

REZNOR®

HEATING, COOLING, VENTILATING



APPLICATIONS: 30% - 100% Outside Air

- » RESTAURANTS
- » HOTEL CORRIDORS
- » LABORATORIES
- » CONFERENCE CENTERS
- » SCHOOLS
- » PAINT BOOTHS
- » MALLS/SHOPPING CENTERS
- » LABORATORIES



Capacities



100 - 1,600 MBH



10 - 180 kW



1,000 - 13,000 CFM



5 - 70 Tons

www.ReznorHVAC.com

MODULAR AIR PROCESSING SYSTEM (MAPS®)



Kitchen Makeup Air and Space Temperature Control



Condominium Corridor Makeup Air

Applications:

- Corridor makeup air
- School ventilation
- Kitchen makeup air
- Theatre ventilation
- Process control
- Paint Booth control
- Apartment ventilation



Designed to Meet Evolving Standards

Professional engineers face several HVAC design challenges dictated by ASHRAE Standards 62.1-2010, 90.1-2010 and 189.2009. The MAPS units are specifically designed to meet these requirements. Features include heating and cooling, O/A hoods to reduce rain and snow entrainment, MERV 8 and 13 filters, slide out drain pans, low leak dampers, capacity modulation, total enthalpy energy recovery, and high efficiency motors. More importantly, the mechanical systems are designed to handle extreme weather conditions from -20°F thru 115°F, normally associated with makeup air and ventilation equipment. The units are also tested using the new AHRI 920 ventilation unit testing criteria. All of these features add up to one great benefit - these units help you design better building mechanical systems.

Application Flexibility



Makeup Air

- Precise air volume selection
- 37 mechanical cooling selections
- Dehumidification control
- 31 mechanical heating selections
- Superior capacity control
- -30°F thru 115°F inlet temperatures
- Highly configured control sequences

Ventilation Air

- Integrated energy recovery
- Power exhaust
- External exhaust fan interface
- Mixed air damper control sequences
- Supply fan control sequences

Tempered Space Conditioning

- Discharge air control with space temperature reset
- Economizer sequences
- External exhaust fan interface
- Space humidity override



Intertek
ANSI/U.L. 1995 Standard
ANSI Z83.8 / CSA 2.6
CAN/CSA - C22.2

Process Control Application

Reznor offers high outside air process control sequence of operation which utilizes the capabilities of the modulated capacity scroll compressor along with superior performance of SCR controlled electric heat. The unit modulates the DX equipment and mixed air damper in all weather conditions to discharge 52°F from the main evaporator coil. The leaving air temperature of the unit is precisely controlled by the SCR to maintain stable space conditions while insuring space humidity conditions do not spiral out of control. This ideal control sequence is normally only achievable using hydronic systems that have chillers and boilers available for year round use.





8:1 Gas Modulation - Stable Temperature Control



Slide Out Blower Section - Easy Maintenance and Airflow Verification



Slide Out Condensate Drain Pan - Exceeds Std 62.1-2010

Heating

Don't worry about pipes freezing or blowing cold air on a person in extreme weather conditions. The MAPS heating systems are designed to handle extreme weather conditions as well as spring time light-load days. The MAPS heating system can provide 100°F rise with turn down as low as 12% with gas control or 5% with SCR controls.

Features:

- 8:1 gas modulation (16:1 modulation on larger capacity units)
- Constant thermal efficiency gas heating during modulation
- Stainless steel heat exchangers
- SCR electric heat control
- ANSI 283.8 certified
- Anti-cycle program
- Safeties and alarms

