Operating Manual

CyClean™

Non-Contact Web Cleaning

CONTACTS

HEAD OFFICE

Meech International
2 Network Point
Range Road
Witney
Oxfordshire
OX29 0YN

+44 (0)1993706700
sales@meech.com
www.meech.com

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

Products shown in this document may be covered by one or more patents, patents applied for and/or registered designs and/or trade marks. For further information please refer to our Head Office or visit www.meech.com.

© Meech Static Eliminators Ltd., 24.04.2023

CONTENTS

CyClean™ System Overview

Model and Function

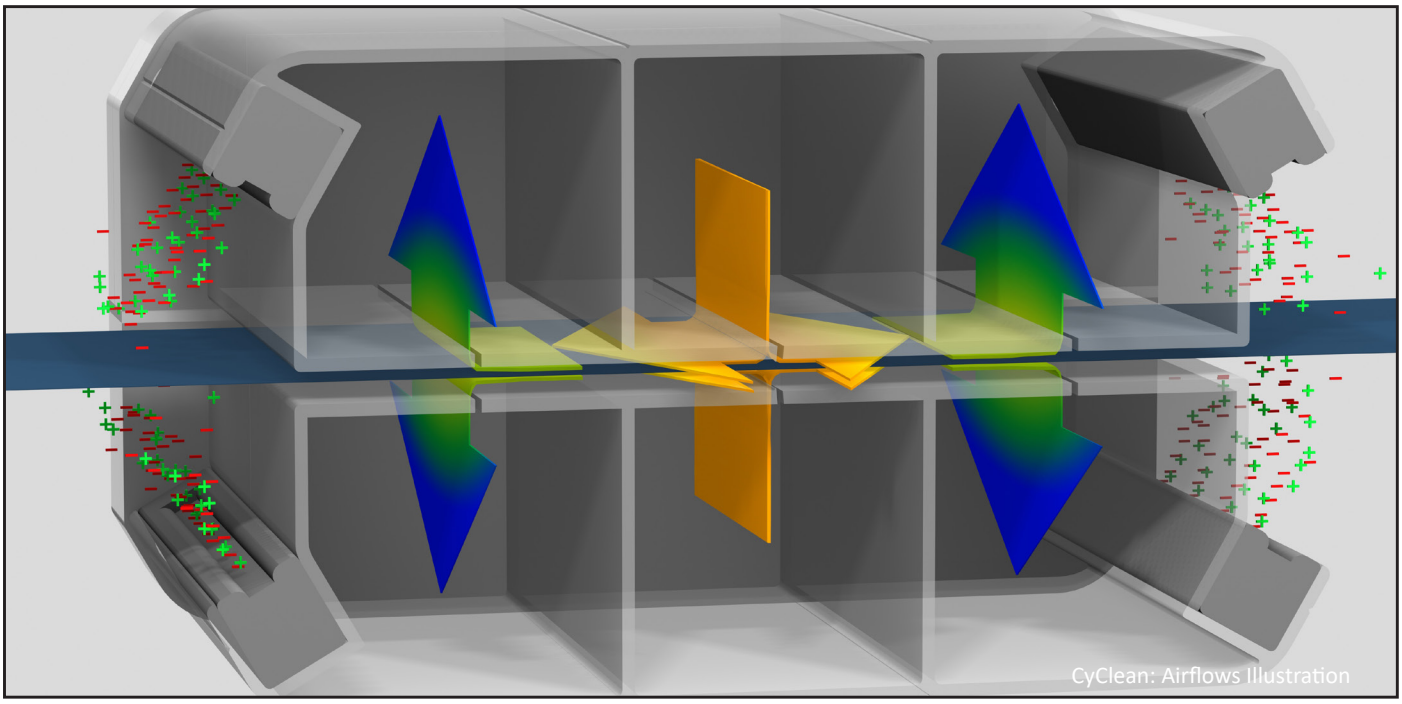
The Meech CyClean has been designed in response to increased demand for a compact, high performance, non-contact web cleaning system.

Through the application of advanced computational fluid dynamics, Meech has optimised the cleaning efficiency of CyClean to remove and extract contamination as small as 0.5 micron.

The Meech CyClean provides the following user advantages:

- Excellent contamination removal – removing particles as small as 0.5 micron.
- Non-contact – suitable for a wide range of substrates.
- Compact design - easier to install in cramped areas.
- Continuous cleaning – no need to stop the web.
- Static control – will be contamination and static free on exit.

How CyClean Works



The excellent cleaning performance of CyClean is achieved from the combination of the following processes:

1. The web passes through a cloud of ionisation on entry to the CyClean head, which neutralises any static charges.

2. The web is then subject to a force of turbulent air which breaks the boundary layer on the web, loosening any contamination on the surface.

3. A negative airflow then draws all of the contamination away from the web, which is then filtered through the Air Handling Unit. This results in a clean, contamination-free web surface.

4. As the web exits the CyClean manifold, it passes through a second cloud of ionisation to prevent re-contamination of the web.

Double-Sided Cleaning

CyClean is available as a double-sided web cleaning system.

Correct Use of a CyClean System

Meech CyClean web cleaning systems should only be used in installations for which they are designed.

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

Features & Benefits

Features	Benefits
Non-Contact Web Cleaning	Eliminates the risk of surface damage occurring. Also ensures no interference with web tension or web tracking.
Compact Design	Space saving design which can be installed to most machines.
Air Balancing	Allows complete control of the balance between blow and vacuum airflows.
Compact Design	Space saving design which can be installed to most machines.
Air Balancing	Allows complete control of the balance between blow and vacuum airflows.
Auto Airflow Adjustment	Reduces the frequency of required operator adjustments. Maintains optimum cleaning performance automatically.
No Consumable Items	Lower ongoing costs.
Quiet Operation	Can be installed in enclosed work areas. No health and safety issues due to low noise output.

Technical Characteristics

Maximum Web Speed (Web Driven)	600mtrs/min, 1968ft/min
Maximum Web Width	Up to 3800mm, 149.61”
Duct Connections	Fixed position 40mm Ø OD
Static Control	4x Integrated 914 AC Bars
Mounting	4x M8 x 16mm holes

CyClean Scope of Supply & Opening Configurations

For lengths up to 600mm CyClean can be either manual or pneumatic to facilitate fast and accurate webbing-up.

Systems greater than 601mm are supplied as pneumatic only.

