

Gardner Denver

Heated Blower Desiccant Air Dryers

High Performance. Maximum Reliability. Low Profile Design
500 - 14,900 m³/h
GDHB Series

PROTECT 10
years
Extended Warranty for GD Compressors



Energy Efficient
Compressed Air Treatment





High quality in-house air treatment manufacturing

A modern production system and process demands increasing levels of air quality, and compressed air operators need to ensure that the downstream equipment also delivers on it 100%.

The new Air Treatment portfolio manufactured by Gardner Denver utilising the latest technology provides an energy efficient solution at lowest life cycle costs. The same quality, performance, and efficiency standards delivered by the compressors can now be enjoyed from the Air Treatment range.

Investment in the design and manufacture of our product range, in addition to delivering a strong support structure, ensures that compressed air operators don't need to worry about the quality of their compressed air – quality that is key to ensuring maximum production efficiency and investment protection.

GDHB-Series Heated Blower 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 GDHB-Series of heated blower desiccant air dryers has 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. Desiccant dryers are the simplest type of compressed air 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.

Air Quality Recommended Standards		
High Quality Air Applications	ISO Class	Pressure Dew Point
Air bearings	3	-20°C
Instrument Air	3	-20°C
Sand blasting	3	-20°C
Air gauging	2	-40°C
Spray painting	2	-40°C
Chemical Process - Oxydation, Ammonia Production	2	-40°C
Conveying, powder products	2	-40°C
Fluidics, sensors	2	-40°C
Food & beverages, direct air contact	2	-40°C



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

Applications **and industries**

Gardner Denver's GDHB-Series are used in a variety of industries where negative PDP is required and are suited to a range of ISO Class 3 and 2 applications in the manufacturing, packaging, textile, food & beverage, and transport industries, to name a few.



Automotive



Food & Beverage



Pharmaceutical



Chemical



Oil & Gas

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.

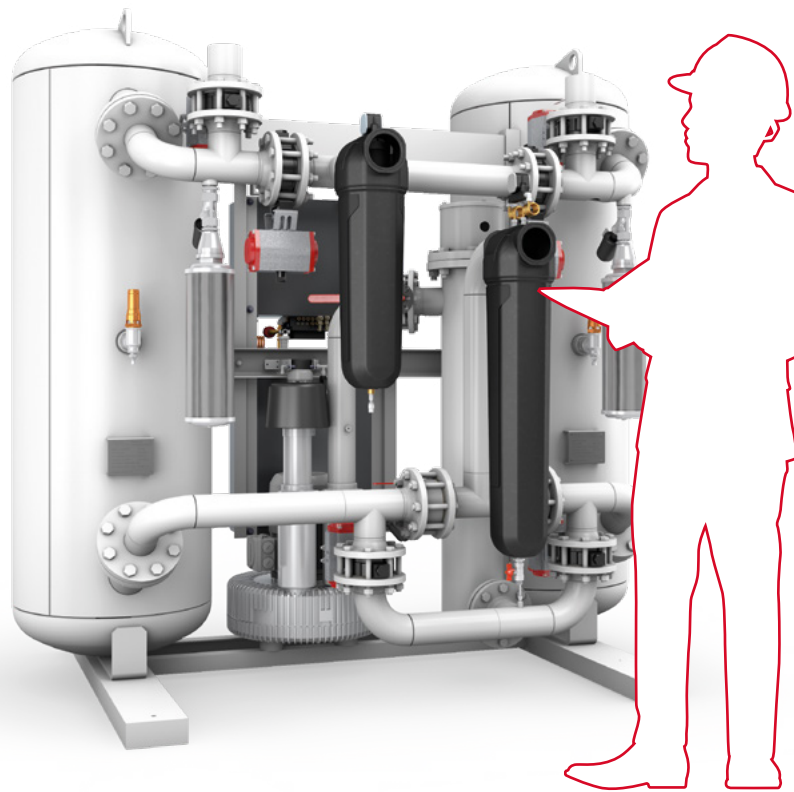


Low Profile for Easy Maintenance

Gardner Denver desiccant dryers are like no others. Our low profile design provides easy access to key maintenance points at operator level for faster servicing and less downtime. The lower silhouette also allows upright shipment and facilitates simpler installation.

