

nano



BREATHING AIR PURIFIER

SERIES 3 BREATHING AIR USER GUIDE

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1. General Information

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Product: Series 3 **Breathing Air Purifier**

Models: NBA-2110, 2120, 3120, 4120, 6120

Doc No: 17-110-0486

Issue: 004

1.1 Document Introduction

This manual provides factory prescribed installation and maintenance procedures for a nano purification solutions breathing air purifier. The procedures illustrated in this document are only to be performed by authorised personnel. For further information regarding the procedures outlined in this document contact nano purification solutions before proceeding.

Read this document carefully before attempting to install or operate the dryer. This document should be permanently available at the dryer installation site and be kept in an easily accessible place alongside the dryer.

1.2 Support and Manufacturers details

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Annotations:



CAUTIONS: indicate any situation or operation that may result in potential damage to the product, injury to the user, or render the product unsafe.



NOTES: highlight important sections of information where particular care and attention should be paid.

1.3 Warranty Guidelines

All products come with a 2 year manufacturer's warranty from the date of purchase, under the condition that it is installed and maintained in accordance with the manufacturer's guidelines. Only genuine service parts should be used and no modifications made. For further information please contact nano-purification solutions.

1.4 Packaging

All products are securely packaged in a specifically designed wooden packing box. The purifier will be held in a horizontal position by wooden struts; using straps to secure the product to the box base. The box top cover can be removed by removing all of the fixing screws and lifting it off in one piece.

Damage to Packaging

- Check immediately to establish whether damage has occurred to the external packaging and if the damage extends to the product inside.
- If there is damage to a product, contact the relevant supplier immediately.



In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.

2. General safety



For your own safety, when carrying out work on this product, all relevant national safety regulations must be complied with relating to pressurized, electrical and breathing air systems.



A full risk assessment must be carried out by a competent person prior to installation and use. Such risk assessments should then be approved by another competent person. For further instruction regarding a risk assessment refer to section 9.2 on page 14.

2.1. Intended use of the Product

The purifier is exclusively intended for the treatment of compressed air, which is free from bulk water, oil and solid matter constituents.

The product should be located within a building and protected from accidental damage. The purifier must be operated only in accordance with the data on the rating plate. Any operations that do not comply with those stated on the product rating plate will render the warranty void.



This product is only designed to operate at pressures of between 58 - 145 psig (4 - 10 barg). It is not suitable for pressures in excess of 145 psig (10 barg).



IMPORTANT: It is essential that the system into which the Purifier is installed is fitted with a pressure limiting/relief device. This device should be between the compressor and the Purifier. The device must be set to prevent the maximum working pressure of 145 psig (10 barg) from being

No modifications must be made to the product. Any modifications may reduce the operational safety of the product and will invalidate the manufacturer's warranty. This could potentially result in damage to the product and serious personal injury.

2.2. Personnel

Only authorized, competent and trained personnel are permitted to work on this product. This user guide is intended solely for such personnel and is to be used only as a reference; it should not be used to replace conventional training.

2.3. Safe Handling

Please ensure the relevant safe engineering practices and handling procedures are employed when handling, installing and operating this product. Ensure that the equipment is depressurized and electrically isolated prior to carrying out any of the scheduled maintenance instructions specified within this user guide.



A suitable lifting aid must be used to minimize the risk of physical injury or damage to the product.

3. Technical Description

High purity compressed medical breathing air purifiers.

The nano Breathing Air Systems (NBA) range of medical compressed breathing air purifiers are designed to provide a continuous supply of breathable air to meet the most exacting standards worldwide. The unique design provides a major step forward in compactness by incorporating several stages of purification in one simple to service cartridge, reducing the cost of ownership and simplifying maintenance.

Atmospheric air contains a number of contaminants which must be removed to ensure the provision of high purity breathable air. Contaminants present include dirt, water, oil, hydrocarbon vapors, bacteria and toxic gases such as CO, NO₂ and SO₂.

The nano breathing air purifier employs a number of purification stages to ensure breathable compressed air is produced from a typical compressed air supply. Inlet filtration removes dirt, bulk water and oil aerosols (if an oil lubricated compressor is used). Water vapor and hydrocarbon vapors are removed by selected adsorbents and CO₂ reduces to within specified levels. CO is removed by a catalytic stage and finally all residual dust and bacteria are removed by the integrated high efficient outlet filter. Internally, should small amounts of bulk liquid enter the purifier, they will be separated and safely drained away by reliable solenoid valves that are also used in the operation of the pressure swing adsorption process.

How the breathing air NBA purifier works:

The nano breathing air purifiers use the pressure swing adsorption principle to efficiently purify the compressed air. They consist of a twin tower configuration of modular construction. Each tower contains a composite purification cartridge which incorporates various types of selected materials to remove impurities to within the required levels.

Moist contaminated air enters the purifier and is first directed to column A. The air passes into the purification cartridge where water vapor is adsorbed and the air dried to a level that enables the CO to be converted to CO₂ by the use of a catalyst. CO₂ content is also adsorbed to ensure the outlet purity is achieved but enough is left for respiratory purposes. Hydrocarbon vapors, NO₂ and SO₂ contaminants are now adsorbed using a selected high surface area activated carbon stage. Finally the air passes through a high efficiency filter stage to remove any solid particles and bacteria. Simultaneously, a small amount of purified air is depressurized and counter flowed through Column B and exhausted to atmosphere, removing the moisture and excess CO₂. Hydrocarbon vapors NO₂ and SO₂ are retained on the activated carbon stage through chemisorptions. Column A typically operates for 2 minutes while column B is under regeneration (1 ½ minutes of purge and then re-pressurized) prior to the columns being switched over, which brings Column B on line and Column A goes into regeneration.

The breathing air purifier is controlled by a robust PLC which switches the solenoid valves allowing each column to be switched from purifying to regeneration thus providing a continuous stream of purified breathing air.

4. Technical Specification

4.1 Product Specification

Required Inlet Purity	ISO 8573-1 : 2010 Class 1:2:2
Minimum working pressure	80 psig (5.5 barg)
Maximum working pressure	145 psig (10 barg)
Power Supply	100 - 240v AC / 50 - 60Hz
Minimum inlet temperature	34.7°F (1.5°C)
Maximum inlet temperature	86°F (30°C)
Ambient Temperature	34-122°F (1-50°C)
IP Rating	IP54 / NEMA 3
Power	38W
Noise	<90dB (A)

4.2 Breathing Air Standards

Impurity	European Pharma	CSA Z180.1	NBA Medical Breathing Air Purifier
*CO ₂	<500ppm	<500ppm	<500ppm ♦ ¹
*CO	<5ppm	<5ppm	<5ppm ♦ ²
SO ₂	<1ppm	NA	<1ppm
NO ₂	<2ppm	NA	<2ppm
O ₂	NA	20-22%	20-22%
N ₂ & Rare Gases	NA	78-80%	78-80%
Water Vapour	ADP -45°C (-49°F) (-23°F) -31°C at 7 bar (100psi)	At a dew point 5°C under the lowest temperature its exposed to during the year.	PDP better than -40°F (-40°C) to ensure effective operation of the catalyst.
Oil vapour	<0.01 mg/m ³	<1mg/m ³	<0.01mg/m ³
Dirt Particles	NA	<1mg/m ³	Down to 0.01 micron
Odour	Taste and odour free	Taste and odour free	Taste and odour free
Bacteria	NA	NA	Removed (DOP efficiency 99.999%)
Methane	NA	<10ppm	<10ppm
Volatile non-methane hydrocarbons (VNMH)	NA	<5ppm	<5ppm
Volatile halogenated hydrocarbons	NA	<5ppm	<5ppm

Europe	EN12021
UK	BS4275 : 1997
USA	CGA G7.1-1997 OSHA-Grade D
Canada	CSA Z180.1



Refer to section 13.3 on page 20 regarding sampling and maintaining standards.



