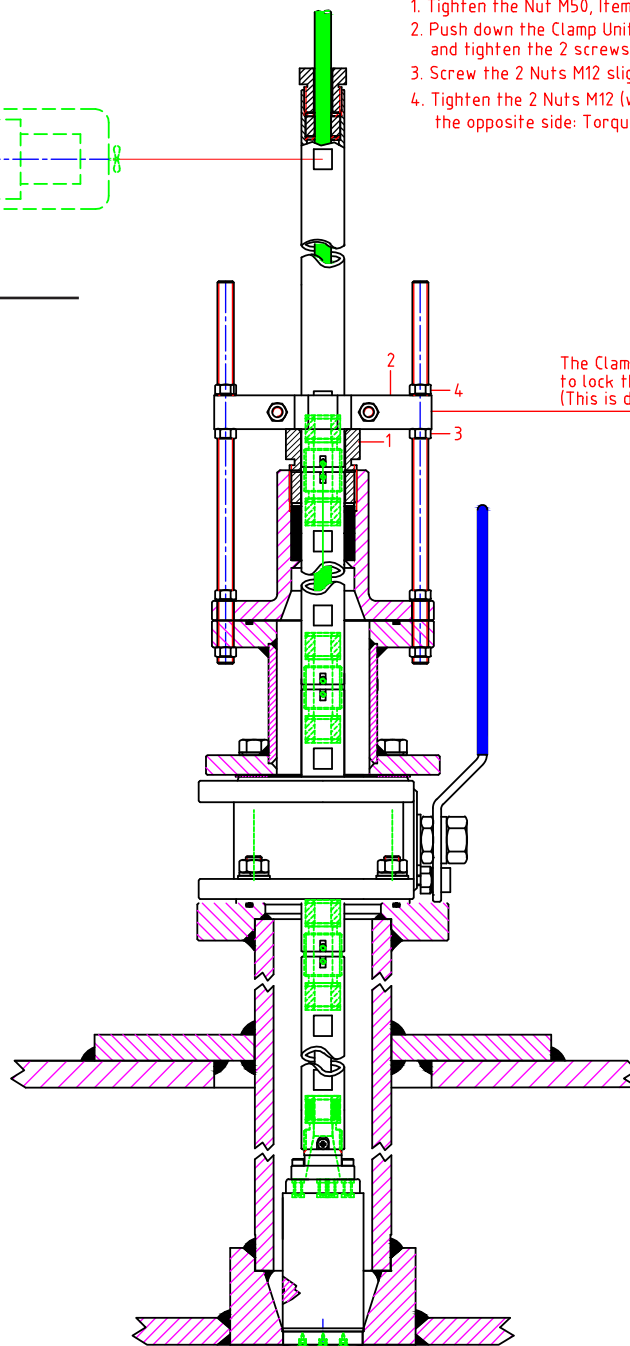
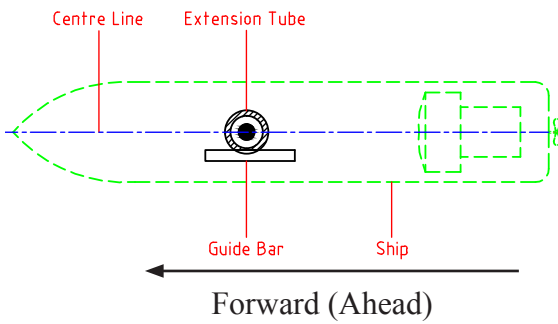
When the Sensor Housing is fully hoisted close the Ball Valve.

13. Re-installation

Same procedure as first-time mounting.

