Gardner Denver

Modular Desiccant Dryer Series

GDX-Series

PROTECT 10 years
Extended Warranty for GD Compressors

SUSTAINABLE MANUFACTURING

High-performance
desiccant air treatment

Energy efficient desiccant dryers

GDX-Series modular compressed air dryers - a dedicated solution for every application

By combining the proven benefits of desiccant drying with modern design, Gardner Denver provides an extremely compact and reliable system to dry and clean compressed air efficiently.

At the heart of any compressed air treatment solution is the dryer, its purpose, to remove water vapour, stop condensation, corrosion and in the case of adsorption dryers, inhibit the growth of micro-organisms.

The Gardner Denver GDX-Series of heatless regenerative desiccant dryers have proven to be the ideal solution for many thousands of compressed air users worldwide in a wide variety of industries.

Why choose desiccant dryer technology?

Compressed air purification must deliver uncompromising performance and reliability whilst providing the right balance of air quality with the lowest cost of operation. Heatless desiccant dryers, which are also known as PSA dryers, are the simplest type of desiccant dryer available and have long been the dryer of choice for many industries and applications. They are simple, reliable, and cost effective solutions for small to medium flow systems, often the only viable technology available. Additionally, modular heatless dryers such as GDX-Series provide an even more reliable, smaller, compact, and lightweight dryer which can be installed in both the compressor room or at the point of use.

Applications & industries:

Automotive

Pharmaceutical

Oil & Gas

Food and Beverage

Chemical

"Clean, dry air improves production efficiency and reduces maintenance costs and downtime. Desiccant dryers provide the highest levels of dry compressed air."

GDX-Series
Product Overview

GDX1M -40°C to GDX50M -40°C Series
Flowrates from 0.08 m^3/min

GDX7M -40°C DS to GDX50M -40°C DS Series
Flowrates from 0.67 m^3/min

GDX1M -70°C to GDX50M -70°C Series
Flowrates from 0.67 m^3/min

Desiccant technology

Desiccant dryers work on the principle of moisture always migrating to the driest medium possible. Therefore, water vapour is removed from compressed air by passing it over an adsorbent desiccant material.

As the air contacts the adsorbent material, water vapour transfers from the wet air to the dry desiccant, however, adsorbent materials have a fixed adsorption capacity and once this capacity is reached, they must be regenerated or replaced. Therefore, to provide a continuous supply of clean, dry compressed air, adsorbent dryers utilise two chambers of desiccant material and at any one time, whilst one chamber is on-line, drying the incoming compressed air, the other is either off-line, being regenerated or is re-pressurised, ready to come on-line. All desiccant dryers remove water in this manner.

The energy consumed by a desiccant dryer can be directly attributed to the method used to regenerate the adsorbent material. The Gardner Denver GDX-Series dryers utilise the heatless PSA method to regenerate the adsorbent material.

Advantages at a glance:

- Robust and reliable industry-proven design
- Suitable for all industries and applications - some desiccant dryer regeneration methods prevent their use in certain industries/applications
- Lower capital investment and reduced complexity compared to other dryer regeneration methods
- Lower maintenance costs in comparison to other dryer regeneration methods
- No heat, heaters, or heat-related issues

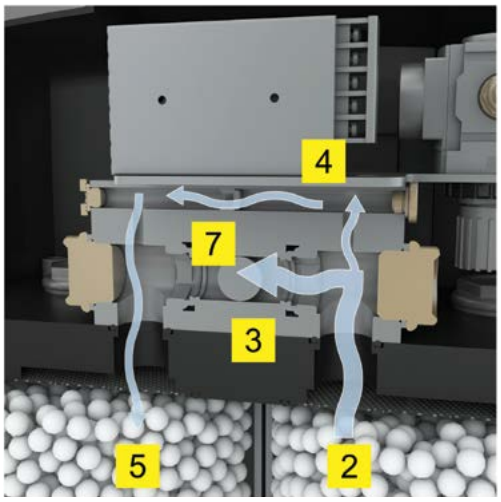
Industry proven design

Drying process

1. Compressed air stream with moisture enters the dryer from the inlet valve, depending on where the PLC sequence step is, this will be either the left or right column.

