

Specifications (UK)

Specification	NPU 500	NPU 1300	NPU 2500	NPU 5000	NPU 10,000 Eco
Case Material	Polypropylene	Polypropylene	Polyethylene	Polyethylene	Polypropylene
Case Colour	Grey	Grey	Grey	Grey	Grey
Weight (kg)	19	31	46	65	135
Voltage (V)	110	110	110	110	110
Supply Frequency (Hz)	50	50	50	50	50
Current, Nominal (A)	1 x 2.15	1 x 14	1 x 14	2 x 14	1 x 20
Power, Input, max. (W)	234	1000	1000	2000	2270
Nominal Airflow (m ³ /hr)	500	1300	2500	5000	10000
Nominal Airflow (CFM)	294	765	1471	2942	5885
Noise Level, max. (dBA)	72	86	86	86	86
Differential Pressure (Pa)	0-1250	0-1250	0-1250	0-1250	0-1250
Isolation on/off switch	✓	✓	✓	✓	✓
Electrical Protection	6A TMCB	16A TMCB	16A TMCB	16A TMCB X 2	20A TMCB
Pre-filter Dimensions (mm)	296x296x47	372x372x98	450x450x98	596x596x98	905x595x97
HEPA Dimensions (mm)	305x305x150	381x381x150	457x457x292	610x610x292	915x610x292
Case Length (A) (mm)	418	607	961	957	1310
Case Width (B) (mm)	487	550	635	808	800
Case Height (C) (mm)	453	615	662	831	1169
Exhaust outlet diameter (mm)	150	200	300	400	500

Certification

- All appliances comply with BS EN 60335-2-69 Household and similar appliances;
- The units are manufactured at an ISO 9001 quality-assured site.

Registered office:

SMH House, 29-33 Maxwell Street, South Shields, NE33 4PU

0191 456 6000
enquiries@smhproducts.com

SMH Products Branches:

Midlands 0121 328 6000 midlands@smhproducts.com	Leeds 0113 279 9003 leeds@smhproducts.com	Bristol 0117 403 5830 bristol@smhproducts.com	Burscough 0174 426 660 burscough@smhproducts.com
London 01277 810 035 london@smhproducts.com	Glasgow 0141 556 6600 glasgow@smhproducts.com	Washington 0191 456 6002 washington@smhproducts.com	Romsey 0179 452 4000 romsey@smhproducts.com



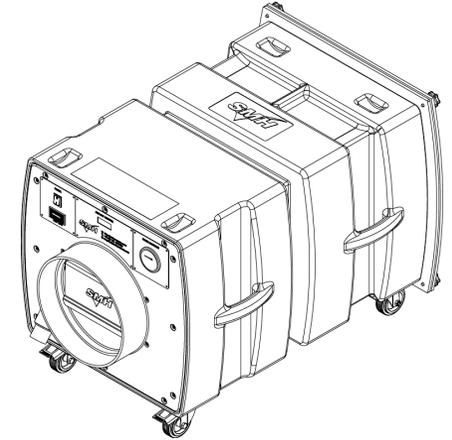
www.smhproducts.com



NPU Operating Instructions Negative Pressure Unit

Thank you for purchasing our Negative Pressure Unit (NPU). It is essential that you carefully read and fully understand the operating instructions contained within this manual prior to use. Please ensure this manual is kept readily available for future reference.

Our Negative Pressure Unit has been designed to serve a dual function: firstly, to create and sustain a negative pressure environment, thereby preventing the escape of hazardous particles; and secondly, to filter the air, ensuring it is cleansed of contaminants. This dual capability guarantees that the environment remains both controlled and safe, in strict adherence to the prevailing UK health and safety standards. Such a system proves indispensable in a wide array of settings, offering unmatched reliability and efficiency.



Contents

Safety Precautions.....	2
Product Overview.....	5
Functional Components.....	6
Setting Up the Machine.....	7
Hire Storage and Transport....	8
General Maintenance.....	9
Troubleshooting Guide.....	10
Warranty.....	11
Notes.....	12-13
Specifications.....	14
Certification.....	14
Model Variants.....	14
Contact.....	14

This manual applies to the following models:

- NPU 500
- NPU 1300
- NPU 2500
- NPU 5000
- NPU 10,000 Eco

Models vary in size, shape, and material, but their design and functionality follow the same principles.

