Piezoelectronic Products

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

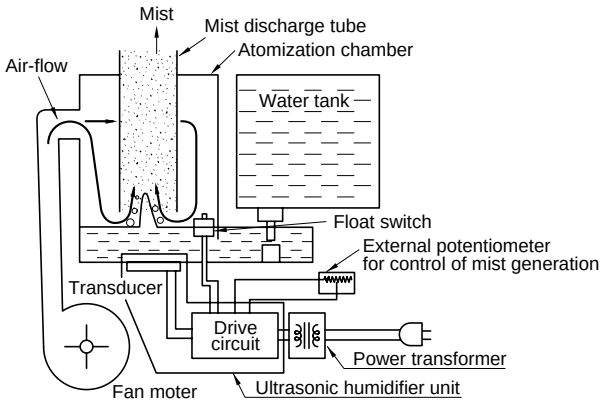
It addition to such home uses, these ultrasonic humidifier units have numerous advantages for humidification of vegetable showcases, preservation and growth of agricultural products, industrial applications, etc. A wide variety of standard units are available from TDK.

ELECTRICAL CHARACTERISTICS

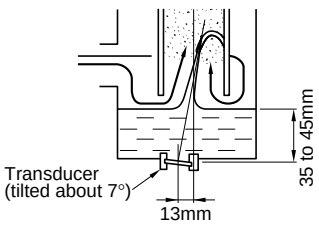
Part No.		NB-58S-01 UL recognized	NB-514S	NB-32B UL recognized	NB-80E-01	NB-59S-09S	NB-85D
Rated input voltage	Eac(V)	48	48	45		48	24
	Edc(V)				12		
Power consumption (W)		30±5	30±5	34±5	13.2max.	30±5	13±2
Mist output ratio (l/h)		(575±125)×10^{-3}	(575±125)×10^{-3}	520×10^{-3}min.	(150+100, –50)×10^{-3}	450×10^{-3}min.	(300±100)×10^{-3}
Ultrasonic frequency (kHz)		1600 to 1750	1600 to 1750	1600 to 1750	2350 to 2600	1600 to 1750	2350 to 2600
Normal water level (mm)		40	40	40	35	40	38
External potentiometer (kΩ)		5	5	5	10	—	—
Operating water temperature range (°C)		0 to 50	0 to 50	0 to 50	0 to 50	0 to 50	0 to 50
Water quality		Drinking water	Drinking water	Drinking water	Drinking water	Drinking water	Drinking water
Transducer element life (h)		10000	10000	10000	5000	10000	5000
Cooling method		Water cooled	Water cooled	Air cooled *	Air cooled	Water cooled	Water cooled
Parallel connected operation		Yes	Yes	Yes	Yes	Yes	Yes
Weight (g)		192	110	190	60	60	70
Main application		Home	Home		Medical use		Personal use

*Wind velocity of over 1(m/s)

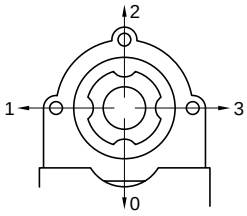
EXAMPLE OF ATOMIZATION CHAMBER CONSTRUCTION



TYPICAL TRANSDUCER INSTALLATION



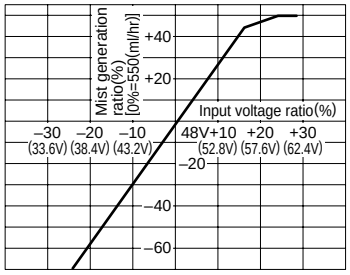
Various tilt directions of the transducer



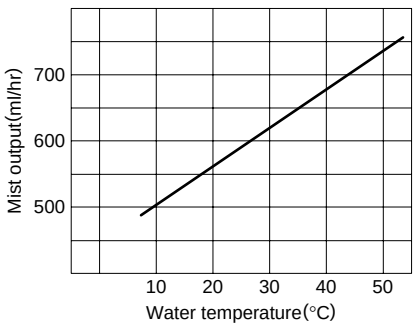
(H means horizontal)
The arrows indicate the directions of the various water jets.

