

<u>Equipment Type:</u>	Recirculating Filtration Tank
<u>Model:</u>	<b>RC-1000A</b>
<u>Electrical Requirements:</u>	110 / 220 Volts (24V DC Power Converter included to power the pump)
<u>Frequency:</u>	50 / 60 Hz
<u>Tank Capacity</u>	14 Gal
<u>Flow Rate:</u>	1.3 gal/min
<u>Manual Revision Date:</u>	October 13 <sup>th</sup> ,2020

Please read this instruction manual carefully and follow all installation, operating and safety guidelines.

<b>Contents</b>	<b>Page</b>
<b>Warranty</b>	ii
<b>1.0 Product Description</b>	1
<b>2.0 General Operation</b>	3
<b>3.0 The Filtration System</b>	5
<b>4.0 Maintenance</b>	7
<b>5.0 Ordering Filters</b>	9

## WARRANTY

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Customer assumes and shall bear the risk of all loss or damage to the Products from every cause whatsoever, whether or not insured, and title to such Products shall pass to Customer upon PACE Technologies delivery of the Products to the common carrier of Pace Technologies choice, or the carrier specified in writing by Customer, for shipment to Customer. Any claims for breakage, loss, delay, or damage shall be made to the carrier by the Customer and Pace Technologies will render customer reasonable assistance in prosecuting such claims.

#### **4. ACCEPTANCE:**

Customer shall inspect the Products promptly upon receipt of delivery. Unless customer objects in writing within thirty (30) business days thereafter, customer shall be deemed to have accepted the Products. All claims for damages, errors, or shortage in Products delivered shall be made by Customer in writing within such five (5) business day period. Failure to make any claim timely shall constitute acceptance of the Products.

#### **5. PAYMENT:**

Customer agrees to provide timely payment for the Products in accordance with the terms of payment set forth on the reverse side hereof or in any proposal submitted herewith. If any payment is not paid on or before its due date, Customer shall pay interest on such late payment from the due date until paid at the lesser of 12% per annum or the maximum rate allowed by law.

#### **6. DEFAULT:**

If Buyer is in default (including, but not limited to, the failure by Buyer to pay all amounts due and payable to Seller) under the work or purchase order or any other agreement between Buyer and Seller, Buyer's rights under the warranty shall be suspended during any period of such default and the original warranty period will not be extended beyond its original expiration date despite such suspension of warranty rights.

#### **7. MISCELLANEOUS PROVISIONS:**

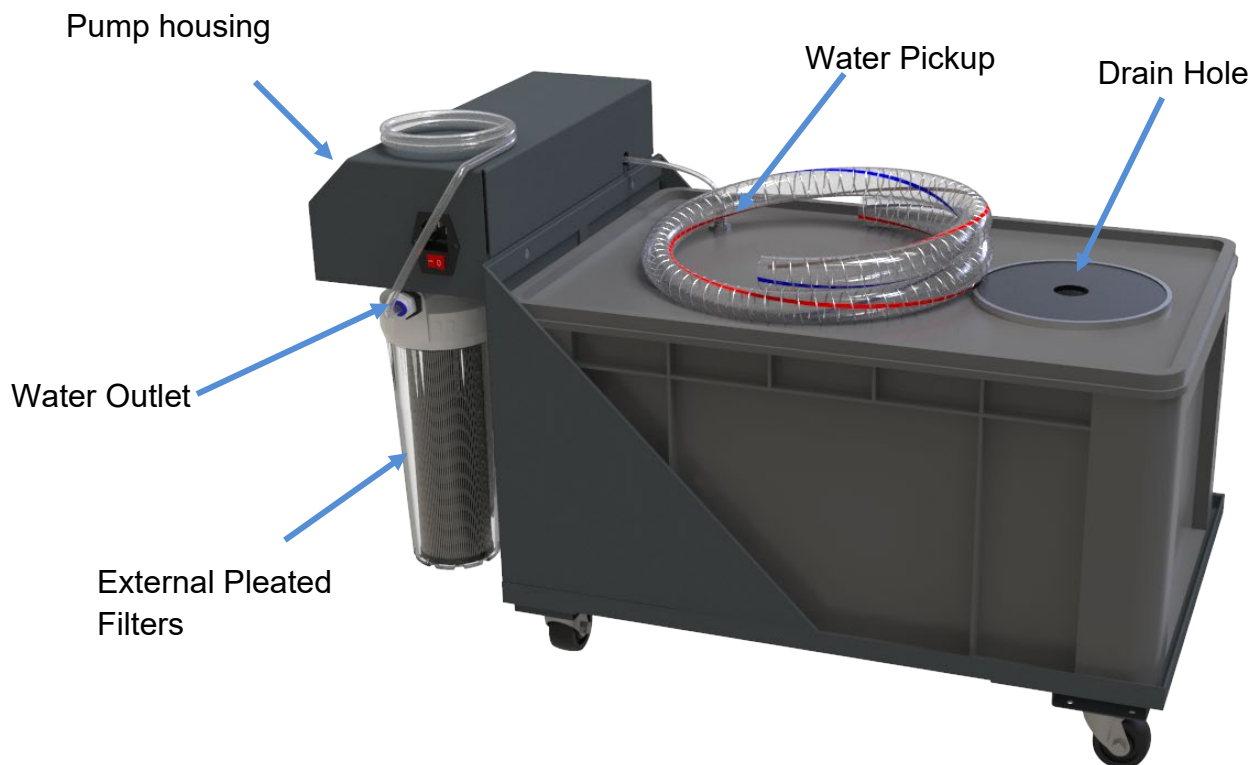
This agreement has been made in and shall be governed by the laws of the State of Arizona. These terms and conditions and the description of the Products on the reverse side hereof or in any proposal submitted herewith constitute the entire agreement and understanding of the parties with respect to this sale and supersede all prior and contemporaneous agreements or understandings, inducements or representations, expressed or implied, written or oral, between the parties with respect hereto. Any term or provision of this Agreement may be amended, and any observance of any term of this Agreement may be waived, only by a writing signed by the party to be bound. The waiver by a party of any breach shall not be deemed to constitute a waiver of any other breach. Should suit be brought on this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and other costs of suit including costs and attorneys' fees incurred on appeal or in collection of any judgment., errors, or shortage in Products delivered shall be made by Customer in writing within such five (5) business day period. Failure to make any claim timely shall constitute acceptance of the Products.

