**NewTon Refrigeration System**

**NewTon NH₃/CO₂ Cooling System**

Forwarding to the future refrigeration Systems

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**Interior Permanent Magnet (IPM) motor**

The system employs an IPM motor to improve drive efficiency. Achieving higher efficiency by 5 to 10% than the conventional induction type.

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**Revolution speed control by Variable Frequency Drive (VFD)**

VFDs are used to drive IPM motors. The rated revolution is set 4,500rpm (partially 5,600rpm) and continuously revolution speed control is equipped as a standard feature to correspond to part load operation. Driving a high speed and controlling revolution speed greatly contribute to energy-saving part load operation.

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**Adopted shell & plate type heat exchanger**

We employed compact and high performance shell & plate heat exchangers on both condenser and evaporator to enable them to exchange heat even with a small differential temperature.

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**Minimum Ammonia Charge**

Minimum ammonia charge from 55 lbs to max. 165 lbs for each package. Employing indirect cooling method enables ammonia to be contained only in the machine room.

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**New Profile**

We developed a new profile for the rotors with advanced machining technology enabling them to reduce internal leakage and achieve higher efficiency.

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**OVER 30% ENERGY-SAVING**

Comparison of before and after introducing NewTon

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**INDIRECT COOLING METHOD UTILIZING CO₂ CHARACTERISTICS**

NewTon system can contain ammonia completely only in machine room to achieve energy-saving and safety.

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![Diagram of Cooling System](image)

- **Exterior**
  - Cooling tower
  - Cooling water

- **Machine room**
  - Compressor
  - Condenser
  - Evaporator
  - NH₃

- **Application**
  - Cold storages
  - Ice rinks
  - Freezers
  - CO₂

*estimation from the power company bills
*all electricity including main machine, auxiliary machine, transporting machine, lighting and etc.
For Cold Storage and Ice Plants **NewTon R** & **NewTon C**

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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>25.6°F</td>
<td>-25.6°F</td>
<td>23°F</td>
<td>23°F</td>
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<tr>
<td>Cooling Capacity</td>
<td>94.5kW/26.8TR</td>
<td>189kW/53.7TR</td>
<td>270kW/76.7TR</td>
<td>235kW/66.8TR</td>
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<tr>
<td>Motor kW</td>
<td>43kW</td>
<td>86kW (43kW x 2)</td>
<td>120kW</td>
<td>65kW</td>
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<tr>
<td>C.O.P (EER)</td>
<td>2.2</td>
<td>2.25</td>
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<tr>
<td>Power Source</td>
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<tr>
<td>for motor</td>
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<tr>
<td>for control</td>
<td>AC400/440V x 50/60Hz</td>
<td>AC200/220 V x 50/60Hz</td>
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<tr>
<td>Refrigerant</td>
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<tr>
<td>Primary: NH₃</td>
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<tr>
<td>Compressor</td>
<td></td>
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<tr>
<td>Type</td>
<td>Semi-hermetic compound screw</td>
<td>Semi-hermetic single stage screw</td>
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<tr>
<td>Drive method</td>
<td>VFD</td>
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<tr>
<td>Motor type</td>
<td>IPM motor</td>
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<tr>
<td>Ammonia Charge</td>
<td>55 lbs</td>
<td>110 lbs</td>
<td>165 lbs</td>
<td>132 lbs</td>
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<tr>
<td>Outer Dimensions</td>
<td>L109 x W77 x H95</td>
<td>L186 x W94 x H102</td>
<td>L156 x W100 x H104</td>
<td>L134 x W87 x H106</td>
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<tr>
<td>Net Weight</td>
<td>7275 lbs</td>
<td>14991 lbs</td>
<td>16755 lbs</td>
<td>13228 lbs</td>
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*The information contained herein is for reference only. Subject to change without notice.*