



WET SCRUBBER

Minilab, Maxilab

User's Manual

Thank you for purchasing the Advancelab Wet Scrubber. Please read this manual thoroughly to familiarize yourself with the many unique features and exciting innovations we have built into your new equipment.

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Warranty

Products Manufactured by Advancelab: Advancelab(S) Pte.Ltd., warrants products that it manufactures to be free from defects for a period of 12 months for parts, commencing from the date of shipment. Advancelab's sole responsibility is to repair or replace, at its option, any part of the product that proves defective or malfunctioning during this time limit. This warranty is void if the equipment is abused or modified by the customer, is operated outside Advancelab's operating instructions or specifications, or is used in any application other than that for which it is specified. This warranty does not include routine maintenance or service procedures, breakage, shipping damage, nor damage from misuse, intentional or unintentional abuse, neglect, natural disasters, or acts of God.

Freight Shortage or Damage: Upon receipt of any equipment from Advancelab, customer shall immediately unpack and inspect for damage or shortage. The customer shall not accept a damaged package or a short shipment until the carrier makes a "damage or shortage" notation on both the carrier's and customer's copy of the freight bill or delivery receipt. Service title passes when the shipment is loaded, so customer is responsible for filing and collecting a freight claim. Any replacement products must be ordered and paid for separately.

Generally, customers can improve the chance of collecting on a freight claim by following these procedures:

1. Formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition.
2. Notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail.
3. Keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible.
4. Holding salvage for disposition by the carrier.

All Claims: Advancelab (S) Pte.Ltd., expressly disclaims all other warranties, expressed or implied or implied by statute, including the warranties of merchantability or fitness for intended use. Advancelab is not responsible for consequential or incidental damages arising out of the purchase or use of the products supplied by Advancelab. Advancelab is not liable for damage to facilities, other equipment, products, property or personnel of others, or of their agents, suppliers, or affiliated parties, which is caused or alleged to have been caused by products supplied by Advancelab. In any event or series of events, Advancelab's total liability for any and all damages whatsoever is limited to the lesser of the actual damages or the original invoice cost of the items alleged to have caused the damage. The customer's sole and exclusive remedy for any cause of action whatsoever is repair or replacement of the non-conforming products or refund of the actual purchase price, at the sole option of Advancelab. All claims must be made in writing within 90 days of the date the product was shipped. Any claims not made within this time limit shall be deemed waived by the customer. Advancelab is not responsible for any additional costs of repair caused by poor packaging or in-shipment damage during return.

Warranty Returns: All warranty returns must be authorized in advance by Advancelab and approved by writing. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Advancelab, freight prepaid at customer's expense.

Introduction

1. Products Covered

- Minilab®, Maxilab® 1000, Maxilab® 2000

2. Safety Warning

- Anyone working with, on or around this equipment should read this manual. Failure to read, understand and follow the instructions given in this documentation may result in damage to the unit, injury to operating personnel, and / or poor equipment performance.
- Any internal adjustment, modification or maintenance to this equipment must be undertaken by qualified service personnel.
- The use of any hazardous materials in this equipment must be monitored by an industrial hygienist, safety officer or some other suitable qualified individual.
- Before you process, you should thoroughly understand the installation procedures and take note of the environmental / electrical requirements.
- If the equipment is used in a manner not specified by this manual, the protection provided by this equipment may be impaired.

3. Limitation of Liability

The disposal and / or emission of substances used in connection with this equipment may be governed by various local regulations. Familiarization and compliance with any such regulations are the sole responsibility of the users. Advancelab's liability is limited with respect to user compliance with such regulations.

Introduction

4. Declaration of Conformity



We, manufacturer : **Advancelab (S) Pte Ltd**
No. 52, Senang Crescent Singapore 416619
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Fax: +65 6448 9833

Declare under our sole responsibility that the product:

- **Category** : **Laboratory Wet Scrubber**
- **Brand** : **Minilab, Maxilab Series**
- **Model** : **Minilab®, Maxilab®1000, Maxilab®2000**

have been designed and manufactured to conform with the following standards, when installed and used in accordance to the operating and maintenance manual:

- **Electrical Equipment Safety Requirements** : **EN 61010 - 1 (2001)**
- **Low Voltage** : **EN 61010 - 1 (2010)**
- **EMC** : **EN 61326 - 2 (2006) Class B**

This declaration is valid also as declaration of conformity to the following directives:

- **73/23/EEC** : **Directive on low voltage**
- **89/336/EEC** : **Directive on electromagnetic compatibility**
- **93/68/EEC** : **Directive on CE Marking**
- **98/37/EEC** : **Directive on machinery**

More information may be obtained from Advancelab's head office/factory.

