

nano



# Maintenance & Service Manual

## D1-C heatless desiccant air dryers

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[www.n-psi.co.uk](http://www.n-psi.co.uk)

# about us

The logo for nano, consisting of the word "nano" in a bold, lowercase, sans-serif font, enclosed within a thin circular border.

## 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.



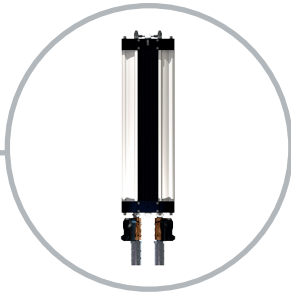
## Service.

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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## heatless desiccant air dryers

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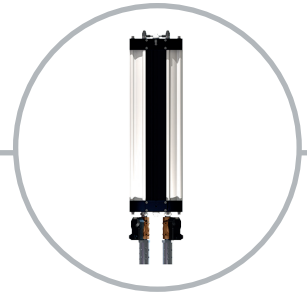
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## heatless desiccant air dryers

## 2. 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. It may not be distributed through the internet or computer bulletin board systems without prior consent.

### 2.1 document introduction

This manual provides factory prescribed maintenance procedures for the heatless desiccant air dryers. 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.

### 2.2 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.

### 2.3 packaging

All products are securely packaged in a specifically designed wooden packing box. The dryer 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 the 4 fixing screws and lifting off in one piece.

### 2.4 intended use of the product

The heatless desiccant air dryers 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 heatless desiccant air dryers 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



### annotations



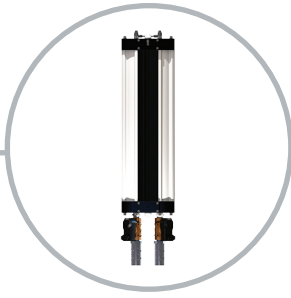
**CAUTIONS:** indicate any situation or operation that may result in potential damage to the product, injury to the user, or render the product unsafe.



**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.P65Warning.ca.gov](http://www.P65Warning.ca.gov).



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## heatless desiccant air dryers

### 2.5 service schedule and breakdown

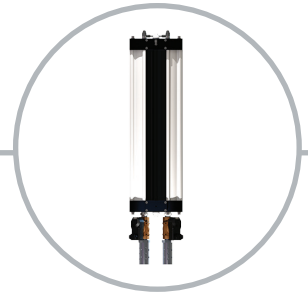
service	year 1 (12 mths)	year 2 (24 mths)	year 3 (36 mths)	year 4 (48 mths)	year 5 (60 mths)	year 6 (72 mths)	year 7 (84 mths)	year 8 (96 mths)
A	✓	✓	✓	✓	✓	✓	✓	✓
B		✓		✓		✓		✓