*Where excessive levels of CO₂ and CO have been identified as the norm, breathing air purifiers should not be used and alternative strategies should be derived from a risk assessment.

When challenged with 750ppm ♦¹

When challenged with 65ppm ♦²



All breathing air systems should be preceded by high efficiency filtration regardless of whether an oil or oil free compressor is used. Inlet air should be filtered such that it complies with ISO 8573-1: 2010 quality classes.

4.3 Maximum Flow Rates at 102psig (7barg) and temperature of 75°F (24°C)

Model	Inlet Flow		Outlet Flow	
	NL/m	scfm	NL/m	scfm
NBA - 2110	4871	172	3653	129
NBA - 2120	6117	216	4588	162
NBA - 3120	9176	324	6882	243
NBA - 4120	12234	432	9176	324
NBA - 6120	18351	648	13764	486

For flow rates at other pressures, apply the factor shown:

Line Pressure	bar g	5.5	6	7	8	9	10
	psi g	80	87	102	116	131	145
Correction Factor		0.89	0.92	1	1.07	1.13	1.20

4.4 CO Alarm

According to OSHA 1910.134 and CSA Z180.1, should be fitted to monitor the outlet air purity.

5. Product Contents

1. **Series 3 Breathing Air Purifier**
2. **Documentation**
 - 1 x User Guide
 - 1 x Declaration of Conformity
3. **Packaging**
 - 1 x Purifier support base and box cover



Suitable inlet filtration not included.