Nominal airflow values can differ from actual values due to filter performance and measurement techniques.

www.smhproducts.com



Disclaimer Warning

The information contained within this document is vital for your safety and others it outlines your legal rights and responsibilities. Please ensure you read this document in its entirety to guarantee the correct configuration of the NPU before its use. Failure to observe and comply with the instructions and warnings herein may lead to serious injury to yourself or others, damage to your NPU apparatus, or harm to nearby objects. The contents of this document, along with any ancillary documents, are subject to alteration at the absolute discretion of the manufacturer. For the latest product information, visit <https://smhproducts.com/> and select the appropriate product page for this system. By employing this product, you are affirming that you have diligently read this disclaimer and warning, that you understand, and that you agree to abide by the terms and conditions contained within. You acknowledge sole responsibility for your conduct when using this system and for any consequences arising therefrom. You agree to utilise this product strictly for intended use, in compliance with all relevant local legislation, statutes, and regulations, as well as all terms, safety measures, practices, policies and guidelines as provided or as may be issued by the manufacturer. The manufacturer accepts no liability for any damage, injury, or legal accountability incurred, whether directly or indirectly, from the use of this product. Users must adhere to safe and lawful practices, which include, but are not limited to, those detailed in this document.

Safety Precautions

Precautions to be observed are categorised using the following symbols:



WARNING Failure to follow these instructions properly may result in personal injury or loss of life and property damage.



Never attempt.



Make sure to follow the instructions.



WARNING When working with asbestos, comply with both local and national safety laws. Prioritise local asbestos rules, which may be stricter, and ensure you meet national safety standards as well. More information can be found at <https://www.hse.gov.uk/asbestos>



WARNING Observe to prevent fire, electric shock or severe injury.



WARNING The NPU must be operated under the supervision of competent and trained operators.



WARNING The NPU should be examined daily when in use, or where deemed necessary by the manufacturer, serviced at least once every six months by a competent person.

Concerning the power supply plug and cord



- **Do not exceed 25m of cable length** (equipment damage or poor performance may result)
- **Do not join multiple cables together** (equipment damage or poor performance may result)
- **Do not unplug while the unit is in operation.** (Electric shock may result)
- **Do not plug in or unplug with wet hands.** (An electric shock may result)
- **Do not use in such a way that the ratings of the power socket or wiring appliances are exceeded or use a voltage outside of the range AC 110-120V.** (Fire may result from overheating if the ratings of the multi-socket power adapters, etc., are exceeded)
- **Do not pull on the power supply cord when unplugging.** (Overheating or fire may result from wire breakage)
- **Do not perform actions that might break the power supply plug and cord.**
 - Such actions include damaging, modifying, forcibly bending, pulling, twisting, bundling up, and placing heavy objects on the power supply plug or cord.
 - If the power supply plug is damaged, it must be replaced by our company (the manufacturer), a service centre authorised by us, or a similarly qualified person to avoid a hazard. (An electric shock, short-circuiting, or fire may result from use while damaged)
- **Insert the power supply plug firmly in.**
 - Do not use a damaged power supply plug or a loosely fitted power socket. (Electric shock, short-circuiting or fire due to overheating may result if the power supply plug is not firmly inserted)
- **Periodically wipe the dust off the power supply plug with a dry cloth.**
 - If the unit is not to be used for a prolonged period, unplug the power supply. (Fire may be caused by defective insulation resulting from dust build-up with moisture, etc.)
- **When moving the unit, make sure to turn off and unplug the unit.** Do not pull cable to move the unit (An electric shock or injury may result)



Do not use in the following places



- **Inside a working enclosure.** (The machine must be used on the outside of an enclosure with the filter face attached to the enclosure)
- **Places where oil or flammable gases are used or may leak.** (Fire or smoke may result from ignition or suction into the unit, or injury may result from degradation or cracking of plastic)
- **Places where temperature and humidity levels are high or water may scatter, such as a bathroom.** (Fire or an electric shock may result from electrical leakage)
- **Places accessible to small children.** (An electrical shock or injury may occur)