Product Code	Manual Opening	Pneumatic Opening	Qty of 914 Bars	Qty of AHUs	Ducting Kit (Allows Head to be 5m from AHU)
	Option	Option			
ACC-0200-ACC-0600	✓	✓	4	AHUv3 2.2	No Option
ACC-0700-ACC-1200		✓	4	AHUv3 3.3	Option
ACC-1300-ACC-2300		✓	4	AHUv3 6.6	Option
ACC-2400-ACC-3000		✓	4	AHUv3 3.3+6.6	Option

Head Orientation/Opening Options

The CyClean head will be supplied to open/close with one of the two following options:

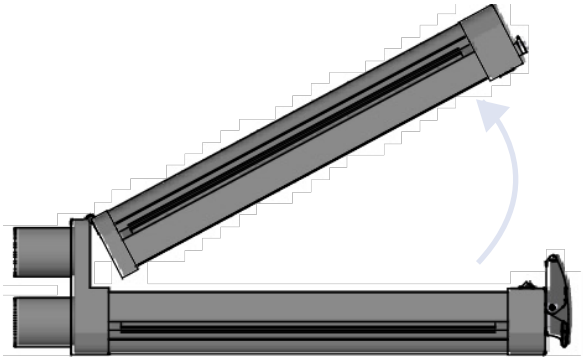
Manual

This opening method is suitable for applications with a maximum web width of up to 600mm.

This option should only be used for heads that are installed on a horizontal web. The top half of the head opens upwards by manual operation.

CAUTION

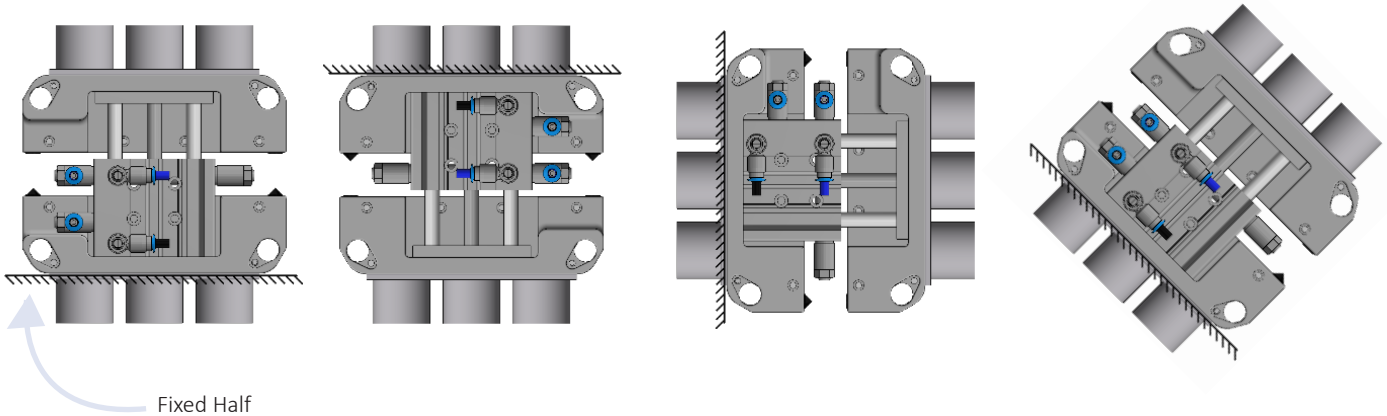
Care needs to be taken when placing this style of head upside down due to the way it hinges and it causing a potential pinch point.



Pneumatic

This opening method is suitable for applications with a web width range of 201mm to 3,000mm.

This option provides the CyClean head to be mounted in a number of ways. The top half of the head opens upwards using pneumatic cylinders.



Standard Web Gap and Adjustment

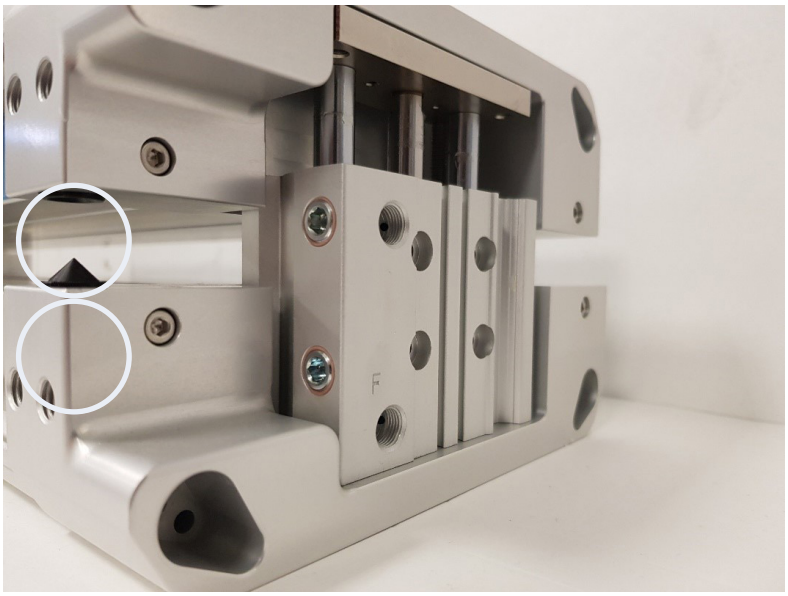
The web gap is the total distance between the two halves of the CyClean head that the web passes through.

Manual Opening

The web gap is fixed at 8mm and is not adjustable.

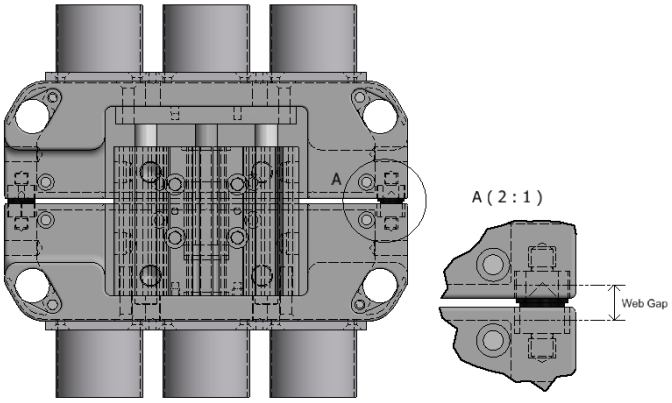
Pneumatic Opening

The web gap is 8mm as standard. It can easily be adjusted by changing the cones and cups located in each corner of the head unit. If a larger web gap is required, this is available on request.



The web gap can be achieved by changing the cones and cups as follows:

Cone	Cup	Web Gap	Web Thickness
Black +	Black =	8mm	(0-500µm)
Black +	Blue =	9mm	(50-1500µm)
Blue +	Blue =	10mm	(1500-2500µm)



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 CyClean 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.

