Operating Manual

March 2018

IonWash™

The revolutionary component cleaning system

Contents

IonWash™ System Overview

The Meech IonWash nozzle cleaning system is designed to remove dry un-bonded contamination from components.

The IonWash™ incorporates specially designed Meech adjustable ionising nozzles which direct the ionisation and air flow at multiple surfaces of the components to blow the contamination from the surface and trap the contamination in a two stage filtration.

Meech has designed the IonWash to provide the following user advantages:

- Multi-directional ionising nozzles – achieves total ionising airflow coverage of complex components.
- Programmable cycle time – the cycle time can be programmed through a password protected screen, which means IonWash™ can be set to provide the optimum level of contamination removal.
- Extraction – by extracting contamination from the cleaning area, the cleaning efficiency is enhanced as the potential for re-contamination is reduced.
- Auto doors – the doors to the cleaning chamber open and close automatically at the start and end of each cleaning cycle. This means the operator cannot remove the parts before the end of the cycle, ensuring cleaning efficiency is optimised and consistent.
- Fan powered – low running cost and low noise level (no expensive compressed air).
- High quality filtration – the system can be supplied with HEPA or ULPA filter media.
- Filter condition monitoring – the condition of the filter media is monitored and the operator is alerted when it needs to be changed, thus maximising the filter's efficiency.
- Automatic Pressure Control – ensures a consistent level of cleaning is achieved for the full filter life, resulting in a consistent end product.

Correct use of an IonWash System

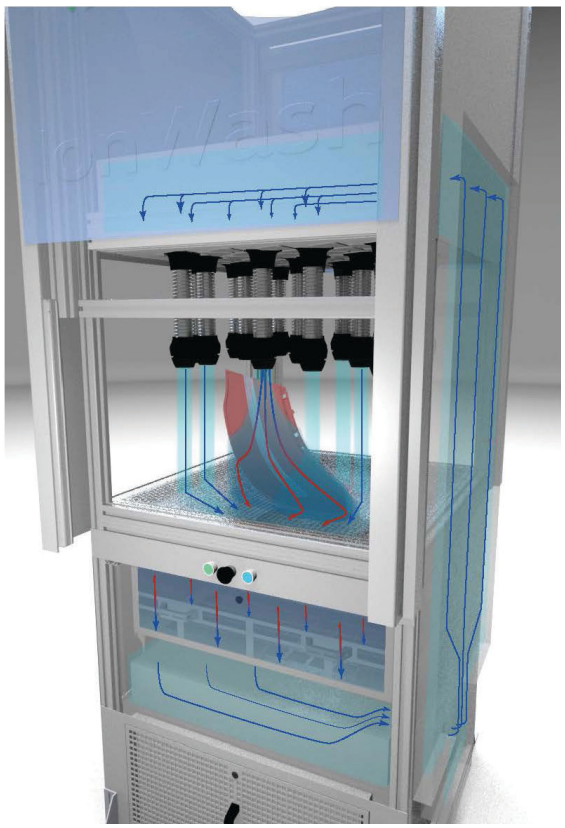
Meech IonWash component cleaning systems should only be used in installations which they are designed for.

If the IonWash is used in any other way than instructed in this manual, it will be considered as improper use.

How IonWash Works

The unrivalled cleaning performance of IonWash™ is the result of four critical processes:

1. Powerful ionisation within the nozzles allow static charges on the components to be neutralised, thus loosening the contaminants.
2. High volume (blown) air simultaneously flows through the multi-directional nozzles, towards the component, removing the contamination.
3. High Volume Negative (vacuum) air then pulls the contamination into the vacuum chamber/filter media. Meech designed the IonWash with the ability to provide instant high volume (blown) air and high volume negative (vacuum) air, allowing the cycle time to be reduced
4. Intelligent systems allow ionisation and air flow to be monitored. If any problems occur, the system will alarm, informing the operator. This ensures that thorough cleaning can be maintained and the IonWash™ can continue working to its full potential.

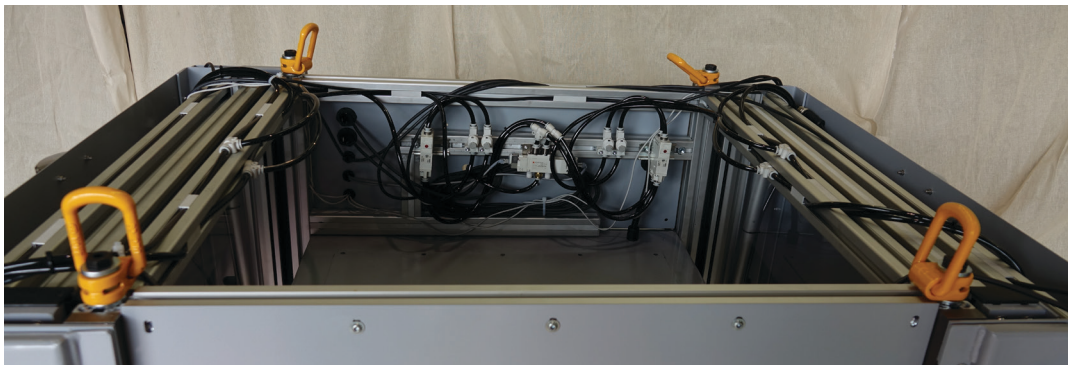


Unpacking the IonWash

The IonWash will be delivered in a wooden crate, inspect the crate for any damage. If any damage is found photograph and report straight to Meech.

One of the sides will be clearly marked to be removed first, once this side is removed then all subsequent sides and lid should be easy to remove.

Once all of the exterior sides have been removed the IonWash can be unscrewed from the crate base. There are 4 lifting points that will need to be used to remove the IonWash from the crate base, it is advised that this is only done when the IonWash is in its final location.



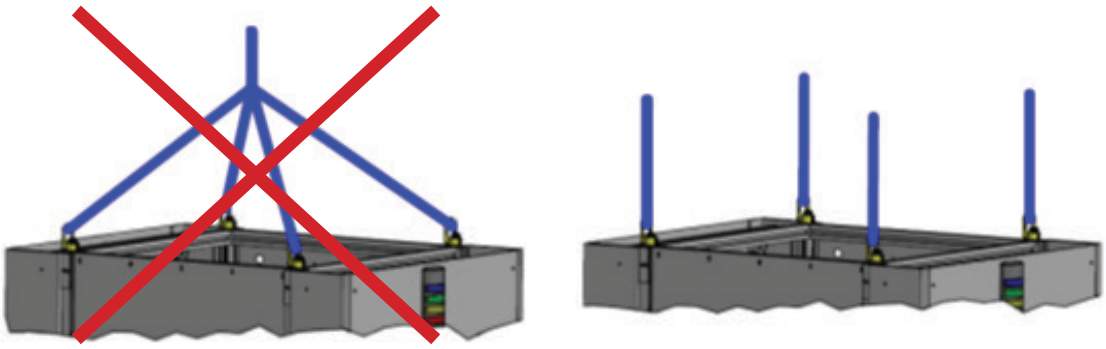
When the IonWash is in position the Lifting points can be removed and stored.

Positioning of the IonWash

The IonWash is delivered in a crate on a strong pallet style base, this base should be used to move the IonWash around until it is in its correct position.

The 4 lifting points (one in each corner) should be used to lift the IonWash off of the base when it is located in the correct position.

CAUTION: Connect to each lifting point individually and lift evenly on all points. If lifted incorrectly damage can be caused to the IonWash.



Electrical Installation

The IonWash™ is designed for use with a range of supply voltages

Voltages higher than 235V 3-Phase (Phase-Phase)

For installations where the 3-Phase supply voltage is higher than 235V (phase to phase) the IonWash™ must be run with a neutral supply to ensure that the blowers do not fail beyond repair. If a neutral supply is not available an additional transformer will be required, the spec of this transformer is under the section 'Electrical Delta-Star Transformer'.

For this voltage, the wiring inside the IonWash™ will be pre-set by Meech in 'Star' configuration which ensures that the neutral connection is connected to the pumps internally. See Wiring diagrams at the rear of this manual for the diagram showing the 'Star' configuration IonWash™ internal wiring.

Voltages lower than 235V 3-Phase (Phase-Phase)

For installations where the 3-Phase supply voltage is below 235V (phase to phase) a neutral supply is optional providing that the IonWash™ has been pre-set by Meech in 'Delta' configuration.

For this voltage, the wiring inside the IonWash™ will be pre-set by Meech in 'Delta' configuration which enables the IonWash™ to run without a neutral. See wiring diagrams at the rear of this manual for diagram showing the 'Delta' configuration IonWash™ internal wiring.

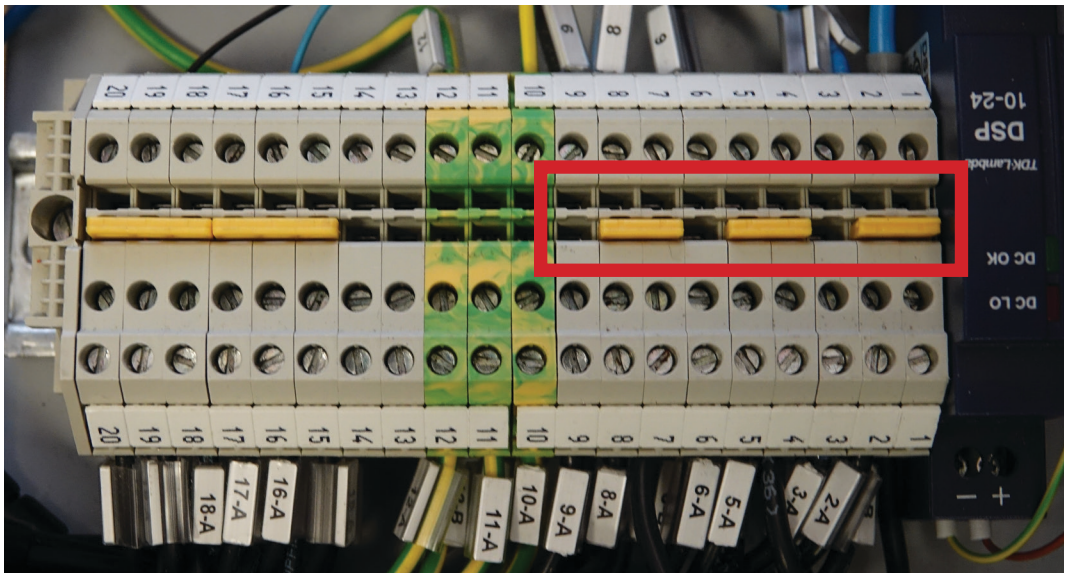
It is critical that the IonWash™ is run with the correct wiring configuration to match the supply voltage – if not this will result in the pumps failing beyond repair.

IonWash™ Voltage Setup Checks

CAUTION: Dangerous voltages exist in the IonWash. Ensure mains supply is isolated before opening the unit and that all covers are refitted before operating

To check the wiring configuration prior to turning on the IonWash™, the following 2 checks can be made to ensure the IonWash™ supplied matches the supply voltage.

1. The correct corresponding wiring diagram is included inside the electrical door of the IonWash™ and states which wiring it is configured to.
2. Physically check the position of the yellow, 2-way jumpers located in the terminal blocks match that in the corresponding wiring diagram. See figure below showing the location of the terminals.