During use



- **Do not move the machine.** Before relocating the machine, ensure that it is switched off and prefilter is contained.
- **Do not leave the machine unattended.** Due to the environmental locations, these machines must be always monitored by a competent trained person. (Fire, an electric shock or injury may result)
- **Do not attempt to disassemble, reconstruct or repair the unit yourself.** (Fire, an electric shock or injury may result) For repairs, please contact the place of purchase.
- **Do not use with 3rd party equipment.** Only use accessories and equipment supplied by the manufacturer (Fire, an electric shock or injury may result)
- **Do not bypass any safety mechanisms or interlocks.** Doing so can cause fire, electric shock, or injury.
- **Do not use the machine for applications it was not designed for;** misuse can lead to hazardous conditions.
- **Do not obstruct openings when machine is in use.** Overheating may cause a fire.
- **Do not expose the machine to rain or moisture to prevent electric shock or injury.**
- **Do not insert any objects into openings to avoid electric shock or damage to the machine.**
- **Do not operate the machine with a damaged cord or plug;** if the machine is malfunctioning, contact the manufacturer.
- **Do not modify any electrical components or wiring without professional guidance to prevent fire or electric shock.** If the machine is malfunctioning, contact the manufacturer.
- **Do not place anything on top of the machine unless the machine is being prepared for storage.**
- **Do not use aggressive cleaning agents that can corrode or damage the machine's components.**
- **Do not ignore unusual noises or smells from the machine;** turn it off and consult a professional.
- **Do not allow unqualified personnel to conduct maintenance or repairs.**

Machine Maintenance



- **Please read the NPU Maintenance Manual.** The Maintenance Manual has been crafted as a technical guide to assist the chosen maintenance Centre in maintaining the SMH Negative Pressure Unit (NPU) at its optimal performance.
- **Regular Examination.** The NPU should undergo examination or as deemed necessary by the manufacturer, servicing at least once every six months by an approved service centre.



CAUTION Using these Units for other purposes is considered contrary to their intended use. The manufacturer accepts no liability for any damage or injury resulting from such use.



WARNING Observe to prevent fire, electric shock or severe injury.

Immediately turn off and unplug the unit if there are any signs of abnormality and malfunction



- **Examples of abnormality and malfunction.** (Contact the place of purchase.)
 - The unit does not operate even if the switch is turned on.
 - Current passes through the cord or fails to pass through if the cord is moved.
 - There are abnormal sounds or vibrations during operation.
 - The enclosure of the unit has become deformed or is abnormally hot.
 - There is a burnt smell. (Malfunction, an electric shock, smoke, fire, etc., may result if the abnormality is not addressed and the unit continues to be used).



CAUTION Observe to prevent electrical leakage, injury or property damage.

Concerning the unit body



- **Do not store or use to transport any other items of equipment on or in the unit.** (Overheating or fire may result)
- **Do not climb, sit or lean on the unit.** (Injury may result from falling or toppling)
- **Do not remove any screws from the machine.** (Exposure to dangerous carcinogen's may result)

When shutting down the unit



- **Ensure that a clean pre-filter is fitted to the NPU and that it has been taped into place.**
- **Seal the NPU using the transit cover plate and shrink wrap to prevent fibre release during transport.**
- **Turn off and unplug the unit.**

Transport of the unit



- **NPU's should be risk assessed before attempting to lift them from a van or working area.**
- **When picking up the unit to move it, handle the unit with caution.**
 - Be sure always to hold the unit using the correct handle location.
 - **The NPU must only be transported in a decontaminated state.**
 - **Ensure that the transit cover plate is fitted securely to protect and seal the pre-filter during transit.**
 - **Ensure the machine has been shrink wrapped.**



WARNING It is the responsibility of the user to carry out their risk assessment for the use and transport of the unit.