Suggested Order of Installation

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

1. Position and mount the head unit (the web must enter the head on the web entry side as indicated by the 'Web Entry' label)
2. Position and mount the Air Handling Unit in free air to avoid overheating. Ensure the ducting supplied is within reach.
3. Position and mount the control box (note the distance to the head and AHU and check the required cable lengths are available).
4. Make all the electrical connections.
5. Make all compressed air connections (if applicable).
6. Connect all ducting.

System Installation

IMPORTANT

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

Positioning of the System

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

In general, the CyClean system should be installed as close to the critical process as possible to minimise the potential of re-contaminating the web with airborne contamination.

IMPORTANT

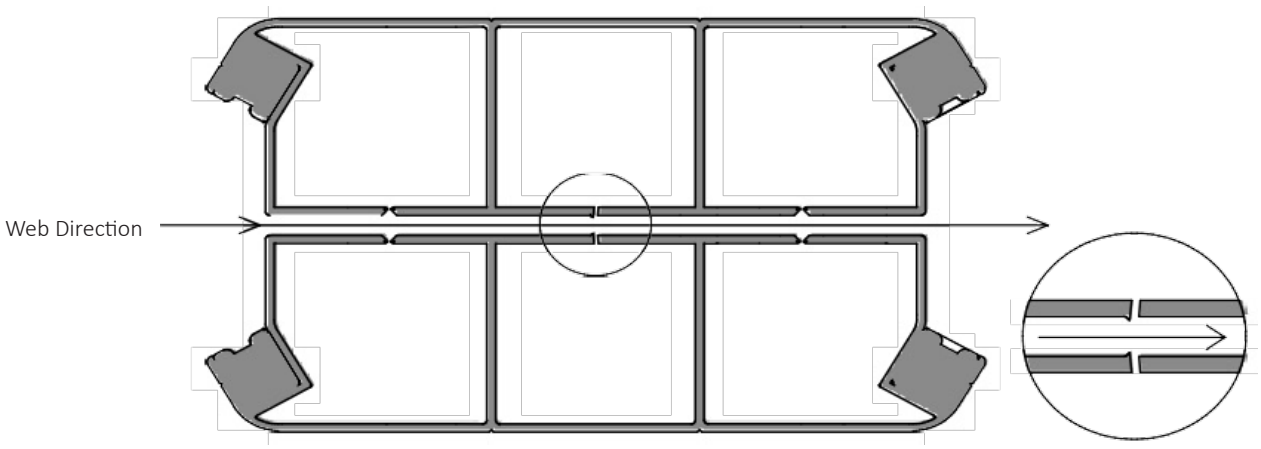
When installing the CyClean system, it should be positioned so that the web passes through the centre of web gap opening.

Required Space and Mounting Holes

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

Web Direction and Tension

The CyClean must be mounted with the web passing through the unit so that it reaches the aerodynamic flap before the blowing air slot.



CAUTION

The web must be kept under tension whilst the unit is running.

Air Supply & Ducting

Vacuum System

The size of the Air Handling Unit will depend on the web width of the CyClean manifold. Please see below for the options for each range.

Single-Sided	
Web Width	**AHUv3**
0-600mm	2.2kW
601-1200mm	3.3kW
1201-2300mm	6.6kW
2301-3000mm	3.3 + 6.6kW

Ducting

Meech offers a standard ducting kit suitable for the system ordered. The kit comes in various lengths dependent on the CyClean web width. The kits offered as standard are specified below.

Product Code	Description	AHU	Double-Sided	Web Width
ACC-DKM-01	2.5m Flexible Ducting Kit	1.1kW	✓	0-300mm
ACC-DKC-01	1.5m Flexible Ducting Kit	2.2kW	✓	0-600mm
ACC-DKC-02	2.5m Flexible Ducting Kit	2.2kW	✓	0-600mm
ACC-DKC-03	3m Flexible Ducting Kit	2.2kW	✓	0-600mm
ACC-DKS-01	5m Flexible Ducting Kit	3.3kW	✓	601-1300mm
ACC-DKS-02	8m Flexible Ducting Kit	6.6kW	✓	1301-2600mm
ACC-DKS-03	8m Flexible Ducting Kit	3.3 + 6.6kW	✓	2601-3000mm

Ducting Connections

For how to correctly setup your ducting connections to the AHU, please view the drawing section at the end of this manual for guidance.

When installing ducting, it is important to make sure that the length of ducting for the blowing and vacuum airflows is equal in length and that the same diameters are used.

Ducting should be cut to length to keep duct runs as short as possible.

Any bends in the ducting should be smooth and tight bends should be avoided. Once installed, check to make sure all duct connections are tight and that the duct is not damaged in any way.

Operating the System

Before Use

Before using the CyClean system it is important that you have read and fully understand this manual.

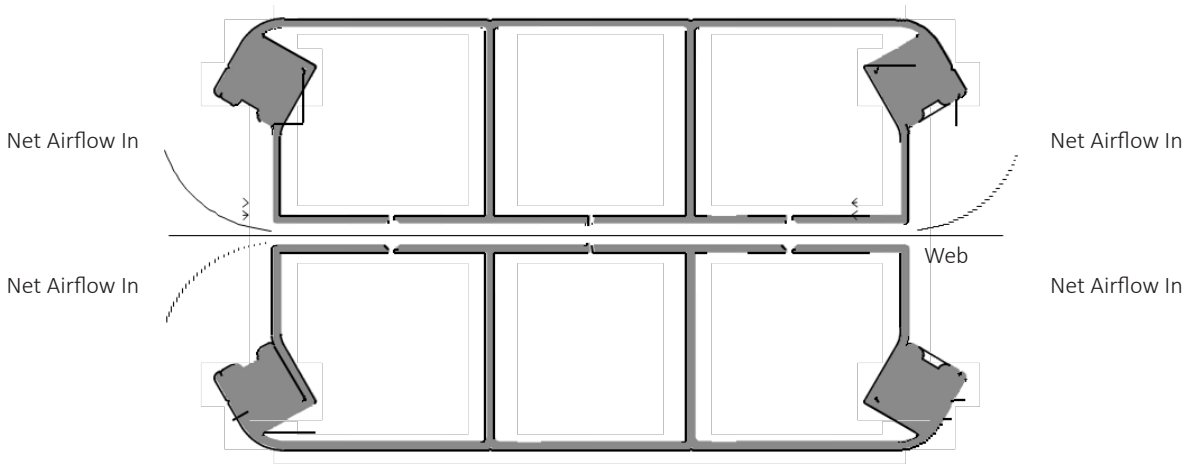
IMPORTANT

Testing of the system is recommended before it is used for full production.