TYPICAL CHARACTERISTICS OF HUMIDIFIER UNITS

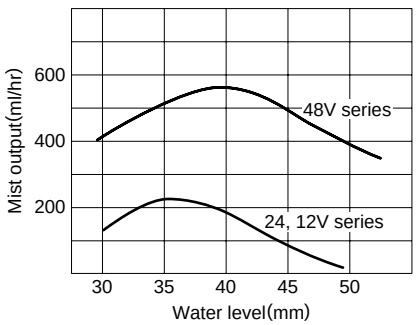
VOLTAGE CHARACTERISTICS(48V)



WATER TEMPERATURE CHARACTERISTICS(48V)



WATER LEVEL CHARACTERISTICS



⚠ Specifications which provide more details for the proper and safe use of the described product are available upon request.
All specifications are subject to change without notice.

Piezoelectronic Products

Ultrasonic Nebulizer Units
Incorporate Type

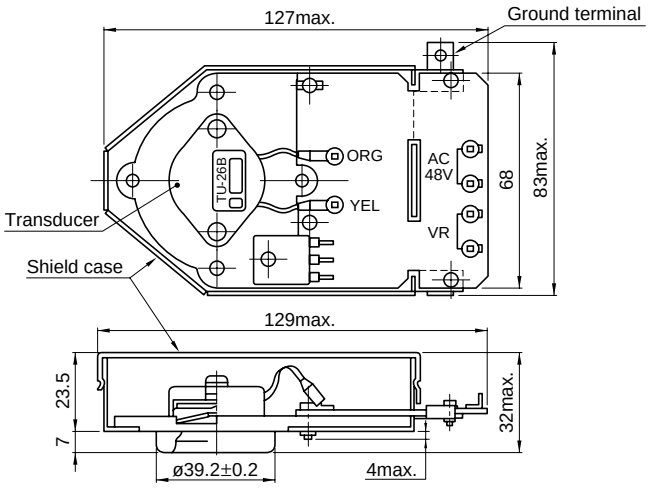
NB Series

NB-58S-01 TYPE[UL recognized]

FEATURES

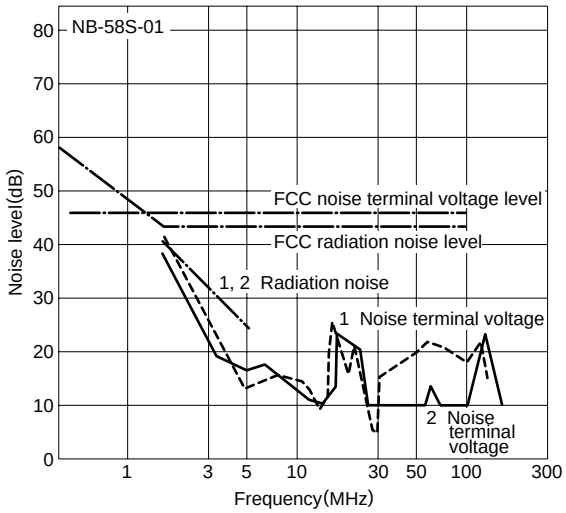
- Low noise terminal voltage, compact, highly reliable circuit.
- Includes ground terminal.

SHAPES AND DIMENSIONS

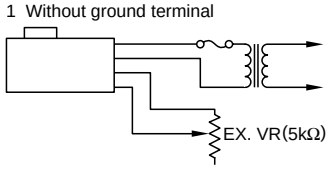


Dimensions in mm
Tolerance: ±1

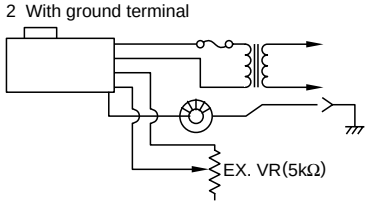
TYPICAL NOISE LEVEL vs. FREQUENCY CHARACTERISTICS



