



# Pump for Micro Plastic Particles



Model 23.580

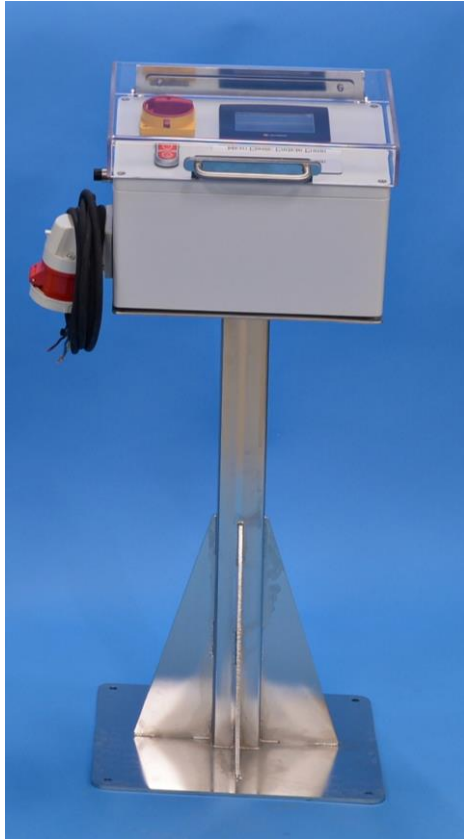
## Manual







**KC** Denmark

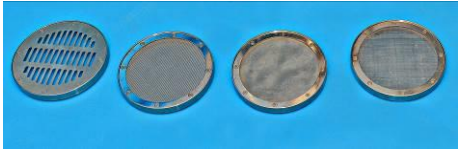

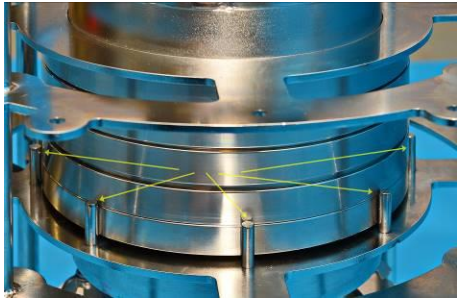

Research Equipment

Limnology • Oceanography • Hydrobiology

	<b>Manual for plastic particle pump – 1 x 230 VAC/750 Watt</b>	<b>Model no. 23.580</b>
	 <p><b>Caution</b>  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.</p> <p>In order to cool the motor, it is important deploying the pump beneath the water surface before it gets started.</p> <p>The pump can be used in vertical as well as horizontally position.</p> <p>Maximum depth: 40 m.</p>	


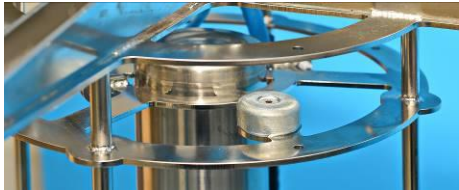
	<b>Preparing the pump</b>	
1	<p>Secure the rack (optional) by means of 4 bolts.</p> <p>Standard delivery of the box has a bracket for mounting on the bulkhead.</p>	

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 VAC/1 ph.</p> <p>Connect the cable to the Subconn connector on right side of the control box.</p>	
6	<p> <b>Caution</b></p> <p>Use a steel wire or similar for deploying the pump. Do not use the cable itself for the deployment, as it cannot hold the pump's weight.</p> <p>Grease the Subconn connector before attaching; see the guide on page 7-11.</p>	
7	<p> <b>Caution</b></p> <p>Connect the main cable to main supply of 230 VAC, 1 ph. Power consumption: 750 W. Ensure a good ground connection for the equipment to avoid electrical shock and injury to personnel.</p>	

	<b>The Filter Unit</b>	
8	<p>The pump supports four detachable filters made of AISI 316 stainless steel net. Standard delivery comes with a coarse filter plate (5000 <math>\mu\text{m}</math>) and 3 nets of 1000, 500 and 300 <math>\mu\text{m}</math>. Assemble the nets with an empty ring at the bottom (not shown).</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>In order to cool down the motor, (the upper half), it is recommended that it is covered by water.</p>	
10	<p>Push the filter unit against the stop pins.</p>	
11	<p>Insert the locking pin to prevent the filters from falling out.</p>	



12	Beneath the locking pins, turn the two wing nuts to secure the filters.	
13	To prevent rotating of the pump rack and the cable/wire, you can add a steering fin. Mount it by means of 4 bolts.	
<b>Operating the pump</b>		
14	<p>Turn the red knob clockwise and the display is illuminated.</p> <p><b>Continuous mode:</b> 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><b>Programmable pump volume:</b> 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 of the filter sizes and the corresponding clogging you may experience that pump speed is reduced.</p>	

