



23.580
Pump for Micro Plastic Particles
Manual

KC Denmark A/S

Research Equipment
Limnology • Oceanography • Hydrobiology

Pump for Micro Plastic Particles

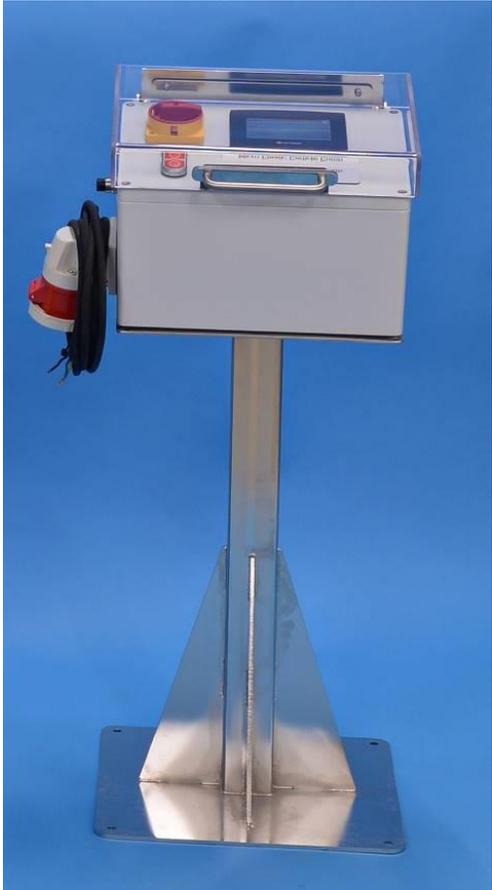


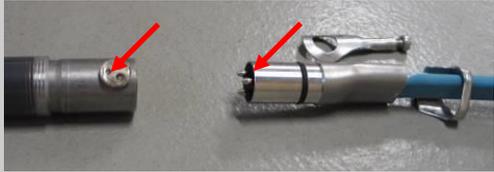
The pump must be deployed by a separate steel wire or similar, as the cable cannot bear the pump's weight. Deploying this pump requires a constant relief of the cable in its entire length, to avoid any cable damage because of the cable's weight.

To cool the motor, it is important deploying the pump beneath the water surface before it gets started.

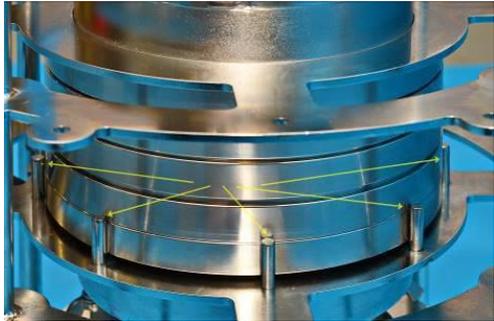
If the pump is covered with water, it can be used in vertical as well as horizontally position.

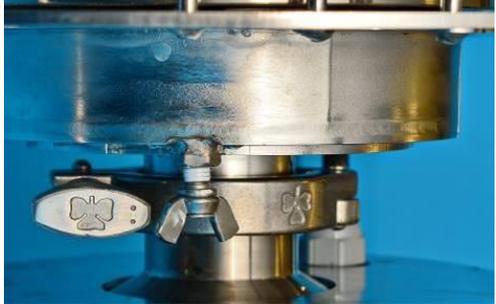
Maximum depth: 40 m.

Item	Preparation	
1	<p>Secure the rack (optional) by means of 4 bolts.</p> <p>Standard delivery of the box has a bracket for mounting on the bulkhead.</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 to ensure ground is present through the connector. Tighten the screw firmly. Do not use the screw to pull the connector's parts to each other.</p> <p>When you disassemble the connector, take care so you don't lose the eye and the screw.</p>	
5	<p>Connect the cable with the CEE plug on the right side of the control box. The cable is for the main supply of 230 V AC/1 ph. Power consumption: 750 W.</p> <p>Connect the cable to the SubConn connector on right side of the control box.</p> <p>Grease the SubConn connector before mating; see the guide on page 8-11.</p>	
6	<p> Caution</p> <p>Use a steel wire or similar for deploying the pump. <i>Do not use the power/data cable itself for the deployment, as it cannot hold the pump's weight.</i></p> <p>Grease the SubConn connector before mating; see the guide on page 8-11.</p>	