2. The compressed air gets dried going upward in the column through the desiccant media that adsorb water vapour.

3. From the exit valve, the dried air is delivered to the air system.



Regenerating process

4. Simultaneously to drying the compressed air in the other column, a limited amount of dried air is passed from the upper outlet valve and expanded to atmospheric pressure through purge orifice housed within the valve, to the regenerating column.

5. This regeneration air flows downwards through the saturated desiccant of the other column and regenerates the desiccant by adsorbing the moisture.

6. The expanded regeneration air containing the adsorbed moisture is discharged through the exhaust solenoid valve and muffler.

7. The sphere in the valve and its position, right or left, determines which column is drying and regenerating. The movement of the sphere is driven by the pressure difference between the columns (pressure for drying column and atmospheric pressure for regenerating column) driven by exhaust solenoid valves in the bottom part of the dryers.

High air quality, low cost ownership

Features are your benefits

High Air Quality:
Delivers ISO Class 2 or Class 1 pressure dew point air for critical applications; high efficiency pre and post-filters provide constant high air quality, protecting downstream air from contamination.

Superior Reliability:
Proven electronic control performance indicators, extruded aluminium with anodisation and epoxy painting, NEMA 3/IP54 Protection (also suitable for outdoor installation) and IP65 protection for the controller (only for models GDX7M and above) make desiccant dryers durable and high-strength.

Total Cost of Investment:
Reduced cost of ownership with point of use design to treat only the required air, conservative pressure drop 0.2 Barg, and purge reduction on compressed air demand (on/off-load).

Ease of Use:
User-friendly and pleasant-at-sight touchscreen electronic interface showing dryer status, with alarm indicators available for models 40 and above.

Serviceability:
Modular dryers feature an optimised design for simplified maintenance and preventative maintenance alerts (models 40 and above).

Compact & Flexible Solution:
Space-saving design for optimised installation with air inlet and outlet in the back of unit and connection piping can come from right or left. Model up to 0.42 m^3/min can be wall-mounted or installed horizontally.

Performance Improvement:
Extended rated pressure range from 4 to 14 Barg and increased airflow range coverage up to 300 m^3/h. Guaranteed class 2 (-40°C) and optionally class 1 (-70°C) pressure dew point.

Longer Cycle Life:
Modular dryers have a longer cyle time, 10 minutes, than most competitors (4 to 8 minutes maximum).

High air quality, low cost of ownership

Model specific features

GDX-Series 1M - 4M Microprocessor
- Simple to use
- Compact, fit the small units
- Cycle time indication
- Right/left tower drying/regenerating indication

GDX-Series 7M - 50M Long Service Life
- Proven pneumatic purge valves
- Solenoid control valve

Low Noise
- Purge mufflers <75 dBA

Safe & easy installation
- Feet with forklifting provisions

Quick visual reading
- Pressure gauges

Dew Point Switching (DS)
With this option, the unit is provided with a High Precision Dew Point sensor connected to the Digital Controller.

The DS option will adjust the operation of the dryer according to the outlet air Dew Point Temperature measured by the sensor (The DS option will take over compressor offload interlock function).

DS options return of investment can be less than 1 year, reducing total cost of ownership.

New Digital Controller 0.67-5.00

Preventative maintenance alerts*

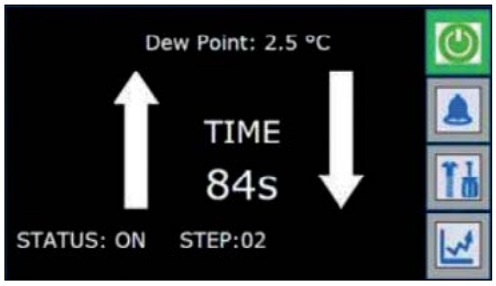
Proactive maintenance for dryer reliability and customer uptime.

- Alerts based on running hours
- Maintenance alerts for:
  - Filter Element Change-out
  - Muffler Replacement
  - Valve replacement
  - Desiccant Change-out
  - Dew point sensor service (only with DS)

Connectivity*

Intuitive touchscreen interface with simple navigation designed for ease-of-use.

