

nano



User guide

D3 pneumatic heatless desiccant dryer

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www.n-psi.co.uk

Experience.

Our team is comprised of and supported by individuals spanning all disciplines from research & development, engineering & manufacturing, marketing & sales and service & support. Our backgrounds are in air and gas purification and our experience in this field spans a wide range of industries. We combine this knowledge and experience to ensure our products and services are designed and provided to meet the objectives and expectations of you - our Customer.



Customer.

We recognise that our Customers are not only our valuable distribution partners who sell and support our products or the machine builders who depend on them as protection for their equipment. They are the contractors who install them, the manufacturers who use them in their processes and the service people who maintain them. At nano we have developed our products, packaging and support materials to ensure they exceed all of our Customers' expectations.



Service.

At nano we recognise that world-class customer service is the most important component to any successful business. Your business needs to exceed your customers' expectations to stand out from your competitors and our service must positively impact your business so you can be successful in doing so. Our commitment is simple... we will stand behind our products and ensure that our customer service is unrivaled in the industry.



Experience. Customer. Service.

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1. manufacturers details and support

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canada - nano-purification solutions

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singapore - nano purification solutions

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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.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.



pneumatic heatless desiccant dryer

1.1 general information

This manual is copyrighted, all rights reserved. It may not, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine readable form without prior consent in writing from Air & Gas Solutions LLC. It may not be distributed through the internet or computer bulletin board systems without prior consent from Air & Gas Solutions LLC.

1.2 document introduction

This manual provides factory prescribed installation and maintenance procedures for the pneumatic heatless desiccant dryer. The procedures illustrated in this document are only to be performed by authorized personnel. For further information regarding the procedures outlined in this document contact the manufacturer before proceeding. Be sure to read this document carefully before attempting to install or operate the pneumatic heatless desiccant dryer. This document should be permanently available at the pneumatic heatless desiccant dryer installation site.

1.3 warranty guidelines

All products are supplied with a 2 year manufacturer's warranty from the date of purchase when installed and maintained in accordance with the manufacturers guidelines. Only genuine service parts should be used and no modifications made.

1.4 general safety

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

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

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.

1.5 intended use of the product

The pneumatic heatless desiccant dryer 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 extreme conditions and weather. The pneumatic heatless desiccant dryer 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 label will render the warranty void.



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2. technical specification

| specifications | standard | options |
|---|---------------------------|----------------------------|
| maximum water content (ISO class) | class 2 -40°C (-40°F) pdp | class 1: -70°C (-94°F) pdp |
| minimum operating pressure | 4 barg (58 psig) | - |
| maximum operating pressure | 10 barg (145 232psig) | - |
| recommended operating temp range | 10 to 30°C (35 to 95°F) | - |
| design operating temperature range | 1.5 to 50°C (35 to 122°F) | - |
| consult rating label, options and operating parameters may differ | | |

ISO Class 2 at recommended max rated flow at 7 barg and 25°C inlet; see correction factors