With manifolds angled toward the centre at operator level, the high performance valves are easily accessed for maintenance. For example, a typical diaphragm valve in a heatless dryer can be rebuilt in less than ten minutes, without removing the valve from the manifold.

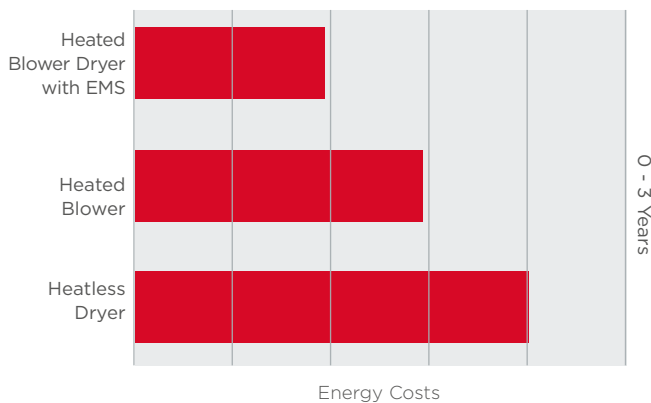
- Angled manifolds make valves easy to access and maintain
- Heavy Duty Filters



Innovative Controls and Design Lower Energy Costs

- Our new dryers offer the state-of-the-art Energy Management System (EMS) that maximises energy efficiency while maintaining a constant dew point. By using a humidity sensor to continuously monitor the dew point, EMS minimises the compressed air used in regeneration, and optimises heater and blower operation
- Our heated blowers are equipped with solid state soft starters that limit inrush current to ensure a smooth start and longer blower motor life
- The dryers are engineered for low pressure drop through valve selection, tower size and filter design
- The heater and blower are controlled by the outlet regeneration temperature that shuts off to save electrical power once desiccant has been thoroughly regenerated
- Solid state relays provide precise heater control, reduced heating times and extended heater life

A heated blower dryer with EMS can save you over €20,000 in just 3 years!



These calculations are approximations based on the following assumptions: Heatless Model IR D3300IL, Heated model GDHB533TLS, 55 m³/min, 1,800 CFM, 400 kW Compressor Motor, 0.07 per kW/hr 80 hours per week, and 40 weeks per year.



State-of-the-art Energy Management System (EMS) **maximises energy efficiency** while maintaining a constant dew point.

State-of-the-art Microprocessor Controller

- Maintains dryer performance at optimum levels, constantly monitors functions and provides maintenance alerts and protection notification, minimising downtime
- Matches the dryer control to the load/unload state of the air compressor
- Modbus compatible
- 7" LCD display for easy viewing



Heavy Duty Filters For Longevity

- Standard heavy duty after-filters extend desiccant life and provide maximum particle protection of the downstream air.

What Makes Gardner Denver Heated Blower Desiccant Dryers Better?