1 Without ground terminal



2 With ground terminal

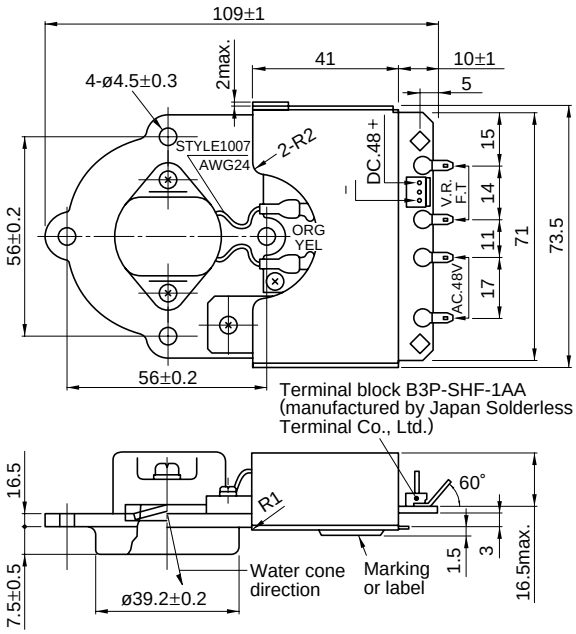


NB-514S TYPE

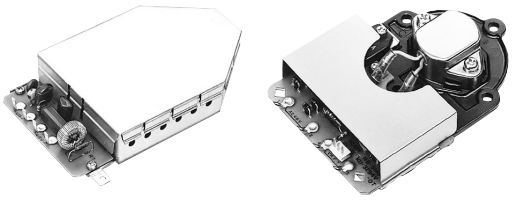
FEATURES

- Small size facilitates integration into various devices.
- Complies with noise regulations in the Radio Law.
- Reduces harmonic component noise.
- Parallel connection to one transformer is supported.
- Provides DC.48V output (maximum 30mA, smoothing filter not included).

SHAPES AND DIMENSIONS



Dimensions in mm



Piezoelectronic Products

NB Series

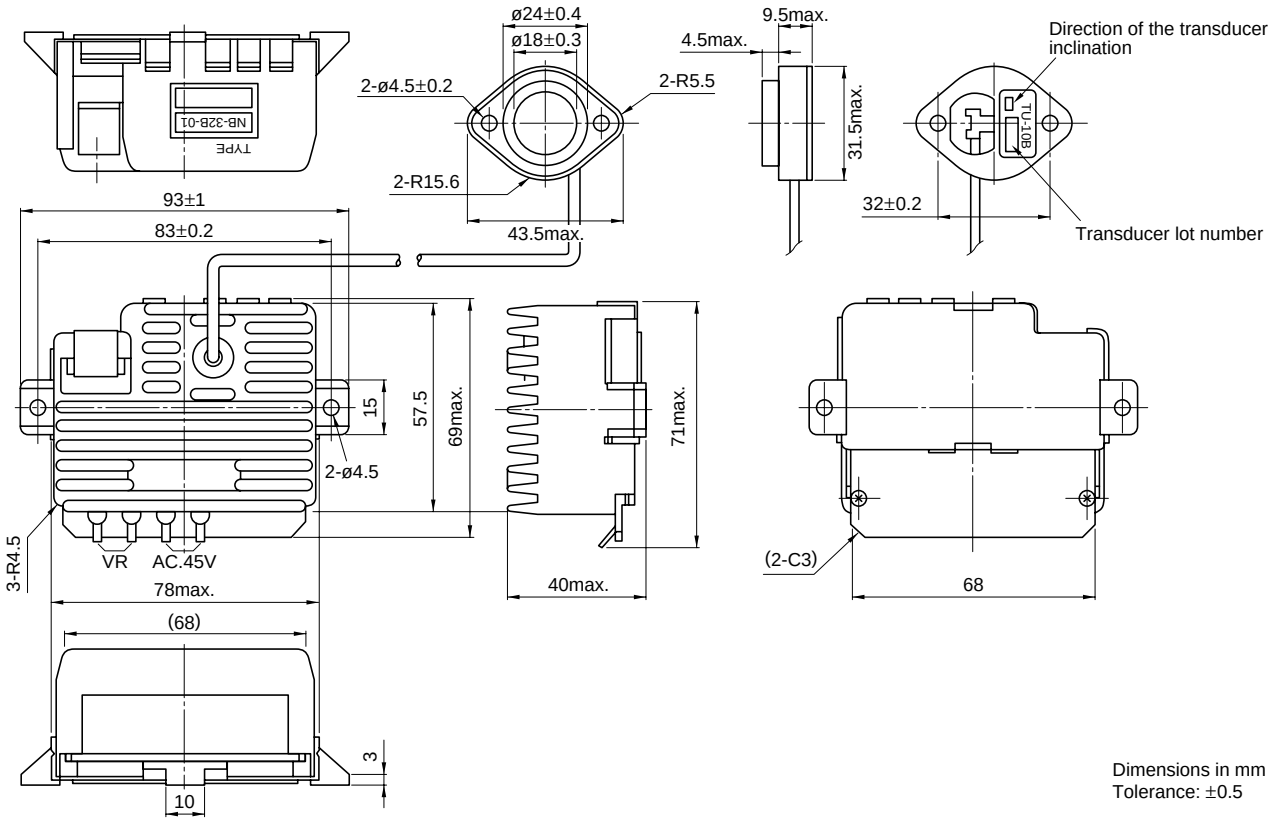
Ultrasonic Nebulizer Units
Incorporate Type

