

AIR SPECIALTIES  
**express**<sup>®</sup>

# Humidifier Products



Hospitals/Clinics



Laboratories



Printing Facilities



Museums



Computer Rooms



# Steam Humidifiers

ASX MICROPROCESSOR CONTROLLED STEAM HUMIDIFIERS use ordinary untreated tap water and convert it to mineral free steam for humidity control in commercial, industrial, institutional and residential applications.

## ECONOMICAL

- Disposable Cylinders Eliminate Periodic Maintenance For Reduced Maintenance Costs
- Fast and Easy Installation
- Reliable Electronic Components For Long Life

## EFFICIENT

- Circuit Board Utilizes Microprocessor To Maximize Energy Conservation
- Exclusive Circuit Board Design With Attached True Touchscreen Control Display

## VERSATILE

- Digital Output On A True Touchscreen Control Display Providing Status and Help Buttons For Operational Details and Troubleshooting
- Capacities Up To 200 Pounds Of Steam Per Hour Per Single Unit
- Utilize any On-Off Humidistat, ASX Proportional Humidistat or External Signal From DDC Controls



The simplicity and unique advantages of humidity from directly boiling water in disposable cylinders has been well known since ASX pioneered the concept in North America in 1969. Pan type humidifiers require messy, time consuming cleaning that may require the use of acids. Electric heating elements in pan type units may also require replacement. Easily changeable steam cylinders containing electrodes can be replaced in less than five minutes.

Cut-away used steam cylinder showing mineral deposits.



# Applications

## COMFORT

Temperature and relative humidity affect the comfort and well being of all living things. High temperatures require low humidity to maintain comfort conditions, while low temperatures can more easily be tolerated at high relative humidity. Humidification occurs when air is moisturized by a humidification unit or when hygroscopic materials (materials containing moisture) lose moisture to drier air. Proper humidification is widely accepted as healthy, minimizing employee illness and lost work time.

## MATERIALS STORAGE

Paper, fabrics, wood, plastic, chemicals and most other materials are hygroscopic. Their water content depends on the humidity of the air around them. If air is too dry, these substances lose moisture until an equilibrium is reached between hygroscopic materials and the air.

## PROCESS

Process operations, such as data processing areas, are affected by two major humidity factors: hygroscopic material and generation of static electricity.

Hygroscopic material used in the process influences material weights, dimensions and workability.

Static electricity can totally disrupt high speed process operations as found in a data processing center, paper or film handling business. Created by friction between two substances, static electricity can be prevented by proper humidification of the process environment.

## RECOMMENDED TEMPERATURE AND HUMIDITY RANGE

APPLICATION	TEMP F°	R.H. %
Computer Rooms	72±2	50±5
Office Buildings	70-74	20-30
Libraries & Museums	68-72	40-55
Archival Libraries & Museums	55-65	35
Art Storage	60-72	50±2
Stuffed Animals	40-50	50
Bowling Centers	70-74	20-30
Health Facilities		
Full Term Nursery	75	30min.-60max.
Special Care Nursery	75-80	30min.-60max.
Patient Rooms	75	30
Intensive Care	75-80	30min.-60max.
Operating Rooms	68-76	50min.-60max.
Recovery Rooms	75	50min.-60max.
Electrical Instrument Mfg.	70	50-55
Fur Storage	40-50	55-65
Photo Film Darkroom	70-72	45-55
Photo Print Darkroom	70-72	45-55
Photo Drying Room	90-100	35-45
Photo Finishing Room	72-75	40-55
Cellophane Wrapping	75-80	45-65
Animal Laboratories		
Mouse, Rat	64-79	40-70
Cat	65-85	30-70
Dog	65-85	30-70
Primate	65-84	30-70
Clean Rooms	67-77	40-55
Printing Plants		
Lithography	76-80	43-47±2
Rotogravure		45-50±2
Collotype	80±2	85±2
Platemaking	75-80±2	45±2
Telephone Terminal Rooms	72-78	30-40
Radio and TV Studios	74-78	30-40