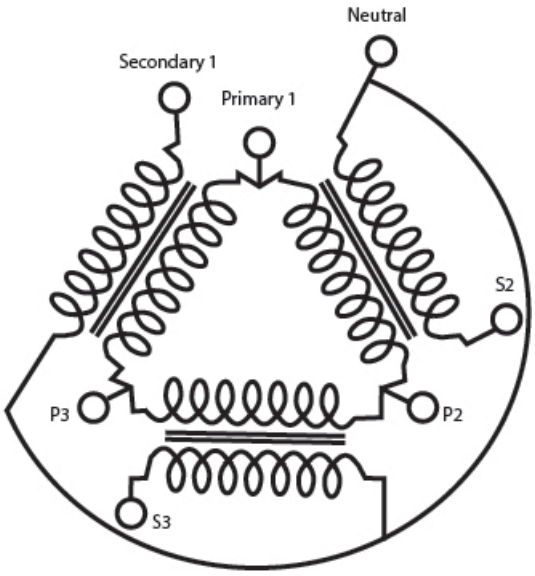
CAUTION

1. **The unit is designed for 3 Phase + neutral + ground. Variable voltage between 200V and 400V (440V = absolute maximum including voltage fluctuations).**
2. **At voltages, higher than 235V 3Phase (Phase – Phase) the unit MUST be internally wired using the star connection, and a Neutral supply MUST be connected to the IonWash™. Failure to do so will damage the pumps beyond repair and will invalidate warranty.**
3. **At voltages below 235V, neutral is optional provided the internal delta connection is used.**
4. **The mains power must not be turned on more frequently than once a minute, as this will damage the internal blowers beyond repair. When interlocking with the line, the unit must not be interlocked by supplying power to the IonWash™**

Electrical Delta-Star Transformer

For 3 phase voltages higher then 235V (phase-phase) the IonWash™ requires a 3-phase electrical supply with neutral.

For installations where a neutral connection is not available, a delta-star transformer can be used to provide the neutral connection as shown in the diagram below.

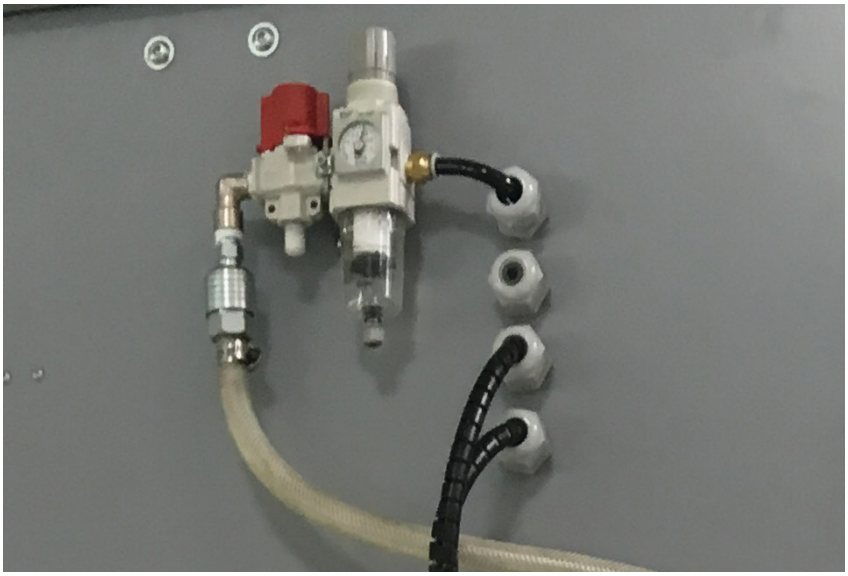


The electrical specification of the transformer is as follows (where XX is the input voltage):

- 3-Phase 5kVA transformer IP21 enclosed
- Primary XXV delta connected c/w +/-10% tappings
- Secondary XXV star + neutral connected c/w +/- 10% tappings
- Neutral terminal to be double rated
- Dimensions: 480mmH x 438mmW (including fixing flange) x 334mmD
- Weight: 65kg

Pneumatic Installation

The Pneumatics in the IonWash only controls the movement of the moving doors. The main connection into the IonWash is located at the rear of the IonWash on the top section.



The compressed air supply needs to be:

- Connected through the regulator
- Clean and Dry supply
- Between 4-6 Bar (60-90psi)

The connection supplied is a 6mm air fitting, if the fitting is removed a ¼" BSP thread is in the regulator. This allows the customer standard tube to be connected through a customer supplied fitting.

The regulator will be locked at a maximum pressure of 6 bar. This can be unlocked with the supplied keys found in the Electrical compartment.

Speed Control Valves

The IonWash will be delivered with the doors running at an appropriate speed. Each door has 2 individual speed control valves which control the movement speed of the doors.

If the requirement for the doors to move faster or slower then these valves can be adjusted. THE MAX SPEED SETTING OF 8 SHOULD NOT BE EXCEEDED.

As the doors use two pneumatic cylinders they both need to be adjusted to the same setting before the doors are moved again. If they are not set correctly to the same setting then the cylinders could bend or the doors could get jammed.

The standard settings the IonWash will be sent out set to are 1 on both of the control valves for the lowering of the doors and 4.5/5 on the speed control valves that control the raising of the doors.

Please see the picture below.

Reed Switches

The reed switches are located on one cylinder per door (top and bottom), these 4 reed switches are used to locate the doors at all times. These should not be adjusted at any point unless advised by the troubleshooting guide or by a Meech Engineer.

Resetting the doors to the top

For shipping the doors are located in the down position. To return the doors to the top the IonWash will need to be turned on and the pneumatics connected. Once this is done the Blue Reset button on the IonWash can be pressed and the doors will return to the top.

CAUTION: As soon as the reset button is pressed the doors will return to the top, make sure there is nothing obstructing the door movement and everyone is clear of the IonWash before pressing the Reset button.

Nozzle Installation

The nozzles will be located as requested when the IonWash was ordered, this will be dependent on the component that is being cleaned.

IonWash is supplied with 16 nozzles. However there is the ability for the nozzles to be located in 40 different positions. The location and angle of the nozzles will depend on the component shape.

If after testing it is found that the nozzles need to be relocated, please follow the below relocation guide. If for any reason 16 nozzles are not required then they can be blanked off and less nozzles used. The maximum number of nozzles is 20.

How to relocate or remove the nozzles

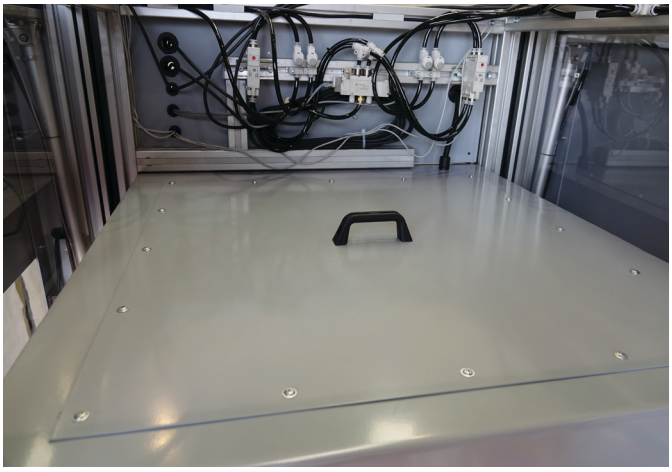
The nozzles should be located as requested at the point of order. However, if for any reason they need to be moved then the following guide will help with the relocation.

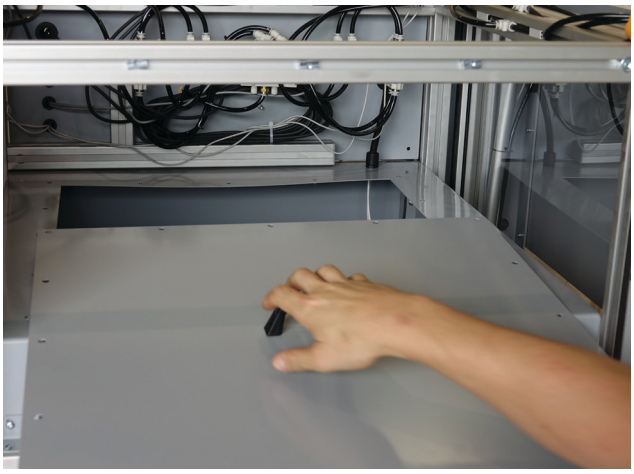
Note: this should only be done by a trained engineer or under supervision from a Meech Engineer or Distributor.

CAUTION: before changing the nozzle location, Turn off the supply to the electrical supply to the IonWash.

1. Remove the top access panel (8 screws) at the top on the front of the IonWash, this does not have to be done if the engineer is able to work at height.

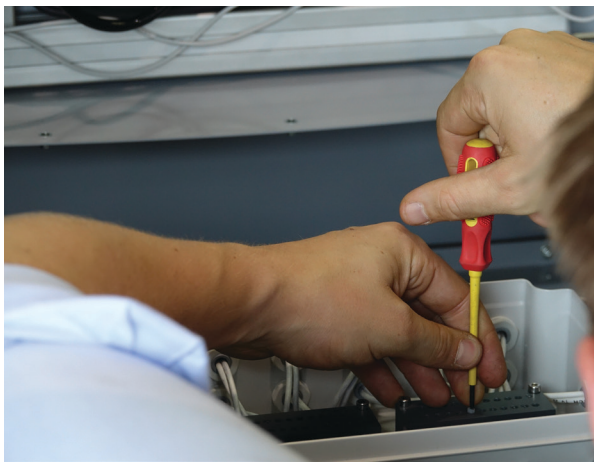
2. Remove the lid from the top of the positive compartment, when the lid is removed the nozzle splitter box will be in the middle of the positive compartment.



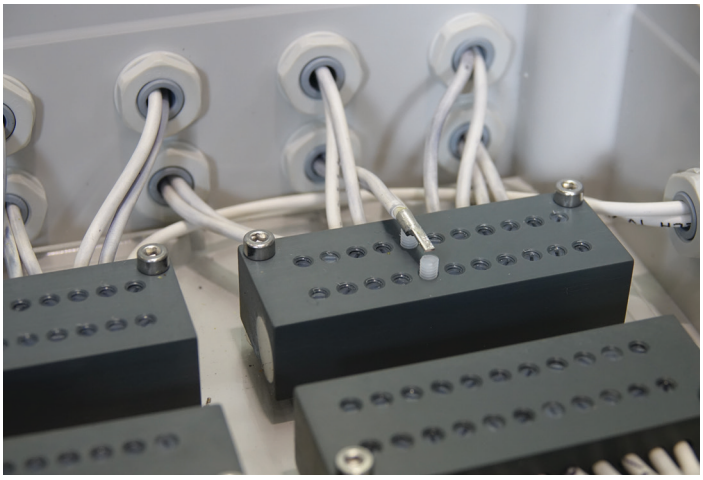


3. Each individual nozzle is numbered, this number corresponds to the numbering in the splitter box. To remove a nozzle first you need to take note of the number you would like to change. Then the cables can be removed from the splitters by loosening the grub screws in the splitters. The cable gland will also need to be loosened so the cables can be removed.

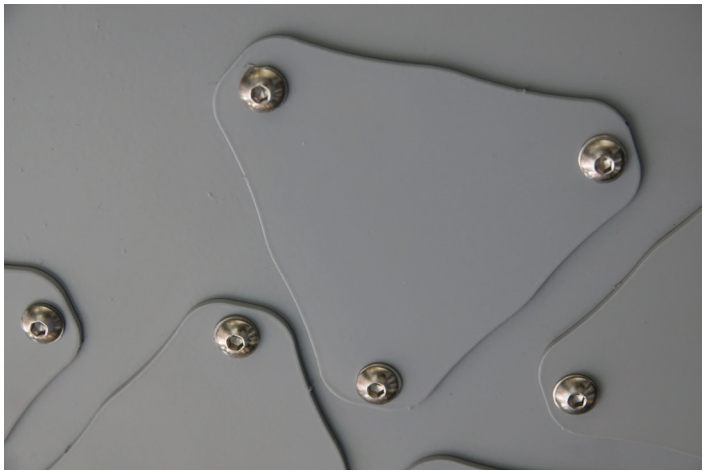
Both positive and negative cables will need to be removed for the nozzle to change location. The lid has a splitter sheet which shows where the cables are located.