Cooling

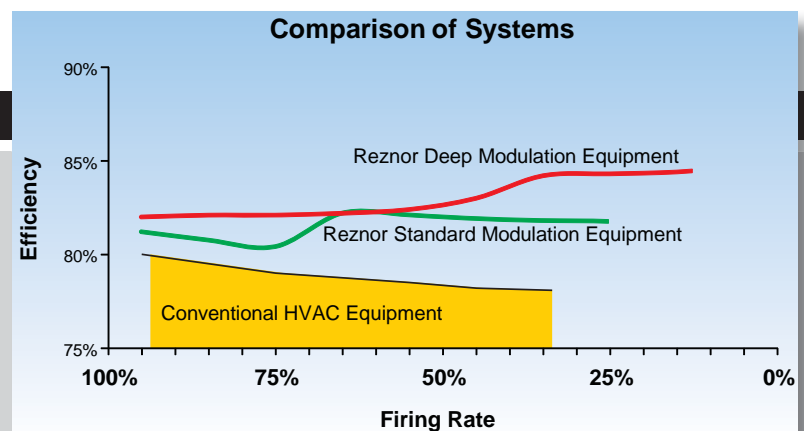
Allowing large volumes of hot untreated air to enter a conditioned space will cause occupant discomfort and loss of environmental control. Therefore, 100% outside air means treating the air in all weather conditions. From 55°F through 115°F the mechanical cooling system operates to properly condition the air, meeting the needs of your application.

Features:

- Energy efficient scroll compressors
- Modulated capacity scroll (Models RCC, RDC, RDCC, RDDC, RECC, and REDC)
- 3-8 Stages of cooling
- High efficiency, low refrigerant usage Micro-Channel condenser coils
- Ozone friendly R410A
- Froststat, high and low pressure switch
- Anti-cycle programs

Gas Modulation Efficiency

Total cost of ownership is the truest measure of value in your HVAC investment. Reznor MAPS systems are designed to provide the best level of modulation in heating, while at the same time maintaining maximum efficiency. Most heating systems lose over 6.25% of their thermal efficiency when modulating sending your heating dollars out the flue pipe. MAPS units can control from 12.5% all the way up to 100%, at full efficiency, providing life long value.





Microchannel Condenser Coil - Higher Efficiency DX



Horizontal Discharge - Flexible Air Delivery



Dehumidification Circuit - Meets Std 62.1 & 90.1

Dehumidification

There are times when the space temperature is satisfied, yet the air needs to be dehumidified and delivered to the space without affecting the space temperature. This is commonly referred to as Neutral Air.

The Reznor Reheat Pump delivers dehumidified air at temperature values that will not affect the overall space condition. The independent system produces overall year-round energy savings and great part-load performance during mild spring and fall conditions.

Features:

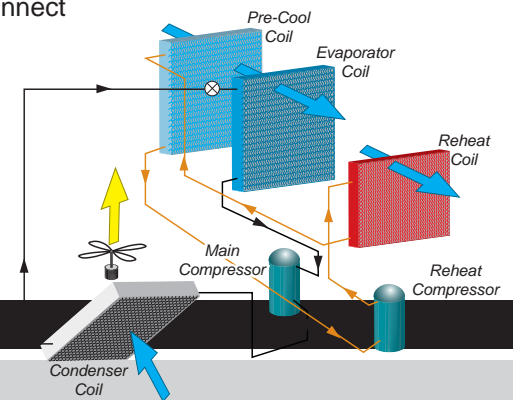
- 15°F - 17°F minimum temperature rise (standard)
- Verifiable and predictable performance
- Staged & modulation options
- R410A refrigerant
- ASHRAE Standard 90.1 compliant system
- High and low refrigerant pressure switches
- Coil froststat controls

Construction

Makeup air and Ventilation applications place a strain on equipment because of the extended run times. In fact, for typical hotel corridor applications, the units run 24 hours a day 7 days a week. The Reznor MAPS Series is robustly designed for extended use.

Features

- Standard double wall construction
- R9 insulation value
- Renewable/organic insulation material
- Long life fan bearings and operation (100,000 hours)
- Safe bottom lifting
- Pre-painted G90 galvanized steel
- Removable stainless steel drain pan
- Unit mounted disconnect



Dehumidification Operation

The MAPS dedicated reheat system, provides stable and predictable year round performance. The independent circuit design allows superior part load EER performance without the hassle of low ambient control. The digital capacity control reliably maintains a stable 52°-55°F discharge air during the spring, summer and fall months from the pre-cool DX coil and primary DX coils. The independent reheat circuit then applies reheat back into the airstream as needed.

