APPLICATIONS:
30% - 100% Outside Air

» RESTAURANTS
» HOTEL CORRIDORS
» LABORATORIES
» CONFERENCE CENTERS
» SCHOOLS
» PAINT BOOTHs
» MALLS/SHOPPING CENTERS
» LABORATORIES
**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

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.
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.
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°F-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.

<table>
<thead>
<tr>
<th>MAPS Energy Efficiency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entering Air Condition</strong></td>
<td><strong>System EER</strong></td>
</tr>
<tr>
<td>Warm Spring Day</td>
<td>83°F/ 69°F</td>
</tr>
<tr>
<td>Hot Summer Day</td>
<td>95°F/ 76°F</td>
</tr>
<tr>
<td>Rainy Fall Day</td>
<td>68°F/ 64°F</td>
</tr>
<tr>
<td>Col &amp; Rainy</td>
<td>60°F/ 60°F</td>
</tr>
</tbody>
</table>

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

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
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

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Model</th>
<th>Unit CFM</th>
<th>Min O/A CFM</th>
<th>E.S.P.</th>
<th>Motor HP</th>
<th>MBH (Tot/Sen)</th>
<th>EAT (dBa/Wb °F)</th>
<th>LAT (dBa/Wb °F)</th>
<th>Reheat (dBa/Wb °F)</th>
<th>EER</th>
<th>Capacity (MBH/kW**)</th>
<th>EAT (°F)</th>
<th>LAT (°F)</th>
<th>Power</th>
<th>MOP/MCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor Makeup</td>
<td>RDDB142-250</td>
<td>2100</td>
<td>2100</td>
<td>0.5</td>
<td>2.33</td>
<td>127/63</td>
<td>95/76</td>
<td>52/52</td>
<td>73/60</td>
<td>11.6</td>
<td>250</td>
<td>0</td>
<td>77.6</td>
<td>460/3</td>
<td>45/32.4</td>
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<tr>
<td>Gymnasium</td>
<td>REDC370-88</td>
<td>6000</td>
<td>3000</td>
<td>1</td>
<td>4.17</td>
<td>308/168</td>
<td>89/72</td>
<td>50/50</td>
<td>70/58</td>
<td>11.1</td>
<td>88**</td>
<td>40</td>
<td>82.1</td>
<td>460/3</td>
<td>125/110</td>
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<tr>
<td>Classroom Ventilation*</td>
<td>RDCC298-600</td>
<td>7000</td>
<td>7000</td>
<td>0.25</td>
<td>5.15</td>
<td>216/132</td>
<td>83/69</td>
<td>53/52</td>
<td>-</td>
<td>15.2</td>
<td>600</td>
<td>30</td>
<td>90.5</td>
<td>208/3</td>
<td>225/182</td>
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<tr>
<td>Paint Booth Makeup</td>
<td>RDDC262-600</td>
<td>4000</td>
<td>4000</td>
<td>0.25</td>
<td>1</td>
<td>215/108</td>
<td>95/76</td>
<td>55/55</td>
<td>70/61</td>
<td>13.7</td>
<td>700</td>
<td>-10</td>
<td>100.4</td>
<td>208/3</td>
<td>150/120</td>
</tr>
</tbody>
</table>

* 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 elemental gas heat (300 MBH)
- 8:1 gas modulation (16:1 modulation on 1,000 MBH and larger)
- Electric heat SCR

**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
- Photocell® 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

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**SELECTION MATRIX**

<table>
<thead>
<tr>
<th>Description</th>
<th>Staged Control</th>
<th>Modulated Capacity Scroll</th>
<th>Modulated Capacity Scroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Only System</td>
<td>RCB</td>
<td>RECC</td>
<td>RDCC</td>
</tr>
<tr>
<td>Cooling with Dehumidification Reheat System</td>
<td>RDB</td>
<td>RECC</td>
<td>RDCC</td>
</tr>
<tr>
<td>Cooling and Gas Heating System</td>
<td>RDCB</td>
<td>RECC</td>
<td>RDCC</td>
</tr>
<tr>
<td>Cooling with Dehumidification Reheat and Gas Heating System</td>
<td>RDDB</td>
<td>RECC</td>
<td>RDCC</td>
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<tr>
<td>Cooling and Electric Heating System</td>
<td>RECB</td>
<td>RECC</td>
<td>RDCC</td>
</tr>
</tbody>
</table>

**Gas Heating Capacity**

- Models RDCB, RDDB, RDCC and RDCC

<table>
<thead>
<tr>
<th>Size</th>
<th>BTUH</th>
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<tbody>
<tr>
<td>100</td>
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<tr>
<td>150</td>
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<tr>
<td>1400</td>
<td>1,400,000</td>
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<tr>
<td>1600</td>
<td>1,600,000</td>
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</tbody>
</table>

**Electric Heating Capacity**

- Models RECB, REEDB, RECC and REDC

<table>
<thead>
<tr>
<th>Size</th>
<th>kW (Staged / SCR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10 kW</td>
</tr>
<tr>
<td>15</td>
<td>15 kW</td>
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<tr>
<td>20</td>
<td>20 kW</td>
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<tr>
<td>24</td>
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<td>88</td>
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<tr>
<td>120</td>
<td>120 kW</td>
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<tr>
<td>180</td>
<td>180 kW</td>
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</tbody>
</table>

**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 RDCB-114-250**

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

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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.

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