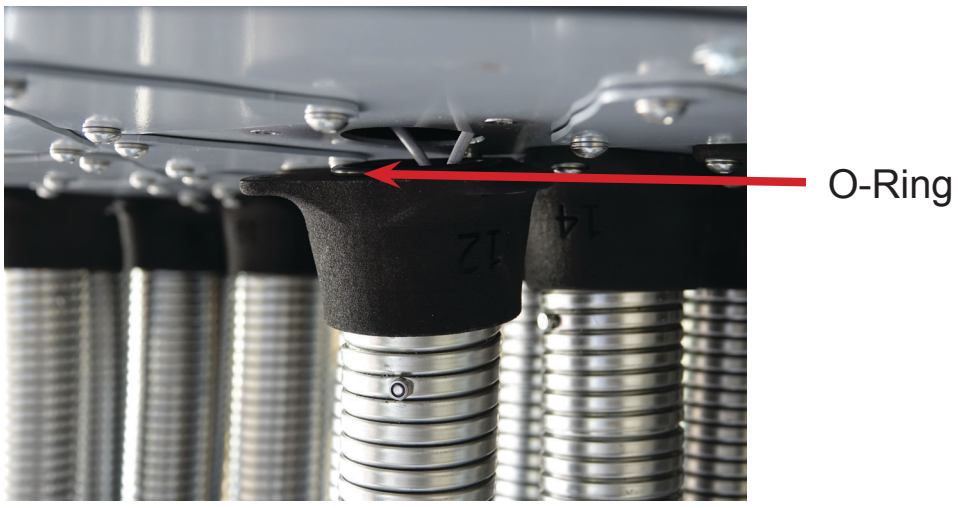
4. Once the cables are removed from the splitter box the nozzles can be unscrewed from nozzle plate. Once unscrewed the nozzle can be relocated to the position it is required in.



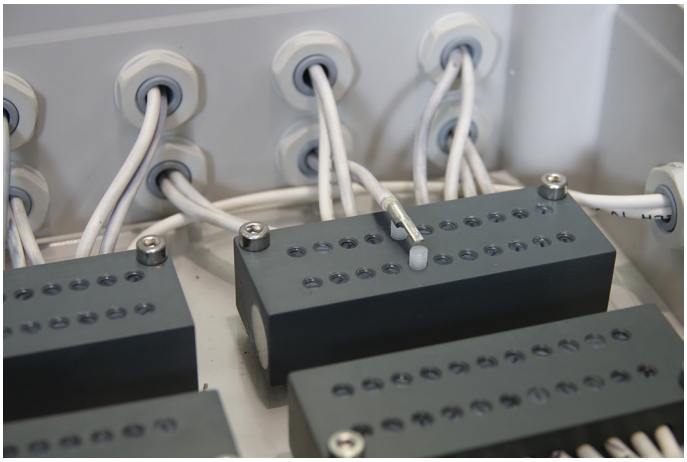
5. The blanking plate will need to be removed from the location where the nozzle is required and moved to the location the nozzle was removed from.

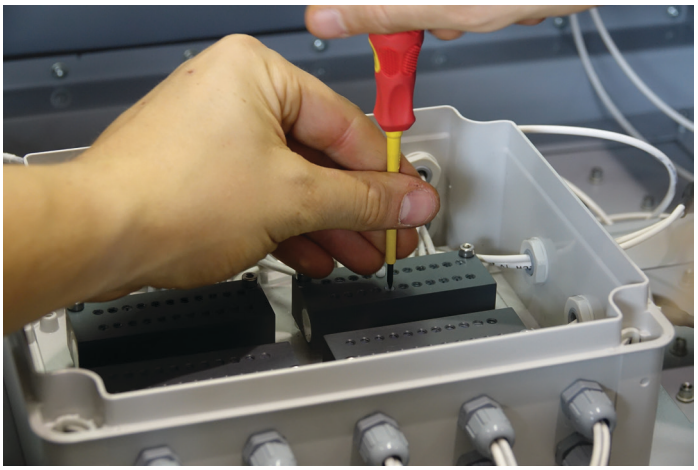


6. The cables can then be fed through the hole and the nozzle located in its new position, make sure the O-ring is seated correctly before tightening the nozzle to the plate.

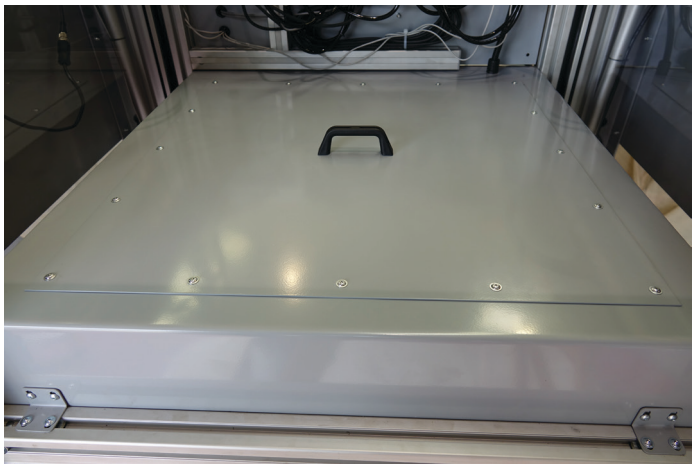


7. The positive and negative cables can then be fed back into the splitter box and then re-attached in to the splitters. Make sure the grub screws are not over tightened and the cable is fully seated into the splitter, the cable should be orientated as the picture below shows with the protruding tab on top.





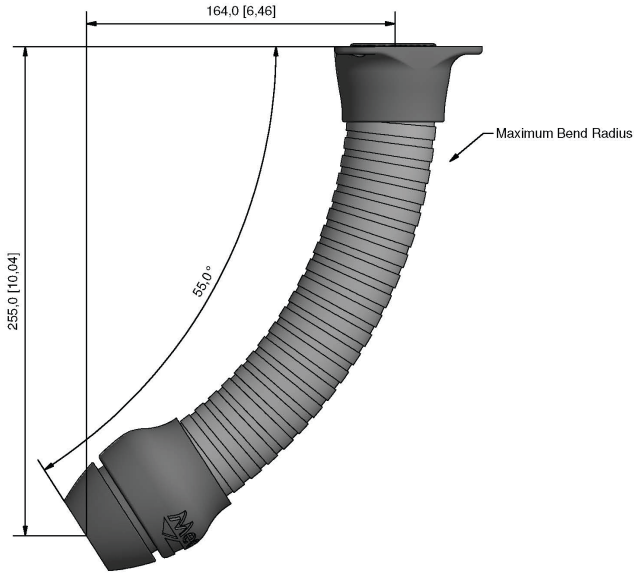
8. Replace all of the lids and access panels as they were.

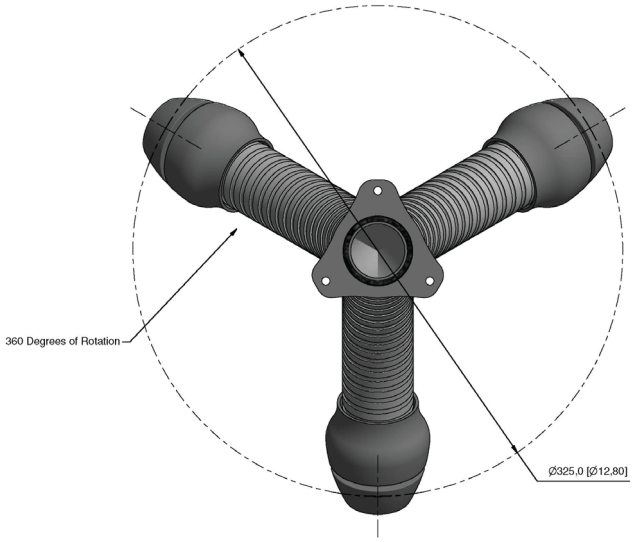


If there are any issues or questions please stop and get in contact with a Meech Engineer.

Positioning the Nozzles

Once the nozzles are located where they are required to clean the components they can then be bent to provide closer and more directional flow of air towards specific areas of the component being cleaned. The diagram shows how far they are able to bend.





CAUTION: If the nozzles are moved and bent too far they can be damaged

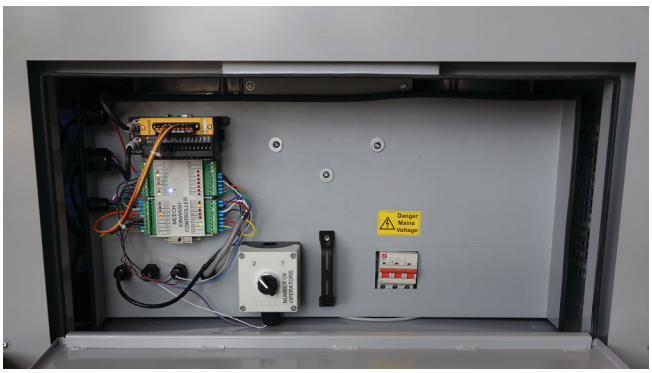
Operating the IonWash

Isolater Location

The Isolator switch is located on the rear of the IonWash at the bottom. This will need to be switch on for the system to turn on.

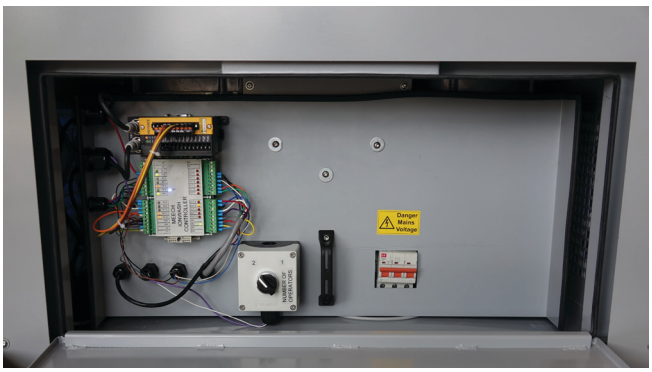
Circuit Breaker Position

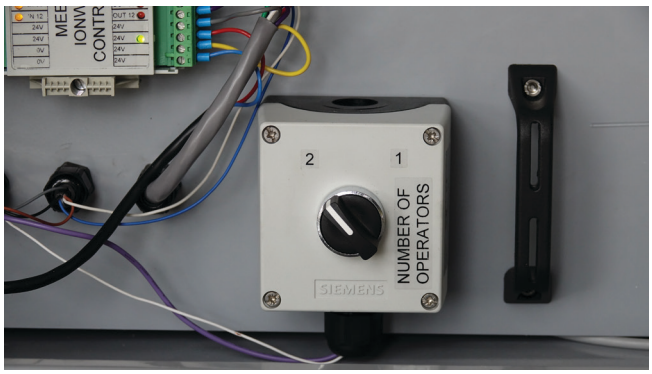
The Circuit breaker is located in the locked electrical compartment in the lower section of the IonWash. The breakers will trip if there is a surge of power or something has been damaged electrically.



Mode Selection

The IonWash has two main modes in which it can be used, 1 and 2 operators. When the IonWash is on the one operator mode the cycle is triggered by only one of the start buttons. Whereas when the IonWash is in 2 operator's mode the IonWash requires both start buttons to be pressed before the cycle starts.