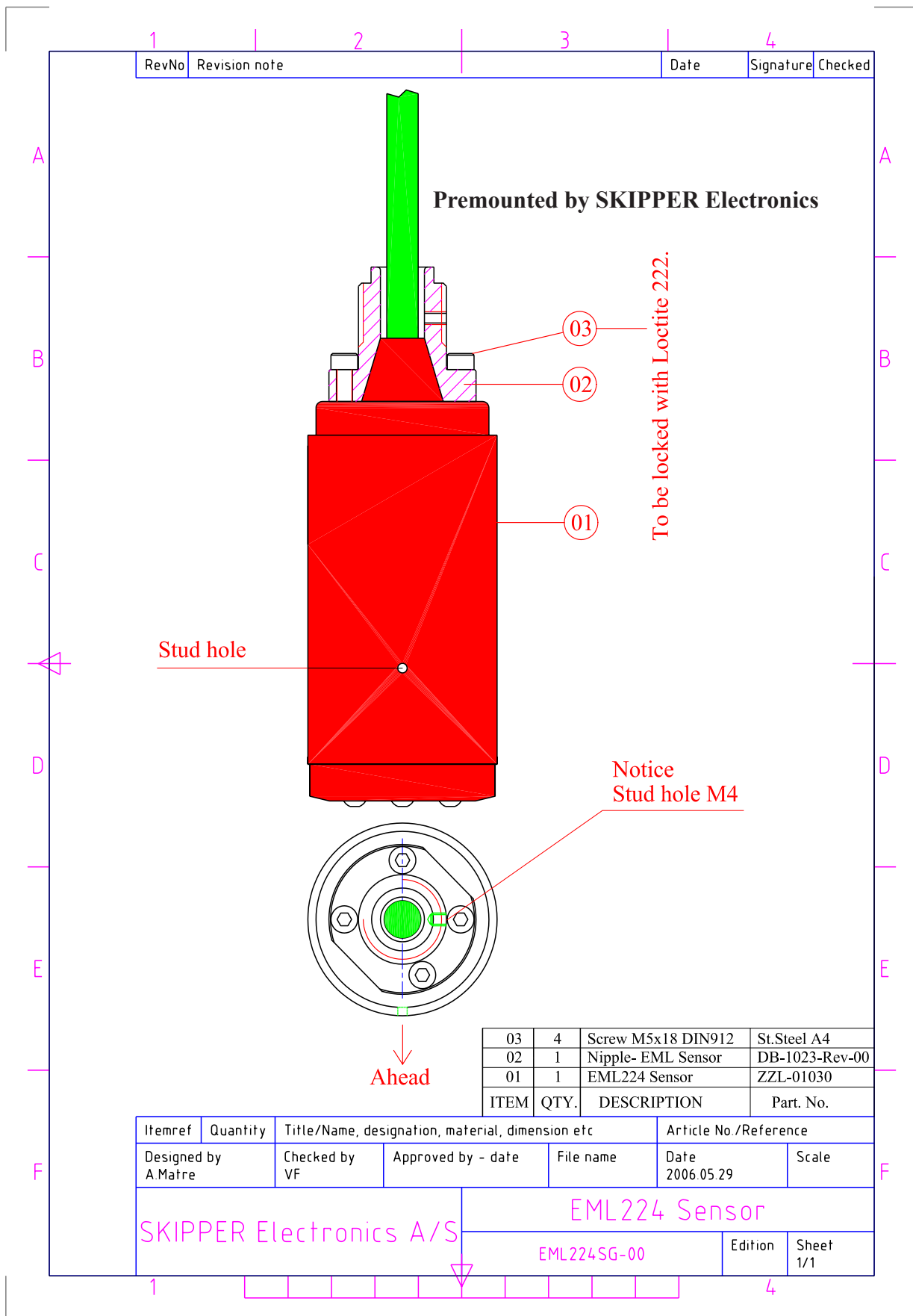
Mounting order Nut M50 and Clamp Unit :

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 M8 (with lock washer). Torque : 40Nm
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 of Nut M50 to lock the Nut.
(This is done to give extra security.)