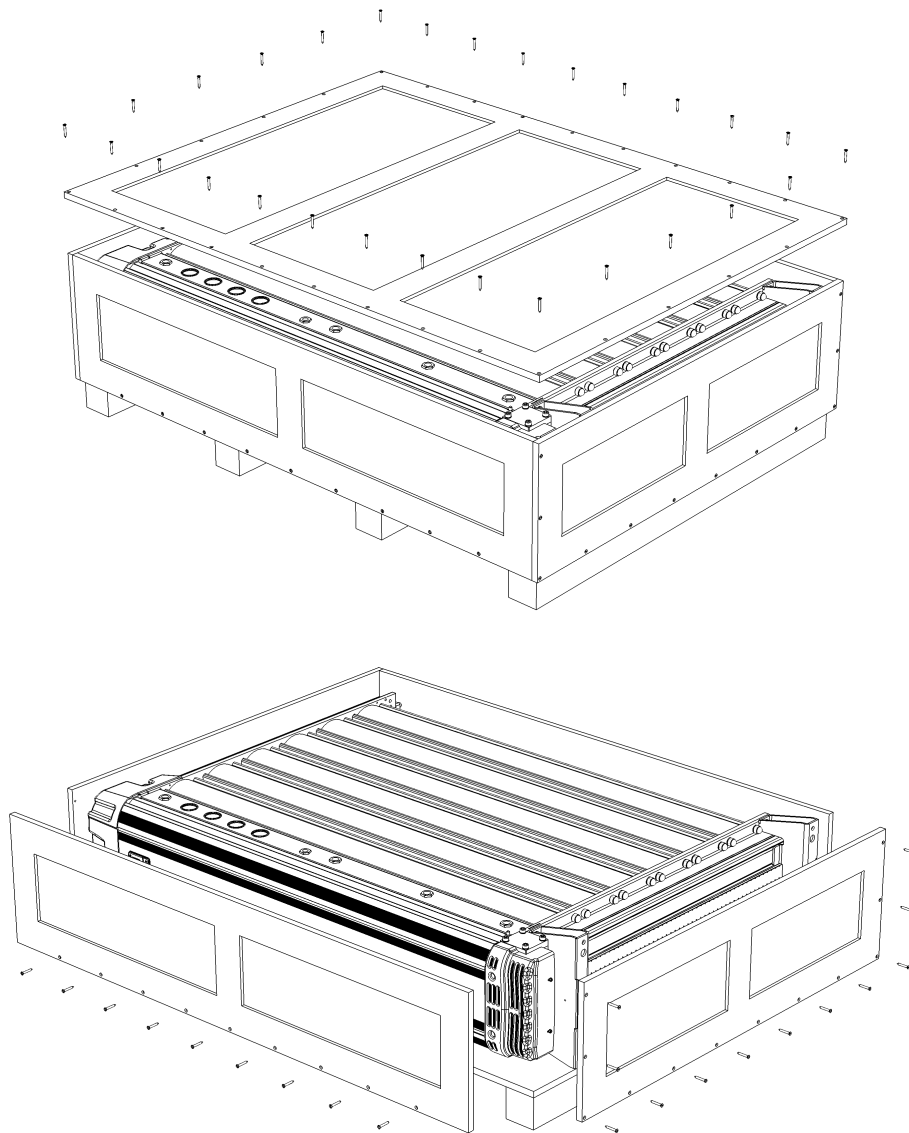


Figure 1: Contents Layout

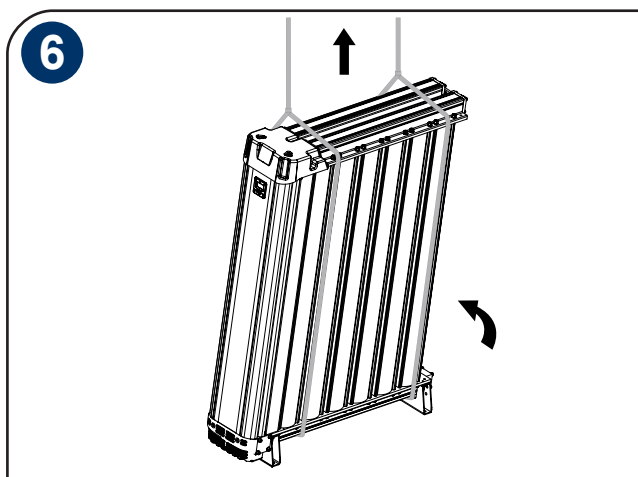
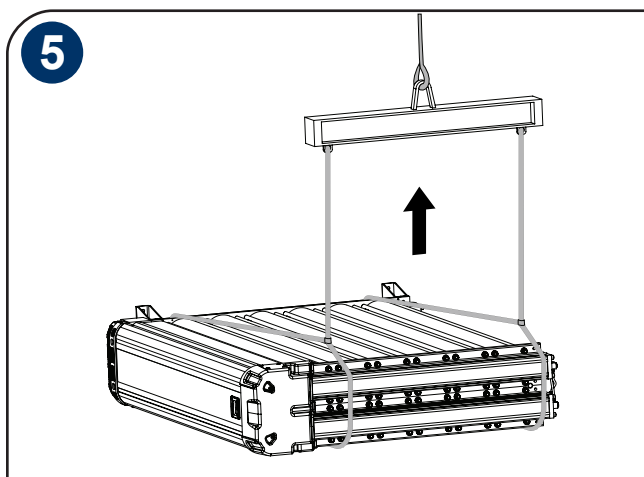
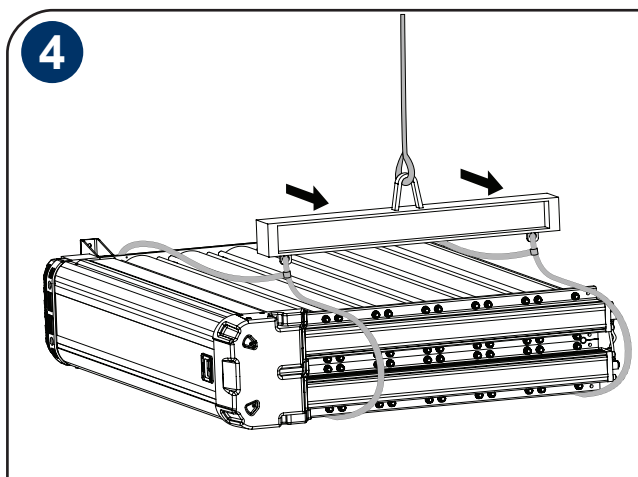
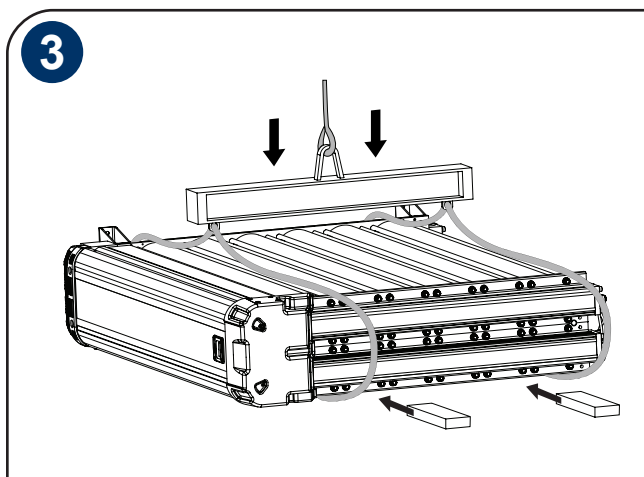
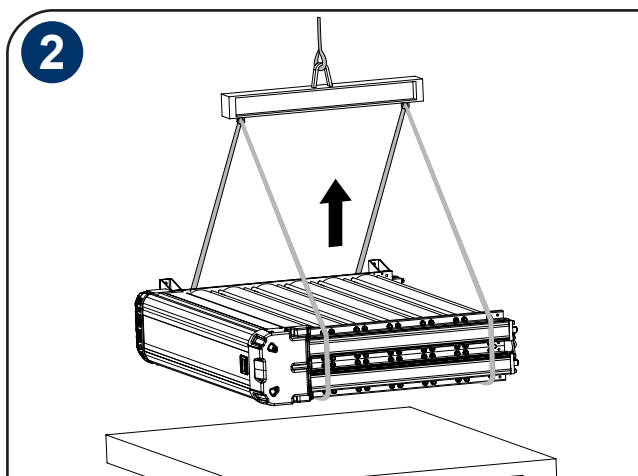
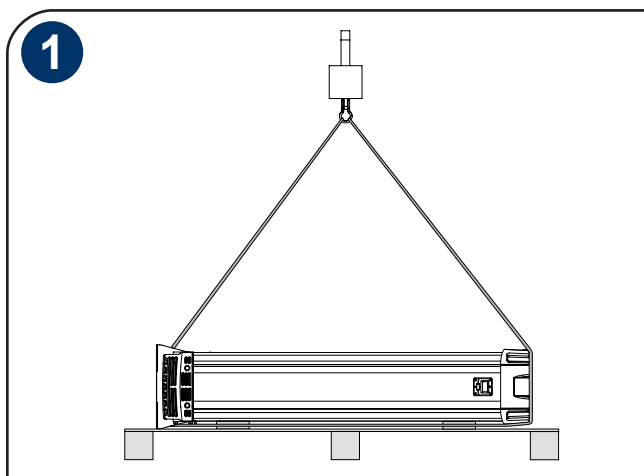
6. Unpacking Guide

The purifier is supplied in a wooden crate. It is recommended that the crate be moved into position using a forklift truck or pallet truck. Remove the purifier from the wooden crate using an overhead crane. Use the following illustrations for correct guidance on safe handling and lifting techniques.

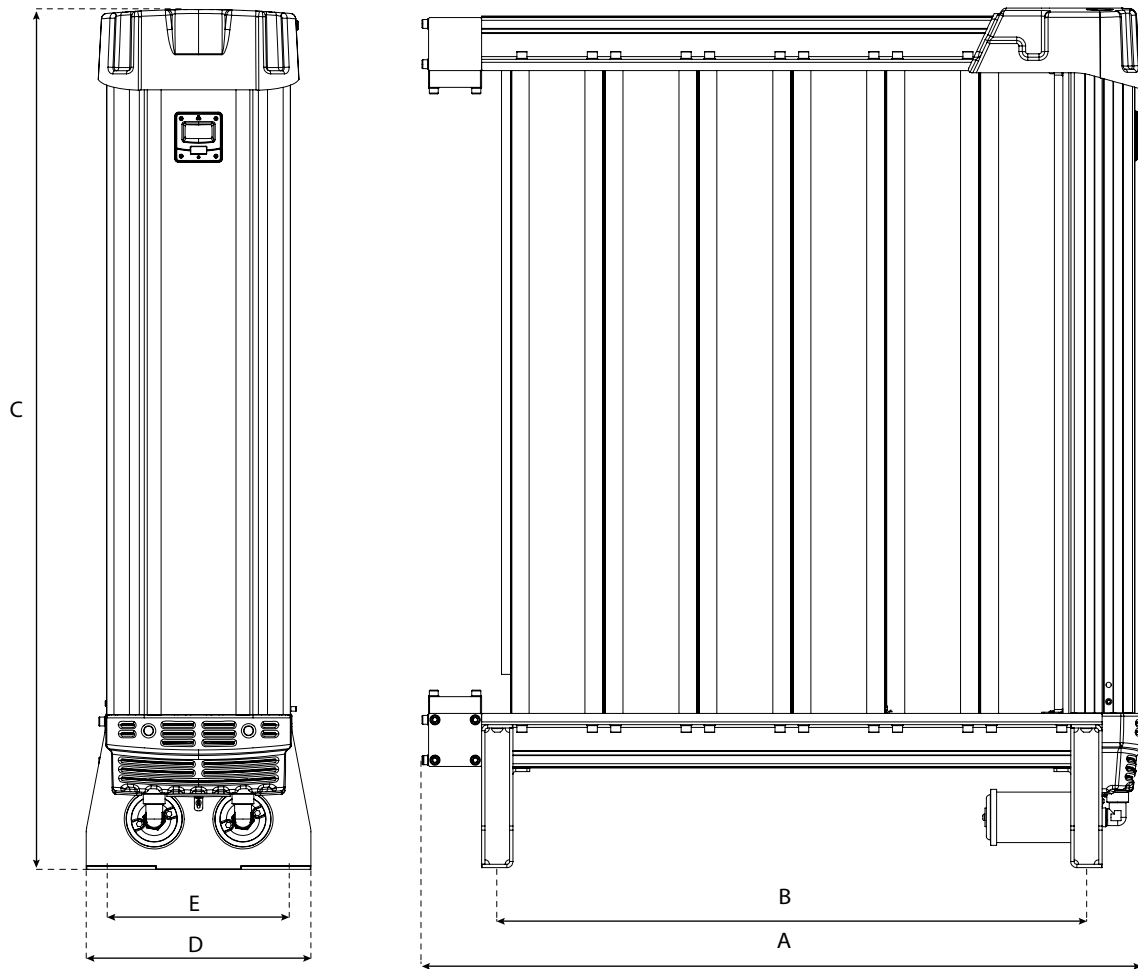
- Cut packaging straps first, before lifting.



