



Plankton Pump – 550 W

Model 23.570

Manual ver. 3.20

KC Denmark A/S

Research Equipment
Limnology • Oceanography • Hydrobiology

Plankton Pump


1 x 230 V AC/550 W




KC Denmark A/S is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.





Deploy the pump into the water before it gets started. Operating in dry condition may damage the pump.

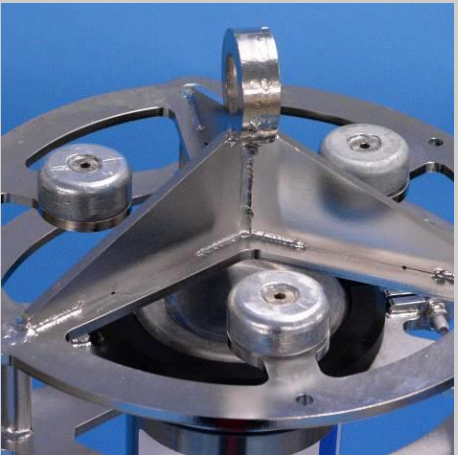
If using the pump in salt water, it is very important to rinse the pump by pumping fresh water for a few minutes.


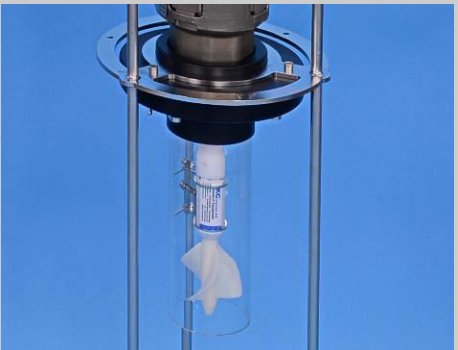
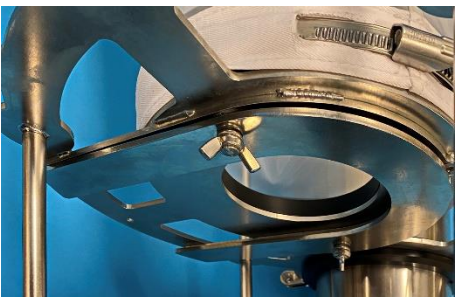
Maximum depth: 150 m.

Item	Description	
	 <p>Caution</p> <p>Use a stainless steel wire or rope for deploying the pump; the rubber cable is only for the power supply and cannot bear the weight of the pump.</p>	

Handling the pump		
1	 <p>Caution</p> <p>Do not hold the pump in this way, as you may damage the net bag.</p>	
2	<p>Correct handling of the pump.</p>	

Preparing the pump		
3	<p>The control box has a plate for mounting, secure the box by means of 3 bolts and spacers.</p> <p>The box comes with a 3-conductor wire for connecting to the 230 V AC power supply.</p> <p>An authorized technician must perform all power installation.</p> <p>Supply 1 x 230 V AC + earth, 50 Hz. Cable: 3 x 1,5 mm², type HO7.</p> <p>Power consumption: 550 W.</p> <p>IMPORTANT: When using a generator for the power supply you must ensure it has sufficient effect to manage the pump's start current. The generator must also be capable of delivering a real sine wave.</p>	
4	<p>Connect the cable to the plankton pump. Take care not to damage the cylindrical parts of the connectors. Any deformation will hinder a proper connection and the O-ring cannot tighten properly.</p>	
5	<p>Push the connectors firmly against each other and the eye of the bracket must fit into the small tap of the connector. Tighten the screw firmly. Do not use the screw to pull the connector's parts against each other.</p>	
6	<p>Connect the cable with the CEE connector at the bottom of the control box. The cable is for the main supply of 230 V AC/1 ph. to the pump.</p>	