NB-32B TYPE [UL recognized]

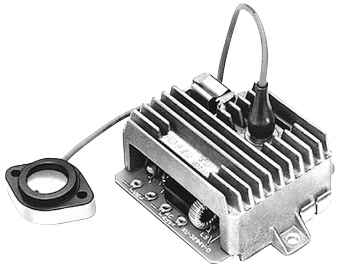
FEATURES

- Complies with FCC standards.
- Transducer and drive circuitry may be separated by a maximum distance of 2m.

SHAPES AND DIMENSIONS



Dimensions in mm
Tolerance: ±0.5



Piezoelectronic Products

Ultrasonic Nebulizer Units
Incorporate Type

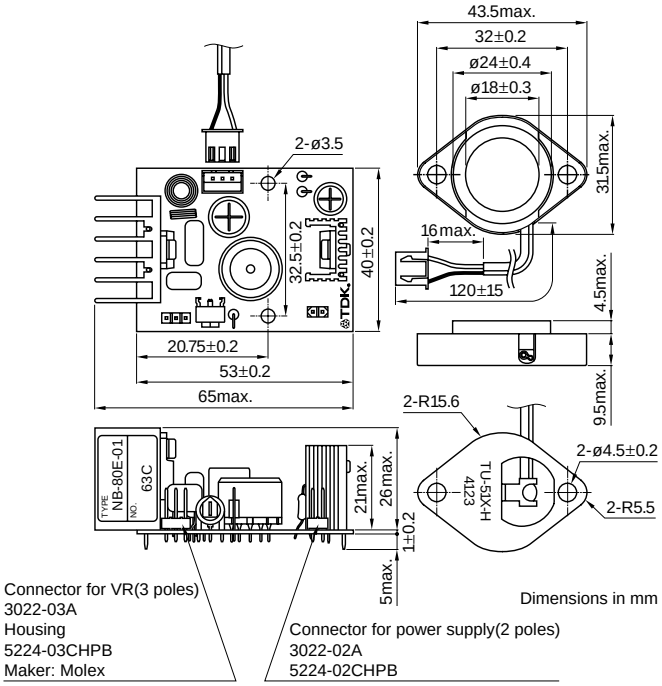
NB Series

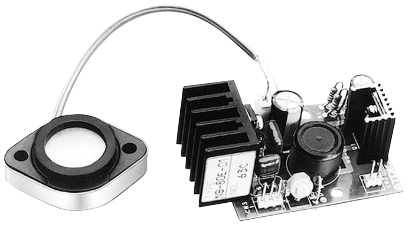
NB-80E-01 TYPE

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



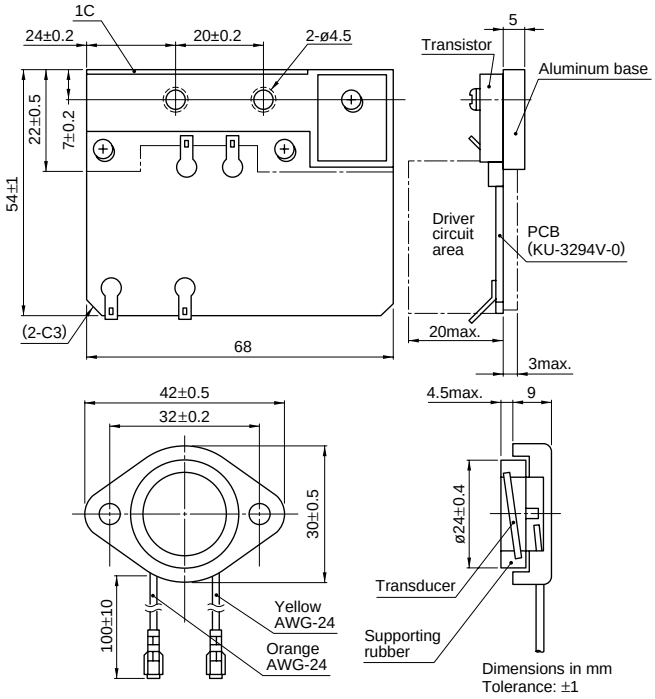


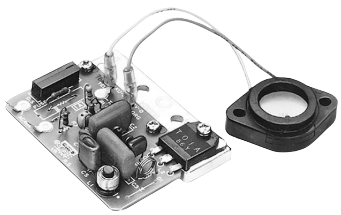
NB-59S-09S TYPE

FEATURES

- Compact, with highly reliable circuitry.
- Separate transducer and drive circuit sections provide superior layout versatility.
- This part is optionally available with a moisture-proof underside.

