BallastWISE Sampler



Users Guide

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1 SPECIFICATIONS

Weight	9,7 kg
Filter mesh size:	35 µm (50 µm diagonal mesh size)
Filter area:	1100 cm^2
Dimensions	
Height	37 cm (excluding in- and outlets), 62 cm (including legs, in- and outlets)
Diameter	18 cm (outer diameter), 16 cm (inner diameter)
Recommendet flow rate	8 - 30 L/min
Recommended sampling volume	500 – 1000 L
External coupling	Filter hosing is equipped with ½" camlock male connectors

2 SAMPLING

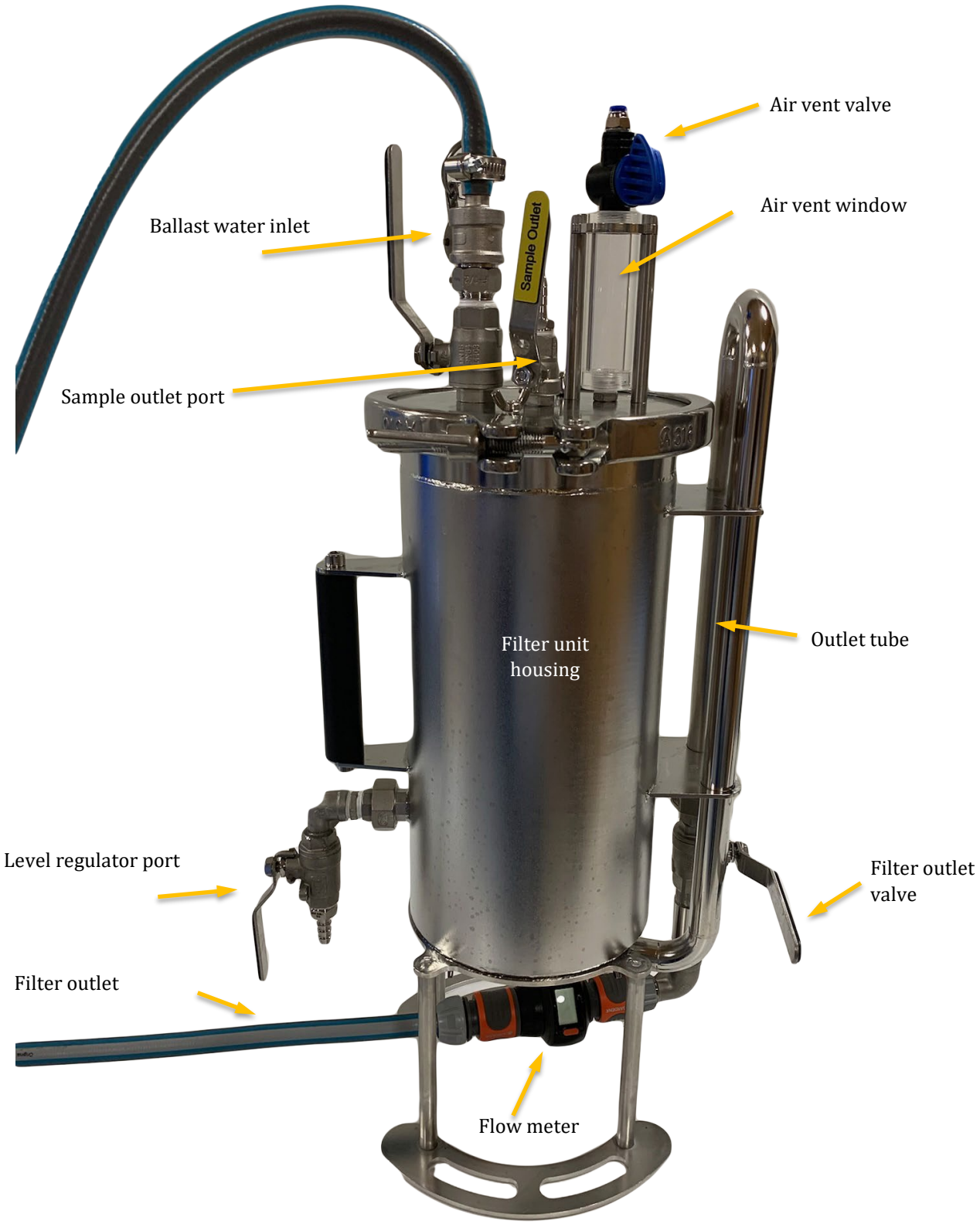
In order to undertake an accurate measurement of organism concentration in the ballast water, ships should have an "isokinetic" sampling point to ensure that a sample contains the same proportions of organisms as the flow stream being sampled and to ensure that the velocities of both the sample and the main flow are equal at the point at which the sample is separated from the main flow.

