



Modular Heatless Desiccant Air Dryers

FLOW CAPACITY: 5.1 to 1886 Nm³/hr



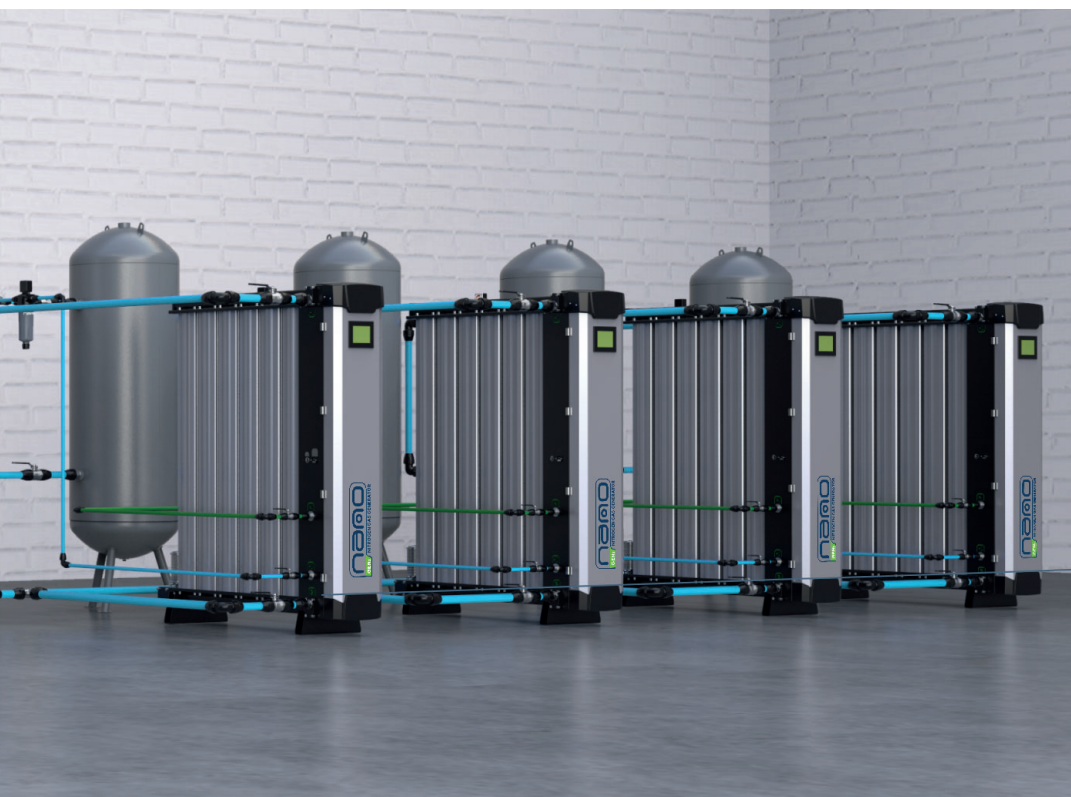


“With the requirement for Class 1.2.1 air for compressed air coming in contact with products for human consumption, we turned to nano as we needed complete confidence in our equipment requirements.”

Baby food manufacturer - UK

Clean, dry compressed air is essential for efficient and reliable manufacturing. Untreated ambient air contains moisture, dust, and contaminants that can cause corrosion, bacterial growth, and equipment failure, leading to increased maintenance, downtime, and product spoilage. While filters remove particles and liquids, they can't eliminate moisture vapour, which condenses as air temperature and pressure change.

Desiccant air dryers effectively remove this moisture by using a drying agent to lower the dew point, making them ideal for critical or low-temperature applications. They protect systems from corrosion, ensure compliance with strict air quality standards, and help maintain product quality. With improved reliability and reduced energy waste, desiccant dryers boost operational efficiency and cut long-term costs.



Multi-Bank Design

The unique multi-bank design enables additional dryers to be added in the future as demand increases and provides redundancy for ease of maintenance. Your nano modular desiccant air dryer can grow with your company.

nano D^{1|2|3} Modular Desiccant Compressed Air Dryers

- Removal of water vapour by lowering the pressure dew point of your compressed air stream to -40°C (-70°C optional) to ensure a continuous supply of dry air.
- Low pressure drop and consistent dew point performance
- Modular design allows installation in spaces too small for a traditional dryer.
- Ease of service with patented, pre-assembled snowstorm filled desiccant and built-in after filter cartridges on D¹ (NDL 010 to NDL 050) and D² (NDL 060N to NDL 130N) ranges.
- Low noise during the exhaust and regeneration cycle
- Energy saving option available
- Many other options available to suit your installation





Features

Reliable High Performance Valves

- D¹ Series (NDL 010 to NDL 050) use integrated check valves and two pilot operated solenoid valves for proven performance and reliability.
- D² Series (NDL 060N to NDL 130N) use four pilot operated solenoid valves.
- D₃ Series (NDL 2110N to NDL 6130N), Inlet, exhaust and outlet air are controlled using coaxial flow valves integrated into the upper and lower manifolds provide unrestricted flow capacity and designed for durability, ease of maintenance and long service life.

