

# RSD Series

Energy Saving Refrigerated Dryers  
3750–12500 SCFM



**GD**  
**GARDNER DENVER**

*Experience Proven Results™*

# Efficient Compressed Air Treatment Solutions

Compressed air users world-wide are integrating energy management best practices into their operations, with the goal of reducing power consumption and lowering their energy costs.

Utilizing the latest technological advancements, RSD Series refrigerated dryers offer a new way of thinking and innovative approach to efficiently treat compressed air.

Demonstrating our commitment to continuous development of sustainable solutions, the RSD Series significantly lowers total cost of operation by consuming electrical power (kWh) in direct proportion to real-time demand.



## Meeting the Needs of Today

End-users demand compressed air systems that are easy to design, install, monitor and maintain.

The RSD Series features modular construction offering multiple design variations for flexible arrangement. Dimensionally standardized air treatment modules are efficiently combined to form larger capacity units.

## Anticipating Opportunities of Tomorrow

Operational through-put and minimal down time is critical to maintain a competitive business advantage over the long term.

Redundancy in critical components offers fault-tolerant operation, delivering optimal system reliability. The RSD Series offers back-up drying protection presenting alternative drying capability in the presence of component failure.

# Measurable Energy Savings

In a typical manufacturing facility, up to 30% of electricity consumed is for generating compressed air. To reduce total cost of operation and qualify for utility company incentive programs, proper air treatment equipment selection and application is required.

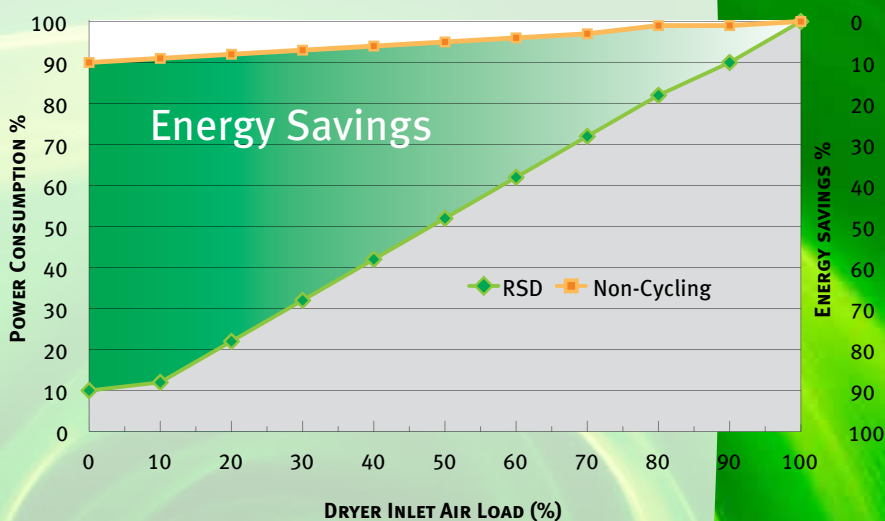
## Load Matching Performance

Compressed air load profiles in most manufacturing facilities fluctuate. The RSD Series provides cost-effective energy savings by matching electrical power consumed in direct proportion to incoming air demand. Linear load matching is achieved from 0 to 100%.

## Digital Scroll Compressors

To maximize full energy savings potential, modules are designed with digital scroll refrigeration compressors that load and unload based on real-time demand.

Significantly less energy is consumed during periods of unloading, delivering proportional energy savings.



## Rapid Return on Investment

The table provides annualized cost savings of RSD Series refrigerated air dryers compared to non-cycling designs.