2.1 flow rates

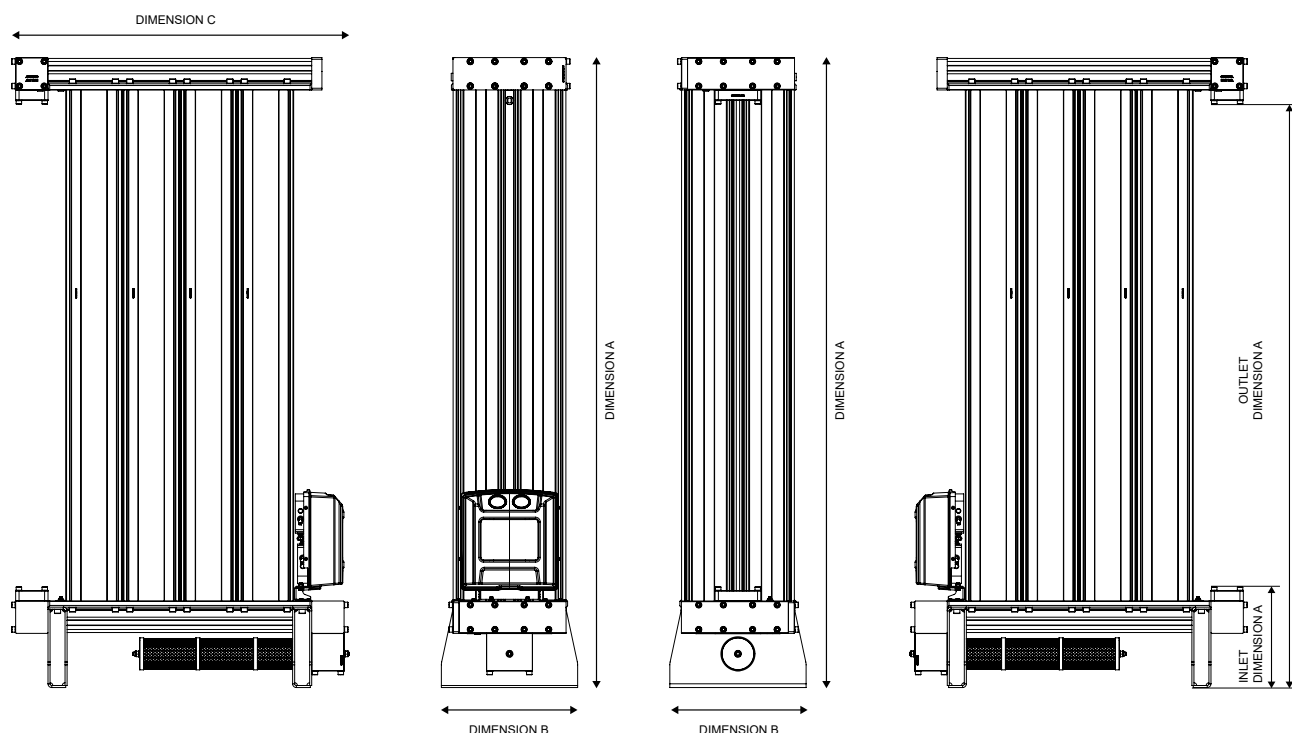
| model | inlet flow rate | | connection | |
|----------------|-----------------|------|-----------------------|-----------------------|
| | Nm³/hr | scfm | inlet | outlet |
| NDM - 2110-PNU | 360 | 212 | 2" BSPP or NPT | 2" BSPP or NPT |
| NDM - 2120-PNU | 469 | 276 | | |
| NDM - 2130-PNU | 680 | 400 | | |
| NDM - 3130-PNU | 951 | 560 | | |
| NDM - 4130-PNU | 1274 | 750 | 2 1/2" BSPP or NPT | 2 1/2" BSPP or NPT |
| NDM - 6120-PNU | 1407 | 828 | | |
| NDM - 6130-PNU | 1886 | 1110 | | |