#### **8. RESTOCKING FEE:**

All Returns are subject to a restocking charge equal to 15% (fifteen percent) of the Invoice, unless the Goods are proved to be non-conformed by PACE Technologies.

## 1.0 Product Description

### 1.1 General Description



The RC-1000A is a standalone tank and filtration system designed to supply clean water to lab equipment without access to plumbing. Water is filtered through five stages; this catches particulate ranging from large debris down to submicron particles. The water is then expelled through a 8mm line into a polishing machine or other single piece of equipment. The staged filter system allows the RC-1000A to filter out all particulate from sample grinding, SiC paper abrasives, and most abrasive slurries.

## **1.2 Technical Specifications**

<u>Electrical Specifications:</u>	110 / 220 Volts, 50 / 60 Hz 24VDC Pump
<u>Tank Capacity:</u>	14 Gal
<u>Pump Flow Rate:</u>	1.3 gal/min
<u>Weight:</u>	Approx. 31-lbs (14-kg)
<u>Dimensions (W x H x D):</u>	Approx. 16.5in x 19.5in x 31.5in (420mm x 495mm x 800mm)
<u>Working Temperature:</u>	32° - 100°F (0 – 40°C)
<u>Shipping Temperature:</u>	32° - 130°F (0 – 54°C)
<u>Storage Temperature:</u>	32° - 100°F (0– 40°C)

## 2.0 General Operation

### 2.1 First Time Setup

The RC-1000A is easy to operate and comes preassembled. Fill the tank with water (using DI water, or pre-filtered water is advisable). Install the drain hose onto your polishing machine. Ensure that the drain output is stuck into the appropriate hole on the top of the unit. Plug the 8mm output line into the polishing machine's water input connector. Plug the unit into the wall using the provided power cord. The RC-1000A can be used at 110V as well as 220V. Allow the external filters to fill with water. This may take a few minutes.

### 2.2 Basic Operation:

Repeat these steps every time the water is cleaned from the tank!



Turn the machine on when starting a procedure. The pump is capable of maintaining some back pressure, this allows instant water pressure when needed. The pump will shut off automatically at a set pressure, the RC-1000A is still powered on and functioning! Thoroughly read the maintenance section to ensure the longevity of the machine. Once the machine has gone through its first-time setup, run lab procedures as normal.

## **3.0 The Filtration System**

### **Stage One:**

Starting from the drain of our NANO polishing line, the contaminated water is deposited into the large catch pre-filter. This will catch all large debris and prevent it from entering the main tank system. This filter is reusable and washable. Simply discard or rinse the buildup in an appropriate manner per local regulations. If the bag is ripped or torn replacement bags may be ordered.