7	 <p>Caution</p> <p>Connect the main cable to main supply of 230 V AC, 1 ph. Power consumption: 750 W. Ensure a good ground connection for the equipment to avoid electrical shock and injury to personnel.</p>	
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The Filter Unit		
8	<p>The pump supports four detachable filters made of AISI 316 stainless steel net. Standard delivery comes with a coarse filter plate (3-5000 μm) and 3 nets of 1000, 500 and 300 μm. Assemble the nets with an empty ring at the bottom (see next photo).</p>	
9	<p>The pump's flow goes from the middle of the cylindrical pump, through the filter unit and the flow meter then having output at the pumps lower end.</p> <p>Insert the filter unit, using the coarse filter on top and gradually smaller sizes beneath.</p> <p>To cool down the motor, (the upper half), it is recommended that it is covered by water.</p> <p>The coarse filter shown is a custom design with rectangular openings, standard delivery comes with square holes.</p>	
10	<p>Push the filter unit against the stop pins.</p>	

<p>11</p>	<p>Insert the locking pin to prevent the filters from falling out.</p>	
<p>12</p>	<p>Beneath the locking pins, turn the two wing nuts to secure the filters.</p>	
<p>13</p>	<p>To prevent rotating of the pump rack and the cable/wire, you can add a steering fin. Mount it by means of 4 bolts.</p>	

Operating the pump		
14	<p>Turn the red knob clockwise and the display is illuminated.</p> <p>Continuous mode: Pressing the green button starts the pump in continuously mode and the display shows the actual pump volume as live view.</p> <p>Press the red button to stop the pump.</p>	
15	<p>Programmable pump volume: Tapping the display shows an intuitive display. Add the requested volume measured in litres. Press "enter", and the display returns to live view. Press the green button and the pump will start.</p> <p>The pump stops automatically when the desired volume is reached.</p>	
16	<p>The pump symbol to the right in the display turns green during the pumping.</p> <p>Once the session has ended, the display shows the amount and the elapsed time. To the left on the display, you will find the reset function.</p> <p>Depending on the filter sizes and the corresponding clogging you may experience that pump speed is reduced.</p>	

Maintenance		
17	<p data-bbox="240 268 354 359">  </p> <p data-bbox="240 365 354 394">Caution</p> <p data-bbox="240 428 971 520"> IMPORTANT After use or before storing: Always wash out the pump using fresh water. </p> <p data-bbox="240 554 906 583"> Do not use alcohol for cleaning acrylic parts. </p> <p data-bbox="240 617 977 747"> Give plankton nets 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. </p> <p data-bbox="240 781 961 911"> Wash net thoroughly with fresh water after use. Periodically clean with a warm soap solution. It is also advisable letting the net to air-dry after washing. </p> <p data-bbox="240 945 912 1100"> 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. </p>	
18	<p data-bbox="240 1171 977 1264"> There are two zinc anodes on top of the pump, and we strongly recommend these when operating the pump in salt water. </p> <p data-bbox="240 1297 961 1369"> The zinc anode (28.102) protects against corrosion of the pump. Replace once the material is eroded. </p>	

SubConn® Handling instructions

Follow these instructions carefully to ensure correct use of your SubConn® connectors.

Handling

- Connectors must be greased with Molykote 44 Medium before every mating
- Always grease O-rings on BH, BCR and FCR connectors with Molykote 111
- Disconnect by pulling straight out, not at an angle
- Do not pull on the cable and avoid sharp bends at cable entry
- When using a bulkhead connector, ensure that there are no angular loads
- Make sure to apply the recommended torque when tightening bulkhead nuts
- SubConn® connectors should not be exposed to extended periods of heat or direct sunlight. If a connector becomes very dry, it should be soaked in fresh water before use

