DSV Model Air Cooled Self Contained Indoor Packaged Units
3-5 Tons
Preliminary Application Data

July 28, 2008
**Gross Cooling Capacity [Btuh]:** 37,800*
**Design CFM:** 1,200

**Seasonal Energy Efficiency Ratio:** 13.0 SEER**
**Net Cooling Capacity [Btuh]:** 37,000**
**Net Cooling CFM:** 1,200

**Evaporator Fan No./Type:** 1/CENTRIFUGAL
**Diameter x Width [in]:** 10x8
**Drive:** Adjustable Belt
**Motor HP:** 0.33

**Condenser Fan No./Type:** 1/CENTRIFUGAL
**Diameter x Width [in]:** 12x12
**Drive:** Adjustable Belt
**Motor HP:** 1.0

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**Evaporator Coil Face Area:** 5.16 [sq ft]
**Rows/FPI:** 3 / 10
**Refrigerant Control:** TX Valve

**Condenser Coil Face Area:** 7.03 [sq ft]
**Rows/FPI:** 3 / 12
**Compressor No./Type:** 1/Scroll
**Refrigerant Circuits:** 1/ Independent

**Refrigerant:** R-410A
**Filters - Qty./Size:** 2/18x24x2

**Operating Weight [lbs.]:** 610
**Shipping Weight [lbs.]:** 650
**Condensate Connection:** 3 / 4 NPT

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*Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F wet bulb and CFM listed. Gross capacity does not include the effect of fan motor heat.

**Rated in accordance with ARI Standard 210/240-2006

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### EVAPORATOR FAN PERFORMANCE

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>SUPPLY CFM</th>
<th>EXTERNAL STATIC PRESSURE - Inches W.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RPM</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>BHP</td>
<td></td>
</tr>
<tr>
<td>DSV036A</td>
<td>1000</td>
<td>605</td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>675</td>
</tr>
<tr>
<td></td>
<td>1400</td>
<td>749</td>
</tr>
</tbody>
</table>

**NOTE:**
1. At high evaporator air flows, and wet bulb conditions, condensate carry-over may occur. Adjust airflow downward as necessary.
2. Values include pressure drop from wet coil and clean filters.

### CONDENSER FAN PERFORMANCE

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>OUTDOOR CFM</th>
<th>EXTERNAL STATIC PRESSURE - Inches W.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RPM</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>BHP</td>
<td></td>
</tr>
<tr>
<td>DSV036A</td>
<td>2200</td>
<td>622</td>
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### ELECTRICAL DATA

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>VOLTAGE</th>
<th>COMPRESSOR</th>
<th>CONDENSER FAN</th>
<th>MIN. CCT.</th>
<th>&quot;MOP&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QTY</td>
<td>RLA</td>
<td>LRA</td>
<td>HP</td>
<td>FLA</td>
</tr>
<tr>
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<td>77.0</td>
<td>1.00</td>
<td>6.7</td>
</tr>
<tr>
<td>DSV036A2</td>
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<td>9.0</td>
<td>71.0</td>
<td>1.00</td>
<td>3.0</td>
</tr>
<tr>
<td>DSV036A4</td>
<td>1 @</td>
<td>5.6</td>
<td>38.0</td>
<td>1.00</td>
<td>1.4</td>
</tr>
<tr>
<td>DSV036A5</td>
<td>1 @</td>
<td>3.8</td>
<td>36.5</td>
<td>1.00</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Norman Controls maintains a continuous product improvement policy, therefore specifications are subject to change without notice.**
GENERAL
All models 3-5 tons ship as factory-charged unitized packages. All units may be field split and installed as separate modules to suit on-site requirements. All packages are designed for free standing mounting on the floor, or on a field fabricated structural steel stand.

CABINET
All cabinets are completely constructed of heavy gauge galvanized steel. The entire unit interior (both evaporator and condensing section) is insulated with 1/2" thick, 2-lb density insulation. Service panels are equipped with lifting handles for ease of removal and handling. Duct flanges for condenser discharge, condenser intake, and evaporator discharges are provided with the unit for field installation. Duct flange on evaporator return is incorporated into the filter frame.

