



# CO2 REMOVAL AIR DRYER NDC SERIES



The CO2 adsorption dryers purify compressed air to deliver a continuous supply of clean, dry (-70 °C pdp) and CO2 free (<1 ppm) purge gas. CO2 adsorption dryers replace high pressure oxygen or nitrogen gas cylinders and are ideal for numerous applications including FT-IR (Fourier transform infrared) purge, TOC purge, NMR, GC flame gas and laser purging.

The dryer design has been developed with the laboratory environment in mind – the unit can easily be wall mounted to save valuable bench space.

Using proven pressure swing adsorption (PSA) technology, the units feature automatic regeneration and integral pre and post filtration providing totally clean, dry air with a CO2 level of <1ppm.

F-DBS products are designed and manufactured within an ISO9001 quality system and are CE marked.

## Benefits and Savings

### Increased laboratory efficiency

- Reduce signal to noise ratio improves instrument performance
- Protects sensitive optics and air bearings from moisture.
- Tested and approved by most TOC and FT-IR instruments manufacturers.

### Reliability

- Condensate collected in bottom of dryer column is vented with every dryer cycle
- Removal of condensate by timed solenoid valve improves reliability
- Small amounts of condensate are exhausted frequently, eliminating the risk associated with float drain malfunction
- Purge adjustment screws are located after fine dust filtration, eliminating the possibility of contamination and loss of performance

### Reduced energy

- Probably the most energy efficient product of it's type
- Elimination of external filters and improved design reduces pressure drop through the dryer by 60%



## Standard Features

- Outlet CO2 content to less than 1 ppm
- Water dewpoint less than -70°C (-100°F)
- Outlet flow capacities up to 120 L/min
- Compact and lightweight design requires less space
- PLC control with clear display provides feedback
- Full repressurisation means no pressure fluctuations

### Quiet Operation

- Novel exhaust air silencer significantly reduces noise levels (<60dB(a)).

### Easy to Maintain

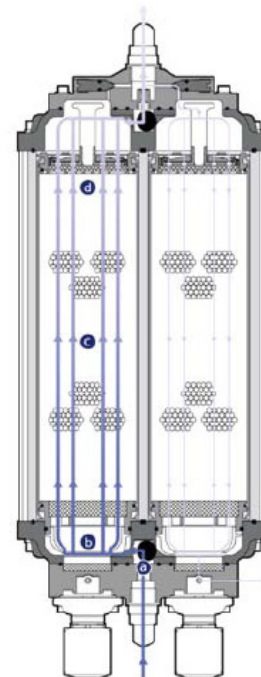
- Unique factory built filtration and adsorption cartridge makes servicing simple.
- Less than 15 minutes required for maintenance.



# CO2 REMOVAL AIR DRYER

## NDC SERIES

The F-DBS CO<sub>2</sub> removal dryer uses the pressure swing adsorption principle of drying compressed air, utilising two identical columns each containing a hygroscopic desiccant bed. Wet air from the compressor after-cooler enters the dryer through a shuttle valve (a) and is directed into one of the desiccant columns. Each column contains a unique (and patented) desiccant cartridge which incorporates inlet and outlet filtration. Bulk liquids (water) and particles are removed by the filtration/separation stage (b) which is located on the inlet to the cartridge. Water is retained in a “quiet zone” until the column is regenerated (when it will be vented to atmosphere as the column is depressurised).



Following the filtration stage, air passes through the desiccant bed (c) where any remaining moisture is adsorbed. After drying, the air passes through a particle filter (d), which retains any remaining desiccant particles that may have been carried through the system (<1 micron / ISO 8573.1 class 2 for dust). Simultaneously, a small amount of dry air is counter-flowed down through the other cartridge and exhausted to atmosphere, removing the moisture and thus regenerating the desiccant. The dryer is controlled by a PLC which periodically switches the solenoid valves when the compressor is running, reversing the function of each column and therefore ensuring the continuous supply of dry air.

### Models and characteristics

| Models          | Outlet flow rate (L/min) based on 7 barg inlet pressure | Total air inlet flow required (L/min) at 7 barg | Air loss for regeneration (L/min) | Connection (BSPP) | Size (mm) H x W x D | Weight (kg) |
|-----------------|---|---|-----------------------------------|-------------------|---------------------|-------------|
| <b>NDC-015</b>  | 1.5   | 2.5   | 1                                 | G 3/8             | 447 x 241 x 160     | 8.3         |
| <b>NDC-140</b>  | 14  | 23  | 9                                 | G 3/8             | 447 x 241 x 160     | 8.3         |
| <b>NDC-300</b>  | 30  | 50  | 20                                | G 3/8             | 647 x 241 x 160     | 12.8        |
| <b>NDC-600</b>  | 60  | 100   | 40                                | G 3/8             | 1097 x 241 x 160    | 19.3        |
| <b>NDC-900</b>  | 90  | 150   | 60                                | G 3/8             | 734 x 440 x 295     | 40          |
| <b>NDC-1200</b> | 120   | 200   | 80                                | G 3/8             | 734 x 440 x 295     | 40          |

#### Notes:

- Above flow rates are based on an air inlet pressure of 7 barg (100psig) and temperature of 21°C (70°F)
- Where the air source is from an oil lubricated compressor, we recommend that a 0.01 micron coalescing filter and also an activated carbon filter be installed, to reduce the (non-methane) hydrocarbons to <0.003ppm. To achieve a particulate level of <0.01 micron, it would also be necessary to fit a fine dust filter to the outlet of the CO<sub>2</sub> adsorption dryer.

| Specification   |  |
|---|--|
| CO <sub>2</sub> / Content Pressure Dewpoint / Particles | <1ppm, -70 °C / pdp (-100°F pdp) / <1 micron |
| Minimum working pressure                                | 4 barg (58 psig)                             |
| Maximum working pressure                                | 16 barg (232 psig)                           |
| Electrical Supply                                       | 100 – 240VAC / 50 – 60Hz                     |
| Minimum inlet temperature                               | 1.5°C (34.7°F)                               |
| Maximum inlet temperature                               | 50°C (122°F)                                 |