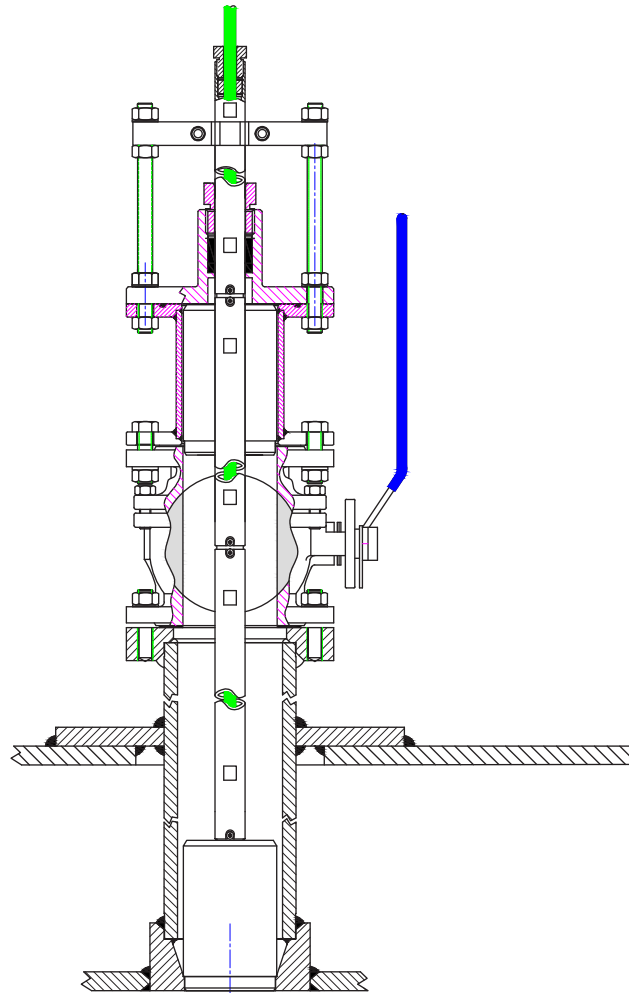
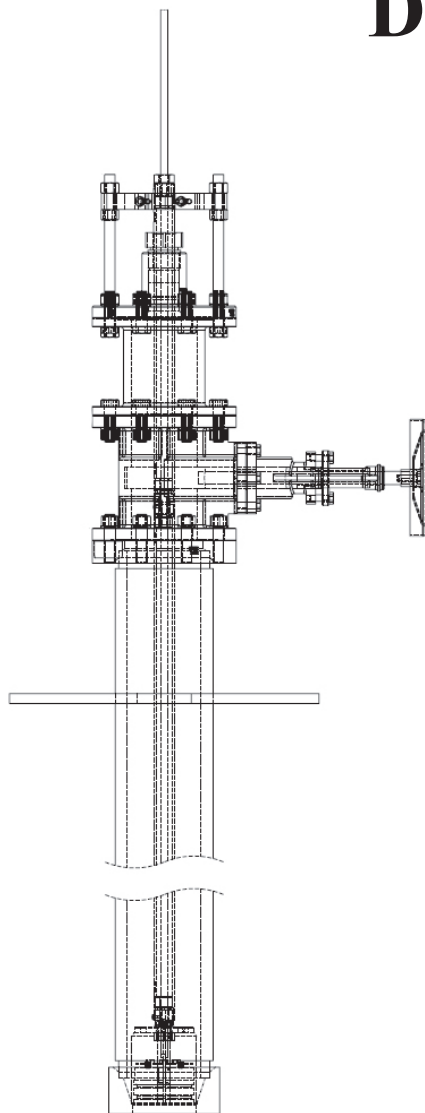


SKIPPER

100mm Double Bottom Sea Valve Installation and operation Manual DB-100-SA DB-100-SB



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SKIPPER DB (Double Bottom) Sea Valve 100 mm

1. Introduction

The SKIPPER DB Sea Valve 100 mm is used for installation of SKIPPER speed log sensors and echo sounder transducers fitted with adaptor for XB-100-XX.

DB-100 is available in two versions:

DB-100-SA. Main element being gate valve type.

DB-100-SB. Main element being ball valve type.

The installation procedure is the same. The DB-100-SB is however higher than DB-100-SA so the space consideration is different.

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.

Caution must be taken when mounting seavalves that all parts are aligned correctly, and that the inside is clean. DO NOT use liquid sealants, and DO NOT paint the inside of a 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) 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. Needed attention must be taken to allow easy replacement/pulling of new cable during maintenance.

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

Condition.

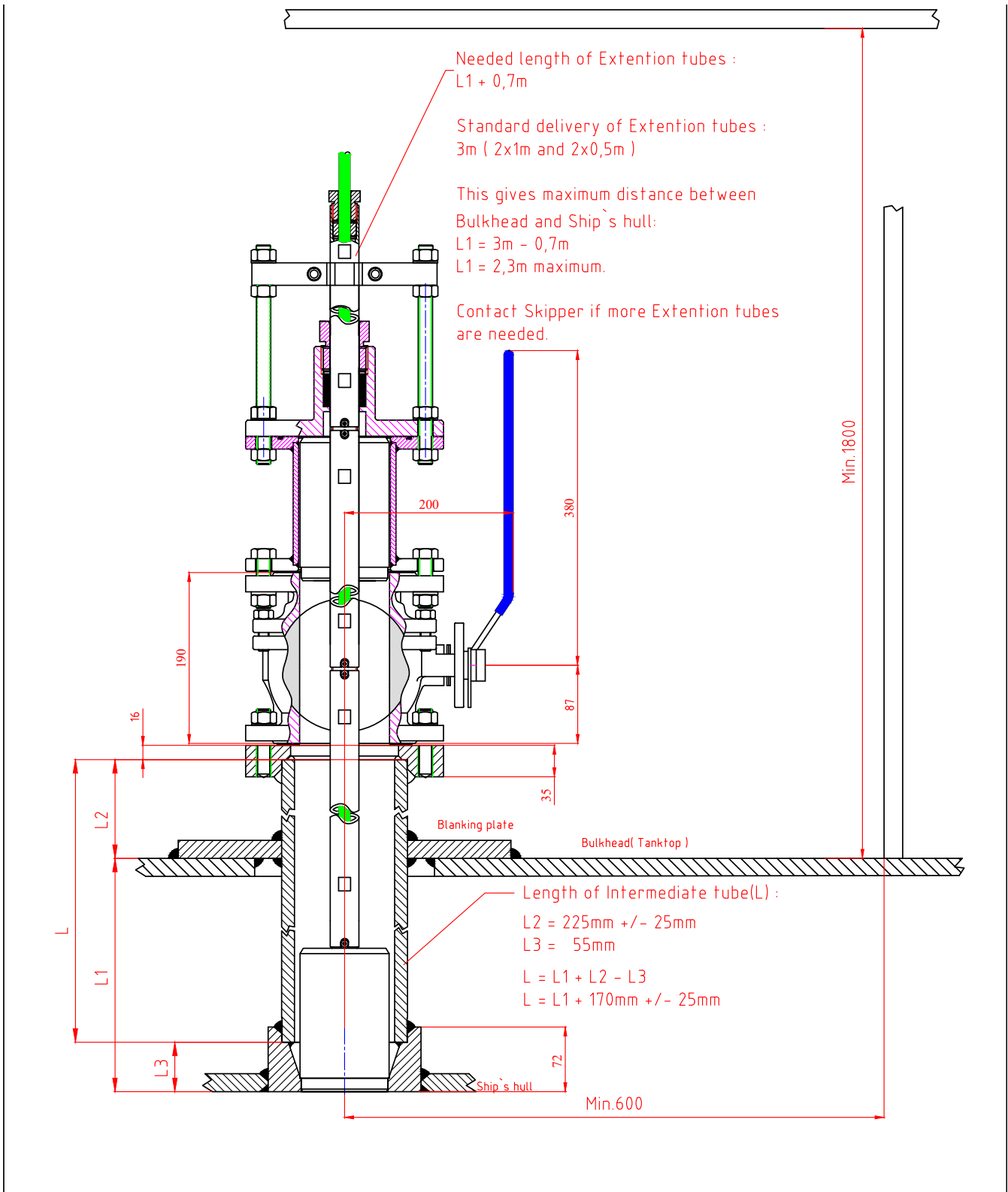
The welding to hull structures and structural support of the items may be subject to separate approval by classification societies for each installation on board a ship.

