BNB
PLENUM FAN
with Backward Curved Wheels
Kruvent Industries (M) Sdn Bhd certifies that the BNB Series shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.
BNB Series
Plenum Fans – Backward curved wheels

Kruger Plenum Fans are designed for air handling application where the fan wheel operates without housing, inside a plenum. This results in saving of space normally occupied by the fan housing, transition and diffusers. The fan wheel pressurizes the entire plenum in which the fan is installed. This allows air ducts to be directly connected from any direction to the plenum. The compact size of the plenum fan makes it an excellent selection for retrofit and replacement application and for variable air volume systems.

There are three types of BNB Series, i.e. BNB-R (regular type), BNB-P (high pressure ratio type), BNB-Q (high volume ratio type).

NOMENCLATURE

MODEL: BNB-R 450 / D I

- Fan operation class -- I & II
- Drive mode -- 'D' - Direct Driven
  'B' - Belt Driven
- Fan model
- Fan type -- R, P, Q

TYPE / OPERATING LIMIT

Each fan type has its maximum operating speed and power due to its mechanical design.

The operating limit of BNB series is set according with the requirement of class I and II limit as defined in AMCA standard 99.

The BNB series is available in Direct Driven and Belt Driven as follow:

Direct Driven 'D'
This type is supplied with no belts nor pulley and therefore minimal maintenance is required. It is a compact, space saving design with motor directly connected to wheel. This construction is mainly for cleanroom, with or without VFD, since there is an absence of belt residue which may contaminate the airstreams.

- Fan Size : 315 to 1,400
- Volume : 1,000 to 150,000 m³/h
- Total Pressure : up to 2,500 Pa

Belt Driven 'B'
No bearings in the fan inlet to affect performance. Separate base for motor mounting is required.

- Fan Size : 315 to 1,400
- Volume : 1,000 to 150,000 m³/h
- Total Pressure : up to 2,500 Pa

Drawings and dimension data of belt driven are available upon request.

TECHNICAL SPECIFICATION

Wheel
The wheels of BNB series have backward curved blades manufactured in mild steel with polyester powder coating finish.

Shaft
Shafts are manufactured from C45 carbon steel using an automatic process for positioning and cutting of the keyways. All dimensional tolerances of the shaft are fully checked to ensure a precision fit. All shafts are then coated with an anti-corrosion varnish after assembly.
Bearing

Bearing used are either deep groove ball bearings with an adapter sleeve, or spherical roller bearings sealed at both sides for different duty application.

The bearings are lubricated for life and maintenance-free. If re-lubrication is necessary, it is recommended to use lithium base grease suitable for all temperatures within the operational limits.

Balancing Quality

All wheels are statically and dynamically balanced to ISO1940 and AMCA 204 – G2.5 standard.

All fans after assembly are trim-balanced to ISO1940 and AMCA 204 - G2.5 standard.

Other standard rather than G2.5 is available upon request.

ACCESSORIES

Inlet Guard

Inlet guards may be a requirement in some industrial safety regulations. These are available upon request.

Motor Selection

The power curves shown on each performance graph represents the absorbed power at the shaft of the fan measured in kW.

To determine the power of the motor to be installed, a correction factor should be applied to compensate for the transmission loss.

For conversion to horsepower (HP), use multiplying factor 1.34.

Fan performance calculated with this correction factor is not licensed by AMCA International.
PERFORMANCE

The performance data shown on each diagram is derived from tests conducted in accordance with AMCA Standard 210-Fig 15-Installation type A (free inlet and free outlet condition).

Ratings refer to standard air density with the total pressure as a function of the air volume, using logarithmic scale.

It is essential that, the same installation type and test standards are used at all times, when comparing fan performance.