### ANNUALIZED COST SAVINGS

Model	Average Heat Load (%)*						
	30%	40%	50%	60%	70%	80%	90%
RSD3750	\$8,997	\$7,751	\$6,367	\$5,121	\$3,737	\$2,491	\$1,384
RSD5000	\$11,274	\$9,713	\$7,979	\$6,418	\$4,683	\$3,122	\$1,734
RSD6250	\$14,634	\$12,607	\$10,356	\$8,330	\$6,079	\$4,052	\$2,251
RSD7500	\$16,854	\$14,521	\$11,928	\$9,594	\$7,001	\$4,667	\$2,593
RSD8750	\$20,271	\$17,464	\$14,345	\$11,539	\$8,420	\$5,613	\$3,119
RSD10000	\$22,548	\$19,426	\$15,957	\$12,835	\$9,366	\$6,244	\$3,469
RSD11250	\$25,908	\$22,320	\$18,335	\$14,747	\$10,762	\$7,174	\$3,986
RSD12500	\$28,185	\$24,283	\$19,947	\$16,044	\$11,708	\$7,805	\$4,336

Cost of power \$0.10 kWh; 8760 operating hours  
 \*Average heat load is the time averaged effects of flow rate, inlet temperature and inlet pressure.

# Modular Construction

## Multi-Station Design

Dryer systems are organized by connecting up to five individual modules in a line-up arrangement to construct the desired flow capacity.

Modules may be configured in 1250 and 2500 scfm (2124–4148 nm<sup>3</sup>/h) increments precisely matching system air flow demand.

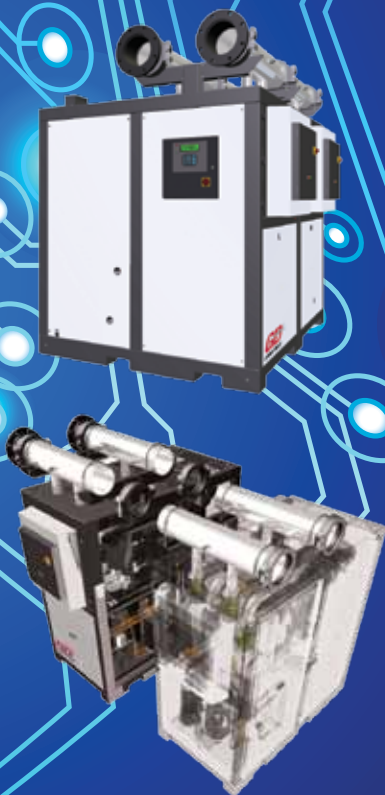
Self-sufficient modules easily interface with couplings to form larger systems, responding to increased air demand.

## Complete Module Isolation

Full flow air-side isolation valves permit maintenance of individual modules without interrupting the air supply to other modules.

Each module maintains separate water regulating valves, strainers and water isolation valves for ease of maintenance.

Modules are furnished with a disconnect switch, enabling the operator to remove electrical power without de-energizing other modules in the system line-up.



## Ease of Movement

Independent modules are fully enclosed with fork channels constructed in the base pan allowing movement with a pallet jack into tight spaces and through low clearances. Modules are 40% lighter-weight than glycol designs. No crane is required for installation.



## Modular by Design

Self-sufficient modules easily interface with couplings to form larger systems, responding to increased air demand.



# System Redundancy

## Fault-Tolerant Operation

Redundancy in critical components presents system back-up, ensuring uninterrupted air supply when a module is removed from operation.

Systems may be operated with additional modules gaining the added benefit of lower pressure drop plus back-up redundancy, without compromising power consumption.

### Common sub-components include:

- Stainless steel brazed plate heat exchangers
- Module isolation valves
- Integral filtration
- No-air-loss condensate drains
- Water-cooled condenser
- Digital scroll refrigeration system

## Integral Filtration

Each module is a self-contained air treatment station, furnished with integral high performance filtration and energy saving no-air-loss demand drains.

Integral filtration is accessed through the top and removable back panel for ease of service.

Standard modules are equipped with two stage separation to remove solids 3 micron and larger, with a remaining oil content of 4 mg/m<sup>3</sup>.