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2.2 product dimensions



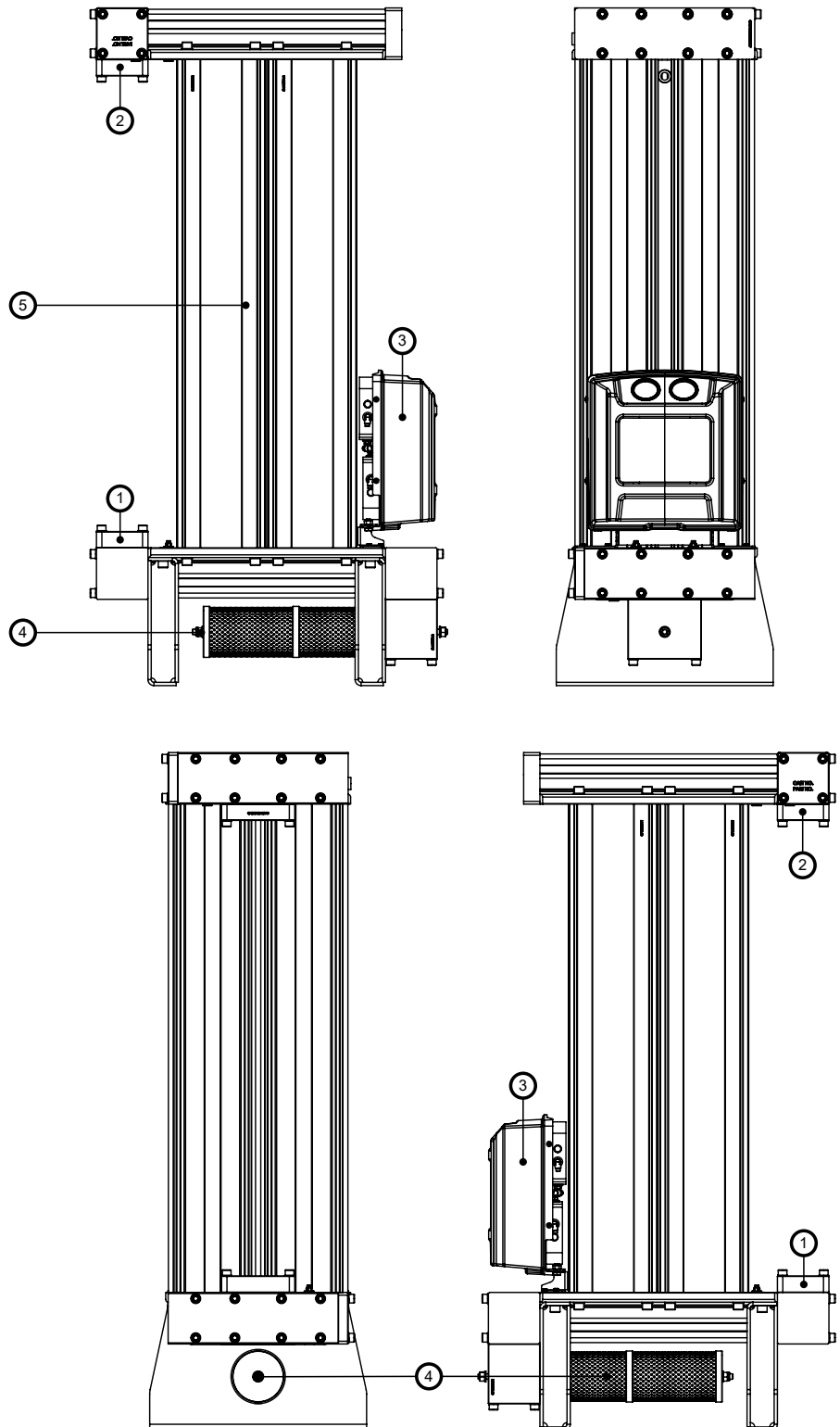
| model | dimension | | | | | | weight | |
|----------------|-----------|--------|-----|--------|------|--------|--------|------|
| | A | | B | | C | | | |
| | mm | inches | mm | inches | mm | inches | kg | lbs |
| NDM - 2110-PNU | 1249 | 49.1 | 400 | 15.7 | 659 | 25.6 | 123 | 348 |
| NDM - 2120-PNU | 1499 | 59.0 | | | 659 | 25.6 | 134 | 394 |
| NDM - 2130-PNU | 1849 | 72.8 | | | 659 | 25.6 | 159 | 478 |
| NDM - 3130-PNU | 1849 | 72.8 | | | 827 | 32.2 | 208 | 652 |
| NDM - 4130-PNU | 1849 | 72.8 | | | 991 | 38.8 | 261 | 833 |
| NDM - 6120-PNU | 1499 | 59.2 | | | 1327 | 52.1 | 304 | 963 |
| NDM - 6130 | 1849 | 72.8 | | | 1327 | 52.1 | 367 | 1197 |