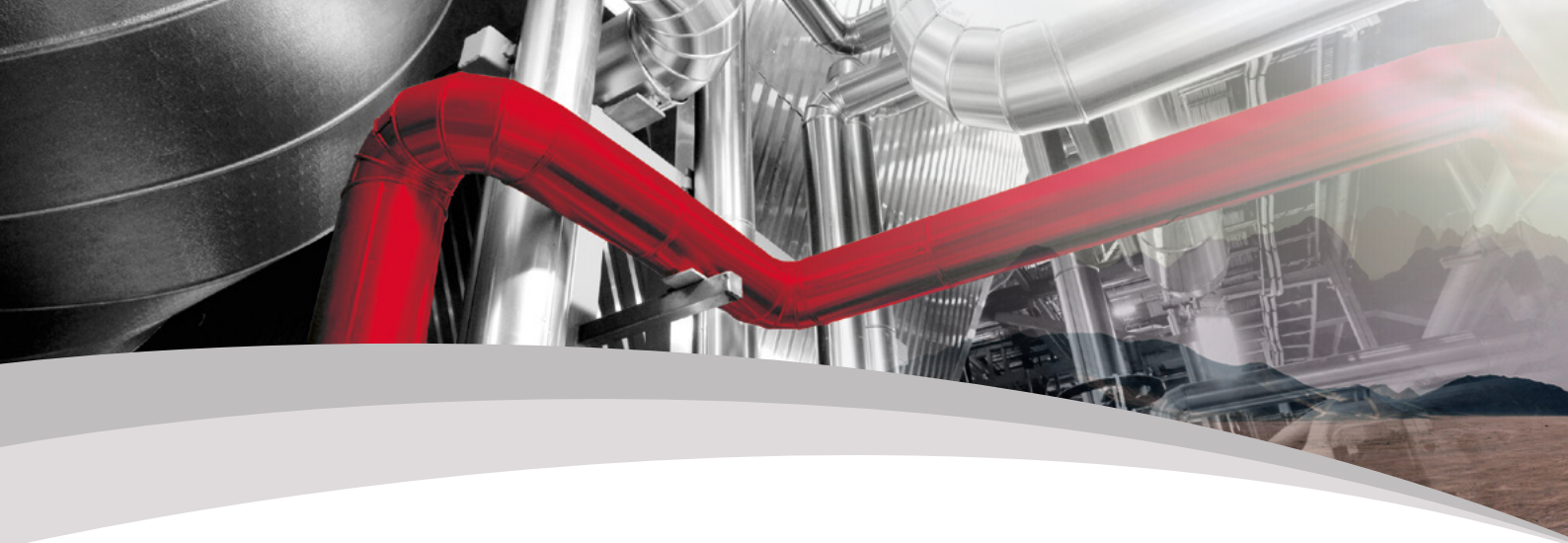
Gardner Denver desiccant dryers are designed to virtually eliminate costly production interruptions due to moisture. All of our heated blower dryers use twin desiccant towers and strategically positioned valves for drying compressed air.

Switching valves are normally open, while purge valves are normally closed to allow air flow through the dryer in case of power loss.

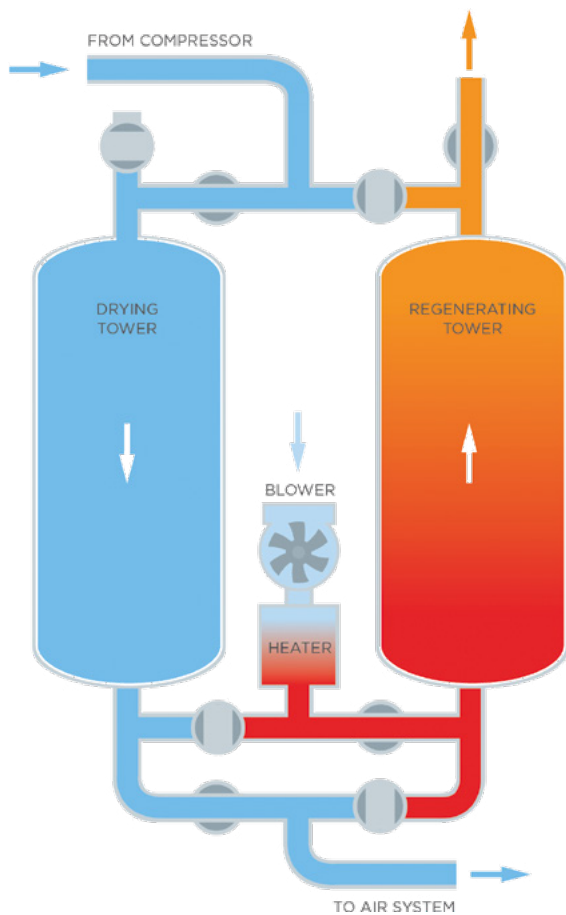
Strategically-placed filters that remove oil and contaminants ensure only clean, dried air exits the dryer. Every dryer features an IP54 package, providing increased protection of electrical components, controls and displays. Heated blower dryers have several standard features to ensure high quality operation as well as options to customise dryers to fit the needs of your air system.



Heated blower dryers have a higher initial investment, but with no or little diversion of compressed air from the system for regeneration, they offer significantly lower operating costs.