Ensure that the external silencers/mufflers are removed before attempting to lift the purifier.

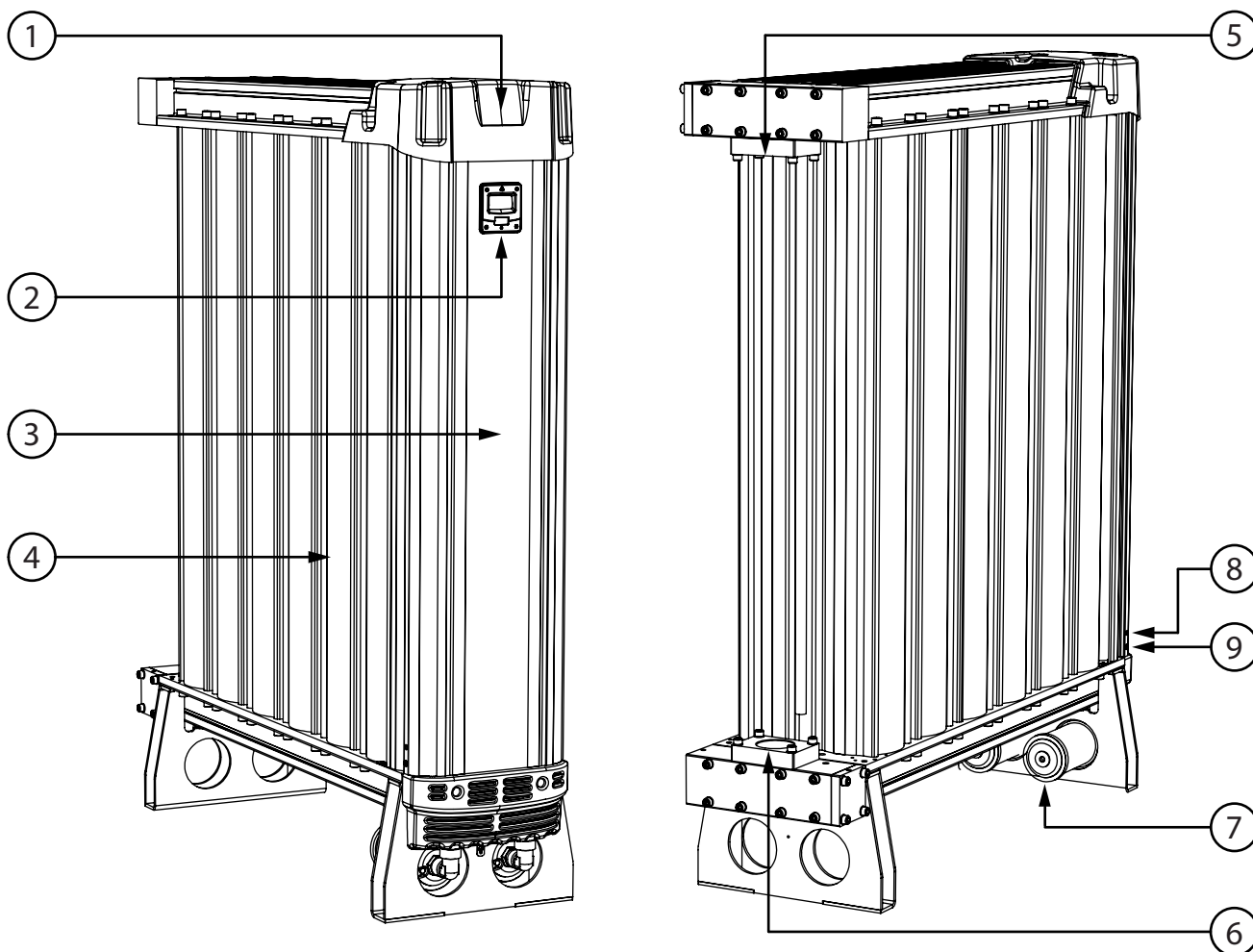


7. Product Dimensions



MODEL	CONNECTION	A ins (mm)	B ins (mm)	C ins (mm)	D ins (mm)	E ins (mm)	WEIGHT lbs (KG)
NBA - 2110	2" NPT	26 (678)	15 (382)	50 (1289)	16 (400)	14 (360)	366 (166)
NBA - 2120	2" NPT	26 (678)	15 (382)	60 (1538)	16 (400)	14 (360)	441 (200)
NBA - 3120	2" NPT	31 (781)	21.6 (550)	60 (1538)	16 (400)	14 (360)	778 (353)
NBA - 4120	2.5" NPT	38 (949)	28 (718)	60 (1538)	16 (400)	14 (360)	1010 (548)
NBA - 6120	2.5" NPT	51 (1285)	41.5 (1054)	60 (1538)	16 (400)	14 (360)	1155 (524)