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3. product overview



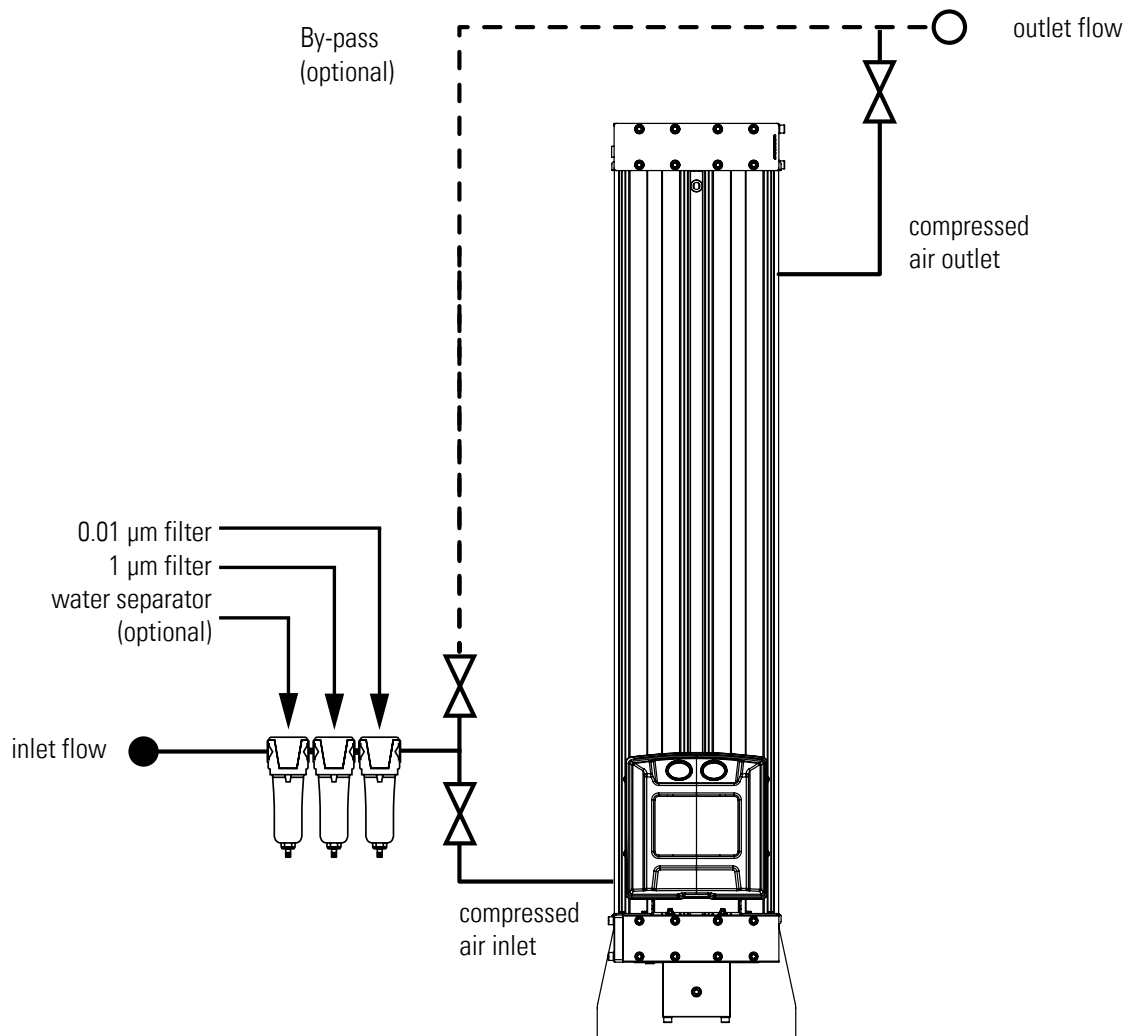
| number | description |
|--------|-----------------------|
| 1 | compressed air inlet |
| 2 | compressed air outlet |
| 3 | pneumatic control box |
| 4 | exhaust silencer |
| 5 | dryer column |



3.1 typical system layout



IMPORTANT: It is essential that the system into which the unit is installed is fitted with a pressure limiting/relief device. This device should be installed between the compressor and the unit.