### 2.6 service kits and spares

#### required service kits

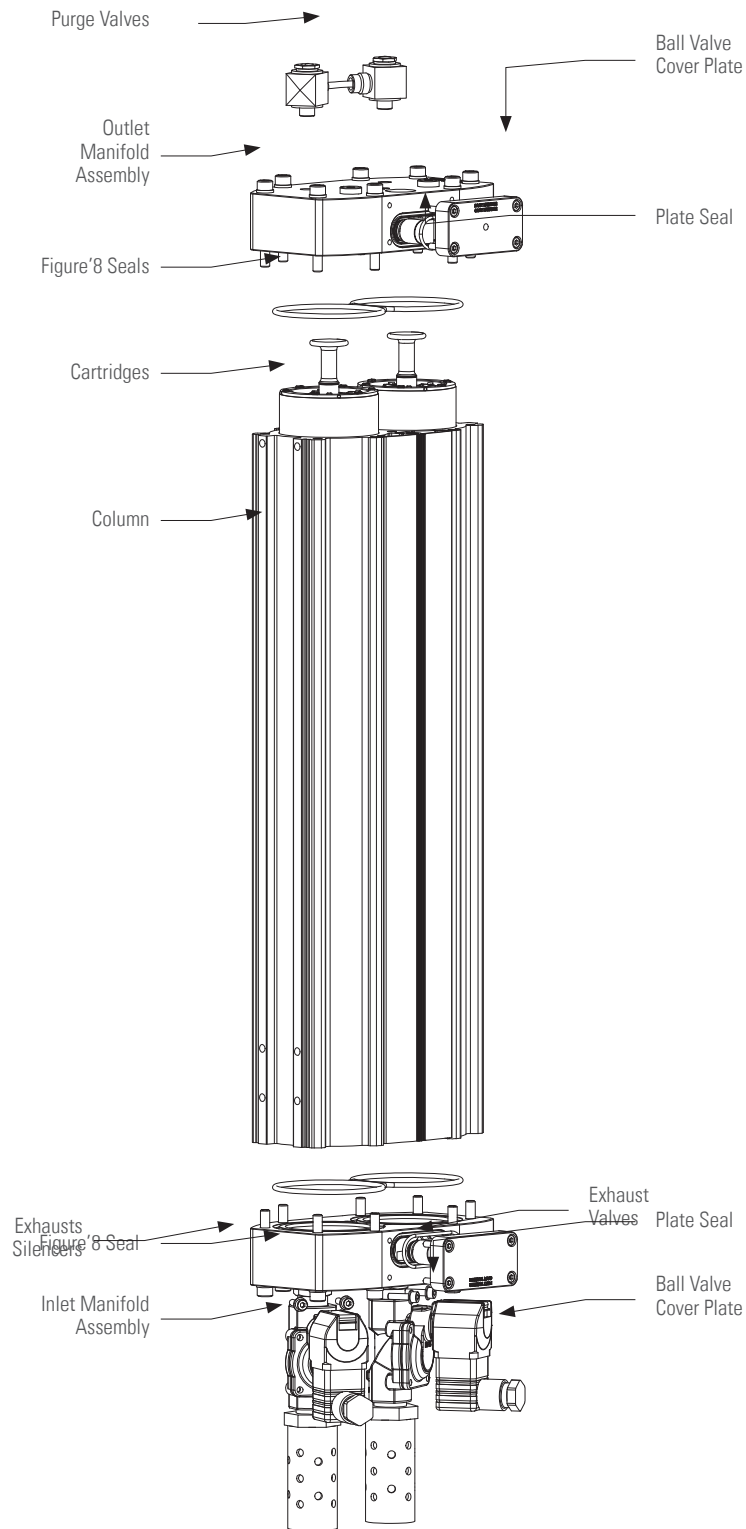
dryer model	service A	contents	service A	contents
NDM-010	NMK-010		NVK-050	
NDM-020	NMK-020		NVK-050	
NDM-030	NMK-030		NVK-050	
NDM-040	NMK-040		NVK-050	
NDM-150	NMK-150		NVK-050	

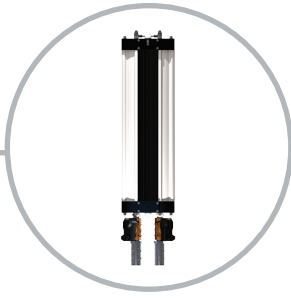
# D1-C



## heatless desiccant air dryers

### 2.7 product assembly





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## heatless desiccant air dryers

### 3. shutdown procedure

Before performing any maintenance or service operations on this product, ensure the product is isolated from the compressed air supply and fully depressurised. Also ensure the product is switched off and isolated from the mains power.

#### **Procedures**

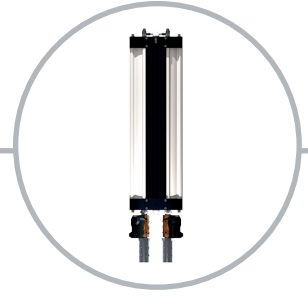
The dryer might still be pressurised! In order to depressurise the dryer; ensure the dryer is isolated from the compressed air source:

- Close the inlet and outlet valves
- Cycle the dryer twice to ensure the dryer exhausts and is completely depressurised.
- When fully depressurised the 'clicking' of the exhaust valves will be heard but no air exhausted.
- When the dryer is fully depressurised, isolate from the power supply.

