



STULZ ULTRASONIC[®] Humidifier Systems
Energy Saving Humidification for
Enhanced Indoor Air Quality



Diverse Applications

In all computer rooms, laboratories, clean rooms, hospitals and even office administration buildings, humidification systems are required to ensure that specified design criteria are maintained. In printing houses, lithographic printing processes, photographic laboratories and in the manufacture of electronic components an efficient humidification system, as part of the air conditioning system, is essential to prevent damage or wastage in the processes. In large bakeries, dairies and food products storage rooms, as well as in the leather and textile industries, changes in the moisture content can severely affect produc-

tion and product quality. The STULZ ULTRASONIC® humidifier system is designed to provide humidification in a wide range of applications.

• Principle of operation

A piezo-electronic transducer, immersed in a bed of water, converts a high frequency electronic signal into a high frequency mechanical oscillation. The water tries to follow the high frequency mechanical oscillation but cannot, due to its mass inertia, and a momentary vacuum and strong compression are produced in the water. During the negative oscillation of the transducer the momen-

tary vacuum causes the water to cavitate and boil into gas at low temperature and pressure. In positive oscillation of the transducer a high-pressure shock wave is produced that literally "punches" the newly formed gas pocket through the surface of the water. The STULZ ULTRASONIC® humidifier produces a very fine mist that is rapidly absorbed into the air stream.

STULZ ULTRASONIC®

The Humidifier System to Suit All Applications

The Advantages at a Glance

- **Maximum energy savings**
Compared to electrode boiler or infrared humidifiers, the STULZ ULTRASONIC® humidifier requires up to 93 % less electrical energy.
- **Excellent control features**
All types of control are possible from direct on/off to fully proportional.
- **Very fine mist**
The STULZ ULTRASONIC® humidification system produces a very fine mist of approximately 0.001 mm diameter that is quickly absorbed into the air stream.
- **Lower electrical wiring costs**
All Ultrasonic systems require single-phase power supplies, significantly reducing the electrical installation cost.
- **Long service life**
All main components of the STULZ ULTRASONIC® humidifier systems are made from high quality stainless steel or strong A.B.S. plastic.
- **Clean and hygienic humidification**
ULTRASONIC humidifiers must be operated with de-mineralised water usually delivered by reverse osmosis. Mineral deposits and other contamination are therefore prevented, significantly reducing maintenance costs. Together with the ultrasonic action and regular drain down cycles, this ensures clean and safe operation.
- **Immediate availability of the moisture**
The full humidifier capacity is immediately available in response to a humidification signal.
- **Reduced air conditioning requirements**
The STULZ ULTRASONIC® is an adiabatic humidifying process that reduces the air temperature during the humidification and reduces the air conditioning cooling load.
- **Rapid pay back**
STULZ ULTRASONIC® humidifier systems pay for themselves in a very short time.