7	<p>The pump comes with 3 zinc anodes for protecting against corrosion when used in salt water.</p> <p>Replace the anodes once the material erodes.</p>	
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Adding a flow meter (optional)		
8	<p>For determination of the pumped volume, insert a flow meter, model 23.095 (to be ordered separately).</p> <p>See also item 15, pg. 6 for calculating the filtered water volume.</p>	
9	<p>Loosen the upper clamp on the net bag, slide in the flow meter and fasten it by means of the wing nuts. See also item 10.</p> <p>The flow meter's read-out is not resettable. Note the setting and mount the net bag.</p>	
10	<p>The guiding rail for the flow meter.</p> <p>A similar one is located at the bottom of the pump for mounting of the collecting bottle.</p>	

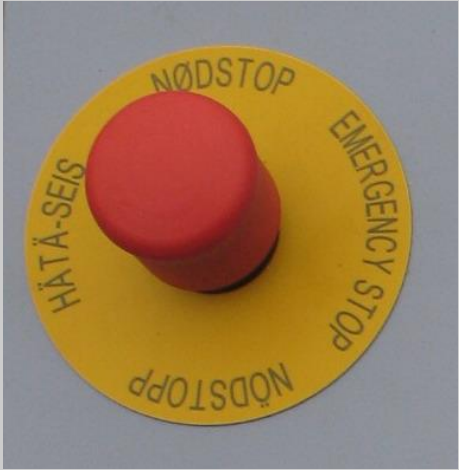

Operating the pump

- 11 Lower the plankton pump to the desired depth. The inlet is shown with an arrow.
- Use a stainless steel wire or rope for deploying the pump; the rubber cable is only for the power supply and cannot bear the weight of the pump.
- Maximum depth: 150 m.



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1. Start the plankton pump by turning the main switch to position "1".
 2. Press the green "Activate" button.
 3. Press the red button to stop pumping

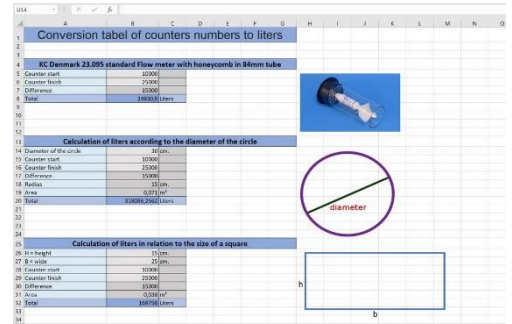


13	<p>In case of an emergency press the red knob on top of the control box causing an immediate switch off of the power supply.</p> <p>The power supply to the pump remains disconnected, until you pull the knob towards yourself. To restart the pump, push the green activate button.</p>	
14	<p>When you have retrieved the pump from the sea, loosen the wing nuts, pull out the sample bottle and your sample is now ready for examination.</p>	

Determination of volume	
15	<p>In order to read the count of the flow meter, it may be necessary to loosen the upper part of the net bag.</p> <p>Formula for calculating the pumped volume: <i>Indicated number of revolutions x 0,3 x opening area (m²) x 1000 = water volume (L).</i></p> <p>The tube has an inner diameter of 85 mm, i.e. the opening area is 0,00567 m².</p> <p>Example: If the number of revolutions associated with a pump session is 500 (noted from the digital flow meter counter), the water volume passed through the pump is:</p> <p>Volume = 500 x 0,3 x 0,00567 m² x 1000 = 850 L</p>

If more convenient, you can download a spreadsheet [here](#) or using the QR code below. It has a simple, intuitive design for calculating the water flow in L corresponding to the actual read-out of the flow meter for 3 different options as follows:

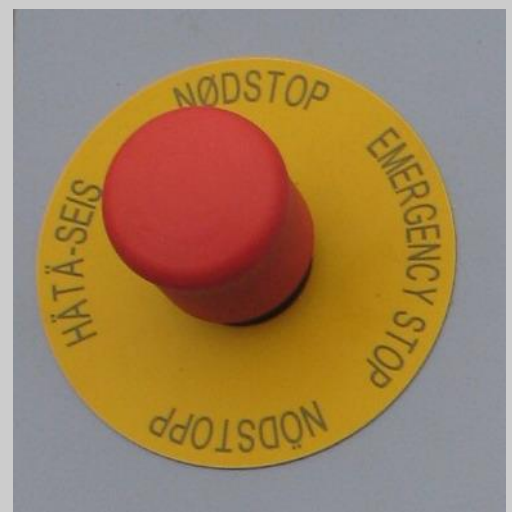
1. Our standard 84 mm tube (23.095) with built-in flow meter
2. Individual input of diameter for a plankton net
3. Typing in height and width in cm for a square or rectangular design

