IMI NORGREN

Hydra-D

Ultra-high purity desiccant air dryers

Engineering GREAT Solutions

IMI Precision Engineering

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Engineering GREAT solutions through people, products, innovation and service

IMI Precision Engineering is a world-leader in fluid and motion control. Building close, collaborative relationships with our customers, we gain a deep understanding of their engineering needs and then mobilise our resources and expertise to deliver distinctive products and solutions.

Wherever precision, speed and engineering reliability are essential, our global footprint, problem-solving capability and portfolio of high performance products enables us to deliver GREAT solutions which help customers tackle the world's most demanding engineering challenges.

> **Reliability**
We deliver and support our high quality products through our global service network.

> **High performance products**
Calling on a world-class portfolio of fluid and motion control products including IMI Norgren, IMI FAS, IMI Buschjost, IMI Maxseal and IMI Herion. We can supply these singly, or combined in powerful customised solutions to improve performance and productivity.

> **Partnership & Problem Solving**
We get closer to our customers to understand their exact challenges.

Our capability

With many years experience making market leading compressed air dryers, our team of experienced engineers have applied their wealth of knowledge and experience into eliminating many of the problems associated with desiccant dryers.

The IMI Norgren HYDRA-D range is a new standard for compressed air dryers incorporating “state of the art” innovative features and benefits.

The need for Clean, Dry, Compressed Air

Compressed air is an important source of energy that is widely used throughout industry. Certain processes have an essential requirement for clean dry air to ensure their safe, efficient and profitable operation.

Industries such as food production and packaging, beverages, chemical, brewing, pharmaceutical, manufacturing and process, along with laboratory applications all need clean dry air.

The problem with air is that it contains water vapour, which condenses to water droplets when the air cools. Water and dirt in compressed air is a major problem as it may damage the equipment being supplied by the compressor and contaminate the process that equipment supplies.

The moisture and heat of compressed air creates favourable conditions for growth of microorganisms which cause dangerous contamination issues in food and beverage applications. So at a high cost the inconvenience of water and dirt must be removed from the compressed air supply.

Ultra-high purity

Quiet operation

Outstanding performance

Hydra-D
The solution

The IMI Norgren Hydra- D range of compressed air dryers can ensure that all of the problems associated with the contamination of compressed air can be avoided.

Hydra- D is designed with end users in mind. Using modern materials and incorporating new patented features; the dryers deliver high quality compressed air with increased reliability, lower running costs and simplified maintenance procedures.

Benefits

Guaranteed Performance

> Hydra-D delivers the highest standards of purity and delivers air in accordance with ISO 8573:1 – 2010, class 2 dirt (1 micron) and Class 2 water (-40°C pressure dew point)

> All units are 100% leak, function and performance tested

Reliability

> High efficiency water separation with condensate vented every cycle by timed solenoid valve operation

> Integral volumetric flow limiter prevents overflow, eliminating moisture and loss of dew point

> Cartridge outlet filters prevent dust contamination of purge air, eliminating the possibility of contamination and loss of performance

Quiet Operation

> Exhaust air channelling gives significantly reduced noise levels

Control and Display

> Clear PLC display provides full operational and monitoring data

Energy saving design

> Integrated inlet and outlet filtration reduces pressure drop compared to external filters

> Purge air for regeneration is only 15%

> Dew point monitoring can save up to 60% during reduced inlet moisture loading

Simple Installation

> Compact space saving design with floor or wall mounting bracket

Easy to maintain

> 12,000 hour servicing can be achieved by replacing the patented combined filter and desiccant cartridges within 15 minutes

> No special tools are required, no external filters or silencers to service and no handling of loose desiccant