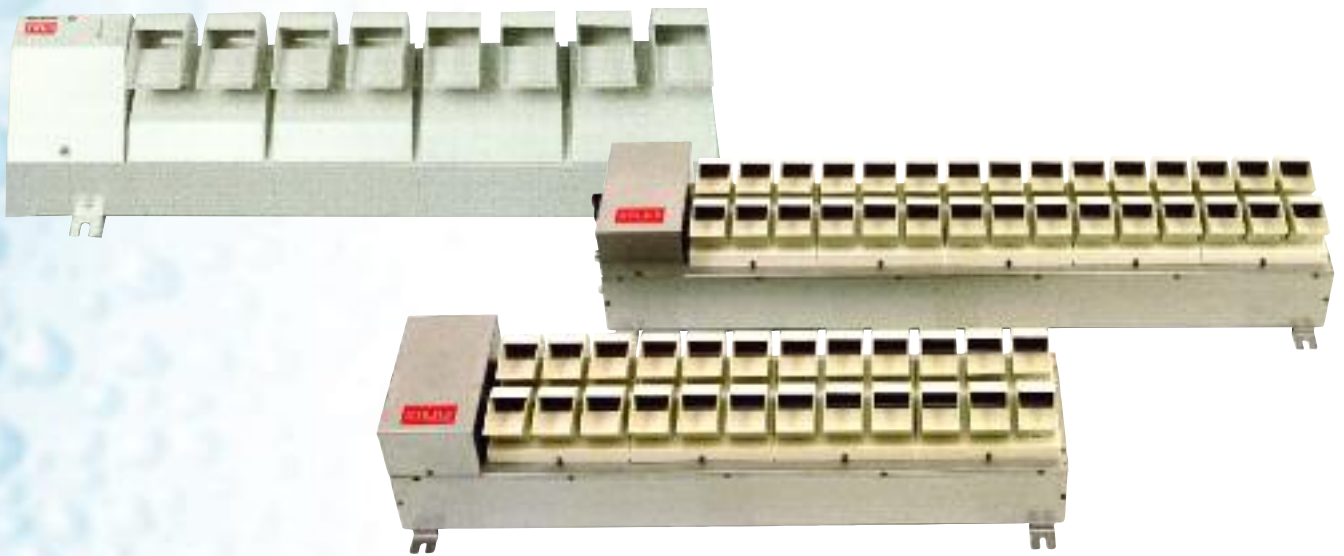


STULZ ULTRASONIC® Ductwork Humidification Systems ENS

The ULTRASONIC ENS range of models is for usage in ventilation and air conditioning systems. These can be installed, e.g., in ventilation ducts, air handling units and air conditioning units. The ENS 1200 -

9600 series is of modular design with the humidification capacities in steps from 1.2 kg/h to 9.6 kg/h. In addition, the ENS 14 and ENS 18 models are available as fully assembled units in a stainless steel chassis

with humidification capacities of 14 kg/h and 18 kg/h. The required moisture output is maintained precisely using proven controller components.



Model	Humidifier Capacity (l/h)	Number of Vibrators	Unit Dimensions H x W x T (mm)	Power Consumption (VA)	Dry Weight (kg)
ENS 1200 P	1,2	2	157 x 220 x 145	65	1,5
ENS 2400 P	2,4	4	157 x 340 x 145	125	2,2
ENS 3600 P	3,6	6	157 x 460 x 145	185	2,9
ENS 4800 P	4,8	8	157 x 580 x 145	240	3,6
ENS 6000 P	6,0	10	157 x 700 x 145	310	4,3
ENS 7200 P	7,2	12	157 x 820 x 145	375	5,1
ENS 8400 P	8,4	14	157 x 940 x 145	435	5,8
ENS 9600 P	9,6	16	157 x 1.060 x 145	495	6,5
ENS 14	14	24	175 x 785 x 230	750	11
ENS 18	18	30	175 x 950 x 230	960	13

STULZ ULTRASONIC® Multipurpose Humidifiers

The ULTRASONIC BNB 1000 to BNB 8000 series from STULZ is for direct humidification. The main components of this unit are made from stainless steel or high quality plastic. The integral fan distributes the mist produced in the water bath into the room. This unit is suitable for humidifying production rooms, computer rooms, storage facilities, printing houses, museums, restoration facilities, theatres and many other areas where air quality is crucial to production, storage or the well-being of personnel.



Model	Humidifier Capacity (l/h)	Number of Vibrators	Unit Dimensions H x W x T (mm)	Power Consumption (VA)	Air Flow Rate (m³/h)	Dry Weight (kg)
BNB 1000	1,0	2	255 x 254 x 200	100	72	7,1
BNB 2000	2,0	4	255 x 364 x 200	180	108	9,3
BNB 3000	3,0	6	255 x 474 x 200	250	144	11,2
BNB 4000	4,0	8	255 x 584 x 200	340	216	14,0
BNB 5000	5,0	10	255 x 694 x 200	430	252	16,1
BNB 8000	8,0	16	255 x 1.024 x 200	670	396	23,0