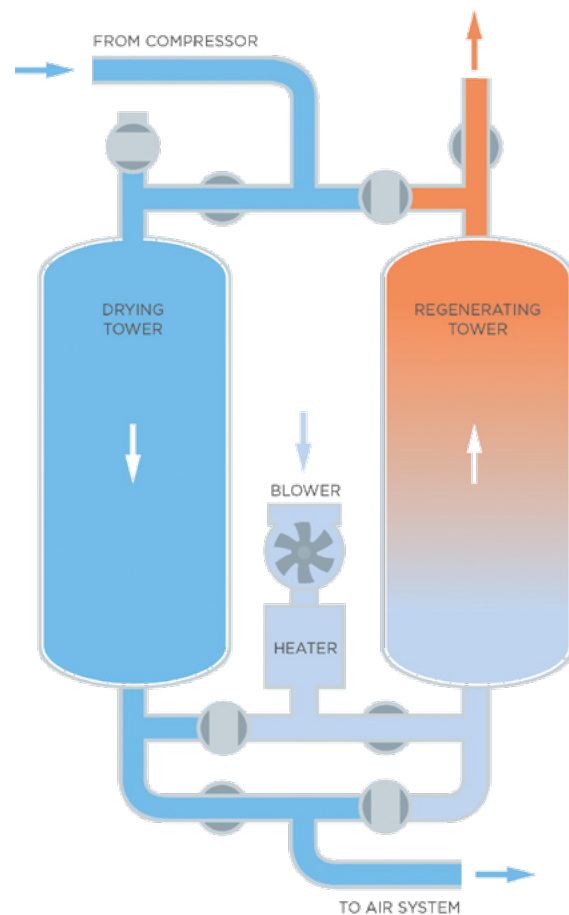
Heated Blowers – The Process...



Step 1

Drying

From the air compressor, the moist air enters the dryer through a pre-filter that removes contaminants and protect the desiccant. The air is directed through the drying tower. The adsorbent material removes the moisture from the air through adsorption. The dry air passes through an after-filter removing any contaminate particles before entering into the air system. The adsorption process ends when the dew point reaches the target.

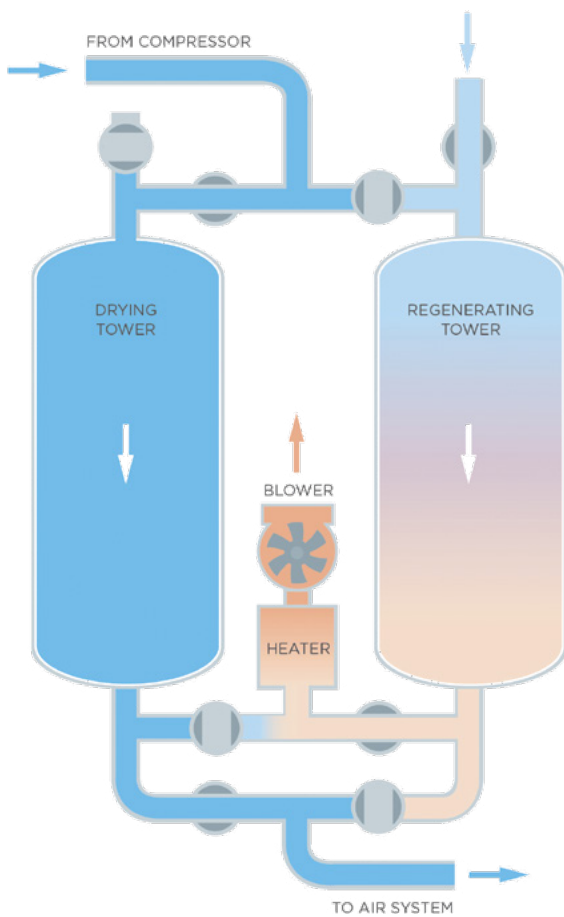


Step 2

Regeneration

While the drying process takes place in one tower, the other one takes care of regenerating the adsorbent material. Ambient air enters through the blower intake. Air temperature is elevated as air moves across the heater and is then directed to the regenerating tower. Hot air flows in the from bottom to top through the regenerating tower, removing the adsorbed moisture from the desiccant. Moist air exits the dryer through an exhaust port equipped with a silencing muffler to reduce noise.

