

# Operating Manual

**VacClean™**

Contact Web Cleaning

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### Note:

Installation/testing of the system should only be completed by those suitably qualified.

# VacClean™ System Overview

## Model and Function

The Meech VacClean contact web cleaning system is the ultimate system for removal of high levels of unbonded, dry contamination.

VacClean systems incorporate an enhanced contact cleaning manifold with either an Air Handling Unit (AHUv3) or vacuum fan unit, depending on the installation environment and web width.



Figure 2 - Air Handling Unit



Figure 1 - Fan unit

Meech engineers created the VacClean manifold profile with the following design characteristics:

- Highly polished stainless-steel faceplates which create turbulence to break the boundary layer. The delta profile which is proven to have excellent airflow characteristics, ensuring that removed contamination is efficiently transferred to the system filter.
- A compact web contact point that means VacClean can be installed in areas with restricted space. Twin AC ionising bars, which are angled for an increased ionisation footprint, to neutralise static charges on the web on entry and exit to the manifold.
- Brushes that aid breakup of the boundary layer without contacting the web surface of the surface being cleans.

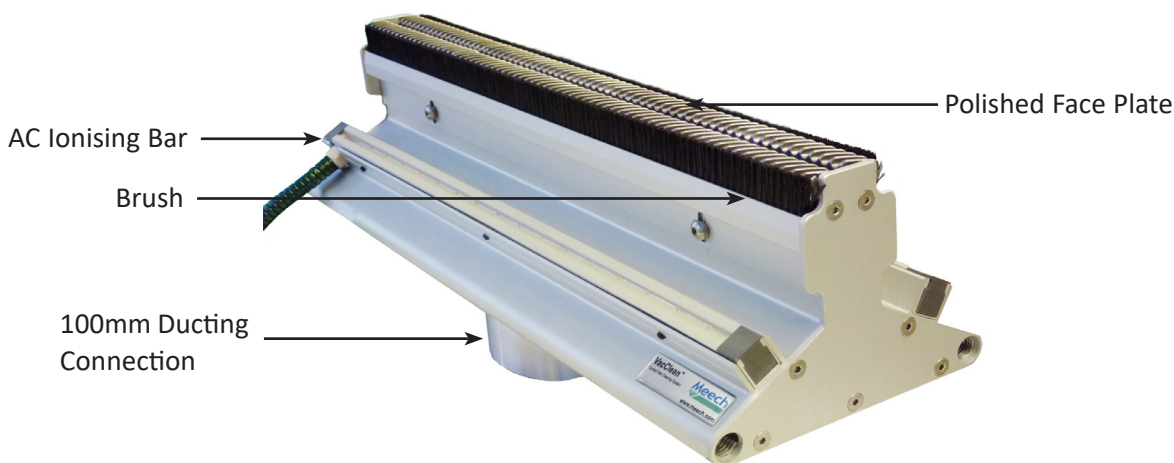


Figure 3 - VacClean Manifold

## How VacClean Works

- The excellent cleaning performance of CyClean is achieved from the combination of the following processes.
- The web passes through a cloud of ionisation which neutralises any static charge present.
- The brushes just contact the surface of the material and break up the boundary layer of air, enabling effective removal of the smallest particles.
- The web then fully contacts two highly polished vacuum faceplates that give complete coverage of the web, creating highly turbulent airflows and concentrating the vacuum to remove contaminants with a very high degree of efficiency.
- As the web leaves VacClean manifold, it passes through a second cloud of ionisation to prevent re-contamination of the web.

