Air-Handling System Cooling Options

High-Capacity,
Economical
Evaporative Cooling

High-Efficiency,
DX & CW
Mechanical Cooling

Cooling
AbsolutAire® Air-Handling System Cooling Options

Economical and effective cooling is easily added to your choice of AbsolutAire direct-fired heating, ventilating and make-up air systems. The cooling option selected can also be stand alone or coupled with steam, electric or hot-water heating systems.

Evaporative and mechanical cooling options are available. These cooling choices are low-cost, efficient answers for temperature and/or humidity control, increased worker comfort and improved indoor air quality. Based on your facility requirements, we can help if cooling only is needed or if adding or subtracting humidity is desired as well. We can develop an engineered solution based on the entering air and leaving dry bulb (db) and wet bulb (wb) objectives, along with elevation above sea level.

Evaporative cooling works by adding moisture to the air stream. These systems can be a viable low-cost option for summertime cooling and wintertime humidification in many areas. AbsolutAire has evaporative cooling with water recirculation (EVR) and without water recirculation (EVN). Evaporative cooling is most effective in dry climates.

Mechanical coil cooling works by transferring heat from the air stream to a coolant. It can achieve lower temperature levels than evaporative cooling and also dehumidify the supply air. AbsolutAire offers direct-expansion (DX) and chilled-water (CW) coil cooling options to meet specific application needs.

Committed to providing the Best Available Value in its advanced air-handling systems, AbsolutAire can engineer, integrate and deliver the solution for most any cooling and/or humidification requirement your customer demands.

**Evaporative Cooling:** Water-saturated rigid cellulose is used for evaporative cooling and addition of humidity to the supply air from an air-handling system. AbsolutAire models are available in a wide range of capacities from less than 1,000 CFM to more than 130,000 CFM.

**Mechanical Cooling:** DX or CW coils can be used for mechanical cooling of the supply air from an air-handling system. AbsolutAire models are available for single-unit, closed-loop systems and for multiple-unit, central-control systems.

*AbsolutAire* is a registered trademark of AbsolutAire, Inc.
Evaporative Cooling: Nature’s Air Conditioner

Evaporative cooling is sometimes called “nature’s air conditioner.” Just as a breeze across wet skin provides cooling as the moisture evaporates, an evaporative cooler does the same. It reduces the dry bulb or sensible air temperature to the wet bulb or saturated air temperature by evaporating water and adding humidity to the facility supply air. The process is effective, economical, environmentally friendly and healthy.

With direct evaporative cooling, outside air is drawn through a water-saturated medium, usually cellulose, and cooled by evaporation. Direct evaporative cooling adds moisture to the air stream until the air volume is close to saturation. The dry bulb temperature is reduced, while the wet bulb temperature stays the same.

Mechanical Cooling: Refrigerant or Chilled Water

Mechanical cooling in an air-handling system can be provided by direct expansion (DX) coils with a refrigerant or by or chilled water (CW) coils. With relatively mild, ambient temperatures, the air-handling unit can efficiently provide cooling for a good portion of its operating cycle by varying the fan speeds or outside-return air blends. Both the dry-bulb temperature and the wet-bulb temperature are reduced when using mechanical cooling coils.

With DX cooling, refrigerant flows through the evaporator coils to absorb heat, thus cooling and dehumidifying the air. A compressor moves the coolant through the coils and a condenser removes the absorbed heat for exhaust outside. Based on the project objectives, these may or may not be part of the AbsolutAire-supplied air-handling unit.

With CW cooling, refrigeration equipment provides cold water, which is then pumped through coils in the air-handling unit to cool and dehumidify the air stream. To save energy, the flow can be modulated to provide dehumidification and reduced cooling.