Heated blower dryers have several standard features to **ensure high quality operation** as well as options to customise dryers to **fit the needs of your air system.**

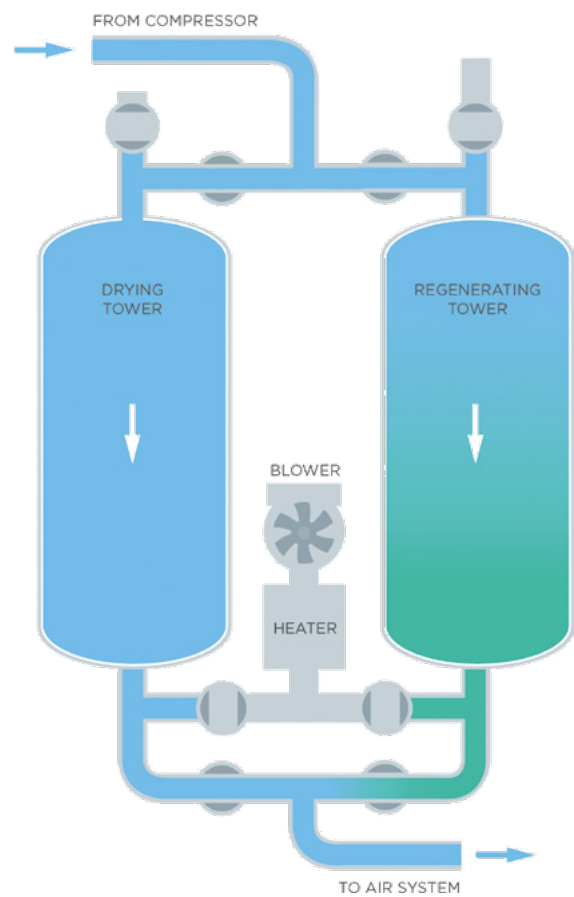


Step 3

Cooling down

At the end of the regeneration, the heater is turned off and the blower cools down the heater and positively influence the temperature in the regeneration tower.

After that, the blower impeller rotates in the opposite direction to cool the regeneration tower even more effectively and bring the adsorbent material to a lower temperature for the new cycle.



Step 4

Parallel flow

Finally, to contribute even more effectively to the outlet temperature, the two towers deliver air simultaneously, arriving at the optimal working situation.

After this, the cycle is reversed: the tower that previously regenerated now absorbs the humidity and vice versa.



Heated Blower Features – Your Benefits

Desiccant Dryer Features

1. Microprocessor Controller

Controls valve switching to correctly direct air flow and operation of blowers and heaters. Protects the dryer via continuously monitoring operating parameters.

2. Environmental Protection

IP54 rating provides protection against dust and moisture contamination (IP65 option for wash down applications).

3. Motor Protection/Soft Starter

Reduces inrush current and stress on the mechanical system.

4. Power Supply

Dryers operate at 50 Hz (all models) or 60 Hz (optional). Pneumatic options also available on heatless models.

5. Centrifugal Blower

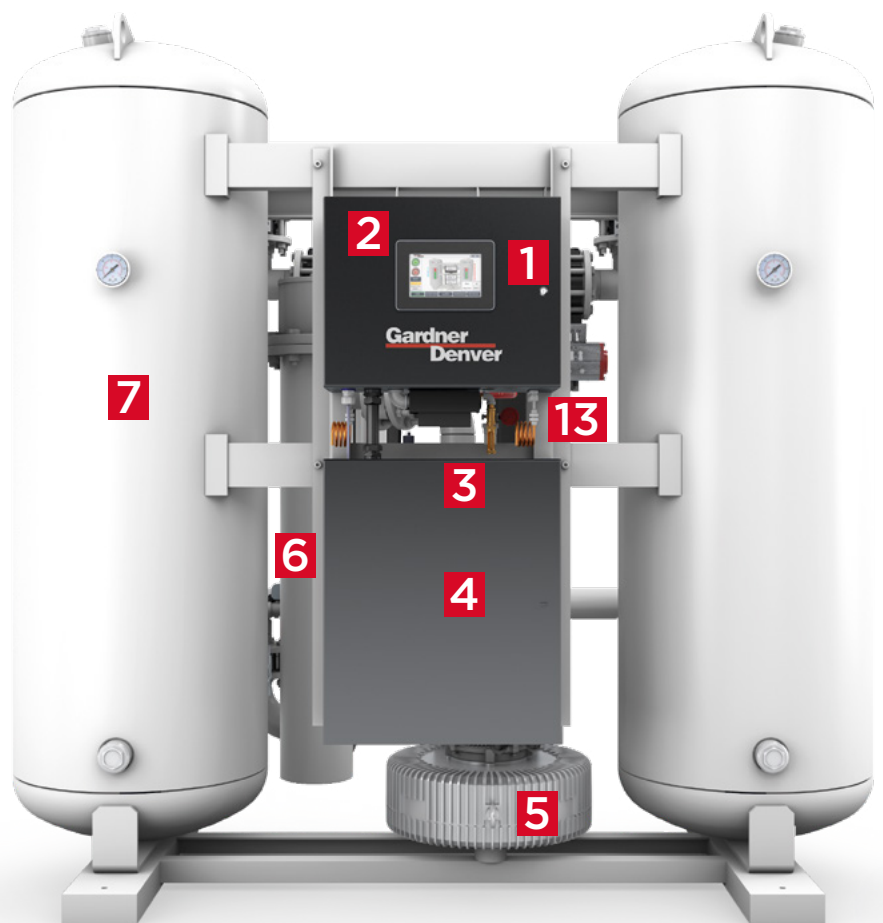
High performance centrifugal blower enables the use of ambient air for regeneration, eliminating compressed air loss.