According to ISO 12759/AMCA 205, BNB series can be classify as FEG 85 based on fan peak efficiency. The following is the explanation of FEG classification:

1. Fan size is the impeller diameter in mm.
2. The fan peak efficiency shall be calculated from the fan (total) pressure.
3. If this method is used for a direct driven fan, the fan efficiency is the impeller efficiency.
4. The FEG label for a given fan size is assigned when the fan peak efficiency is equal or lower than the efficiency at the grade upper limit and higher than efficiency at the grade upper limit of the next lower grade for the fan size.
5. For any fan sizes larger than 1016 mm, the values of the grade upper limits are the same as for a size of 1016 mm.
6. No labels are considered for the fans with the fan peak total efficiency below FEG50.
7. The values of efficiencies are calculated for fan sizes in the preferred R40 Series.
8. Not all fan sizes in preferred numbers shown.

Fan Efficiency Grades (FEG) for Fans without Drives (SI) – ISO 12759/ AMCA 205
NOISE

The noise levels shown on each diagram refer to the sound power, "A-weighted" values and the data are obtained at the outlet side from tests conducted in accordance to AMCA Standard 300. The noise levels are determined as follow:

- Sound power level - ("A" scale): $L_w (A)$ as catalogue
- Octave band spectrum: $L_w = L_w(A) + L_w \text{ rel. dB}$ [refer to Kruger for more details]
- Sound pressure level:
  a) free field
  $$L_p(A) = L_w(A) - (20 \log_{10} d) - 11$$
  b) room conditions
  $$L_p(A) = L_w(A) - (20 \log_{10} d) - 8$$
  where $d$ = distance of fan (m)

SELECTION GUIDELINES

To obtain optimum performance, the following guidelines should be adhered to in the plenum fan selection.

MINIMUM DISTANCE

Recommended minimum distance values for correct plenum fan installation are as follow.

\[ D = \text{Impeller Diameter} \]
Example of Selection

Air Volume \( Q = 6120 \text{m}^3/\text{h} \)

Outlet Velocity \( V = 9.44 \text{m/s} \)

Dynamic Pressure \( P_d = 53 \text{Pa} \)

Total Pressure \( P_t = 800 \text{Pa} \)

Fan Speed \( N = 2330 \text{rpm} \)

Absorbed Power \( W = 2.04 \text{KW} \)

Total Efficiency \( \eta = 66.8\% \)

Sound Power Level \( L_w(A) = 90 \text{dB}(A) \)

- Performance shown is for Installation type A - Free inlet, free outlet. Performance ratings do not include the effects of appurtenances.
- Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759 / AMCA 205.
- Please consult Kruger for fan selection of Class III & above.

\[ Q = \frac{m}{h} \]
\[ V = \frac{m}{s} \]
\[ P_d = \text{Pa} \]
\[ P_t = \text{Pa} \]
\[ N = \text{rpm} \]
\[ W = \text{KW} \]
\[ \eta = \% \]
\[ L_w(A) = \text{dB}(A) \]
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.

-Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

-Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

-Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

-Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.

- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.

- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759: AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.

*Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

*Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

*Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

*Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.

---

*Op Limit Max kW Max RPM
CI.I 2.3 2470
CI.II 5.1 3290

---

* y = 1.2 kg/m³

---

- kW 3000 2000 1000
- η [%] 95 90 85
- Pt [Pa] 55 4 2.2
- V [m/s] 950 1100 1300
- Q [m³/h] 5000 10000 20000
- Pd [Pa] 1 5 10
- N [rpm] 3230 2950 2700
- Q [m³/s] 2 3 4

---

- Lw (A) [dB(A)] 100 95 90
- Lw (A) [dB(A)] 70 75

---

*Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
*Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
*Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
*Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.