The IonWash will be delivered with it in 2 operators mode. If the mode needs to be changed then the switch is located in the electrical compartment. The black flick switch will need to be moved from 2 to 1, this will put the IonWash into one operator mode.

CAUTION: Isolator should be off when entering the Electrical compartment

Note: This should not be changed without first consulting the Production supervisor.

Even in one operator mode the safety light curtains can be triggered on either side if anything blocks the light beams next to the doors when they are in operation.

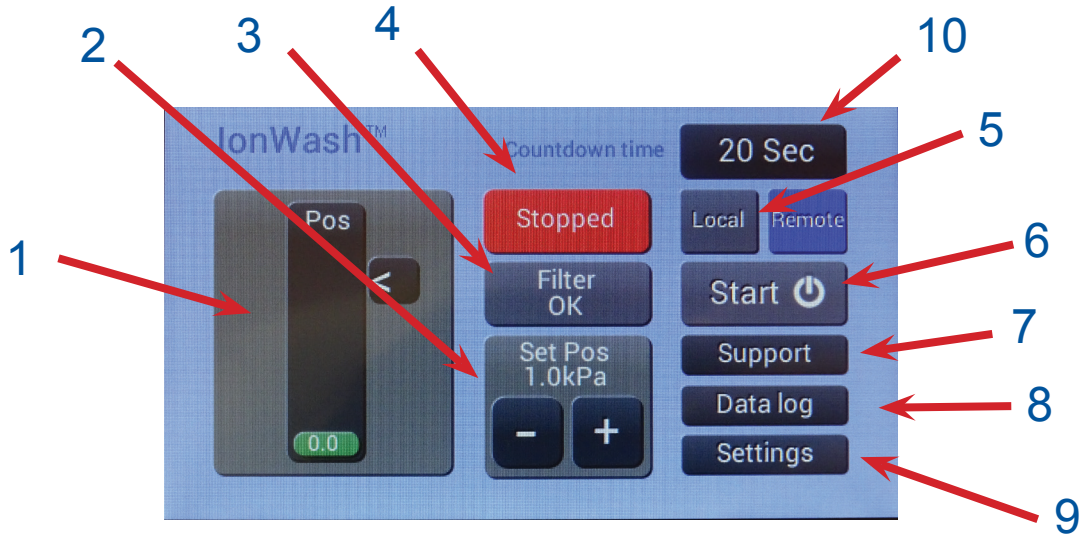
Touch Screen Control Panel

The Screen is located on the left side of the IonWash on the same side as the 977CM.

Touch Screen Control Panel Operation

The touch screen controls how long the cycle time is and also the pressures and condition of the filter bag.

What the screen shows and how it operates is marked on the images below.



1. Positive Pressure Indicator

The Pressure Level Indicator shows the value achieved by the IonWash, the arrow points to the ‘target’ pressure level, the figure and graph represent the actual pressure achieved

2. Positive pressure target set pressure value and setting buttons

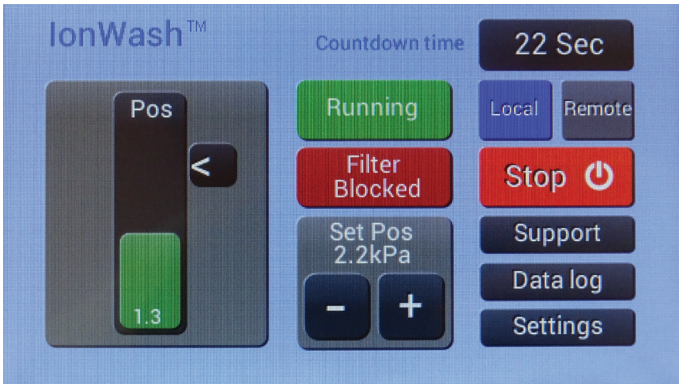
The '+' and '-' buttons are used to set the Positive Pressure level. The target value is shown in kPa just above the buttons. This is also represented by the arrow shown in the Positive Pressure level indicator

3. System Status Indicator

The System status indicator displays if the system is running or stopped.

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'.



5. Local/Remote toggle buttons

The Local and Remote buttons are used to switch between the screen controlling the pumps or the manual push buttons controlling the whole IonWash.

For standard operation, the IonWash needs to be in Local mode.

For cleaning/maintenance cycles and testing the screen can be placed in to local mode which will allow the pumps to run without the doors coming down.

6. Start/Stop button

The Start/Stop button is only used to start and stop the IonWash pumps when the IonWash is in Local mode. When the IonWash is in standard operation these buttons do not need to be used.

7. Support button

Contact information can be accessed using the ‘Support’ button

8. Data Log button

Total hours run and Filter information can be accessed using the ‘Data Log’ button

9. Settings button

Additional settings can be accessed using he ‘Settings’ button. This is also where the setting for the Cycle/ Countdown time is located. This page is password protected and can only be accessed by Meech personnel or management staff.

10. Countdown Time

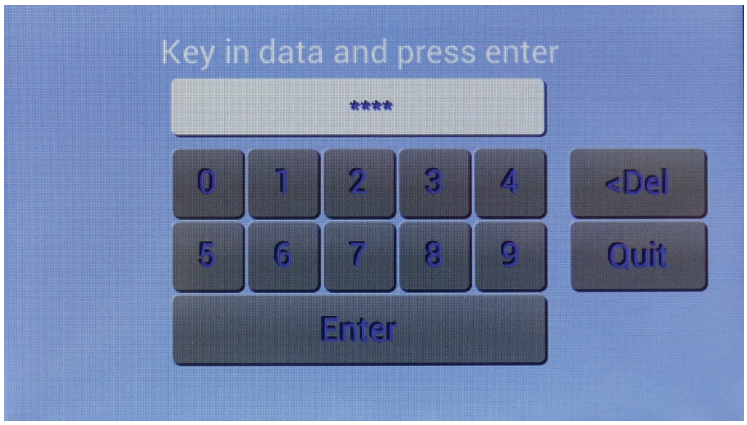
The count down time is a visual display of how long the IonWash will run for per cycle, this can be changed as per the customer requirements.

Adjusting the countdown time

To Adjust the count down time the following steps will need to be followed:

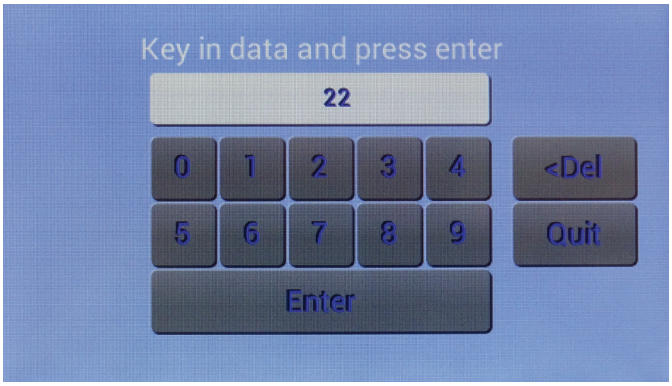
1. Press ‘Settings’ button on the screen (highlighted with red box)

2. The next screen that appears will be a password screen, the password will need to be entered before pressing enter. The password will be given to the production manager. If for any reason the password is required it can be provided by Meech.



3. Once the password has been entered you will see a screen as below, to modify the countdown time (cycle time) the number button next to run time will need to be pressed. This will bring up another screen.

4. The time in seconds can then be entered into the screen and the enter button pressed, this will change the countdown time.



5. Press ‘Back’ to return to the main screen where the new countdown time will be shown. The IonWash will now run for as long as has been requested (in this example 22 seconds)

977CM Pulsed DC Controller

The Model 977CM Pulsed DC controller is integrated into the IonWash system and is designed to power the DC ioniser contained within the IonWash nozzles.

The unit is mains powered with an in-built switchmode power supply to allow its use on all mains voltages and frequencies. Display is via a LCD panel with adjustment made by 4 push buttons.

The Pulsed DC output has a maximum voltage of +/- 12 kV and a frequency range of 1 to 20 Hz. Output balance is adjustable from 80%/20% positive/ negative to 20% / 80% positive/negative.

In-built current monitoring maintains optimum ion output by adjusting the output voltage to counteract the effects of dirt build-up on attached ionising bars and/or nozzles.

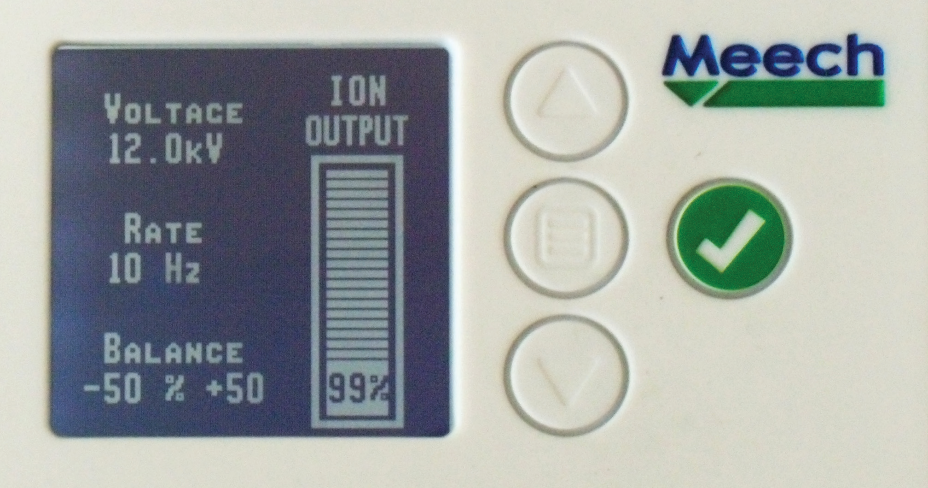
Audible visual and remote alarms alert operators to the need to clean the ionisers. Analogue outputs enable logging of system performance.

A software lock allows the front panel controls to be locked to prevent unauthorised adjustment of the ionising system.

Features

Display

In normal operation the LCD display will look similar to the following:



The information displayed is:

1. Power: Peak momentary output voltage in kV. This value is controlled automatically and will increase and decrease as the system maintains maximum performance.
2. Rate: Frequency of the output in Hz. The output frequency is operator set according to the type of installation and the ionising equipment connected to the 977CM.
3. Balance: Balance of the Positive and Negative outputs in Percent. The balance can be biased to positive or negative to give the most accurate neutralisation.
4. Ion Output: Graphical display of system performance with percentage value.

Controls

Four buttons control the 977CM:

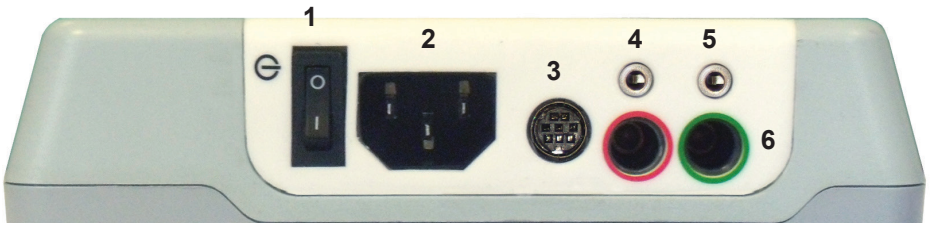
Up: Moves the cursor up and increases numerical values

Menu: Enters and exits the main system menu

Down: Moves the cursor down and decreases numerical values

Tick: Accepts and stores the displayed value

Connections



1. Mains On/Off Switch
2. Mains Inlet Socket. IEC-C13
3. Output Signals. 8 Way Mini DIN
4. Remote On/Off. 3.5mm Jack Socket
5. Feedback Sensor Bar inlet. 2.5mm Jack Socket
6. Positive and Negative HT Outputs.