6. High Performance Heater

Heats the air used for regeneration to increase the efficiency of moisture removal.

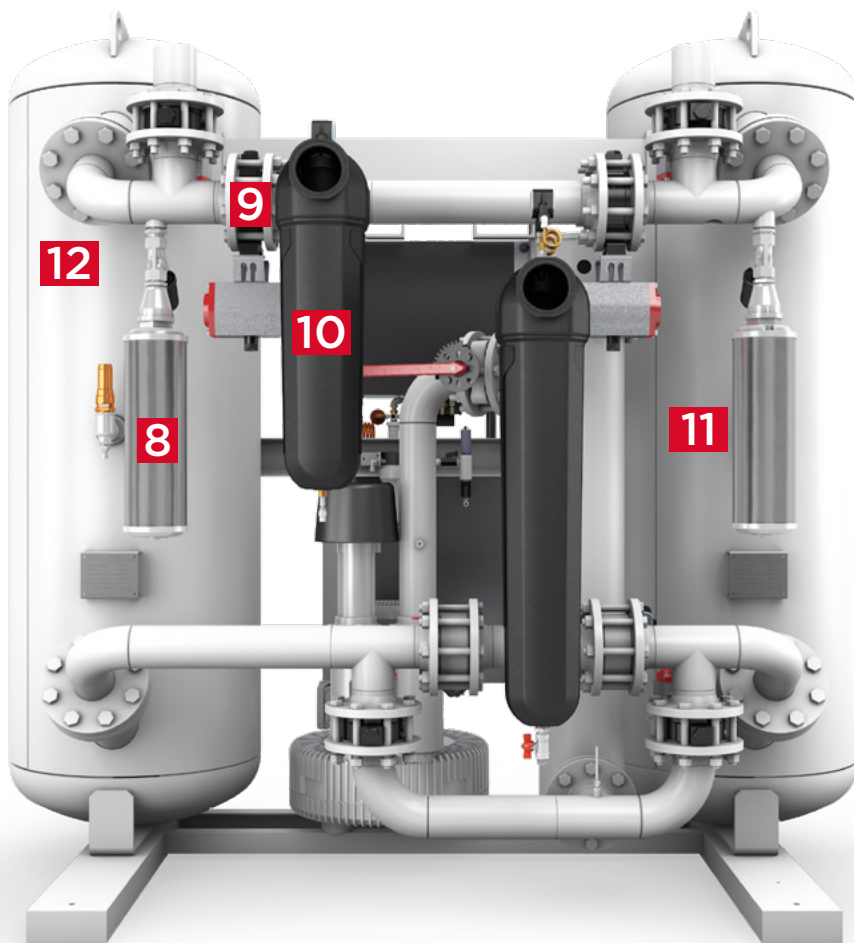
7. Desiccant

Reliable high strength non-acidic desiccant provides maximum performance and is easily stored and handled.