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

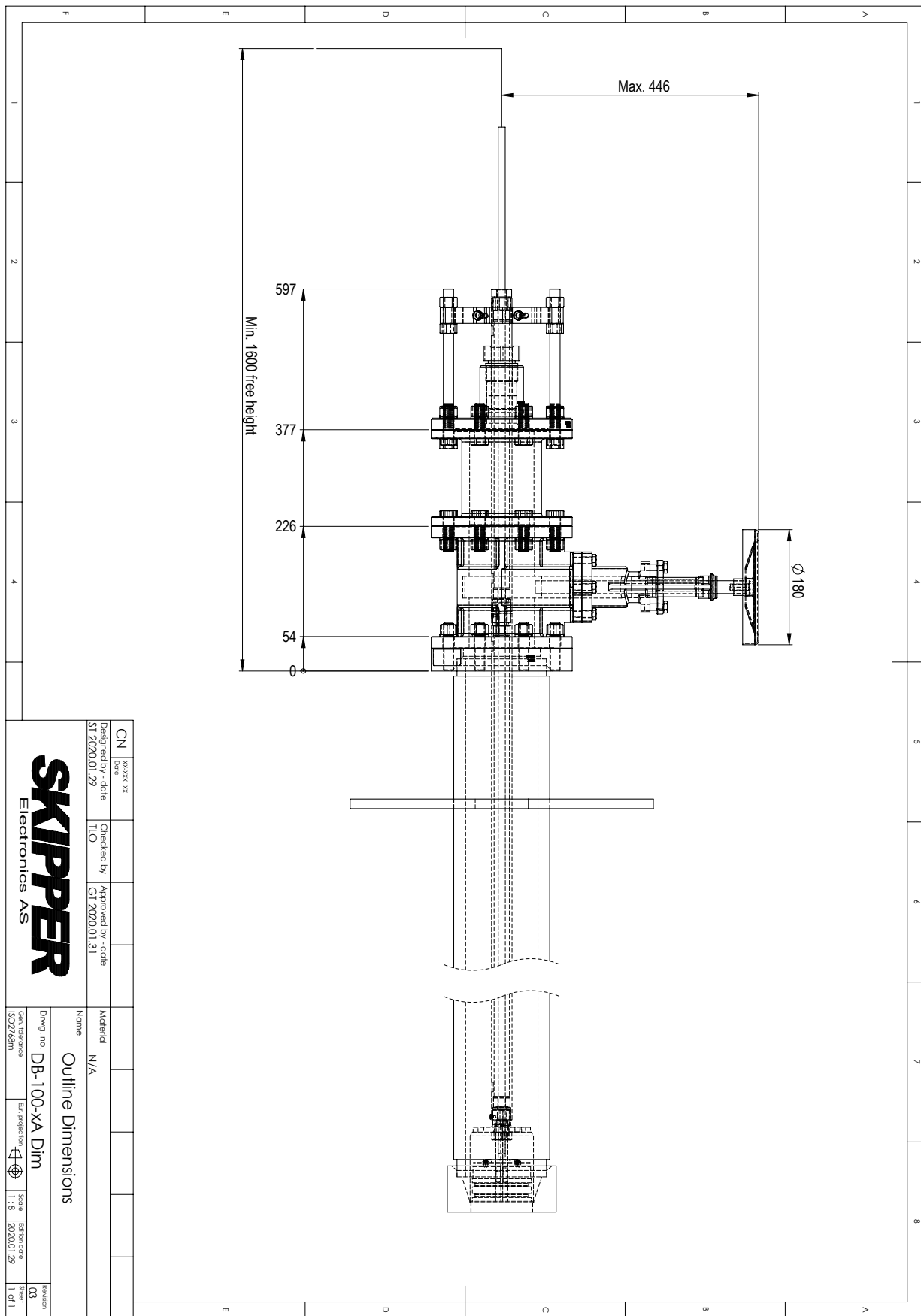
2. Space considerations

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

Space considerations DB-100-SB



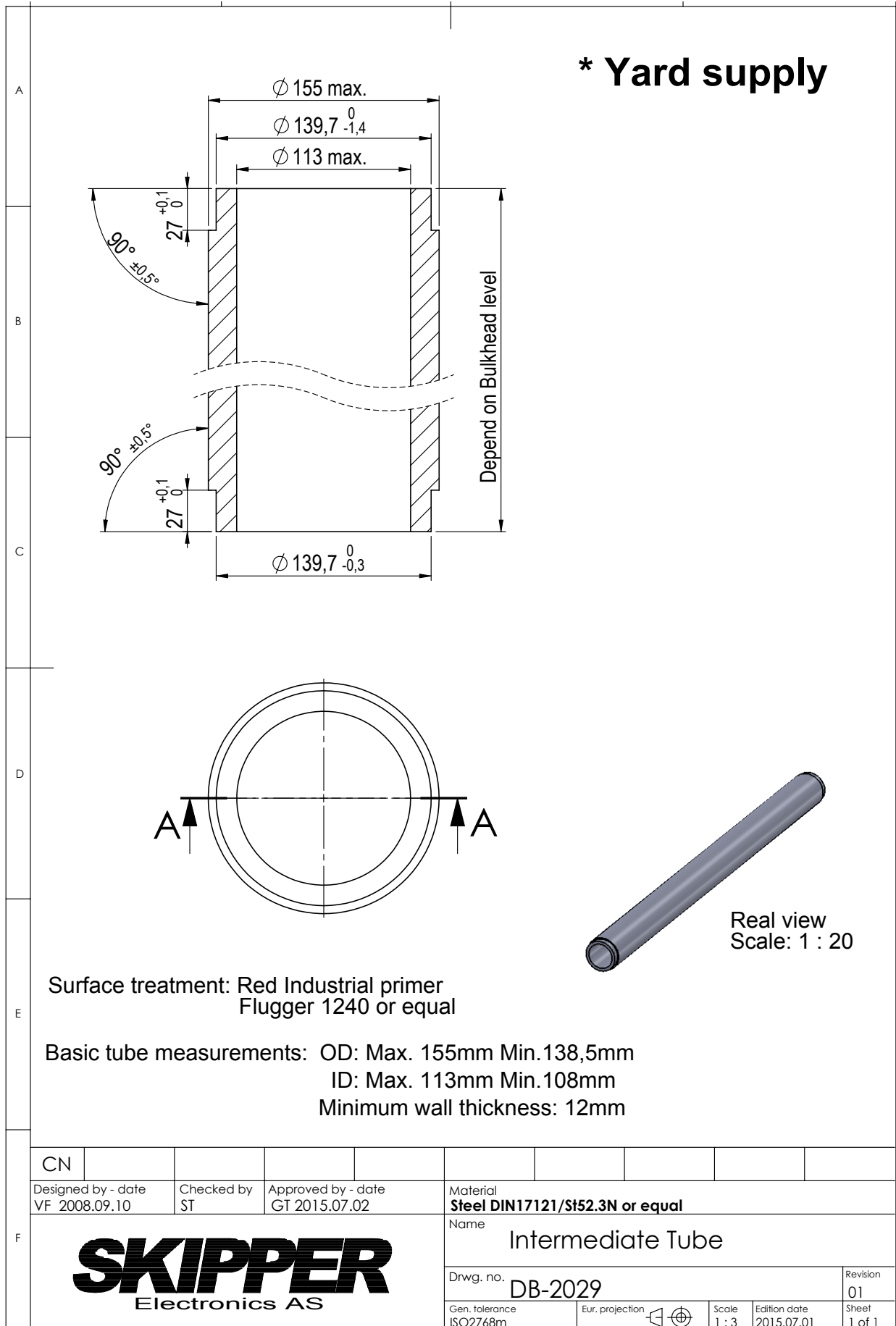
Space considerations DB-100-SA



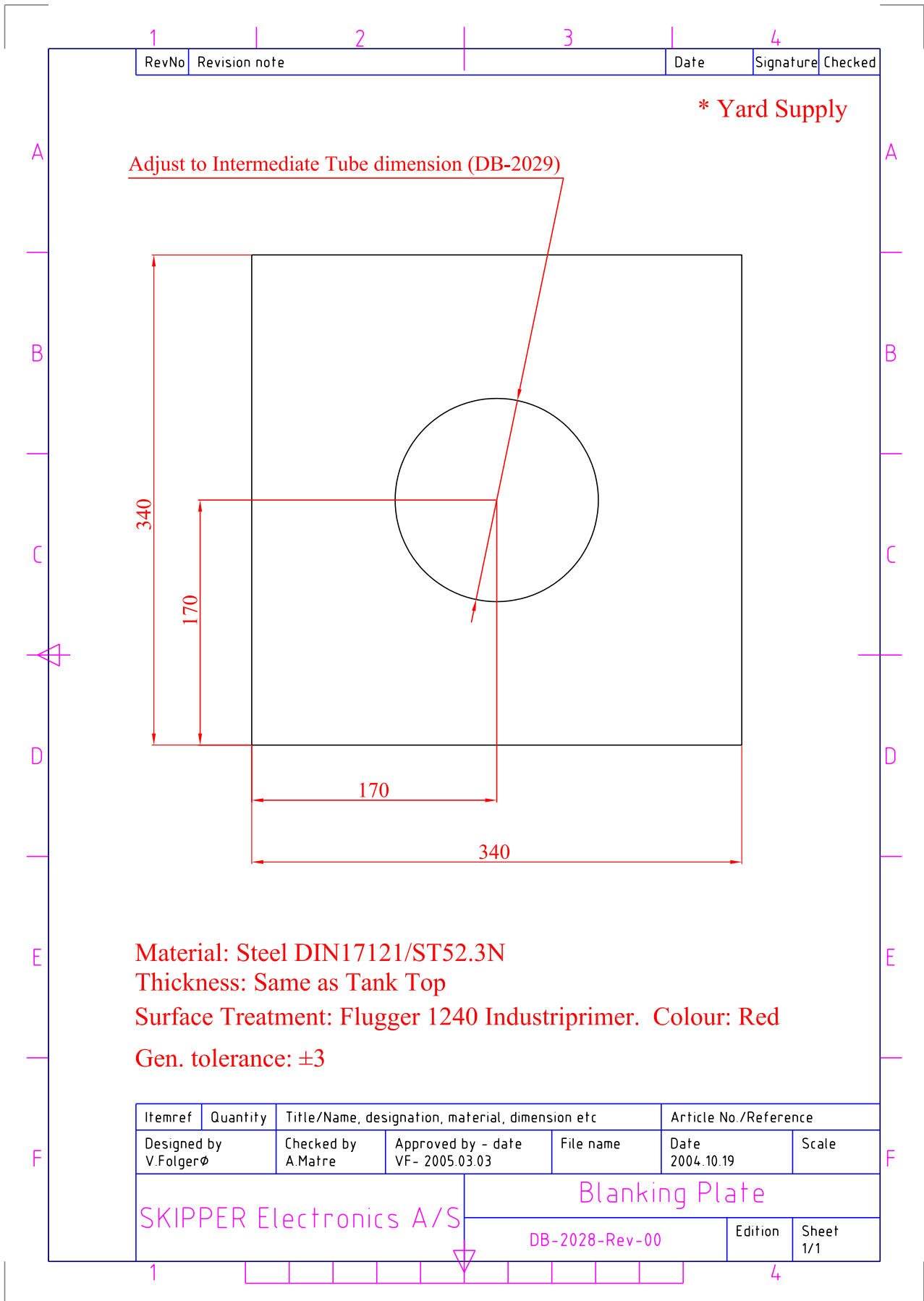
CN	xx-xx-xx	Designed by - date	Checked by	Approved by - date	Mediefeld	Name	Outline Dimensions	Revision
		SI 2020.01.29	TLO	GT 2020.01.31	N/A			03
		Drawn no.	DB-100-XA Dim		Gen. tolerance	ISO 2768m		Scale
		1:8	2020.01.29		1:8	2020.01.29		1 of 1