Brewing

Pharmaceutical

Food

Modern materials for the industry

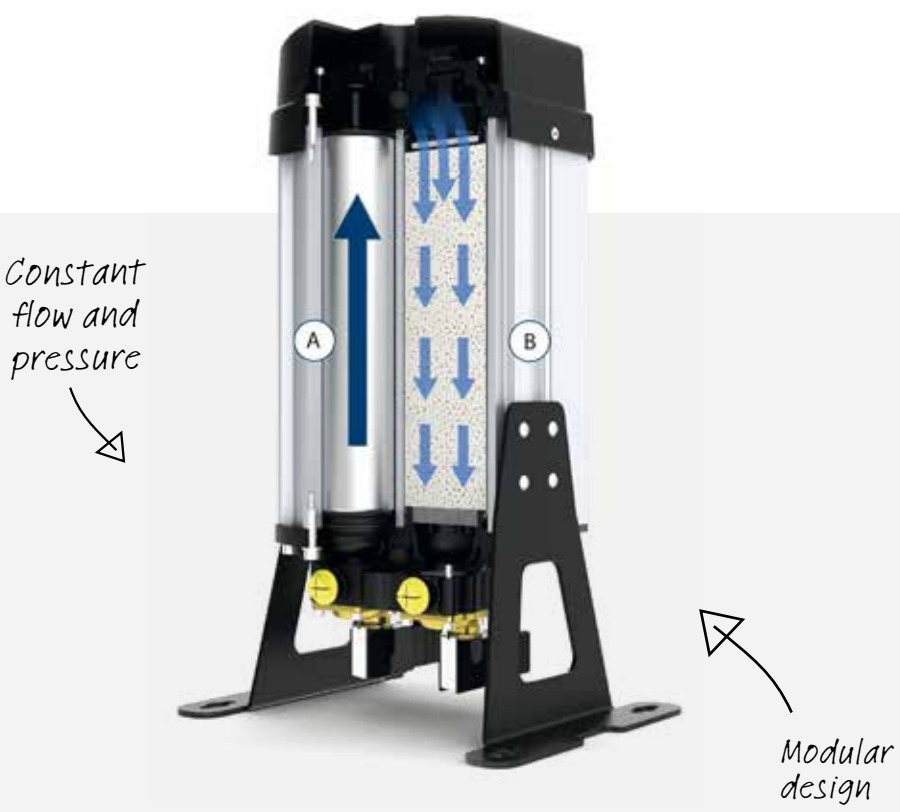
Hydra-D
How it works

HYDRA-D 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 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 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, when it will be vented to atmosphere as it is depressurised. 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 remaining desiccant particles that may have been carried through the system.

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 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.



Hydra-D Features

Options of -20°C to -74°C are available

Patented filter/desiccant cartridge

> Water separation, inlet and outlet filtration and desiccant integrated into a single cartridge (can eliminate up to 3 external filters)

> Built-in inlet filtration improves flow distribution giving better performance and lowering pressure drop

> Pre-filtering of purge air prevents any carry-over of desiccant dust which can cause increased pressure drop and purge air requirements

> High density filled desiccant provides maximum adsorption capacity

> Easy to replace cartridge simplifies and speeds up maintenance

PLC controlled operation

> The dryer is controlled by a robust and reliable PLC control system

> PLC memory retention enables the controller to resume the drying cycle at the point where it previously stopped, ensuring clean and dry air downstream

> Application synchronisation starts and stops the dryer eliminating purging when drying is not required

Energy saving dew point control option

> Monitoring of outlet dew point means purge only occurs when the bed is fully saturated, saving on purge air

Optimum dewpoint performance

> The standard dryer setting gives a dew point of -40°C. Options of -20°C to -74°C are available.

> Air velocity is controlled by a pressure maintaining device to ensure dew point maintenance

Constant flow and pressure

> Pressure is equalised before switching columns to ensure consistent air pressure and to reduce movement of the desiccant media which causes attrition

Reliable high performance valves

> Hydra-D1 uses ball valves and two piloted solenoid valves and Hydra-D2 and D3 series use four piloted solenoid valves to control inlet and outlet air, maintaining air pressure within the dryer which prevents ingress of moisture onto the desiccant beds when off-line

Floor or wall installation

> Can be floor or wall mounted – simply by rotating the mounting feet by 90°

Quiet operation

> Optimising the exhaust air flow paths result in reduced noise levels

Strong corrosion resistant construction

> Anodised, high tensile extruded aluminium

Technical data

Series	Model number standard	Model number energy saving	Maximum flow (L/S)* Inlet	Maximum flow (L/S)* Outlet	Maximum flow (SCFM) Inlet	Maximum flow (SCFM) Outlet	Ports	Weight (kg)
D1	WD1D-8DA-N1A	WD1D-8DB-N1A	1.4	1.1	3	2.4	8 mm PIF	8.3
D1	WD1D-8DA-N1B	WD1D-8DB-N1B	2.4	1.9	5	4	8 mm PIF	8.3
D1	WD1D-8DA-N1C	WD1D-8DB-N1C	4.7	3.8	10	8	8 mm PIF	13
D1	WD1D-8DA-N1F	WD1D-8DB-N1F	7.2	5.6	15	12	8 mm PIF	16
D1	WD1D-BDA-N1G	WD1D-BDB-N1G	11.4	9.2	24	19	12mm PIF	19
D2	WD2D-8GA-N1H	WD2D-8GB-N1H	16.1	13.1	34	28	G1	40
D2	WD2D-8GA-N1J	WD2D-8GB-N1J	19.4	16.1	41	34	G1	40
D2	WD2D-8GA-N1K	WD2D-8GB-N1K	25.0	20.3	53	43	G1	54
D2	WD2D-8GA-N1L	WD2D-8GB-N1L	31.1	25.6	66	54	G1	54
D3	WD3D-8GA-N1M	WD3D-8GB-N1M	41.7	33.9	88	72	G1	64
D3	WD3D-8GA-N1N	WD3D-8GB-N1N	50.0	40.6	106	86	G1	78
D3	WD3D-8GA-N1P	WD3D-8GB-N1P	62.2	50.8	132	108	G1	95
D3	WD3D-8GA-N1Q	WD3D-8GB-N1Q	83.6	68.1	177	144	G1	119

* Maximum rated flow to maintain -40°C PDP with inlet pressure of 7 bar and 37.7°C.

For critical laboratory type applications the HYDRA-C range of CO_2 adsorption dryers are available for flows of 1.5 L/min to 60L/min. Delivering a PDP of -70°C or better, with a CO_2 content of less than 1 ppm.

- ISO 8573-1:2010
- Quality classes - class 2 dirt (1micron), class 2 water (-40°C PDP)
- Maximum pressure: 16 bar
- Minimum pressure: 4 bar
- Operating temperature: 2 to 50°C
- Power supply: 100-240 VAC / 50-60 Hz

Easy to maintain

Guaranteed performance

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