

# Ultrasonic Nebulizer Units

Humidifier for mist generating system

Incorporate type

NB series

Issue date:

March 2012

III.C.CC

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

# Ultrasonic Nebulizer Units Incorporate Type

## 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 advanta-

geous from the standpoint of both health and reduced energy consumption.

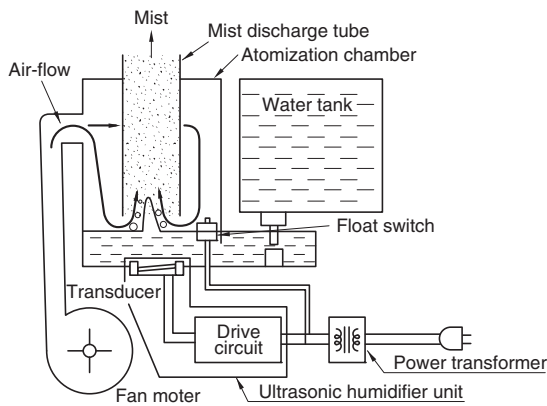
In addition to such home uses, these ultrasonic humidifier units have numerous advantages for humidification of vegetable show-cases, preservation and growth of agricultural products, industrial applications, etc. A wide variety of standard units are available from TDK.

### ELECTRICAL CHARACTERISTICS

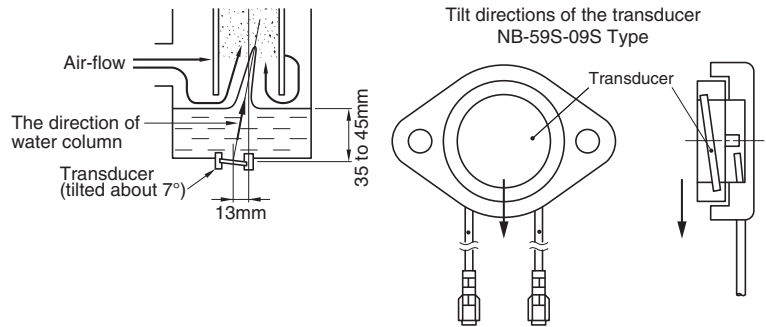
Part No.	NB-59S-09S-0	NB-80E-01-H
Rated input voltage	Eac(V)	48±10%
	Edc(V)	12±10%
Power consumption (W)	30±5	13.2max.
Mist output ratio (l/h)	450×10 <sup>-3</sup> min.	(150+100, -50)×10 <sup>-3</sup>
Ultrasonic frequency (kHz)	1600 to 1750	2350 to 2600
Normal water level (mm)	40	35
External potentiometer (kΩ)	—	10
Operating water temperature range (°C)	0 to 45	0 to 45
Water quality	Drinking water	Drinking water
Transducer element life (h)	10000	5000
Cooling method	Water cooled	Air cooled
Parallel connected operation	Yes	Yes
Weight (g)	60	60
Main application	Various humidity control systems	Microparticle applications such as for medical use

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

### EXAMPLE OF ATOMIZATION CHAMBER CONSTRUCTION



### TYPICAL TRANSDUCER INSTALLATION

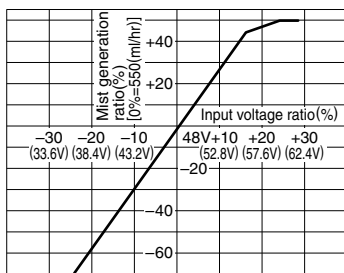


The arrows indicate the tilt direction of the transducer.

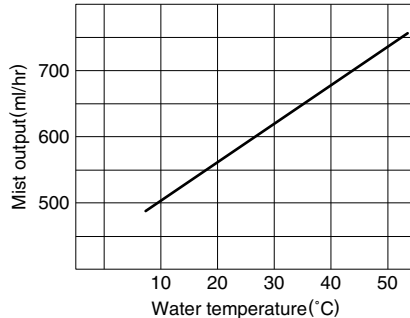
\* The tilt direction of transducer will be the same as the direction of water column.

### TYPICAL CHARACTERISTICS OF HUMIDIFIER UNITS

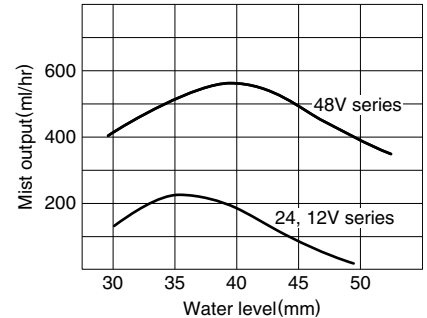
#### VOLTAGE CHARACTERISTICS(48V)



