The specifications of this catalog may change without prior notice to allow Hitachi Cooling & Heating to incorporate the latest innovations for its customers. Hitachi Cooling & Heating does not bear any responsibility for any damage, direct or indirect, arising from the use and/or interpretation of the recommendations in this catalog.
**FEATURES**

**PRODUCT FEATURES**

1. **Direct Suction**
   Reduces superheat, improved volumetric efficiency.

2. **Improved Asymmetric Wrap**
   Additional displacement and superheat reduction for greater compressor efficiency.

3. **High Efficiency Motor**
   Maintains high efficiency levels across wide speed range of 10-140 rps.

4. **Internal Oil Circulation Structure**
   Low oil circulation rates (<2%) keeping oil in the compressor for superior reliability.

5. **Gas Injection Technology**
   Lower discharge temperatures, increasing capacity and expanded operating envelop for enhanced performance.

6. **Bypass Valves**
   Improved partial load efficiency with self-adapting variable pressure ratios for upgraded performance - low ambient heating and high ambient cooling.

7. **High-Side Pressure Design**
   Higher volumetric efficiency and improved oil management.

8. **Dynamic Oil Balance Structure**
   Patented technology for unsurpassed oil balance in parallel piped system operation.

9. **Non-contact Oil Membrane**
   Oil film seals involute section of scroll set, reducing compression leakage for improved performance and lower sound.

10. **Intermediate Gas Pressure**
    Axial force is continually adapting, blending discharge pressure and compressed suction pressure for optimized performance throughout the operating envelop.

**LINE UP & NOMENCLATURE**

**CAPACITY RANGE**

<table>
<thead>
<tr>
<th>Refrigerant</th>
<th>Motor Type</th>
<th>Capacity (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R32</td>
<td>DC INV</td>
<td>R32 DC 65 DC 80</td>
</tr>
<tr>
<td>R32</td>
<td>Fixed Speed</td>
<td></td>
</tr>
</tbody>
</table>

**PRODUCT LINE**

<table>
<thead>
<tr>
<th>Type</th>
<th>Series</th>
<th>UL*</th>
<th>CE*</th>
<th>Displacement</th>
<th>Speed</th>
<th>Rated Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>cm³/rev.</td>
<td>m³/h</td>
<td>rps</td>
<td>kW</td>
<td>BTU/h</td>
</tr>
<tr>
<td>DC INV</td>
<td>A55</td>
<td>-</td>
<td>-</td>
<td>55</td>
<td>9.6</td>
<td>15 - 130</td>
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<tr>
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<td>D65</td>
<td>-</td>
<td>-</td>
<td>65</td>
<td>11.3</td>
<td>15 - 120</td>
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<tr>
<td></td>
<td>D80</td>
<td>-</td>
<td>-</td>
<td>80</td>
<td>13.9</td>
<td>15 - 120</td>
</tr>
<tr>
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<td>50</td>
</tr>
<tr>
<td></td>
<td>D59</td>
<td>-</td>
<td>-</td>
<td>59</td>
<td>10.3</td>
<td>50</td>
</tr>
<tr>
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<td>D65</td>
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<td>-</td>
<td>65</td>
<td>11.3</td>
<td>50</td>
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<tr>
<td></td>
<td>D80</td>
<td>-</td>
<td>-</td>
<td>80</td>
<td>13.9</td>
<td>50</td>
</tr>
</tbody>
</table>

**NOMENCLATURE**

For example:

- **Compressor code**
  A-Φ150 High efficiency series
  D-Φ160 High efficiency series

- **Design Revision**
  A, B, C, D...

- **Nominal displacement**
  Discharge volume [cm³/rev]

- **Application**
  P - For A/C

- **Orientation**
  H - For vertical type

- **Compressor type**
  A - Fixed speed
  D - DC INV

- **Model Type**
  Y - Welded oil balanced pipe with gas injection
  J - Welded oil balanced pipe without gas injection
  G - Guangzhou

**Cooling capacity is based on AHRI Standard 540 condition (Dew point) and rotation speed at 60Hz.**
SPECIFICATION & DIMENSION

PRODUCT SPECIFICATION (AA55/DA65/DA80)

**DC INV**

<table>
<thead>
<tr>
<th>Series</th>
<th>Displacement</th>
<th>Speed</th>
<th>Rated Performance</th>
<th>Weight (include oil)</th>
<th>Oil/charge(L)</th>
<th>Oil balance piping</th>
<th>Power supply 2 phase Voltage</th>
<th>Gas Injection</th>
<th>Model Name</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>cm³/rev.</td>
<td>m³/h</td>
<td>rps</td>
<td>kW</td>
<td>BTU/h</td>
<td>kW</td>
<td>W/Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA55</td>
<td>55</td>
<td>9.6</td>
<td>15-120</td>
<td>19.83</td>
<td>67670</td>
<td>5.87</td>
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<td>72.77</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>AA55PHDG-D1Y6</td>
</tr>
<tr>
<td>DA65</td>
<td>65</td>
<td>11.3</td>
<td>15-120</td>
<td>23.90</td>
<td>81540</td>
<td>7.08</td>
<td>18.00</td>
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<td></td>
<td></td>
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<td>DA65PHDG-D1Y6</td>
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<tr>
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<td>80</td>
<td>13.9</td>
<td>15-120</td>
<td>29.49</td>
<td>100640</td>
<td>8.75</td>
<td>20.00</td>
<td>86.00</td>
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<td>DA80PHDG-D1Y6</td>
</tr>
</tbody>
</table>

Cooling capacity is based on AHR Standard 540 condition (Dew point) and rotation speed at 60Hz.