MAPS Energy Efficiency		
Entering Air Condition		System EER
Warm Spring Day	83°F / 69°F	12.7
Hot Summer Day	95°F / 76°F	12.9
Rainy Fall Day	68°F / 64°F	12.1
Col & Rainy	60°F / 60°F	14.2

* Unit tested and rated in accordance with AHRI 340/360 and AHRI 920P.

Controls



IQ Control System

Makeup air applications push the limits on traditional control systems. The IQ system was specifically designed to meet these demanding applications. It has the ideal blend of custom unit performance without overwhelming the user with unnecessary setpoints, menus and confusing complex sequences. When needed, the unit gives the right information at the right time, but most of the time it works behind the scene just like you want it to.

Features

- Standard unit mounted display
- Optional remote display(s)
- Native BacNet & Lon communication
 - » 500 BacNet points
 - » 128 Lon points
- Test mode and start-up operation
- Controller level status lights
- Quick setpoint menus
- Permanent unit memory back-up
- Unit safeties
- Anti-cycle program
- Intelligent space temperature recovery

Alarm & Recovery

- High discharge air temperature
- Low discharge air temperature
- No flow
- Failed sensor(s)
- Phase loss/ brownout
- Smoke
- Mechanical heat
 - » 5 alarms codes
 - » 10 error codes
- Mechanical cooling
 - » 7 alarm codes
- Intelligent system recovery

Sequences of Operation

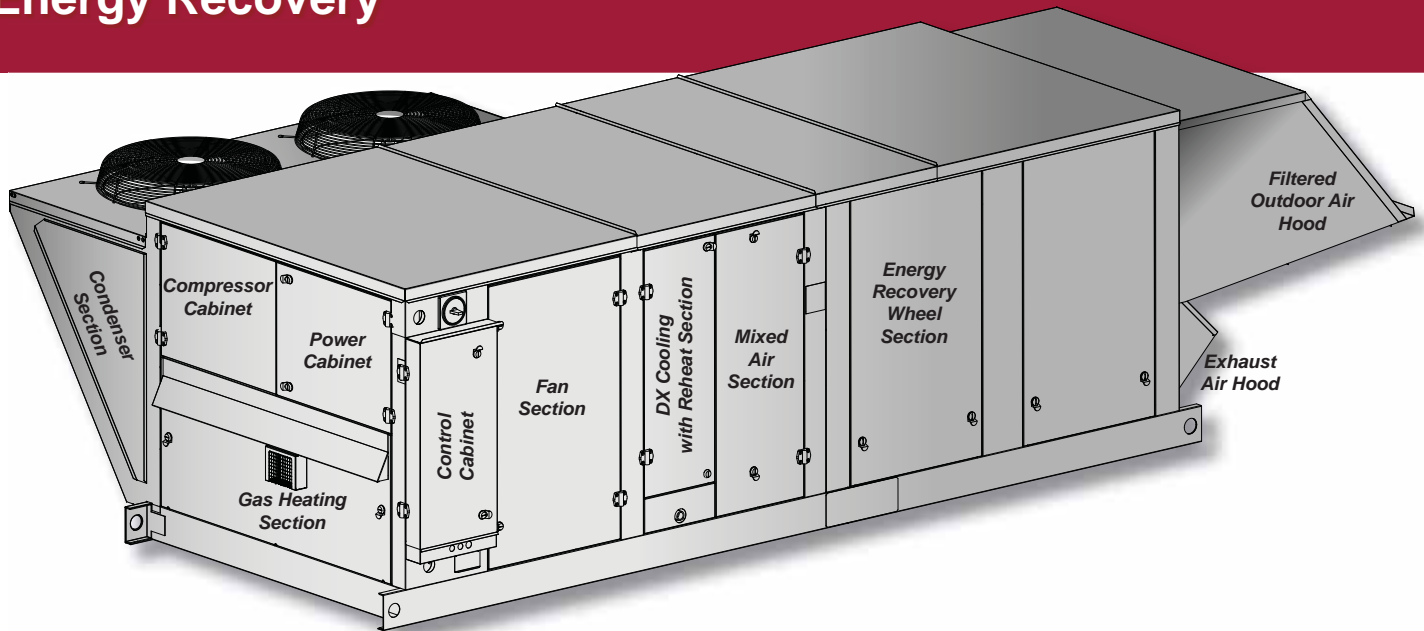
- Neutral air control
- Space temperature reset control
- Tempered air control
- Process control
- Supply air constant volume
- Supply air variable volume
 - » Duct static & building static
 - » Demand ventilation (CO₂)
 - » Exhaust fan matching
 - » Summer/winter fan speed
 - » Space fan speed control
 - » Manual & external control
- Morning warm-up/cool-down
- Economizer & vent modes
- Power exhaust control
- Mixed air damper controls
 - » Duct static & building static
 - » Demand ventilation (CO₂)
 - » Exhaust fan matching
 - » Economizer (3 types)
 - » Manual & external control
- Energy recovery

