

REFRIGERATED

RCD SERIES

energy savers



AIR DRYERS



GARDNER DENVER RCD cycling refrigerated dryers provide stable 33–39°F pressure dew point control with automatic energy savings operation. Cold energy storage system is precision engineered to guarantee that the refrigeration compressor uses no energy for at least 10 minutes during every cycle.

The controller continuously monitors the cold energy solution temperature to maintain the dew point selected and maximize energy efficiency. Ample solution volume and temperature controls ensure the continuous delivery of dry compressed air long after the refrigeration compressor has turned off.

RCD Series is top of the line cycling technology available in 200–600 and 3,250–12,000 scfm.

- Precision engineered for dew point performance and energy efficiency
- Low operating cost—Cycling performance RCD series dryers store and actively circulate cooling energy allowing the dryer's refrigeration compressor to maintain long off cycle
- Rugged construction—High quality components makes the RCD easy to access and maintain
- Energy efficient cycling operation matches energy costs to actual plant air demands
- Environmentally friendly refrigerant—R507 in models 200–600 scfm and R-22 in models 3,250–12,000 scfm, both efficiently absorb heat loads
- Polyethylene tank is lightweight and durable. The tank is double walled, polyethylene filled with highly efficient foam to ensure maximum glycol insulation. Tanks are precision molded (no seams) to prevent leaks
- Heavily insulated seamless Cold Energy Storage reservoir provides superior temperature stability
- Proprietary smooth bare, copper heat exchangers for fast efficient heat transfer
- Models RCD 200–600 have precision-fit steel cabinets with easy access panels are coated inside and outside with durable powder paint for protection and aesthetic
- Consistent 33° F - 39°F dew points under all rated flow conditions
- Cold energy storage system reduces compressor run time to gain long component life
- Selectable dew point settings increase energy savings

WARRANTY

MODELS
200–600 scfm
2 year unit
5 year heat exchanger *(parts only)*

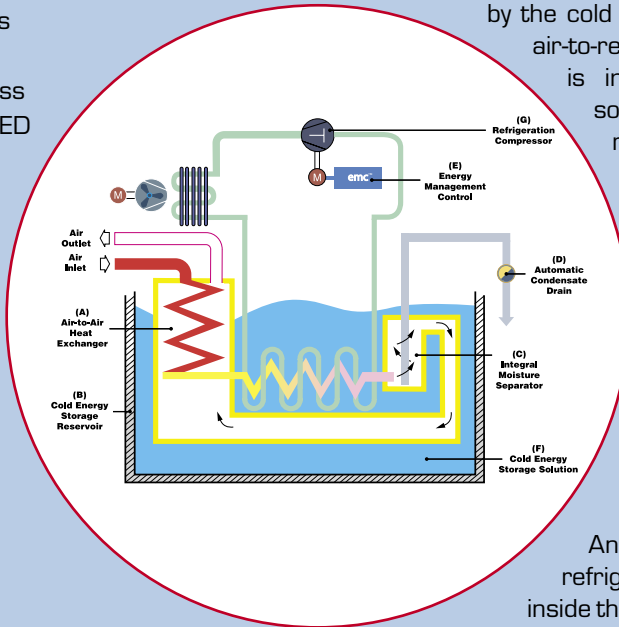
MODELS
3,250–12,000 scfm
1 year unit

SYSTEM FEATURES

RCD 200-600 scfm

ENERGY MANAGEMENT CONTROLLER (EMC) FUNCTIONS

- Selectable membrane switches
- LED text display
- Warm up delay after power loss
- Auto drain valve open/close LED
- Fahrenheit or celsius temperature selection
- High & low temperature alarm LEDs
- Set auto drain open time (seconds)
- Set auto drain closed time (minutes)
- Percent of energy savings
- Timed drain valve
- CFC-free
- Selectable dew point temperatures to 50°F