### 4. maintenance guidelines

- Maintenance operations only to be conducted when the system has been shut down and fully depressurised.
- All connections must be undone with care, paying particular attention to the areas that become pressurised.
- Do not modify or adjust the control settings.
- Only certified nano-purification solutions approved replacement parts to be used.
- Always check all connections for leakage and secure seating before operation.
- Ensure all loose parts removed during maintenance are refitted correctly before operation.
- Ensure all parts are disposed of responsibly

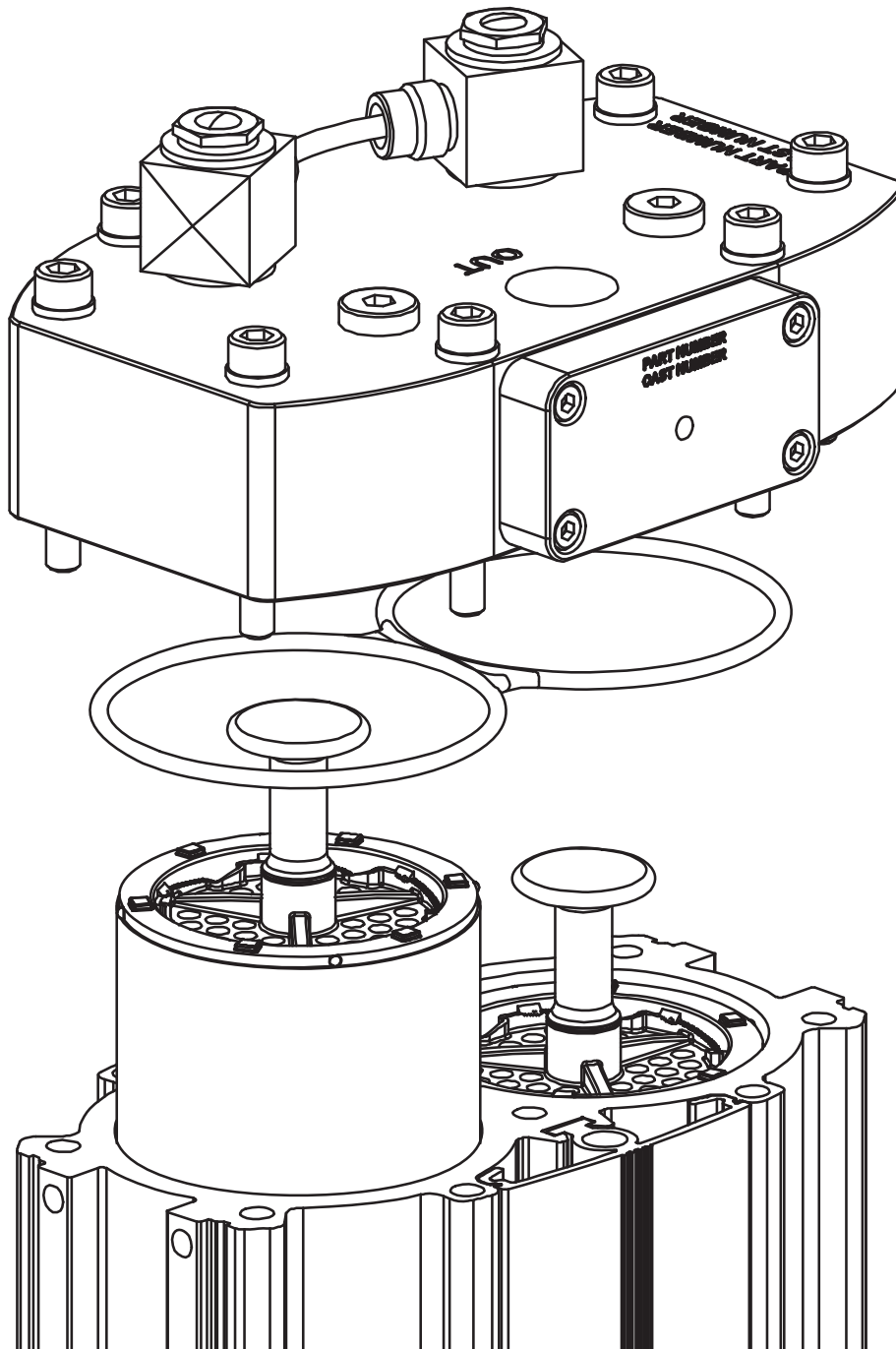


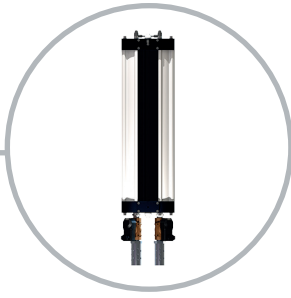


## 5. service 'A' instructions - outlet manifold

Replace Cartridges (every 2 year or 12,000 hours)