AbsolutAire
Cooling Advantages

- Advanced Evaporative Cooling
  - Low-Cost Cooling & Humidification
  - High-Efficiency Wetted Media
  - Wide Range of Features & Models
- Mechanical Cooling Excellence
  - DX & CW System Choices
  - Low Service Requirements
  - Integrated All-Season Performance

Evaporative Cooling:
Nature’s Air Conditioner

Evaporative cooling is sometimes called “nature’s air conditioner.” Just as a breeze across wet skin provides cooling as the moisture evaporates, an evaporative cooler does the same. It reduces the dry bulb or sensible air temperature to the wet bulb or saturated air temperature by evaporating water and adding humidity to the facility supply air. The process is effective, economical, environmentally friendly and healthy.

With direct evaporative cooling, outside air is drawn through a water-saturated medium, usually cellulose, and cooled by evaporation. Direct evaporative cooling adds moisture to the air stream until the air volume is close to saturation. The dry bulb temperature is reduced, while the wet bulb temperature stays the same.

Mechanical Cooling:
Refrigerant or Chilled Water

Mechanical cooling in an air-handling system can be provided by direct expansion (DX) coils with a refrigerant or by or chilled water (CW) coils. With relatively mild, ambient temperatures, the air-handling unit can efficiently provide cooling for a good portion of its operating cycle by varying the fan speeds or outside-return air blends. Both the dry-bulb temperature and the wet-bulb temperature are reduced when using mechanical cooling coils.

With DX cooling, refrigerant flows through the evaporator coils to absorb heat, thus cooling and dehumidifying the air. A compressor moves the coolant through the coils and a condenser removes the absorbed heat for exhaust outside. Based on the project objectives, these may or may not be part of the AbsolutAire-supplied air-handling unit.

With CW cooling, refrigeration equipment provides cold water, which is then pumped through coils in the air-handling unit to cool and dehumidify the air stream. To save energy, the flow can be modulated to provide dehumidification and reduced cooling.
AbsolutAire Evaporative Cooling

Evaporative cooling is the most economical alternative to chilled water (CW) or direct expansion (DX) cooling. When the site ambient conditions are “right” for the application, AbsolutAire evaporative cooling solutions offer low first cost, efficient operation, long-life performance and low maintenance expense.

The Concept

When warm air passes over cooler water, the water absorbs heat from the air and evaporates. Evaporative coolers use this concept to extract heat from outside air by passing it through a wetted media and cooling the building supply air.

Two types of air temperature are involved: dry bulb and wet bulb. Air ambient or dry bulb temperature is measured with a thermometer. The air saturation or wet bulb temperature is the lowest temperature that can be reached by the air absorbing moisture. Saturation efficiency is when the dry bulb temperature of the leaving air is the same as the wet bulb temperature of the entering air.

Evaporative Media Performance

Cooling effectiveness and pressure drop are impacted by the thickness of the wetted media and the air velocity.

Important Operating Formulas

<table>
<thead>
<tr>
<th>Evaporative Cooling</th>
<th>Water Evaporation and Bleed-Off</th>
</tr>
</thead>
</table>
| Efficiency = 100% x \[
\frac{EDBT - LDBT}{EDBT - WBT}
\] | Gallons per Hour Evaporated = \[
\frac{1.2 \times SCFM \times (EDBT - LDBT)}{10,000}
\] |
| LDBT = EDBT – \[
\frac{E\% \times (EDBT - WBT)}{100}\]
| Cycles of Concentration = \[
\frac{Evaporation + Bleed-Off}{Bleed-Off}
\] |
| Make-Up = Evaporations + Bleed-Off |

Abbreviations

EDBT = Entering dry bulb temperature (before cooling pad)
LDBT = Leaving dry bulb temperature (after cooling pad)
WBT = Wet bulb temperature (same before and after the pad)
SCFM = Standard cubic feet per minute of air
L = Length of pad wall in feet
H = Height of pad wall in feet

Dry Bulb vs. Wet Bulb Temperature Concepts

An evaporative cooler with 88% saturation efficiency will cool the air by 88% of the difference between the two air temperatures. For example, if the dry bulb temperature is 90°F and the wet bulb temperature is 70°F, this evaporative cooler can cool the air to about 72.4°F (90°-70° = 20° × 0.88 = 17.6° and 90°-17.6° = 72.4°)
Construction Features

Evaporative cooling systems from AbsolutAire offer a wide range of standard features, as well as numerous options. These are shown for both EVR and EVN models.

