

# **Gardner Denver**

MODULAR HIGH CAPACITY REFRIGERATED AIR DRYERS

## **GMRN & GMRC 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 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 GMRN and GMRC. Each modular high-capacity dryer 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 GMRN & GMRC  
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 GMRN and GMRC 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 GMRN and GMRC design has a long history of performing above and beyond expectations. If you put a modular high capacity 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 GMRN and GMRC 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. These dryers are 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 GMRN and GMRC 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 GMRN and GMRC 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 GMRN and GMRC 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 GMRN and GMRC 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 the modular high capacity series 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



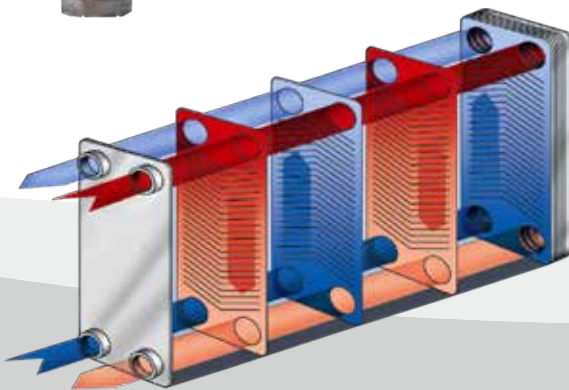
When it comes to building world-class equipment, quality components are a must. Before offering a five year standard warranty, every component of our GMRN and GMRC dryer has been tested and proven to be superior.

## Stainless Steel Heat Exchanger

The low pressure drop realized by GMRN and GMRC 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.

## 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.



## Diaphragm Non-Fouling Solenoid Drain Valves

All timed condensate drains featured in the GMRN and GMRC 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 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 GMRN and GMRC utilize gauges with braised connections and coiled vibration eliminators.

## High Quality Hermetic Compressor

The refrigeration compressor used in each of the GMRN and GMRC is equipped with an oil sight glass to verify lubrication levels as well as proper gas return operating conditions.



Quality Components  
Are a Must

# GMRN & GMRC High-Capacity Modular Refrigerated Air Dryer

When it comes to drying high volumes of compressed air, look no further than the GMRN and GMRC. If your compressed air demands increase over time, the GMRN and GMRC feature a modular design that lets you easily add additional drying capacity. The base design of both high-capacity modular dryer series allows for the addition of up to 5 interconnected modules each with a capacity of 1750 to 2700 SCFM for the GMRN non-cycling series and 1350 to 2250 SCFM for the GMRC cycling series. In addition, the modular design lets you isolate a single unit for maintenance without taking down the entire system. The GMRN and GMRC deliver a 35–39° F pressure dew point.

## Individual Module Features

- Refrigeration Suction Gauge
- Refrigeration Discharge Gauge
- Air Outlet Pressure Gauge (GMRN)
- Fluid Pressure Gauge (GMRC)
- Refrigeration High/Low Pressure Shutdown
- Compressor Crankcase Heaters
- Compressor Overload Protection
- Refrigeration Liquid Line Solenoid (GMRC)
- Fan Cycle Control (Air Cooled)
- Water Regulator Valve (Water Cooled)
- Automatic Condensate Drain (GMRN)
- Zero-Loss Condensate Drain (GMRC)
- Digital Temperature Control (GMRC)
- Stainless Steel Circulation Pump (GMRC)

## Complete System Features

- Single-Point Electrical Connections
- Single-Point Power Connection (GMRC)
- Bi-directional headers that provide balanced air flow at minimal pressure drop

## Optional Features

- Remote Condensers
- Additional Instrumentation
- Non-Standard Voltages
- Custom Water Cooled Condensers

## 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	1.10	1.01	0.86	0.81	0.74	0.63	0.60	0.55	0.47	0.45	0.42	0.35
	80 psig	1.23	1.13	0.96	0.90	0.83	0.70	0.67	0.62	0.52	0.51	0.47	0.40
	90 psig	1.35	1.24	1.06	1.00	0.91	0.78	0.74	0.68	0.58	0.56	0.51	0.44
	100 psig	1.48	1.36	1.15	1.09	1.00	0.85	0.81	0.75	0.63	0.61	0.56	0.48
	110 psig	1.61	1.47	1.25	1.18	1.09	0.95	0.88	0.81	0.69	0.66	0.61	0.52
	120 psig	1.73	1.59	1.35	1.09	1.17	0.99	0.95	0.87	0.74	0.72	0.66	0.56
	130 psig	1.86	1.70	1.45	1.37	1.26	1.07	1.02	0.94	0.80	0.77	0.71	0.60
	140 psig	1.98	1.82	1.55	1.46	1.34	1.14	1.09	1.00	0.85	0.82	0.75	0.64
	150 psig	2.11	1.93	1.64	1.55	1.42	1.21	1.16	1.06	0.90	0.87	0.80	0.68

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.