± = plus or minus

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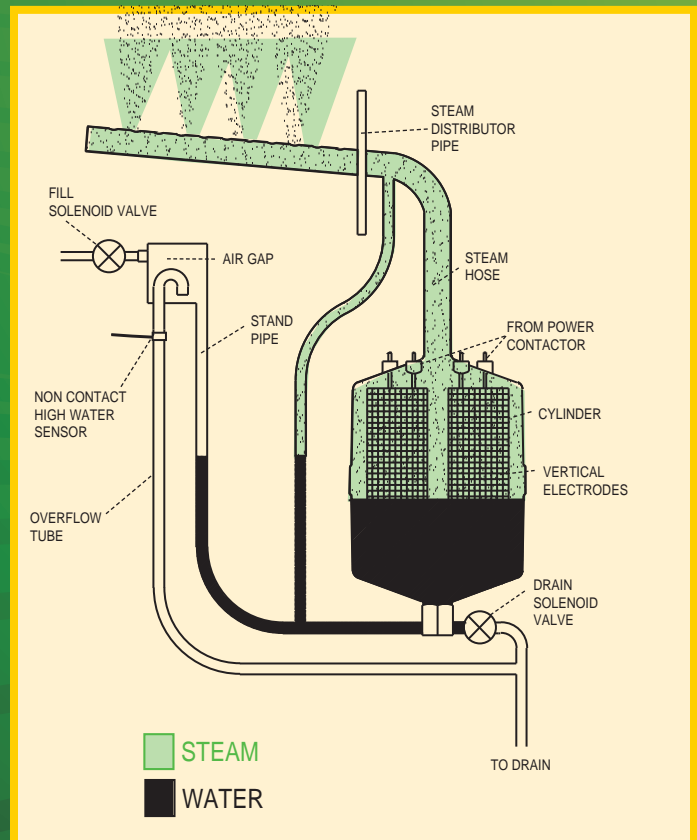
# Operation

Upon a signal from external controls the circuit board opens a fill solenoid valve, allowing water to flow across an air gap into a standpipe. The standpipe provides a column of water to be fed into the cylinder using gravity. The air gap prevents back flow into the water supply and prevents the cylinder from becoming a pressure vessel. The steam cylinder operates at a pressure of approximately 1/2 psi.

The circuit board also closes a power contactor allowing current to flow to vertical electrodes sealed inside the cylinder. Current flows between the electrodes using minerals in the water as a conductor. The water is heated to boiling and converted to steam which leaves the cylinder through the flexible steam hose which is connected to the steam distributor pipe.

The circuit board reacts to current flow between the electrodes and automatically opens the fill solenoid valve when more water is required to maintain the desired output rate, and closes when the desired rate is reached. The operation of the drain solenoid valve is automatically controlled by the circuit board which responds to any changes in water conditions and drains the required quantity of water to provide stable operation and long cylinder life.

As mineral deposits build up within the cylinder the water level will slowly rise to uncovered electrode surfaces to maintain the desired steam output rate. When mineral deposits have covered all available electrode surface areas, current flow will be reduced to a level where the desired steam output cannot be reached and the service light will signal the need for maintenance. When the cylinder is filled with minerals it is easily changed in less than five minutes.