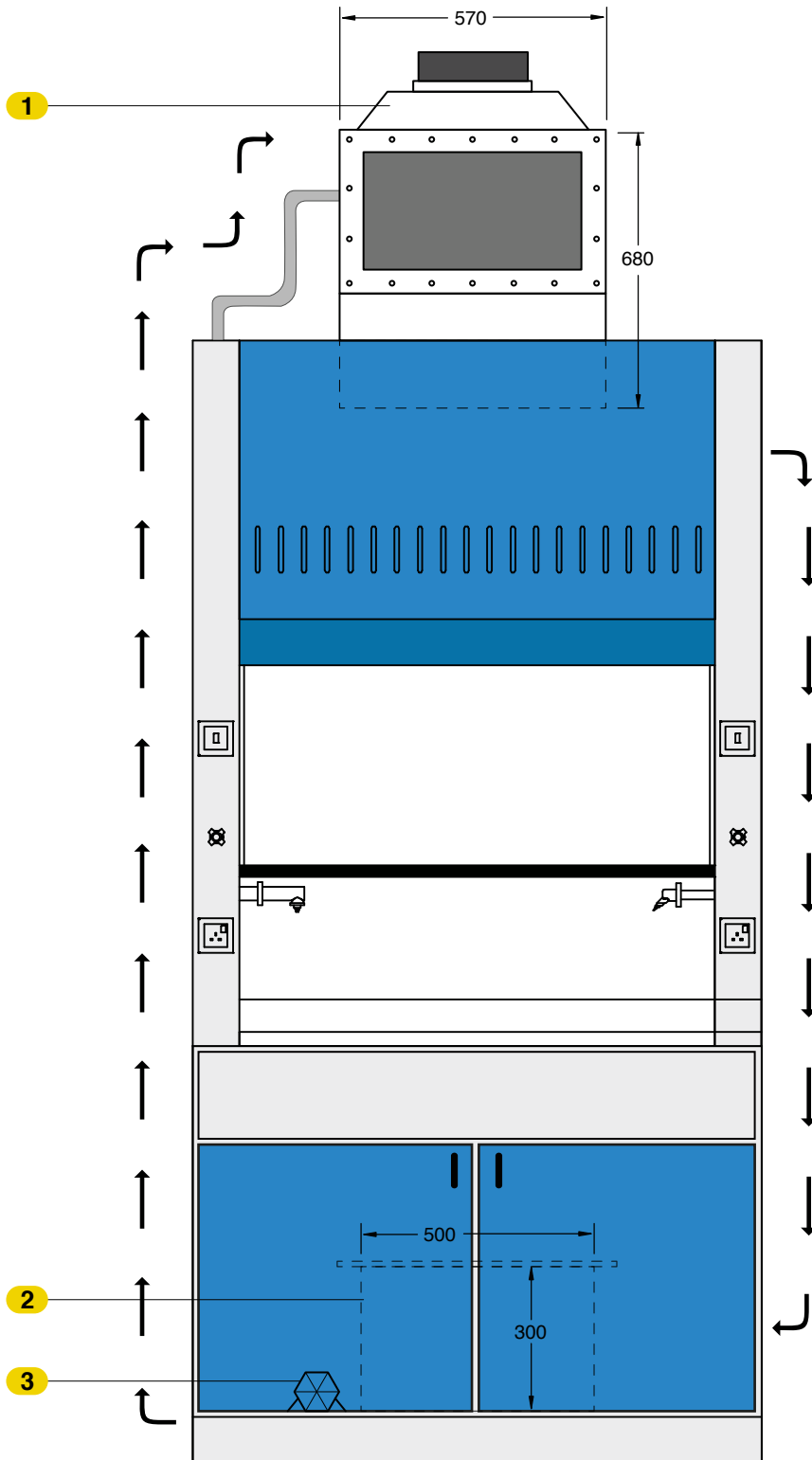


Zubin Menon
Managing Director



Quick View

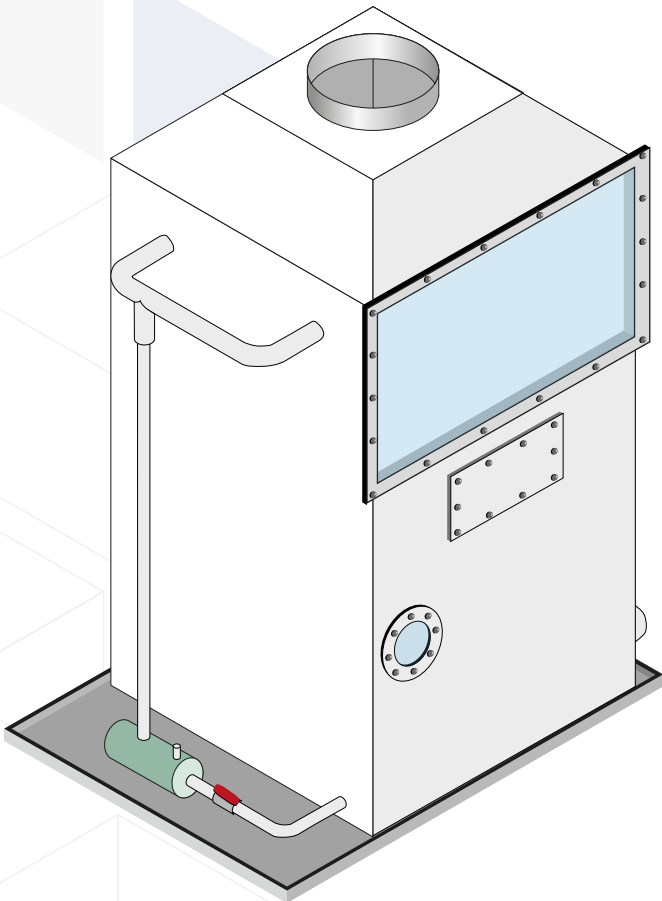
Minilab[®] Wet Scrubber



1. Mini Scrubber (Spray Module)
2. Holding Tank
3. Chemical Pump

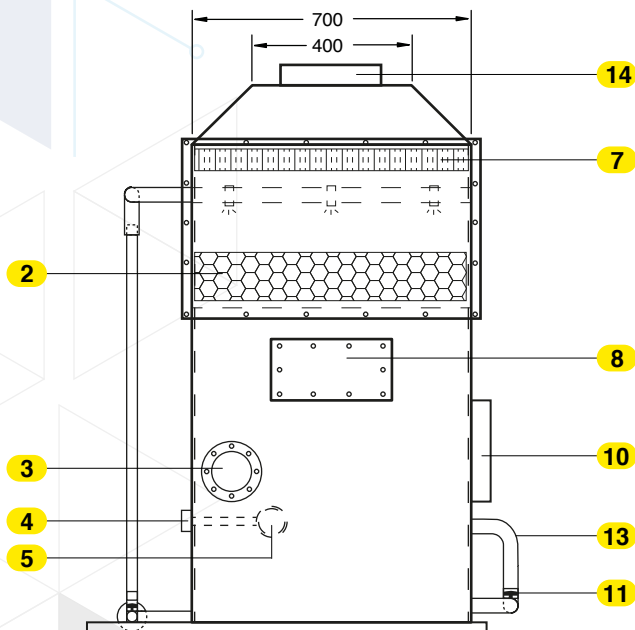
Quick View

Maxilab[®] 1000 Wet Scrubber

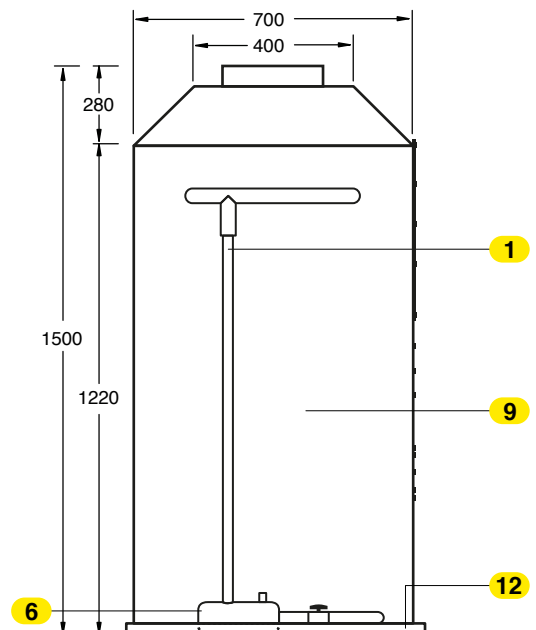


1. 25mm Dia PVC Pipe
2. Tellerette Scrubbing Media
3. Viewing Glass (Opening for Adjusting the Float)
4. 15mm Dia Incoming Water Supply
5. Water Float
6. Chemical Water Pump
7. 2" Thk Mist Eliminator
8. Opening for Changing Scrubbing Media
9. Holding Tank
10. Exhaust inlet
11. 40mm Dia Discharge with a Ball Valve
12. PP Tray
13. Overflow Pipe
14. Exhaust Outlet