3. Intermediate Tube

*** Yard supply**



4. Blanking plate



5. Welding the bottom flange

- When the position has been decided, a hole for the 170 mm bottom flange 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:

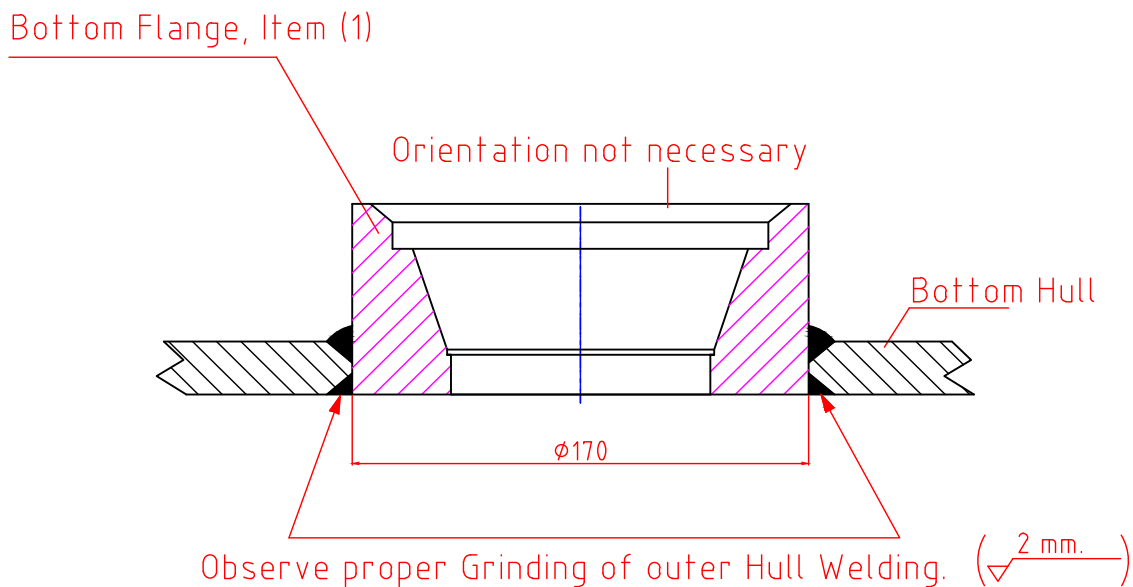
The bottom flange is a part of the Sea Valve that is machined with high accuracy and it should be protected after mounting to avoid damage to the bottom flange surfaces. This to avoid leakage. If the valve is pre-mounted, be sure to protect the valve from being polluted by welding debris.

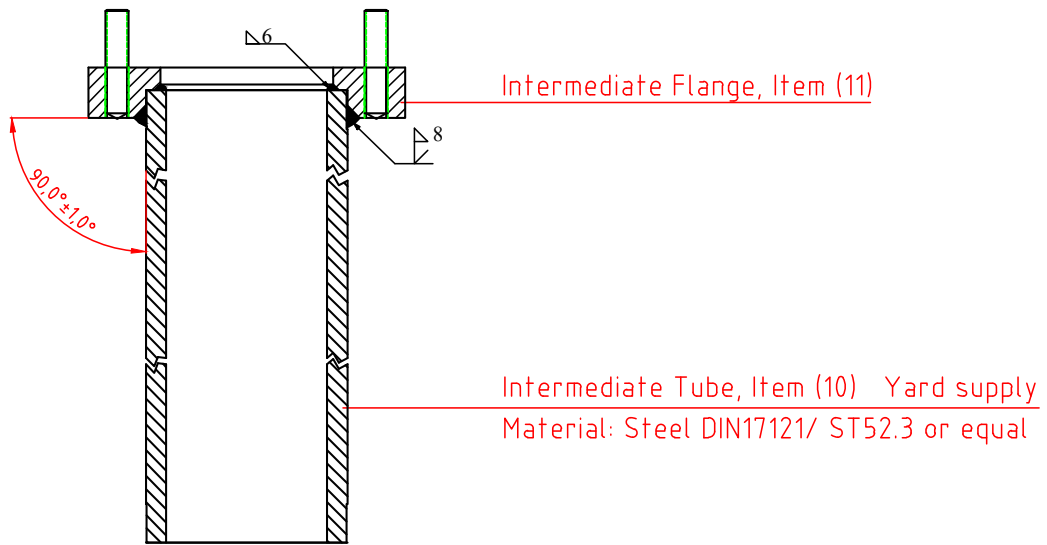
WELDING NOTES!

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.

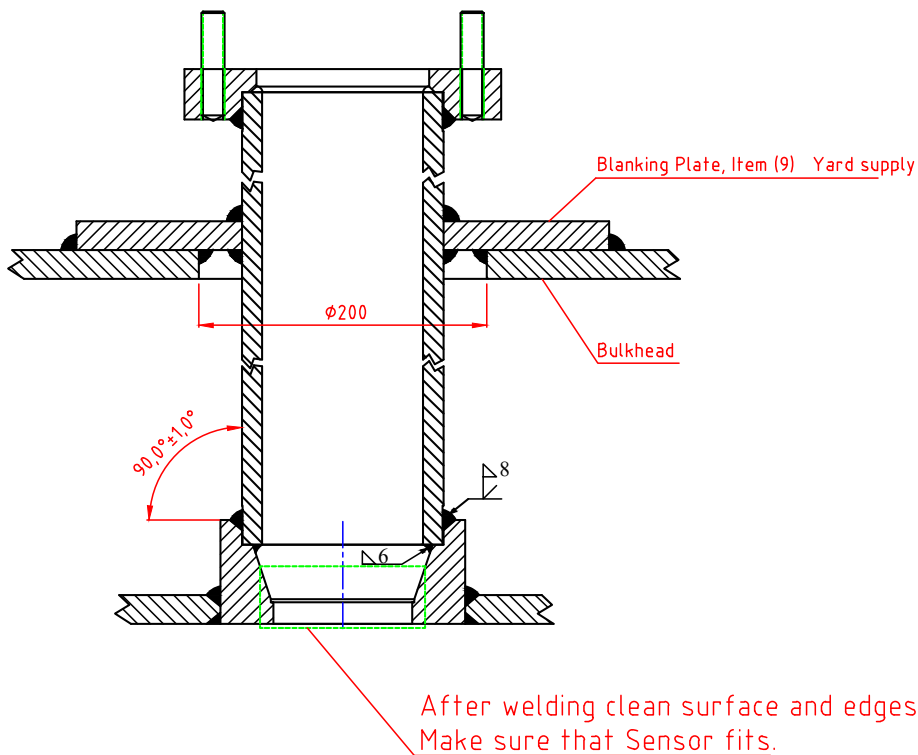
- Let parts cool down during welding.
- Over heating may change fit and form and result in non-conformity with intended sensor/transducer.
- Welding to thick hull steel plates will exert high stress on bottom parts and flanges.
- Especially care must be taken during welding of stainless steel flanges.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