<table>
<thead>
<tr>
<th>AbsolutAire EVR Evaporative Cooling (With Water Recirculation)</th>
<th>STANDARD FEATURES</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Submersible Pump</td>
<td>• Copper Piping</td>
<td></td>
</tr>
<tr>
<td>• Pitched Stainless Steel Sump</td>
<td>• Stainless Steel Interior</td>
<td></td>
</tr>
<tr>
<td>• Double-Wall Floor &amp; Side Walls w/ 1” Insulation</td>
<td>• Fill &amp; Drain Valves (Shipped Loose)</td>
<td></td>
</tr>
<tr>
<td>• 6” Deep CELdek® Evaporative Media</td>
<td>• Automatic Flush &amp; Drain Cycles</td>
<td></td>
</tr>
<tr>
<td>• PVC Water Distribution Piping</td>
<td>• DRIFdek® Drift-Eliminator Media</td>
<td></td>
</tr>
<tr>
<td>• Water Supply to Media</td>
<td>• 12” or 18” CELdek® Evaporative Media</td>
<td></td>
</tr>
<tr>
<td>• Water Level Control</td>
<td>• GLASdek® Fiberglass Media; 6, 12 or 18”</td>
<td></td>
</tr>
<tr>
<td>• Freeze Protection</td>
<td>• Recirculation with Manual Bleed</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AbsolutAire EVN Evaporative Cooling (Without Water Recirculation)</th>
<th>STANDARD FEATURES</th>
<th>OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pitched Stainless Steel Sump</td>
<td>• Copper Piping</td>
<td></td>
</tr>
<tr>
<td>• 6” Deep CELdek® Evaporative Media</td>
<td>• 12” CELdek® Evaporative Media</td>
<td></td>
</tr>
<tr>
<td>• PVC Water Distribution Piping</td>
<td>• GLASdek® Fiberglass Media; 6” or 12”</td>
<td></td>
</tr>
<tr>
<td>• Freeze Protection</td>
<td>• Flow Meter</td>
<td></td>
</tr>
<tr>
<td>• Moisture Sensor</td>
<td>• Fan-Run Timing Sequence</td>
<td></td>
</tr>
<tr>
<td>• Internal Water-Control Valve</td>
<td>• Humidity Controls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• More (Consult Factory)</td>
<td></td>
</tr>
</tbody>
</table>

CELdek, DRIFdek and GLASdek are registered trademarks of Munters Corporation.

Good Practices

Poor water quality and improper maintenance can cause problems including scale buildup, biological growth, and corrosion. These can foul the wetted media, reduce operating efficiency and service life, and degrade IAQ with objectionable odors and unhealthy microorganisms.

Good system design and operating practices can minimize such problems. The primary approach is to provide sufficient water to the media to keep it completely wet and fully flushed. Good practices include using fresh clean water, de-ionized or municipal, not from open holding tanks or reverse-osmosis systems. Preventive measures may include chemical treatments, regular media flushing, adequate bleed-off for scale control, and fresh makeup water to replace evaporated water. Our “fan-run” timer option allows the fan to continue running for a pre-set time (field adjustable) to ensure the media is dry.
Evaporative Cooling: Capacities, Dimensions & Selection

Evaporative cooling solutions from AbsolutAire deliver economical, effective cooling and/or humidification for a wide range of industrial and commercial applications. EVR models provide maximum cooling and humidity utilizing a pump and a closed-loop, water recirculation system. EVN models provide similar cooling, but without water recirculation, and provide for reduced up-front costs, a simplified design and lower maintenance. Model selection is unique to specific application requirements.