Operation

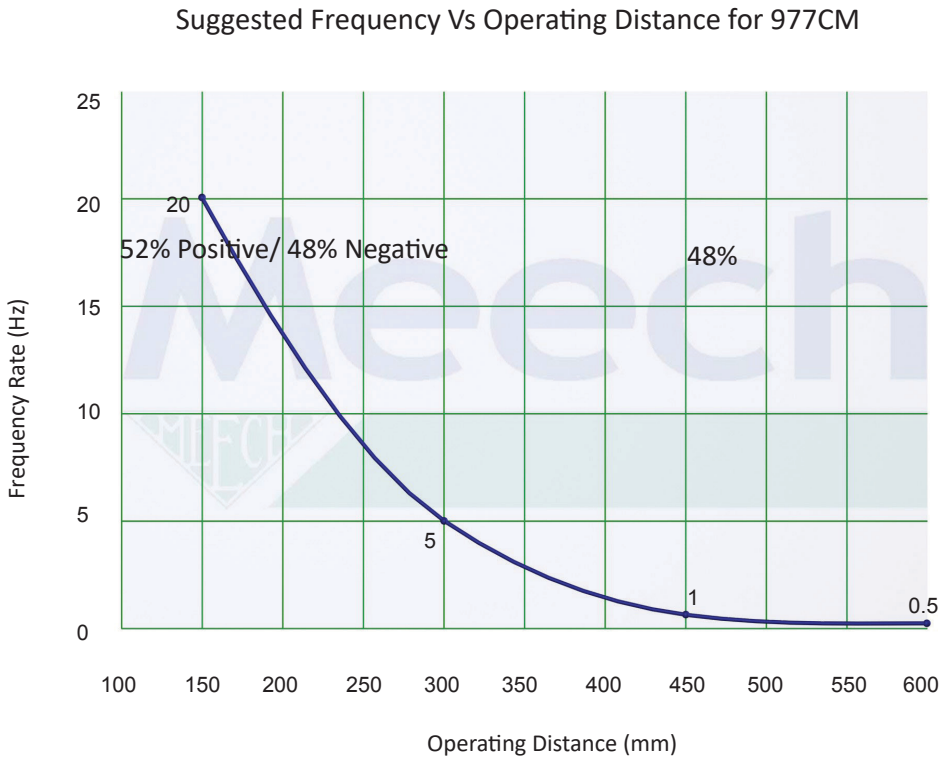
Getting Started

On first use, the 977CM needs to be configured to suit the type of application. This includes basic settings of the Rate and Balance as well as alarm functionality and the lock option.

Setting the Rate

The 977CM features a variable output frequency. The frequency that should be set depends on the distance to the target object.

For best operation at long distance a slow rate should be set. Conversely at short range, select a fast rate. An approximate guide is as follows:

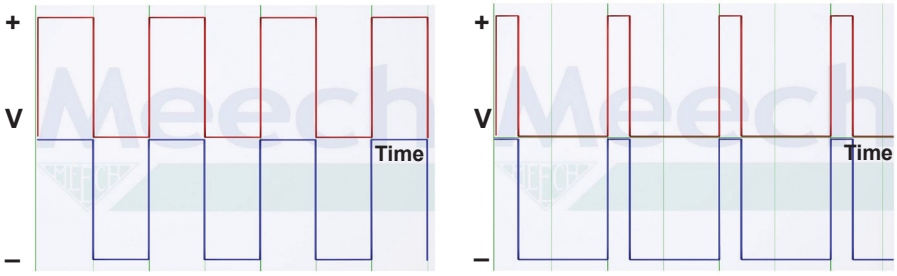


To set the rate

1. Press  to enter menu
2. Use  and  to select option 2 “Rate”
3. Use  and  to set the required value.
4. Press  to accept value.

Setting the Balance

The output of the 977CM can be biased to negative or positive. The adjustment changes the percentage of time that each HT output is switched on. The maximum bias is 80% to either positive or negative.



50% Positive / 50% Negative

20% Positive / 80% Negative

Changing the balance of the output changes the relative amount of positive and negative ions produced by the ioniser. With the help of a static locator the balance can be adjusted for more accurate neutralisation of the target material.

To set the balance:

1. Press to enter menu
2. Select option 3 “Balance” and press
3. Use the up and down button to change the value
4. Press to store the setting

Setting the Alarm Point

The 977CM features an adjustable alarm that will alert the operator when the Ion Output of the ionising system falls below a desired level or when a system fault is detected.

As the ionisers become contaminated, the 977CM increases the output voltage to maintain maximum Ion Output. When the maximum voltage has been reached and the ionisers become further contaminated, the Ion Output will slowly start to decrease and will reduce the system’s performance. At this point the ionisers need cleaning.

To alert the operator to the need for cleaning, the 977CM will trigger an in-built audible alarm and the LCD screen will flash on and off. A remote alarm can also be triggered using the alarm relay connections on the output socket.

The alarm point is set as a percentage of maximum Ion Output. An initial value of 60% is recommended.

To set the Alarm Point.

1. Press to enter menu
2. Select option 4 “Alarm” and press
3. Use the up and down button to change the value
4. Press to store the setting

Locking and Unlocking the Controls

The front panel controls of the 977CM can be locked to prevent unauthorised adjustment of the ionising system. The lock code is a user selected three digit code.
A different code can be chosen each time the unit is locked.

The performance of the ionising system depends on being run at the correct power, rate and balance. Unauthorised or accidental changes to any of these settings can greatly reduce its effectiveness.

To lock the controls:

Select a three digit lock code. Keep this number safe as you will need it to unlock the unit at a later date.

5. Press  to enter menu
6. Select option 5 “Lock” and press 
7. Use the up and down button to change the value of the first digit.
8. Press  to move to the next digit and set its value.
9. Finally, press  to lock the controls.

Note that when locked a Padlock icon will appear at the top of the screen.

To unlock the controls:

1. Press  to enter menu.
2. Select option 5 “Unlock” and press 
3. Use the up, down and  buttons to enter the three digit code.
4. Press  to unlock the controls.

- If the three digit code is forgotten or lost, contact your local Meech office or your Meech distributor to get the Master Unlock Code.

Maintenance

The only maintenance required is that the exterior of the 977CM Pulsed DC Controller should be cleaned regularly with a dry cloth to keep it free from dust and other contaminants.

CE Approval

An EC declaration of conformity for this product exists in respect of the Low Voltage Directive: 72/23/EEC (“LVD”) & Electromagnetic Compatibility
Directive: 89/336/EEC (“EMCD”)

CE

977CM Technical Characteristics

Input connection	IEC Socket C13
Input voltage	100 V - 250 V AC
Input current	40 mA maximum
Input frequency	45 - 65 Hz
Dimensions (W x H x D)	190mm x 170mm x 45mm
Weight	600g
Enclosure	ABS
Maximum temperature (LCD)	45° C
Output voltage	up to 15kV
Output frequency	1Hz - 20Hz
Output balance	20/80 to 80/20 Positive/Negative

IonWash General Operation

To start using the IonWash all of the previous Electrical and Pneumatic sections of the manual will need to be completed. Once the IonWash is fully set up and in the correct location it can be switched on.

If there is power to the IonWash and the Isolator is on then the screen should be on. If for any reason the screen is not on then please check in the trouble shoot guide in the rear of this manual.

There are three buttons on either side of the IonWash, these buttons are:

- Green – Start/Run
- Red – Emergency Stop
- Blue – Reset

These buttons are the standard control method and how the operators will use the IonWash.

On both of the operator sides there is a Beacon, this beacon is used to indicate at what point the IonWash is in the Cycle. The beacon colours indicate:

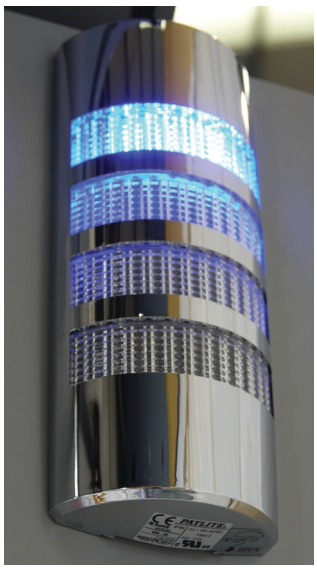
- Blue: System ready for cycle start
- Amber: Standby – One green button has been pressed (2 operator mode)
- Green: Cycle start and system running
- Red: Fault

The IonWash should be set to remote mode, if the IonWash is not in local mode then it can be done on the touch screen.

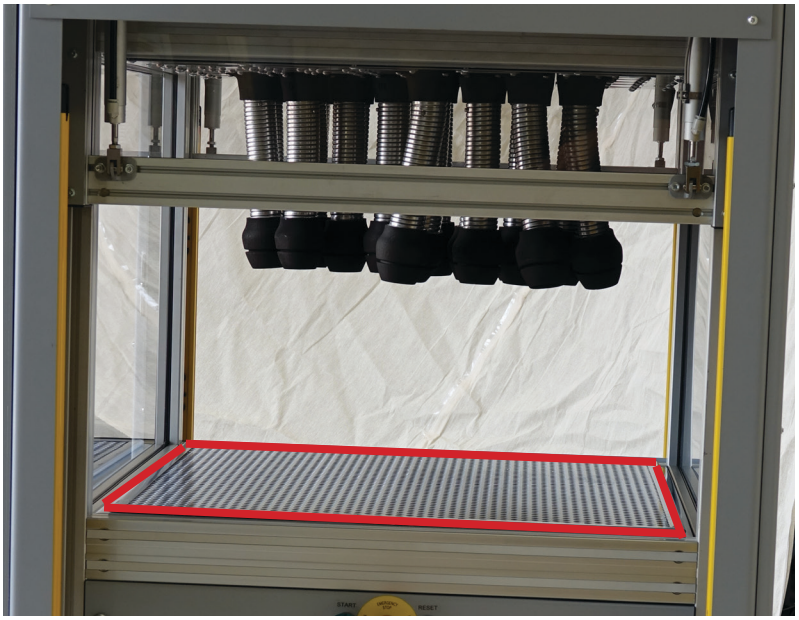
Two Operator mode Operation

The IonWash will be delivered set to 2 operator mode. In this mode both Green buttons on either side of the IonWash need to be pressed for the cycle to start. The sequence of events are as follows:

1. IonWash on and blue light on beacon is illuminated



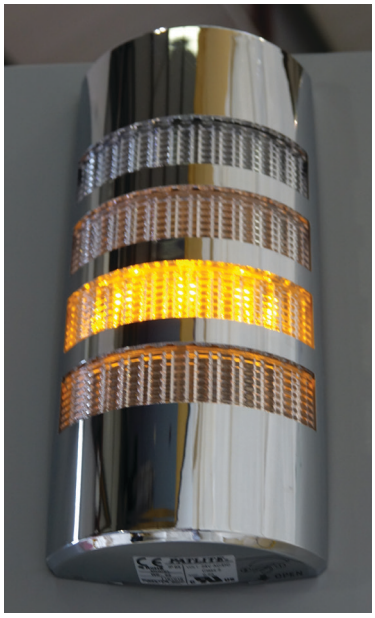
2. Components placed inside the IonWash cleaning chamber highlighted in red below



3. Green button on one side pressed

It does not matter which order the green start buttons are pressed, as soon as the operator is happy they have positioned the components correctly then they can press the green start button and the IonWash will wait for the other green start button to be pressed before actioning the doors.