Welding the Bottom Flange in Ship's Hull





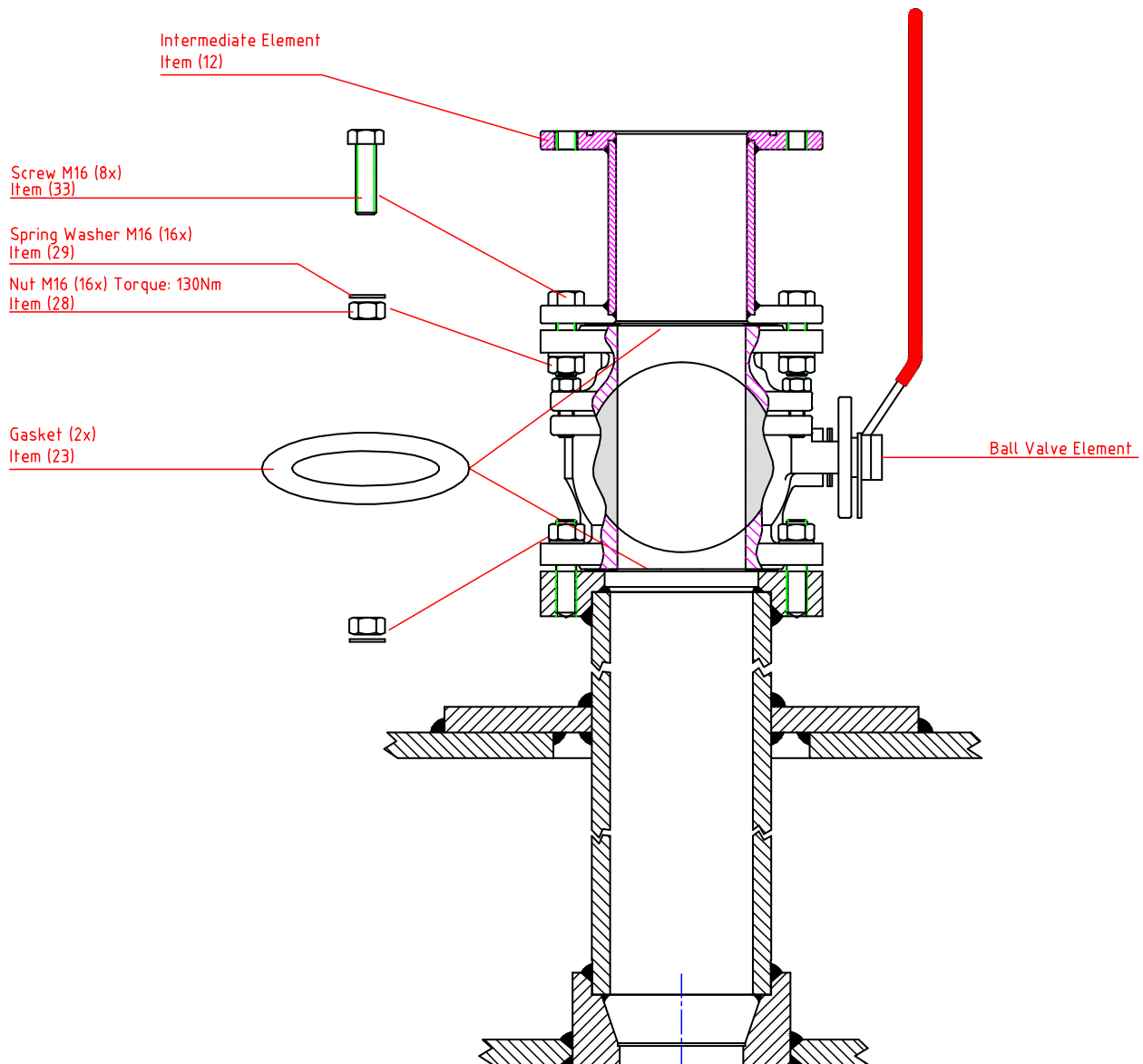
- Intermediate flange Item (11) is welded into intermediate tube Item (10). (*Yard supply). Standard welding practice, methods and procedures should be observed. (See welding notes).
- Blanking plate Item (9) (*Yard supply) is placed over the 200 mm hole in the bulkhead.
- Intermediate tube Item (10) 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

Sea Valve Assembly (Orientation not necessary).

- Place a 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 main valve element is ball valve for DB-100-SB and gate valve for DB-100-SA)The 16 mm nuts and washers should be mounted and tightened. (Align parts before tighten nuts).
- Place a 1.5 mm Klingersil gasket Item (23) on top of the valve element.
- Mount the intermediate element, Item (12) on top of the valve element.
- All 8 screws, nuts and washers should be mounted, and tightened. (Align parts before tighten nuts).



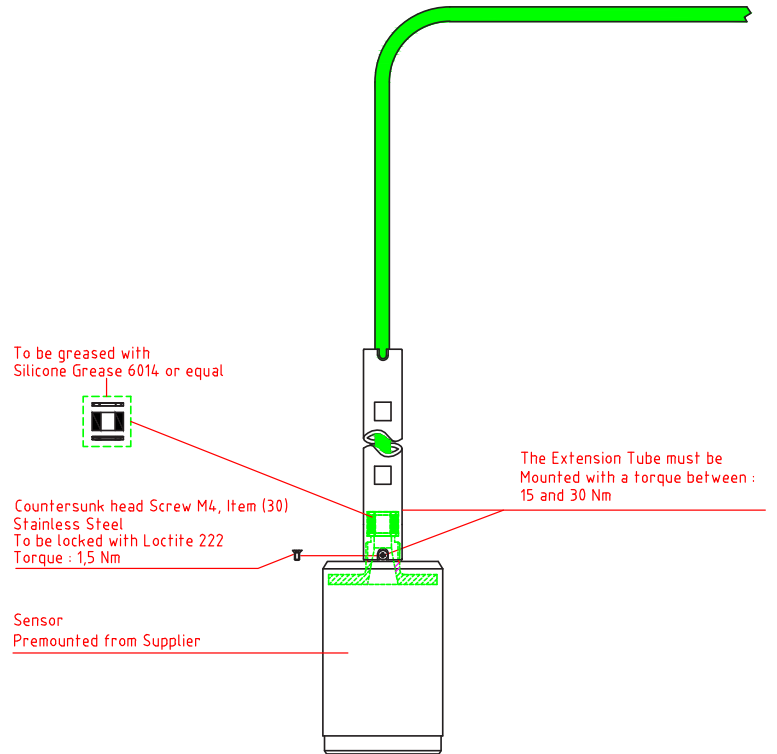
7. Assembling of first extension tube and sensor

Gaskets and washers inside the extension tubes are different depending on the cable thickness. Gaskets and washers for one extension tube are supplied as part of Speed log sensors/Echo sounder transducers.

The Sea valve mounting kit for double bottom will include kits with 6 x gaskets and 12 x washers for 11mm cable and 7mm cable.

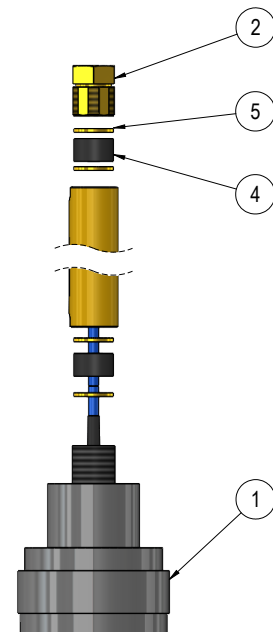
Sensor type with 11mm cable diameter:

- Echo sounders:
- ETN050G, ETN050XG, ETN200SG, ETN200SXG
- Speed logs:
- DL2SG-SA, DL21SG-SA, DL850S27G-SB, EML224SDB-SD, DL1SDB-SA

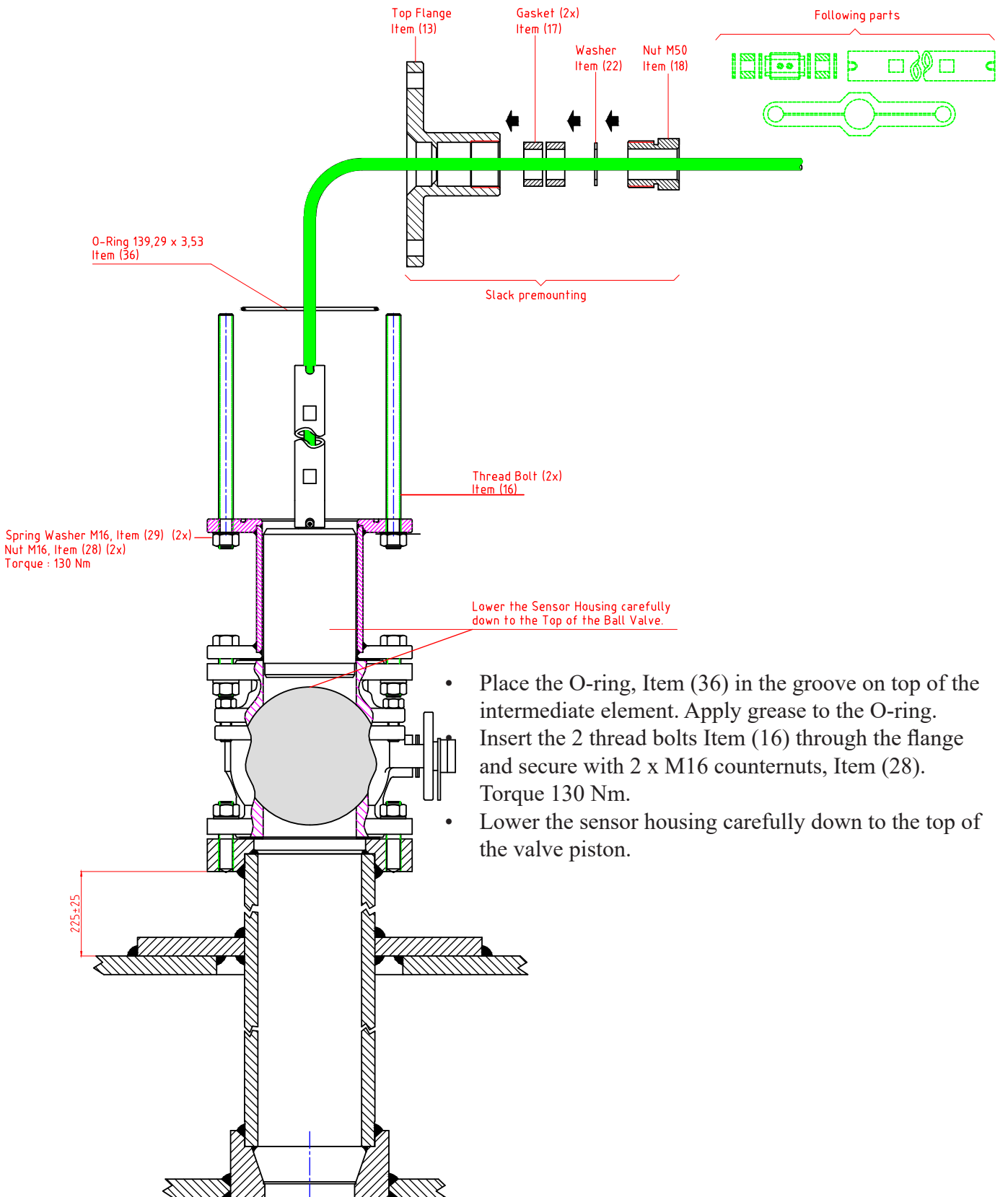


Sensor type with 7mm cable diameter:

- Echo sounders:
- ETS50200G-SA, ETS50200XG-SA.