REFRIGERANT CIRCUITS
All models utilize "Scroll" type, R-410A, hermetic compressors. Compressors are mounted on rubber isolators to minimize vibration transmission. Internal overload protection is provided. External high pressure and low pressure cut-out switches are included in each compressor control circuit. Crankcase heaters are standard on all models. The 3-5 ton units have a single refrigeration circuit.

EVAPORATOR AND CONDENSER COILS
The evaporator and condenser coils are constructed of internally enhanced copper tubes mechanically bonded to rippled aluminum plate fins. Both coils are employed in a draw-thru configuration. Large evaporator coil face area minimizes potential water blow-off.

INDOOR/OUTDOOR FANS
Forward curved, double inlet and double width centrifugal blowers are used for both evaporator and condenser air movement. Blower wheels are fabricated of galvanized steel. Blowers employ solid steel shafts, supported in permanently lubricated ball bearings. All blowers are belt driven. Variable-pitch motor sheaves allow for field adjustment of blower rpm. Motor shall be 1800 RPM, open drip proof design. Three-phase motors are provided with external manual reset overload protection. Single-phase motors feature auto reset internal overloads.

ELECTRICAL/CONTROLS
All units are completely factory wired with all necessary controls. A manual reset circuit is also provided on each compressor control circuit in the event of high/low pressure cut-out. A 24 volt control circuit, with oversize transformer, is provided for field connection.

FILTERS
All models are shipped with 2-inch thick medium-efficiency throwaway filters factory installed. Filter rack is external to the cabinet (shipped loose).

FACTORY INSTALLED OPTIONS
Corrosion Resistant Coatings. Condenser coil shall receive a 1-mil thickness of a cathodic epoxy type electro-deposition coating, applied in a multiple dip and bake process.

Anti-Short Cycle Timer. Time delay relay will be provided for each compressor circuit. Compressor will be locked out for 5 minutes when thermostat contact opens, or there is a momentary power outage.

FIELD INSTALLED OPTIONS
Low Ambient Control. Head pressure control damper kit will allow unit operation down to 0 F ambient. Damper assembly mounts on condenser air intake. The kit includes damper actuator and low pressure switch bypass timer(s).
DSV036 DIMENSIONAL DATA

DESCRIPTION:
DSV036 VERTICAL AIR-COOLED SELF-CONTAINED AIR CONDITIONERS SUBMITTAL DIMENSIONS

DATE:
November 2008
**Gross Cooling Capacity [Btuh]:** 50,100*  
**Design CFM:** 1,600  
**Seasonal Energy Efficiency Ratio:** 13.0 SEER**  
**Net Cooling Capacity [Btuh]:** 49,000**  
**Net Cooling CFM:** 1,600  
**Evaporator Fan No./Type:** 1/CENTRIFUGAL  
**Diameter x Width [in]:** 10x10  
**Drive:** Adjustable Belt  
**Motor HP:** 0.5  
**Condenser Fan No./Type:** 1/CENTRIFUGAL  
**Diameter x Width [in]:** 12x15  
**Drive:** Adjustable Belt  
**Motor HP:** 1.0  
**Refrigerant:** R-410A  
**Compressor No./Type:** 1/Scroll  
**Refrigerant Circuits:** 1/ Independent  
**Refrigerant Control:** TX Valve  
**Evaporator Coil Face Area:** 5.46 [sq ft]  
**Rows/FPI:** 3 / 12  
**Condenser Coil Face Area:** 7.94 [sq ft]  
**Rows/FPI:** 4 / 14  
**Operating Weight [lbs.]:** 670  
**Shipping Weight [lbs.]:** 715  
**Condensate Connection:** 3 / 4 NPT  

*Cooling performance is rated at 95°F ambient, 80°F entering dry bulb, 67°F wet bulb and CFM listed. Gross capacity does not include the effect of fan motor heat.  
**Rated in accordance with ARI Standard 210/240-2006