**AbsolutAire EVN Evaporative Cooling**

<table>
<thead>
<tr>
<th>Model</th>
<th>CFM Range</th>
<th>Used with Units</th>
<th>Dimensions, Inches</th>
<th>Pipe Dia., In.</th>
<th>*Sq Ft of Evap Media (6” or 12”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVN1</td>
<td>800–2,200</td>
<td>M1, V1 or AA1700</td>
<td>A 23 B 21 C 12 D 30 E 28 F 28 G 26 H 1/2 J 1</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>EVN2</td>
<td>2,001–3,500</td>
<td>M2, V2 or AA3000</td>
<td>A 28 B 24 C 12 D 38 E 35 F 32 G 32 H 1/2 J 1</td>
<td>5.78</td>
<td></td>
</tr>
<tr>
<td>EVN3</td>
<td>3,501–5,000</td>
<td>M3, V3, V1, AA4</td>
<td>A N/A B N/A C N/A D 46 E 37 F 43 G 32 H 1/2 J 1</td>
<td>9.17</td>
<td></td>
</tr>
<tr>
<td>EVN4</td>
<td>5,001–7,500</td>
<td>M4, V3, V2, AA5</td>
<td>A N/A B N/A C N/A D 43 E 30 F 18 G 54 H 38 I 38 J 1/2-1/2</td>
<td>13.33</td>
<td></td>
</tr>
<tr>
<td>EVN5</td>
<td>7,501–11,000</td>
<td>M5, V4, AA3, AA4</td>
<td>A N/A B N/A C N/A D 48 E 35 F 24 G 66 H 52 I 63 J 46 H 1/2-1/2</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>EVN6</td>
<td>11,001–14,000</td>
<td>M6, V5 or AA6</td>
<td>A N/A B N/A C N/A D 55 E 46 F 24 G 66 H 64 I 63 J 58 H 1/2-1/2</td>
<td>25.00</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- N/A = Not Applicable
- *Velocity not to exceed 600 feet per minute (FPM)*

---

**Transition Section** (transition required only on M1-M6)

**Plan View**

**EVN Section**

**EVN Inlet Hood**

**Controls Side View**

**Opposite Side**
## AbsolutAire EVR Evaporative Cooling

<table>
<thead>
<tr>
<th>Model</th>
<th>CFM Range</th>
<th>Dimensions, Inches</th>
<th>Pipe Dia., In.</th>
<th><strong>6” Media (28” EVR)</strong></th>
<th><strong>12” Media (34” EVR)</strong></th>
<th><strong>18” Media (40” EVR)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min. – Max.</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>EVR1</td>
<td>800–2,250</td>
<td>32</td>
<td>31</td>
<td>31</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>EVR2</td>
<td>2,251–3,600</td>
<td>38</td>
<td>37</td>
<td>37</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>EVR3</td>
<td>3,601–6,200</td>
<td>50</td>
<td>44</td>
<td>44</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>EVR4</td>
<td>6,201–8,775</td>
<td>56</td>
<td>53</td>
<td>52</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td>EVR5</td>
<td>8,776–9,750</td>
<td>62</td>
<td>53</td>
<td>52</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td>EVR6</td>
<td>9,751–12,000</td>
<td>62</td>
<td>62</td>
<td>61</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>EVR7</td>
<td>12,001–14,400</td>
<td>74</td>
<td>62</td>
<td>61</td>
<td>30</td>
<td>48</td>
</tr>
<tr>
<td>EVR8</td>
<td>14,401–19,950</td>
<td>86</td>
<td>71</td>
<td>70</td>
<td>30</td>
<td>54</td>
</tr>
<tr>
<td>EVR9</td>
<td>19,951–22,000</td>
<td>98</td>
<td>71</td>
<td>70</td>
<td>30</td>
<td>54</td>
</tr>
<tr>
<td>EVR10</td>
<td>22,001–29,250</td>
<td>110</td>
<td>81</td>
<td>80</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>EVR11</td>
<td>29,251–32,500</td>
<td>122</td>
<td>81</td>
<td>80</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>EVR12</td>
<td>32,501–40,150</td>
<td>134</td>
<td>89</td>
<td>88</td>
<td>36</td>
<td>66</td>
</tr>
<tr>
<td>EVR13</td>
<td>40,151–52,800</td>
<td>146</td>
<td>104</td>
<td>103</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>EVR14</td>
<td>52,801–61,100</td>
<td>158</td>
<td>110</td>
<td>109</td>
<td>39</td>
<td>78</td>
</tr>
<tr>
<td>EVR15</td>
<td>61,101–75,600</td>
<td>170</td>
<td>124</td>
<td>123</td>
<td>42</td>
<td>84</td>
</tr>
<tr>
<td>EVR16</td>
<td>75,601–85,500</td>
<td>182</td>
<td>130</td>
<td>129</td>
<td>42</td>
<td>96</td>
</tr>
<tr>
<td>EVR17</td>
<td>85,501–98,600</td>
<td>206</td>
<td>132</td>
<td>131</td>
<td>42</td>
<td>96</td>
</tr>
<tr>
<td>EVR18</td>
<td>98,601–104,400</td>
<td>218</td>
<td>132</td>
<td>131</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>EVR19</td>
<td>104,401–110,200</td>
<td>230</td>
<td>132</td>
<td>131</td>
<td>54</td>
<td>96</td>
</tr>
<tr>
<td>EVR20</td>
<td>110,201–121,800</td>
<td>254</td>
<td>132</td>
<td>131</td>
<td>66</td>
<td>96</td>
</tr>
<tr>
<td>EVR21</td>
<td>121,801–133,400</td>
<td>278</td>
<td>132</td>
<td>131</td>
<td>78</td>
<td>96</td>
</tr>
</tbody>
</table>