<table>
<thead>
<tr>
<th>Op Limit</th>
<th>Cl.I</th>
<th>Cl.II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.kW</td>
<td>4.7</td>
<td>10.8</td>
</tr>
<tr>
<td>Max.RPM</td>
<td>2050</td>
<td>2700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pt [Pa]</th>
<th>( \eta ) [%]</th>
<th>kW</th>
<th>N [rpm]</th>
<th>Q [m³/s]</th>
<th>V [m/s]</th>
<th>Pd [Pa]</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\*Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759: AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Op Limit | CL I | CL II
---|---|---
Max kW | 3.9 | 8.1
Max RPM | 2000 | 2650

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
BNB-R 560

FEG 75

Op Limit | CL I | CL II
Max kW | 6 | 13.2
Max RPM | 1850 | 2400

Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
<table>
<thead>
<tr>
<th>Op Limit</th>
<th>Cl.I</th>
<th>Cl.II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.kW</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Max.RPM</td>
<td>1450</td>
<td>1800</td>
</tr>
</tbody>
</table>

- Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
-Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

-Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances in the airstream. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.
-Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
-Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
-Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
-Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.

<table>
<thead>
<tr>
<th>Op Limit</th>
<th>CLI</th>
<th>CLI II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max kW</td>
<td>30</td>
<td>85</td>
</tr>
<tr>
<td>Max RPM</td>
<td>940</td>
<td>1220</td>
</tr>
</tbody>
</table>

\[ \gamma = 1.2 \text{ kg/m}^3 \]
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.
- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.
- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.
- Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
Performance shown is for installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

Please consult Kruger for fan selection of Class III & above.
- Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

- Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

- Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/ AMCA 205.

- Please consult Kruger for fan selection of Class III & above.
-Performance shown is for Installation type A - free inlet, free outlet. Performance ratings do not include the effects of appurtenances. Power rating kW does not include transmission losses.

-Outlet velocity of Model BNB is calculated in accordance with the fan outlet area as defined in AMCA 201, Annex H, Figure H.4.

-Fan Efficiency Grade (FEG) is based on peak total efficiency in accordance with ISO 12759/AMCA 205.

-Please consult Kruger for fan selection of Class III & above.

Op Limit | CLI | CLII
---|---|---
Max kW | 46 | 100
Max RPM | 750 | 970
### BNB 315 ~ 630 ‘D’

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>(n \times \Phi_q)</th>
<th>L</th>
<th>Frame Size</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>Fan Type</th>
<th>Wt (Kg) w/o motor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 x 9</td>
<td></td>
<td></td>
<td>100</td>
<td>28</td>
<td>310</td>
<td>267</td>
<td>278</td>
<td>291</td>
</tr>
<tr>
<td>315</td>
<td>490</td>
<td>555</td>
<td>688</td>
<td>525</td>
<td>325</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>514 525 538 71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>544 555 568 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>589 600 613 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>604 615 628 100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>644 655 668 112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>669 680 691 132</td>
<td></td>
</tr>
<tr>
<td>355</td>
<td>530</td>
<td>595</td>
<td>628</td>
<td>580</td>
<td>340</td>
<td></td>
<td>6 x 9</td>
<td></td>
<td>120</td>
<td>28</td>
<td>330</td>
<td>290</td>
<td>303</td>
<td>317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>631 645 661 90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>676 690 706 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>686 700 716 112</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>781 795 811 132</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>941 955 971 160</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>580</td>
<td>645</td>
<td>678</td>
<td>613</td>
<td>353</td>
<td></td>
<td>8 x 9</td>
<td></td>
<td>130</td>
<td>28</td>
<td>355</td>
<td>324</td>
<td>338</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>669 685 703 90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>679 700 725 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>729 745 763 112</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>799 815 833 132</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>974 990 1008 160</td>
<td></td>
</tr>
<tr>
<td>450</td>
<td>630</td>
<td>715</td>
<td>730</td>
<td>673</td>
<td>393</td>
<td></td>
<td>8 x 12</td>
<td></td>
<td>140</td>
<td>28</td>
<td>400</td>
<td>360</td>
<td>376</td>
<td>394</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>669 685 703 90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>714 730 748 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>729 745 763 112</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>799 815 833 132</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>974 990 1008 160</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>700</td>
<td>785</td>
<td>800</td>
<td>714</td>
<td>434</td>
<td></td>
<td>8 x 12</td>
<td></td>
<td>140</td>
<td>28</td>
<td>435</td>
<td>394</td>
<td>412</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>708 725 745 90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>748 765 785 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>768 785 805 112</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>863 880 900 132</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1003 1020 1060 160</td>
<td></td>
</tr>
<tr>
<td>560</td>
<td>790</td>
<td>875</td>
<td>890</td>
<td>820</td>
<td>500</td>
<td></td>
<td>8 x 12</td>
<td></td>
<td>160</td>
<td>28</td>
<td>480</td>
<td>433</td>
<td>452</td>
<td>475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>770 790 812 100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>785 805 827 112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>885 905 927 132</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1035 1055 1077 160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1065 1085 1107 180</td>
<td></td>
</tr>
<tr>
<td>630</td>
<td>890</td>
<td>960</td>
<td>1000</td>
<td>865</td>
<td>545</td>
<td></td>
<td>8 x 12</td>
<td></td>
<td>160</td>
<td>28</td>
<td>545</td>
<td>474</td>
<td>496</td>
<td>522</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>828 850 875 100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>843 865 890 112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>928 950 975 132</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1068 1090 1115 160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1093 1115 1140 180</td>
<td></td>
</tr>
</tbody>
</table>