Recommendations on Sample port and valve can be found in "BWM - Guidance for best practices on sampling" published by EMSA, 2019.

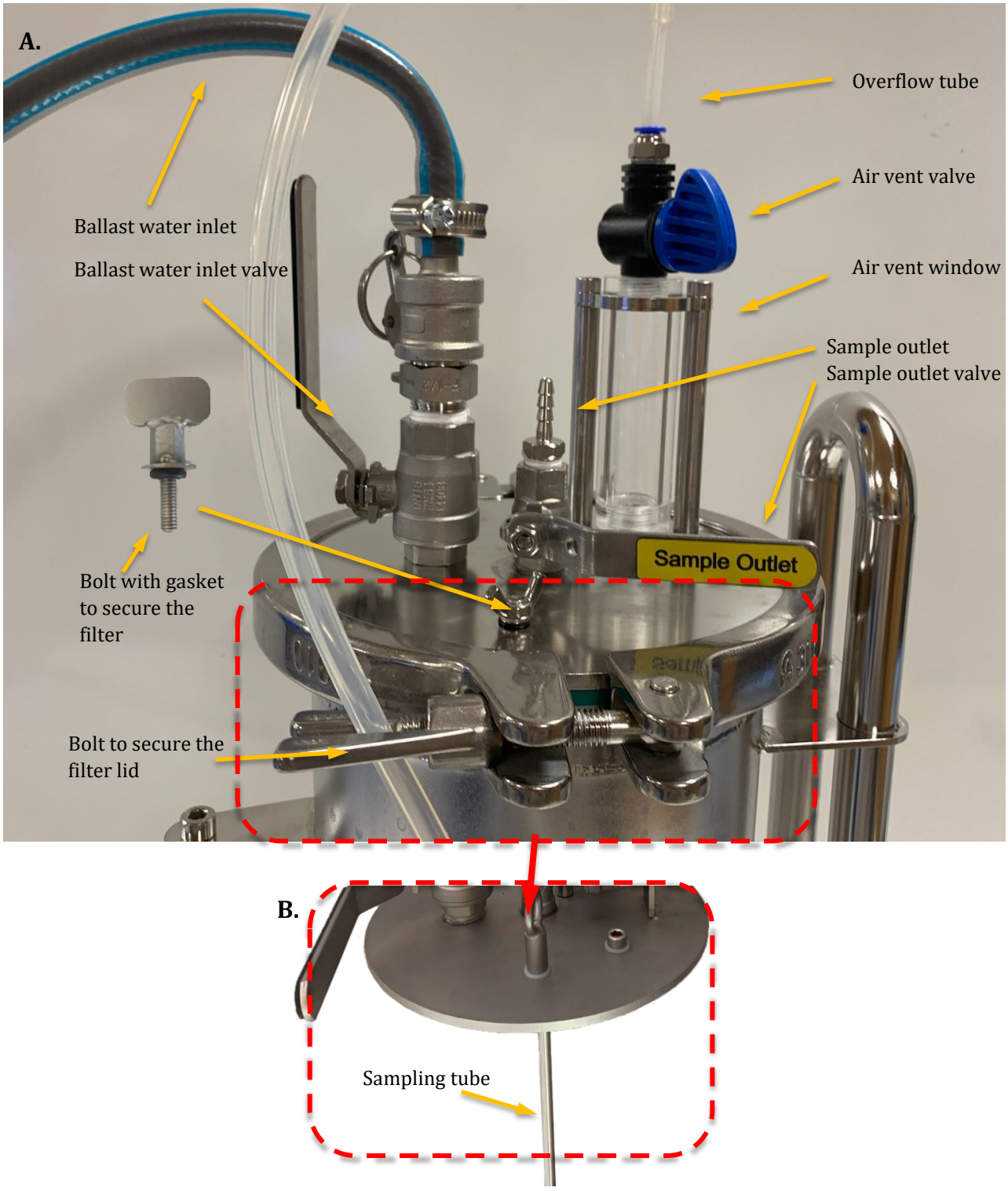
As a general approach, samples should be taken by using the in-line sampling points of the ships ballast water pipework. The sampling should be from a straight part of the discharge line as near to the ballast water discharge overboard as practicable.