**PRODUCT DIMENSION**

Unit: (mm)

**AA55PHDG Side View**

- Gas Injection
- Screw Nut Tightening Torque 3.0 ~ 4.0 N·m
- Oil balance piping (Only Y Type)

**DA65PHDG Side View**

- Gas Injection
- Screw Nut Tightening Torque 3.0 ~ 4.0 N·m
- Oil balance piping (Only Y Type)

**DA80PHDG Side View**

- Gas Injection
- Screw Nut Tightening Torque 3.0 ~ 4.0 N·m
- Oil balance piping (Only Y Type)
WORKING RANGE

WORKING RANGE (AA55/DA65/DA80)

*Pressure on the graphic is relative (gauge) pressure.
*Pressure Ratio (The Absolute Pressure basis)
\[ \varepsilon = \frac{\text{Discharge Port Pressure}}{\text{Suction Port Pressure}} \]

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Discharge Pressure (MPa G)</th>
<th>Suction Pressure (MPa G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19rps~25rps</td>
<td>2.54</td>
<td>1.57</td>
</tr>
<tr>
<td>26rps~49rps</td>
<td>3.15</td>
<td>1.33</td>
</tr>
<tr>
<td>50rps~100rps</td>
<td>3.75</td>
<td>1.26</td>
</tr>
<tr>
<td>101rps~110rps</td>
<td>4.35</td>
<td>1.51</td>
</tr>
</tbody>
</table>

SPECIFICATION & DIMENSION

PRODUCT SPECIFICATION

Fixed Speed

<table>
<thead>
<tr>
<th>Series</th>
<th>Displacement cm³/rev.</th>
<th>Speed m³/h</th>
<th>Rated Performance</th>
<th>COP</th>
<th>Weight (include oil) kg</th>
<th>Oil balance piping</th>
<th>Oil Charge(L.1)</th>
<th>Power supply Voltage</th>
<th>Model Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA38</td>
<td>38</td>
<td>6.6</td>
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<td>37610</td>
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<tr>
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<td>50</td>
<td>19.10</td>
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<td>380-415/440</td>
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<tr>
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<td>380-415/440</td>
<td>DA80EHG-D1Y6</td>
</tr>
</tbody>
</table>

Cooling capacity is based on AHRI Standard 540 condition (Dew point) and rotation speed at 60Hz.

PRODUCT DIMENSION

DA38PHDG

Side View

Unit: (mm)

Gas Injection

Screw Nut

Tightening Torque 3.0 ~ 4.0 N·m

Oil balance piping (Only Y Type)

Discharge Connection (ID 16.1 mm Welded)

Injection Connection (ID 9.7 mm Welded)

Suction Connection (ID 22.4 mm Welded)

Name Plate

Ground

Terminal

Mounting Hole ø176 ±3

Injection Connection (ID 9.7 mm Welded)

Suction Connection (ID 22.4 mm Welded)
DIMENSION

PRODUCT DIMENSION

Unit: (mm)

DA65PHAG-D1K6
Side View

DA65PHAG-D1Y6
Side View

DA80PHAG
Side View

Gas Injection

Screw Nut
Tightening Torque 3.0 ~ 4.0 N·m

Terminal

Gas Injection

Screw Nut
Tightening Torque 3.0 ~ 4.0 N·m

Name Plate

Ground

Injection Connection
(ID 9.7 mm Welded)

Injection Connection
(ID 9.7 mm Welded)

Injection Connection
(ID 9.7 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Suction Connection
(ID 22.4 mm Welded)

Suction Connection
(ID 22.4 mm Welded)

Suction Connection
(ID 22.4 mm Welded)

Mounting Hole
4×Φ17±2

Mounting Hole
4×Φ17±2

Mounting Hole
4×Φ17±2

Terminal

Injection Connection
(ID 9.7 mm Welded)

Injection Connection
(ID 9.7 mm Welded)

Injection Connection
(ID 9.7 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Injection Connection
(ID 16.1 mm Welded)

Injection Connection
(ID 16.1 mm Welded)

Injection Connection
(ID 16.1 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Discharge Connection
(ID 16.1 mm Welded)

Oil balance piping (Only Y Type)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Oil balance piping (Only Y Type)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Discharge Connection
(ID 22.4 mm Welded)

Continuous operating range

Note:
The graphic pressure for relative pressure.

*Pressure on the graphic is relative(gauge) pressure.
*Pressure Ratio ε (The absolute Pressure basis)
ε=(Discharge Port Pressure) / (Suction Port Pressure)