System Setup

The airflows of the CyClean non-contact web cleaning system should be adjusted to achieve optimum cleaning results.

The best cleaning results will be achieved when the system is set to have a positive airflow into the CyClean head, on both the web entry and exit sides (minimising the risk of any recontamination).



The net airflow into either side of the CyClean head is adjusted by bleeding off a volume of the blowing (positive) airflow to create an airflow bias in favour of vacuum.

Consult the AHU manual for full instructions of how to balance the airflows.

The CyClean is now ready to use.

It is recommended that you monitor the system when it is first tested. If any problems are highlighted, please stop using the CyClean system and contact Meech International or your local distributor.

Pneumatic Instructions

IMPORTANT

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

The following only applies to the pneumatic opening CyClean.

Compressed Air Requirement

The CyClean system requires a compressed air supply to open and close the head unit.

The compressed air supply should meet the following specification:

- 3 -7 bar (43-100psi)
- Clean and dry compressed air

Compressed Air Connections - Control Box

The main incoming compressed air supply should be connected to the 6mm compressed air push fit fitting on the CyClean control box labelled Air In 1.

The compressed air hoses (blue and black) should be connected from the CyClean unit to the 6mm compressed air push fittings labelled Port 2 and Port 3. The blue hose connects to port 2, the black hose connects to Port 3.

Compressed Air Connections - Cylinders

The system is supplied with a pneumatic hose loom for connection of the cylinders and a 5mtr length of pneumatic hose for connection of the loom to the control box

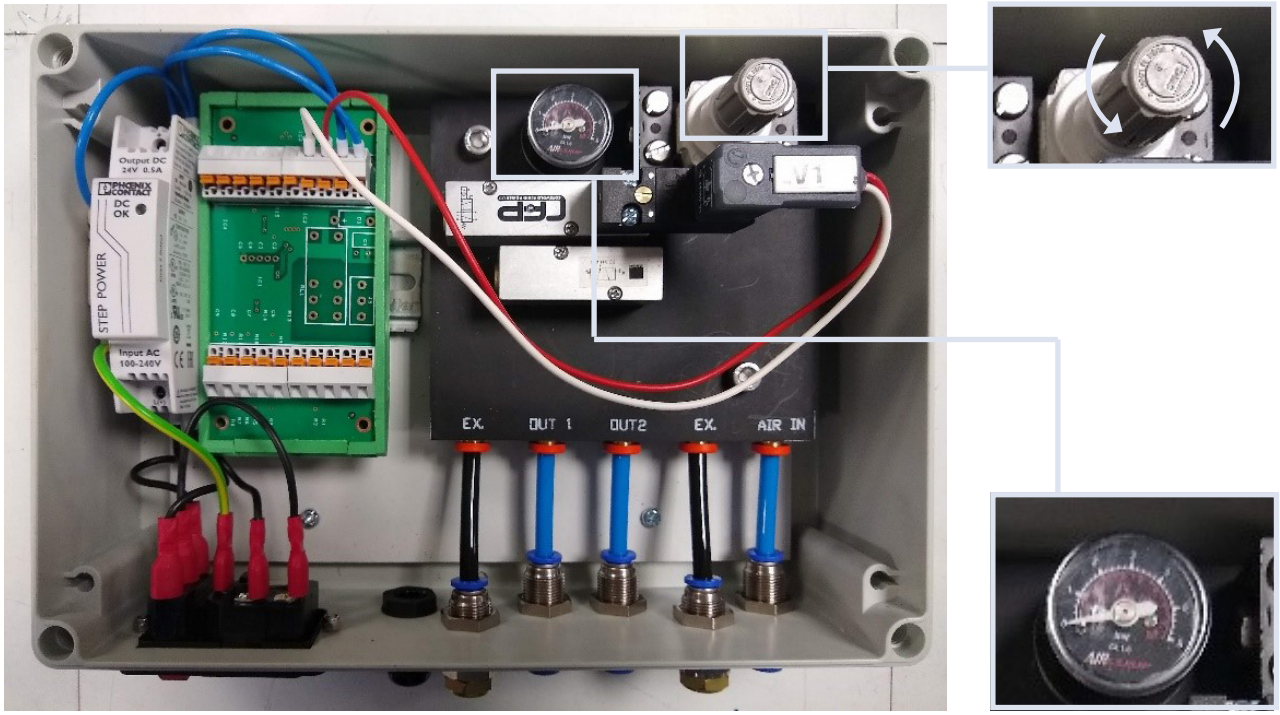
Setting the Required Air Pressure

There is a pressure relief regulator valve inside the CyClean control box. Adjusting this valve will change the air pressure that will be fed to the cylinders mounted as part of the CyClean head.

To adjust, pull the valve up and rotate clockwise to increase pressure and anti-clockwise to release pressure. Once pressure is set, push the valve down until it clicks. The pressure is now set.

There is a pressure gauge next to the pressure regulator valve which displays the pressure set.

This valve will have been set at Meech before your system was supplied.



CAUTION

If you need to adjust the pressure relief valve, make sure that it is not adjusted to provide maximum pressure. If too high a pressure is used, it may result in damage to your system.

Adjustment of Head Opening and Closing Speed/Force

The speed/force at which the CyClean head opens and closes can be independently adjusted. This will be adjusted by Meech before your system is supplied so that:

- Open = medium to fast operation
- Close = slow speed

The speed can be adjusted using the 4 valves on the tubing to each of the cylinders.