### EVAPORATOR FAN PERFORMANCE

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>SUPPLY CFM</th>
<th>0.2 RPM BHP</th>
<th>0.4 RPM BHP</th>
<th>0.6 RPM BHP</th>
<th>0.8 RPM BHP</th>
<th>1.0 RPM BHP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSV048A</td>
<td>1450</td>
<td>735</td>
<td>0.24</td>
<td>845</td>
<td>0.30</td>
<td>950</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>758</td>
<td>0.31</td>
<td>889</td>
<td>0.38</td>
<td>987</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>870</td>
<td>0.43</td>
<td>962</td>
<td>0.51</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**  
1. At high evaporator air flows, and wet bulb conditions, condensate carry-over may occur. Adjust airflow downward as necessary.  
2. Values include pressure drop from wet coil and clean filters.

### CONDENSER FAN PERFORMANCE

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>OUTDOOR CFM</th>
<th>0.2 RPM BHP</th>
<th>0.4 RPM BHP</th>
<th>0.6 RPM BHP</th>
<th>0.8 RPM BHP</th>
<th>1.0 RPM BHP</th>
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<tbody>
<tr>
<td>DSV048A</td>
<td>2600</td>
<td>719</td>
<td>0.61</td>
<td>800</td>
<td>0.71</td>
<td>870</td>
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### ELECTRICAL DATA

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>VOLTAGE</th>
<th>COMPRESSOR</th>
<th>EVAPORATOR FAN</th>
<th>CONDENSER FAN</th>
<th>MIN. CCT.</th>
<th>&quot;MOP&quot; AMPACITY</th>
<th>Max Overcurrent Protection</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>QTY</td>
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<td>LRA</td>
<td>HP</td>
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<td>HP</td>
<td>FLA</td>
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<td>4.4</td>
<td>1.00</td>
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<tr>
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<td>1.00</td>
<td>3.0</td>
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<tr>
<td>DSV048A4</td>
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<td>41.0</td>
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<td>1.0</td>
<td>1.00</td>
<td>1.4</td>
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<tr>
<td>DSV048A5</td>
<td>1 @</td>
<td>5.0</td>
<td>34.0</td>
<td>0.50</td>
<td>0.8</td>
<td>1.00</td>
<td>1.1</td>
</tr>
</tbody>
</table>

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GENERAL
All models 3-5 tons ship as factory-charged unitized packages. All units may be field split and installed as separate modules to suit on-site requirements. All packages are designed for free standing mounting on the floor, or on a field fabricated structural steel stand.

CABINET
All cabinets are completely constructed of heavy gauge galvanized steel. The entire unit interior (both evaporator and condensing section) is insulated with 1/2” thick, 2-lb density insulation. Service panels are equipped with lifting handles for ease of removal and handling. Duct flanges for condenser discharge, condenser intake, and evaporator discharges are provided with the unit for field installation. Duct flange on evaporator return is incorporated into the filter frame.

REFRIGERANT CIRCUITS
All models utilize "Scroll" type, R-410A, hermetic compressors. Compressors are mounted on rubber isolators to minimize vibration transmission. Internal overload protection is provided. External high pressure and low pressure cut-out switches are included in each compressor control circuit. Crankcase heaters are standard on all models. The 3-5 ton units have a single refrigeration circuit.

EVAPORATOR AND CONDENSER COILS
The evaporator and condenser coils are constructed of internally enhanced copper tubes mechanically bonded to rippled aluminum plate fins. Both coils are employed in a draw-thru configuration. Large evaporator coil face area minimizes potential water blow-off.

INDOOR/OUTDOOR FANS
Forward curved, double inlet and double width centrifugal blowers are used for both evaporator and condenser air movement. Blower wheels are fabricated of galvanized steel. Blowers employ solid steel shafts, supported in permanently lubricated ball bearings. All blowers are belt driven. Variable-pitch motor sheaves allow for field adjustment of blower rpm. Motor shall be 1800 RPM, open drip proof design. Three-phase motors are provided with external manual reset overload protection. Single-phase motors feature auto reset internal overloads.

ELECTRICAL/CONTROLS
All units are completely factory wired with all necessary controls. A manual reset circuit is also provided on each compressor control circuit in the event of high/low pressure cut-out. A 24 volt control circuit, with oversize transformer, is provided for field connection.