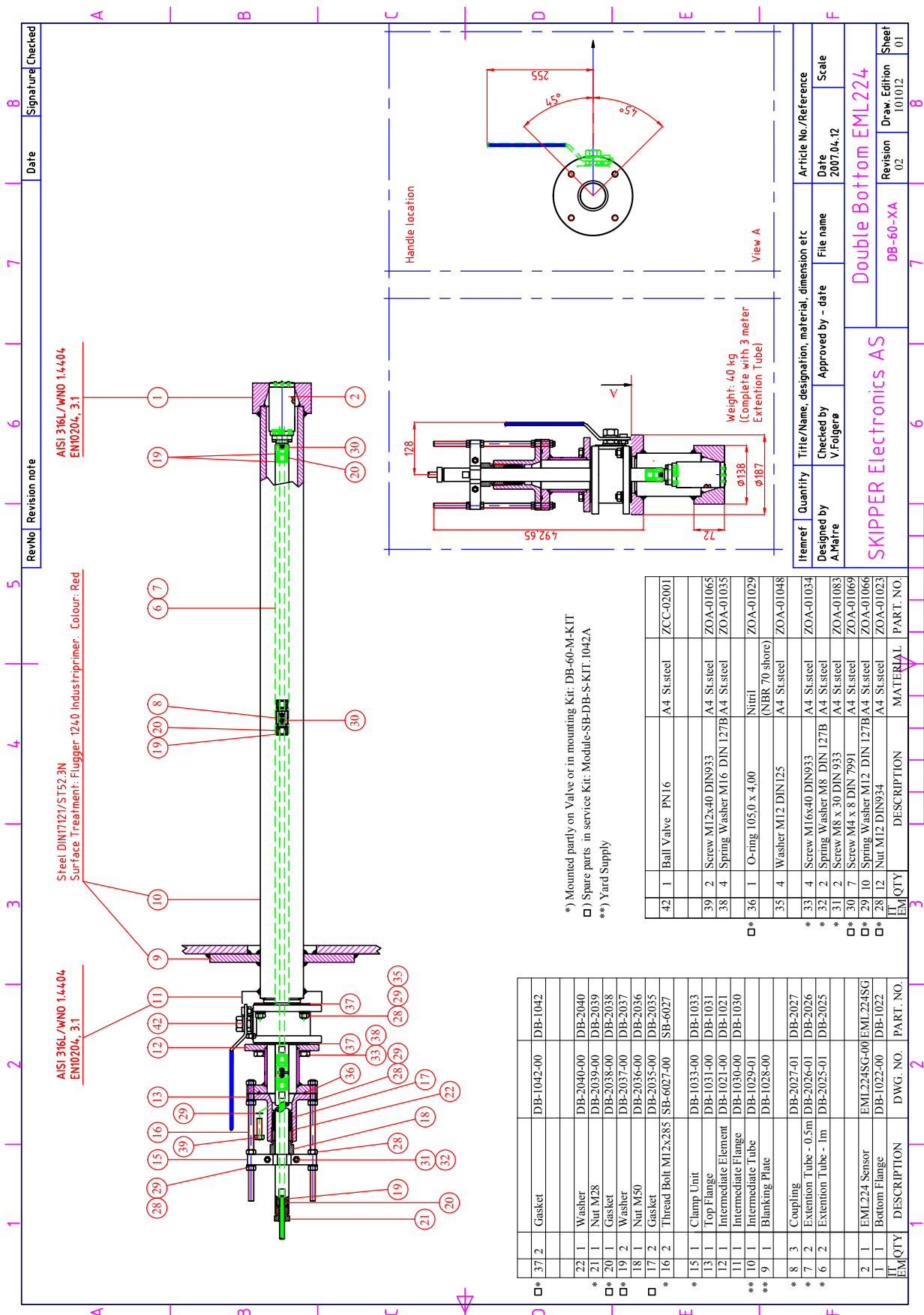
14. EML 224 Sensor



03	4	Screw M5x18 DIN912	St.Steel A4
02	1	Nipple- EML Sensor	DB-1023-Rev-00
01	1	EML224 Sensor	ZZL-01030
ITEM	QTY.	DESCRIPTION	Part. No.

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
Designed by A.Matre	Checked by VF	Approved by - date	File name	Date 2006.05.29	Scale	
SKIPPER Electronics A/S			EML224 Sensor			
			EML224SG-00	Edition	Sheet 1/1	

15. 60 mm Double Bottom EML224



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

AISI 316L/WINO 1.4404
EN10204, 3.1

Steel DIN17121/ST52.3N
Surface Treatment: Flügger 1240 Industriprimer. Colour: Red

AISI 316L/WINO 1.4404
EN10204, 3.1

Handle location

View A

Weight: 40 kg
(Complete with 3 meter
Extension Tube)

ITEM	QTY	DESCRIPTION	MATERIAL	PART. NO.
37	2	Gasket	DB-1042-00	DB-1042
22	1	Washer	DB-2040-00	DB-2040
21	1	Nut M28	DB-2039-00	DB-2039
20	1	Gasket	DB-2038-00	DB-2038
19	2	Washer	DB-2037-00	DB-2037
18	1	Nut M50	DB-2036-00	DB-2036
17	2	Gasket	DB-2035-00	DB-2035
16	2	Thread Bolt M12x285	SB-6027-00	SB-6027
15	1	Clamp Unit	DB-1033-00	DB-1033
13	1	Top Flange	DB-1031-00	DB-1031
12	1	Intermediate Element	DB-1021-00	DB-1021
11	1	Intermediate Flange	DB-1030-00	DB-1030
10	1	Intermediate Tube	DB-1029-01	
9	1	Blanking Plate	DB-1028-00	
8	3	Coupling	DB-2027-01	DB-2027
7	2	Extension Tube - 0.5m	DB-2026-01	DB-2026
6	2	Extension Tube - 1m	DB-2025-01	DB-2025
2	1	EML224 Sensor	EML224SG-00	EML224SG
1	1	Bottom Flange	DB-1022-00	DB-1022

*) Mounted partly on Valve or in mounting Kit: DB-60-M-KIT
 □) Spare parts in service Kit: Module-SB-DB-S-KIT_1042A
 **) Yard Supply

42	1	Ball Valve PN16	A4 St. steel	ZCC-02001
39	2	Screw M12x40 DIN933	A4 St. steel	ZOA-01065
38	4	Spring Washer M16 DIN 127B	A4 St. steel	ZOA-01035
36	1	O-ring 105,0 x 4,00	Nitril	ZOA-01029
35	4	Washer M12 DIN125	(NBR 70 shore) A4 St. steel	ZOA-01048
33	4	Screw M16x40 DIN933	A4 St. steel	ZOA-01034
32	2	Spring Washer M8 DIN 127B	A4 St. steel	ZOA-01069
31	2	Screw M8 x 30 DIN 933	A4 St. steel	ZOA-01083
30	7	Screw M4 x 8 DIN 7991	A4 St. steel	ZOA-01069
29	10	Spring Washer M12 DIN 127B	A4 St. steel	ZOA-01066
28	12	Nut M12 DIN934	A4 St. steel	ZOA-01023

Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Maire	Checked by V.Foigere	Approved by - date	Date 2007.04.12
		File name	Scale
SKIPPER Electronics AS Double Bottom EML224 DB-60-XA			Revision 02 Draw. Edition 101012 Sheet 01