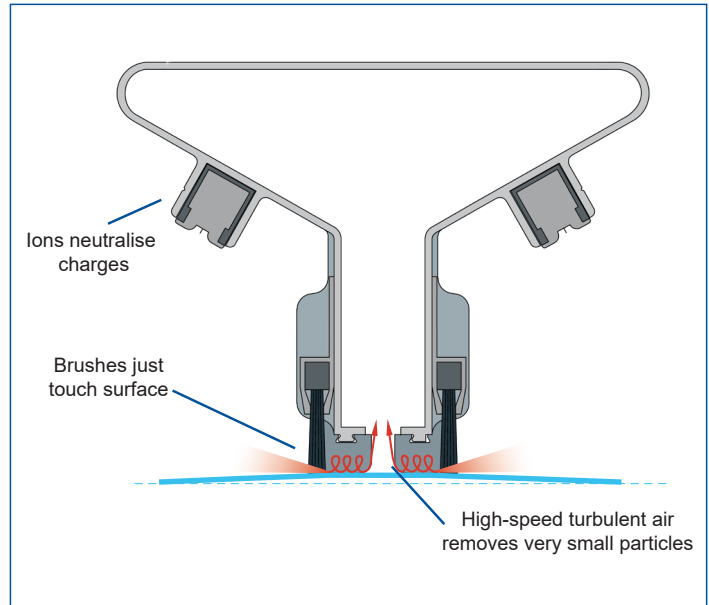


Figure 4 - VacClean Diagram

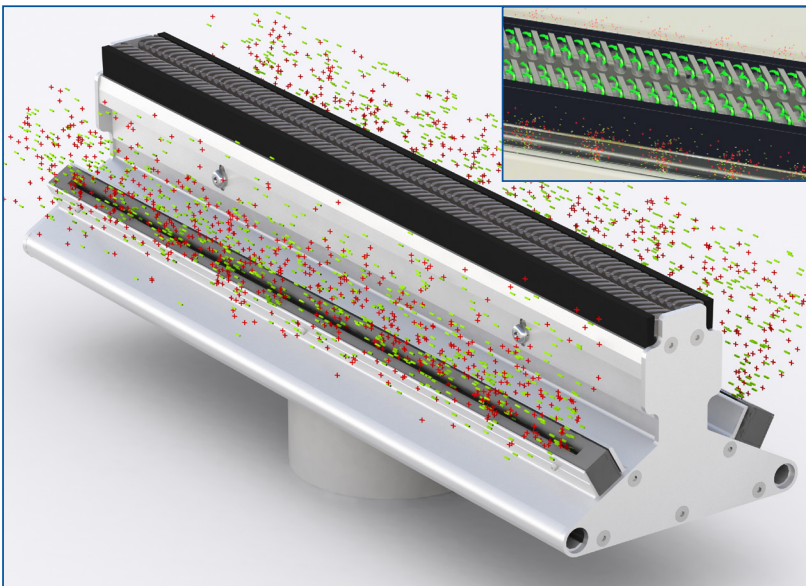


Figure 5 - Cloud of 'Positive' & 'Negative' Ions

## Filtration

Excellent filtration is paramount in any web cleaning system. The VacClean system has the following standard filtration levels:

### System including AHUv3

(Compact or Standard) = F8 grade bag filter. Can be upgraded to a H14 grade HEPA filter.



### System including vacuum fan

5-micron filter bag. Can be upgraded to a 1-micron filter bag.

## Unpacking the System

### CAUTION

Observe correct manual handling procedures when removing the system from the packaging. It is likely that the system will exceed the recommended manual handling limit.

The VacClean will be delivered in a heavy duty wooden packing crate.

On receipt of the system, check the packaging for signs of shipping damage. If found, any damage should immediately be reported to the shipping company, the supplier of the system and Meech directly.

Inside the packing crate check the system for signs of damage. If found, any damage should immediately be reported to the supplier of the system and Meech directly.

Before installation of the system, it is recommended that you clean it to remove any potential packing contamination.



*Figure 6 - Manifold Packing Crate*



## Mechanical Installation

### Positioning of the VacClean head

The VacClean system should be installed in the position that was recommended by your Meech contact. This exact installation location will vary depending on the machine and application requirements.

In general, the VacClean system should be installed as close to the critical process as possible to minimise the potential of re-contaminating the web via air born contamination.

The VacClean manifold/s can be installed on a web travelling at any angle without jeopardising cleaning performance.

- The manifold/s should be installed between rollers (typically no closer than 100mm/4") in an area where the web remains under tension.
- If the system is double sided, the manifolds should be spaced by a minimum of 80mm/3".
- The web must be in free air, i.e. away from rollers, conveyors or the machine bed.