1. Separate the outlet manifold from the column to gain access to the cartridges.
2. Remove & replace Cartridges



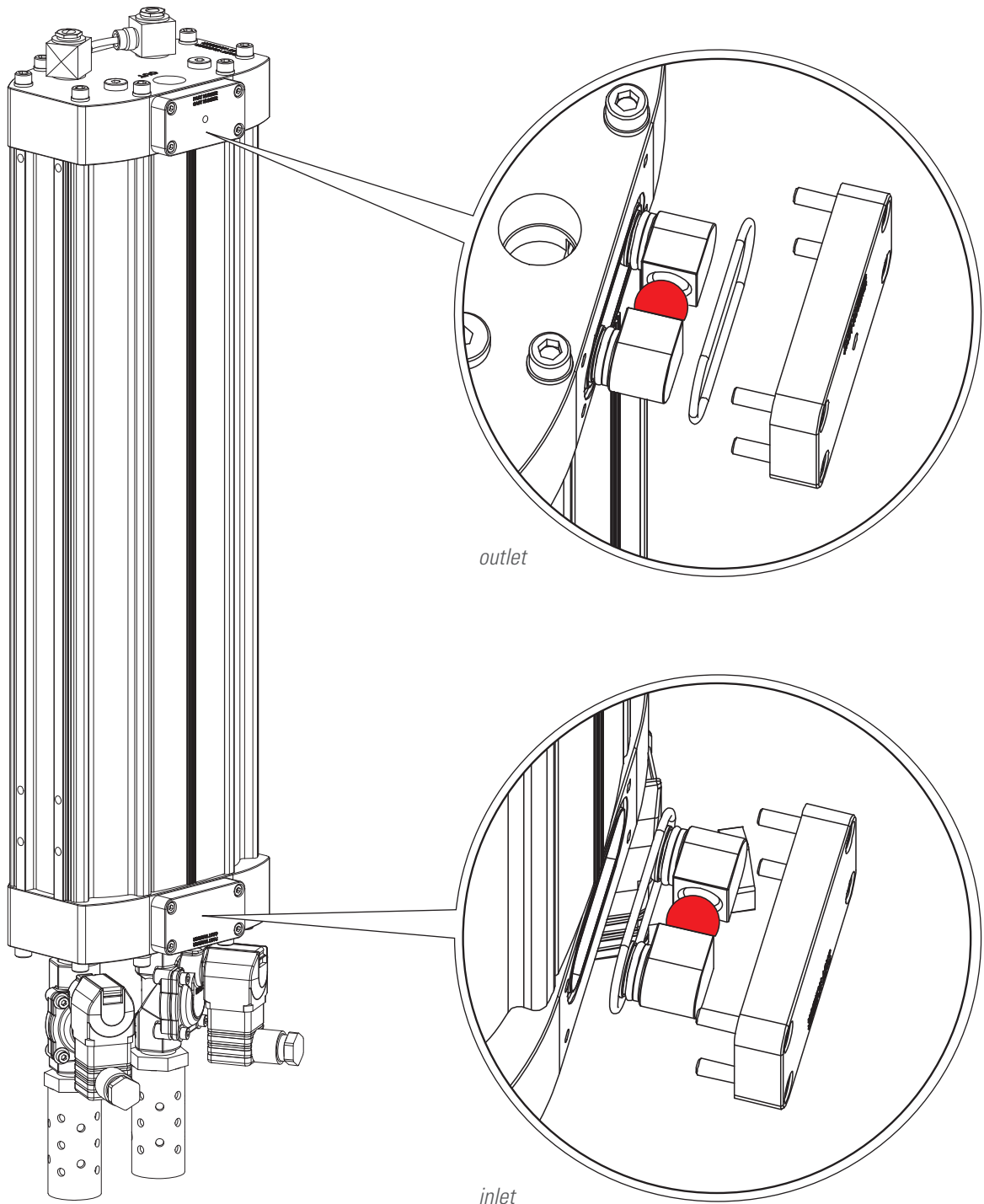


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## heatless desiccant air dryers