Optional cold coalescing filters capture solids 0.01 micron and larger, with a remaining oil content of 0.008 mg/m<sup>3</sup>.

## Installation Versatility

The modules share a common inlet air header and outlet air header that are engineered to maintain even air flow distribution and minimize system pressure drop. Headers may be blanked off at either end offering dual installation capability.



# Customer Focus

## Master Energy Monitor

The Master Energy Monitor is an intuitive operator interface that monitors system performance, tracks energy savings and actively communicates with individual dryer modules. The monitor is equipped with a MODBUS RS-485 interface and ethernet with MODBUS TCP/IP support.

A membrane keypad, with a full menu of universally recognized symbols, enables the user to selectively retrieve information from any given module. The operator may program parameters for predictive maintenance and predetermined times for module on and off times.

Information is communicated in a highly visible LCD (liquid crystal display) screen with four (4) line — twenty (20) character capability.



## *Premium* WARRANTY

2 Years—Standard

3 Years—Extended

5 Years—Total Parts & Labor

Contact your local distributor  
for more details.

### MEASURED ENERGY SAVINGS PERFORMANCE

- Instantaneous Load (as a %)
- Cumulative Energy Savings (currency in \$)
- Projected Annual Savings (currency in \$)
- Average Monthly Load (last 30 days as a %)
- Average Daily Load (last 24 hours as a %)

### INDIVIDUAL MODULE OPERATION & REAL-TIME STATUS

- Module Status (on/off, scheduled on/off, standby)
- Refrigerant Suction Temperature (°F / °C)
- Refrigerant Suction Pressure (psi/bar)
- Coldest Air Temperature (°F / °C)
- Refrigerant Discharge Temperature (°F / °C)
- Refrigerant Discharge Pressure (psi/bar)

### ALARM INDICATION & HISTORY

- Drain-Failure to Discharge
- Crankcase Heater Current not Detected
- Low Refrigerant Suction Pressure
- High Refrigerant Discharge Pressure
- Coldest Air Temperature
- Routine Maintenance Interval
- A real-time clock, with power back-up, fault time-stamps for month/day/year — hour/min/sec

### EACH MODULE IS EQUIPPED WITH THE FOLLOWING LED INDICATORS

- Alarm (red)
- Active Fault (yellow)
- Power On (green)



# Product Specifications

Maximum Working Pressure psig (bar)	Minimum Working Pressure psig (bar)	Maximum Inlet Air Temperature ° F (° C)	Minimum Inlet Air Temperature ° F (° C)	Maximum Ambient Air Temperature ° F (° C)	Minimum Ambient Air Temperature ° F (° C)
232 (16)	30 (2)	130 (54)	40 (4)	110 (43)	40 (4)

Model	Rated Flow (1)		Number of Modules (2)	Refrigerant Compressor Horsepower (3)	Available Voltages (4)	Operating Power Consumption (5)	In/Out Connection	Water Flow @ 85° F gpm	Water Supply Connection NPT (F)	Overall Dimensions (in)			Total Weight lbs
	scfm	nm <sup>3</sup> /h								H	W	D	
RSD3750	3750	6371	2	(1) 10 + (1) 6	Standard: 460/3/60  Optional: 575/3/60; 230/3/60	15.8	8" Flange	19	2.5"	96	85	81	3391
RSD5000	5000	8495	2	(2) 10		19.8	8" Flange	26	2.5"	96	85	81	3474
RSD6250	6250	10619	3	(2) 10 + (1) 6		25.7	10" Flange	32	2.5"	98	125	81	5412
RSD7500	7500	12743	3	(3) 10		29.6	10" Flange	39	2.5"	98	125	81	5624
RSD8750	8750	14866	4	(3) 10 + (1) 6		35.6	12" Flange	45	2.5"	99	164	81	7664
RSD10000	10000	16990	4	(4) 10		39.6	12" Flange	52	2.5"	99	164	81	7876
RSD11250	11250	19114	5	(4) 10 + (1) 6		45.5	12" Flange	58	2.5"	99	202	81	9623
RSD12500	12500	21238	5	(5) 10		49.5	12" Flange	65	2.5"	99	202	81	9836

Dryers meet agency approvals: CSA (CAN/CSA-C22.2 No.236-95) - Heating and Cooling Equipment and UL Standard No. 1995.