SHAPES AND DIMENSIONS





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Piezoelectronic Products

NB Series

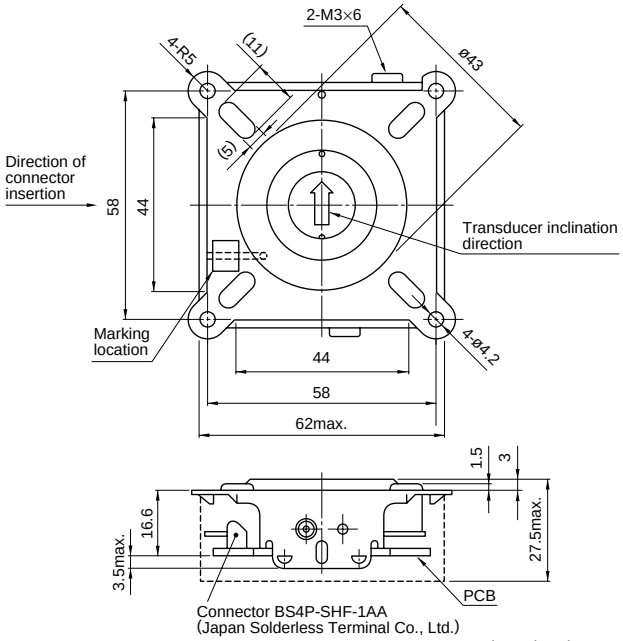
Ultrasonic Nebulizer Units
Incorporate Type

NB-85D TYPE

FEATURES

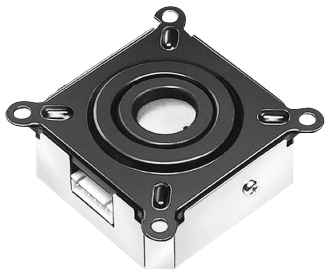
- Compact and lightweight–ideal for personal-sized humidifiers (intended for use in studies, bedrooms, etc.)
- Complies with noise regulations in the Radio Law.
- Very low power consumption enables the use of more compact power sources and, therefore, the design of smaller, more lightweight products.
- Vibrator inclination can be freely set because the transducer is centered within a square defined by the four screw holes in a symmetrical arrangement.
- An inclination of approximately 7 degrees ensures the most efficient atomization.