All dimensions in mm.
### BNB 710 ~ 1400 ‘D’

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>$n \times \Phi_q$</th>
<th>L</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>Wt (Kg) w/o motor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>710</td>
<td>1000</td>
<td>1100</td>
<td>1100</td>
<td>938</td>
<td>618</td>
<td>6 x 9</td>
<td></td>
<td>890</td>
<td>915</td>
<td>943</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1128</td>
<td>808</td>
<td></td>
<td>1125</td>
<td>1150</td>
<td>1178</td>
<td>160</td>
<td>1150</td>
<td>1175</td>
<td>1203</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1225</td>
<td>1250</td>
<td>1278</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800</td>
<td>1120</td>
<td>1220</td>
<td>1230</td>
<td>1130</td>
<td>810</td>
<td>6 x 9</td>
<td></td>
<td>1027</td>
<td>1055</td>
<td>1087</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1230</td>
<td>910</td>
<td></td>
<td>1152</td>
<td>1190</td>
<td>1222</td>
<td>160</td>
<td>1197</td>
<td>1225</td>
<td>1267</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1265</td>
<td>1295</td>
<td>1330</td>
<td>200</td>
<td>1340</td>
<td>1370</td>
<td>1405</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>1240</td>
<td>1340</td>
<td>1350</td>
<td>1252</td>
<td>912</td>
<td>8 x 9</td>
<td></td>
<td>1229</td>
<td>1260</td>
<td>1296</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1342</td>
<td>1002</td>
<td></td>
<td>1259</td>
<td>1290</td>
<td>1326</td>
<td>180</td>
<td>1329</td>
<td>1360</td>
<td>1396</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1394</td>
<td>1425</td>
<td>1461</td>
<td>225</td>
<td>1459</td>
<td>1490</td>
<td>1526</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1390</td>
<td>1515</td>
<td>1520</td>
<td>1334</td>
<td>874</td>
<td>8 x 12</td>
<td></td>
<td>1295</td>
<td>1330</td>
<td>1370</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1434</td>
<td>974</td>
<td></td>
<td>1325</td>
<td>1360</td>
<td>1400</td>
<td>180</td>
<td>1395</td>
<td>1430</td>
<td>1470</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1450</td>
<td>1485</td>
<td>1525</td>
<td>225</td>
<td>1520</td>
<td>1555</td>
<td>1595</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>1120</td>
<td>1550</td>
<td>1700</td>
<td>1660</td>
<td>1450</td>
<td>900</td>
<td>8 x 12</td>
<td></td>
<td>1416</td>
<td>1455</td>
<td>1500</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>1050</td>
<td></td>
<td>1486</td>
<td>1525</td>
<td>1570</td>
<td>200</td>
<td>1521</td>
<td>1560</td>
<td>1605</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1601</td>
<td>1640</td>
<td>1685</td>
<td>250</td>
<td>1611</td>
<td>1750</td>
<td>1795</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>1250</td>
<td>1700</td>
<td>1850</td>
<td>1810</td>
<td>1540</td>
<td>940</td>
<td>8 x 12</td>
<td></td>
<td>1501</td>
<td>1545</td>
<td>1595</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1690</td>
<td>1090</td>
<td></td>
<td>1571</td>
<td>1615</td>
<td>1665</td>
<td>200</td>
<td>1606</td>
<td>1650</td>
<td>1700</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1671</td>
<td>1715</td>
<td>1765</td>
<td>250</td>
<td>1796</td>
<td>1840</td>
<td>1890</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>1900</td>
<td>2050</td>
<td>2010</td>
<td>1612</td>
<td>1012</td>
<td>8 x 12</td>
<td></td>
<td>1571</td>
<td>1620</td>
<td>1676</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1780</td>
<td>1180</td>
<td></td>
<td>1641</td>
<td>1690</td>
<td>1746</td>
<td>200</td>
<td>1686</td>
<td>1735</td>
<td>1791</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1751</td>
<td>1800</td>
<td>1856</td>
<td>250</td>
<td>1876</td>
<td>1925</td>
<td>1981</td>
<td>280</td>
<td></td>
</tr>
</tbody>
</table>