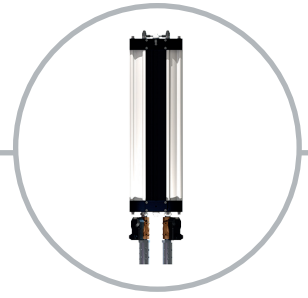
### 6. service 'A' instructions - outlet/inlet manifold service

1. Ensure the dryer is shut down and fully depressurised before attempting any maintenance work. (See page 7-8)
2. Remove the 4x M5 dome head screws to release the top cover and lift from assembly.

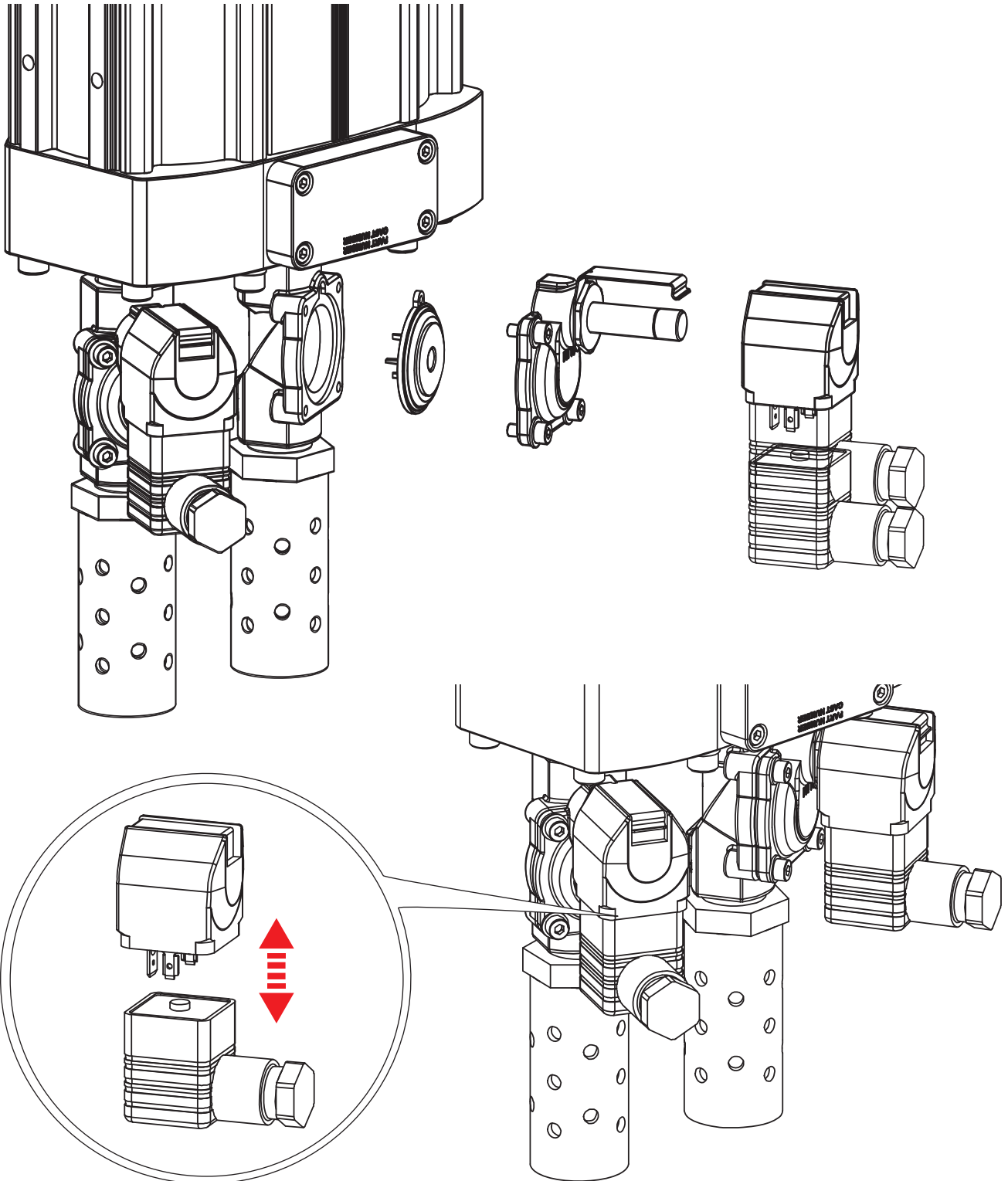


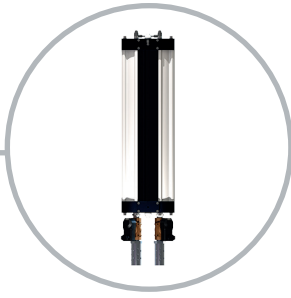
# D1-C

## heatless desiccant air dryers



### 7. service 'B' instructions - exhaust valve/solenoid service





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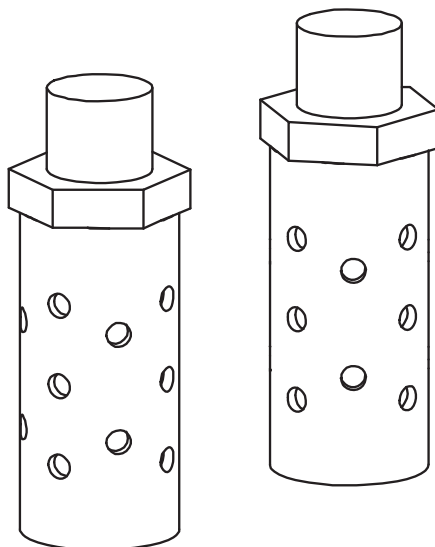
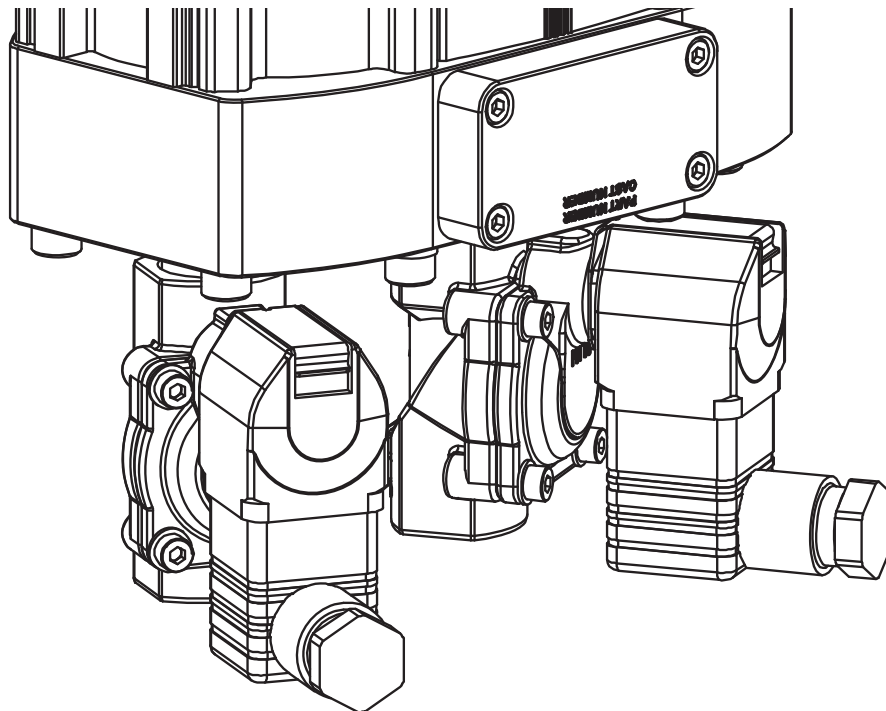
## heatless desiccant air dryers

### 6.2 service 'C' instructions - exhaust silencer service

replacing exhaust valves - (every 4 year or 35,000 hours)



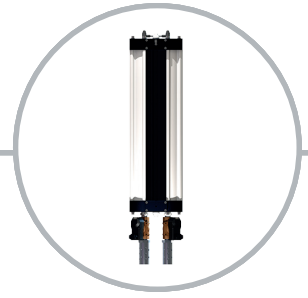
*If the exhaust valves are not intended to be serviced, continue to page 13.*