Gardner Denver desiccant dryers are like no others. Our low profile design provides **easy access to key maintenance points** at operator level for **faster servicing and less downtime.**



8. Silencing Exhaust

Reduce the exhausted air noise level to ensure a worker-friendly environment.

9. High Performance Valves

High performance butterfly valves with self-energised sealing provide quick response and long life. The valves are centrally angled for easy access.

10. Filters

Pre-filter: High efficiency removing oil aerosol content down to $.01 \text{ mg/m}^3$ @ 21°C protecting and extending the life of the desiccant.

After-filter: Heavy duty removing particles down to 1 micron insuring high air quality downstream to the customer.

11. Safety Relief Valve

Protects the dryer from over pressurisation incase of fire.

12. Desiccant Towers

The towers are rated for continuous 10 bar g operation. The digital controller turns the towers off and on for regeneration regulation.

13. Humidity Sensor

The sensor is part of the EMS package that allows continuous monitoring of the dew point.



Superior Reliability – Lower Capital Investment

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, and NEMA 3 / IP54 Protection (also suitable for outdoor installation) 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 bar g, and purge reduction on compressed air demand (on/off-load).

Ease of Use: User-friendly electronic interface with alarm indicators available for models 40 and above.

Serviceability: Modular dryers feature an optimised design for simplified maintenance and preventative maintenance alerts.

iConn Industry 4.0 solution

iConn is the smart, proactive real-time monitoring service that delivers in-depth and real-time knowledge on the system to compressed air users.

- ✓ Advanced remote analysis
- ✓ Predictive – evaluates historic data
- ✓ Maximises energy efficiency
- ✓ Optimises compressor performance



Remote controlled: iConn ready, to be updated on the status and behaviour of the dryers even when you are not close to it.

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



- ✓ Reduces downtime
- ✓ Works as an open standard
- ✓ Free on new compressors – can be retrofitted
- ✓ Proactive maintenance



Desiccant dryers are the simplest type of compressed air dryer available and have long been **the dryer of choice for many industries and applications.** They are a **simple, reliable, and cost-effective** solution.

The Gardner Denver Protect 10 Warranty and Service programme

will protect you up to 44,000 hours / 10 years¹⁾.



¹⁾ Warranty duration is limited to 6 years/44,000 hours on the whole package, 10 years/44,000 hours on the air end. Whichever is the soonest.

Technical data

Model	Connection Size	Capacity		Weight	Dimensions		
		m ³ /h	m ³ /min		mm		
				kg	Depth	Width	Height
GDHB83TLS	2"	500	9	670	995	1,336	1,755
GDHB150TLS	2"	900	16	958	1,096	1,477	2,186
GDHB183TLS	3"	1,100	18	1,258	1,398	1,718	2,188
GDHB233TLS	3"	1,400	25	1,451	1,398	1,718	2,188
GDHB300TLS	3"	1,800	31	1,710	1,484	2,080	2,016
GDHB366TLS	3"	2,220	37	1,857	1,484	2,080	2,016
GDHB433TLS	3"	2,600	45	2,504	1,860	2,622	2,357
GDHB533TLS	DN100 PN16	3,200	53	2,775	1,750	2,622	2,357
GDHB650TLS	DN100 PN16	3,900	65	3,138	1,660	2,622	2,357
GDHB750TLS	DN150 PN16	4,500	75		1,949	3,054	2,541
GDHB883TLS	DN150 PN16	5,300	89	4,417	1,949	3,054	2,541
GDHB1166TLS	DN150 PN16	7,000	119	5,524	2,120	3,407	2,350
GDHB1550TLS	DN150 PN16	9,300	155	6,072	2,312	3,779	2,462
GDHB1766TLS	DN150 PN16	10,600	178	7,264	2,355	4,112	2,770
GDHB2483TLS	DN200 PN16	14,900	249	9,035	2,498	4,464	2,884

* Performances refer to air suction of FAD 20°C (68°F), 1 bar (14.5 psig), and the following operating conditions: 7 bar (100 psig) working pressure, -20°C (-4°F) pressure dewpoint, 25°C (77°F) ambient temperature, 35°C (95°F) compressed air inlet temperature.

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/gdproducts

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

Specifications subject to change without notice.