Tower Gauges

- Standard on models D² & D³ (NDL 060N and larger)

Patented Combined Filter & Desiccant Cartridges

- High density snowstorm filled desiccant provides maximum adsorption capacity.
- Built-in outlet filtration to eliminate the cost, pressure drop and maintenance associated with a separate after filter.
- Easy to replace cartridges simplify maintenance requirements D¹ & D² (NDL 010 to NDL 130N).

Floor or Wall Mounted

- Can be floor or wall mounted – simply by rotating the feet 90 (standard on D¹, optional on D²).

Powered by nTech (D² & D³)

- *Intuitive. Reliable. Connected.* nTech offers a simplistic icon base interface with all operations being a button press away. Check active alarms, change required set points, start and stop the product with dedicated buttons. Despite the small display size, the dynamic information display cycles through all relevant operational data meaning no navigation is required to view real time data. Connect nTech to a BMS and monitor product operational data (optional plug-in module required). Built-in memory retention means nTech picks up where it left off in the drying cycles ensuring consistently clean, dry air downstream.

Unique Exhaust Air Silencers

- Significantly reduces noise level during depressurisation and purge cycles.

Constant Flow and Pressure

- Columns are repressurised before switching columns to ensure uninterrupted compressed air and consistent air pressure. Equalisation also ensures long desiccant life due to minimised desiccant attrition.

Performance Validated Filtration

- Separate GFNB 0.01 micron pre filter (shipped loose) and a built-in 1.0 micron after filter included.

Maximum Corrosion Protection

- High tensile aluminium columns are alocrom protected then externally powder coated to provide maximum protection for corrosive environments.





Benefits

Complete Range to Suit Any Requirement

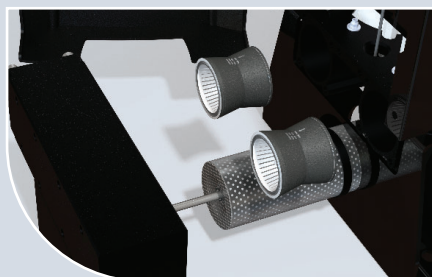
- 20 models available with flow rates from 5.1 to 1886 Nm³/h
- Designed for use in compressor room, point of application or integrated into original equipment.

Guaranteed Performance

- In accordance with ISO 8573.1:2010, Class 2 dirt (1 micron) and Class 2 water (-40°C pressure dew point). Class 1 water (-70°C) as an option.

Easy to Install Space Saving Design

- The compact design allows installation in spaces too small for a traditional design.



Reliable, High Performance Valves

- Easy to install & ready for use, the D¹ includes brackets for either, D² require an additional mounting kit for either floor or wall mounting.

Simplicity of Service

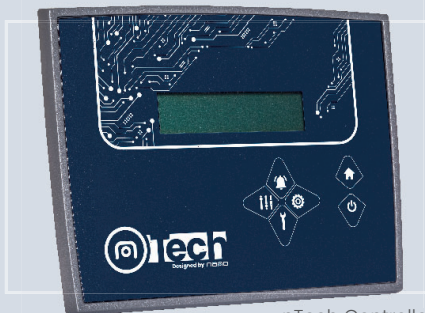
- Patented, pre-assembled snowstorm filled desiccant cartridges (D¹ & D²) can be serviced in less than 15 minutes.
- Snowstorm filled columns with a built-in 1 micron after filter (D³)

High Quality Construction

- 100% tested for leaks, proper operation and dew point performance.

Warranty

- Backed by a 2-year product warranty.



nTech Controller



Patented Combined Filter & Desiccant Cartridges

Optional Upgrades

Additional Monitoring & Communications

- Monitor Inlet Pressure and Temperature to guarantee optimal operational performance.
- Add a Modbus TCP server via a plug-in module to monitor real time operational data such as dew point, alarms, valve operation and running hours to reduce downtime and assist troubleshooting and preventative maintenance. Additional communication options available on request.

Energy Saving Dew Point Control

- With this option, a dew point sensor and display is incorporated into the dryer providing the ultimate in energy and power savings.
- Outlet dew point is constantly monitored allowing the cycle time to be adjusted depending on the actual moisture load saving valuable purge air on all styles of dryers.
- Easy field retrofit (D² & D³)

Other

- 16 barg (MAWP) for higher pressure applications.
- Pneumatic controls; for safe operation, in remote locations where power is either limited or unavailable (available in D² and D³ ranges).