## GMRN SERIES AIR COOLED NON-CYCLING DRYER SPECIFICATIONS

MODEL	CAPACITY	NUMBER OF MODULES	AVAILABLE VOLTAGES	REFRIGERATION SYSTEM				TOTAL SYSTEM KW/H	PSID	IN/OUT HEADER	DIMENSIONS INCHES			WEIGHT (LBS)
				COMPRESSOR		CONDENSER					HEIGHT	WIDTH	DEPTH	
				HP	KW/H	CFM	KW/H							
GMRN3300	3,300	2	208-230/3/60 460/3/60 575/3/60	9	19.55	22800	3.036	22.58	2.8	6" Flg	126	101	98	7615
GMRN4200	4,200	2		10	25.70	22800	3.036	28.73	2.9	8" Flg	126	101	98	7850
GMRN5000	5,000	2		12	29.57	22800	3.036	32.6	3.7	8" Flg	126	101	98	8062
GMRN5400	5,400	2		13.5	34.07	22800	3.036	37.11	4.1	8" Flg	126	101	98	8287
GMRN6400	6,400	3		10	38.55	34200	4.554	43.1	2.9	8" Flg	126	151	98	11125
GMRN7500	7,500	3		12	44.35	34200	4.554	48.91	3.7	8" Flg	126	151	98	11415
GMRN8100	8,100	3		13.5	51.11	34200	4.554	55.66	4.0	10" Flg	126	151	98	11815
GMRN8500	8,500	4		10	51.40	45600	6.072	57.47	2.9	10" Flg	126	202	98	15040
GMRN10000	10,000	4		12	53.14	45600	6.072	65.21	3.4	12" Flg	126	202	98	15670
GMRN10800	10,800	4		13.5	68.14	45600	6.072	74.22	4.0	12" Flg	126	202	98	16070
GMRN12500	12,500	5		12	73.92	57000	7.590	81.51	3.8	14" Flg	126	252	98	19755
GMRN13500	13,500	5		13.5	85.18	57000	7.590	92.77	4.1	14" Flg	126	252	98	20255

## GMRN SERIES WATER COOLED NON-CYCLING DRYER SPECIFICATIONS

MODEL	CAPACITY	NUMBER OF MODULES	AVAILABLE VOLTAGES	REFRIGERATION SYSTEM				TOTAL SYSTEM KW/H	PSID	IN/OUT HEADER	DIMENSIONS INCHES			WEIGHT (LBS)
				COMPRESSOR		CONDENSER					HEIGHT	WIDTH	DEPTH	
				HP	KW/H	GPM	CONN.							
GMRN4100	4,100	2	208-230/3/60 460/3/60 575/3/60	9	17.86	26.1	2" NPT	17.86	3	6" Flg	101	101	98	6865
GMRN4800	4,800	2		10	23.21	29.8	2" NPT	23.21	3.3	8" Flg	102	101	98	7100
GMRN5500	5,500	2		12	27.27	31.7	2" NPT	27.27	4.1	8" Flg	102	101	98	7312
GMRN7200	7,200	3		10	34.81	44.7	2" NPT	34.81	3.3	8" Flg	102	151	98	10150
GMRN8200	8,200	3		12	40.91	47.5	2" NPT	40.91	4.1	8" Flg	102	151	98	10440
GMRN9600	9,600	4		10	46.41	59.6	2" NPT	46.41	3.3	10" Flg	104	202	98	13740
GMRN11000	11,000	4		12	54.54	63.3	2" NPT	54.54	4.1	12" Flg	105	202	98	14370
GMRN12000	12,000	5		10	58.02	74.5	2" NPT	58.02	3.3	14" Flg	106	252	98	17620
GMRN13750	13,750	5		12	68.18	79.2	2" NPT	68.18	4.1	14" Flg	106	252	98	18130

Capacity reflects SCFM at 100 PSIG, 100°F inlet conditions & 100°F ambient.  
 Inlet/outlet connections are 150# ANSI RF flanges.  
 Watts specified assume 35°F evaporator and 100°F ambient at full load conditions.  
 Dimensions are in inches. Dimensions and specifications are subject to change without notice.  
 Condenser flow requirements on water cooled models are based on 85°F water.