3.2 site location

When selecting an installation site for the unit, 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 ambient temperature must not drop below 1.5°C (34.7°F) or exceed 50°C (122°F).
- 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.
- Take into account the noise generated by the unit exhausting while in use when considering location.



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4. maintenance



Maintenance operations should only be conducted once the system has been shut down and is fully depressurized. All operations should be carried out by authorized and suitably trained personnel.

- Isolate the unit from the compressed air supply ensuring the system is in a safe condition for maintenance to be carried out.
- All connections must be removed with care, paying particular attention to the areas that become pressurized.
- All seals removed during maintenance operations must be replaced with new seals.
- Only certified and approved replacement parts should be used.
- Do not modify or adjust the control settings.
- Check all connections and sealing faces for cleanliness and secure seating prior to assembly.
- Ensure all components are re-fitted to the product before operation.
- Check all connection and sealing faces for any leakage, if any found resolve and check again.
- Ensure the unit is left operating in a safe working condition after completion of maintenance.

4.1 cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any connections. If required a mild detergent can be used. Do not use abrasives/solvents as these may cause damage.

4.2 daily checks

- Check the unit for any signs of external damage.
- If the red service indicator is active, the unit must be serviced to ensure continued operation.
- Remove any loose dust or dirt from the unit, clean all surfaces that appear to have attracted unwanted contaminants.
- Ensure the unit is operating within the specification.
- Always check all connections for any leaks.
- Ensure all loose parts are removed or secured to the unit before operation.



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4.3 service schedule and breakdown

| service | year 1 (12 months or or 6,000 hours) | year 2 (24 months or or 12,000 hours) | year 3 (36 months or or 24,000 hours) | year 4 (48 months or or 36,000 hours) | year 5 (60 months or 44,000 hours) | year 6 (72 months or or 53,000 hours) | year 7 (84 months or 61,000 hours) | year 8 (96 months or or 70,000 hours) |
|---------|--|---|---|---|--|---|--|---|
| A | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| B | | ✓ | | ✓ | | ✓ | | ✓ |
| C | | | | ✓ | | | | ✓ |

Service A - Every 1 year (12 months)
Replace external exhaust silencer/muffler element

Service B - Every 2 years (24 months)
Replace desiccant
Replace top manifold gasket seals

Service C - Every 4 year (48 months)
Replace exhaust valve diaphragms
Replace inlet valve diaphragms
Replace outlet check valve seals



When contacting your service provider be sure to provide the part number and serial number of your dryer, this can be found on the rating plate.