*The spoils ports are 1.5mmØ holes within the bottom manifold.*

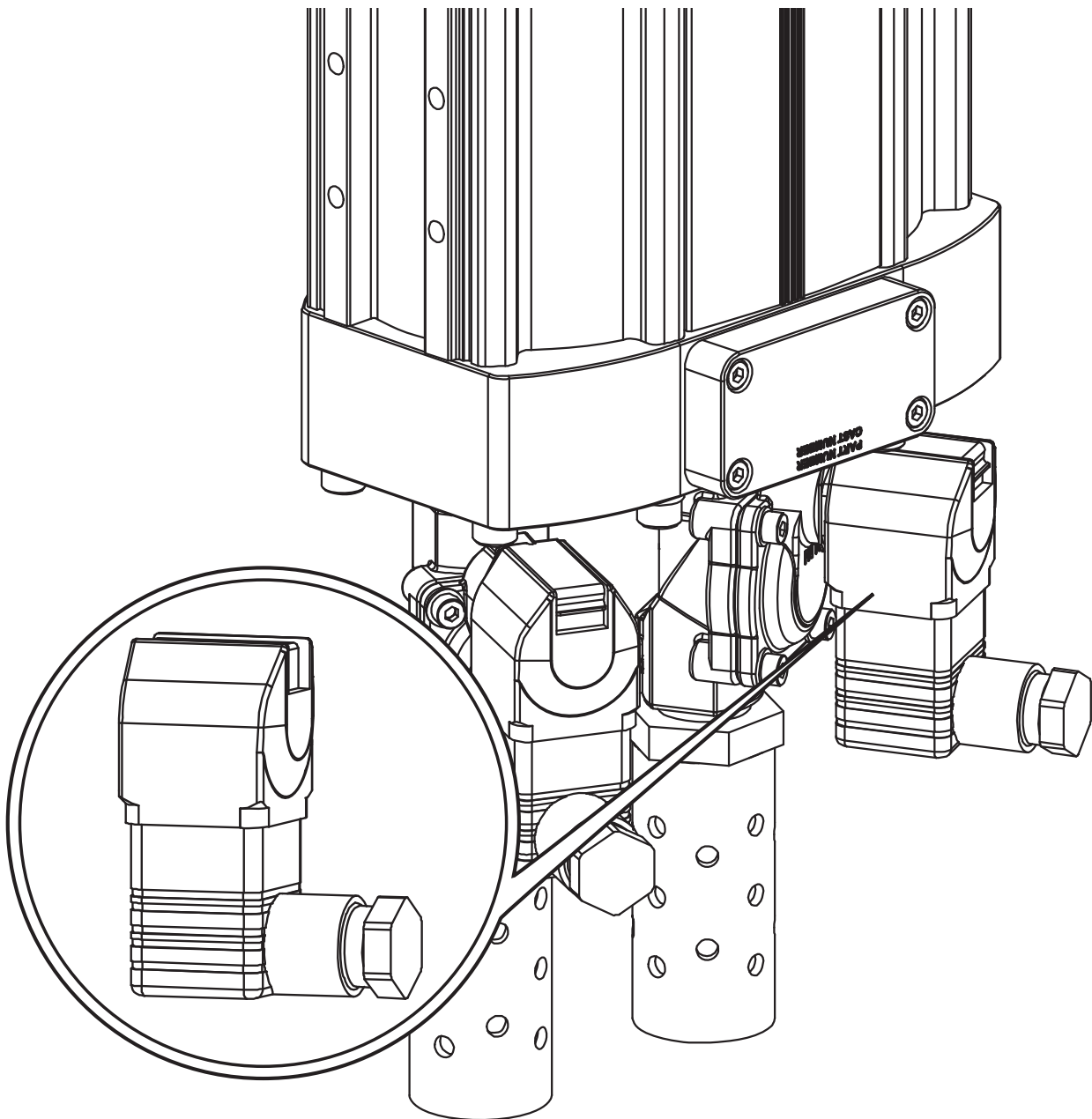
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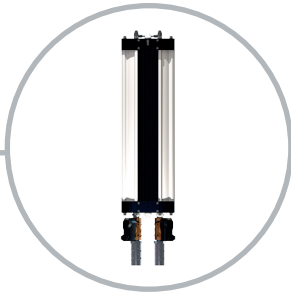
## heatless desiccant air dryers