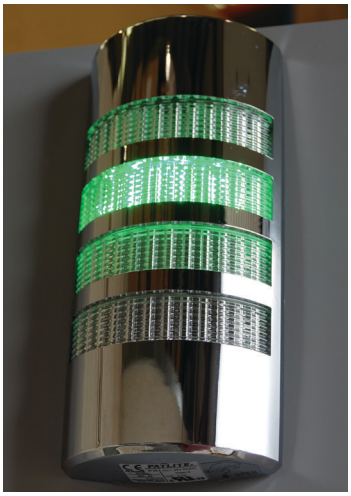
4. Amber beacon illuminates.



This is the indication that one of the buttons has been pressed

5. Green start button on other side is pressed

6. Pause (approximately 2 seconds)



For the pause the beacon will stay amber, the beacon will only turn green after both green start buttons have been pressed and after the 2 second pause.

7. Doors move down and Motors start to run
8. IonWash runs for set Countdown time (cycle time)

9. Doors return to the top position

10. Beacon turns blue and components can be removed ready for the next cycle.

One operator mode Operation

In one Operator mode, the sequence of events is exactly the same as the 2 operator mode however only one of the two Green buttons need to be pressed for the cycle to start.

Emergency Stop

There are 2 Emergency stop buttons, one on each of the operator sides. These E-stops will stop the IonWash at any point in its cycle.

If the E-stops are pressed during the motion of the doors coming down then the doors will stop in place. In the action of pressing the e-stop it is very likely that the light gates will be tripped, this does not matter as it will have the same effect as pressing the E-stop, the doors will stop.

If the E-stop is pressed during the cycle (doors are closed and pumps are running) then the power to the pumps will stop, the pumps will spin to a stop (this is not immediate) and the doors will stay down.

In both E-stop cases the system can be reset by pressing the blue reset button, this will require the E-stop button to be twisted so it is no longer depressed.

Safety Light Curtains

There is one set of light gates per operator side of the IonWash, these light gates are used to stop the doors if anything crosses the path of the light gates when they are operational.

The light gates will be set and aligned at Meech before the system is shipped, if the light gates show red when the IonWash is switched on then they could have been knocked in transit.

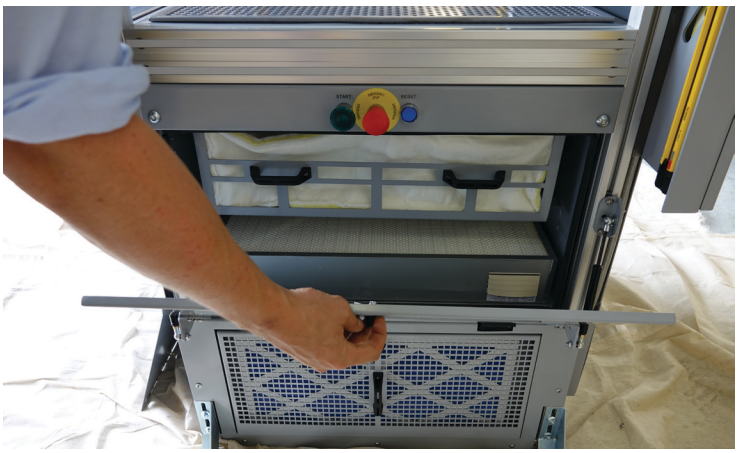
If this is the case the light gates can be realigned by adjusting the 2 brackets holding the light gates in place.

Filtration

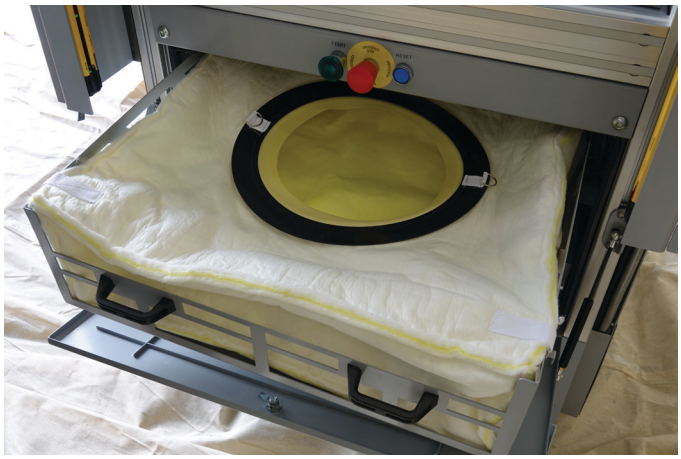
Location of filters and how to replace them

Bag Filter

The bag filter is located below the main cleaning compartment on the right side of the IonWash. To open the filter, compartment the thumb latch will need to be turned and the door opened. The door should be supported whilst opening the compartment.



Once the compartment is open the Filter bag and its tray will be visible. To remove the filter bag, you will first need to unhook it from the vacuum spigot, there are two hooks one on either side of the vacuum spigot.



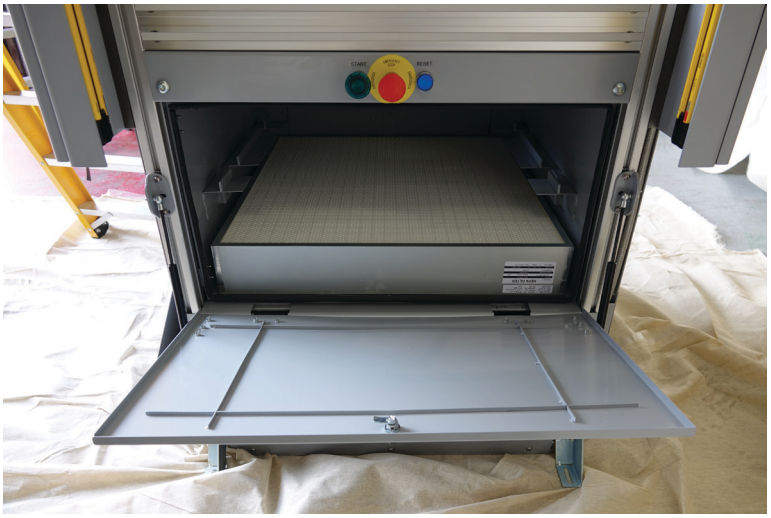
Once the bag is unhooked and the bag gasket is pushed down the filter bag tray can be removed. To remove the tray all you need to do is pull on the two handles being careful not to let it drop on to the open door as the try slides out.

To empty or replace the bag it will need to be unhooked from the tray and lifted out of the tray. To empty the bag the zip on the bottom can be used, for bags without zips the collected contamination can be emptied back through the spigot hole.

Follow the above steps in reverse to replace the filter bag, remembering to hook the bag back on to the Vacuum spigot.

HEPA Filter

The HEPA filter is located below the bag filter, this is designed so all of the larger contamination is collected by the bag filter extending the life of the HEPA. To remove the HEPA filter the bag filter tray will need to be removed.



To remove the HEPA, it will need to be picked up at the front and manoeuvred out of the front of the filter compartment.

Ambient Air Panel Filters

On either operator side of the IonWash there is a panel filter compartment, this compartment filters all incoming ambient air used to cool the pumps. To change these filters the door will need to be unlocked and the filter panel removed.

Filter Specification

Bag Filter

- F8 Grade Bag Filter
- Efficiency of 90-95% at 0.4µ or 100% at 1µ
- Dual layer filter of approximately 2m² surface area

HEPA

- Type : H14 Grade HEPA Filter
- Size : 700 x 700 x 110mm
- Frame : Aluminium
- Media: Micro-glass paper
- Efficiency of 99.997% of 0.3µ
- 110mm deep with approximately 7.5m2 surface area

Panel Filter

- Type: Disposable pleated panel filter
- Size: 595 x 295 x 25mm
- Frame: Eco: Moisture resistant cardboard and Galvanized steel
- Media: Mixture of cotton and synthetic fibre
- Efficiency: 90%
- EN779:2012 Efficiency: G4
- Temperature: 70°C maximum in continuous service

Filter Disposal

All filters are manufactured from non-toxic materials.

Whilst the bag filter is washable, cleaning used filters is not recommended.

Disposal of the used filters depends on the material deposited on them, and appropriate waste disposal guidelines should be followed.

Maintenance

Maintenance (UK Specific)

It is a legal requirement, under regulation 9 of the COSHH regulations, that all local exhaust ventilation systems are visually inspected on a weekly basis where possible, and undergo a thorough inspection and test on an annual basis.

COSHH requires the annual inspection and testing to be carried out by a competent person with a specific documentation of the results held in a log book.

General Maintenance

User maintenance is limited to cleaning the IonWash™ and replacing the filters with new. Only trained maintenance technicians are authorised to carry out component testing and replacement.

Unauthorised work or the use of unauthorised replacement filters may result in a potentially dangerous situation and/or damage to the IonWash™, and will invalidate the manufacturer's warranty.

Cleaning the IonWash

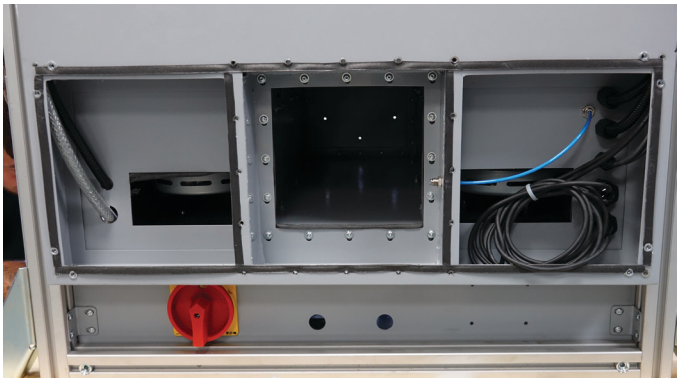
Do not use abrasive cleaning product as this will damage the finish. The IonWash™ should be cleaned with a proprietary surface cleaner, following the manufacturer's instructions.

The cooling inlets and outlet should be cleaned at least quarterly to prevent build-up of dust and overheating of unit.

Main Maintenance areas

Positive compartment

At the rear of the IonWash there is a cover plate for the positive and cooling compartments. This cover can be removed to ensure there is not a build-up of any type of contamination in these areas. This should be checked every 2 months.



There should be no contamination in this area as the air is filtered that runs through the pumps. If there is contamination in the positive or cooling sections then Meech should be contacted immediately before any damage is done.

Multi-Directional Nozzles

The nozzles also need little maintenance, the nozzles should stay clean in the position they are in. However, the pins which give out the ionisation will need to be monitored.

The pins are made from titanium so are very hard wearing but they may need to be cleaned periodically (every 3 months) The 977CM will alarm when the pins are becoming contaminated.

To clean the pins a tooth brush can be used, in high contamination or degradation cases the pins can be removed and replaced.

Vacuum Compartment

The Cleaning area should be cleaned once a week, whilst there is a flow of air through the cabinet there are still dead areas where dirt and contamination can build up. This can be cleaned out with a microfibre cloth.

The vacuum perforated plate should also be removed when the cleaning takes place.

When the plate is removed any contamination that is on the vacuum plate can be removed or swept into the filter bag.

Filter Compartment

In the filter compartment, there should be little to no contamination due to the Bag filter being directly below the vacuum compartment collecting all of the contamination coming off the components being cleaned.

However, the filter compartment can still be cleaned out using a cloth, the HEPA and bag filter will need to be removed before the cleaning takes place. When cleaning care must be taken so no contamination falls into the 6 pumps as this can cause damage.

Door Guides

The IonWash will be delivered with the door guides well lubricated and the doors levelled so there should be minimal rubbing between the doors and the plastic wear plates located in the door guides.

To re-grease the doors the grease can be applied to the plastic face inside the door guide. It is advised that this is done with the unit off so the doors cannot move.

Spare Parts and Consumables

Below is a list of recommended consumables and spare parts for the IonWash system

Bag Filter - F8 Grade

Model: ASYS-SBM-01

Details: F8 grade bag filter. 90-95% efficiency at 0.4 micron.