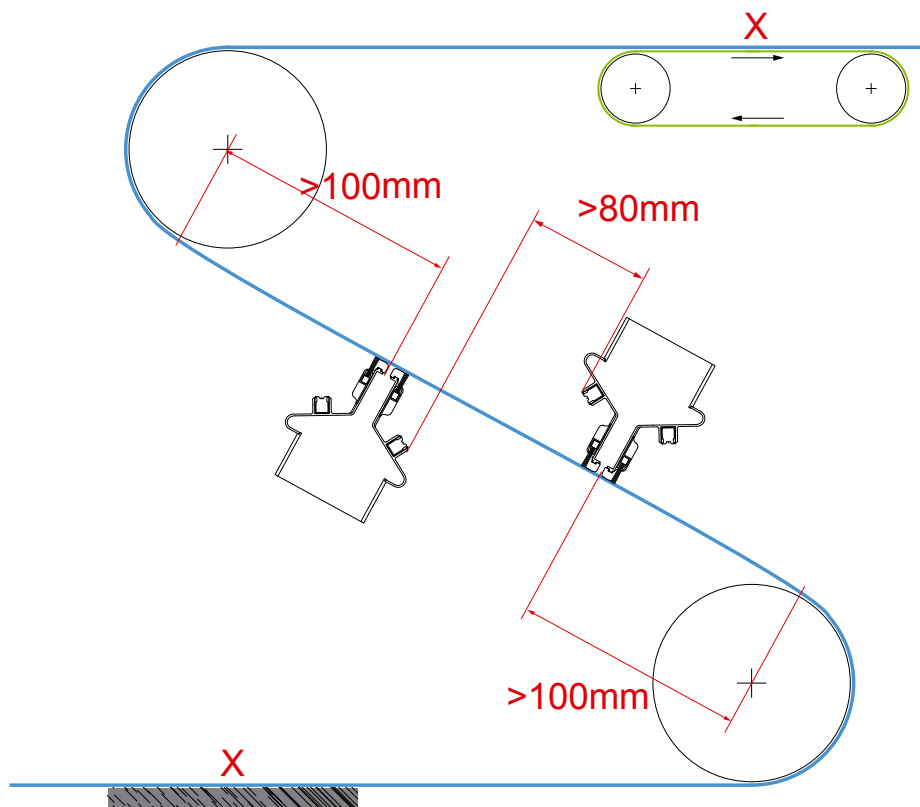


Figure 7 - Positioning of VacClean Manifolds

## Suggested Order of Installation

For ease of installation, it is recommended that the system components be installed in the following order:

- Position and mount the head unit.
- Position and mount the Air Handling Unit or vacuum fan (in free air to avoid overheating and considering the available ducting lengths).
- Make all the electrical connections.
- Connect all ducting.

### System Installation - Mechanical/Electrical

#### **IMPORTANT**

When installing the VacClean system, it should be positioned so that the web passes straight through the system.

#### **IMPORTANT**

Installation of the VacClean system should only be completed by those with suitable qualifications.

### Required Space and Mounting Holes

Please view the drawing section at the end of this manual for GA drawings and mounting hole positions.

## **Air Handling Unit Installation**

There is different kW rating of Air Handling Units supplied dependent on the size of the manifold being purchased

The AHU should be unwrapped and wheeled into position using the casters mounted on the bottom of the unit. When positioned the casters should be locked to prevent the unit from moving.

The AHU should be positioned in a well-ventilated area to avoid overheating and as close to the head unit as possible (max 10mtrs from the head unit unless otherwise advised by Meech).

For full operating instructions of the AHU please refer to the AHU Operating Manual.

## **Air Handling Unit Operation**

When receiving the VacClean System, Air handling Unit which is supplied will be set as standard to 3.0kPa Vacuum Pressure.

If it is required to run at a different pressure, Meech recommend the Vacuum Pressure is no higher than 5.0kPa.

## **VacClean Manifold (Single Sided) from 0-1200mm**

Supplied with 2.2kW Air Handling Unit

## **The Control Interface**

### **Switching On**

The AHUv3 is switched on by first rotating the isolator switch located on the back of the unit in a clockwise direction (fig. 6), and then pressing the "Start" button located on the front touchscreen.

### **Automatic Vacuum Pressure Control**

The AHUv3 features automatic vacuum pressure control. This feature allows the systems to be set up with the required level of vacuum pressure for the application. As the filtration in the AHUv3 becomes progressively blocked, it will automatically increase the fan speed to maintain the preset vacuum pressure level.