8. Sensor installation

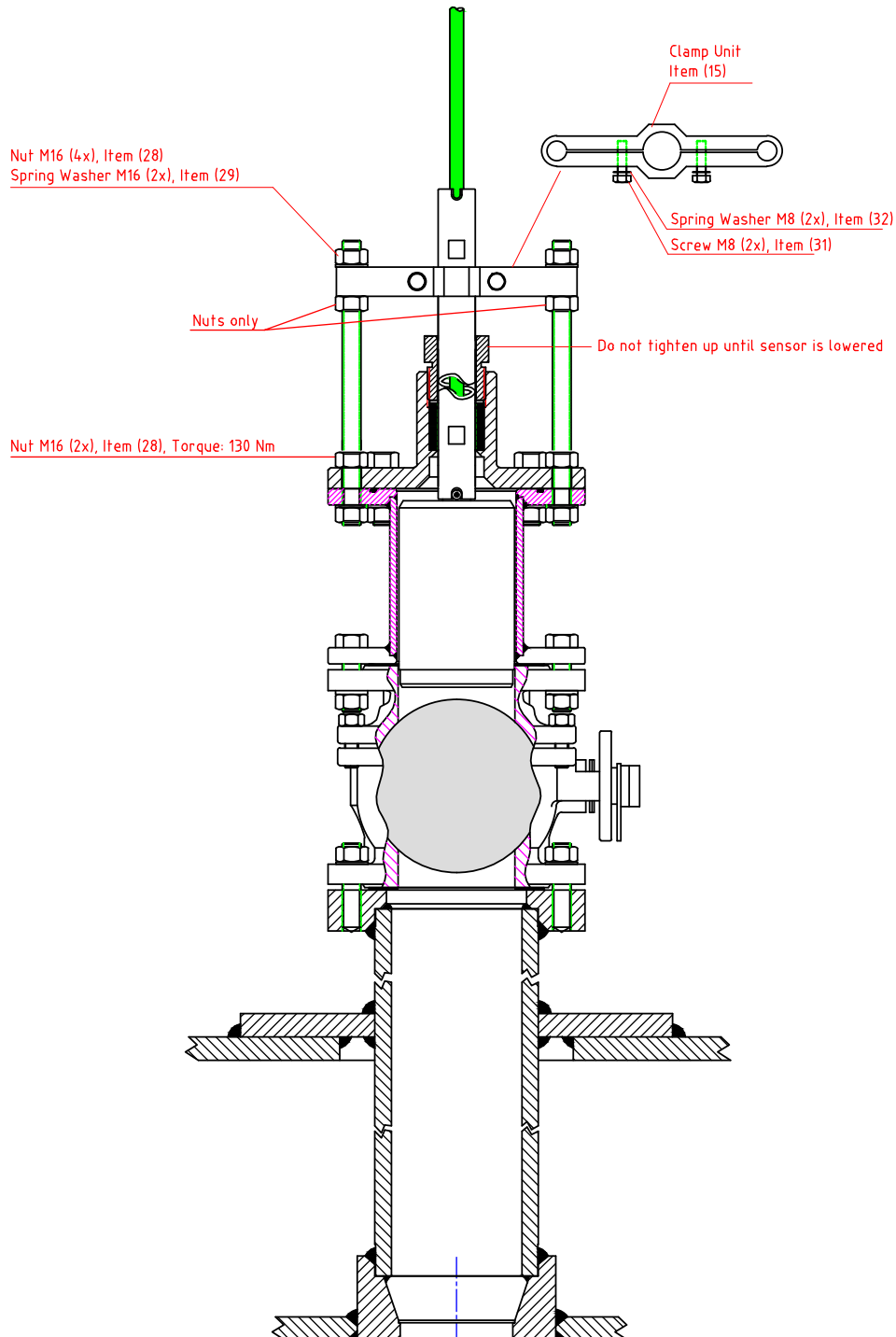


9. Clamp Unit mounting

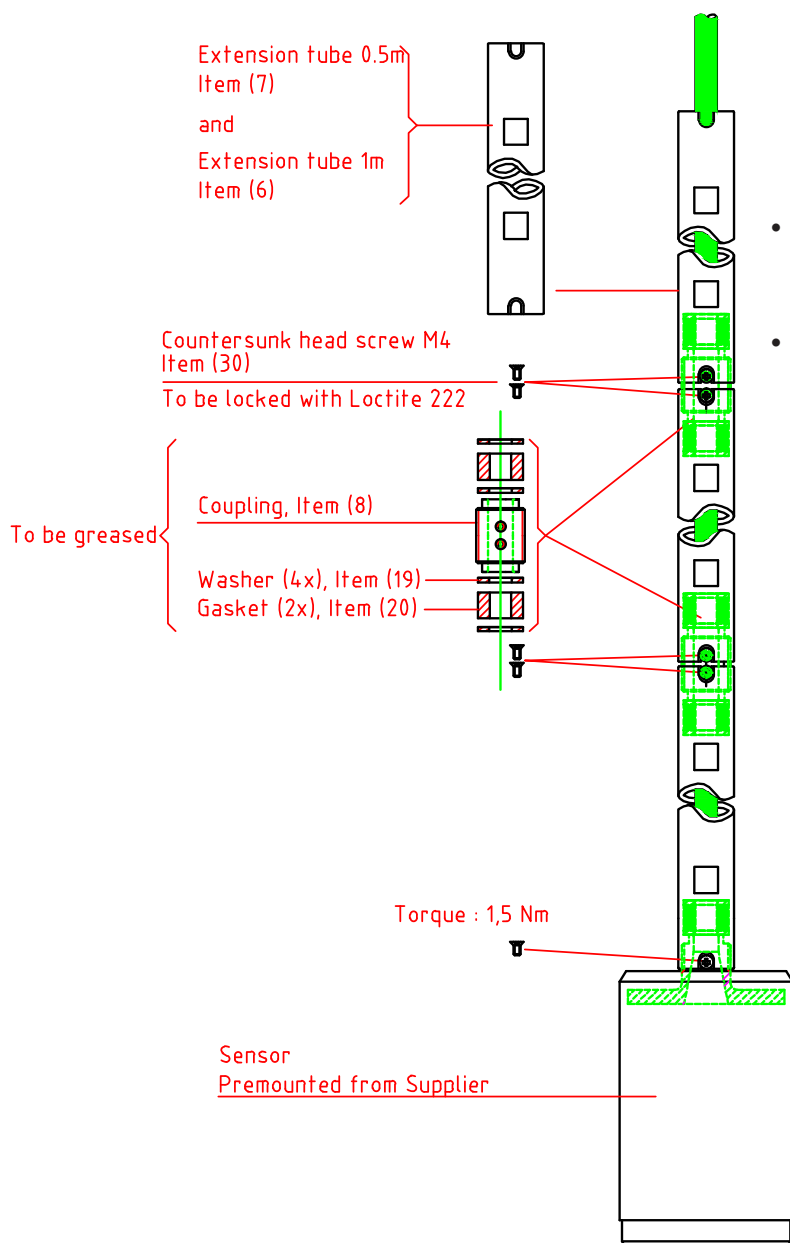
Mount top flange Item (13). Secure with 8 each washers and nuts. Torque: 130 Nm.

Mount in following order:

- 2 x gasket, Item (17).
- Washer, Item (22).
- Nut M50, Item (18).
- 2 x M16 nuts, Item (28).
- Clamp unit, Item (15).
- 2 x M16 nuts, Item (28) with spring washer, Item (29).

