Ultrasonic Nebulizer Units
Humidifier for mist generating system

Incorporate type

NB series

NB-59S-09S-0
NB-80E-01-H
Ultrasonic Nebulizer Units
Incorporate type

Overview of NB series

The TDK ultrasonic humidifier unit was the first such product in the world to be developed. There is an increasing need for indoor humidification due to the proliferation of clean air heat pumps and central heating systems. When the appropriate amount of humidity is added as determined by the relationship between humidity and sensible temperature (temperature perceived by the body), humidification is advantageous from the standpoint of both health and reduced energy consumption. In addition to such home uses, these ultrasonic humidifier units have numerous advantages for humidification of vegetable showcases, preservation and growth of agricultural products, industrial applications, etc. A wide variety of standard units are available from TDK.

Example of Atomization Chamber

**CONSTRUCTION**

![Diagram of Atomization Chamber](image)

**Typical Transducer Installation**

![Diagram of Transducer Installation](image)

Tilt directions of the transducer

NB-59S-09S Type

- The tilt direction of transducer will be the same as the direction of water column.

Typical Characteristics of Humidifier Units

- **Voltage Characteristics (48V)**
- **Water Temperature Characteristics (48V)**
- **Water Level Characteristics**

![Graphs of Voltage, Temperature, and Level Characteristics](image)

⚠️ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.
NEBULIZERS

NB-59S-09S type

■ FEATURES

- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.

■ SHAPE & DIMENSIONS

![Diagram of NB-59S-09S type nebulizer]

■ ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>CHARACTERISTICS SPECIFICATION TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
</tr>
<tr>
<td>Rated input voltage Eac(V)</td>
</tr>
<tr>
<td>Power consumption (W)</td>
</tr>
<tr>
<td>Mist output ratio (l/h)</td>
</tr>
<tr>
<td>Ultrasonic frequency (kHz)</td>
</tr>
<tr>
<td>Normal water level (mm)</td>
</tr>
<tr>
<td>Water quality</td>
</tr>
<tr>
<td>Transducer element life (h)</td>
</tr>
<tr>
<td>Cooling method</td>
</tr>
<tr>
<td>Parallel connected operation</td>
</tr>
<tr>
<td>Weight (g)</td>
</tr>
<tr>
<td>Main application</td>
</tr>
</tbody>
</table>

* The character at the end of the product number indicates the transducer's direction of tilt.

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NEBULIZERS

NB-80E-01 type

FEATURES

- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.
- Because the ultrasonic frequencies used are higher than with typical household-type units, mist particle size is extremely fine. This part is thus ideal for products intended for smaller spaces.

SHAPE & DIMENSIONS

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

<table>
<thead>
<tr>
<th>Part No.</th>
<th>NB-80E-01-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated input voltage</td>
<td>Eac(V) 12±10%</td>
</tr>
<tr>
<td></td>
<td>Edc(V) 13.2max.</td>
</tr>
<tr>
<td>Power consumption (W)</td>
<td>2350 to 2600</td>
</tr>
<tr>
<td>Mist output ratio (l/h)</td>
<td>0 to 50</td>
</tr>
<tr>
<td>Normal water level (mm)</td>
<td>35</td>
</tr>
<tr>
<td>External potentiometer (kΩ)</td>
<td>10</td>
</tr>
<tr>
<td>Operating water temperature range (°C)</td>
<td>Drinking water</td>
</tr>
<tr>
<td>Transducer element life (h)</td>
<td>5000</td>
</tr>
<tr>
<td>Main application</td>
<td>Microparticle applications such as for medical use</td>
</tr>
</tbody>
</table>

- The character at the end of the product number indicates the transducer’s direction of tilt.

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.
Mountings (Reference)

1. NB59S, NB-80E TYPES

The transducer can break off if the A dimension depth is shallow. TDK recommends a 2mm A-dimension depth and a screw tightening torque of 0.39N • m.

2. CONSTRUCTION OF NB59S

The drawing below shows an example method for transistor heat dissipation. The attached aluminum cooling fins should be fixed using silicon rubber to a metallic water tank, etc. with sufficient heat dissipation capacity. (It is recommended to use a plastic water tank. However, if a metallic water tank is absolutely must be used, be sure to insulate it from the power supply line.)

PRECAUTIONS

- These units are readily damaged by operation when empty (without water). Therefore a means (float switch, etc.) should be provided to assure operation does not occur when empty.
- Contact TDK prior to use of this unit for applications utilizing liquids other than water.
- The unit should be used only after sufficient consideration of the product specifications for that specific unit.
- When using units in parallel, make sure that voltage differences do not occur between the individual transducers.
- Do not use the unit to atomize a liquid other than drinking water. Doing so can deteriorate the transducer.
- Do not operate the transducer when the atomization unit tank is not charged with drinking water.
- Drain water from the transducer and clean the equipment into which the unit is incorporated if not used for a long period of time.
- Clean the transducer periodically to prevent any degradation in the atomizing capacity due to buildup in the transducer of such substances as calcium, sodium, magnesium, and silicon, commonly found in drinking water.
- TDK is not responsible for damage to the transducer resulting from use of oscillator circuitry not supplied or not approved by TDK.
- TDK is not responsible for worsening of unit performance resulting from operation in environments other than those recommended, storage in environments other than those recommended, or use of the unit in configurations other than those recommended by TDK for efficient mist generation.
- TDK is not responsible for the vaporization of pathogenic bacteria or particles, not responsible if drinking water contains substances that impede vaporization, and not responsible for bacterial growth due to lack of a water purification function.
- Please select a plastic material of construction for the water tank design. Metallic construction can result in electrolytic corrosion between the chamber base and water tank. Furthermore, if multiple units are used with the same tank, and if each unit is equipped to be separately turned ON/OFF, the power supply terminal for each unit should use a double-pole switch.