HEPA Filter – H14 Grade

Model: ASYS-SHW-01

Details: H14 grade additional HEPA filter. 99.997% efficiency at 0.3 micron.

Pump for IonWash

Model: ASYS-PUMP

Details: Pump to suit IonWash system

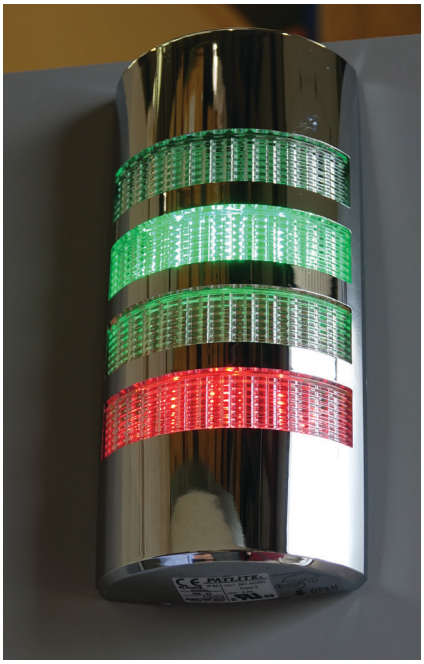
Nozzle Assembly

Model: B200-FGN-200

Details: Ionising nozzle mounted on flexible pipe.

Troubleshooting

When the IonWash Alarms for any reason the Beacon will show a Green and Red or only Red light. This signifies that there has been an alarm.



Alarm Reasons

Alarm Type	Reasons for Alarm	Solution
Filter Blocked	Filter bag is blocked reducing the flow through the IonWash	Empty or replace the filter bag
	HEPA Filter is blocked reducing the flow through the IonWash	Replace the HEPA Filter
	Pump Issue or failure	Replace damaged pump
977CM Alarm	HT Fault - Shorting of high voltage	Check cable through for any damage and contact Meech
	Remote cable has come loose	Reposition remote cable
	Signal cable loose	Reposition signal cable
	Pins of nozzles dirty/have degraded	Clean or replace titanium pins
Doors Not Moving	Top reed switch has moved and doors are no longer registering where they are in location to the movement	Reposition the top reed switch so it is green when the doors are located at the top
	Light gates have been tripped	Clear the area between the light gates and reset the system
	Emergency stop button is pressed in	Twist the E-stop button so it is out and reset the system
	Air supply to IonWash is not consistent	Check supply and reset the system
Pumps not running when Cycle is started	Screen is in Local mode	Place the screen into remote mode and reset the system
	Pump issue or failure	Replace the damaged pump

IonWash Technical Data

Electrical Specifications		
Power Output	6.6kW	
Power Consumption: (average for 25 second cycle)	4.7KvA	
Power Supply (Voltage; Phase; Frequency)	200 - 400V; 3 Phase; 50/60Hz	
Full Load Current	Neutral	Line
FLC @ 400V	23A	13.8A
FLC @ 200V	N/A	25A

Dimensions and Weight (Model: AIW-0710-0710-01)	
Unpacked dimensions w x d x h (mm)	883 x 1248 x 2070-2200
Packed dimensions w x d x h (mm)	1500 x 1100 x 2200
Cleaning area usuable dimensions w x d x h (mm)	710 x 710 x 330
Cleaning area load height (mm)	960-1090
Weight (Operating)	540kg
Weight (Shipping)	705kg

Performance	
Air volume output capacity	2200m³/hr
Air flow characteristics (Based on 20 second cycle time)	Total air volume moved: 11.3m³ Blowing air volume: 11.3m³ Vacuum air volume: 11.3m³ Maximum air speed: 35ms^{-1} Air volume filtrations per cleaning cycle: 30
Static Charge decay time (500v - 5000v)	0.6 seconds at 280mm and 1Kpa pressure setting

Ionisation		
977CM Current Monitoring Pulse DC Controller	Output Voltage	Up to 12kV
	Output Frequency	1Hz - 20Hz
	Output Balance	20/80 to 80/20 Positive/Negative
	Maximum Temperature LCD	45°C
Ion Balance	+/- 10v	
Ozone Production	Less than 0.01ppm	
Emitter Pins	Machined Titanium (7mm)	

IonWash Technical Data - Continued

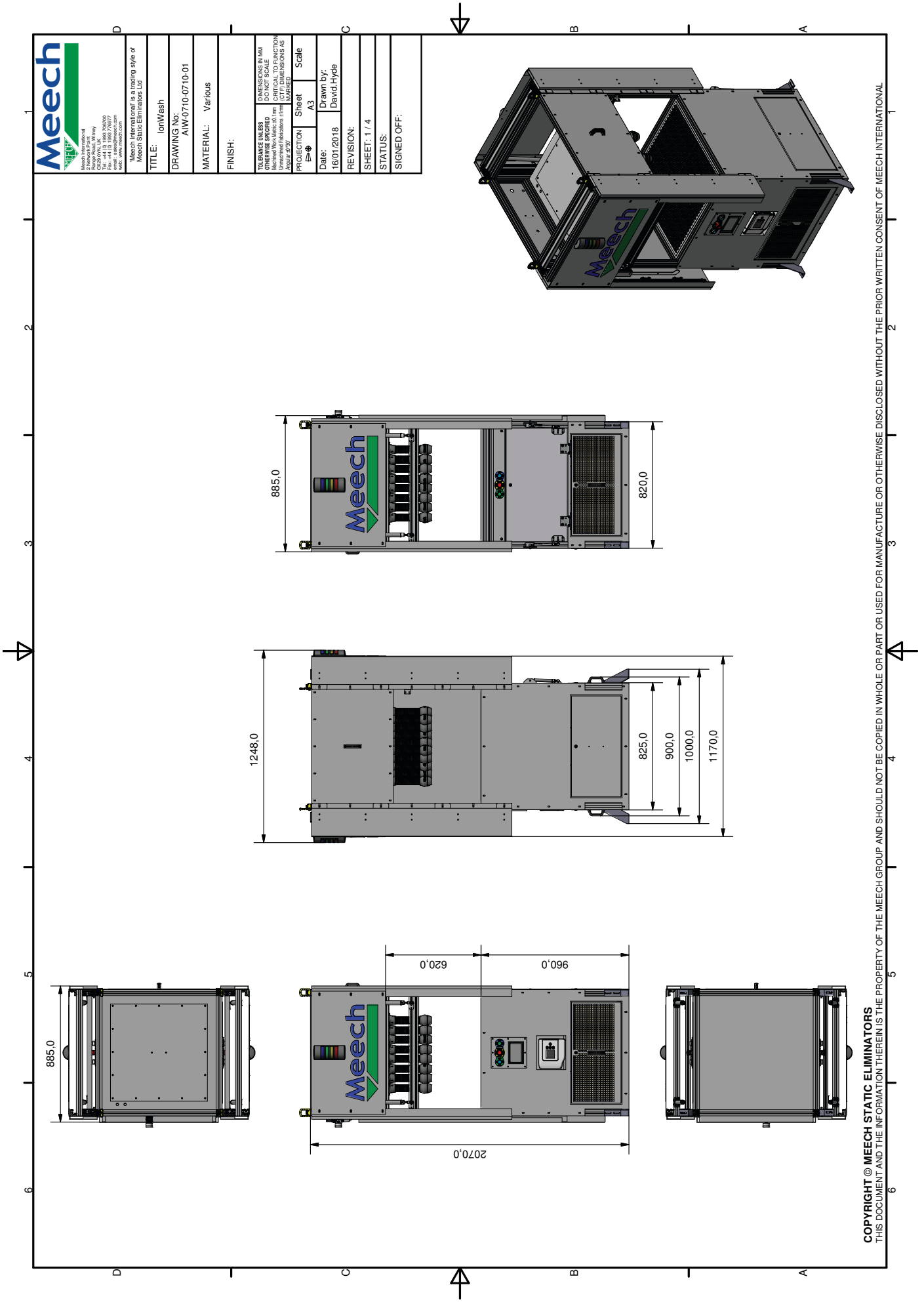
Other Data		
Filtration	Bag	Efficiency F8 90-95% @ 0.4µ
	HEPA	Efficiency H14 99.997% @ 0.3µ
Environmental Operating Range	Temperature	+5°C to + 40°C
	Humidity	Max. 80% RH to 31°C to max. 50% RH at 40°C
	Altitude	Below 2000m
	Pollution Degree	2
Noise Level	71dBa	
Exhauster	Turbine Fan	
Construction Material	Body	Powder Coated Steel, Aluminium Frame
	Cleaning Grid Platform	Powder Coated Steel
Controls	Touch Screen	Positive Pressure setting; Cycle Time; Start; Local/Remote mode; Data Log
	Physical	Start; Emergency Stop; Reset; One/Two Operator mode switch, Door Speed Control Valves

CE Approval

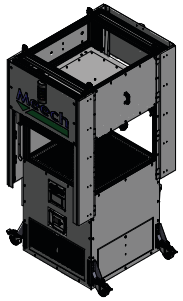
An EC declaration of conformity for this product exists in respect of the Low Voltage Directive: 72/23/EEC (“LVD”) & Electromagnetic Compatibility
Directive: 89/336/EEC (“EMCD”)

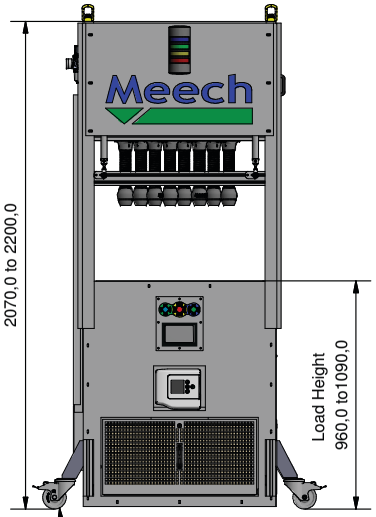
CE

Technical Drawings

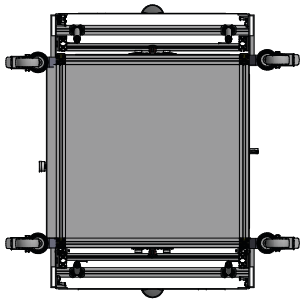


Casters Mounted off of Feet Front and Back

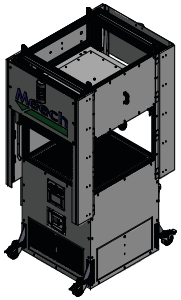


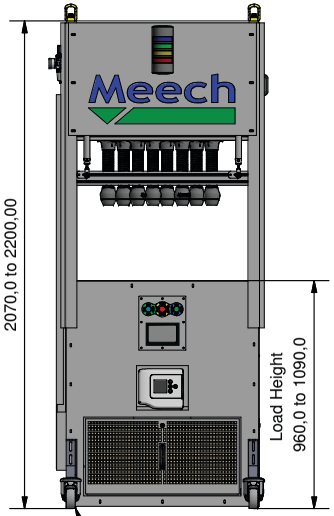


Casters can be mounted on the brackets
This allows an adjustable load height using the casters. If in use like this for a prolonged period mounting feet are advised.

