



Plankton pump
Model 23.580 – 2,2 KWatt

Manual

KC Denmark

Research Equipment

Limnology • Oceanography • Hydrobiology

**Manual for plankton pump –
1 x 230 VAC/2,2 KWatt**

**Model no.
23.580**






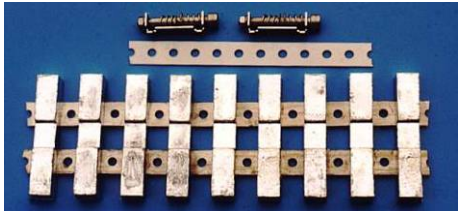
KC-Denmark is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.



Do not operate the pump unless it is covered by water.







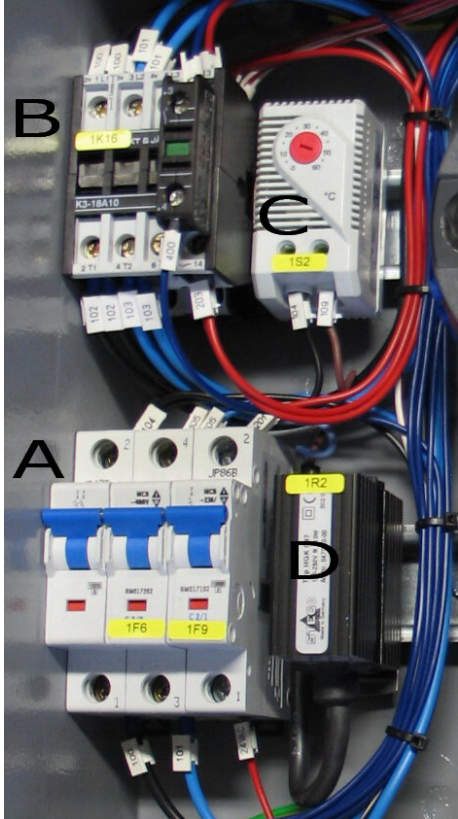
For your safety:
The manoeuvre box has an emergency switch for an immediate cancelling of all jobs.



Preparing the pump		
1	<p>The stand with the manoeuvre box must be secured to the deck using 4 bolts.</p> <p>The box has a built-in heating element (15 W) to avoid condensate water. The temperature is preset for 20 °C. The heating element is active as soon as the main switch is turned to "1".</p>	
2	<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>	
3	<p>Push the connectors firmly to 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 to each other.</p>	
4	<p>The cable with the CEE plug is connected at the front of the manoeuvre box. The cable must be used for power supply only.</p>	
5	<p>When used in salt water it is recommended to mount a cathode protection consisting of a 9 item zinc anode unit. (Item 23.573).</p>	

6	<p>When you mount the bottle use both hands at a time, performing an equal pressure, to avoid damage of the bottle.</p>	
7	<p>Read the numbers on the flow meter</p>	
8	<p>Use a stainless steel wire for deploying the pump; the rubber cable must be used for power supply only.</p>	

Operating the pump		
9	Lower the plankton pump to the wanted depth and preset the desired speed of the pump. The scale itself does not correspond to a specific amount of water.	
10	<ol style="list-style-type: none"> 1. Start the plankton pump by turning the main switch to position "1". Wait for 10 sec. to be sure the frequency converter has initialized correctly. 2. Push the green knob to activate the pump. 3. The pump will start within 3-5 sec. 	
11	The pump can be stopped by pressing the emergency stop or turning the main switch to "0".	

12	When you have retrieved the pump from the sea, dismount the sample bottle and your sample is now ready for examination.	
13	Read the numbers of the flow meter and subtract the numbers from pos. 2. Now you can calculate the quantity of water having passed the plankton net.	
Maintenance		
14	 Caution IMPORTANT After use or before storing: Always wash out the pump using fresh water. Do not use alcohol for cleaning acrylic parts	
Troubleshooting		
15	<p>For any malfunction or problem please check all fuses inside the manoeuvre box.</p> <p>Remove the front plate by unscrewing 4 screws. All fuses are thermal fuses, located at the upper, left corner of the box. Reset by pushing the knob of the appropriate fuse until it locks.</p> <p>The components shown:</p> <ul style="list-style-type: none"> A. Main supply B. Low voltage supply C. Adjustable thermostat for heating element D. Heating element, 15 W 	

	<h2>Determination of water volume</h2>	
	<p>The pitch of the impeller is 0,3 m per revolution, i.e., the number of revolutions multiplied by 0.3 makes the towing distance.</p> <p>For quantitative measurements the threshold flow velocity of the impeller should not be smaller than 0,5 m/sec. For comparison measurements flow velocities smaller than 0,5 m/sec are possible.</p> <p>Example 1: The number of revolutions is 100; this means a towing distance of 30 metres.</p> <p>The opening area of the plankton net must be known or has to be calculated. The water volume passed through the plankton net is determined as follows:</p> <p>Indicated number of revolutions x 0,3 x net opening area (m²) x 1000 = water volume.</p> <p>Example 2: The plankton pump measurement tube has an inside diameter of 8,4 cm, i.e., the opening area is 0,00554 m². If the number of revolutions associated with a tow is 200 (noted from the digital flow meter counter), the water volume passed through the plankton net is 200 x 0,3 x 0,00554 x 1000 = 332,4 litres.</p>	

Specifications

Power:	
Power requirements	1 x 230 Volt AC, 50 Hz
Power consumption	2,2 KWatt
Plankton pump:	
Capacity	20.800 litre/hour (app. 345 litre/min. at 0 meter water column).
Material	AISI 304 stainless steel
Net bag	60 µ
Collecting bottle	Polycarbonate, 1 litre
Digital flow meter	With back run stop (Part no. 23.091). Max. read-out: 99999 Threshold: 20 cm/sec Range: 20 cm/sec to 8,0 metres/sec.
Diameter, max	33 cm
Height, total	161 cm incl. 1 liter collecting bottle.
Speed	Fully adjustable by potentiometer
Weight, pump	30 kg
Maximum depth	500 m
Manoeuvre box:	
Frequency converter	Bonfiglioli, 2,2 KWatt. Input: 1 x 230 VAC, output 3 x 230 VAC.
Measurements: L x W x H (Max. including knobs and connectors)	Manoeuvre box: 50 x 31 x 23 cm The stand: 40 x 31 x 69 cm Max. height: 90 cm
Encapsulation	Manoeuvre box: IP 65 Switches: IP 67
Weight, manoeuvre box, inclusive stand	18,5 kg

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