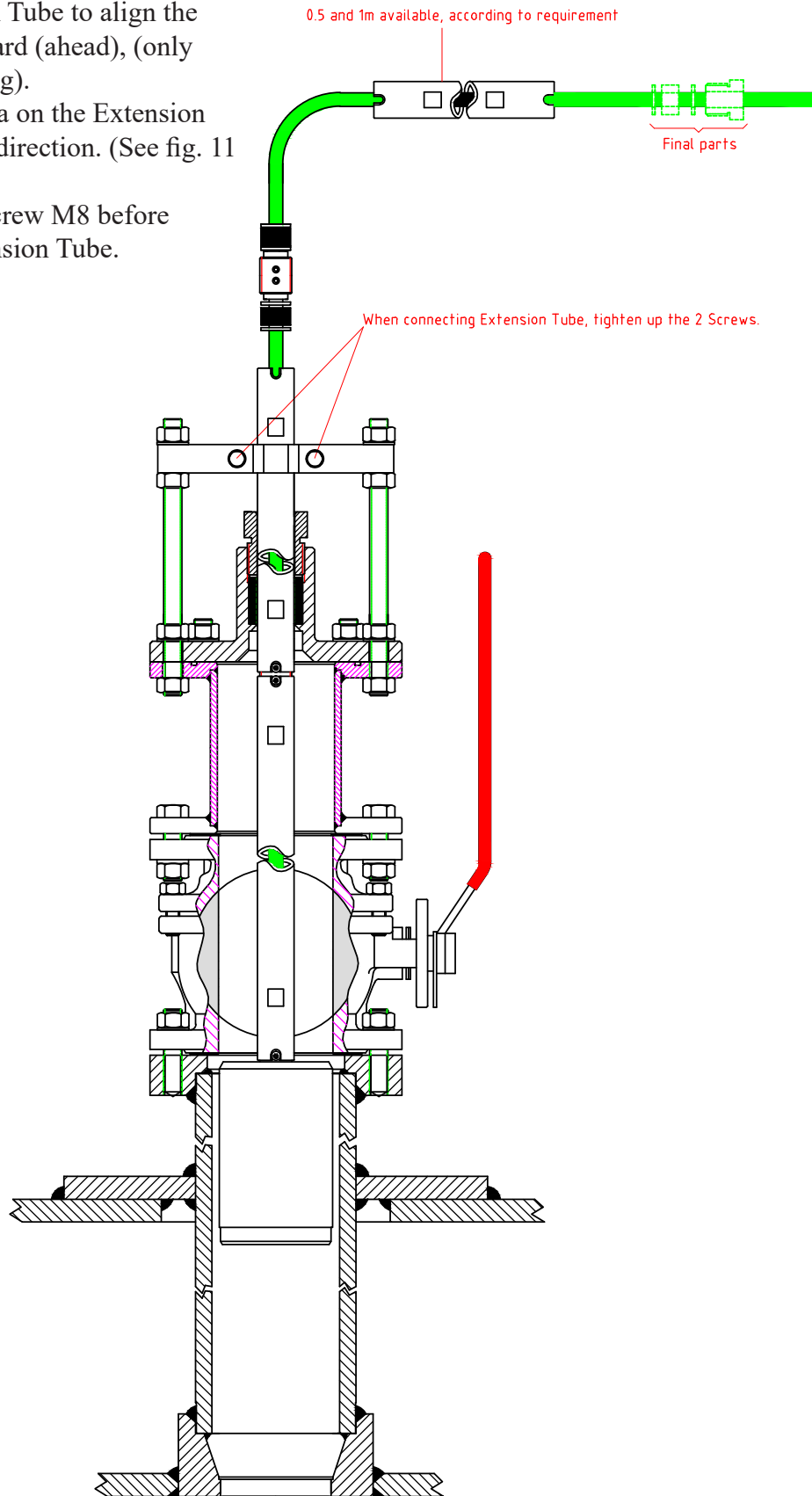


10. Extension tube mounting order



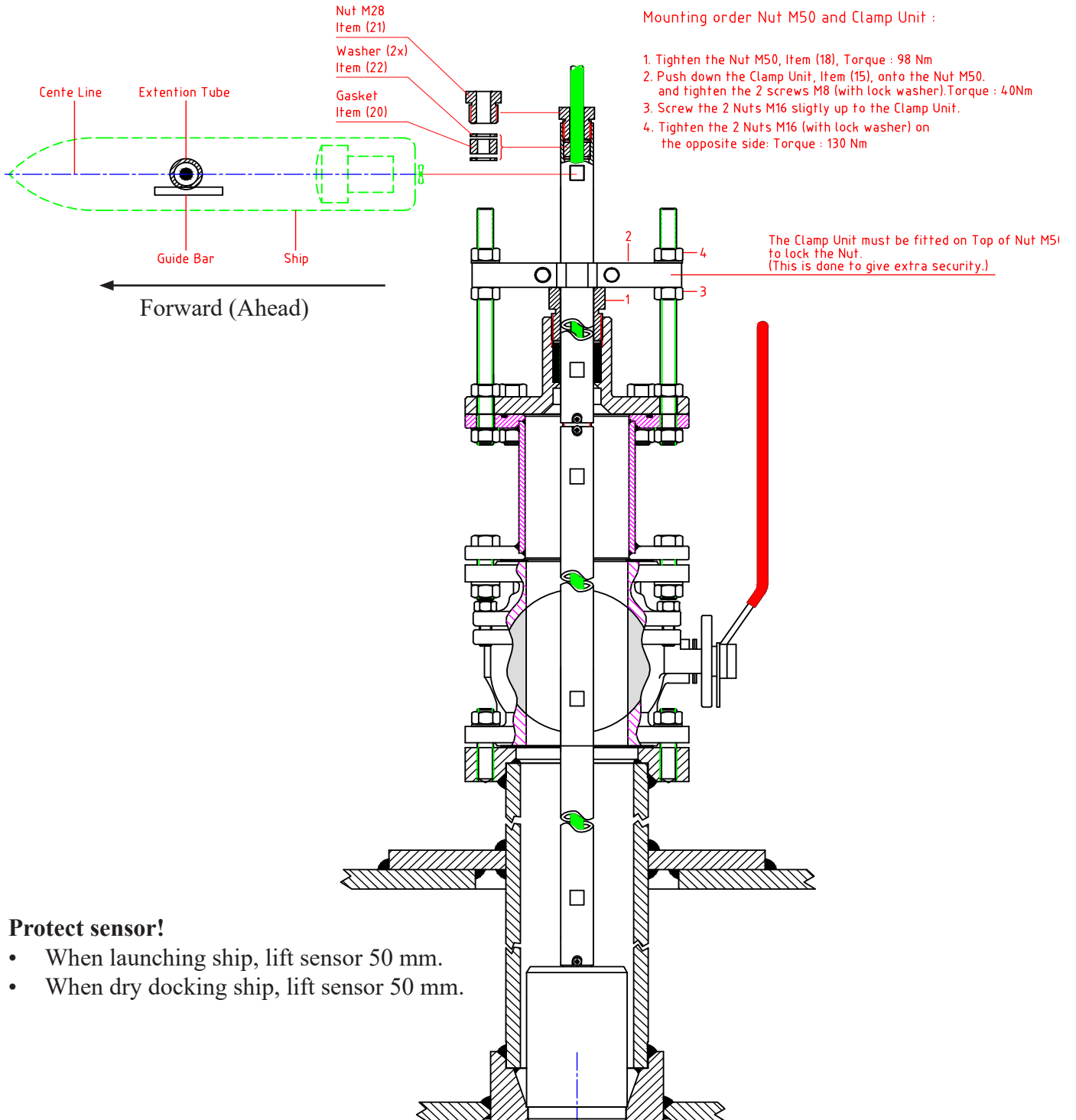
- The extension tubes and coupling must be mounted with a torque between 15 and 30 Nm.
- The countersunk head screw must be mounted with a torque 1.5 Nm.