IMPORTANT

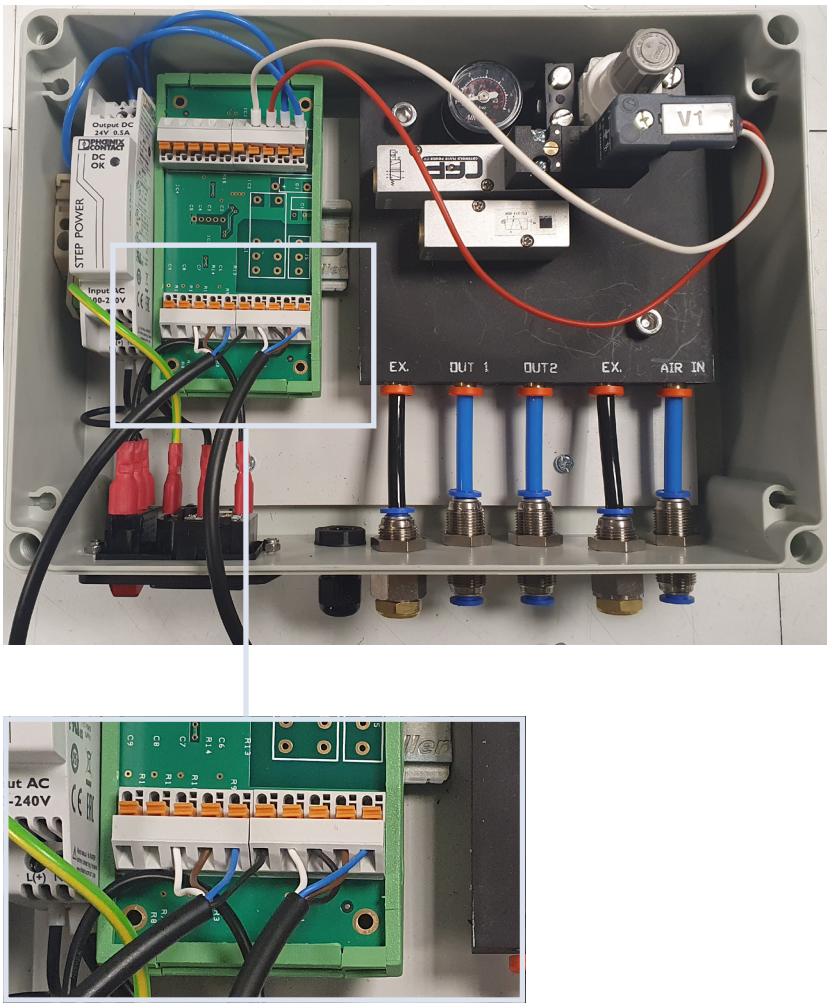
When making any adjustment, it is very important that all 4 cylinders are adjusted at the same time to the same setting. If this does not happen it can damage your system.

CAUTION

It is recommended that the closing speed/force of the head is minimal, as this is a pinch point that could cause injury.

Connecting the Remote On/Off Signal from the Line

Connect a normally open (NO) signal from the line in the CyClean control box as shown in the image below and consult the wiring diagram at the end of this document.



Compressed Air Circuit

Please view the drawing section at the end of this document for a circuit diagram.

Maintenance and Inspection

IMPORTANT

Always make safe the electrical and compressed air supplies before undertaking any maintenance work on the CyClean-R system.

Inspection

The system will perform without serious deterioration, giving many years of service, providing the following visual inspections are made weekly:

Head Unit

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

Vacuum System

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

Filtration

Check that the filter warning lights on the AHU are not lit when running. Check for any external damage to the filter media, i.e. rips. Check to make sure the filter bag is not blocked.

Ducting

Visually inspect the ductwork, look for any lose sections or holes. Check to make sure the ducting is not blocked.

Maintenance

IMPORTANT

Maintenance should only be completed on the CyClean-R system by those with suitable qualifications.

IMPORTANT

Always make safe the electrical and compressed air supplies before undertaking any maintenance work on the CyClean-R system.

Ionisation Equipment

Ionisers require periodic cleaning. During normal operation, dirt will build-up on the emitter pins and upon the body of the ioniser. This will cause a reduction in performance.

Typically, weekly cleaning is sufficient. However, equipment used in some heavy contamination areas, such as gravure printing or where plastic fumes are present, may require daily cleaning. Equally, in a Class 100 area, cleaning may only be required on a monthly basis.

Advanced systems with performance monitoring, e.g. 977CM and 904CM, will alert the operator to the need to clean the equipment before performance drops to an unacceptable level.

Before cleaning, ensure that the equipment is switched off.

Emitter pins can be cleaned very effectively with a brush. A dry toothbrush is ideal.

Ionising bars will need periodic wiping to clean grey deposits from the surface of the bar. A cloth moistened with a small amount of IPA or methylated spirits is recommended.

Should you have any additional questions regarding the maintenance of Meech equipment please contact Meech International directly or your local Meech distributor.

Fault Finding

Fault finding guides for the Meech Model A905 ionising power supply and A914 AC ionising bars can be downloaded directly from the Meech website at www.meech.com

For further fault-finding guidance please contact Meech International directly or your local Meech distributor.

Vacuum System

Consult the AHU manual for full installation and operation instructions.

Spare Parts

It is recommended that only Meech spare parts are used in your CyClean system. The use of non Meech parts may invalidate your warranty.

For details of spare parts, please contact Meech or your nearest Meech distributor.

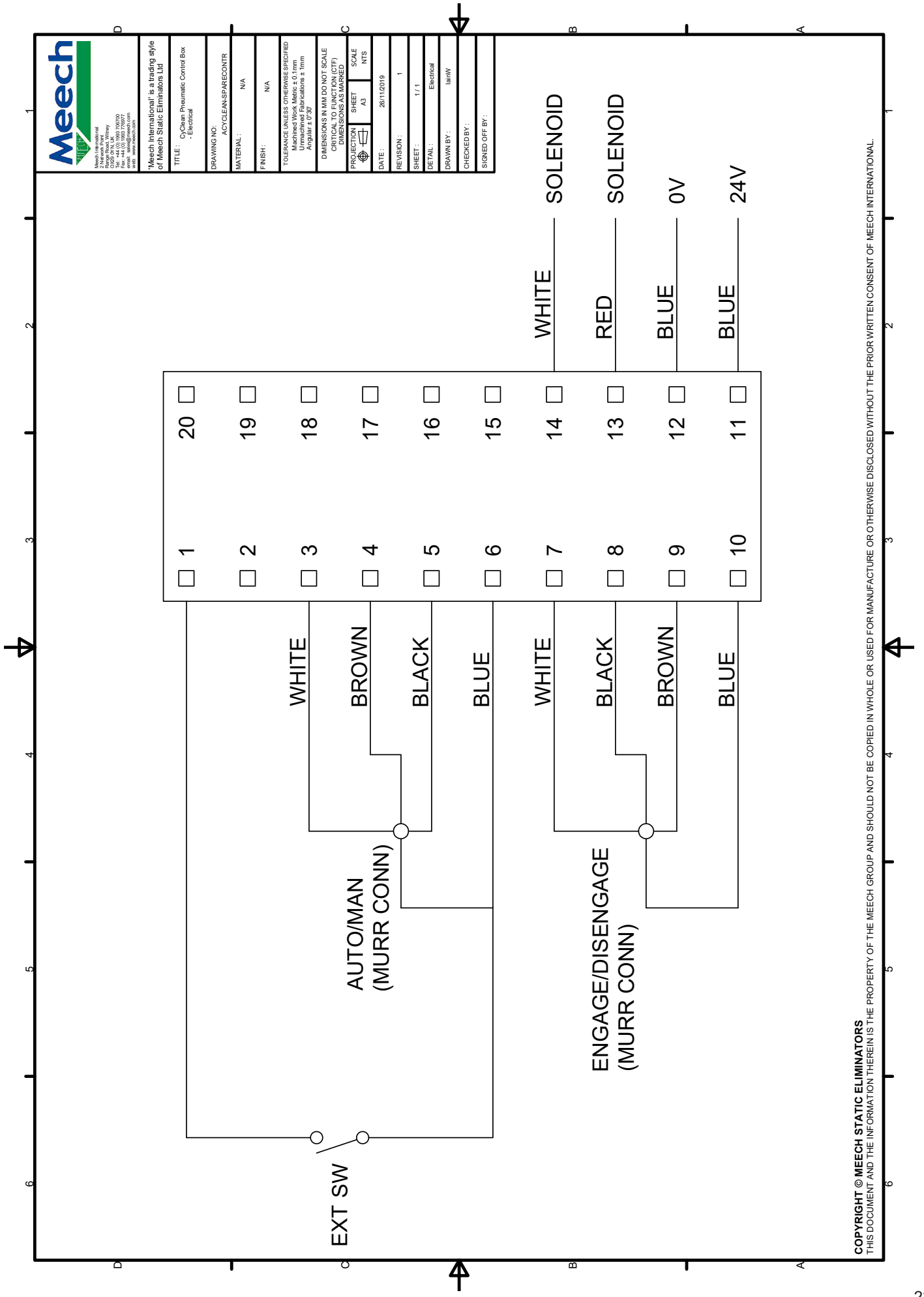
Please quote the serial number of your CyClean system when ordering spare parts.