8. Equipment Overview



1 Purifier Top Cover

2 Controller Display Unit

3 Front Shroud

4 Purifier Column

5 Air Outlet

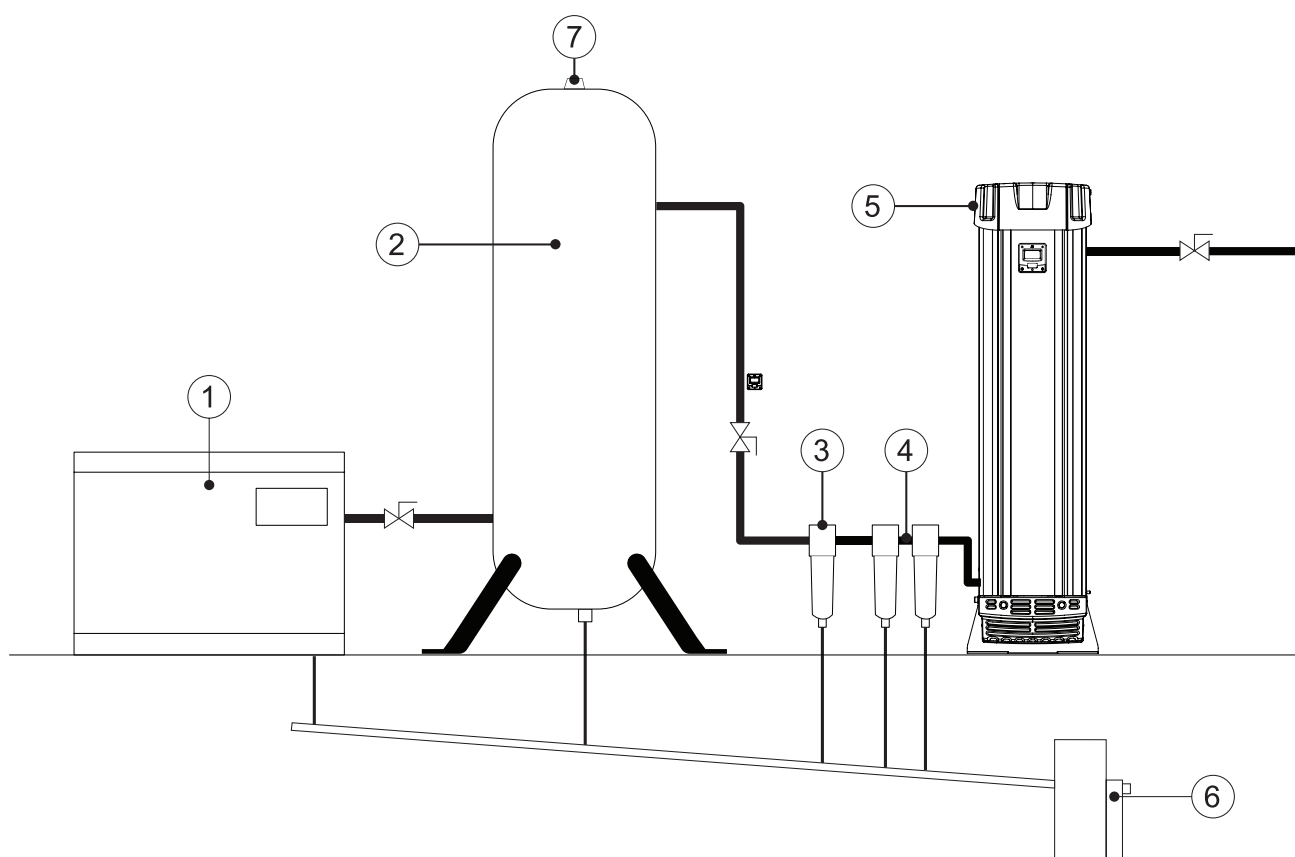
6 Air Inlet

7 External Silencers/Mufflers

8 Mains Power

9 Remote Stop/Start Control
(if required)

9. Typical System Layout



Ref.	Description	Ref.	Description
1	Compressor	5	Series 3 Purifier
2	Wet air receiver	6	Oil / water separator
3	Water separator	7	Pressure Relief Valve*
4	Purifier pre-filtration		



It is the customer's responsibility to fit pressure relief valves to the compressed air system.

9.1. Site Location

When selecting an installation site for the purifier, ensure the following conditions are met:

- Installation site should be located indoors on a flat surface protected from the weather and other harmful conditions.
- The inlet temperature must not drop below 35°F (+1.5°C) or exceed 86°F (30°C).
- The installation site should be level and able to support the weight of the product.
- Ensure sufficient space around the product, to allow access for operation and maintenance.

9.2. Risk Assessment

Prior to the installation a thorough risk assessment of the entire installation should be conducted by a competent person. Points listed below should be considered but should not be considered as exhaustive:

- Compressor type
- Condition of compressor/oil used if applicable
- Temperature and humidity
- Potential source of excessive contaminants e.g. toxic gases
- Use of a dedicated breathing air line if possible
- Purification equipment
- Alarm options
- Compliance to relevant regulations for pressured systems
- Comprehensive operator training
- Maintenance requirements
- Suitable warning signs posted



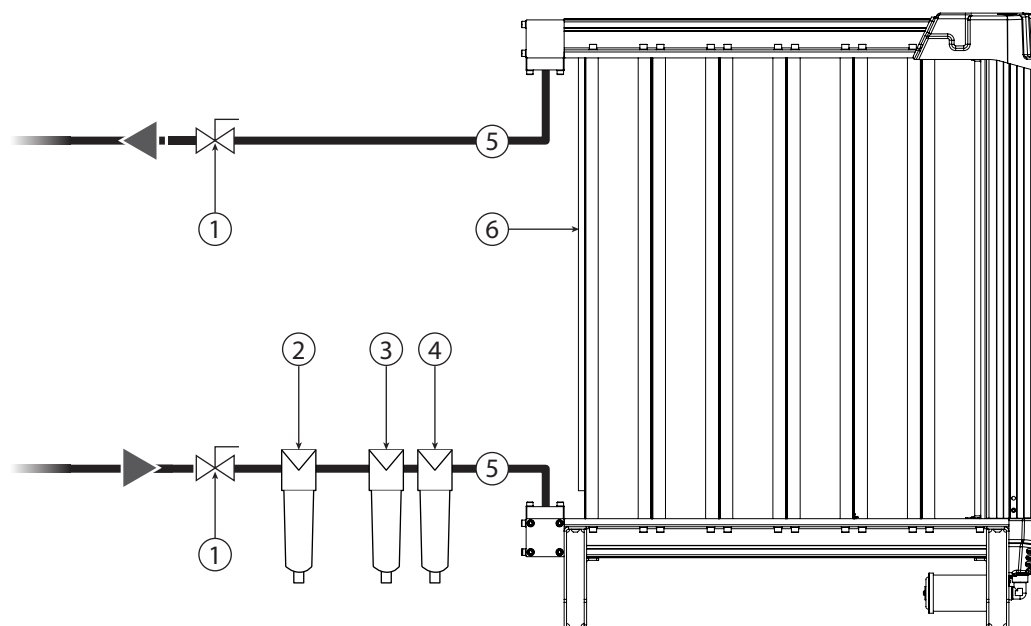
The risk assessment should be carried out by suitable personnel and checked and approved by a suitably qualified engineer.



A CO alarm must be fitted to the outlet of the purifier.

10. Mechanical Installation

Once the purifier has been positioned and secured, install ball valves and pipe work (not included) to ready the unit for connection to inlet and outlet pressure piping.



The diameter of the pipes must be sufficient to allow unrestricted inlet air supply to the purifier and to the application as shown in the table below.

Ref.	Description	Ref.	Description
1	Ball Valve	4	High efficiency Filter (inlet)
2	Water Separator (inlet)	5	2" / 2.5" Piping (as required by the purifier)
3	Pre-filter (inlet)	6	Series 3 Purifier

A water separator and high efficiency filtration must be installed at the inlet to the purifier.

Ensure that each filter condensate drain is suitably piped away and any effluent is disposed of in accordance with local regulations.

It is important to ensure that all piping materials are suitable for the application, clean and debris free. The diameter of the pipes must be sufficient to allow unrestricted inlet air supply to the equipment and outlet air supply to the application.

The purifier is supplied with an integrated exhaust silencer.