Scan to access
SubConn® greasing
and cleaning
instruction videos



Greasing products



Molykote 44 Medium

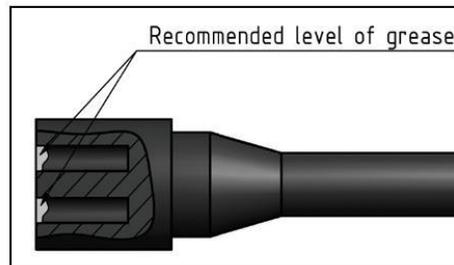


WD-40
or similar products



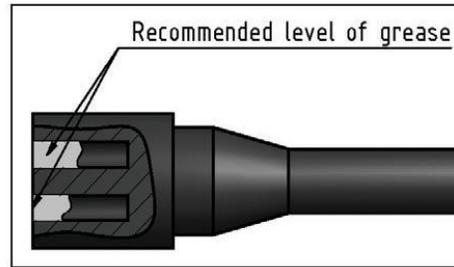
Compound
or similar greasing
products

Greasing and mating above water (dry mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to a minimum of 1/10 of the socket depth should be applied to the female connector
- The inner edge of all sockets should be completely covered, and a thin transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector in order to secure optimal distribution of grease on all pins and in the sockets
- To confirm that grease has been sufficiently applied, de-mate and check for grease on every male pin. Then re-mate the connector

Greasing and mating under water (wet mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to approximately 1/3 of a socket depth should be applied to the female connector
- All sockets should be completely sealed, and a transparent layer of grease left visible on the face of the connector
- After greasing, fully mate the male and female connector and remove any excess grease from the connector joint

Cleaning products



- * General cleaning and removal of any accumulated sand or mud on a connector should be performed using spray based contact cleaner (isopropyl alcohol)
- New grease must be applied again prior to mating

Use of Loctite

- Always use Loctite 5910 to lock non-metallic (PEEK) connectors
- For locking metallic connectors, the use of Loctite 243 is recommended



COAX connector

- Only grease the rubber parts - do not grease coax pin and socket
- Do not mate under water. To be used with locking sleeves only

Bulkhead Connectors - Tightening force

Type	Material	Rec. Torque - Nm
3/8" - 24 UNF	Brass, aluminium	4.0
	Stainless steel, titanium	6.0
	PEEK	2.0
7/16" - 20 UNF	Brass, aluminium	10.0
	Stainless steel, titanium	14.0
	PEEK	4.2
1/2" - 20 UNF	Brass, aluminium	15.0
	Stainless steel, titanium	21.0
	PEEK	5.2
5/8" - 18 UNF	Brass, aluminium	29.0
	Stainless steel, titanium	41.0
	PEEK	10.0
3/4" - 16 UNF	Brass, aluminium	44.0
	Stainless steel, titanium	63.0
	PEEK	15.0
7/8" - 14 UNF	Brass, aluminium	60.0
	Stainless steel, titanium	80.0
	PEEK	20.0
1" - 14 UNF	Brass, aluminium	75.0
	Stainless steel, titanium	100.0
	PEEK	25.0

Recommended oil for pressure balanced systems

- MacArtney recommend DC-200/350 or PMX-200/350 in oil compensated systems

11-2018

Storing and Maintenance

All parts of the item can be rinsed using salt water or fresh water. Before storing, we recommend a thoroughly cleaning with fresh water.

Safety Regulations

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.

An expert maintenance technician fully familiar with the attendant hazards must only do all maintenance, inspection and repairs.

When working with the unit in areas, which are difficult to access or hazardous, ensure to take adequate safety precautions for the operator and others in compliance with the provisions of law on health and safety at work.

Replace worn component with original spare parts.

Rev.: November 17, 2022 - lkj

Specifications	
Power:	
Power requirements:	1 x 230 V AC, 50 Hz, 1 ph.
Power consumption:	750 Watts
Pump:	
Capacity:	12000 L/hour (app. 200 L/min. at 0 m water column). Filter inserts and clogging of the net will reduce pump volume
Material:	The pump itself: AISI 304 stainless steel, all other parts: AISI 316 stainless steel
Filter unit:	A coarse filter plate (3-5000 µm) and 3 sizes: 1000, 500 and 300 µm. Other sizes on request
Flow meter:	Magnetic/inductive, accuracy typical 0,035 %
Pump, dimensions:	
Footprint, max.:	60 x 60 cm
Height, total:	137 cm
Weight, pump, incl. steering fin:	49,2 kg
Maximum depth:	40 m
Control box, dimensions:	
Footprint:	46 x 46 cm
Height, total:	93 cm
Weight:	24 kg
Control box:	
Encapsulation:	Control box: IP 65. Switches: IP 66.
Weight, pump, control box and 40 m cable:	85 kg

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