Troubleshooting

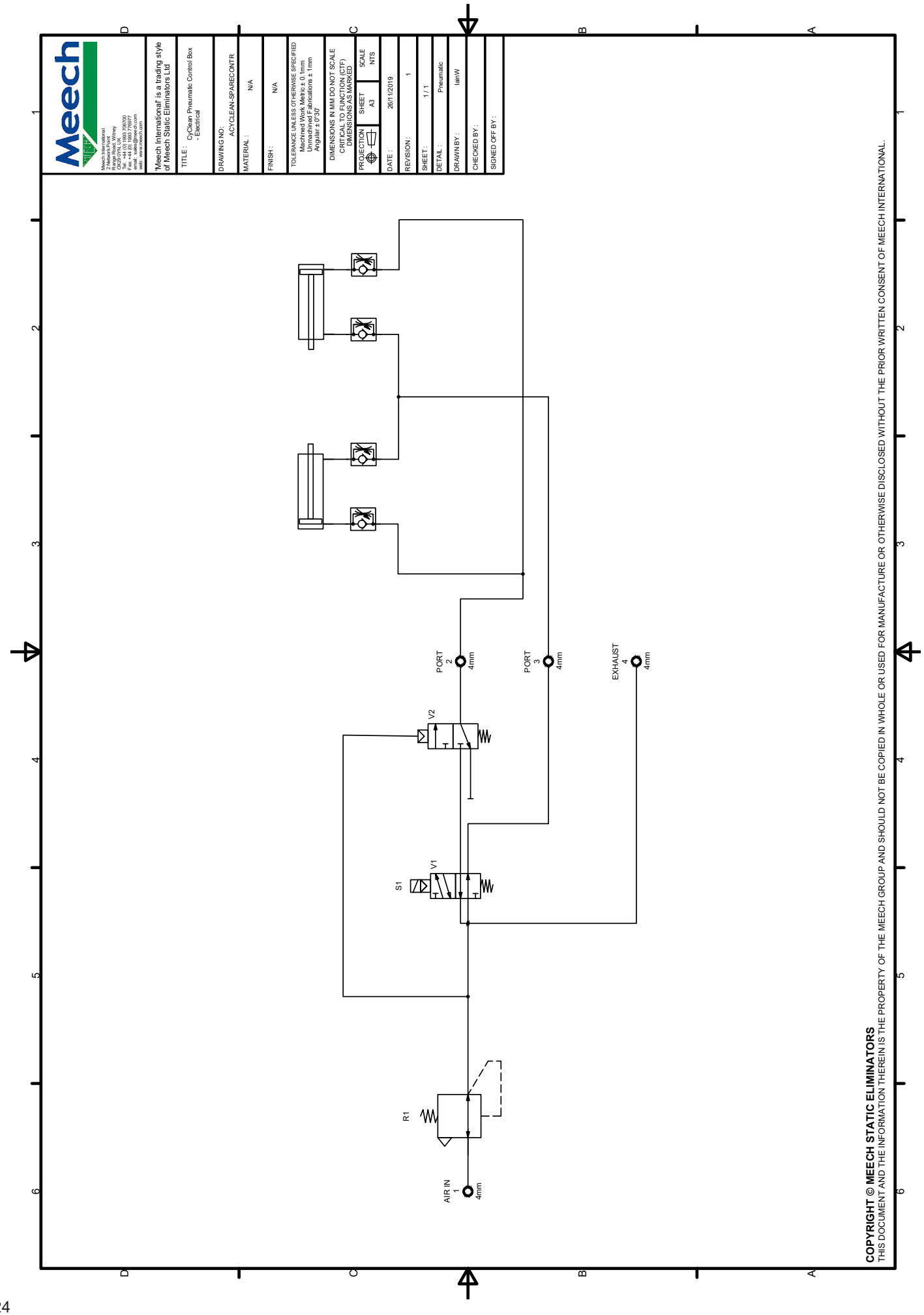
Problem	Cause	Solution
No blowing or vacuum pressure.	Loose duct connection.	Check all ducting connections are secure and that there is no damage.
	Duct layout.	Check the ducting layout to ensure there are no tight bends.
	AHU fault	Check power is connected to AHU and that line interlocks are good (if 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.
	AHU Screen Fault	Check the airline connections on the back of the screen are not damaged and the airline is secure.
No Ionisation	Various	SSee 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 www.meech.com