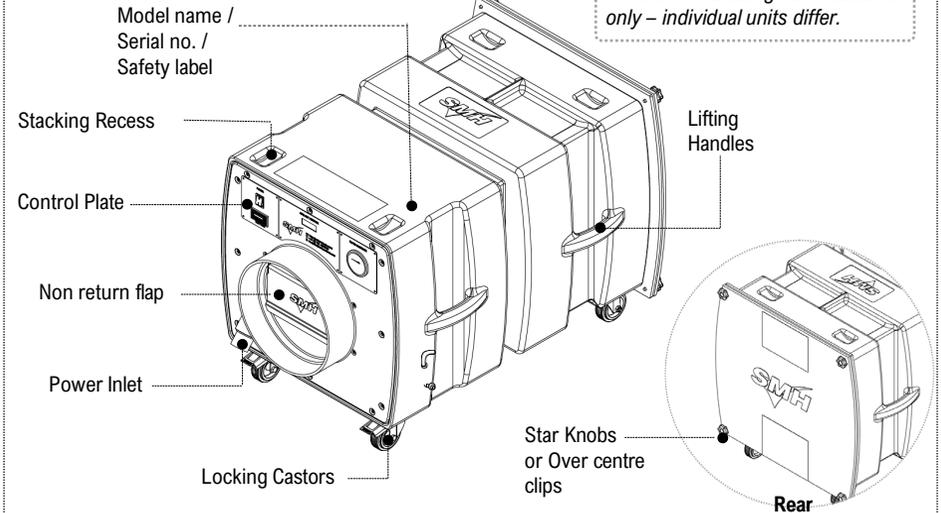
This marking indicates that this product should not be disposed of with other household wastes. To prevent harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material sources. To return your used device, please use the return and collection systems or contact the retailer where this product was purchased. They can take this product for environmentally safe recycling.

RECORD THIS INFORMATION

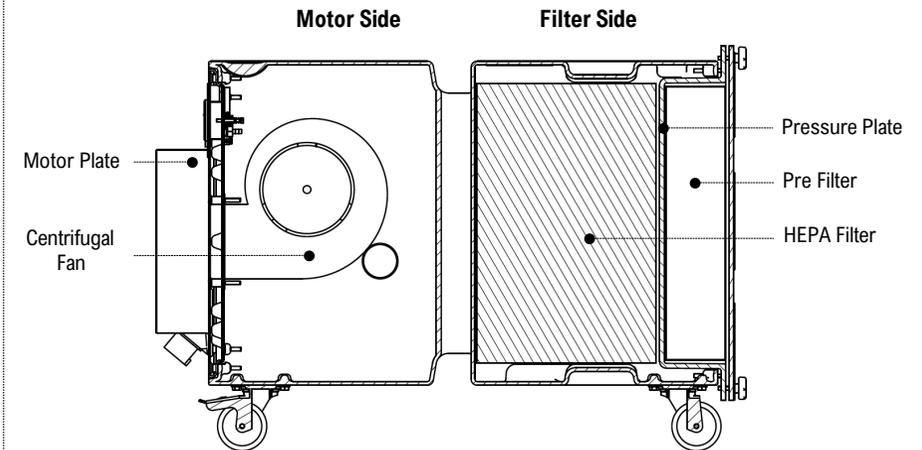
- Model:** _____
- Serial Number:** _____
- Date of Purchase (keep receipt):** _____
- Purchase Branch:** _____

Product Overview

Negative Pressure Unit



Internal Overview



Functional Components

Control Plate

Power Switch

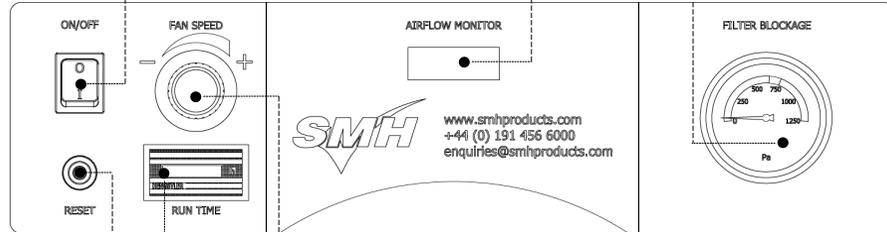
Turns the device on and off.