## Screen Operation

The AHUv3 is operated by a touch screen interface. The touchscreen has one main home screen that can be used to set and control the system, and there is also access to further information screens that can be accessed without a password. See figure 1 below for the Home screen. 1 2 3 4 5 fig. 7 Shown on the screen are the following:

1. **Vacuum/Pressure Level indicator**

The Vacuum/Pressure Level indicator shows the value achieved by the AHUv3. The arrow points to the 'target' pressure level and the figure and graph represent the actual Vacuum/Pressure achieved. 6 7 8 9 Operation/ Screen operation 12 For systems where both Vacuum and Positive pressure are connected two graphs will be present, and the arrow indicates which one is being set and monitored by the Vacuum/Pressure 'Set' buttons (2)

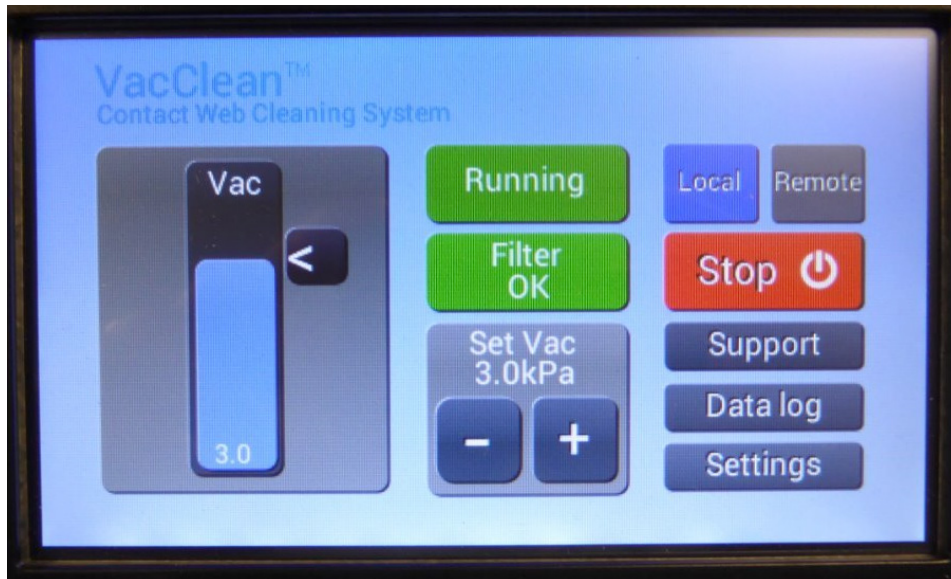


Figure 8 - AHUv3 VacClean Set Up Screen

2. **Vacuum/Pressure target set pressure value and setting buttons**

The '+' and '-' buttons are used to set the Vacuum/Pressure level. The target value is shown in kPa just above the buttons. This is also represented by the arrow shown in the Vacuum/Pressure level indicator.

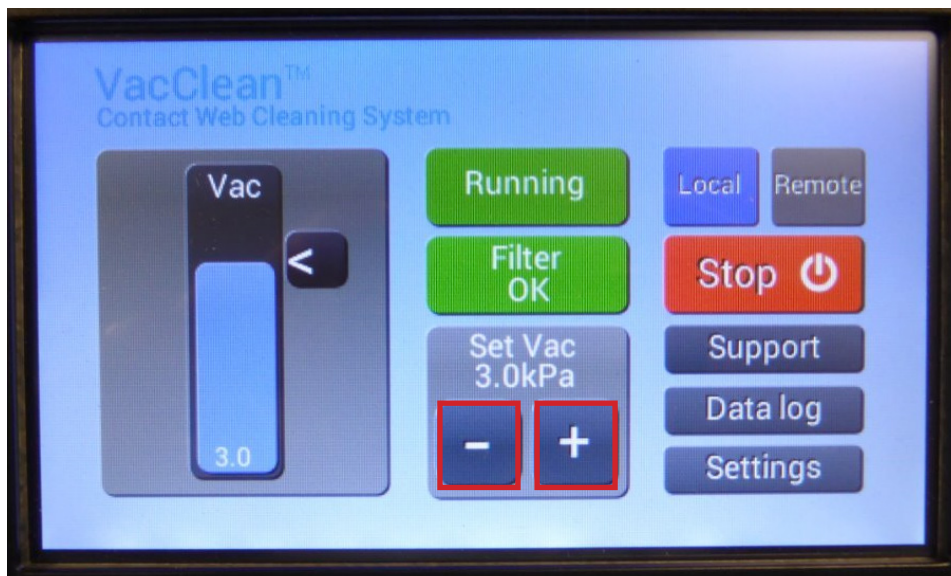


Figure 9 - Setting Pressure Using '+' & '-' Buttons

3. System status indicator

The System status indicator displays if the system is running or stopped. This status can also be accessed via the signal cable.