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

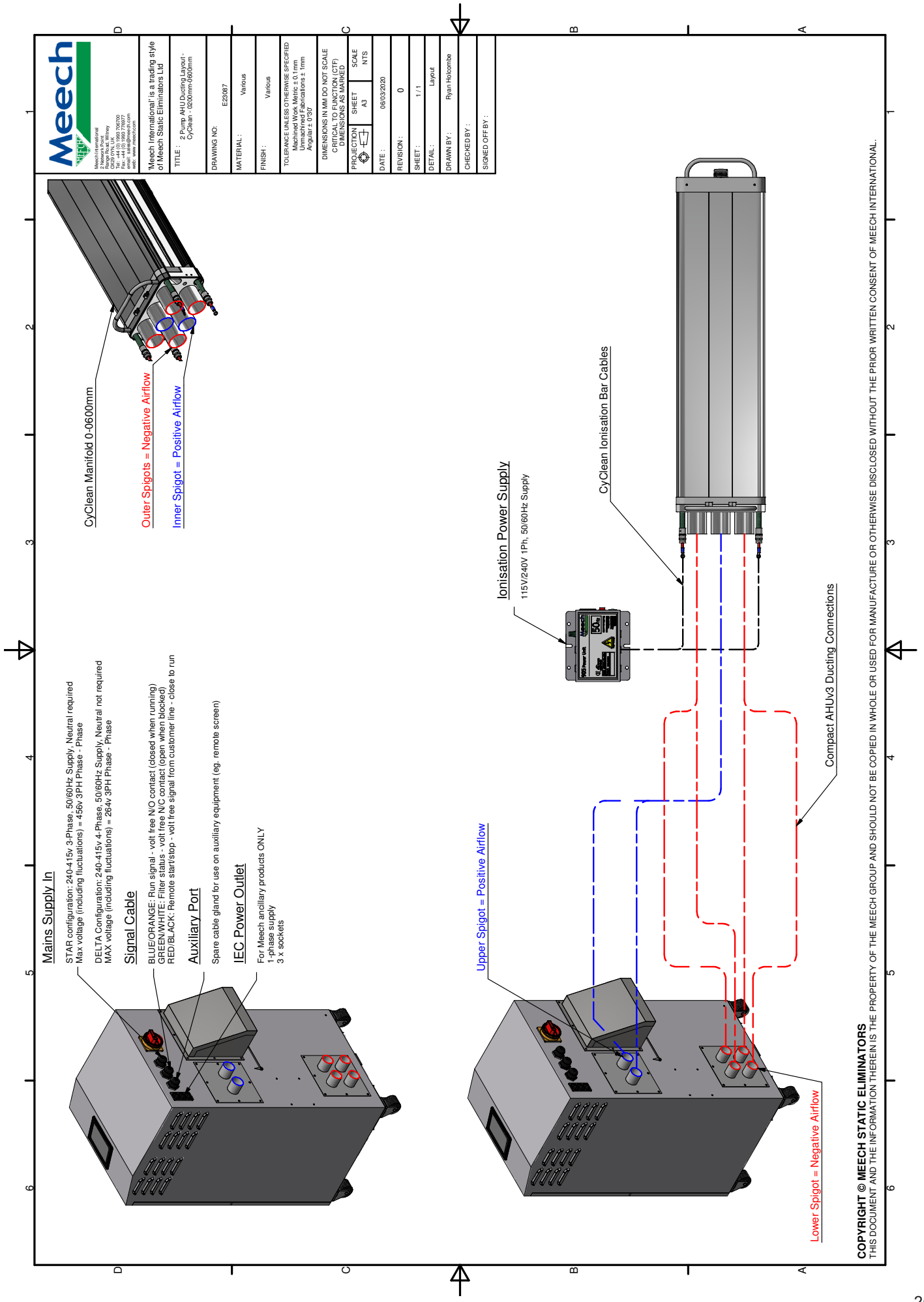
CyClean-R Pneumatic Control Box - Electrical



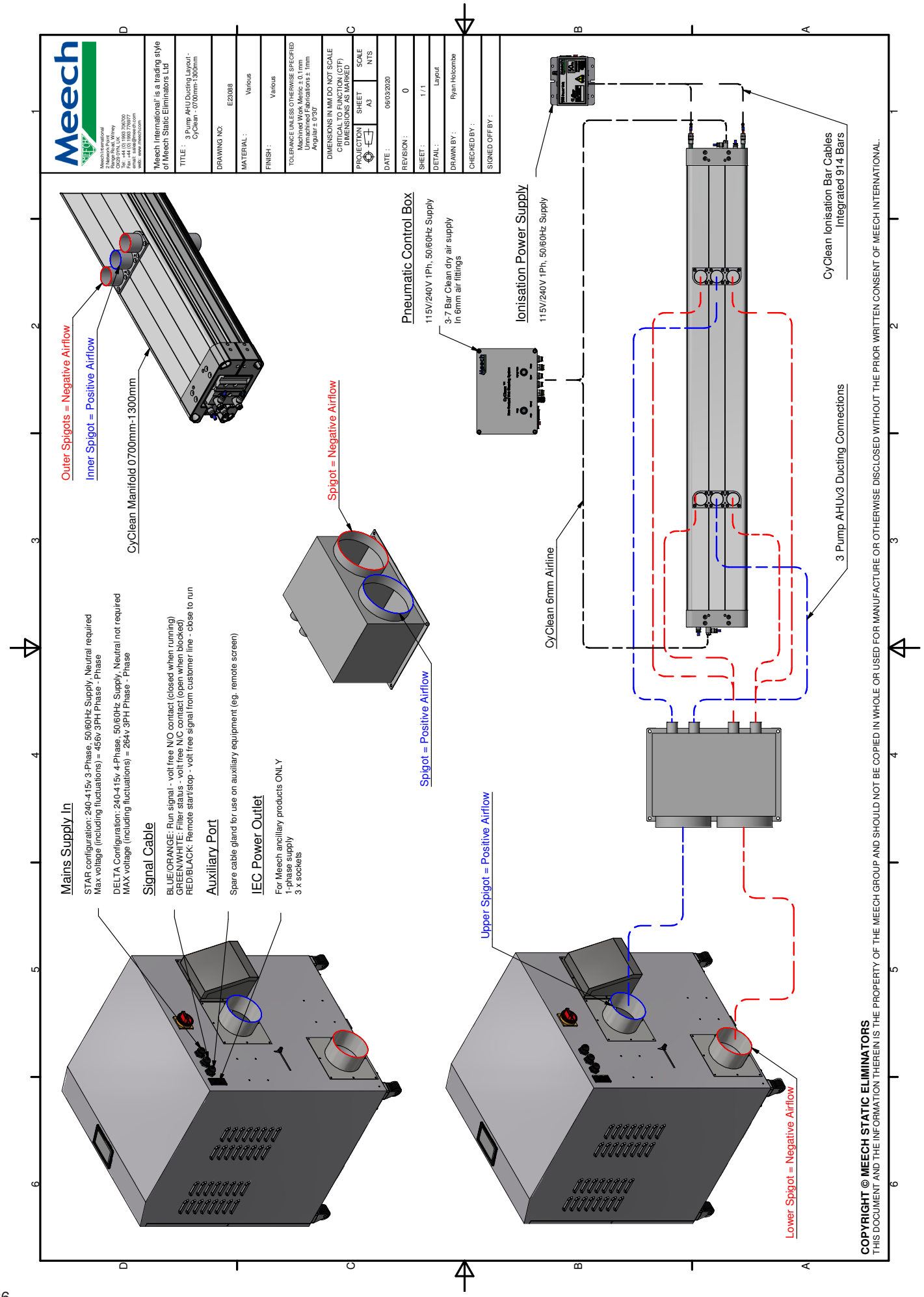
CyClean-R Pneumatic Control Box - Pneumatic