*Velocity not to exceed 600 feet per minute (FPM)*

---

**Transition & EVR Section**

**Options Section**

**EVR Inlet Hood**

**EVR Piping Detail**

**EVR Section Inlet View**

---

**Transition & EVR Section Options Section EVR Inlet Hood**

**EVR Piping Detail**

**EVR Section Inlet View**

---

**AbsolutAire EVR Evaporative Cooling**

---

**AbsolutAire EVR Evaporative Cooling**
AbsolutAire Mechanical Coil Cooling

Some applications require temperature and humidity levels lower than evaporative cooling can provide. In such cases, AbsolutAire can provide mechanical cooling options. These systems cost more than evaporative cooling because added equipment is needed – such as chillers, condensers and compressors.

Direct Expansion (DX) cooling is the usual choice for smaller systems, while Chilled Water (CW) cooling is the choice for larger tonnage systems. Both types of cooling systems reduce the dry bulb temperature and wet bulb temperature.

Direct Expansion (DX) Coils

Direct expansion evaporator coils offer single, dual or quad circuits to ensure precise control of cooling capacity on AbsolutAire units. Interlaced circuiting as well as face or run control options ensure uniform refrigerant distribution over the face of the coil. Wide fin spacing is available to reduce frost buildup on low-temperature applications.

Many options are available. These include special coil coatings, such as phenolic or urethane; special coil construction, such as copper fins, stainless steel, thicker fins or tubes; a choice of different refrigerants; and other features to meet requirements.

Chilled Water (CW) Coils

Chilled water coils are a common choice for low-cost cooling and dehumidification on AbsolutAire units. These coils are typically available in a range of sizes and circuiting selections to optimize heat-transfer capacities. The design and selection process ensures easy cleaning for lasting performance. Glycol is sometimes used as the cooling fluid.