FILTERS
All models are shipped with 2-inch thick medium-efficiency throwaway filters factory installed. Filter rack is external to the cabinet (shipped loose).

FACTORY INSTALLED OPTIONS
Corrosion Resistant Coatings. Condenser coil shall receive a 1-mil thickness of a cathodic epoxy type electro-deposition coating, applied in a multiple dip and bake process.

Anti-Short Cycle Timer. Time delay relay will be provided for each compressor circuit. Compressor will be locked out for 5 minutes when thermostat contact opens, or there is a momentary power outage.

FIELD INSTALLED OPTIONS
Low Ambient Control. Head pressure control damper kit will allow unit operation down to 0 F ambient. Damper assembly mounts on condenser air intake. The kit includes damper actuator and low pressure switch bypass timer(s).
DSV048 & DSV060 DIMENSIONAL DATA

DESCRIPTION:
DSV048/060 VERTICAL AIR-COOLED
SELF-CONTAINED AIR CONDITIONERS
SUBMITTAL DIMENSIONS

Form 145.13-PA2 (1108)

DATE:
November 2008
**Gross Cooling Capacity [Btuh]:** 62,900*
**Design CFM:** 2,000

**Seasonal Energy Efficiency Ratio:** 13.0 SEER**
**Net Cooling Capacity [Btuh]:** 61,000**
**Net Cooling CFM:** 2,000

**Evaporator Coil Face Area:** 5.46 [sq ft]
**Rows/FPI:** 3 / 12
**Refrigerant Control:** TX Valve

**Condenser Coil Face Area:** 7.94 [sq ft]
**Rows/FPI:** 4 / 14
**Compressor No./Type:** 1/Scroll
**Refrigerant Circuits:** 1/ Independent
**Refrigerant:** R-410A

**Filters - Qty./Size:** 2/20x24x2

**Evaporator Fan No./Type:** 1/CENTRIFUGAL
**Diameter x Width [in]:** 10x10
**Drive:** Adjustable Belt
**Motor HP:** 1.0

**Condenser Fan No./Type:** 1/CENTRIFUGAL
**Diameter x Width [in]:** 12x15
**Drive:** Adjustable Belt
**Motor HP:** 1.5

**Evaporator Fan Performance**

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>SUPPLY CFM</th>
<th>EXTERNAL STATIC PRESSURE - Inches W.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2</td>
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<tr>
<td>DSV060A</td>
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<td>860</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>926</td>
</tr>
<tr>
<td></td>
<td>2200</td>
<td>1007</td>
</tr>
</tbody>
</table>

**Condenser Fan Performance**

<table>
<thead>
<tr>
<th>MODEL #</th>
<th>OUTDOOR CFM</th>
<th>EXTERNAL STATIC PRESSURE - Inches W.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RPM</td>
</tr>
<tr>
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<tr>
<td>DSV060A</td>
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**Electrical Data**

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<th>MODEL #</th>
<th>VOLTAGE</th>
<th>V QTY</th>
<th>RLA</th>
<th>LRA</th>
<th>QTY</th>
<th>RLA</th>
<th>LRA</th>
<th>HP</th>
<th>FLA</th>
<th>QTY</th>
<th>RLA</th>
<th>LRA</th>
<th>HP</th>
<th>FLA</th>
<th>MIN. CCT.</th>
<th>&quot;MOP&quot;</th>
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</thead>
<tbody>
<tr>
<td>DSV060A2</td>
<td>208-230/3/60</td>
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<td>110.0</td>
<td>1.00</td>
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<td>1.50</td>
<td>4.3</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DSV060A4</td>
<td>460/3/60</td>
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<td>7.8</td>
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<td>1.00</td>
<td>1.5</td>
<td>1.50</td>
<td>2.1</td>
<td>13.35</td>
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<tr>
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<td>25.8</td>
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<td>1.50</td>
<td>1.7</td>
<td>10.03</td>
<td>15</td>
<td></td>
<td></td>
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</tbody>
</table>

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**Form 145.13-PA3 (1108)**

**DATE:** November 2008
GENERAL
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CABINET
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