3 BALLASTWISE SAMPLER OVERVIEW

3.1 FILTER HOUSING AND VALVES



3.2 LID



Ballast water Sampler lid. A. Sampler lid mounted and closed, B. Sampler lid alone showing the sampling tube connected to the sample outlet.

3.3 FILTER

Filter side view



Filter top view



5 ASSEMBLY OF THE FILTER UNIT

1. Carefully insert the sampling tube into the filter until it reaches the center of the base, while aligning the sample inlet and outlet holes in the filter top with the inlet and outlet on the lid
2. Carefully screw the filter top onto the lid using the two bolts, making sure each bolt has a gasket







Carefully place the green gasket ring on top of the filter housing as shown below.

3. Insert the filter unit into the filter housing, and make sure that the gasket ring is correctly placed

Gasket for sealing the lid



4. Place the ring which secures the lid around the lid and top of the filter unit.
5. Close the ring by tightening the screw

Filter cylinder with ring which secures the lid



6 FILTERING PROCESS

1. Close all valves
2. Set the flow meter to show accumulated volume. Reset the flow meter by holding in the button until 0 is shown.
3. Attach hoses to the inlet connector and outlet connector
4. Open the Air vent valve
5. Open Ballast water inlet valve
6. Wait until all air is released through the air vent
7. Close the top air vent valve and open the outlet valve at the same time
8. If the Membrane valve is mounted, the flow rate can be regulated
9. Wait until the required volume is filtered
10. Close the inlet valve
11. Close the outlet valve
12. Open the Level regulator valve (Bleed valve) and open the top air vent valve
13. Wait until water flow from the level regulator outlet stops
14. Close the regulator outlet valve
15. Lift the entire Sampler unit and swirl in a horizontal circular motion to suspend any organism on the filter mesh.
16. Now the concentrated sample is ready, and can be extracted from the filter



Valve closed



Valve open

6.1 FLOW METER FUNCTIONALITIES

Push button (3) briefly: the display switches to the next display mode.

– Sum 1 = Water quantity is measured up to the reset (e. g. day consumption).

– Sum 2 = Water quantity is measured up to the reset (e. g. season consumption).

– Auto-Mode = Water quantity is measured during watering up to an interruption longer than 2 sec. At the next watering, the display starts at 0 again.

– Flow-Mode = Shows the current flow in l/min or gal/min.

– Standby = No display (longer than 1 min. without flow or without pushing of a button).

– Reset = Hold button (3) pressed in Sum 1 or Sum 2 Mode for 2 sec.:

The measured water quantity of Sum 1 or Sum 2 Mode will be reset to 0 (Reset).

– Switch = Hold button (3) pressed in Flow Mode (l / gal) for 2 sec.: The display switches between litre and gallons (US).