SHAPES AND DIMENSIONS



Connector: H4P-SHF-AA
Connector pin: SHF-001T-0.8SS or BS.AWG#26 to 22

Dimensions in mm
Tolerance: ±1



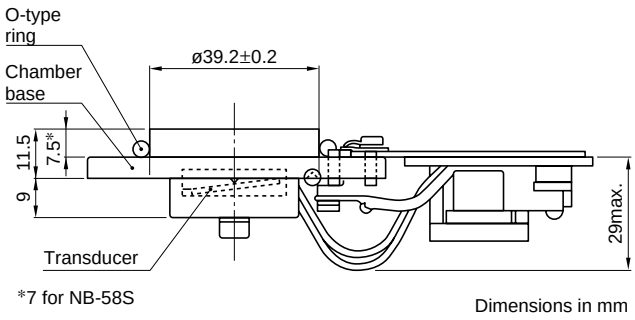
Piezoelectronic Products

Ultrasonic Nebulizer Units
Incorporate Type

NB Series

MOUNTINGS (Reference)

1.NB-58S, NB-514S TYPES



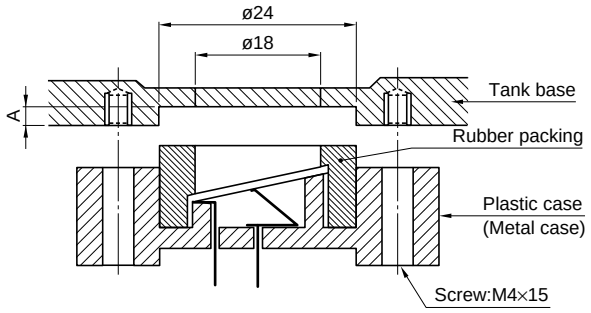
*7 for NB-58S

Dimensions in mm

- A 39.2mm diameter hole is formed in the bottom of the water chamber, which is connected using an O-type ring.
  Water level is determined relative to the center of the transducer.
  Screw holes are provided at four locations (refer to the technical materials) for mounting.

Note: A strong O-type ring should be used for long-term use.

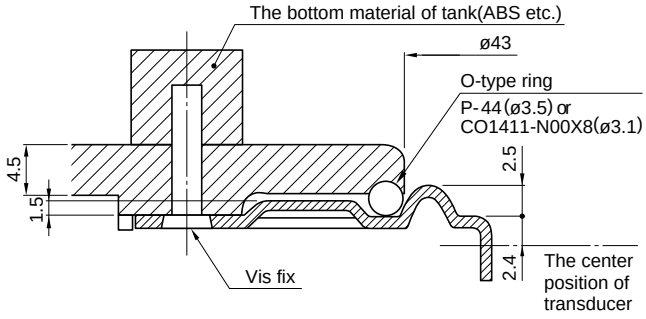
2.NB-32B, NB-80E, NB59 TYPES



Dimensions in mm

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

3.NB-85D TYPE

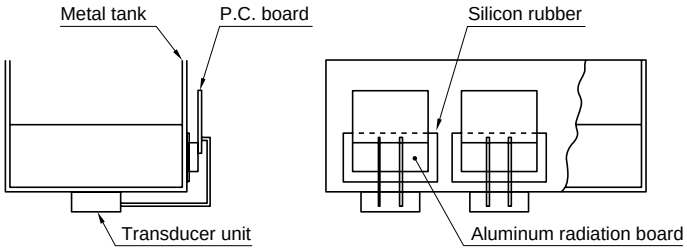


Dimensions in mm

Note: Diameter hole is formed in the bottom of the water chamber, which is connected using an O-type ring.

4.CONSTRUCTION OF NB59S

The drawing below shows an example method for transistor heat dissipation. The attached aluminum cooling fins should fixed using silicon rubber to a metallic water tank, etc. with sufficient head dissipation capacity.
(However, this document does not recommend metal construction for the water tank.)



Piezoelectronic Products

Ultrasonic Nebulizer Units
Incorporate Type

NB Series

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.
- The unit should not be used with a liquid that is excessively alkaline (pH>8) or acidic (pH<5) since damage can occur to the transducer.
- The transducer should not be operated when the unit is not charged with water or other liquid.
- The transducer should be cleaned if the equipment into which the unit is incorporated is not charged with water or other liquid for a long time period.
- Substances (such as calcium, sodium, magnesium, silicon, etc.) contained in the water or other fluid can become attached to the transducer. The transducer should be cleaned periodically to prevent decreased mist generation resulting from attachment of such substances.
- 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 mist dispersion of pathogenic bacteria or particles, even if the water or other liquid contains substances that impede mist formation. Moreover, TDK is not responsible for bacterial growth resulting from 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.

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微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件： 晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子元器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适 配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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