



**D-Series<sup>2</sup>**  
**ultra-high purity**  
**compressed air dryers**

Flow Capacity: 59-306 Nm<sup>3</sup>/hr (35-180 scfm)

**D<sup>2</sup>**

# D-Series<sup>2</sup> ultra-high purity compressed air dryers

Flow Capacity: 59-306 Nm<sup>3</sup>/hr (35-180 scfm)

# D<sup>2</sup>

nano-porous systems limited is one of the world's leading companies specialising in the design and manufacture of industrial compressed air treatment products and dryers.

The business, which is based in the North East of England, has an extremely experienced team of product design and development engineers, led by Colin Billiet – the former Chief Executive of the domnick hunter group Plc.

Working with customers to determine their precise needs, applying our knowledge and experience, n-psl provides 'state of the art' high quality products with innovative features and benefits. Products are manufactured at our UK facility which is accredited to ISO9001:2008. This demonstrates our commitment to continual quality improvement and business excellence.



## Clean and Dry

Clean and dry compressed air – an essential requirement in efficient and profitable manufacture and process operations throughout the food, beverage, chemical, laboratory, pharmaceutical, manufacturing, brewing and process industries.

nano-porous systems limited understand your needs for this and have developed the nano range of ultra-high purity compressed air dryers to give you just that - clean and dry compressed air at an affordable price with unrivalled equipment reliability you can count on!



## Design

Our extremely experienced team of design engineers at nano-porous systems limited are world leading specialists in the design of novel industrial compressed air treatment products and air dryers.



## Research and Development

A core element of our capabilities - founded on cumulative decades of practical engineering expertise our R&D team is continually looking for improved performance and reliability.



## Manufacture

Ultra-high purity compressed air dryers are manufactured at our UK facility to the highest standards of build quality to ensure equipment reliability and high levels of performance.



# D-Series<sup>2</sup> nano dryers – in detail

## Patented filter / desiccant cartridge (one per column)

- Water separation, inlet and outlet filtration integrated into cartridge (eliminates up to 3 external filters and drains).
- Snow storm filled to maximise performance.
- Inlet filtration facilitates good flow distribution, lowering pressure loss.
- Simplified maintenance procedures.

## PLC control

- Robust, reliable control system, offering a number of features including indicators for 'power on', 'service required' and 'hours run'.
- Memory retention – starts dryer where it left off in the drying cycle to prevent wet air downstream.
- The energy saving feature starts and stops the dryer, controlled by a compressor or point-of-use equipment to eliminate purge loss when off.
- The energy saving feature allows the dryer to be stopped and energy saved (purge air) with a compressor or other equipment is not operational.

## Energy saving option

- With this option, a dewpoint sensor is incorporated within the dryer design, providing the ultimate in energy saving.
- Constant monitoring of the outlet dewpoint enables load dependant control for adsorption. Cycle times are adjusted to the actual water load with varying inlet conditions; saving regeneration (purge) air.

## Mounting feet

- Can be rotated through 90° for wall mounting.

## Pressure maintaining device

- Ensures desiccant bed velocities are controlled at all times (important to maintain dewpoint performance).

## Top end re-pressurisation

- Pressure in both dryer columns is equalised before switching over to ensure uninterrupted compressed air at all times (with no pressure dips).

## Solenoid Valve System

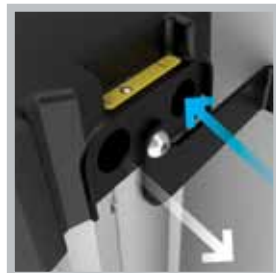
- The solenoid operated diaphragm valves have proven performance and reliability.

## High tensile extruded aluminium column

- Anodised for corrosion protection.



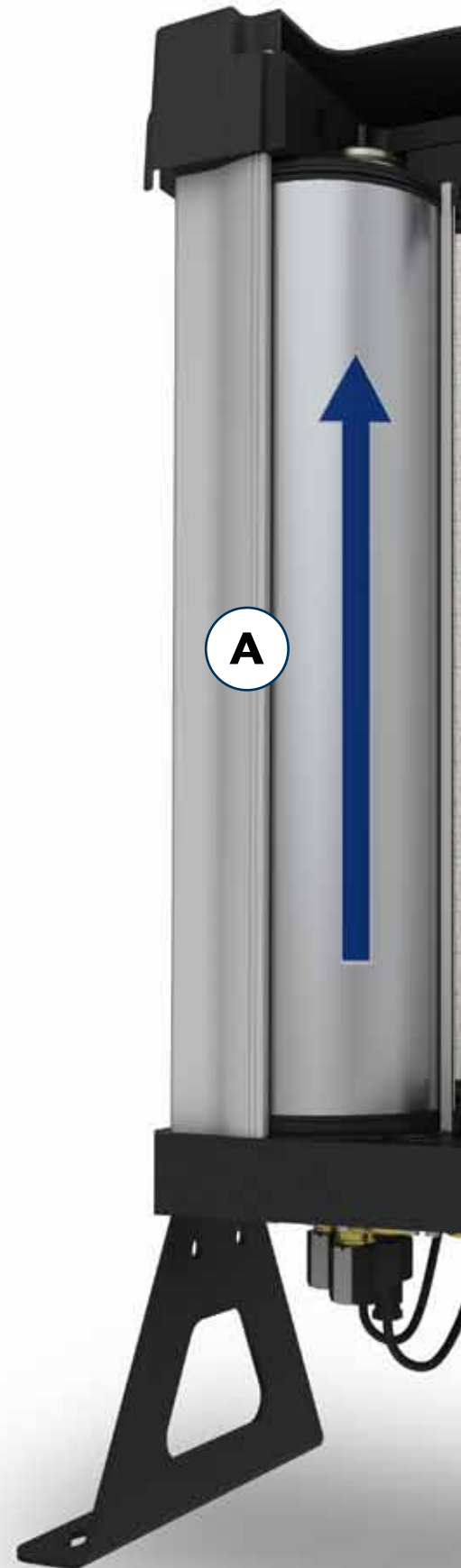
Unique cartridge design.