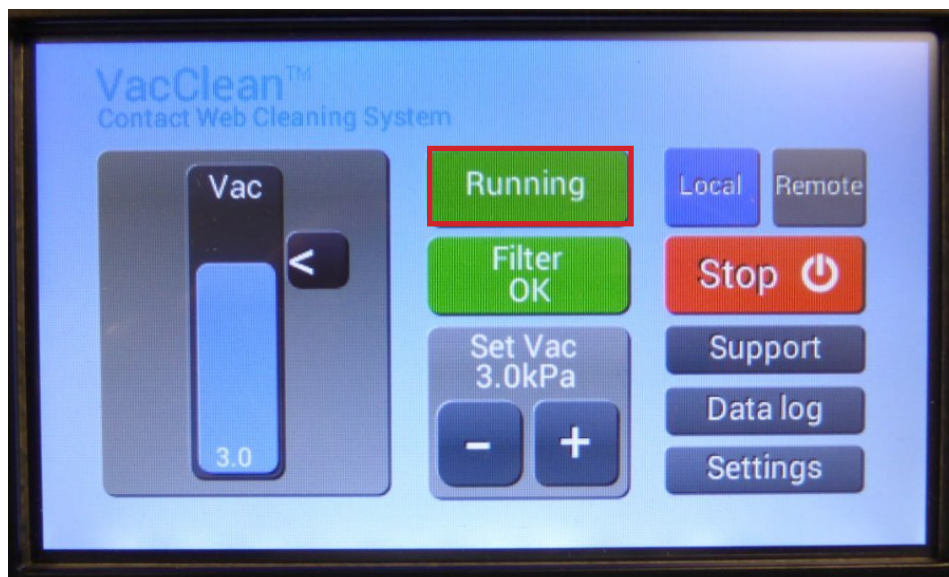


Figure 10 - Screen Running Indicator

4. Filter status indicator

The filter status indicator displays the filter status. When the filter is clean the filter status will be green and display 'Filter OK', when the filter is dirty (but not blocked) the status will turn orange and display 'Filter Dirty'; and when the filter is blocked and will need cleaning or replacing the filter status will turn red and display 'Filter Blocked'. When the filter is blocked this also triggers the filter blocked signal in the signal cable.

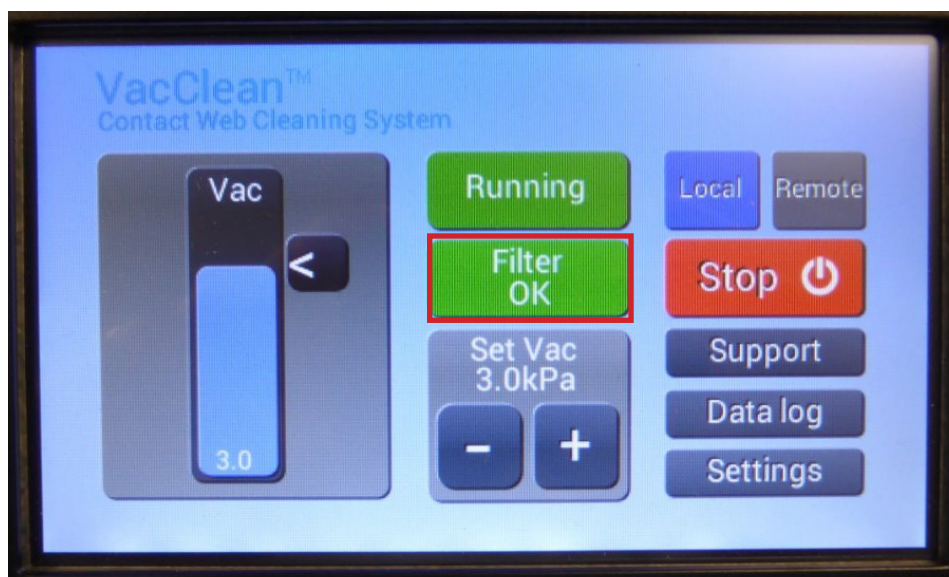


Figure 11 - Filter Signal

5. Local/Remote toggle buttons

The local/remote toggle buttons are used to determine if the system is to be turned on/off using the start/stop button on the screen or if it is to be controlled remotely with the line. When in remote mode the unit will start and stop automatically with the line and the start/stop button will become inactive.