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5. trouble shooting

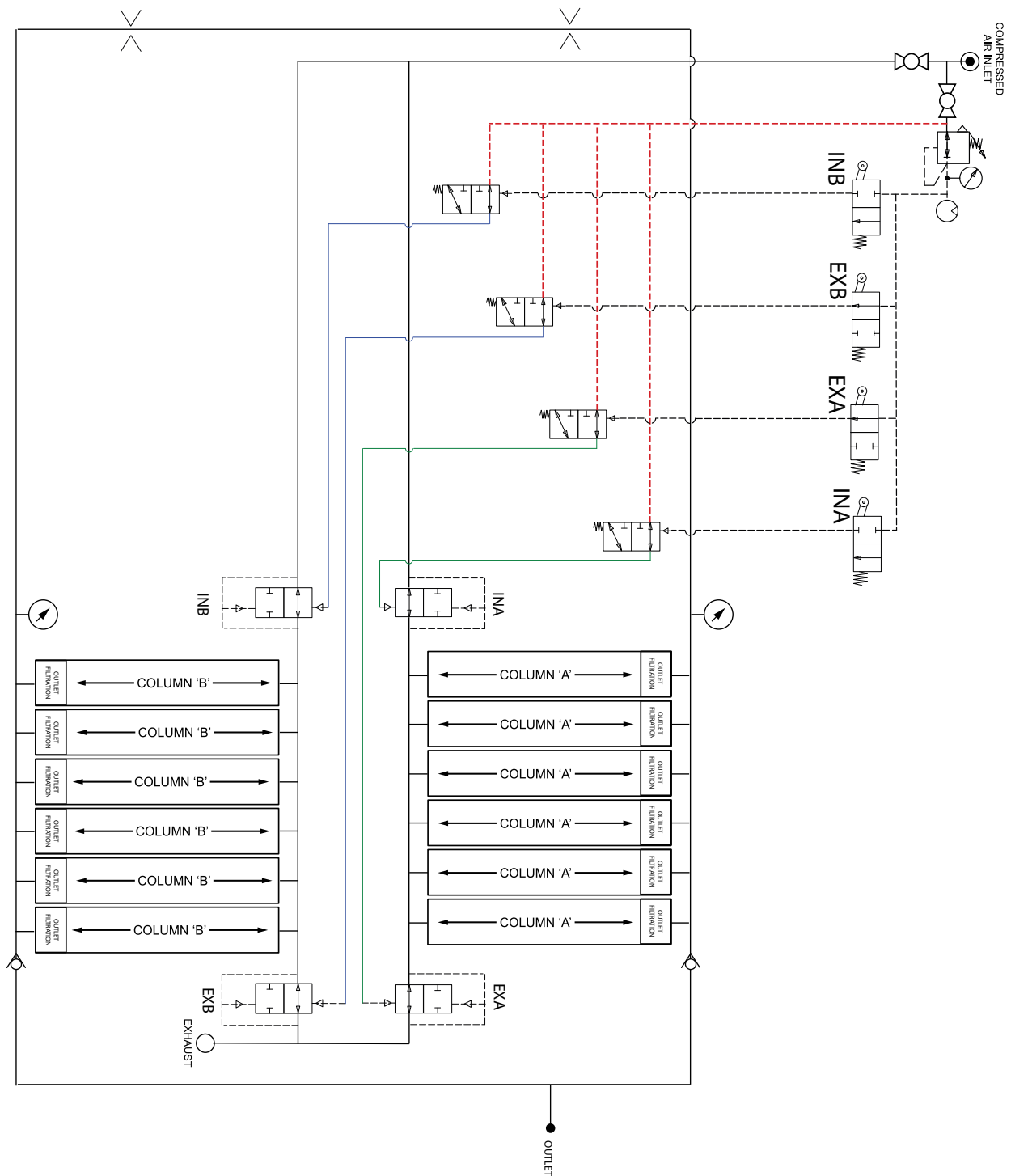
| problem | problem caused | solution |
|----------------------------|---------------------------------|---|
| Poor dew-point performance | Insufficient inlet pressure | 4 barg (58psig) minimum inlet pressure required to operate, if not, check and restore system pressure |
| | Moist or contaminated desiccant | Eliminate the cause of contamination, replace desiccant cartridges (do not re-use) |
| | Excessive inlet air temprature | Check against the technical specification |
| | Insufficient purge air | Purge incorrectly adjusted, consult the service personnel to adjust the settings (factory pre-set). Consult Service Technician to adjust as per site condition. |
| | Exhaust silencer blocked | Replace exhaust silencer/muffler element(s). |
| | insufficient inlet pressure | 4barg (58psig) minium inlet pressure required to operate, if not, check and restore system pressure |
| | outlet flow stops | Check inlet air supply |

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6. process and instrumentation diagram





notes

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notes



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