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

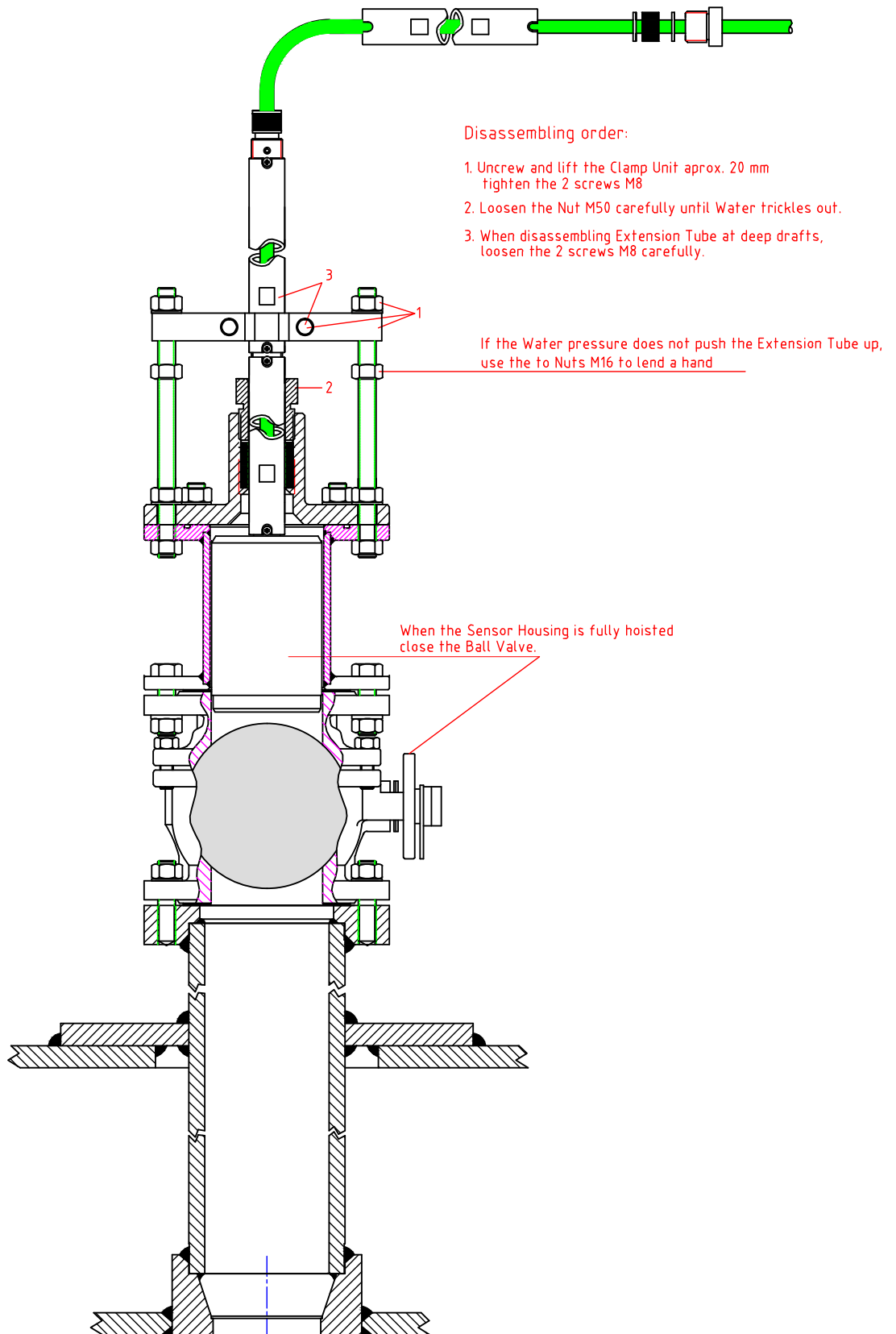


Protect sensor!

- 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



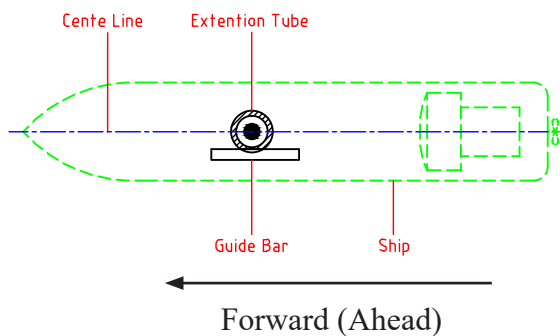
13. Re-installation

Same procedure as first-time mounting.

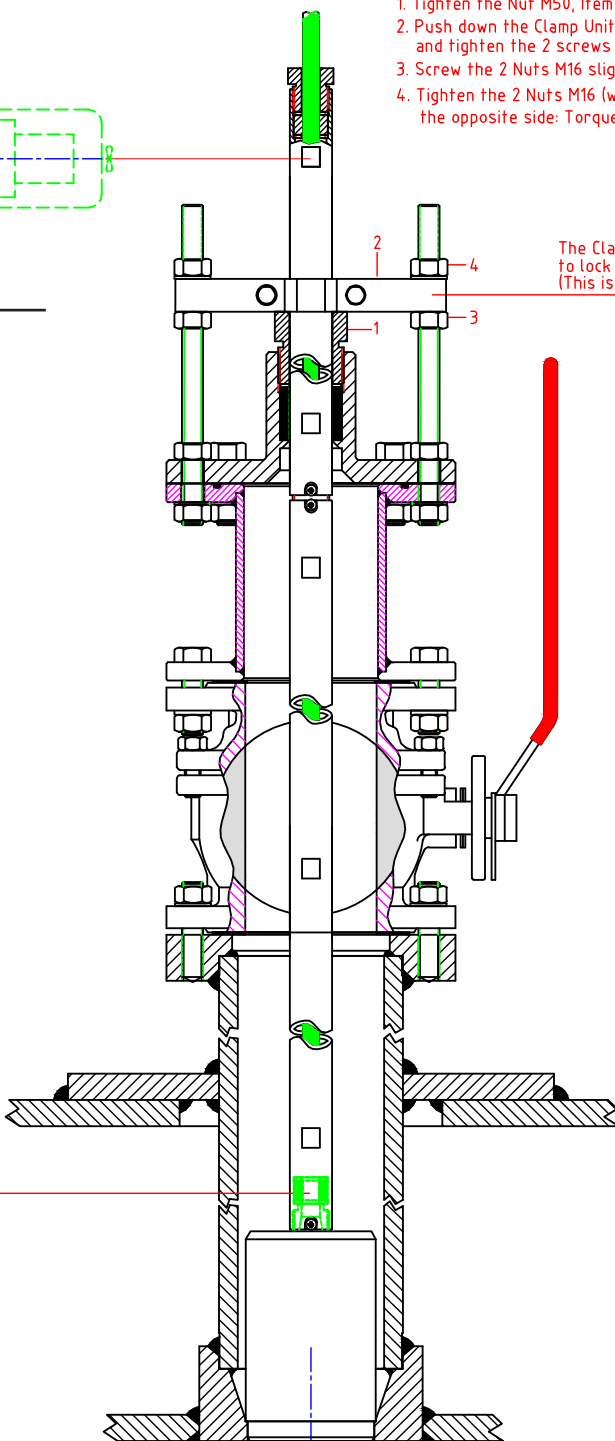
Mounting order Nut M50 and Clamp Unit :

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 M16 slightly up to the Clamp Unit.
4. Tighten the 2 Nuts M16 (with lock washer) on the opposite side: Torque : 130 Nm

The Clamp Unit must be fitted on Top of Nut M5 to lock the Nut. (This is done to give extra security.)

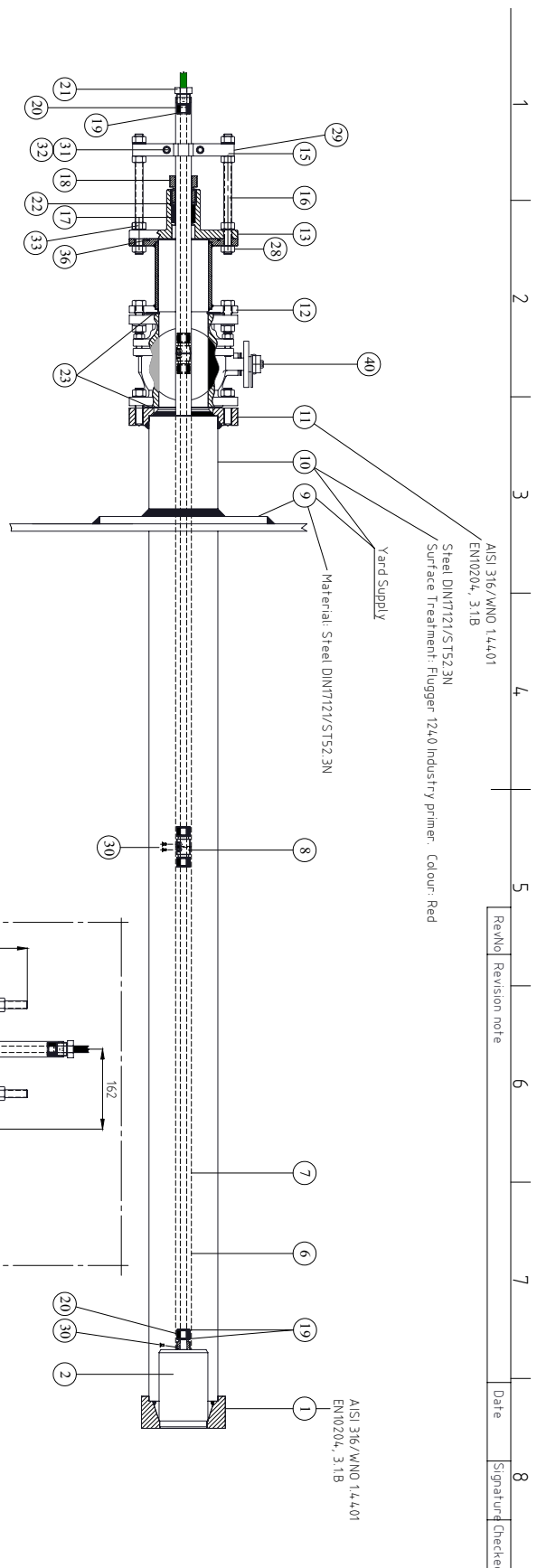


To be greased with Silicone Grease 6014 or equal



14. Part list

DB-100-SB



ITEM	QTY	DESCRIPTION	DWG. NO.	PART. NO.
□ 23	2	Gasket	DB-2042-00	DB-2042
□ 22	1	Washer	DB-2040-00	DB-2040
□ 21	1	Nut M28	DB-2039-00	DB-2039
□ 20	8	Gasket	DB-2038-00	DB-2038
□ 19	16	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	DB-2034-00	DB-2034
* 15	1	Clamp Unit	DB-2033-01	DB-2033
13	1	Top Flange	DB-2031-00	DB-2031
12	1	Intermediate Element	DB-2051-01	DB-2051
11	1	Intermediate Flange	DB-2030-00	DB-2030
** 10	1	Intermediate Tube	DB-2029-01	DB-2029
** 9	1	Blanking Plate	DB-2028-00	DB-2028
* 8	3	Couplings	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	DB-100-Sensors	DB-2046-01	DL850S27G
* 1	1	Bottom Flange	DB-2021-00	DB-2021
FM	1			

ITEM	QTY	DESCRIPTION	MATERIAL	PART. NO.
□ 33	14	Screw M16x30 DIN933	A4 St.steel	ZOA-01075
* 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-01035
□ 29	28	Spring Washer M6 DIN 127B	A4 St.steel	ZOA-01091
□ 28	30	Nut M16 DIN934	A4 St.steel	
□ 36	1	O-ring 139.29 x 3.53	Nitril (NBR 70 shore)	ZOA-01024
40	1	Ball Valve Element	A4 St.steel	ZCC-01015