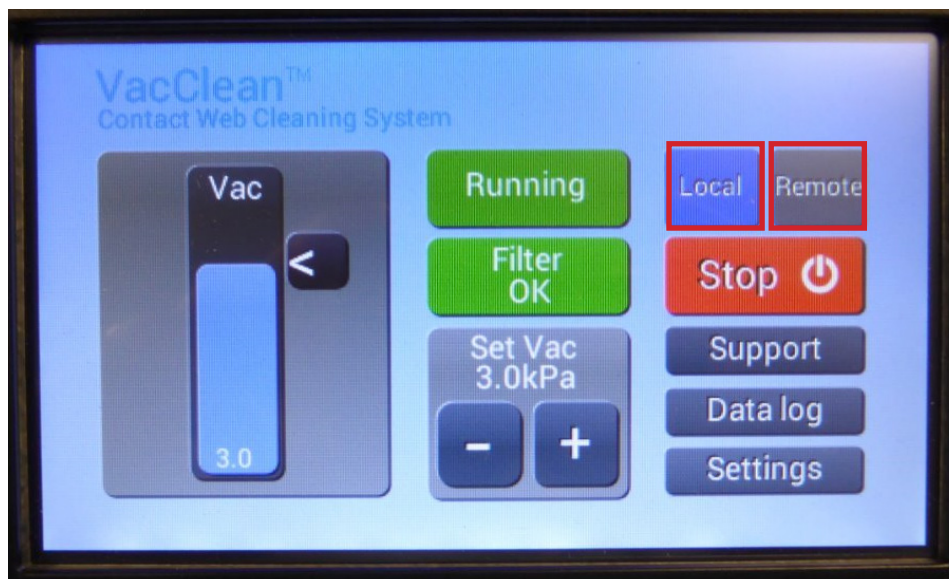


Figure 12 - 'Remote' or 'Local' Mode

6. Start/Stop button

The Start/Stop button is used to start and stop the AHUv3. When controlled remotely from the line these buttons become inactive and can only be used when 'Local' mode is selected.

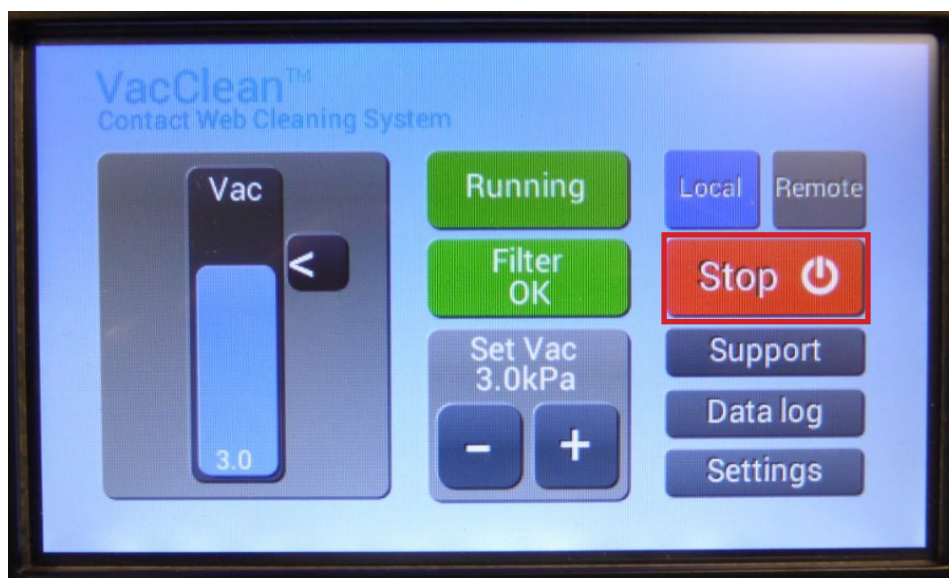


Figure 13 - 'Start/Stop' Button

7. **Support button**  
Contact information can be accessed using the 'Support' button.