Airflow Monitor (Optional)

Offers real-time monitoring of airflow (m³/hr)

Manometer (Pascal Gauge)

Measures internal pressure and indicates filter blockage level.



Thermal Cutout

Offers overload and short-circuit protection.

Hour Counter (optional)

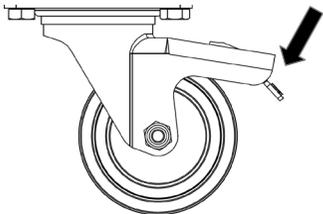
Displays the running time of the machine.

Speed Controller (Optional)

Allows control of the fan speed to adjust airflow performance.

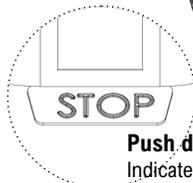
Castors

Castor in locked position
Press firmly down with foot



Castor in open position
Lift tab with foot or hand

Push down Tab
Indicated with STOP



Setting up the Machine

1 POSITION THE MACHINE

- **WARNING:** Always place the NPU on a flat surface before use. Using it on uneven surfaces raises the risk that the machine will move when switched on.
- Ensure the area is clear of obstructions that could damage the power cable.
- When the machine is in position securely press down the castor locking tabs (see page 6 illustration)

2 CONNECTING THE POWER LEADS

- **Inspect the Leads:** Before use, inspect the power leads for any damage, such as cuts or fraying. Do not use damaged cables.
- **Connect to the machine:** Plug one end of the 16A power lead firmly into the machine's power inlet. Make sure the connection is secure.
- **Connect to Power Source:** Plug the other end of the power lead into a 16A-rated power outlet. Ensure the outlet is switched off before inserting the plug.
- **Secure Connections:** Make sure all connections are tight and secure to prevent any disconnections or power interruptions.
- **Test:** Once everything is connected, switch on the power at the mains, and then turn on the NPU to test the connection.
- **Cable Management:** Arrange the cables neatly to prevent tripping hazards and protect the cables from being damaged. Ensure the cable is not coiled during use.

3 OPERATION OF THE UNIT (See *Control plate Illustration on Page 6*)

- **Power On:** Use the power switch located on the NPU control plate to turn on the unit.
- **Fibre Release Prevention:** Ensure the transit plate remains in place while the unit is running to prevent potential fibre release. Once the machine is running, the transit plate can be removed.
- **Pre-Filter Installation:** Confirm that a clean pre-filter is fitted securely to the NPU and taped into place.
- **Manometer Check:** Verify that the manometer reading is within the safe operating pressure range. The manometer is colour-coded for easy identification of safe working pressure (see page 9)
Note: the manometer fitted to the NPU is not an indicator of negative pressure within the enclosure or airflow performance of the machine.
- **Setup and Positioning:** Once the machine is set up and positioned in its working environment, remove the cover.
- **Ventilation Options:**
 - Attach the NPU to an enclosure wall or connect it to ducting.
 - Always extract to the atmosphere wherever possible.
 - Alternatively, a spigot and roving filter box can be added to control fibres at the source.
- **Braking:** Apply the brakes on the NPU castors to secure the unit and prevent movement during operation.

Ducting Consideration:

According to the RR988 HSL research project, a 1% drop in airflow rate occurs for each metre of 355mm ducting used and a 2% drop for every for a 90 degree bend.

Hire Storage and Transport

Hire: The hire branch is responsible for ensuring the equipment's functionality before delivery, including providing up-to-date certificates. The customer must use the equipment professionally, follow the user manual and regulations, and be responsible for civil liability insurance during the hire period. The customer must return the equipment clean, and decontaminated unless the contract specifies that the hire branch handles decontamination. If returned contaminated, the customer is liable for safely transporting the equipment, which must be securely sealed and labelled according to regulations. Upon return, the hire branch staff must document the equipment's condition. Failure to follow this procedure will result in a decontamination charge by the hire branch.

Storage of the unit

Avoidance of extremes of temperature, damp conditions and/or dusty conditions. The unit must be stored only in a decontaminated state.