## **Stage Two:**

Following the pre-catch filter there is a small canister filter. This is connected to the pickup line that runs through the remaining stages of filtration. This filter is weighted as to avoid floating in the water. The weighted canister filter can be cleaned in the same way as the previous stage. If damaged, additional filters may be purchased.



## **Stage Three through Five:**

Stage three is the first external pleated filter. This filter blocks all particles larger than 1µm before flowing into the next stage.

Stage four is the second external pleated filter. Stage four catches all particulate at larger than 0.5µm in size. This filter flows into the next and final stage.

Stage five is the last filter of the RC-1000A filtration system. This last filter can block all particles to an absolute 0.2µm size. This ensures that no particles larger than 0.2µm will exit the RC-1000A.



## **4.0 Maintenance**

### **4.1 Basic Maintenance**

The RC-1000A should be inspected daily before operation. Ensure the drain hose is installed correctly to avoid spills. If the unit becomes dirty, use soapy water and a wash cloth to remove dirt. If chemicals are spilled on the unit, please refer to their associated SDS removal procedure. Replace water weekly, as a general rule.

### **4.2 Filtration Maintenance**

The RC-1000A requires some maintenance to ensure proper operation.

- The stage one filter should be checked and emptied daily to ensure that it is not clogging or catching too many large particles.
- The stage two filter (weighted canister filter) should be cleaned daily, or bi daily under very heavy loads.
- Stage three through five are consumable items. These filters need to be replaced with new ones after their efficiency has dropped below their acceptable level. Filter three will typically be replaced more often than the following two due to it being the first of the three and more course. These filters will typically be replaced once every two months, or every 300 preparation steps on a grinder/polishing unit. However, this is just a typical use scenario and it will vary depending on preparation methods.

### **4.3 Water Pressure**

The RC-1000A pump has a flow rate maximum of 1.3GPM. This gets reduced through the filters. If large amounts of air or a noticeably lower rate of flow is seen check the filters starting from stage one. Replace or clean as described below

## **4.4 Cleaning/Replacement Schedule**

### **Stage 1: Mesh Bag Pre-Filter**

- **Cleaning:** Clean the stage one mesh bag pre-filter daily. Avoid buildup of sludge or other particles
- **Replacement:** Replace when ripped or holes appear

### **Stage 2: Weighted Canister Filter**

- **Cleaning:** Inspect daily. Clean when visible particles are attached to side mesh
- **Replacement:** Replace if mesh is punctured or cracks are seen

### **Stage 3: 1um Filter**

- **Cleaning:** Filter is not reusable. However, it may be cleaned while waiting for new ordered filters to arrive. This will affect filtration performance greatly and reduce life of stage 4 filter.
- **Replacement:** Replace after 300 sample steps are ran. Filter will be replaced more frequently than others

### **Stage 4: 0.5um Filter**

- **Cleaning:** It is not advised to reuse this filter.
- **Replacement:** Replace filter after every 2-3 stage 3 filters are changed out.

### **Stage 5: >0.2um Filter**

- **Cleaning:** It is not advised to reuse this filter. This is the most sensitive filter and should be protected by all previous stages.
- **Replacement:** Replace after every 2-3 stage 4 filters. Or, if filter and water start to discolor strongly.

## **4.5 Quick Order Guide**

If correctly following the replacement guide it is advised to order the following quantities of filters to ensure replacements are available as used:

- 1um: 6-9
- 0.5um: 2-3
- >0.2um: 1

## **5.0 Ordering Filters**

<b>Part Name</b>	<b>Part Number</b>
1.0um Filter	RC-F-COURSE
0.5um Filter	RC-F-MEDIUM
>0.2um Filter	RC-F-FINE
Mesh Bag Filter	RC-SCREEN
Weighted Canister Filter	RC-INLET

## 4.5 Replacing Filters

To replace the external filters, follow this simple procedure:

1. Power off unit
2. Using the provided canister wrench, slide the wrench up the bottom of the plastic canister until it grabs the ribs located near the rim of the container
3. Turn the wrench counterclockwise to loosen the canister
4. Remove the wrench and unscrew the remaining thread with hands to assist with avoiding spills
5. Dispose of the remaining water (follow proper SDS procedures, or dump into the Stage One filter drain deposit)
6. Place appropriate filter into the canister. Ensure the extruded cylinder on the bottom of the canister is inside the filter
7. Screw on the canister to its previous location

It is recommended to change only one filter at a time to avoid contamination. Ensure the stages are placed in the correct order: 1 $\mu$ m (black cap labeled 1 $\mu$ m on top side) – 0.5 $\mu$ m (non-labeled black top) – >0.2 $\mu$ m (blue top)