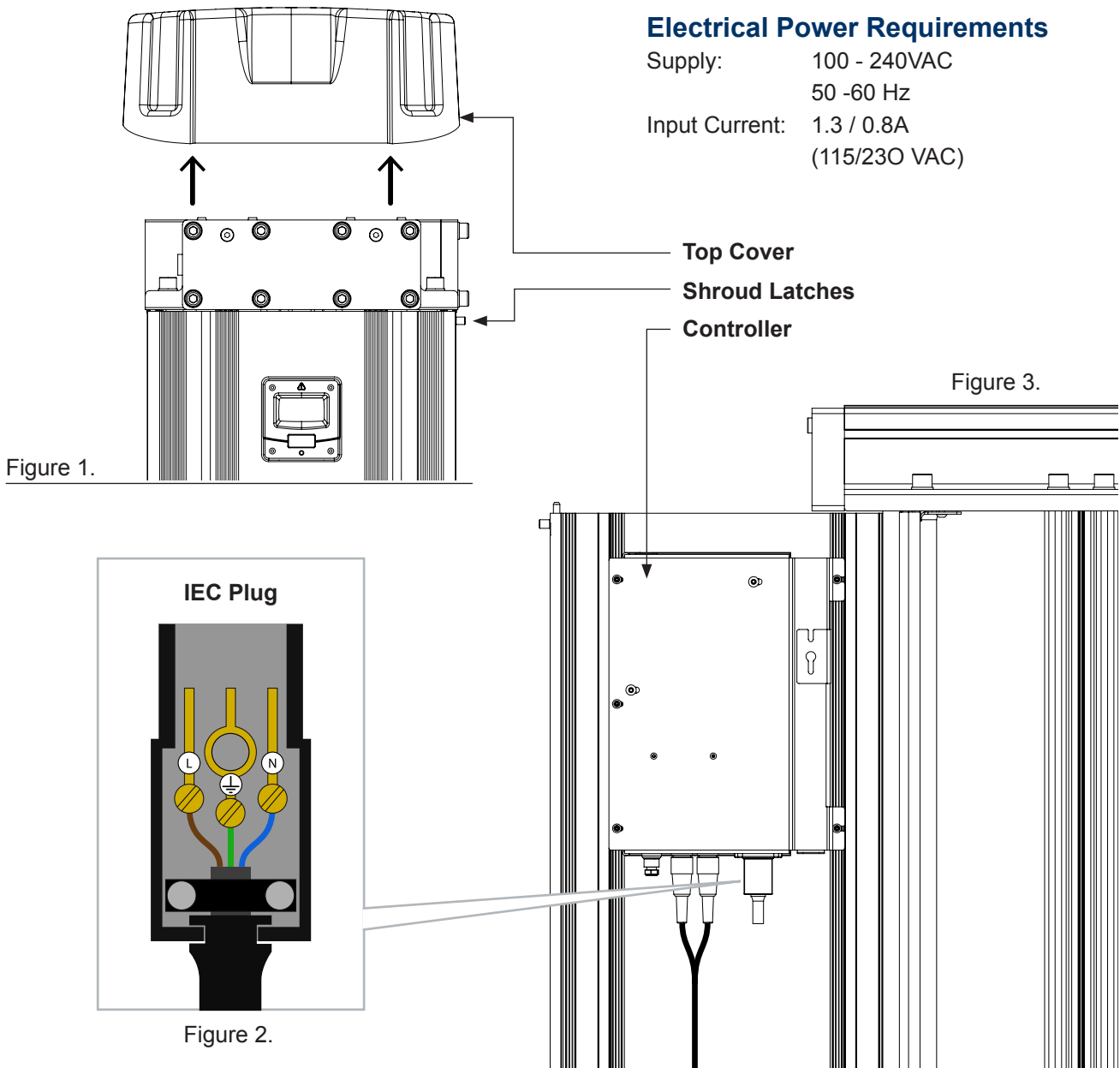
All components used within the system must be rated to at least the maximum operating pressure of the equipment. The system must be protected with suitably rated pressure relief valves.

11. Electrical Installation

Mains Power Connection

To install the mains power cable:

1. Remove the two screws from the top cover and lift from the purifier.
2. Locate the two catches at the top and bottom of the shroud and pull them towards each other and open the shroud to expose the controller.
3. Remove the IEC plug from the controller
4. Unscrew the cap head screw to remove the plug top cover.
5. Feed the mains power cable through the holes located on the bottom of the shroud.
6. Wire the mains power cable into the IEC plug (see figure 2).
7. Once the mains cable is correctly wired into the IEC plug, reattach the plug into its socket.



12. Purifier Operation

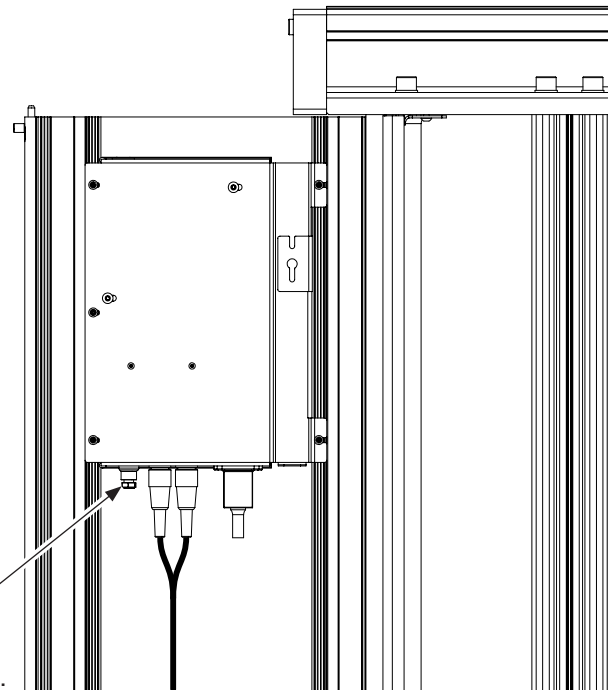
Locate the electrical connector on the underside of the controller in the shroud.

Purifier Remote Stop/Start Control (if required)

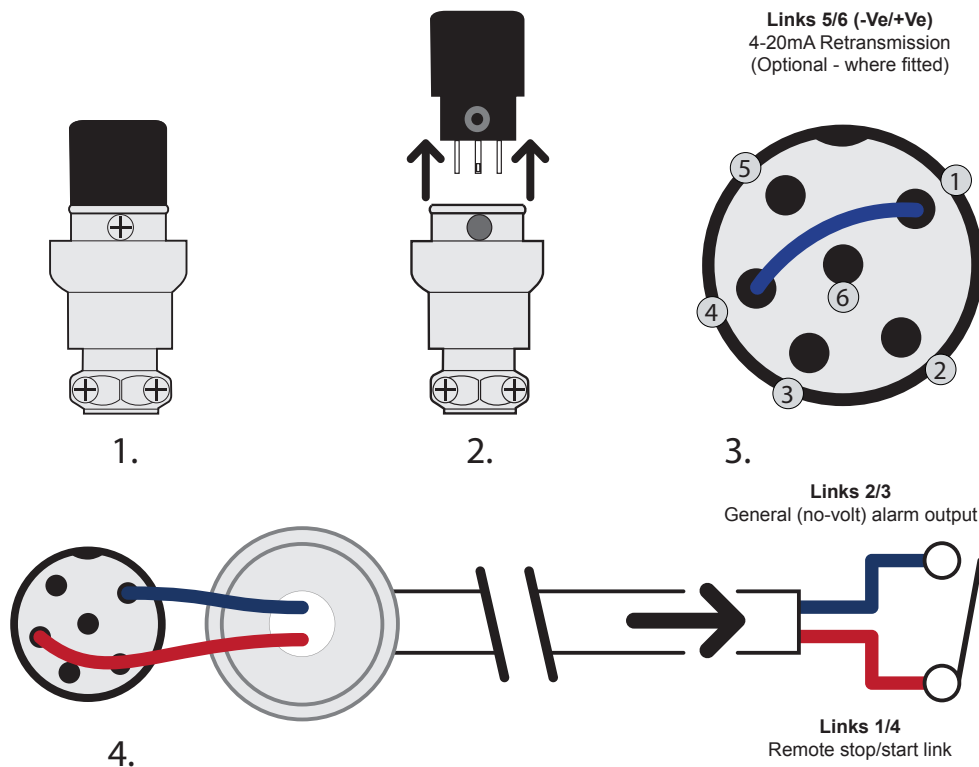
- To set up for remote control eco mode.
Remove the link between pins 1 and 4 (3)
in the electrical connector plug. A zero volt
switching signal from the remote control needs
to be connected between pins 1 and 4 (4).
- When the connection is made, the purifier will
operate normally. If the connection is broken,
i.e. the purifier has been remotely switched off,
the purifier will stop cycling and go into standby
mode, displaying "STANDBY" on the display
once completed.
- Using remote stop / start ensures the correct
shut-down sequence is implemented.