	<b>Maintenance</b>	
17	 <p><b>Caution</b></p> <p><b>IMPORTANT</b>  <b>After use or before storing: Always wash out the pump using fresh water.</b></p> <p><b>Do not use alcohol for cleaning acrylic parts.</b></p> <p><b>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.</b></p> <p><b>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.</b></p> <p><b>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.</b></p>	
18	<p>There are two zinc anodes on top of the pump, and we strongly recommend these when operating the pump in salt water.</p> <p>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

- Always apply grease before mating (see next page)
- Disconnect by pulling straight, 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
- Do not over-tighten the 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

### Untagged cable and pigtail colour coding

#### 2 - 25 pin connectors (excluding 3 pin connectors):

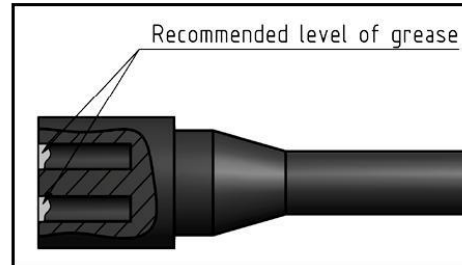
1 Black	7 White / Black	13 Red / White
2 White	8 Red / Black	14 Green / White
3 Red	9 Green / Black	15 Blue / White
4 Green	10 Orange / Black	16 Black / Red
5 Orange	11 Blue / Black	17-25 Tagged numbering
6 Blue	12 Black / White	

#### 3 pin connectors:

1 Black	2 White	3 Green
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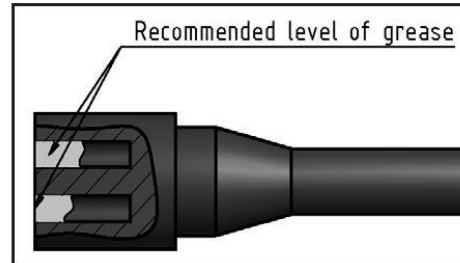
## Greasing and mating above water (dry mate)



- Connectors must be greased with Molykote 44 Medium before every mating
- A layer of grease corresponding to minimum 1/10 of 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 pins and in 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 socket depth should be applied to the female connector
- All sockets should be completely sealed, and 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

- 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

Scan to access  
SubConn® greasing  
and cleaning  
instruction videos



## Bulkhead Connectors

### Tightening force

Type	Material	Rec. Torque - Nm
3/8" - 24 UNF	Brass, Aluminium	4,0
	Stainless Steel, Titanium	6,0
	Non-metallic (Peek)	2
7/16" - 20 UNF	Brass, Aluminium	10,0
	Stainless Steel, Titanium	14,0
	Non-metallic (Peek)	4,2
1/2" - 20 UNF	Brass, Aluminium	15,0
	Stainless Steel, Titanium	21,0
	Non-metallic (Peek)	5,2
5/8" - 18 UNF	Brass, Aluminium	29,0
	Stainless Steel, Titanium	41,0
	Non-metallic (Peek)	10,0
3/4" - 16 UNF	Brass, Aluminium	44,0
	Stainless Steel, Titanium	63,0
	Non-metallic (Peek)	15
7/8" -14 UNF	Brass, Aluminium	60
	Stainless Steel, Titanium	80
	Non-metallic (Peek)	20

### Use of Loctite

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

For further support and advice, please contact your local SubConn® distributor or MacArtney ([www.macartney.com](http://www.macartney.com))

07-2013

## Specifications

<b>Power:</b>	
Power requirements:	1 x 230 Volt AC, 50 Hz, 1 ph.
Power consumption:	750 Watts
<b>Pump:</b>	
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 (5000 µm) and 3 sizes: 1000, 500 and 300 µm. Other sizes on request
Flow meter:	Magnetic/inductive, accuracy typical 0,035 %
<b>Pump, dimensions:</b>	
Footprint, max.:	60 x 60 cm
Height, total:	137 cm
Weight, pump, incl. steering fin:	49,2 kg
Maximum depth:	40 m
<b>Control box, dimensions:</b>	
Footprint:	46 x 46 cm
Height, total:	93 cm
Weight:	24 kg
<b>Control box:</b>	
Encapsulation:	Control box: IP 65. Switches: IP 66.
Weight, pump, control box and 40 m cable:	85 kg

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Research Equipment  
Limnology • Oceanography • Hydrobiology

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