

# **Gardner Denver**

EXTERNALLY HEATED DESICCANT AIR DRYERS

## **GEHD Series**



# Why Dry Compressed Air?

Compressed air has long been described as the fourth utility after electricity, natural gas and water. It is often the perfect energy resource for many industrial, commercial and instrument applications. During the act of compressing air, moisture naturally forms. Removing this moisture is vital to avoid costly equipment failure, product contamination and distribution system breakdown.

- Keep lubricants from being washed away from downstream components extending product life.
- Reduce product contamination in applications such as mixing, conveying, cooling and product blow down.
- Reduce compressed air system corrosion which would increase pressure drop and operational costs.

## What Compressed Air Quality Do I Need?

Answering the “Do I need a dryer?” question is typically easy. Pretty much every compressed air system needs a dryer. The question of “Which dryer do I need?” is more complex. The answer starts by knowing the ISO air quality classes and where in the spectrum your needs fall. The below chart lays out the acceptable contamination levels at the different classes. Your needs will be determined by your equipment and processes that utilize compressed air.

### STANDARDS PER ISO 8573.1

QUALITY CLASSES	SOLID CONTAMINANTS (MAXIMUM PARTICLE SIZE IN MICRONS)	MAXIMUM PRESSURE DEW POINTS		MAXIMUM OIL CONTENT (DROPLETS, AEROSOLS, & VAPOR PPM)	
		° F	° C	W/W	MG/M <sup>3</sup>
0	as specified	as specified		as specified	
1	0.1	-94	-70	0.008	0,01
2	1	-40	-40	0.08	0,1
3	5	-4	-20	0.8	1
4	15	38	3	4	5
5	40	45	7	21	25
6	-	50	10	-	-

# Superior Reliability & Total Energy Efficiency

## Why Design Simplicity?

Mark Twain once said “I didn’t have time to write a short letter, so I wrote a long one instead.” That same line of thought also rings true when it comes to desiccant air dryers. It’s easy to source a bunch of low-quality components and place them somewhere inside a box and call it a dryer. It takes time, effort and an attention to detail to make a simplified desiccant dryer.

Time, effort and attention to detail is exactly what went into the design of the Gardner Denver GEHD. The GEHD design has its components laid out in a way that minimizes the footprint of the dryer as well as the interconnecting tubing. When implemented into your compressed air system, the benefits of a simplified design are increased reliability and better efficiency.

Simple to Make Complex.  
Complex to Make Simple.



Only the highest quality desiccant is used to help ensure the lowest possible pressure dewpoints.

Every Component  
in a GEHD Dryer  
is Carefully Selected

## Why the Best Componentry?

Quality dryers start with quality components. Through years of research and experience, Gardner Denver knows what it takes to build the best dryers on the market. Every component of the GEHD dryer has been tested and proven to be worthy of being associated with the Gardner Denver name.

# Design Simplicity Means Total Performance

## Simple Reliability

The GEHD design has a long history of performing above and beyond expectations. If you put a GEHD unit into your compressed air system, you will experience the reliability that thousands of customers have experienced prior to you. It doesn't get any simpler than that.

## American Made

Every GEHD unit is American Made in southeast Michigan. In addition to guaranteeing a quality product, this location ensures a quick turnaround for any non-stocked dryer orders. The GEHD is also supported out of American locations. Therefore, wherever you are located in North America, you will have superior availability for maintenance and replacement items.



5-Year Heater Warranty  
2-Year Package Warranty  
to Match the Reliability

We don't just say that the GEHD is a quality machine, we back up the claim with a five-year heater warranty and a two-year standard warranty. Unlike competitive warranties that only cover certain components or pro-rate the warranty coverage as the dryer ages, this warranty covers the entire dryer for the entire two years. There is no registration process and no ongoing maintenance requirements to ensure warranty coverage.

See warranty statement for details.

# Simple Energy Efficiency

Simply put, the less money you spend operating your business, the better. The design and componentry used in the GEHD equates to less energy consumed by your dryer, which equates to a lower spend on electricity. The next two pages break down the quality components of the GEHD and how they help reduce energy consumption. Before we dive into the components, let's take a look at purge air and pressure drop.

## Purge Air Savings

Desiccant dryers consume energy through the process of using purge air to prepare the "off-line" desiccant tower for its next cycle of operation by a process called regeneration. By incorporating the highest quality components, that withstand the harshest of environments, the equipment operates at peak efficiency without the deterioration of typically worn out parts that cause the consumption of additional compressed air. In other words, Gardner Denver minimizes the amount of compressed air that is used in the regeneration process.