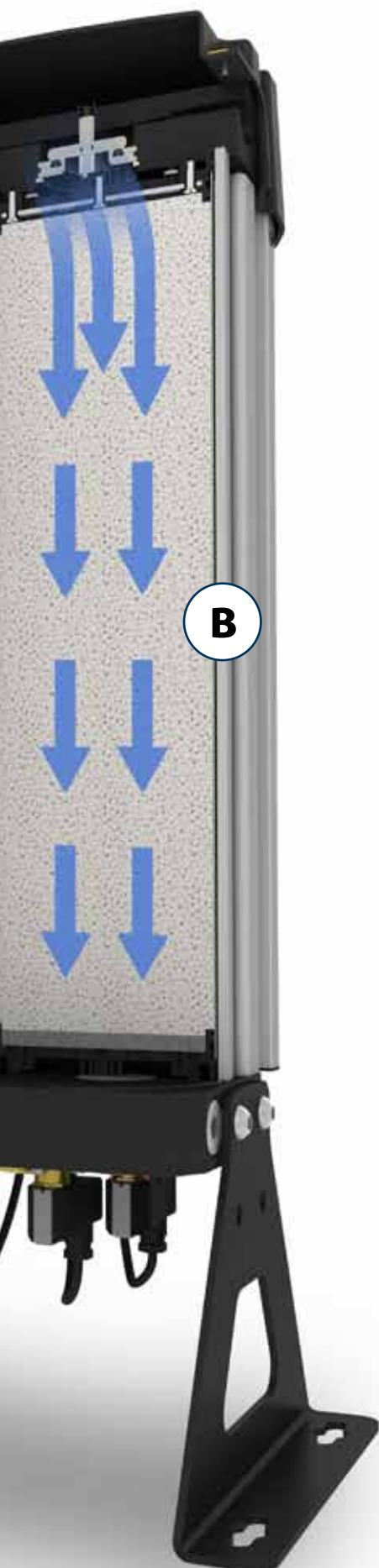
Flexible piping and installation.



Wall mountable.



## How D-Series<sup>2</sup> dryers work



D-Series<sup>2</sup> dryers use the pressure swing adsorption principle to efficiently dry compressed air. They use a heatless twin tower configuration (see diagram opposite) housed in a modular design. Each column contains a unique (and patented) desiccant cartridge which incorporates inlet and outlet filtration.

Wet air from the compressor after-cooler enters the dryer and is directed into column **A**. Bulk liquids (water) and particles are removed by the filtration/separation stage, which is located on the inlet to the cartridge. Water is retained within the dryer until the column is regenerated, and vented to atmosphere during depressurisation. Following the filtration stage, air passes through the desiccant bed where any remaining moisture is adsorbed. Finally, the dry air passes through a particle filter, which retains any desiccant particles that may have been carried through the system (<1 micron / ISO8573.1 class 2 for dust).

Simultaneously, a small amount of dry air is counter-flowed down through cartridge **B** and exhausted to atmosphere, removing the moisture and regenerating the desiccant.

The dryer is controlled by a PLC which switches the solenoid valves, reversing the function of each column and therefore ensuring the continuous supply of dry air.



# nano D-Series<sup>2</sup> dryers

---

Clean and dry compressed air is easily achieved with the new range of D-Series<sup>2</sup> ultra-high purity compressed air dryers.

nano dryers reliably give you:

- More for your money - everything to install the dryer is in the box
- Protection of your production process
- Lower life costs - low energy costs and simplified maintenance
- Built in dewpoint monitoring (optional)
- Space saving - can be easily wall mounted
- Safe and quiet operation
- 35 - 180 scfm (59 - 306 Nm<sup>3</sup>/hr) at 7 barg pressure
- Peace of mind - The most reliable product of its kind

nano dryers are an effective solution to the problems of contaminated compressed air.

## Reliability is designed in...

Backed by our 5 year product warranty!



