Gardner Denver

THERMAL MASS CYCLING REFRIGERATED AIR DRYERS

GTRC 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/M³
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 refrigerated 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 refrigerated dryer.

Time, effort and attention to detail is exactly what went into the design of the Gardner Denver GTRC. The GTRC design has its components laid out in a way that minimizes the footprint of the dryer as well as the interconnecting tubing inside the dryer. 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.

Every Component in a GTRC 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 GTRC 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 GTRC design has a long history of performing above and beyond expectations. If you put a GTRC 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 GTRC 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 GTRC 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 Warranty to Match the Reliability

We don't just say that the GTRC is a quality machine, we back up the claim with an industry-leading five year standard warranty. Unlike competitive warranties that only cover certain components or pro-rate the warranty coverage as the dryer ages, this bumper-to-bumper warranty covers the entire dryer for the entire five 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 GTRC 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 GTRC and how they help reduce energy consumption. Before we dive into the components, let's take a look at pressure drop.

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. All GTRC refrigerated dryers are designed to have pressure drops ranging from 1.2 to 3.6 PSID. When compared to competitive units that experience pressure drops up to 6.5 PSID, it starts to become apparent that GTRC dryers can significantly reduce your utility bill.

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

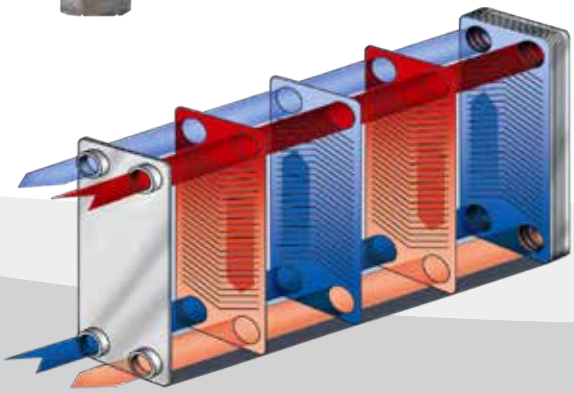
When it comes to building world-class equipment, quality components are a must. Before offering a five year standard warranty, every component of our GTRC dryer has been tested and proven to be superior.

Stainless Steel Thermostatic Expansion Valve

As opposed to a capillary tube system that will change refrigerant flow on ambient conditions with no regard to system load, our thermostatic expansion valves modulate refrigerant flow in fluctuating ambient temperatures and compressed air loads. Without perfect operating conditions, a capillary tube system can and will cause premature refrigeration compressor failure.

Stainless Steel Heat Exchanger

The low pressure drop realized by GTRC dryers is due in large part to the stainless steel heat exchanger. In addition to low pressure drop, the large chevron pattern of the heat exchanger reduces the chance of fouling.



Diaphragm Non-Fouling Solenoid Drain Valves

All timed condensate drains featured in the GTRC use diaphragm-type solenoid valves. Diaphragm valves keep the contaminant-laden condensate away from the internal moveable piston. If contaminant in the condensate stream fouls and restricts movement of the piston, the valve will fail.

Full Suction & Discharge Service Ports

In order to make maintenance and field service as easy as possible, Gardner Denver equips each GTRC dryer with full suction and discharge refrigeration service valves.

Stainless Steel Gauge with No-Leak Sweat Connection

Panel-mounted gauges are often a refrigerant leak point for dryers. With this in mind, the GTRC utilizes gauges with braised connections and coiled vibration eliminators.

Quality Components Are a Must

Save Energy with Cycling Dryer Technology

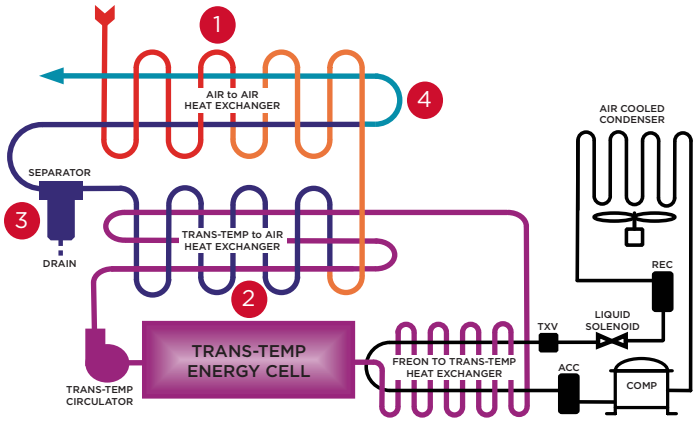
GTRC Thermal Mass Cycling Refrigerated Dryer

Many processes call for a varying amount of compressed air. In these instances, teaming a GTRC unit up with a variable speed air compressor can greatly impact the bottom line of your business. As opposed to a non-cycling dryer that continuously operates the refrigeration compressor, the GTRC cycles the compressor on and off to match the inlet load conditions.