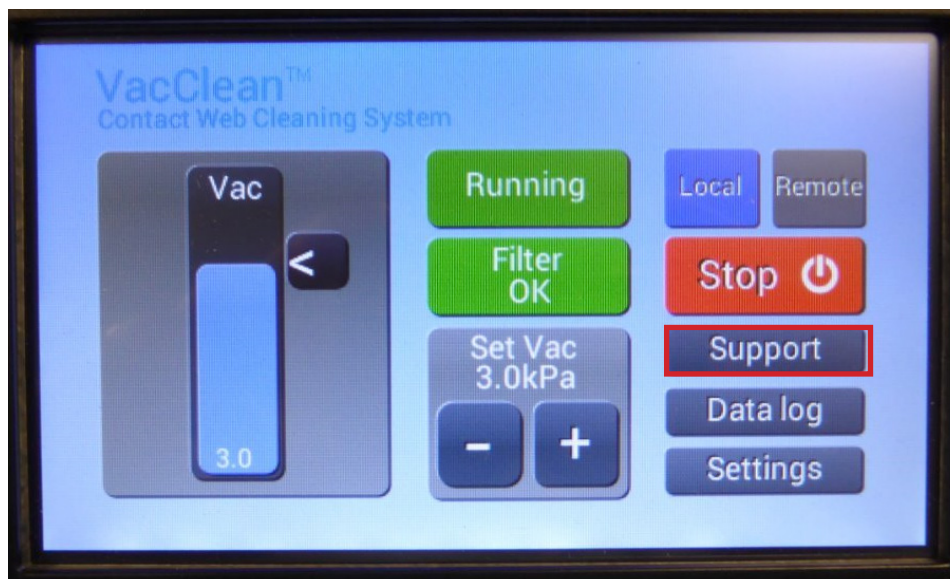


Figure 14 - 'Support' Button

8. **Data log button**  
Total hours run and Filter information can be accessed using the 'Data Log' button

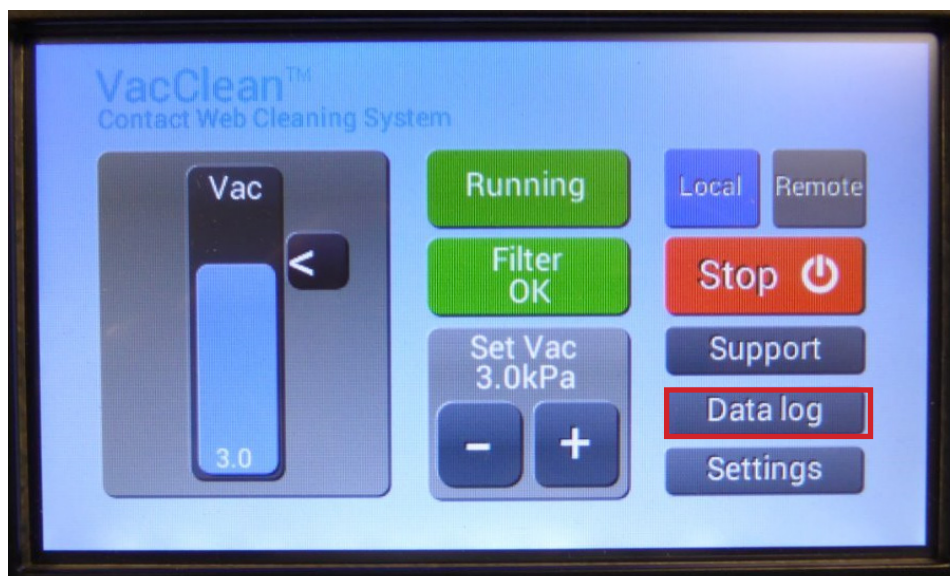


Figure 15 - 'Data Log' Button

9. Settings button

Additional settings can be accessed using the 'Settings' button. This is for use by a Meech Engineer only and is password protected.



Figure 16 - 'Settings' Button

**IMPORTANT**

See AHU Manual for more information



## Maintenance

This section highlights the checks that should be made on the VacClean system and also more in-depth details regarding each component.