## Low Pressure Drops

Pressure drop in a compressed air system can significantly increase the power consumption of the system and increase your operating costs. Every 2 PSI of realized pressure drop equates to a 1% increase in horsepower consumed. Through component selection and the inclusion of quality filters, the GEHD desiccant dryer realizes one of the lowest pressure drops in the market. Low pressure drop is a feature that will continue to benefit your operation over the life of the dryer.

## Savings Example

Let's walk through some examples. Let's assume your operation uses a 50 HP compressor, runs 8,000 hours per year and realizes an electricity cost of \$0.08 per kW/hr. This chart shows the cost impact of a 4, 8 and 12 PSI pressure drop.

PRESSURE DROP	INCREASED POWER CONSUMPTION	INCREASED ENERGY COSTS
4 PSI	2.0%	\$477
8 PSI	4.0%	\$954
12 PSI	6.0%	\$1,432



# Quality Components Make the Difference

When it comes to building world-class equipment, quality components are a must. Before being built into our dryers every component of our GEHD has been tested and proven to be superior.



## Stainless Steel Desiccant Support Screens

Within a desiccant dryer, support screens are used to retain the desiccant bed while allowing small particles to pass. Allowing small particles to pass prevents particles from building up and, therefore, reducing pressure drop. In addition to being fabricated from heavy stainless steel, the support screens used in the GEHD feature 100% welded construction. Many alternative desiccant dryers use epoxy bonding on their support screens, which may be prone to failure over time.



## Ceramic-Type Solenoid Control Valves

One of the quickest wearing items in a desiccant dryer is the control valve. By utilizing a set of sliding ceramic plates, the GEHD solenoid control valves form a nearly indestructible seal with no gap that could allow dirt and oil to accumulate. The ceramic plates shrug off contaminants that would destroy ordinary valves. Even under the most adverse industrial conditions, these solenoid control valves have experienced typical life over 150 million cycles.

## Stainless Steel Process Check Valves

On all process lines between ½" and 1½", the GEHD desiccant dryer features all stainless steel poppet-type check valves. In addition to being a high-flow design for low pressure drop, these check valves are constructed to produce a superior service life.

For all process lines 2" and larger, a wafer-type check valve is utilized. With all stainless steel internals and a sealing seat on the trailing edge of the process flow which protects it from desiccant dust, the wafer-type check valves of the GEHD are designed to last. Additionally, the soft medium in these valves is not utilized as a hinge or sealing surface. The primary sealing surface is metal to metal, removing the probability of a catastrophic failure.

## Digital Sequence Controller

The digital sequence controller was designed with flexibility, adjustability, maintenance and troubleshooting in mind. To assist with troubleshooting needs, the timing sequences of the controller can be adjusted. The digital sequence controller features multiple modes that can be switched between heat-type and heatless control cycles.



Quality Components  
Are a Must



## Reliable, Flexible & Economical

### GEHD Externally Heated Desiccant Dryer

By adding a heater to the dryer package, the GEHD Series cuts down on the amount of purge air required to bring the compressed air to the required dew point. The GEHD Series is designed to be a flexible package that will reliably dry air in your operation for years to come.

- Flows from 100 to 4,000 CFM
- NEMA12 standard with NEMA 4 (watertight), NEMA 4X (stainless steel watertight) and NEMA 7 (class 1, division 1) options available
- Pressure, dewpoint, instrumentation, alarm and many more options available
- 5-year standard warranty on heater, 2-year on entire package