Operation - Models 200-600

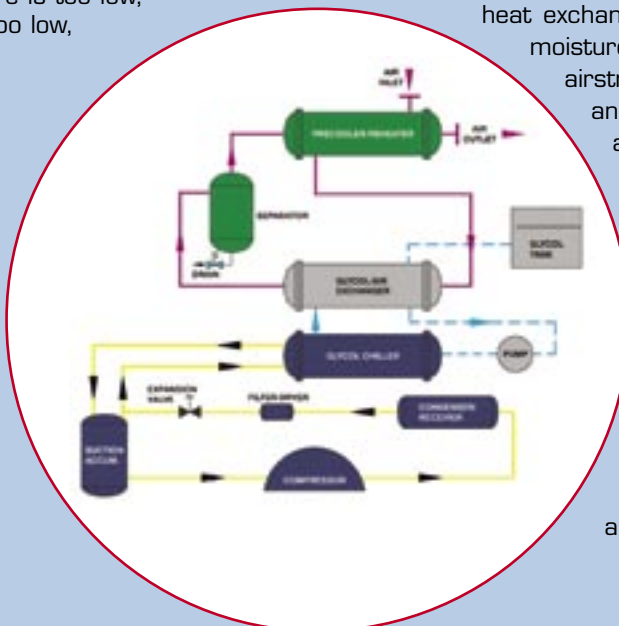
Compressed air, saturated with water vapor; enters the air-to-air heat exchanger (A) where it is chilled by the cold dry outgoing air. It then enters the air-to-refrigerant heat exchanger; which is immersed in a cold water/glycol solution inside the Cold Energy Storage reservoir (B). The cold water/glycol solution lowers the dew point temperature to condense the water vapor into a liquid. An integral moisture separator (C) collects the condensate for removal by the automatic drain valve (D). Cold dry compressed air is reheated by the incoming compressed air before existing the dryer.

An environmentally friendly HFC refrigerant system chills the solution inside the Cold Energy Storage reservoir. The Energy Management Control [EMC] (E) maintains the Cold Energy Storage solution temperature (F) to within a 1°F differential. The refrigeration compressor (G) automatically starts-and-stops as needed to match the air demands and save energy.

RCD 3,250-12,000 scfm

SYSTEM OPERATION MONITOR FUNCTIONS

- Normal operation LED
- Check operating conditions LED; temperature inside the evaporator is too high
- Service due LED; indicates when routine maintenance should be performed, temperature sensor probe is sensing temperature outside of normal range or it has failed
- System alarm LED; inlet air temperature is too high, refrigerant suction temperature is too low, ambient air temperatures is too low, ambient air temperature is too high
- Inlet air temperature
- Refrigerated suction temperature
- Glycol solution temperature
- Cooling water temperature
- Remote dry alarm contacts
- Dual electronic timer drains
- RS-232 port
- Fahrenheit or celsius temperature selection
- Schematic with lights that indicate location of temperature sensors



Operation - Models 3,250-12,000

Warm saturated air enters an air-to-air heat exchanger, where it is cooled by outgoing cold air. The inlet air is further cooled in the glycol chiller (air-to-glycol solution heat exchanger). Cooling condenses entrained moisture which is then removed from the airstream by a centrifugal separator and discharged from the dryer by an automatic drain valve. The cold air is reheated by incoming warm air as it passes back through the air-to-air heat exchanger. Using the outgoing air to pre-cool the inlet air condenses up to 65 percent of the moisture out of the inlet air before it reaches the chiller. Pre-cooling the inlet air also significantly reduces the heat load on the refrigerant compressor, permitting the use of a smaller refrigerant compressor.

SPECIFICATIONS

RCD Series Specifications

Model	Flow (1)	Pressure Drop (2)	Average Power kW	Required Cooling Water Flow @ 85°F (gpm)	Water Conn In/Out FLG/MPT inches	Compressor hp	Dimensions h x w x l	In/Out Connection	Weight (lbs)
RCD200	200	3.1	-	-	-	2	74 x 40 x 40	2"	1040
RCD300	300	4.8				2½	74 x 40 x 40	2"	1067
RCD400	400	4.1				2¾	74 x 40 x 40	2½"	1101
RCD500	500	5.0				3	74 x 40 x 40	2½"	1114
RCD600	600	4.1				3½	74 x 40 x 40	2½"	1146
RCD3250	3250	5.0				15	74 x 121 x 60	6"	6500
RCD4000	4000	5.0	11.8	36.0	1½	20	79 x 60 x 125	8"	10100
RCD5000	5000	5.0	14.2	44.2	1½	22	79 x 60 x 154	8"	12400
RCD6250	6250	5.0	19.2	53.6	2	30	90 x 66 x 160	8"	15150
RCD8250	8250	5.0	24.4	71.4	2½	35	95 x 68 x 160	8"	16000
RCD10000	10000	5.0	33.5	98.6	2½	50	106 x 77 x 172	10"	23000
RCD12000	12000	5.0	41.5	118.5	2½	60	111 x 81 x 196	12"	28800