Front View

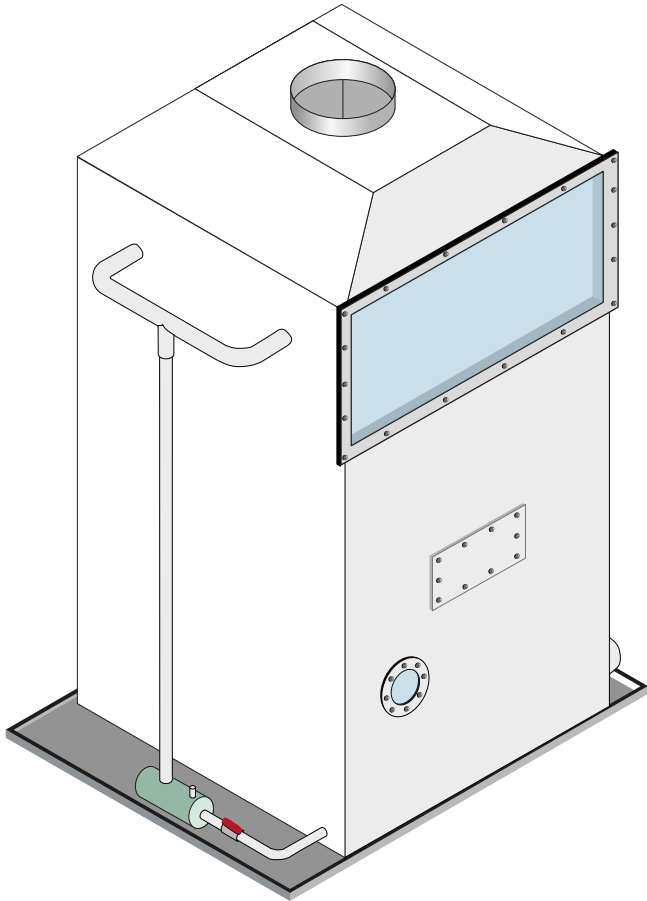


Side View



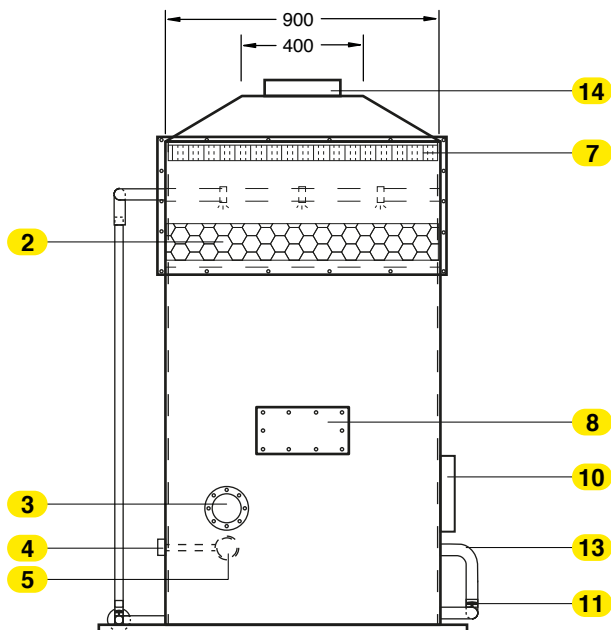
Quick View

Maxilab[®] 2000 Wet Scrubber

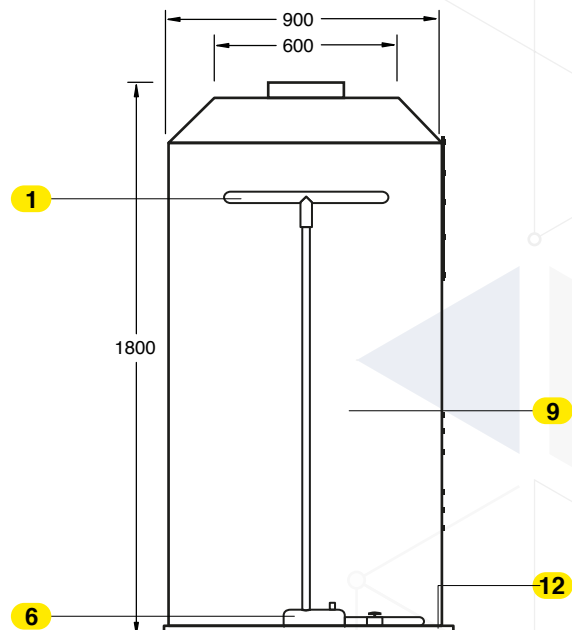


1. 25mm Dia PVC Pipe
2. Tellerette Scrubbing Media
3. Viewing Glass (Opening for Adjusting the Float)
4. 15mm Dia Incoming Water Supply
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11. 40mm Dia Discharge with a Ball Valve
12. PP Tray
13. Overflow Pipe
14. Exhaust Outlet

Front View



Side View



Installation

1. Procedure

- Prior to installation, check mist eliminators for shifting or damage.
- Inspect all piping for breakages.
- The scrubber Tellerette packing, scrubber body, mist eliminator, and transitions should be thoroughly cleaned with a hose spray nozzle to wash any foreign material out of scrubber sump prior to connecting drain piping. Debris can cause pump malfunction.
- Connect the duct from the lab to the "Exhaust Inlet"
- Connect the duct from the exhaust fan to the "Exhaust Outlet"
- Connect the incoming water supply
- Connect the over-flow drain
- Connect the power plug
- Operating conditions: Should not be used on temperatures exceeding 80degC and exposed to direct sunlight.

2. Pre-start-up Checklist

- Fan and pump motor wired for correct voltage.
- All dampers locked in open position.
- Ductwork clean and free of debris.
- Ductwork sealed properly.
- Plumbing connections leak tested.
- Freshwater make-up set correctly.
- Overflow and drain connected.
- Packing and mist eliminator installed properly.
- Correct spray pattern.

3. Start-up

- Switch on water supply.
- Switch on pump.
- Switch on exhaust fan.

Service and Maintenance

Scheduled Maintenance

Proper and timely maintenance is crucial for trouble free functioning of any device and your Advancelab Wet Scrubber is no exception to this rule. We strongly recommend that you follow the maintenance schedule suggested hereunder in order to obtain performance from your Advancelab Wet Scrubber.

No.	Description of Task to Perform	Maintenance to be carried out every	