#### WATER TEMPERATURE CHARACTERISTICS(48V)



#### WATER LEVEL CHARACTERISTICS



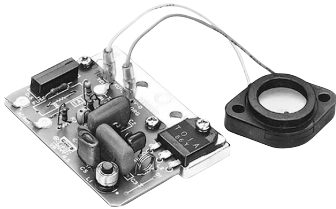
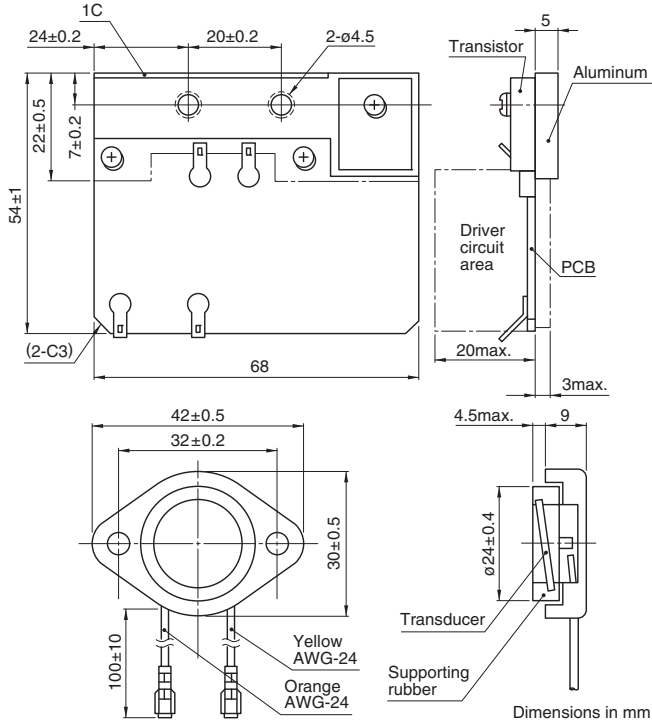
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### NB-59S-09S TYPE

#### FEATURES

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

#### SHAPES AND DIMENSIONS

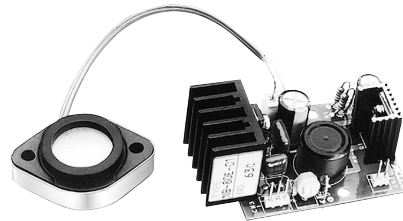
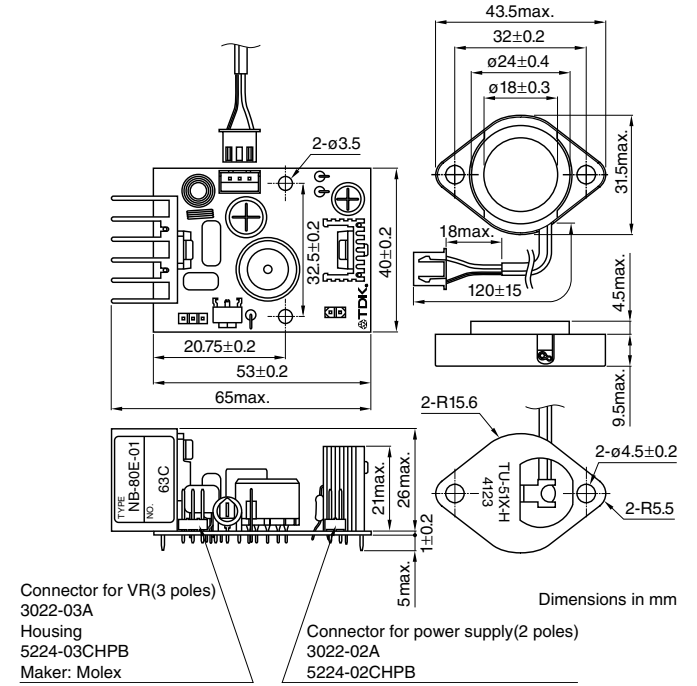


### NB-80E-01 TYPE

#### FEATURES

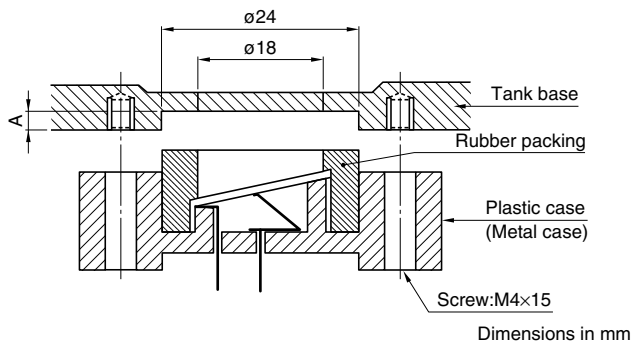
- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.
- Because the ultrasonic frequencies used are higher than with typical household-type units, mist particle size is extremely fine. This part is thus ideal for products intended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

#### SHAPES AND DIMENSIONS



## MOUNTINGS (Reference)

### 1.NB59S, NB-80E TYPES

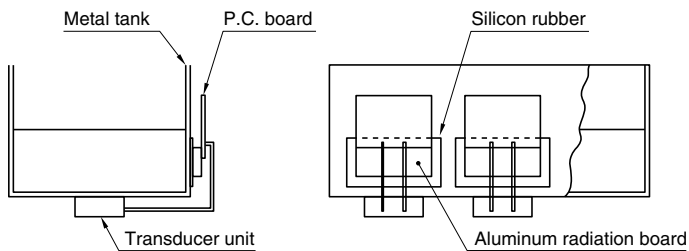


The transducer can break off if the A dimension depth is shallow. TDK recommends a 2mm A-dimension depth and a screw tightening torque of 0.6N•m.

### 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.