System Integration

Modern buildings are relying more on building wide automation systems to maintain proper control of the facility. The native BacNet IQ system has been specifically designed to be integrated in your BAS. This insures hassle free integration. In addition, JCI N2, Modbus and Lon protocols are also available. More importantly, the IQ system is intuitive and user friendly so that you don't have to be a computer to understand it.



Energy Recovery



Energy Recovery

Energy recovery systems recover exhaust air energy and re-introduce it into the conditioned space. The MAPS system, with the energy recovery module, integrates this savings allowing greater application flexibility.

Features:

- 800-8500 CFM over energy wheel
- VFD air flow control for supply and exhaust
- Integrated power and controls
- ARI rated internal enthalpy wheel
- Superior sensible and latent performance
- Low cross over (less than 5%)
- Segmented and removable wheel sections for easy cleaning
- Optional low ambient control kit for temperatures below 10°F
- Standard filtration (MERV8)
- Standard barometric relief exhaust damper
- Double wall construction (standard)

Typical Performance

Service Area	Model	Unit CFM	Min O/A CFM	E.S.P.	Motor HP	Summer					Winter			Power	MOP/MCA
						MBH (Tot/Sen)	EAT (dB/wB °F)	LAT (dB/wB °F)	Reheat (dB/wB °F)	EER	Capacity (MBH/kW**)	EAT (°F)	LAT (°F)		
Corridor Makeup	RDDDB142-250	2100	2100	0.5"	2.33	127/63	95/76	52/52	73/60	11.6	250	0	77.6	460V/3	45/32.4
Gymnasium	REDC370-88	6000	3000	1	4.17	308/168	89/72	50/50	70/58	11.1	88**	40	82.1	460V/3	125/110
Classroom Ventilation*	RDCC298-600	7000	7000	0.25	5.15	216/132	83/69	53/52	-	15.2	600	30	90.5	208/3	225/182
Paint Booth Makeup	RDDC262-600	4000	4000	0.25	1	215/108	95/76	55/55	70/61	13.7	700	-10	100.4	208/3	150/120

* Energy Recovery: 98°F/78°F & 75°F/63°F EAT

Winter Operation: 8:1 Modulation

** Unit tested and rated in accordance with AHRI 340/360 and AHRI 920P.

Options and Capacities

OPTIONS

Power

208/3 Power
230/3 Power
460/3 Power
575/3 Power

Heating Options

Natural gas
Propane (100 - 300 MBH units)
409 stainless steel heat exchanger
316 stainless steel heat exchanger
High and low gas pressure switches
Curb mounted supplemental gas heat (300 MBH)
8:1 gas modulation
(16:1 modulation on 1,000 MBH and larger)
Electric heat SCR
2-4 Stage electric heat control

Cabinet Options

Vertical air discharge roof curb
Horizontal air discharge roof curb (cabinets A, B, & C)
Horizontal discharge (D cabinet)
Panel section cover (D cabinet)
Hail guard

Blower System Options

Motor HP, type and drive RPM options
Motor contactor and starter options
Variable frequency drive
VFD control options:
DDC system control
Duct static pressure control
Building static pressure control
Space CO₂ control
Wall thermostat, 3-speed fan control
Four speed fan control
Adjustable constant volume control