Electrical Connector

Figure 1.



8.1 6 Pin Electrical Connector Configuration



Under no circumstances should external voltage/current be applied to pins 1 and 4, damage to the controller will occur, negating the warranty.

12.2. Purifier Start-up

- Ensure the purifier is securely hardwired into the power source.



Do not allow the purifier to flow air unless powered up, switched on and cycling. Resulting effect could be bed contamination; requiring replacement cartridges.



Ensure that the external silencers/mufflers are re-installed before attempting to start the purifier.

- Connect all pipe work.
- Ensure the inlet operating pressure parameters are between 80 - 145 psig (5.5 - 10 barg).
- Ensure the inlet air temperature is between 35°F - 86°F (1.5 - 30°C).
- Slowly open the inlet valve until fully open and allow purifier to pressurize.
- Turn on the power to the purifier.
- Open the outlet valve.
- The purifier will display its status and commence normal operation.



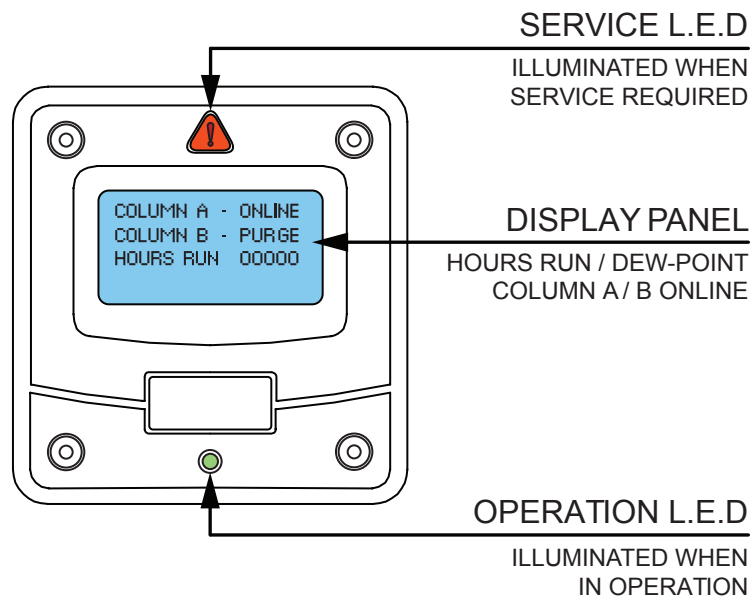
The dew point alarm is inactive for the first 5 hours after start up to allow the purifier to hit dew point. The process gas should not be used for breathing air purposes during this time.

12.3 Monitor CO levels in outlet.

- Where regulation demand, a suitable CO alarm must be fitted (not supplied). Provision is made to allow a small bleed of air to be taken from the outlet of the Purifier.
- Where a CO alarm is not fitted (not required by local regulation) an alternative indication of performance may be achieved by monitoring the dryness of the air (10.4). The catalyst only functions with dry air.

12.4 Monitoring Purifier Performance (Energy saving option)

- The dew-point is displayed on the control panel. When the dew-point displayed is better than -67°F (-55°C) PDP the Purifier will switch into economy mode and stop cycling. When the dew-point degrades to -58°F (-50°C) the Purifier will restart cycling ensuring the dew-point is maintained at or better than -58°F (-50°C).
- If the Purifier fails to achieve dew-point (falls below -40°F (-40°C)) the alarm output will be indicated on the front screen and the remote alarm output will activate.



12.5. Shutdown Procedure

- Close the inlet and outlet valves.



The purifier will still be pressurized! In order to depressurize the purifier; ensure the purifier is isolated from the compressed air supply source:

- Cycle the purifier at least twice to ensure the purifier exhausts and is completely depressurized.
- When fully depressurized the 'clicking' of the exhaust valves will be heard but no air exhausted.
- When the purifier is fully depressurized, isolate from the power supply.

13. Maintenance

13.1. Cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any electrical sockets. If required a mild detergent may be used, however do not use abrasives or solvents as they may cause damage.

13.2. Daily Checks

Visual and functional checks of the purifier should be carried out daily:

- Check the purifier for any external damage.
Assess and eliminate any defects found.
- If the red service light appears, the purifier must be serviced.
Contact the service department and request a purifier service kit.
- Remove any loose dust or dirt from the purifier; clean all surfaces that appear to have attracted unwanted contaminants.
- Check the dewpoint sensor display (if installed). If the dewpoint is not maintained at $<-30^{\circ}\text{C}$ the reading on the display will alternate with “dewpoint alarm” every 5 seconds. The no-volt alarm will also activate.

13.3. Sampling



A sample of compressed breathing air produced and delivered by the compressed breathing air system must be collected and analyzed every 6 months (or as specified by the authority having jurisdiction) by an accredited lab. When the testing shows unacceptable levels of contaminants, the system must be taken out of service and reinspected.

- Additional testing at regular intervals is recommended.
- Re-testing the system is recommended when any major overhaul or extensive repairs have been carried out.



Any noticeable odour must be analyzed.

14. Servicing



Maintenance operations should only be carried out by competent and suitably trained personnel.

14.1. Servicing Guidelines

- Maintenance operations only to be conducted when the system has been shut down, fully depressurized and isolated completely from the compressed air and electrical supply.
- Ensure the system is in a safe condition for maintenance to be carried out on.
- Dismantle and assemble with care, paying particular attention to the areas that become pressurized.
- All gaskets and O-ring seals removed during maintenance operations must be replaced with new gaskets/seals.
- Do not modify or adjust the control settings.
- Only certified n-psi approved replacement parts to be used.
- Always check all connections / sealing faces for cleanliness and secure seating prior to assembly.
- Ensure all components are refitted to the product correctly before operation.
- Ensure the purifier is left operating in a safe working condition after completion of maintenance.

14.2 Service Intervals

The following table details the recommended service intervals for this product.

The purifier should be serviced in accordance with the schedule outlined below. Failure to service the product as indicated and/or without genuine parts may damage the product, cause serious physical harm and will invalidate the manufacturers warranty.

SERVICE TYPE	RECOMMENDED SERVICE INTERVALS									
	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years
A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B		✓		✓		✓		✓		✓
C				✓				✓		
Additional for ES Models Only										
D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



Please refer to the Series 3 Breathing Air service guide for instruction regarding carrying out a service.

- **Service A - 6,000 hours (or every 1 year) service.**
Replace all external filter elements (pre and post-filters)
Replace External Silencers/Mufflers (**Kit: X100325010**)
(Please contact an n-psi representative for filter servicing information).
- **Service B - 12,000 hours (or every 2 years) service.**
Replace Cartridges (NBK 110 - NBK 120)
Replace Inlet Valves (NVK-D3 2)
Replace Outlet Valves (NVK-D3 1)
Replace Exhaust Valves (NVK-D3 2)
- **Service C - 36,000 hours (or every 4 years) service.**
Replace Pilot valves. (NVK-100)
- **Service D - 6,000 hours (or every 1 year) service.**

MODEL	SERVICE A	SERVICE B	SERVICE C	SERVICE D
NBA - 2110	X100325010	NBK 110 (x2) + NVK D3 2 + NVK D3 1 + NVK D3 2	NVK 100	NSK-130
NBA - 2120		NBK 120 (x2) + NVK D3 2 + NVK D3 1 + NVK D3 2	NVK 100	NSK-130
NBA - 3120		NBK 120 (x3) + NVK D3 2 + NVK D3 1 + NVK D3 2	NVK 100	NSK-130
NBA - 4120		NBK 120 (x4) + NVK D3 2 + NVK D3 1 + NVK D3 2	NVK 100	NSK-130
NBA - 6120		NBK 120 (x6) + NVK D3 2 + NVK D3 1 + NVK D3 2	NVK 100	NSK-130

12.3. Additional Kits

Wall Mounting kit: NMK-130

2 x Additional brackets to provide additional support to the dryer when wall mounting.