The system will perform without serious deterioration, giving many years of service, providing the following visual inspection is made weekly and that a quarterly system inspection is carried out.

### Weekly Visual Inspection

#### Manifold

Check for any external damage and alignment. Wipe over to remove any contamination present. Inspect that the cables from the ionising bars to the ionising power supply are secure, free from damage and that they do not have any tight bends in them. Check inside the VacClean head and remove any contamination present.

In high contamination environments, it is possible for contamination to collect inside the VacClean head. This will need to be blown out/ removed from the head.

#### Vacuum Unit

Listen for any sounds that are not 'normal' i.e., grinding or scraping.

#### Dust Collection Bag

Check the bag for any external damage, i.e. rips. Check to make sure the filter bag is not blocked.

The filter should be monitored for contamination build up that will have a negative effect on the overall system performance.

It is recommended that checking the filter is added to an existing maintenance check procedure and occurs at least weekly.

#### Wiring

Check for loose or Damaged wires. This must be completed by a suitably qualified person.

#### Ducting

Visually inspect the ductwork look for any loose sections or holes. Check to make sure the ducting is not blocked or heavily contaminated inside.

## Ionisation Equipment Maintenance

The system includes 2 styles of ionisation equipment:

- Ionising bars (Model A914: 2-off are housed in the manifold)
- Ionising power supply
- A905-50Hz
- A905-60Hz

Maintenance instructions can be found in the relevant Operation and Maintenance guide in their individual manuals for each unit that is included within the overall system.

## Quarterly System Inspection

For all VacClean customers Meech offers a quarterly inspection service via your local distributor. The inspection includes an evaluation of the performance of the VacClean system, including:

- Air Pressure within the manifolds
- Electrical test of the ionising bars and ionisation power supplies
- Overall visual inspection of the system

Following the inspection visit a full report is provided for each area concerned. For pricing of this service please contact Meech.

## Spare Parts

Meech suggests that the following spare parts are held in stock and is happy to provide a quotation if required:

- F8 Filter Bag

Replacement filters can be purchased via Meech and should be specified to allow the correct volume of air to pass.

Replacement filters can be either disposable or washable – this is typically a user preference issue. When changing the filter media, the AHU/fan unit must be switched off.

- Ionising Bar – to suit VacClean Extrusion Section Model A914- (Length of Extrusion) VC SIDE ENTRY. Overall length with side entry, no mounting studs and specified length cables.

- Ionisation Power Supply Model A905-50 or A905-60

- VacClean Brush

Model ABRUSH-HARD at overall length

Model ABRUSH-SOFT at overall length

## Troubleshooting

If the problem being experienced is not listed above, or the remedy is unclear please contact Meech International directly or your local Meech distributor.

Problem	Cause	Solution
No blowing or vacuum pressure.	Loose duct connection.	Check all ducting connections are secure and that there is no damage.
	Duct layout.	Check the ducting layout to ensure there are no tight bends.
	Fan fault.	Check power to the Fan. Check Fan isn't blocked or damaged internally
	AHU fault.	Check power is connected to AHU and that line interlocks are good (if used). Consult AHU manual for full operating instructions.
	Removable panel of ducting manifold is not connected fully	Visually check the duct manifold and feel for air flow. Re-fit removable panel.
No ionisation.	Various.	See the Meech fault finding guide for the Meech Model A905 ionising power supply and A914 AC ionising bars, which can be downloaded directly from the Meech website at <a href="http://www.meech.com">www.meech.com</a>

# Declaration of Conformity



Equipment  
**VacClean™**  
**Cleaning System**



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## Applicable Harmonised standards

LVD. EN 61010-1:2010

EMCD. EN 61000-6-4:2001  
EN 61000-6-2:1999

EN 292-1  
EN 292-2  
EN 294  
EN 50081-2  
EN 61024-1  
EN 60204-1  
EN 954  
EN 62061  
EN 418

## EC Council Directives

Low Voltage Directive  
2006/95/EC (Technical File)

Electromagnetic Compatibility Directive  
2004/108/EC (Technical File)

Machinery Directive 89/392 as amended by the EC Directives 91/368 and 93/44 and 93/68.

On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

.....  
Ian Walker, Engineering Manager.





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