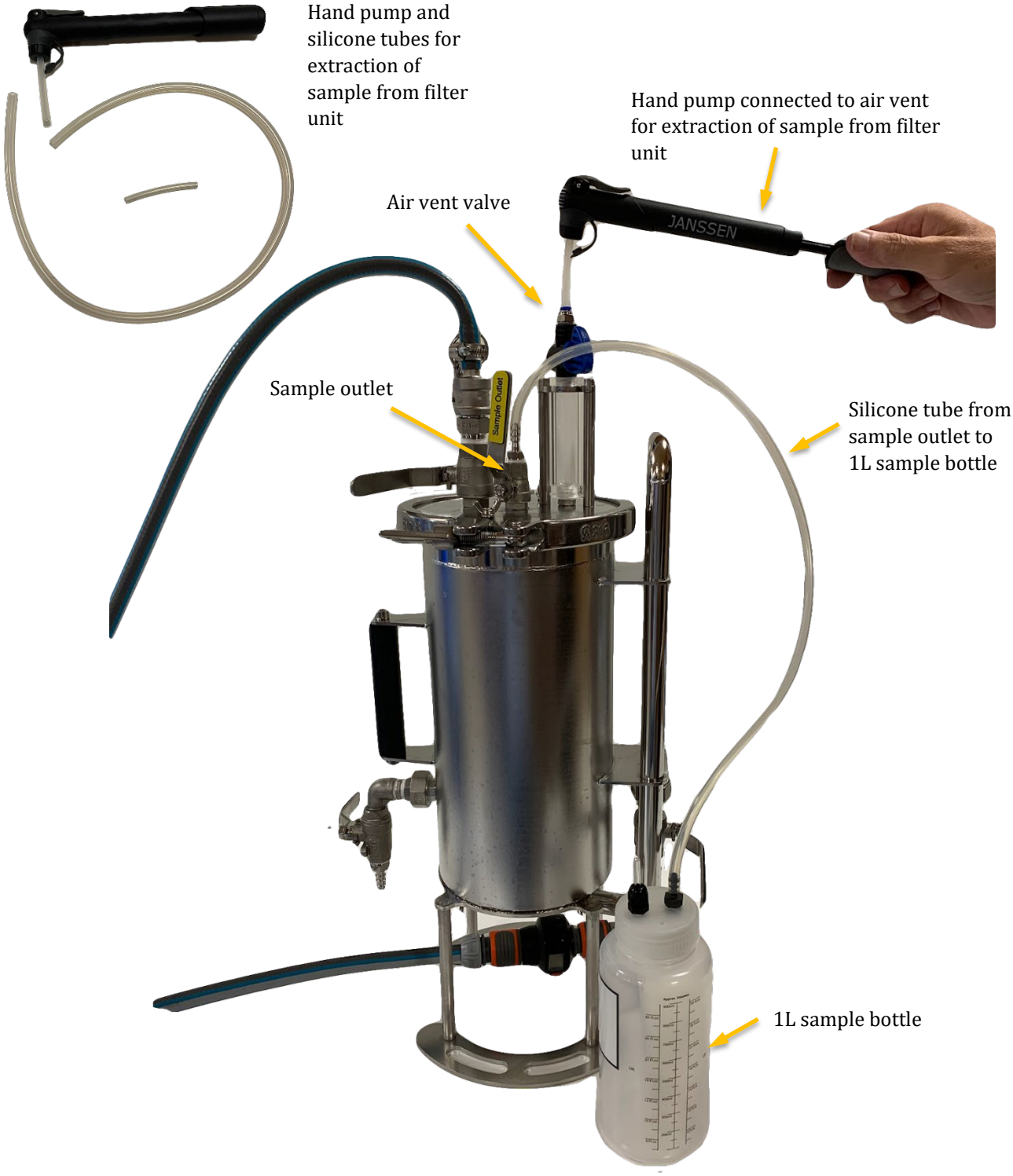
The measured water quantities will be reset to 0 (Reset).



6.2 EXTRACTION OF THE SAMPLE FROM THE SAMPLER

Extracting the sample into a sample bottle:

1. Connect the hand pump to the Air vent tube.
2. Connect a silicone tube to the Sample outlet, leading the end of the tube into a 1 L sample bottle
3. Open the Air vent valve and the Sample outlet valve. Make sure that all other valves are closed and that the filter top is secure so that it is airtight.
4. Extract the sample by activating the hand pump until the entire sample is extracted.



7 ANALYSIS OF THE FILTERED SAMPLE

7.1.1 Calculation of the concentration factor

Concentration factor = Volume filtered / volume in sample bottle

Example:

Sampling volume = 500 L, sample volume in bottle = 0,65 L.

The concentration factor is: 500L/0,65L = 769

7.1.2 Prepare and run the analysis

1. Write the concentration factor in the designated field on the BallastWISE software front panel.
2. Start the analysis, and wait until it is finished
3. Read the result

8 CLEANING AFTER USE

1. Detach hoses
2. Open and remove the lid including filter
3. Un- screw the filter top from the lid using the two bolts
4. Thoroughly rinse the filter mesh with tap water 2 to 3 times until residue on the filter surface is removed
5. Empty the remaining water out of the filter house
6. Rinse the filter house and lid and sampling tube with tap water
7. Leave to dry