Damper & Air Options

Damper configurations
Outside air systems
Outside/return
Outside/return/gravity exhaust
Damper control options:
2-Position damper
4-Position control based on 2 input switches
Building pressure control
Mixed air controlled by CO₂ Level
Dual reference enthalpy control
Outside air hood
Filters (up to MERV13)
Extra set of filters

Control and Sensor Options

Neutral air control
Space temperature control
Sensor options (available to BMS):
Evaporator coil temperature sensor
Duct static pressure sensor
Building static pressure sensor
Return Air temperature sensor
Space CO₂ sensor
Photohelic[®] dirty filter switch with DDC monitoring
Photoelectric smoke detector
Contacts for occupied/unoccupied switch
Contacts for unit start/stop switch
Room override control
Wall humidity sensor
Remote Display module (set point adjustments)

Miscellaneous Options

Modulating reheat
Coil coating options
Hot gas bypass on all stages
Convenience outlet
Power exhaust
Optional extended warranties
Energy recovery

SELECTION MATRIX

Description	Staged Control	Modulated Capacity Scroll
Cooling Only System	RCB	RCC
Cooling with Dehumidification Reheat System	RDB	RDC
Cooling and Gas Heating System	RDCB	RDCC
Cooling with Dehumidification Reheat and Gas Heating System	RDCB	RDCC
Cooling and Electric Heating System	RECB	RECC
Cooling with Dehumidification Reheat and Electric Heating System	REDB	REDC

Gas Heating Capacity	
Size	BTUH
Models RDCB, RDDB, RDCC and RDCC	
100	100,000
150	150,000
200	200,000
250	250,000
300	300,000
400	400,000
500	500,000
600	600,000
700	700,000
800*	800,000
1000	1,000,000
1200*	1,200,000
1400*	1,400,000
1400*	1,400,000
1600*	1,600,000

Electric Heating Capacity	
Size	kW (Staged / SCR)
Models RECB, REDB, RECC and REDC	
10	10 kW
15	15 kW
20	20 kW
24	24 kW
15	15 kW
20	20 kW
25	25 kW
30	30 kW
35	35 kW
39	39 kW
50	50 kW
60	60 kW
75	75 kW
88	88 kW
120*	120 kW
180*	180 kW

Cabinet Size	Model/Size		Capacity (Tons)	Model/Size		Main + Reheat Capacity (Tons)
	RDCB	RCC		RDCB	RDC	
A	-	060	5	-	084	5 + 2
A or B	-	090	8	-	114	8 + 2
	-	120	10	-	144	10 + 2
B	-	160	13	-	184	13 + 2
	-	200	17	-	196	13 + 3
	-	248	16	-	236	17 + 3
	-	262	16	-	257	17 + 5
C	-	190	16	-	248	16 + 5
	-	298	25	-	262	16 + 6
	-	410	34	-	354	25 + 5
	-	410	34	-	370	25 + 6
	-	410	34	-	468	34 + 5
	-	410	34	-	482	34 + 6
D	360	-	30	418	-	30 + 5
	480	-	40	444	-	30 + 7
	600	-	50	484	-	30 + 10
	480	-	40	538	-	40 + 5
	600	-	50	564	-	40 + 7
	720	-	60	602	-	40 + 10
	720	-	60	658	-	50 + 5
	720	-	60	684	-	50 + 7
	720	-	60	722	-	50 + 10
	720	-	60	804	-	60 + 7
	720	-	60	822	-	60 + 8
	720	-	60	842	-	60 + 10

Selection Guide:

[Model] - [Cooling Size] -
[Heating Size]

Example: An 8 ton cooling unit with 2 tons of reheat and 250 MBH of gas heating (see data boxes highlighted in yellow)

Model **RDDC-114-250**

For complete catalog information including submittals, energy calculations, dimension drawings, and more go to www.ReznorHVAC.com or call 800-695-1901.

Note: In keeping with our policy of continuous product improvement, we reserve the right to alter, at any time, the design, construction, dimensions, weights, etc., of equipment information shown here.