*) Part of mounting Kit: DB-100-XB-M-KIT
 □) Part of service Kit: DB-100-XB-S-KIT
 **) Yard Supply

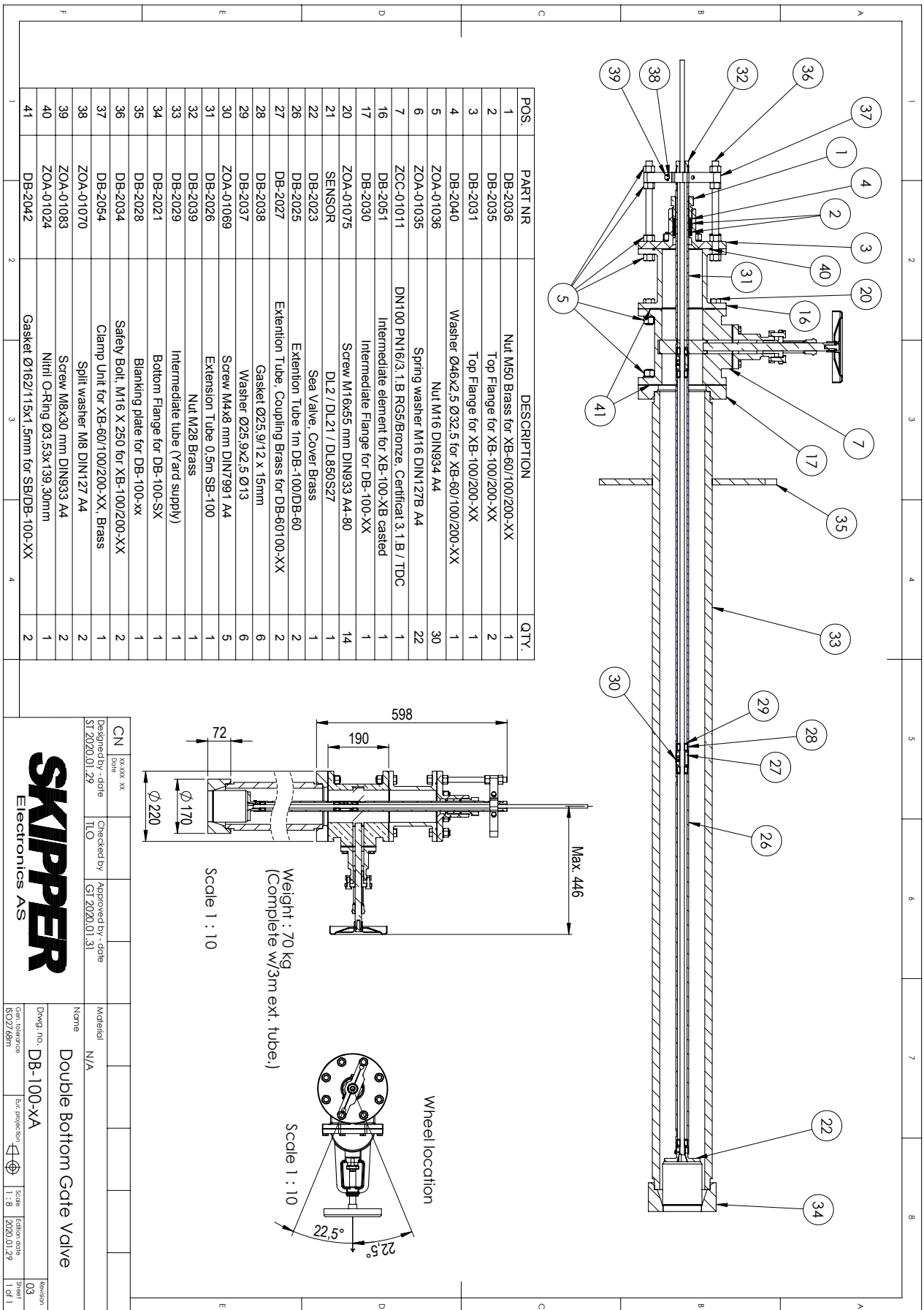
Item ref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference
Designed by A.Maire			Date 30.11.2009
Checked by			Scale
Approved by - date			
File name		Date	
100mm Double Bottom Ball Valve		Revision	
DB-100-XB		1004A	
		2019/02/11	
		01	

SKIPPER Electronics AS

100mm Double Bottom Ball Valve

Revision 1004A 2019/02/11 01

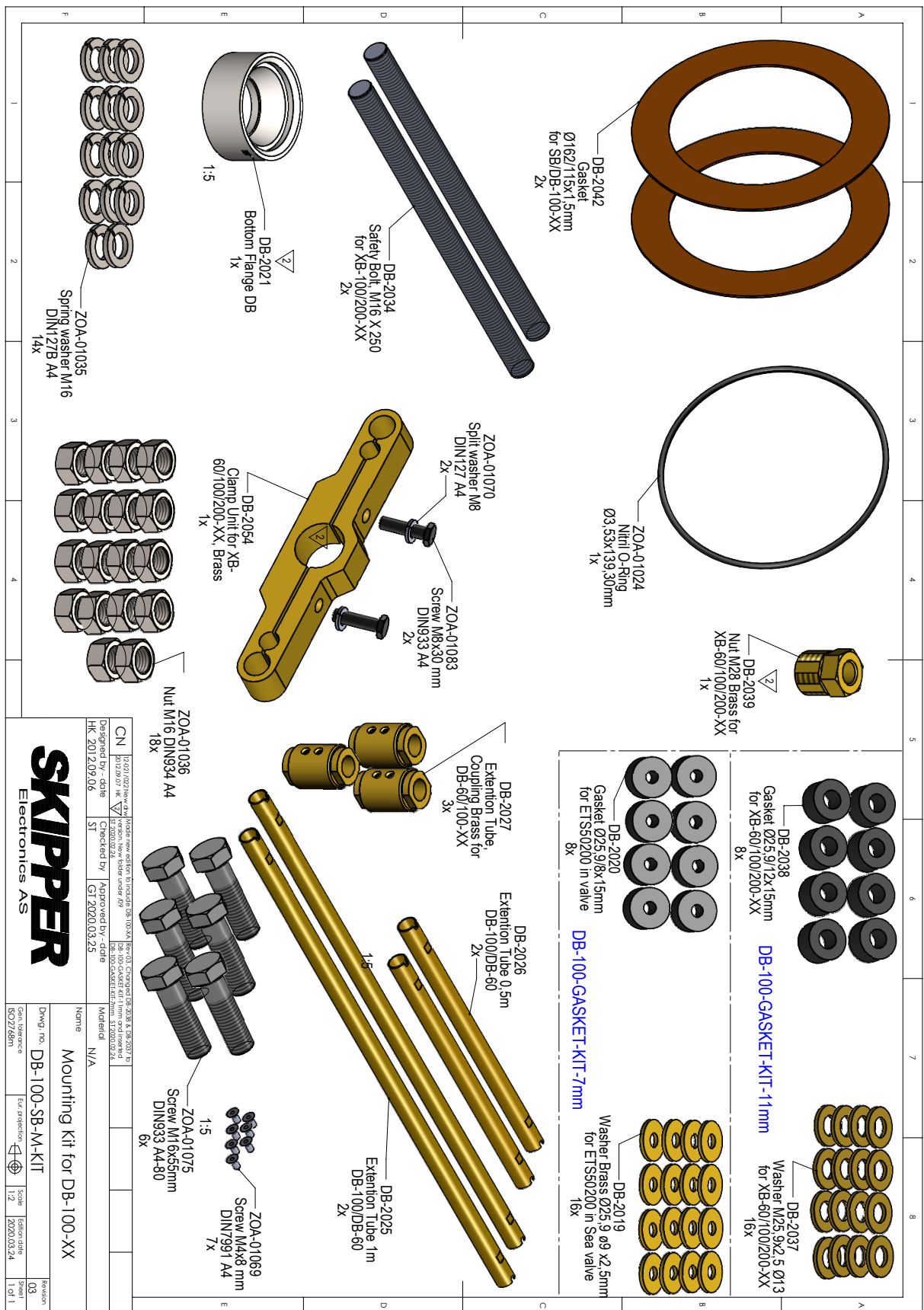
DB-100-SA



CN Date Designed by - date ST 2020.01.29	Checked by TLO	Approved by - date GT 2020.01.31	Name N/A	Material N/A
			Name Double Bottom Gate Valve	Drawing no. DB-100-XA
Gen. tolerance ISO 2768m	Sur. protection 	Scale 1 : 8	Edition date 2020.01.29	Revision 03 1 of 1

DB-100-SB-M-KIT

The DB-100-SB-M-KIT is valid for both ball valve (DB-100-SB) and gate valve (DB-100-SA) versions.



<p>SKIPPER Electronics AS</p>		<p>Name: Mounting Kit for DB-100-XX</p>	
<p>Part no.: DB-100-SB-M-KIT</p>	<p>Revision: 03</p>	<p>Material: N/A</p>	<p>Scale: 1:1</p>
<p>Designed by - date: 12/01/2023</p>	<p>Checked by - date: 15/02/2024</p>	<p>Approved by - date: 15/02/2024</p>	<p>Scale: 1:1</p>
<p>Material: N/A</p>	<p>Scale: 1:1</p>	<p>Scale: 1:1</p>	<p>Scale: 1:1</p>