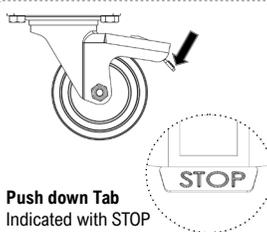
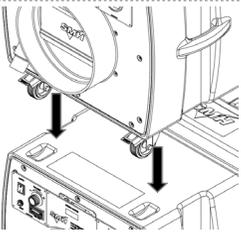
WARNING

Never stack the NPU's more than two high. Additionally, manual lifting of the units should be performed by two individuals to adhere to manual handling regulations.

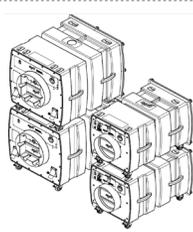
The following products:

- SMH NPU 2500+ • SMH NPU 5000+

Feature recessed pockets designed to securely seat the castors when the machines are stacked. For added safety, the castors must be firmly locked once the units are stacked, and pallet strapping or banding should be used as an additional precaution.



Push down Tab
Indicated with STOP



Transport: Ensure all components are securely positioned on the NPU, and the machine is properly wrapped and palletised to prevent movement, escape of contaminants or damage during transit. The machine must be firmly secured within the vehicle to eliminate the risk of shifting during transportation.

As an additional precaution, SMH **will not accept** returned machines unless they are fully contained. It is the customer's responsibility to ensure that the machine is properly shrink-wrapped to minimise the risk of contamination. Machines that are not shrink-wrapped will not be accepted, and customers will be required to wrap the machines before SMH staff can process the return or collection.

General Maintenance

EXTERIOR CLEANING

When dirt becomes an issue

- Switch off the unit.
- Wipe up dirt with a soft damp cloth.
- When dirt build-up is severe, wet a cloth with kitchen-use neutral detergent and wipe up the dirt.
- Follow procedures for decontamination.

CHANGING THE PRE-FILTER



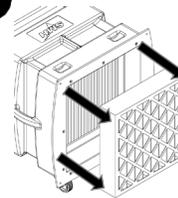
Replace every day

Step 1: Ensure the machine remains powered on. Carefully remove the tape securing the filter. Remove the pre-filter.

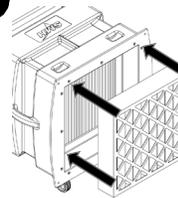
Step 2: Replace filter ensuring medium pleats are vertical then apply new tape.

Note: Follow decontamination procedures.

1



2



WARNING Filters and associated equipment may be contaminated with Asbestos! Follow company procedures for safe removal and disposal.



REPLACING HEPA FILTER



Check daily before use

If replacing the prefilter does not achieve a safe filter working pressure, it's time to replace the main HEPA filter.

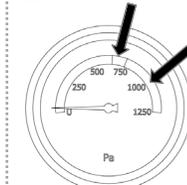
Step 1: Check the Manometer: After replacing the prefilter, observe the blockage level indicated on the manometer.

Step 2: Assess the Pressure: If the manometer is in the amber zone, contact the SMH service team to schedule a filter replacement. Refer to page 14 for contact details.

Green is represented on the manometer as a safe working pressure **Amber** is represents the filter change is necessary. **Red** represents filter is at bursting pressure and requires it to be immediately changed.

1

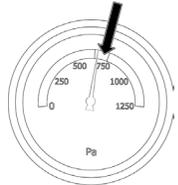
Ready for change



Bursting pressure

2

Filter Replace



***Note: Measure airflow performance daily** - according to UK HSG247 - HEPA filters should be replaced if airflow measurements indicate a reduction of 20% or more, as detected by monitoring equipment such as an anemometer. Airflow performance may force HEPA replacement before filter reaches amber blockage. The rated airflow performance can be found on the DOP test certificate and DOP test sticker on the machine*



PAT TEST every 6 months or on return from hire



DOP TEST every 6 months or return from hire



MAINTENANCE SERVICE every 12 months

Please contact your nearest SMH Branch or approved service centre for maintenance, servicing and replacement parts. Contact information can be found on page 14.