- Flows from 100 to 2,250 CFM
- Delivers a 35–42° F pressure dew point
- High thermal storage capacity
- Adjustable dewpoint
- Air-cooled and water-cooled packages
- Voltage options to match your needs
- Ambient condition, instrumentation, alarm, pressure and many more options available
- 5-year standard warranty

GTRC Cycling Refrigerated Air Dryer Operation

The GTRC cycling dryer's unique design uses a fully loaded refrigeration system to store energy in the Trans-Temp energy cell during low load periods. When the energy cell reaches maximum charge, the refrigeration compressor cycles off, allowing the energy cell to continue providing the required energy for cooling and drying the compressed air system. This cycling operation results in consumption of only the electricity needed to meet actual air treatment demand.



1. Warm saturated air from the air compressor flows in to the GTRC dryer where it is pre-cooled in the Air-Air exchanger by the dry outgoing air.
2. The air then passes through the Trans-Temp to Air heat exchanger where it is further cooled to a specified dewpoint in which moisture condenses.
3. This condensed liquid is separated from the air stream by the separator and drained from the dryer by a diaphragm-type solenoid valve.
4. The cool, dry air is then reheated as it pre-cools the inlet air via the Air-Air heat exchanger which increases volume and prevents the compressed air piping from sweating.

Maximize
Energy Savings
with Gardner Denver

GTRC SERIES SPECIFICATIONS

MODEL	FLOWS SCFM @ 100 PSIG		MAXIMUM PRESSURE PSIG	AVAILABLE VOLTAGES	IN/OUT CONNECTIONS NPT	DIMENSIONS INCHES			WEIGHT (LBS)
	35° F PDP	50° F PDP				HEIGHT	WIDTH	DEPTH	
GTRC100	100	120	230	120/1/60 208-230/1/60	1″	34	26	33	320
GTRC125	125	150			1″	34	26	33	350
GTRC180	180	216		208-230/1/60 208-230/3/60 460/3/60	1 ½″	46	33	30	500
GTRC225	225	270			1 ½″	46	33	30	525
GTRC300	300	360		208-230/3/60 460/3/60	1 ½″	46	33	45	750
GTRC400	400	480		208-230/3/60 460/3/60 575/3/60	2″	46	33	45	880
GTRC500	500	600			2″	46	33	45	920
GTRC600	600	720			2″	46	33	45	950
GTRC800	800	960	150		3″	60	35	56	1525
GTRC1000	1000	1200			3″	60	35	56	1780
GTRC1350	1350	1620			3″	65	42	67	3200
GTRC1800	1800	2160			4″ Flange	75	57	74	3800
GTRC2000	2000	2400			4″ Flange	75	57	74	4050
GTRC2250	2250	2700			4″ Flange	75	57	74	4375

Capacity reflects 100° F/100 PSIG inlet condition and 100° F ambient. Dimensions and specifications are subject to change without notice.

NON STANDARD CONDITION CAPACITY CORRECTION

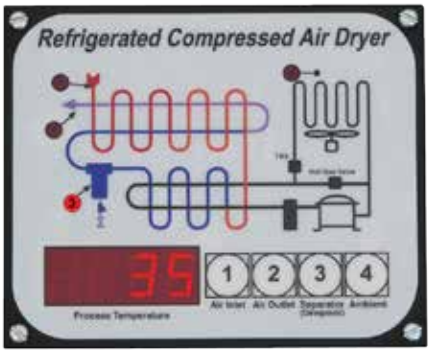
INLET TEMPERATURE °F		90			100			110			120		
	AMBIENT TEMPERATURE °F	90	100	110	90	100	110	90	100	110	90	100	110
INLET AIR PRESSURE	70 psig	1.00	0.92	0.84	0.8	0.73	0.67	0.66	0.6	0.55	0.5	0.45	0.41
	80 psig	1.12	1.03	0.94	0.9	0.82	0.75	0.73	0.67	0.61	0.55	0.51	0.46
	90 psig	1.24	1.14	1.04	0.99	0.91	0.83	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 that 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 cooling, voltage and flow options, GTRC refrigerated 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.

- NEMA 4 watertight electronics
- High pressure options up to 600 PSIG
- Stainless steel components
- Low ambient temperature packages
- Additional gauges, power switches and alarm options
- Many more. Just ask.



Optional Refrigeration Digital System Monitor

In keeping with our goal of designing simple-to-use dryers, most GTRC units feature a gauge or set of gauges as a user interface. If the user wishes to receive additional feedback from their dryer, the GTRC models 100 CFM and above have an optional digital system monitor available.

- Monitors air inlet temperature, air outlet temperature and separation (dewpoint) temperature
- 4–20 mA output for data-logging and/or remote system monitoring

This is a digital monitor only, not a controller. Whereas a controller is integrated into the system, and could cause a dryer shutdown due to electronic failure, this digital system monitor is simply monitoring the performance of the dryer.

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GA-G-GTRC 2nd Ed. 1/18

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