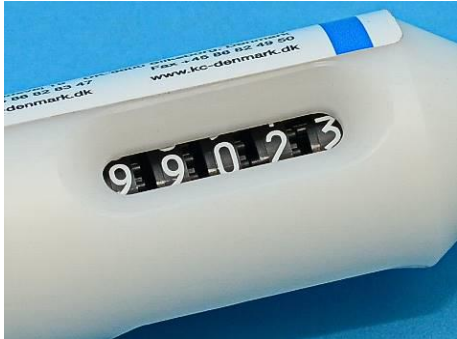
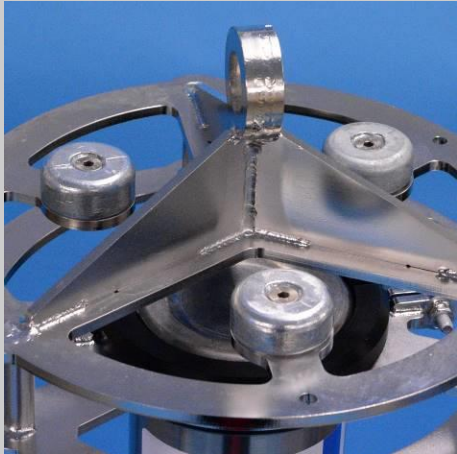


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For your safety:
The control box has an emergency switch for an immediate cancellation of all jobs.



Maintenance		
18	<p>The pump: It is very important to rinse the pump by pumping fresh water for a few minutes. Also, flush on the outer side of the pump.</p>	
19	<p>The net bag and collecting bottle: Give the plankton net bag proper care and maintenance. Do not let particulate matter dry on the net because it can significantly reduce size of mesh apertures and increase frequency of clogging. Wash the net and collection bucket thoroughly with freshwater after each use. Periodically clean with a lukewarm soap solution. Do not use alcohol for cleaning acrylic parts.</p> <p>It is also advisable to let the net air-dry after cleaning.</p> <p>Nylon net material is susceptible to deterioration from abrasion and sunlight, guard against unnecessary wear and store in the dark.</p> <p>Repair small flakes or damages by lubricating a regular PVC glue on the fabric and cover the damaged area with a piece of plankton cloth.</p>	
20	<p>The flow meter: After use, you must clean the flow meter with fresh water and washing out any polluted or salt water from the gear counter assembly. Otherwise, a residue of salt or dirt can be built up and avoid a smooth running and poor performance.</p>	
21	<p>Zinc anodes: Replace the anodes once the material erodes.</p>	

Specifications

Power:	
Power requirements:	1 x 230 V AC, 50 Hz, 1 ph.
Power consumption:	550 Watts
Plankton pump:	
Capacity:	Up to 26000 L/hour (app. 433 L/min. at 0 m water column)
Material:	The pump itself: AISI 304 stainless steel, all other parts: AISI 316 stainless steel.
Net bag, standard delivery:	60 µm
Collecting bottle:	Polycarbonate, 1 L. Net 60 µm with a protection of stainless steel with 10 x 10 mm square holes.
Footprint, max.:	31 x 31 cm
Height, total:	147 cm
Weight, pump (no flow meter):	30 kg
Maximum depth:	150 m
Control box:	
Measurements: L x W x H (Max. dimensions inclusive knobs and connectors):	Control box: 36 x 30 x 21 cm
Encapsulation:	Control box: IP 65. Switches: IP 67.
Weight, control box:	6,05 kg
Cable:	
Rubber cable	4 x 1,5 mm ²
Weight, incl. connectors (standard length 40 m):	7,35 kg

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