Canadian Registration Numbers- standard separator vessel and optional cold coalescing housing. Standard separators include one vessel and are equipped with an electric demand drain. Units with optional cold coalescing filters are equipped with a dedicated electric demand drain- one per housing.

- 1 Rated Flow Capacity - Conditions for rating dryers are in accordance with ISO 7183 (option A2) working conditions: inlet air temperature 100° F (38° C), inlet air pressure 100 psig (6.9 bar), cooling water temperature 85° F (29° C), 100% saturated air
- 2 Individual modules are combined in 1250 scfm and 2500 scfm increments to provide the desired flow capacity.

3 Digital scroll compressors utilize environmentally friendly R404a refrigerant.

4 Optional Voltages: 575/3/60 requirements utilize module-mounted transformers to step-down incoming power to 460/3/60; 230/3/60 requirements utilize module-mounted transformers to step-up to 460/3/60.

5 Full flow kW value operating on 460/3/60 Hz power supply.

## CORRECTION FACTORS FOR INLET AIR PRESSURE AND TEMPERATURE

Inlet Air Pressure		Inlet Air Temperature				
psig	bar	90° F (32° C)	100° F (38° C)	110° F (43° C)	120° F (49° C)	130° F (54° C)
30	2.1	0.92	0.71	0.56	0.44	0.35
50	3.5	1.07	0.83	0.66	0.54	0.44
80	5.6	1.19	0.95	0.77	0.63	0.52
100	6.9	1.25	1.00	0.82	0.68	0.56
125	8.6	1.31	1.05	0.86	0.72	0.61
150	10.3	1.34	1.08	0.90	0.75	0.64
175	12.1	1.37	1.11	0.92	0.78	0.66
200	13.8	1.39	1.14	0.95	0.80	0.68

## ISO 8573-1 : 2010 AIR QUALITY CLASSES

Air Quality Class	Solid Particles			Water		Oil	
	0.10–0.5 micron	0.5–1.0 micron	1.0–5.0 micron	Vapor Pressure Dew Point ° C	° F	Total Oil Concentration: Aerosol, Liquid & Vapor mg / m <sup>3</sup>	ppm <sub>w/w</sub>
0	As specified by the equipment user or supplier and more stringent than class 1						
1	≤ 20,000	≤ 400	≤ 10	≤ -70	≤ -94	0.01	0.008
2	≤ 400,000	≤ 6,000	≤ 100	≤ -40	≤ -40	0.1	0.08
3	-	≤ 90,000	≤ 1,000	≤ -20	≤ -4	1	0.8
4	-	-	≤ 10,000	≤ +3	≤ +37	5	4
5	-	-	≤ 100,000	≤ +7	≤ +45	-	-

Standard filtration delivers ISO Quality Class:

- 3 Solids
- 4-5 Pressure Dew Point
- 5 Oil

Optional filtration provides ISO Quality Class:

- 3 Solids
- 4-5 Pressure Dew Point
- 1 Oil

## Let Gardner Denver Take Control of Your System

To ensure total system reliability, Gardner Denver provides a broad range of air compressors, dryers, filters, oil/water separators, drains, cleaning fluids and aftercoolers. ONE-STOP shopping from Gardner Denver assures that all components of your system are compatible and backed by on-going customer support.



# **Gardner Denver**<sup>®</sup>

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Gardner Denver, Inc. 1800 Gardner Expressway, Quincy, IL 62305

[www.contactgd.com/compressors](http://www.contactgd.com/compressors)

866-440-6241

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