Standard Volatage on RCD 200-12000 is 460/3/60

Voltage: 208-230/1/60 available on RCD200-600 models. 208-230/3/60 additional charge on RCD3250-12000 models. 575/3/60 additional charge on all models.

*De-rate dryer capacity by 17% for 50 Hz.

*Standard dryer enclosures and controls meet NEMA1.

*For 208-230/3/60 incoming power applications, purchase 230/1/60 and simply drop a leg at installation (200-600 only.)

Models 200-600: UL/CSA certified; Maximum operating pressure 225 psig; Maximum inlet temperature 120°F

Models 3250-12000: Maximum operating pressure 150 psig;

Maximum inlet temperature 130°F

- ASME pressure vessel
- UL listed refrigeration and electrical components
- CSA listed electrical components

Table 1- Dryer Sizing Chart

Inlet Air Pressure		°F	90	100	110	120
psig	bar	°C	32	38	43	49
80	5.5		1.17	0.95	0.79	0.66
100	6.9		1.23	1.00	0.82	0.70
125	8.6		1.31	1.07	0.91	0.74
150	10.3		1.37	1.13	0.95	0.80
175	12.1		1.42	1.18	0.99	0.84
200	13.8		1.47	1.22	1.03	0.89

To determine the dryer capacity other rated conditions, use correction factors (multipliers) from table 1 and table 2. For example: A 200 scfm model when compressed air at the inlet to the dryer is 150 psig and 100°F (38°C), and ambient temperature is 90°F (32°C), what is the capacity?

Answer: 200 scfm RCD dryer x 1.13 (table 1) correction factor for inlet temperature and pressure table x 1.06 (table 2) correction factor for ambient air = 240 scfm

Operating Conditions

Models	Max Working Pressure Range psig	Inlet Temp Range +°F	Ambient Temp Range +°F
200-600	30-225	40-120	40-120
3,250-12,000	30-150	40-130	40-120

Table 2- Correction Factors – Ambient Air

Ambient Air Temperature	°F	80	90	100	110
	°C	27	32	38	43
Multiplier		1.12	1.06	1.00	0.94

Table 3- Correction Factors – Dew Point

Dew Point Temperature	°F	38	45	50
	°C	3	7	10
Multiplier		1.0	1.2	1.3

Notes:

- Performance data obtained in accordance with CAGI Standards NO. ADF 100. Refrigerated Compressed Air Dryer – Methods for Testing & Rating. Rating conditions are 100°F (38°C) inlet temperature, 100 psig (6.9 bar) inlet pressure, 100% relative humidity, 100°F (38°C) ambient temperature and 5 psi (0.34 bar) pressure drop, cooling water at 85°F (29°C), operating on 60 Hz power supply. At rated conditions, outlet pressure dewpoint is 38°F (3°C.)
- Pressure drop at rated conditions. Submit "Dryer quote form" for non-standard products when lower pressure drop is required.

Gardner Denver

©2004 Gardner Denver, Inc.
<http://www.gardnerdenver.com> respond@gardnerdenver.com

18-2-235 1st Ed 10/04

Litho in U.S.A.



For additional information contact your local representative or Gardner Denver Compressor Division, 1800 Gardner Expressway, Quincy, Illinois 62301
 Customer Service Department: Telephone: (800) 682-9868 FAX: (217) 228-8243
 Sales and Service in all major cities.

For parts information, contact Gardner Denver, Master Distribution Center, Memphis, TN
 Telephone: (800) 245-4946 FAX: (901) 542-6159