## GEHD SPECIFICATIONS

MODEL	FLOW SCFM @ 100 PSIG	MAXIMUM PRESSURE PSIG	AVAILABLE VOLTAGES	IN/OUT CONNECTIONS NPT	PURGE RATE SCFM	HEIGHT	DIMENSIONS INCHES WIDTH	DEPTH	WEIGHT LBS	REPLACEMENT DESICCANT LBS
GEHD100	100	150	120/1/60 230/1/60	1"	7	69	49	23	834	140
GEHD125	125	150	230/3/60 460/3/60	1"	8.8	69	49	23	859	175
GEHD175	175	150	230/3/60 460/3/60	1 1/2"	12.2	73	52	25	974	245
GEHD250	250	150		1 1/2"	17.5	73	52	26	1349	350
GEHD350	350	150		1 1/2"	24.5	77	60	27	1485	490
GEHD500	500	150		2"	35	85	68	29	1850	700
GEHD650	650	150		2"	45.5	86	77	33	2050	910
GEHD800	800	150		3"	56	88	80	39	2690	1120
GEHD1000	1000	150		3"	70	90	82	40	2962	1400
GEHD1250	1250	150		3"	87.5	97	90	41	3750	1750
GEHD1400	1400	150		3"	98	100	95	41	4060	1960
GEHD1600	1600	150		4" Flange	112	105	95	50	4910	2240
GEHD1800	1800	150		4" Flange	126	105	98	52	5460	2530
GEHD2000	2000	150		4" Flange	140	108	100	52	6060	2800
GEHD2250	2250	150		4" Flange	157	110	105	57	6510	3150
GEHD2500	2500	150		6" Flange	175	115	105	58	8100	3500
GEHD2750	2750	150		6" Flange	192	125	108	60	8880	3850
GEHD3000	3000	150		6" Flange	210	125	110	60	9290	4200
GEHD3500	3500	150	6" Flange	245	132	112	65	10460	4900	
GEHD4000	4000	150	6" Flange	280	132	115	65	11245	5600	

Capacity = SCFM @ 100°F inlet, 100°F ambient and 100 PSIG. Purge rates reflect 100% loaded systems and/or systems with Dewpoint Demand Control. Dimensions and specifications are subject to change without notice.

## NON-STANDARD CONDITION CAPACITY CORRECTION

	INLET TEMPERATURE °F	90			100			110			120		
	AMBIENT TEMPERATURE °F	90	100	110	90	100	110	90	100	110	90	100	110
INLET AIR PRESSURE	70 psig	1.00	0.92	0.84	0.8	0.73	0.67	0.66	0.6	0.55	0.5	0.45	0.41
	80 psig	1.12	1.03	0.94	0.9	0.82	0.75	0.73	0.67	0.61	0.55	0.51	0.46
	90 psig	1.24	1.14	1.04	0.99	0.91	0.83	0.81	0.75	0.68	0.61	0.56	0.51
	100 psig	1.36	1.25	1.13	1.09	1.00	0.91	0.89	0.82	0.74	0.67	0.62	0.56
	110 psig	1.48	1.36	1.23	1.18	1.08	0.99	0.97	0.89	0.81	0.73	0.67	0.61
	120 psig	1.6	1.46	1.33	1.28	1.17	1.06	1.04	0.96	0.87	0.79	0.72	0.66
	130 psig	1.72	1.57	1.43	1.37	1.26	1.14	1.12	1.03	0.94	0.85	0.78	0.71
	140 psig	1.83	1.68	1.53	1.47	1.35	1.22	1.2	1.10	1.00	0.91	0.83	0.76
	150 psig	1.95	1.79	1.63	1.56	1.43	1.3	1.28	1.17	1.07	0.97	0.89	0.81

To obtain flow capacities at conditions other than standard (SCFM @ 100 PSIG, 100°F Inlet & 100°F Ambient), locate the multiplier at the interception of actual operating conditions. Multiply the rated capacity of the selected dryer by the selected multiplier. The result is the corrected flow capacity of that dryer under corrected conditions. Flow rates in excess of design due to capacity correction can result in increased pressure drop.

# The Options You Need

In addition to the main voltage and flow options, GEHD desiccant dryers have a wide-range of available options. Below is a sampling of these options. If your operation demands an option that isn't included in this list, please contact your local Gardner Denver distributor. If you need it, we can supply it.

- High pressure options up to 1,000 PSIG
- Multiple NEMA options to meet your needs
- Stainless steel and corrosion resistant tubing
- Dew points down to -100°F
- Additional controller, alarm and instrumentation options
- Many more. Just ask.



## Optional Dew Point Demand Controller

In a fluctuating or low-load situation, a dew point demand controller is recommended. By measuring the discharge dew point of the on-line desiccant bed and determining the maximum allowable drying cycle, the dew point demand controller can quickly pay for itself in energy savings. If the controller senses an adequate dew point in the on-line tower, it keeps that tower in the drying position and allows the other fully regenerated tower to stay in standby mode. In low load conditions, heated desiccant dryer systems can continue to dry your operation's compressed air for days without utilizing purge air or any other energy.

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