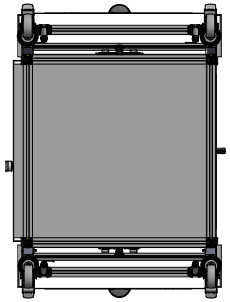


Casters Mounted off of Feet on Operator Sides

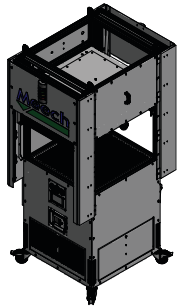


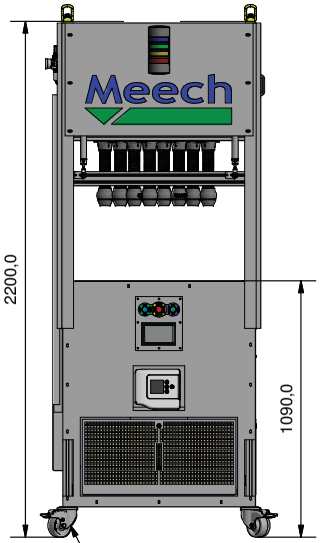


Casters can be mounted on the brackets
This allows an adjustable load height using the casters. If in use like this for a prolonged period mounting feet are advised.

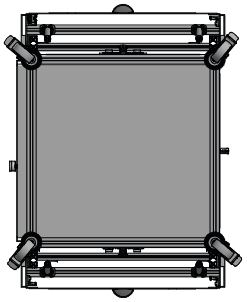


Casters Mounted On IonWash Central Pillars





Casters can be mounted in the base of the 4 pillars of the IonWash. This gives the best manoeuvrability in size restricting areas



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Fax: +44 (0) 1993 776977
email: sales@meech.com
web: www.meech.com

'Meech International' is a trading style of Meech Static Eliminators Ltd

TITLE: IonWash Caster Positioning

DRAWING No: AIW-CP-01

MATERIAL: Various

FINISH:

TOLERANCE UNLESS OTHERWISE SPECIFIED
Machined Work Metric ±0.1mm
Unmachined Fabrications ±1mm
Angular ±0°30'

DIMENSIONS IN MM DO NOT SCALE
CRITICAL TO FUNCTION (CTF) DIMENSIONS AS MARKED

PROJECTION | Sheet A3 | Scale

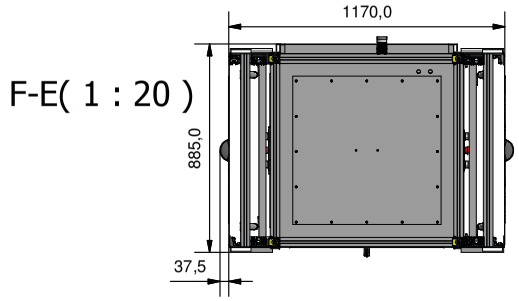
Date: 16/01/2018 | Drawn by: David.Hyde

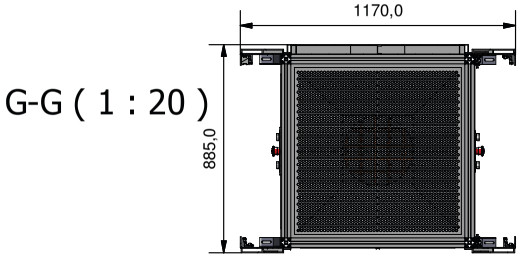
REVISION:

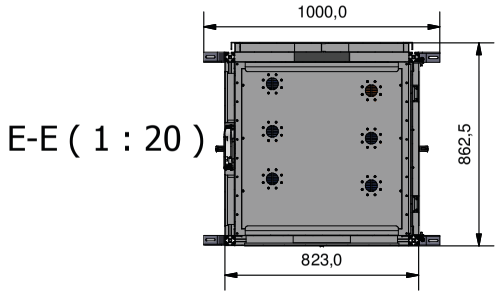
SHEET: 2 / 4

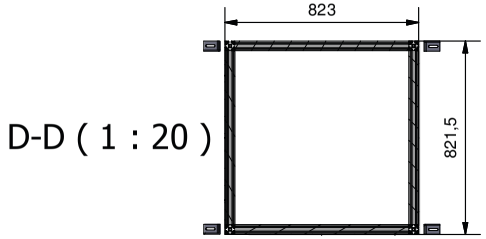
STATUS:

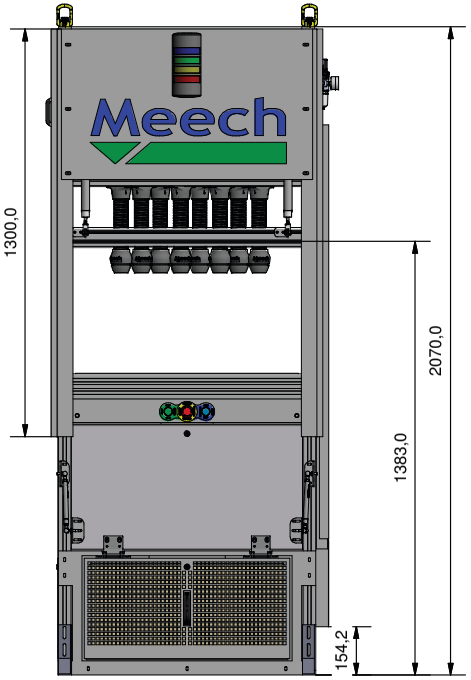
SIGNED OFF:

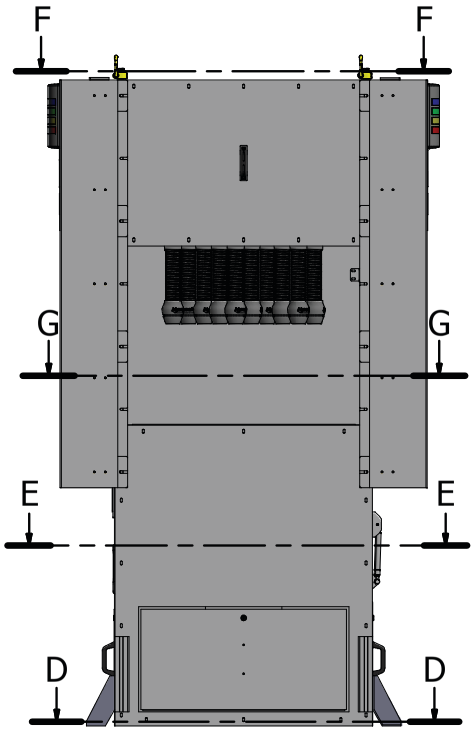












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OX29 0YN, UK
Tel: +44 (0) 1993 706700
Fax: +44 (0) 1993 776877
email: sales@meech.com
web: www.meech.com

'Meech International' is a trading style of Meech Static Eliminators Ltd

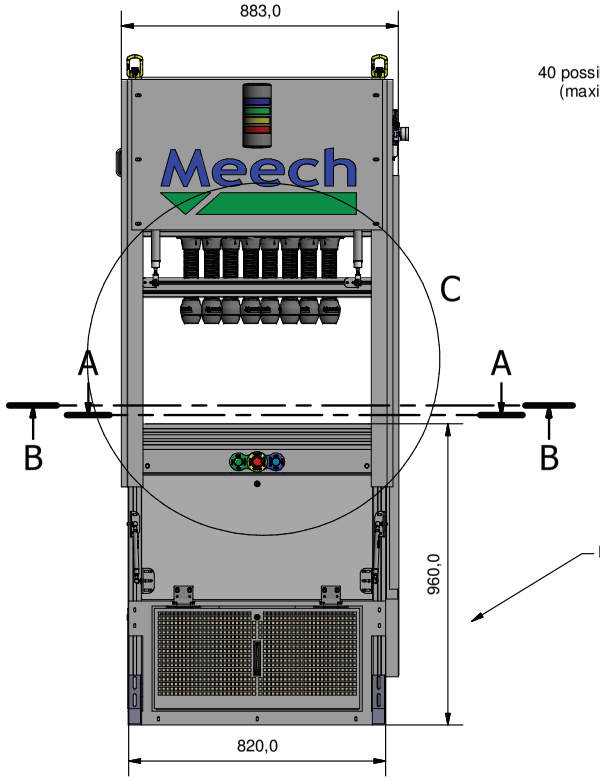
TITLE:	IonWash Size
DRAWING No:	AIW-SZ-01
MATERIAL:	Various
FINISH:	

TOLERANCE UNLESS OTHERWISE SPECIFIED
Machined Work Metric ±0.1mm
Unmachined Fabrications ±1mm
Angular ±0°30'

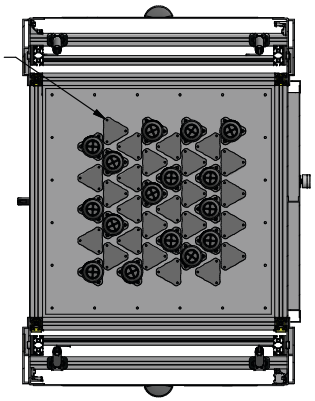
DIMENSIONS IN MM
DO NOT SCALE
CRITICAL TO FUNCTION (CTF) DIMENSIONS AS MARKED

PROJECTION	Sheet	Scale
	A3	

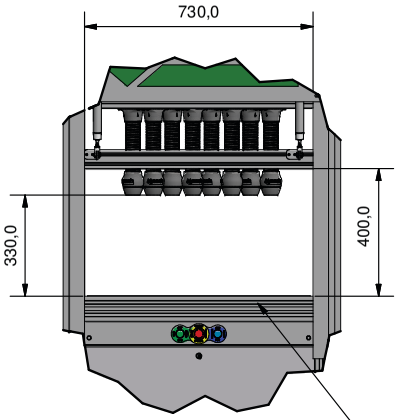
Date: 16/01/2018	Drawn by: David.Hyde
REVISION:	
SHEET: 4 / 4	
STATUS:	
SIGNED OFF:	



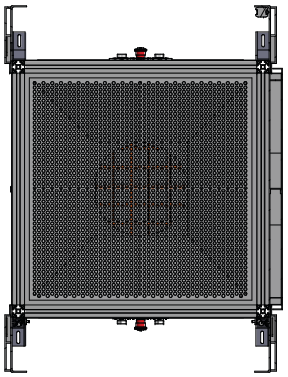
B-B (1 : 15)



C (1:15)



A-A (1 : 15)



Cleaning Area is 710 x 710 x 330mm (L x W x H)

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'Meech International' is a trading style of Meech Static Eliminators Ltd

TITLE:	IonWash Cleaning Area
DRAWING No:	AIW-CA-01
MATERIAL:	Various
FINISH:	
TOLERANCE UNLESS OTHERWISE SPECIFIED: Machined Work Metric ±0.1mm, Unmachined Fabrications ±1mm, Angular ±0°30'	DIMENSIONS IN MM DO NOT SCALE. CRITICAL TO FUNCTION (CTF) DIMENSIONS AS MARKED
PROJECTION	Sheet: A3 / Scale
Date: 16/01/2018	Drawn by: David.Hyde
REVISION:	
SHEET: 3 / 4	
STATUS:	
SIGNED OFF:	

Declaration of Conformity

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Equipment

IonWash™
Ionising Component Cleaning System

CE

Applicable Harmonised standards

LVD.	EN 61010-1:2010
EMCD.	EN 61000-6-4:2007+A1:2011 EN 61000-6-2:2005 BS EN 61000-6-4:2007+A1:2011 BS EN 61000-3-2:2014 BS EN 61000-3-3:2013 EN 61000-6-1:2007 BS EN 61000-6-3:2007+A1:2011 BS EN ISO 12100:2010 BS EN ISO 12100:2010 BS EN 60204-1:2006+A1:2009 BS EN 13849-1:2015 BS EN 62061:2005+2015

EC Council Directives

Low Voltage Directive
2014/35/EU (Technical File)

Electromagnetic Compatibility Directive
2014/30/EC (Technical File)

Machinery Directive
2006/42/EC (Technical File)

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.

J. Ferguson

.....
Jon Ferguson, Engineering Manager.

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