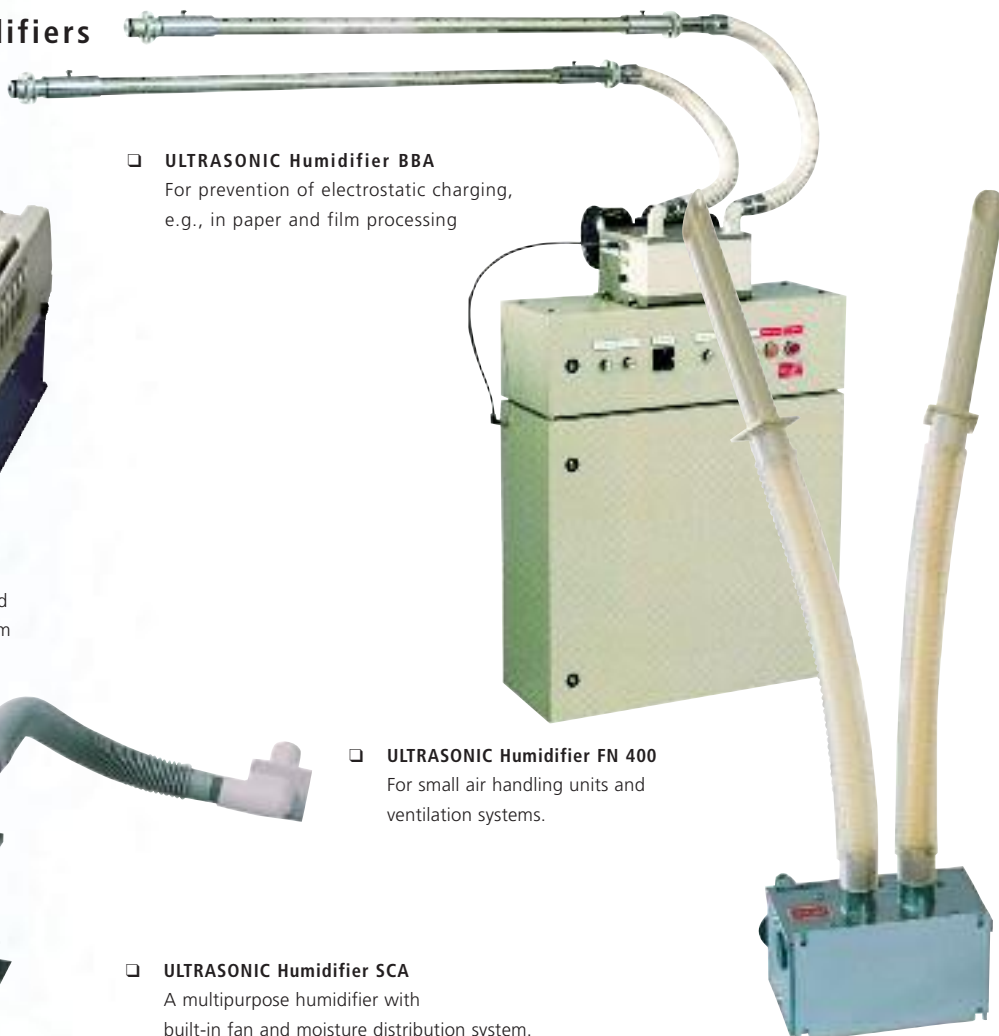
STULZ ULTRASONIC® Multipurpose Humidifiers with Distribution System



- **ULTRASONIC Humidifier KNB**
For greenhouses, vegetable/fruit and asparagus storage rooms, mushroom cultivation etc.



- **ULTRASONIC Humidifier SCA**
A multipurpose humidifier with built-in fan and moisture distribution system.



- **ULTRASONIC Humidifier BBA**
For prevention of electrostatic charging, e.g., in paper and film processing

- **ULTRASONIC Humidifier FN 400**
For small air handling units and ventilation systems.



Model	Humidifier Capacity (l/h)	Number of Vibrators	Unit Dimensions H x W x T (mm)	Power Consumption (VA)	Air Flow Rate (m³/h)	Dry Weight (kg)
KNB 2000	2,0	4	245 x 280 x 220	195	48	8,0
KNA 4000	4,0	8	240 x 460 x 260	330	96	10,0
BBA 1000 X*	0,2 - 1,0	2	1.004 x 690 x 233	160	240	84
BBA 2000 X*	0,2 - 2,0	4	1.004 x 690 x 233	220	240	84
SCA 1000	1,0	2	195 x 272 x 220	100	-	6
SCA 2000	2,0	4	195 x 272 x 220	160	-	7
SCA 1000 X*	0,2 - 1,0	2	195 x 272 x 220	100	-	6
SCA 2000 X*	0,2 - 2,0	4	195 x 272 x 220	160	-	7
SCA 2000 T**	2,0	4	195 x 272 x 220	160	-	8
FN 400 H	0,4	1	95 x 158 x 90	40	-	1,7
FVA 400	0,4	1	130 x 250 x 45	50	-	1,5

* with variable humidification performance

** with additional distribution pipes and 8 aerosol outlets

Ultrasonic Controller MUS/SUS

The STULZ ULTRASONIC® Controller offers a fully packaged control solution for up to 30 humidifiers in a Master/Slave arrangement. The sophisticated microprocessor controller is housed in the MUS master control panel, which integrates all system inputs, outputs, sensor and monitoring connections. SUS slave control panels then control all associated ultrasonic units. The MUS/SUS control system incorporates the following functions:

- Water quality measurement
- Proportional adapter
- Proportional controller
- Signal transformer
- Capacity limitation
- Drain down and flushing cycles
- BMS alarm reporting



Model	Unit Dimensions H x W x T (mm)	Transformer Power (VA)	Weight (kg)
MUS 500	400 x 260 x 220	500	6,2
MUS 1300	400 x 260 x 220	1.300	14
SUS 500	400 x 260 x 220	500	6,2
SUS 1300	400 x 260 x 220	1.300	14

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