Construction Features

Mechanical coil cooling systems from AbsolutAire offer a wide range of standard features, as well as numerous options. These include:

STANDARD FEATURES
- Liquid & Suction Connections Piped to Unit Exterior
- Heavy Gauge Stainless Steel Condensate Pans
- Hot Gas Bypass (DX Coil Units)
- 5/8” Diameter, 0.016” Wall (Minimum) Copper Tubes
- 0.006” Thick (Minimum) Aluminum Fins

OPTIONS
- Interlaced Circuits

Good Practices

Mechanical cooling coils perform their heat-transfer functions in extremely hostile environments, which may degrade performance as well as shorten coil life. Regular cleaning and adjustments are recommended to prevent dirt from accumulating and moisture causing corrosion. Upstream filters must be maintained as specified. Other good practices include:

• Specify copper tubes with aluminum fins for corrosion resistance;
• Clean coils annually with pressurized water and a mild detergent; and,
• Replace coils that show excessive pressure drop. Fouled coils may contain a sticky sludge deep inside, which is biologically active and may cause IAQ problems.
### AbsolutAire CB Mechanical Cooling

**Dimensions, Inches**

<table>
<thead>
<tr>
<th>Model</th>
<th>CFM Range</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F (dia.)</th>
<th>G</th>
<th>Qty of Coils</th>
<th>FL (Max) Fin Height</th>
<th>FL (Max) Fin Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1</td>
<td>800–2,200</td>
<td>43</td>
<td>31</td>
<td>31</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>CB2</td>
<td>2,201–3,500</td>
<td>50</td>
<td>37</td>
<td>37</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>CB3</td>
<td>3,501–5,200</td>
<td>58</td>
<td>43</td>
<td>43</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>36</td>
<td>33</td>
</tr>
<tr>
<td>CB4</td>
<td>5,201–6,800</td>
<td>66</td>
<td>46</td>
<td>46</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>CB5</td>
<td>6,801–9,000</td>
<td>74</td>
<td>53</td>
<td>52</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>CB6</td>
<td>9,001–11,500</td>
<td>82</td>
<td>59</td>
<td>58</td>
<td>24</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>3/4</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>CB7</td>
<td>11,501–14,000</td>
<td>90</td>
<td>63</td>
<td>62</td>
<td>30</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>48</td>
<td>51</td>
</tr>
<tr>
<td>CB8</td>
<td>14,001–19,000</td>
<td>104</td>
<td>72</td>
<td>71</td>
<td>36</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>CB9</td>
<td>19,001–25,000</td>
<td>122</td>
<td>78</td>
<td>77</td>
<td>42</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>60</td>
<td>66</td>
</tr>
<tr>
<td>CB10</td>
<td>25,001–30,000</td>
<td>128</td>
<td>87</td>
<td>86</td>
<td>42</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>66</td>
<td>75</td>
</tr>
<tr>
<td>CB11</td>
<td>30,001–35,000</td>
<td>134</td>
<td>96</td>
<td>95</td>
<td>42</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>72</td>
<td>84</td>
</tr>
<tr>
<td>CB12</td>
<td>35,001–40,000</td>
<td>134</td>
<td>112</td>
<td>111</td>
<td>54</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>78</td>
<td>48</td>
</tr>
<tr>
<td>CB13</td>
<td>40,001–45,000</td>
<td>146</td>
<td>112</td>
<td>111</td>
<td>54</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>78</td>
<td>48</td>
</tr>
<tr>
<td>CB14</td>
<td>45,001–50,000</td>
<td>146</td>
<td>124</td>
<td>123</td>
<td>66</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>1-1/2</td>
<td>84</td>
<td>54</td>
</tr>
<tr>
<td>CB15</td>
<td>50,001–55,000</td>
<td>158</td>
<td>129</td>
<td>128</td>
<td>72</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>90</td>
<td>36</td>
</tr>
<tr>
<td>CB16</td>
<td>55,001–60,000</td>
<td>170</td>
<td>129</td>
<td>128</td>
<td>60</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>90</td>
<td>36</td>
</tr>
<tr>
<td>CB17</td>
<td>60,001–65,000</td>
<td>176</td>
<td>134</td>
<td>133</td>
<td>60</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>96</td>
<td>37-1/2</td>
</tr>
<tr>
<td>CB18</td>
<td>65,001–70,000</td>
<td>188</td>
<td>134</td>
<td>133</td>
<td>60</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>96</td>
<td>37-1/2</td>
</tr>
<tr>
<td>CB19</td>
<td>70,001–75,000</td>
<td>200</td>
<td>134</td>
<td>133</td>
<td>66</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>96</td>
<td>37-1/2</td>
</tr>
<tr>
<td>CB20</td>
<td>75,001–80,000</td>
<td>212</td>
<td>134</td>
<td>133</td>
<td>66</td>
<td>24</td>
<td>30</td>
<td>36</td>
<td>2-1/2</td>
<td>96</td>
<td>37-1/2</td>
</tr>
</tbody>
</table>