CyClean 200mm - 600mm : 2 Pump AHU Ducting Layout

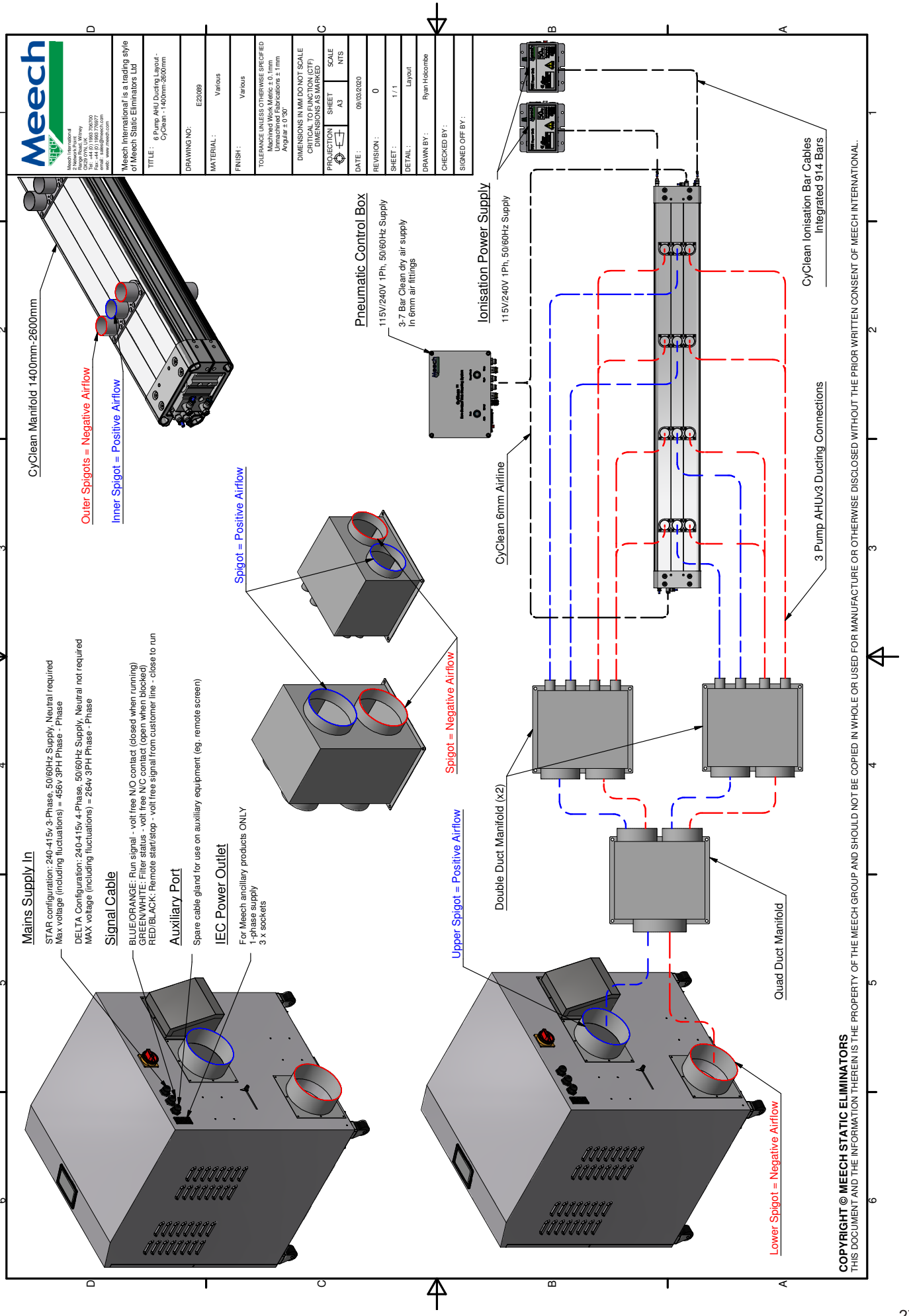


CyClean 700mm - 1200mm : 3 Pump AHU Ducting Layout



COPYRIGHT © MEECH STATIC ELIMINATORS
THIS DOCUMENT AND THE INFORMATION THEREIN IS THE PROPERTY OF THE MEECH GROUP AND SHOULD NOT BE COPIED IN WHOLE OR USED FOR MANUFACTURE OR OTHERWISE DISCLOSED WITHOUT THE PRIOR WRITTEN CONSENT OF MEECH INTERNATIONAL.

CyClean 1400mm - 2600mm : 6 Pump AHU Ducting Layout



Meech International
2 Network Point
Range Road, Witney
OX29 0YN, UK

Tel: +44 (0)1993 706700
email: sales@meech.com

Meech Static Eliminators USA Inc
1298 Centerview Circle
Akron, OH 44321
USA

Tel: +1 330 564 2000 / 1 800 232 4210
Fax: +1 330 564 2005
email: info@meech.com

Meech Elektrostatik SA
Kaiserbaracke 166
B-4780 St.Vith
Belgium

Tel: +49 (0) 651 468637 97
+32 (0) 80 670 204
Fax: +32 (0) 80 862 821
email: mesa@meech.com

Meech CE
Gábor László utca 2
Budapest 1041
Hungary

Tel: +36 1 7977039
+36 30 2803334
email: ce@meech.com

Meech Static Eliminators (Shanghai) Co. Ltd
7G, 7F, LP Tower
#25 Xiangfeng Road
201103 Shanghai
China

Tel: +86 400 820 0102
Fax: +86 21 6405 7736
email: china@meech.com

Meech Shavotech
29/2, Kharadi
Off Pune-Nagar Road
On Old Kharadi Mundhwa Road
Pune : 411014 , Maharashtra
India

Tel: +91 (0)703 093 8211 / +91 (0)741 000 4817
Fax: +91 (0)80) 28395963
email: india@meech.com

Meech International (Singapore) Pte. Ltd.
7 Temasek Boulevard
12 - 07 Suntec Tower One
Singapore
038987

Tel: +65 65918859
email: singapore@meech.com

© Meech Static Eliminators Ltd 2023