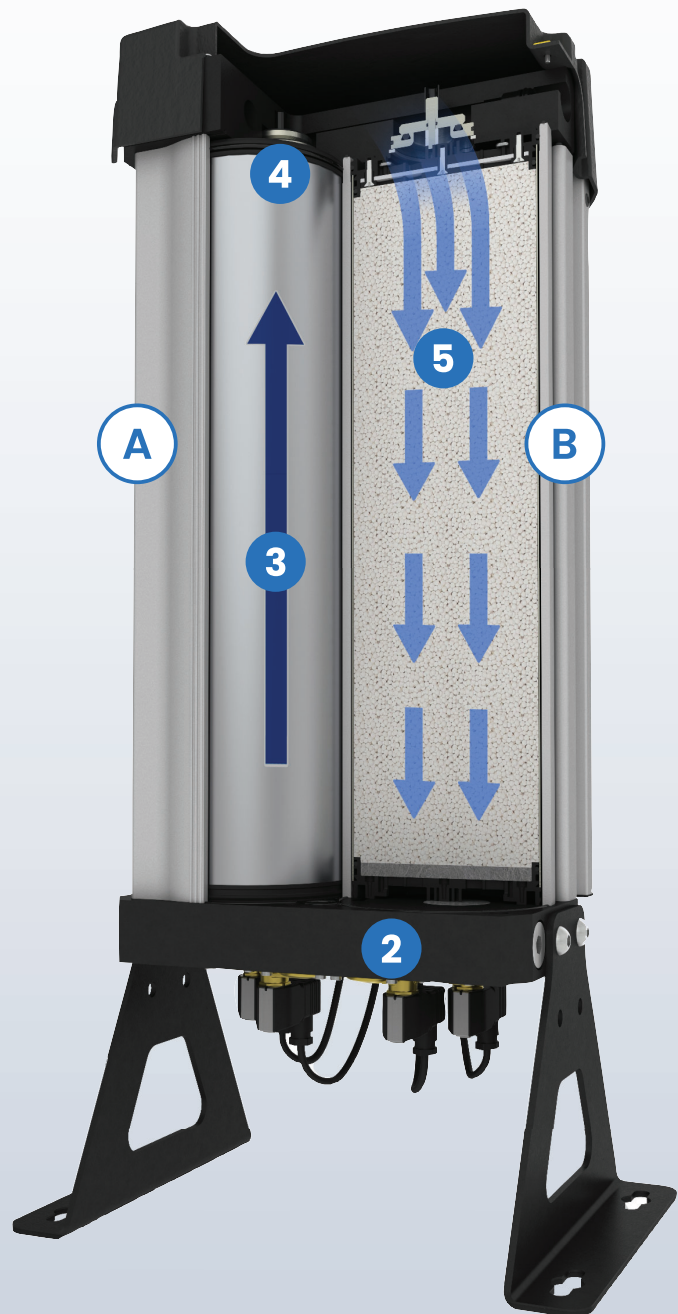


How it works

Efficiently dry compressed air

The nano D¹²³ modular desiccant air dryers use the pressure swing adsorption principle to efficiently dry compressed air. They use a heatless twin tower configuration housed in a modular design. Each column contains a unique (and patented) desiccant cartridge which incorporates outlet filtration.

- 1** 0.01 micron pre-filter (external, supplied separately) removes all particulate, liquid water and oil aerosols to 0.01 ppm.
- 2** Clean, saturated air enters the dryer and is directed into Column A.
- 3** Compressed air travels through Column A for 2 minutes and moisture vapour is adsorbed to -40°C PDP or better.
- 4** A final built-in filter removes particulate to 1.0 micron or better.
- 5** ~20% purge air expands through an orifice and regenerates Column B.
- 6** After 30 seconds, the purge exhaust valve closes and Column B repressurises and is ready for adsorption to begin.
- 7** At the 2-minute mark (fixed cycle), Column A exhaust valve opens to regenerate. A PLC controls all operations.
- 8** Compressed air is costly, but nano dryers can be equipped with an energy-saving system to help reduce both air usage and operating expenses. By monitoring the actual pressure dew point, the PLC halts dryer cycling when the dew point is below the target, cutting down on compressor energy consumption, minimising purge air waste, and reducing valve wear.