### 6.3 service 'C' instructions - coil valves

replacing pilot valves - (Every 4 years or 24,000 hours)





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## heatless desiccant air dryers

### 6. other dryer checks & non-service item

#### **daily checks**

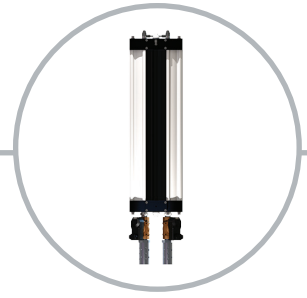
Visual and functional check of the dryer should be carried out daily:

- Check the dryer for any external damage. Assess and eliminate any defects found.
- If the red service light appears, the dryer must be serviced. Contact the distributor service department and re-quest a dryer service kit.
- Remove any loose dust or dirt from the dryer; clean all surfaces that appear to have attracted unwanted contaminants.
- Check the dewpoint sensor display (where applicable). If the dew point is not achieved the dewpoint reading on the display will alternate with "dewpoint alarm" every 5 seconds. The no-volt alarm will also activate.

Contact the distributor service department and request a product service.

#### **maintenance guidelines**

- Maintenance operations only to be conducted when the system has been shut down, fully depressurised and isolated from the power and air supply.
- All connections must be undone with care, paying particular attention to the areas that become pressurised.
- Do not modify or adjust the control settings.
- Only certified n-psl approved replacement parts to be used.
- Always check all connections for leakage and secure seating.
- Ensure all loose parts are removed or secured to the dryer before operation.



## heatless desiccant air dryers

### 7. trouble shooting

problem	problem caused	solution
<b>poor performance</b>	Insufficient inlet pressure	Inlet pressure min 4 barg. If not adjust inlet pressure settings.
	Electrical Fault	Ensure the power is on and the dryer front panel is illuminated; check the dryer is cycling correctly.
	Moist or contaminated desiccant	Eliminate the cause of contamination. Replace desiccant – do not re-use.
	Too high air consumption	Ensure the performance of the dryer matches the required system air consumption.
	Excessive inlet air temperature	Check against technical specification.
	Insufficient purge air	Purge incorrectly adjusted. Consult service personnel to adjust settings (Factory pre-set).
	Exhaust silencer blocked	Consult service personnel.
<b>failure to cycle</b>	Controller not functioning correctly	Ensure the controller is powered up, check the on screen column status to ensure it is powering the solenoid valves during operation
	Controller not illuminated	Check power supply to the dryer, check fuse and replace.
	Insufficient inlet pressure	Inlet pressure should be a minimum of 4 barg (58psig) if not then adjust inlet pressure settings.
	Failure to de-pressurize when cycling	Solenoid valve not functioning correctly; if there is power to the coil, replace valve.
	Outlet flow stops	Check inlet air supply
<b>constant depressurisation</b>	Failure to initialize	Ensure that all isolation valves are fully closed, power up the generator, slowly open the air inlet valve and allow the generator to cycle.
	Erratic air flow from exhaust	Faulty or damaged valves, carry out service

#### reference to known issue

- 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 dryer.

#### Electrical controller

- Incorrect fuse fitted or fuse blown. Check the plug and fuse located on bottom of the controller back plate inside the dryer front door.

#### Additional Items

- Use of non-authorized components.
- Untrained / unauthorised maintenance / installation personnel used.
- Increase in air consumption without relation to the flow capacity of the dryer.
- Purging the dryer with cleaning agents that could damage the components or the desiccant.
- Covers removed or loose during operation.
- Failure to carry out a service when indicated by the dryer.
- Do not allow the dryer to flow air unless powered up, switched on and cycling. Resulting effect could be desiccant contamination; requiring replacement desiccant.

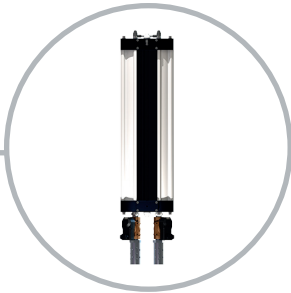








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heatless desiccant air dryers

notes

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