---

*Once the factory performs the coil selection, the CB section length (dim. E) is determined by the quantity of rows in coil(s).*

---

**CONTROLS SIDE VIEW**

- **Options Section**
- **CB Inlet Hood**
- **Please Note the Following**
  - Consult factory representative for DX or CW coil selection
  - Coil connections are standard as shown - opposite side connections are available
  - Drain piping is standard as shown - opposite side, floor, or special drain locations are available
  - Horizontal draw through configuration shown - discharge, upright, and special configurations are available
  - Split system configuration shown - packaged systems, including condensing units, are available - consult factory representative for proper selection

---

**PLAN VIEW**

- **Unit Width**
- **Hinged Access Door**
- **Access Patch**
- **Dropout Access Door**
- **Optional Inlet Damper or Louver**
- **Optional Filters**

---

**CB SECTION INLET VIEW**

- **Controls Side**
- **Pitched Roof (CB5 - CB20)**
- **Opposite Side**
- **Optional Filters**
- **Pitched Drain Pan**
- **F (Drain)**

---

**PURE AND SIMPLE SOLUTIONS**
AbsolutAire Cooling Solutions

**Direct Expansion (DX) Cooling:**
*Worthington Trailer — Montoursville, PA*
- AbsolutAire R349-UMXDX
- 40,000 CFM Modulating 85/15 Recirculation Unit
- 3,650 MBH Direct Gas-Fired Heat
- 100-Ton Split-System DX Cooling

**Direct Expansion (DX) Cooling:**
*Toyota Industrial Equipment Mfg., Inc — Columbus, IN*
- AbsolutAire R444-HVXDX
- 30,000 CFM Modulating 85/15 Recirculation Unit
- 2,736 MBH Direct Gas-Fired Heat
- Integral 60-Ton Condensing Unit & DX Cooling Package

**Chilled Water (CW) Cooling:**
*Caterpillar — Lafayette, IN*
- AbsolutAire R466-UMXCW
- 75,000 CFM Modulating 85/15 Recirculation Unit
- 1,450 MBH Direct Gas-Fired Heat
- 100-Ton Chilled water Cooling System
**EVR Evaporative Cooling:**
**Johns Manville — Scottsboro, AL**
- AbsolutAire R366-UOXEV
- 75,000 CFM 100% OA Make-Up Air Unit
- 7,800 MBH Direct Gas-Fired Heat
- 12” CELdek Evaporative Media

**EVR Evaporative Cooling:**
**Metalsa Corporation — Monterrey, Mexico**
- AbsolutAire R373-HOXEV
- 75,000 CFM 100% OA Units (4)
- 3,277 MBH Direct Gas-Fired Heat
- 12” CELdek Evaporative Media

**EVR Evaporative Cooling:**
**Federal Mogul — Lake City, MN**
- AbsolutAire R336-HOXEV
- 20,000 CFM 100% OA Units (2)
- 2,179 MBH Direct Gas-Fired Heat
- 12” CELdek Evaporative Media
Other Pure and Simple Solutions:

- E-Series Direct-Fired Air Turnover
- V-Series Direct-Fired Make-Up Air Value
- AA-Series Direct-Fired Heating & Ventilating
- R-Series Direct-Fired Heating & Ventilating
- S-Series Air-Handling Systems
- Spray & Bake Paint-Booth Heating Systems
- I-Series Indirect-Fired Heating & Ventilating
- CH, DH & APD Heaters & Air-Process Dryers
- M-Series Make-Up Air Fan Boxes
- LX1 Direct Digital Control (DDC) System