All dimensions in mm.
### Operational Limits - BNB-R

<table>
<thead>
<tr>
<th></th>
<th>315</th>
<th>355</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>560</th>
<th>630</th>
<th>710</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1120</th>
<th>1250</th>
<th>1400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Absorbed Power</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>kW</td>
<td>2</td>
<td>2.5</td>
<td>3.2</td>
<td>4</td>
<td>4.5</td>
<td>6</td>
<td>7.5</td>
<td>9</td>
<td>11</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>CL.II</td>
<td>kW</td>
<td>4.5</td>
<td>5.5</td>
<td>7</td>
<td>8.5</td>
<td>10.5</td>
<td>13</td>
<td>16</td>
<td>20</td>
<td>26</td>
<td>32</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td><strong>Maximum Fan Speed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>rpm</td>
<td>3250</td>
<td>2850</td>
<td>2550</td>
<td>2300</td>
<td>2050</td>
<td>1850</td>
<td>1650</td>
<td>1450</td>
<td>1280</td>
<td>1130</td>
<td>1030</td>
<td>920</td>
<td>830</td>
</tr>
<tr>
<td>CL.II</td>
<td>rpm</td>
<td>4200</td>
<td>3750</td>
<td>3300</td>
<td>3000</td>
<td>2700</td>
<td>2400</td>
<td>2150</td>
<td>1900</td>
<td>1700</td>
<td>1500</td>
<td>1350</td>
<td>1200</td>
<td>1070</td>
</tr>
<tr>
<td><strong>Temperature Range / Min. -20°C</strong></td>
<td>CL.I-CL.II</td>
<td>Max.°C</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