Troubleshooting Guide

The following troubleshooting guide is designed to assist users in identifying and resolving common issues that may arise with the SMH Negative Pressure Unit (NPU). If you encounter any problems with the system, follow the steps outlined below to troubleshoot and address the issue:

1 Problem: Unit Does Not Power On:

- **Check Power Supply:** Ensure that the NPU is securely connected to a power source and that the power supply is functioning correctly. Verify that the power switch is in the "ON" position.
- **Verify MCB's or Thermal cutout Position:** Check that all Thermal Miniature Circuit breaker (TMCBs) and Miniature Circuit Breakers (MCBs) associated with the NPU are in the "ON" position. Reset any tripped breakers if necessary. Push the black button to reset the thermal cutout switch.
- **Inspect Power Cables:** Examine the power cables for any signs of damage or wear. Replace any damaged cables, as necessary.
- **Cable Length:** Ensure the total cable length is under 25m and cross-sectional area (CSA) of the cable is $\Rightarrow 2.5\text{mm}$. Avoid using multiple joined cables, as voltage drop can occur when using linked extension cables. **If the problem persists, contact SMH Products. Refer to page 14 for contact information.**

2 Problem: Enclosure Negative Pressure is Low:

- **Check the Transit Plate:** Ensure the transit plate has been removed, and the machine is ready for operation.
- **Check the Speed Control:** If the machine has speed control, confirm that the speed control is turned to its maximum setting by rotating it fully clockwise.
- **Inspect the Manometer Blockage Level:** Verify that the machine's filter pressure is in the green zone of the manometer.
 - If the indicator is in the amber or red zone, replace the pre-filter and recheck the pressure.
 - If the manometer still does not operate within the green zone after replacing the pre-filter, the HEPA filter needs to be replaced. To arrange for a replacement HEPA filter, contact your nearest SMH branch.
- **Cable Length:** Ensure the total cable length is under 25m and CSA of the cable is $\Rightarrow 2.5\text{mm}$. Avoid using multiple joined cables to prevent voltage drop. Voltage drop can cause the fan to operate at a lower RPM.
- **Check Working Enclosure:** Check for leaks and ensure seal integrity within the working enclosure. **If the problem persists, contact SMH Products. Refer to page 14 for contact information.**

3 Problem: Machine Manometer Reads Zero When Machine Is Operational:

- **Check there are filters in the machine:** Ensure that the machine has filters installed.
- **Check the exhaust:** Ensure the exhaust is not obstructed.

If the problem persists, contact SMH Products. Refer to page 14 for contact information.

4 General Troubleshooting Tips:

- **Document Observations:** Keep detailed records of any observations, symptoms, or troubleshooting steps taken to assist technical support personnel in diagnosing and resolving the issue.
- **Safety First:** Always prioritise safety when troubleshooting electrical or mechanical issues. Disconnect power sources and follow proper safety procedures to avoid injury or damage to equipment.

If problems persist or if additional assistance is needed, contact SMH technical support for further guidance and support. Contact details can be found on page 14.

Warranty

Warranty Period: This warranty is valid for a period of one year from the date of purchase. The original purchase receipt or other proof of date of purchase will be required before warranty service is rendered.

Coverage: This limited warranty covers defects in materials and workmanship in the products under normal use and service.

What Will Be Done - Our Commitment: Should a defect arise, we are dedicated to either repairing or replacing the product as per our discretion under this warranty. The choice of replacement will be determined by the manufacturer's judgment.

What Is Not Covered: This warranty does not cover damage or failure resulting from misuse, abuse, accident, modification, unauthorised repairs, or any use contrary to the instructions provided by the manufacturer. Included consumables are not covered under this warranty.

How to Obtain Service: To obtain warranty service, contact the manufacturer or its authorised service centre. Provide a detailed description of the problem and a copy of your receipt or other proof of purchase.

Limitation of Liability: The manufacturer is not responsible for any direct, indirect, incidental, or consequential damages that may arise from a breach of warranty or condition or any other legal standpoint.

Manufacturer's Contact Information: For any questions or to obtain warranty service, please contact the manufacturer through the following means:

Phone: +44 (0)191 456 6000

Email: enquiries@smhproducts.com

Website: <https://smhproducts.com/contact>

Note: This warranty is valid only for the original purchaser of the product and is not transferable.