		6 Months	1 Year
1	Check fresh water make-up and overflow valve in open position	√	
2	Check drainage pipes and overflow valves	√	
3	Check pump and connections	√	
4	Check full cone nozzles for plugging and spray pattern	√	
5	Check de-misters for plugging, broken pieces or shifting	√	
6	Check Tellerette scrubbing media for sludge build-up	√	
7	Check integrity of holding tanks	√	
8	Full cone nozzle and header cleaning		√
9	Flushing and cleaning of holding tank		√
10	Replacement of Tellerette media		√
11	Airflow velocity check		√

Trouble Shooting

Problem	Possible cause
Poor spray pattern	<ul style="list-style-type: none"> • Spray nozzles plugged up • Spray headers plugged up • Pump suction blocked • Pump discharge piping too small • Insufficient water in sump • Pump running backwards • Total head exceeds that of pump
Unit will not drain	<ul style="list-style-type: none"> • Drain line to remote tank is not submerged or trapped • Drain line is not sloped towards tank • Drain line plugged • Drain line too small
Moisture after unit	<ul style="list-style-type: none"> • Re-entrainment due to liquid loading • Gap or void in mist eliminator • Mist eliminator damaged • Velocity too high through scrubber • Droplet size too small • Build-up of chrome on mist Eliminator • Packing has settled (horizontal units) • Mist eliminator plugged or saturated - liquid loading too high - throttle back nozzle spray pattern
Low removal efficiency	<ul style="list-style-type: none"> • Insufficient or no water to spray nozzles • Mist eliminator plugged or shifted • Velocity too high or too low • Improper pH of scrubbing liquor - inlet concentration too high • Packing plugged or settled
Decreased exhaust volume - exhaust system not venting properly	<ul style="list-style-type: none"> • Check fan - RPM - belts - rotation - fuses • Packing plugged • Mist eliminator and or mesh pad plugged • Dampers closed or broken in closed position • Ductwork plugged with solids • High negative pressure in building • Leaks in ductwork



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