## D-Series<sup>2</sup> - Benefits you get - More for your money

---

### Guaranteed Performance

- D-Series<sup>2</sup> dryers give you the highest standard of performance of purity and deliver air in accordance with ISO8573:1 – 2001, Class 2 dirt (1 micron) and Class 2 water (-40° C pressure dewpoint)
- 100% function and performance tested

### Reliability

Built in reliability gives you:

- High efficiency water separation – timed solenoid valve operation
- Integral volumetric flow limiter prevents overflow protecting the desiccant and maintaining dew point
- Collected condensate removed every dryer cycle
- Reduced purge air loss

### Quiet Operation

- Exhaust air silencer reduces noise levels

### Control and Display

- Clear PLC display
- Full operational and monitoring data on view

### Energy Saving Design

- Integrated 2 stages of filtration (inlet & outlet) eliminate external filter housings\*
- Purge air for regeneration is only 15%
- Dew point monitoring can save at least 60% of the compressor energy

### High Quality Build

Every D-Series<sup>2</sup> dryer is:

- Pressure tested and checked for zero leaks
- 100% function tested
- 100% tested for dew point performance

### Simple Installation

Easy to install – ready to use, everything is in the box

Complete package includes:

- Mounting feet for vertical and wall mounting
- Power cable – 3 metre long suitable for global use 100-250VAC 50 & 60 Hz

### Easy to Maintain

Unique factory built filtration and adsorption cartridge makes servicing simple:

- 12,000 hours and 5 year service kits
- Built in inlet and outlet filters
- No special tools are required
- Handling of loose desiccant/contaminates avoided
- Typically 15 minutes required for maintenance

### Warranty

- A 5 year warranty comes as standard with every D-Series<sup>2</sup> dryer

\* (coalescing filters will be required for oil removal when using the dryer with oil lubricated compressors)

# nano D-Series<sup>2</sup> dryers

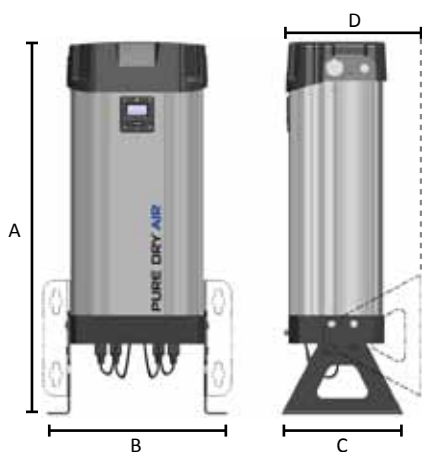
Model	Flow Rate		Connections	Dimensions mm (inches)				Weight (approx)	Model with Energy Savings (includes dewpoint sensor)	Service Kit (12,000 hrs or 2 years)
	Inlet	Outlet*		A	B	C	D			
	Nm <sup>3</sup> /hr (scfm)							Kg (Lbs)		
NDL-060	59 (35)	47.2 (28)	G1" BSPP (Inlet & Outlet)	734 (30)	440 (17)	295 (12)	335 (13)	40 (88)	NDL-060-ES	NDK-060
NDL-070	72 (42)	57.6 (33.6)		734 (30)	440 (17)	295 (12)	335 (13)	40 (88)	NDL-070-ES	NDK-070
NDL-080	91 (54)	72.8 (43.2)		914 (36)	440 (17)	295 (12)	335 (13)	54 (119)	NDL-080-ES	NDK-080
NDL-090	115 (67.5)	92 (54)		914 (36)	440 (17)	295 (12)	335 (13)	54 (119)	NDL-090-ES	NDK-090
NDL-100	153 (90)	122.4 (72)		1089 (43)	440 (17)	295 (12)	335 (13)	64 (141)	NDL-100-ES	NDK-100
NDL-110	183 (108)	146.4 (86.4)		1239 (49)	440 (17)	295 (12)	335 (13)	78 (172)	NDL-110-ES	NDK-110
NDL-120	229 (135)	183.2 (108)		1489 (59)	440 (17)	295 (12)	335 (13)	95 (209)	NDL-120-ES	NDK-120
NDL-130	306 (180)	244.8 (144)		1839 (72)	440 (17)	295 (12)	335 (13)	119 (262)	NDL-130-ES	NDK-130

## Notes:

- \* Includes 15% average purge loss.
- Flow rates are based on an air inlet pressure of 7.0 barg (100 psig) and temperature of 35°C (95°F).
- For flow rates and dryer performance at other inlet conditions or -70°C (-100°F) dewpoint requirements, please see: [www.compressedairtreatment.com](http://www.compressedairtreatment.com)
- Where the air source is from an oil lubricated compressor, we recommend that a 0.01 micron coalescing filter be installed on the inlet to the dryer.

## Specification

ISO8573 – 1: 2001 Quality Classes	Class 2: Dirt: 1µ Class 2: Water: -40°C (-40°F) PDP
Minimum working pressure	4 barg (58 psig)
Maximum working pressure	16 barg (232 psig)
Power supply	100 – 240VAC / 50 – 60Hz
Minimum inlet temperature	1.5°C (34.7°F)
Maximum inlet temperature	50°C (122°F)



Service Kit