- Units from 0.67 m^3/min and above
- Modbus ready for remote control and monitoring
- RS-485 communications
  - Easier integration into a wide variety of DCS systems
  - Remote alarm
  - Communicates common alarm through Modbus



*These features are only available on models from 0.67 m^3/min onwards.

Compressor interlock function*

Reduce the timing of the purge cycle based on compressed air demand.

- The controller monitors the cycle rate of the air compressor load/unload to effectively reduce timing of purge (when more than one compressor is connected to GDX-Series the on/off relay of compressor with the lowest pressure set point must be used)

Technical data

GDX1M -40°C to GDX50M -40°C Series

Model	Capacity			Max Pressure		Pressure Dew Point	Air in/out connection	Power Supply	Dimensions (mm)			Weight	Desiccant per tower
	m³/min	m³/h	SCFM	bar g	psig	°C	BSP (in)	V/Ph/Hz	W	D	H	kg	kg
GDX1M -40°C	0.08	5	3	14	203	-40	3/8"	230/1/50-60	238	212	423	11	0.7
GDX3M -40°C	0.25	15	9	14	203	-40	3/8"	230/1/50-60	238	212	823	18	2.2
GDX4M -40°C	0.42	25	15	14	203	-40	3/8"	230/1/50-60	238	212	1073	27	3.0
GDX7M -40°C	0.67	40	24	14	203	-40	3/4"	230/1/50-60	475	405	968	44	6.4
GDX9M -40°C	0.92	55	32	14	203	-40	3/4"	230/1/50-60	475	405	1118	50	8.4
GDX12M -40°C	1.17	70	41	14	203	-40	3/4"	230/1/50-60	475	405	1318	60	10.9
GDX17M -40°C	1.67	100	59	14	203	-40	1"	230/1/50-60	475	405	1673	73	15.4
GDX25M -40°C	2.50	150	88	14	203	-40	1"	230/1/50-60	475	405	1873	90	18.0
GDX33M -40°C	3.33	200	118	14	203	-40	1 1/2"	230/1/50-60	536	495	1705	177	30.8
GDX42M -40°C	4.17	250	147	14	203	-40	1 1/2"	230/1/50-60	536	495	1905	180	35.9
GDX50M -40°C	5.00	300	177	14	203	-40	1 1/2"	230/1/50-60	536	495	1905	188	35.9

GDX7M -40°C DS to GDX50M -40°C DS Series

Model	Capacity			Max Pressure		Pressure Dew Point	Air in/out connection	Power Supply	Dimensions (mm)			Weight	Desiccant per tower
	m³/min	m³/h	SCFM	bar g	psig	°C	BSP (in)	V/Ph/Hz	W	D	H	kg	kg
GDX7M -40°C DS	0.67	40	24	14	203	-40	3/4"	230/1/50-60	475	405	968	44	6.4
GDX9M -40°C DS	0.92	55	32	14	203	-40	3/4"	230/1/50-60	475	405	1118	50	8.4
GDX12M -40°C DS	1.17	70	41	14	203	-40	3/4"	230/1/50-60	475	405	1318	60	10.9
GDX17M -40°C DS	1.67	100	59	14	203	-40	1"	230/1/50-60	475	405	1673	73	15.4
GDX25M -40°C DS	2.50	150	88	14	203	-40	1"	230/1/50-60	475	405	1873	90	18.0
GDX33M -40°C DS	3.33	200	118	14	203	-40	1 1/2"	230/1/50-60	536	495	1705	177	30.8
GDX42M -40°C DS	4.17	250	147	14	203	-40	1 1/2"	230/1/50-60	536	495	1905	180	35.9
GDX50M -40°C DS	5.00	300	177	14	203	-40	1 1/2"	230/1/50-60	536	495	1905	188	35.9