### Operational Limits - BNB-P

<table>
<thead>
<tr>
<th></th>
<th>315</th>
<th>355</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>560</th>
<th>630</th>
<th>710</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1120</th>
<th>1250</th>
<th>1400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Absorbed Power</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>kW</td>
<td>1.8</td>
<td>2.2</td>
<td>2.7</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7.8</td>
<td>9.5</td>
<td>12</td>
<td>16</td>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>CL.II</td>
<td>kW</td>
<td>3.9</td>
<td>5</td>
<td>6</td>
<td>7.5</td>
<td>9</td>
<td>10.5</td>
<td>14</td>
<td>17</td>
<td>22</td>
<td>28</td>
<td>35</td>
<td>43</td>
<td>53</td>
</tr>
<tr>
<td><strong>Maximum Fan Speed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>rpm</td>
<td>3150</td>
<td>2800</td>
<td>2470</td>
<td>2250</td>
<td>2000</td>
<td>1700</td>
<td>1600</td>
<td>1420</td>
<td>1250</td>
<td>1100</td>
<td>1000</td>
<td>900</td>
<td>810</td>
</tr>
<tr>
<td>CL.II</td>
<td>rpm</td>
<td>4100</td>
<td>3650</td>
<td>3230</td>
<td>2950</td>
<td>2650</td>
<td>2200</td>
<td>2100</td>
<td>1860</td>
<td>1650</td>
<td>1470</td>
<td>1320</td>
<td>1180</td>
<td>1050</td>
</tr>
<tr>
<td><strong>Temperature Range / Min. -20°C</strong></td>
<td>CL.I-CL.II</td>
<td>Max.°C</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

### Operational Limits - BNB-Q

<table>
<thead>
<tr>
<th></th>
<th>315</th>
<th>355</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>560</th>
<th>630</th>
<th>710</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1120</th>
<th>1250</th>
<th>1400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Absorbed Power</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>kW</td>
<td>2.4</td>
<td>2.9</td>
<td>3.6</td>
<td>4.5</td>
<td>5.3</td>
<td>6.8</td>
<td>8.4</td>
<td>10.5</td>
<td>12.8</td>
<td>16</td>
<td>20</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>CL.II</td>
<td>kW</td>
<td>5.2</td>
<td>6.5</td>
<td>8</td>
<td>9.5</td>
<td>12.1</td>
<td>15</td>
<td>18.5</td>
<td>23</td>
<td>30</td>
<td>36</td>
<td>45</td>
<td>56</td>
<td>70</td>
</tr>
<tr>
<td><strong>Maximum Fan Speed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL.I</td>
<td>rpm</td>
<td>3300</td>
<td>2900</td>
<td>2570</td>
<td>2350</td>
<td>2100</td>
<td>1870</td>
<td>1680</td>
<td>1490</td>
<td>1320</td>
<td>1160</td>
<td>1050</td>
<td>940</td>
<td>830</td>
</tr>
<tr>
<td>CL.II</td>
<td>rpm</td>
<td>4300</td>
<td>3830</td>
<td>3360</td>
<td>3050</td>
<td>2750</td>
<td>2430</td>
<td>2200</td>
<td>1940</td>
<td>1730</td>
<td>1520</td>
<td>1370</td>
<td>1220</td>
<td>1100</td>
</tr>
<tr>
<td><strong>Temperature Range / Min. -20°C</strong></td>
<td>CL.I-CL.II</td>
<td>Max.°C</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>
KRUGER GROUP (VENTILATION)

- THAILAND (Regional HQ)
  KRUGER VENTILATION INDUSTRIES ASIA CO. LTD.
  30/159 Moo 1, Sinsakorn Industrial Estate,
  Chetsadawithi Road, Khok Kham Mueng, Samuthsakorn 74000, Thailand
  Tel. +66 2 1054298 - Fax +66 2 0248256-9
  Website: www.krugerfan.com

- AUSTRALIA
  S&P-KRUGER AUSTRALIA PTY LTD
  2 Cunningham St, Moorebank N.S.W. 2170
  Tel. +61 2 98227747
  Fax +61 2 98227757
  Email: info@sandpkruger.com.au

- CHINA (BEIJING)
  BEIJING KRUGER VENTILATION CO. LTD
  Level 7, A Block, Rising International Building, 29 Jinghai San Road, BDA,
  Beijing, P.R. China 100176
  Tel. +86 10-67881366 - Fax +86 10-67880566
  Email: krugertj@krugertj.com