## GMRC SERIES AIR COOLED CYCLING DRYER SPECIFICATIONS

MODEL	CAPACITY	NUMBER OF MODULES	AVAILABLE VOLTAGES	REFRIGERATION SYSTEM				TOTAL SYSTEM KW/H	PSID	IN/OUT HEADER	DIMENSIONS INCHES			WEIGHT (LBS)
				COMPRESSOR		CONDENSER					HEIGHT	WIDTH	DEPTH	
				HP	KW/H	CFM	KW/H							
GMRC2700	2700	2	208-230/3/60 460/3/60 575/3/60	9	18.20	22800	3.036	22.73	2.0	6" Flg	126	101	98	10090
GMRC3700	3700	2		10	23.78	22800	3.036	28.32	2.5	8" Flg	126	101	98	10450
GMRC4000	4000	2		12	27.20	22800	3.036	31.74	3.0	8" Flg	126	101	98	10620
GMRC4500	4500	2		13.5	31.33	22800	3.036	35.87	3.4	8" Flg	126	101	98	10750
GMRC5400	5400	3		10	35.68	34200	4.554	42.48	2.5	8" Flg	126	151	98	15510
GMRC6000	6000	3		12	40.80	34200	4.554	47.6	3.0	8" Flg	126	151	98	15675
GMRC6700	6700	3		13.5	47.00	34200	4.554	53.81	3.3	10" Flg	126	151	98	15975
GMRC7200	7200	4		10	47.57	45600	6.072	56.64	2.5	10" Flg	126	202	98	20970
GMRC8000	8000	4		12	54.40	45600	6.072	63.47	3.0	12" Flg	126	202	98	21270
GMRC8900	8900	4		13.5	62.67	45600	6.072	71.74	3.3	12" Flg	126	202	98	21400
GMRC10000	10000	5		12	68.00	57000	7.590	79.34	3.0	14" Flg	126	252	98	25995
GMRC11250	11250	5		13.5	78.34	57000	7.590	89.68	3.4	14" Flg	126	252	98	26165

## GMRC SERIES WATER COOLED CYCLING DRYER SPECIFICATIONS

MODEL	CAPACITY	NUMBER OF MODULES	AVAILABLE VOLTAGES	REFRIGERATION SYSTEM				TOTAL SYSTEM KW/H	PSID	IN/OUT HEADER	DIMENSIONS INCHES			WEIGHT (LBS)
				COMPRESSOR		CONDENSER					HEIGHT	WIDTH	DEPTH	
				HP	KW/H	GPM	CONN.							
GMRC3200	3200	2	208-230/3/60 460/3/60 575/3/60	9	16.91	26.13	2" NPT	18.41	2.3	6" Flg	101	101	98	9340
GMRC4000	4000	2		10	21.88	29.27	2" NPT	23.38	2.7	8" Flg	102	101	98	9700
GMRC4800	4800	2		12	25.29	31.66	2" NPT	26.79	3.6	8" Flg	102	101	98	9870
GMRC5200	5200	2		13.5	29.09	34.67	2" NPT	30.59	3.9	8" Flg	102	101	98	10000
GMRC6100	6100	3		10	32.83	44.68	2" NPT	35.08	2.8	8" Flg	102	151	98	14540
GMRC7200	7200	3		12	37.93	47.5	2" NPT	40.18	3.6	8" Flg	102	151	98	14700
GMRC7800	7800	3		13.5	43.64	52.01	2" NPT	45.89	3.9	10" Flg	104	151	98	15000
GMRC8100	8100	4		10	43.77	59.58	2" NPT	46.77	2.8	10" Flg	104	202	98	19670
GMRC9600	9600	4		12	50.72	63.33	2" NPT	53.57	3.6	12" Flg	105	202	98	19970
GMRC10400	10400	4		13.5	58.18	69.35	2" NPT	61.18	3.9	12" Flg	105	202	98	20100
GMRC12000	12000	5		12	63.21	79.16	2" NPT	66.97	3.6	14" Flg	106	252	98	24370
GMRC13000	13000	5		13.5	72.72	86.69	2" NPT	76.48	3.9	14" Flg	106	252	98	24540

Capacity reflects SCFM at 100 PSIG, 100° F inlet conditions & 100° F ambient.

Inlet/outlet connections are 150# ANSI RF flanges.

Watts specified assume 35° F evaporator and 100° F ambient at full load conditions.

Dimensions are in inches. Dimensions and specifications are subject to change without notice.

Condenser flow requirements on water cooled models are based on 85° F water.

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