GDX7M -70°C to GDX50M -70°C Series

Model	Capacity			MGDX Pressure		Pressure Dew Point	Air in/out connection	Power Supply	Dimensions (mm)			Weight	Desiccant per tower
	m³/min	m³/h	SCFM	bar g	psig	°C	BSP (in)	V/Ph/Hz	W	D	H	kg	kg
GDX1M -70°C	0.06	4	2	14	203	-70	3/8"	230/1/50-60	238	212	423	11	0.7
GDX3M -70°C	0.20	12	7	14	203	-70	3/8"	230/1/50-60	238	212	823	18	2.2
GDX4M -70°C	0.33	20	12	14	203	-70	3/8"	230/1/50-60	238	212	1073	27	3.0
GDX7M -70°C	0.53	32	19	14	203	-70	3/4"	230/1/50-60	475	405	968	44	6.4
GDX9M -70°C	0.73	44	26	14	203	-70	3/4"	230/1/50-60	475	405	1118	50	8.4
GDX12M -70°C	0.93	56	33	14	203	-70	3/4"	230/1/50-60	475	405	1318	60	10.9
GDX17M -70°C	1.33	80	47	14	203	-70	1"	230/1/50-60	475	405	1673	73	15.4
GDX25M -70°C	2.00	120	71	14	203	-70	1"	230/1/50-60	475	405	1873	90	18.0
GDX33M -70°C	2.67	160	94	14	203	-70	1 1/2"	230/1/50-60	536	495	1705	177	30.8
GDX42M -70°C	3.33	200	118	14	203	-70	1 1/2"	230/1/50-60	536	495	1905	180	35.9
GDX50M -70°C	4.00	240	142	14	203	-70	1 1/2"	230/1/50-60	536	495	1905	188	35.9

Correction Factors

		Inlet Air Pressure										
	bar g	4	5	6	7	8	9	10	11	12	13	14
Inlet Air Temperature	35°C	0.63	0.75	0.88	1.00	1.14	1.25	1.37	1.49	1.64	1.75	1.89
	40°C	0.55	0.66	0.77	0.88	1.00	1.00	1.20	1.32	1.43	1.54	1.64
	45°C	0.45	0.54	0.63	0.72	0.81	0.90	1.00	1.08	1.18	1.27	1.35
	50°C	0.32	0.39	0.45	0.52	0.58	0.65	0.71	0.78	0.85	0.91	0.97

		Inlet Air Pressure										
	psi g	58	73	87	102	116	131	145	160	174	189	203
Inlet Air Temperature	95°F	0.63	0.75	0.88	1.00	1.14	1.25	1.37	1.49	1.64	1.75	1.89
	104°F	0.55	0.66	0.77	0.88	1.00	1.00	1.20	1.32	1.43	1.54	1.64
	113°F	0.45	0.54	0.63	0.72	0.81	0.90	1.00	1.08	1.18	1.27	1.35
	122°F	0.32	0.39	0.45	0.52	0.58	0.65	0.71	0.78	0.85	0.91	0.97

Prefilters and Postfilter are supplied as standard on Modular Dryers.

Prefilter

Particle removal down to 0.01 micron

- Including water and oil aerosols
- Maximum remaining oil aerosol content of 0.01 mg/m³ @ 21°C

Postfilter

Particle removal down to 0.1 micron

- Including coalesced liquid, water and oil
- Maximum remaining oil aerosol content of 0.03 mg/m³ @ 21°C

Global Expertise

The GD rotary screw compressor range from 2.2 – 500 kW, available in both variable and fixed speed compression technologies, are designed to meet the highest requirements which the modern work environment and machine operators place on them.

The oil-free EnviroAire range from 15 – 355 kW provides high quality and energy efficient compressed air for use in a wide range of applications. The totally oil-free design eliminates the issue of contaminated air, reducing the risk and associated cost of product spoilage and rework.

A modern production system and process demands increasing levels of air quality. Our complete **Air Treatment Range** ensures the highest product quality and efficient operation.

Compressor systems are typically comprised of multiple compressors delivering air to a common header. The combined capacity of these machines is generally greater than the maximum site demand. To ensure the system is operated to the highest levels of efficiency, the **GD Connect** air management system is essential.

gdcompressors.eu@gardnerdenver.com
www.gardnerdenver.com

For additional information please contact Gardner Denver or your local representative.

Specifications subject to change without notice.