- CHINA (GUANGZHOU)
  GUANGZHOU KRUGER VENTILATION CO. LTD
  No. 9 Huahui Road, Hushan, Huadu,
  Guangzhou, P.R. China 510800
  Tel. +86 20-66356635 - Fax +86 20-86786001/86786500
  Email: gzkruger@krugergz.com

- CHINA (SHANGHAI)
  SHANGHAI KRUGER VENTILATION CO. LTD
  No. 500 Yuanqiao Road, Anting, Jading,
  Shanghai 201314 P.R. China
  Tel. +86 21-69573266 - Fax +86 21-69573296
  Email: shkruger@krugerchina.com

- CHINA (TIANJIN)
  TIANJIN KRUGER VENTILATION CO. LTD
  No.168 Anyuan Road, Jinjing Science and Technology Park
  Wuping District, Tianjin, China
  Tel. +86 22-22143480/3481 - Fax +86 22-22143482
  Email: krugertj@krugertj.com

- CHINA (WUHAN)
  WUHAN KRUGER VENTILATION CO. LTD
  No. 805, Huan Ave, Dongxihu District, Wuhan, Hubei, P.R. China 430000
  Tel. +86 27- 83248840/83060522/83097505
  Fax. +86 27- 83261886
  Email: whkruger@krugerwh.com

- DUBAI
  KRUGER VENTILATION INDUSTRIES, GULF BRANCH
  Jebel Ali Free Zone Area (JAFZA) P.O. Box No. 262949, Dubai, UAE
  Tel. +971 4 8819188/8832017
  Fax +971 4 8832018
  Email: johncs@krugerasia.com

- DUOMALAYSIA
  KRUVENT INDUSTRIES (M) SDN BHD
  Lot 850, Jalan Subang T. Taman Perindustrian Subang,
  47500, Jalan Subang, Selangor D.E.
  Tel. +60 3 80743399 - Fax +60 3 80743388
  Email: mktg@kruger.com.my

- INDIA
  KRUGER VENTILATION INDUSTRIES (INDIA) PVT LTD
  Kruger Centre, Mumbai-Nasik Highway, Kalambgaon, Shahapur, Thane 421601, Maharashtra, India
  Tel. +91 2527 240075
  Email: info@sandpkruger.com.au

- INDONESIA
  P.T. KRUGER VENTILATION INDONESIA
  JL. Teuku Umar No.20,
  Karawaci - Tangerang 15115, Indonesia
  Tel. +62 21-5512288/5513557 - Fax +62 21-5513502
  Email: mktg@krugerindo.co.id

- JAPAN
  NEOMATE CO. LTD
  2-1010, Ace High Tech City B/D, 775 Gyeongin-ro
  Lot 850, Jalan Subang 7, Taman Perindustrian Subang,
  47500, Jalan Subang, Selangor D.E.
  Tel. +86 21-69573266 - Fax +86 21-69573296
  Email: y7890@neomate.co.kr

- PHILIPPINES
  KRUGER M&E INDUSTRIES CORPORATION
  FAPI Compound, E. Rodriguez Ave.
  Room No. F21, Thiri Yadanar Whole Sale Market, (Htawunbe) FAPI Compound,
  E. Rodriguez Ave.
  Tel. +959 763141081/2/3
  Email: mktg@kruger.co.th

- VIETNAM
  KRUGER VENTILATION INDUSTRIES (VIETNAM) CO. LTD
  No. 805,  Huian Ave, Dongxihu District, Wuhan, Hubei, P.R. China 430000
  Tel. +86 27- 83248840/83060522/83097505
  Fax. +86 27- 83261886
  Website: www.krugerfan.com
  Email: mktg@krugervn.com

The company is always improving and developing its products, therefore the company reserves the right of making changes to the illustrated products. Certified dimension can be provided upon request.

Edition 1
Printed in May 2019