Product Specifications

Model	Inlet & Outlet ⁽¹⁾	Rated Flow ⁽²⁾	Dimensions (mm)			Weight	Recommend Filtration ⁽⁷⁾	Integrated Filtration ⁽³⁾
	BSPF	Nm ³ /h	A	B	C	kg	Pre Filter	After Filter
NDL 010	3/8" x 8mm PTC	5.1	440	264	222	9	GFNB 0006 M1/M01	Integrated
NDL 020	3/8" x 8mm PTC	8.5	440	264	222	9	GFNB 0006 M1/M01	Integrated
NDL 030	3/8" x 8mm PTC	17	650	264	222	13.5	GFNB 0015 M1/M01	Integrated
NDL 040	3/8" x 8mm PTC	26	890	264	330	18.5	GFNB 0015 M1/M01	Integrated
NDL 050	3/8" x 12mm PTC	33	1190	264	330	25.5	GFNB 0025 M1/M01	Integrated
NDL 060N	1"	58	743	426	283	40	GFNB 0050 M1/M01	Integrated
NDL 070N	1"	70	743	426	283	40	GFNB 0050 M1/M01	Integrated
NDL 080N	1"	90	923	426	283	54	GFNB 0070 M1/M01	Integrated
NDL 090N	1"	112	923	426	283	54	GFNB 0070 M1/M01	Integrated
NDL 100N	1"	150	1098	426	283	64	GFNB 0105 M1/M01	Integrated
NDL 110N	1"	180	1248	426	283	76	GFNB 0125 M1/M01	Integrated
NDL 120N	1"	224	1498	426	283	91	GFNB 0175 M1/M01	Integrated
NDL 130N	1"	301	1848	426	283	112	GFNB 0175 M1/M01	Integrated
NDL 2110N	2"	360	1271	400	682	184	GFNB 0280 M1/M01	Integrated
NDL 2120N	2"	469	1521	400	682	209	GFNB 0280 M1/M01	Integrated
NDL 2130N	2"	680	1871	400	682	246	GFNB 0450 M1/M01	Integrated
NDL 3130N	2"	951	1871	400	850	349	GFNB 0700 M1/M01	Integrated
NDL 4130N	2 1/2"	1274	1871	400	1018	422	GFNB 0850 M1/M01	Integrated
NDL 6120N	2 1/2"	1407	1521	400	1354	516	GFNB 0850 M1/M01	Integrated
NDL 6130N	2 1/2"	1886	1871	400	1354	638	GFNB 1250 M1/M01	Integrated

Specifications	Standard	Optional
Maximum particle size (ISO Class) ⁽⁴⁾	Class 2 (1 micron)	Class 1 (0.01 micron) ⁽⁵⁾
Maximum water content (ISO Class) ⁽⁴⁾	Class 2 (-40°C pdp)	Class 1 (-70°C)
Minimum operating pressure (barg) ⁽⁶⁾	4	-
Maximum operating pressure (barg)	16 (optional) ⁽⁶⁾	-
Recommended operating temperature range (°C)	1.5 to 35	-
Design operating temperature range (°C)	1.5 to 50	-
Power supply requirements	110 to 240V AC 50/60 Hz	24V DC
Power rating	25W (D ¹) / 35W (D ² D ³)	-

Pressure Correction Factors ⁽⁷⁾												
Operating pressure (barg)	4	5	6	7	8	9	10	11	12	13	14	16
Correction factor	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75	1.88	2.13

Temperature Correction Factors ⁽⁷⁾							Dew point Correction Factors ⁽⁷⁾		
Inlet temp (°C)	25	30	35	40	45	50	Outlet dew point (°C)	-40	-94
Correction factor	1.00	0.98	0.95	0.9	0.8	0.7	Correction factor	1.00	0.70

- (1) NDL 010 to 040 have 8mm push to connect adapters and NDL 050 has 12mm on the 3/8" inlet and outlet. All other models have BSPF threaded connections.
- (2) At inlet conditions of 7 barg and 25°C and a -40°C outlet pressure dew point. For all other conditions refer to the correction factors above.
- (3) Built in 1 micron after filter as standard
- (4) Per ISO 8573:1:2010 (E)
- (5) With separate M01 grade after filter
- (6) Maximum operating pressure as follows: models NDL 010 to 130 are 16 barg (MAWP) as standard; models NDL 2110N to 6130N are 10 barg (MAWP) as standard (optional 16 barg).
- (7) Recommended filtration: M1 & M01 grade pre filters with timer drains. There is an integrated 1 micron dust filter in built into the D1/D2 cartridge. If the user wishes to replace the dust filter at the same time as the pre filters, then fit an additional RM1 dust filter after the dryer.
- (7) To be used as a rough guide only. All applications should be confirmed by nano. Contact sales_uk@nano-purification.com
- (8) Technical specifications subject to change without notice. Direct inquiries to sales_uk@nano-purification.com.



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