ES Upgrade Kit

Converts a standard dryer to an Energy saving model

Valve Overhaul Kit

Recommended when service B and C are both required (NVK-2130)

15. Troubleshooting

Problem	Problem Caused	Solutions
Poor performance	<ol style="list-style-type: none"> 1. Insufficient inlet pressure 2. Electrical Fault 3. Moist or contaminated bed 4. Too high air consumption 5. Excessive inlet air temperature 6. Insufficient purge air 7. Exhaust silencer blocked 	<ol style="list-style-type: none"> 1. Inlet pressure min 58 psig (4 barg). If not adjust inlet pressure settings. 2. Ensure the power is on and the purifier front panel is illuminated; check the purifier is cycling correctly. 3. Eliminate the cause of contamination. Replace purification cartridges – do not re-use. 4. Ensure the performance of the purifier matches the required system air consumption. 5. Check against technical specification. 6. Purge incorrectly adjusted. Consult service personnel to adjust settings (Factory pre-set). 7. Consult service personnel or Replace external silencers/ mufflers
Failure of purifier to cycle	<ol style="list-style-type: none"> 8. Controller not functioning correctly 9. Controller not illuminated 10. Insufficient inlet pressure 11. Failure to de-pressurize when cycling. 12. Outlet flow stops 	<ol style="list-style-type: none"> 8. Ensure the controller is powered; check the on screen column status to ensure it is powering the solenoid valves during normal cyclic operation. 9. Inlet pressure min 58 psig (4 barg). If not adjust inlet pressure settings. 10. Check power to unit & fuse. 11. Solenoid valve not functioning correctly; if there is power to the coil, replace valve. A correctly working valve outputs an audible click when it energizes. 12. Check inlet air supply.
Constant depressurization	<ol style="list-style-type: none"> 13. Failure to initialize purifier 14. Erratic air flow from exhaust 	<ol style="list-style-type: none"> 13. Switch off and restart purifier. Ensure purifier is pressurized before powering purifier to allow purifier to initialize before commencing operation. 14. Faulty or damaged valve; service required.

Reference to Known Faults:

Opening the inlet valve too quickly

Valve should be opened slowly allowing the pressure to build up gradually.

Inlet/outlet head pipe

Diameter too small.

Pipe work unsupported.

Inlet pipe work from low point in system, allowing bulk water to collect and enter the purifier.

Electrical controller

Incorrect fuse fitted or fuse blown. Check the plug and fuse located on top of the controller back plate inside the purifier front cover.

Additional Items

Use of non-authorized components.

Untrained / unauthorized maintenance / installation personnel used.

Increase in air consumption without relation to the flow capacity of the purifier.

Purging the purifier with cleaning agents that could damage the components or the purification bed.

Covers removed or loose during operation.

Failure to carry out a service when indicated by the purifier.

Do not allow the purifier to flow air unless powered up, switched on and cycling. Resulting effect could be bed contamination; requiring replacement cartridges.

16. Commissioning Report

End User:	Distributor:
	Contact:
	Phone:
	Email:

Contact name and position for the qualified user	Breathing Air Model	Serial Number	Compressor Make & Model
Contact:	Start-Up Date	Date	Location
Phone:			
Email:	Start-Up Technician	Technician Company	Technician Phone

Installation Details			Operating Details			Operating Notes	
Environment			Ambient Temp		°F/°C		
Receiver			Inlet Air Temp		°F/°C		
Inlet Flow Rate		scfm	Inlet Air Pressure		psig		
Filter Size			Outlet Pressure		psig		
Filter Grades			Dew Point Delivered/Witnessed	<input type="checkbox"/>	°F/°C		
Compressor Type			Carbon Monoxide (CO) Monitor Installed?	<input type="checkbox"/>			
Oil Type			CO Monitor Visible by User?	<input type="checkbox"/>			
Piping Type			CO Monitor Audible By User?	<input type="checkbox"/>			
Electrical			Is Compressor Dedicated to Breathing Air?	<input type="checkbox"/>			
Compressor Intake Location			Air quality Tested Before Installation?	<input type="checkbox"/>			
Local / Remote Control			Air Quality Tested After Installation?	<input type="checkbox"/>			
Drain Valves Size & Type			Air Quality Test Report Attached?	<input type="checkbox"/>			
Inlet / Outlet Pipe Size			Air Quality Test Report Posted?	<input type="checkbox"/>			
Dew Point Meter			User Guide Posted on Site?	<input type="checkbox"/>			
Check for Damage			Maintenance Items on Site?	<input type="checkbox"/>			

Comments:	Has this unit been installed according to manufacturers recommendations, passed a third party air quality test, and deemed suitable for operating by the installer? YES or NO.		
	Start-up Check List		
	Has the product been received in good condition?		
	Has the user received and reviewed the User Guide?		
	Has the user carried out the recommended Risk Assessment?		
	Is the product installed and operational?		
	Are there spare parts on site?		
	Has a daily check procedure been established?		
	Does the user require any assistance from nano-purification solutions?		

Engineer:		Date:		I certify all of the above information to be true?	Yes/No
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Note: For an electronic version of this commissioning report, please download from our website at www.n-psi.com in the "downloads – Breathing Air" section.

17. Quality Statement

All responsibility regarding quality of breathing air lies with the user. Compliance with any federal, state, provincial or local regulations are the sole responsibility of the user. All nano breathing air products meet or exceed the standards set forth in CGA Grade D specifications for air quality as set forth by OSHA (USA) and CSA Z180.1 (Canada).

When the breathing air equipment is used in accordance with the instructions as set forth by nano-purification solutions, the breathing air system meets or exceeds all breathing air standards currently in force. The user is responsible for installation and compliance with any localized regulations and should be up to date on any and all changes which may have occurred to specifications.

The air compressor needs to be located in a safe and clean ambient location and the location should be tested periodically to ensure the compressor is ingesting and compressing air suitable for downstream treatment by the breathing air system. The compressed air breathing system outlet quality should be tested at initial start-up and put on a preventative maintenance schedule of testing. If conditions or location of the breathing air system is to change, outlet breathing air should be retested and validated prior to use. Proper preventative maintenance of the system should be documented and maintained based on recommended maintenance of the manufacturer.

All units from nano-purification solutions are delivered with a Carbon Monoxide (CO) monitor. CO monitor must be tested and calibrated annually. CO monitor is NOT explosion proof and is therefore not suitable for use in classified areas. A CO monitor which is intrinsically safe can be supplied at additional cost if necessary. Please contact support@n-psi.com for further information.

Grade-D (USA) or CSA Z180.1 testing (Canada) should be carried out and documented. These tests should analyze at a minimum: Carbon Monoxide, Oxygen, Carbon Dioxide, Water content, Hydrocarbon content and total particulate level. The actual allowable levels are clearly documented in the Technical Specification section.

When in doubt, please consult factory.

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support@n-psi.com
704.897.2182-Office

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Huntersville, NC 28078

Notes

This image shows a full page of white paper with horizontal blue dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.



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