# UNIT AVAILABILITY MODELS AVAILABLE AND ELECTRICAL DATA

	Model	Max Lb/Hr	Volt	Ph	kW	Line Amp	Disc. Size	Optional Cir. Breaker*	Steam Cylinder		Model	Max Lb/Hr	Volt	Ph	kW	Line Amp	Disc. Size	Optional Cir. Breaker*	Steam Cylinder	
HBAH HCAH HSAH HTAH	H_AHAU	5	120	1	1.725	14.4	25	1-20 Amp	AX220	HDBGH HCGH HSGH HTGH	H_GHCU	50	208	3	17.2	47.8	80	2-35 Amp	C62	
	H_AHBU	5	208	1	1.725	8.3	15	1-15 Amp	AX380		H_GHEU	50	230	3	17.2	43.2	70	1-60 Amp	C62	
	H_AHDU	5	230	1	1.725	7.5	15	1-20 Amp	AX380		H_GHTU	50	380	3	17.2	26.2	40	1-40 Amp	C65	
	H_AHFU	5	277	1	1.725	6.2	15	1-15 Amp	AX380		H_GHWU	50	415	3	17.2	24.0	40	1-40 Amp	C65	
	H_AHLU	5	380	1	1.725	4.5	15	1-15 Amp	AX600		H_GHGU	50	460	3	17.2	21.6	35	1-30 Amp	C65	
	H_AHQU	5	415	1	1.725	4.2	15	1-15 Amp	AX600		H_GHHU	50	575	3	17.2	17.3	30	1-25 Amp	C65	
	H_AHMU	5	460	1	1.725	3.7	15	1-15 Amp	AX700		H_GHCU*	60	208	3	20.7	57.4*	90	2-40 Amp*	C62	
	H_AHNU	5	575	1	1.725	3.0	15	1-15 Amp	AX700		H_GHEU*	60	230	3	20.7	51.9*	80	2-40 Amp*	C62	
	H_AHAU	10	120	1	3.45	28.7	45	1-40 Amp	AX220		H_GHTU	60	380	3	20.7	31.4	50	1-50 Amp	C65	
	H_AHBU	10	208	1	3.45	16.6	25	1-25 Amp	AX380		H_GHWU	60	415	3	20.7	28.8	45	1-45 Amp	C65	
	H_AHDU	10	230	1	3.45	15.0	25	1-25 Amp	AX380		H_GHGU	60	460	3	20.7	26.0	40	1-40 Amp	C65	
	H_AHFU	10	277	1	3.45	12.4	20	1-20 Amp	AX380		H_GHHU	60	575	3	20.7	20.8	35	1-30 Amp	C65	
	H_AHLU	10	380	1	3.45	9.1	15	1-15 Amp	AX600		H_GHCU*	80	208	3	27.5	76.5*	125	2-60 Amp*	C62	
	H_AHQU	10	415	1	3.45	8.3	15	1-15 Amp	AX600		H_GHEU*	80	230	3	27.5	69.2*	110	2-50 Amp*	C62	
	H_AHMU	10	460	1	3.45	7.5	15	1-15 Amp	AX700		H_GHTU	80	380	3	27.5	41.9	70	1-60 Amp	C12	
H_AHNU	10	575	1	3.45	6.0	15	1-15 Amp	AX700	H_GHWU	80	415	3	27.5	38.4	60	1-60 Amp	C12			
HBDH HCDH HSDH HTDH	H_DHBU	20	208	1	6.9	33.1	50	1-45 Amp	B500	H_GHGU	80	460	3	27.5	34.6	60	1-50 Amp	C12		
	H_DHDU	20	230	1	6.9	29.9	45	1-40 Amp	B500	H_GHHU	80	575	3	27.5	27.7	45	1-40 Amp	C12		
	H_DHFU	20	277	1	6.9	24.9	40	1-35 Amp	B500	H_GHCU*	100	208	3	34.4	95.6*	150	2-60 Amp*	C62		
	H_DHLU	20	380	1	6.9	18.1	30	1-30 Amp	B600	H_GHEU*	100	230	3	34.4	86.4*	150	2-60 Amp*	C62		
	H_DHQU	20	415	1	6.9	16.6	25	1-25 Amp	B600	H_GHTU*	100	380	3	34.4	52.3*	110	2-50 Amp*	C12		
	H_DHMU	20	460	1	6.9	15.0	25	1-25 Amp	B700	H_GHWU	100	415	3	34.4	47.9	80	2-40 Amp	C12		
	H_DHNU	20	575	1	6.9	12.0	20	1-15 Amp	B700	H_GHGU	100	460	3	34.4	43.3	70	1-60 Amp	C12		
	H_DHCU	20	208	3	6.9	19.1	30	1-25 Amp	B500	H_GHHU	100	575	3	34.4	34.6	60	1-50 Amp	C12		
	H_DHEU	20	230	3	6.9	17.3	30	1-25 Amp	B500	H_HHCU*	125	208	3	43	119.5*	200	4-40 Amp*	C62 (2)		
	H_DHTU	20	380	3	6.9	10.4	20	1-20 Amp	B600	H_HHEU*	125	230	3	43	108*	175	4-40 Amp*	C62 (2)		
	H_DHWU	20	415	3	6.9	9.6	20	1-20 Amp	B600	H_HHTU*	125	380	3	43	65.3*	100	2-50 Amp*	C12 (2)		
	H_DHGU	20	460	3	6.9	8.6	15	1-15 Amp	B700	H_HHWU*	125	415	3	43	59.8*	90	2-45 Amp*	C12 (2)		
	H_DHHU	20	575	3	6.9	6.9	15	1-15 Amp	B700	H_HHGU*	125	460	3	43	54.0*	90	2-40 Amp*	C12 (2)		
	H_DHCU	30	208	3	10.3	28.7	45	1-40 Amp	B500	H_HHHU	125	575	3	43	43.2	70	2-30 Amp	C12 (2)		
	H_DHEU	30	230	3	10.3	25.9	40	1-35 Amp	B500	H_HHCU*	150	208	3	51.7	143.5*	225	4-50 Amp*	C62 (2)		
H_DHTU	30	380	3	10.3	15.6	25	1-25 Amp	B600	H_HHEU*	150	230	3	51.7	129.7*	200	4-50 Amp*	C62 (2)			
H_DHWU	30	415	3	10.3	14.4	25	1-25 Amp	B600	H_HHTU*	150	380	3	51.7	78.6*	125	2-60 Amp*	C12 (2)			
H_DHGU	30	460	3	10.3	13.0	20	1-20 Amp	B700	H_HHWU*	150	415	3	51.7	71.9*	110	2-60 Amp*	C12 (2)			
H_DHHU	30	575	3	10.3	10.4	20	1-15 Amp	B700	H_HHGU*	150	460	3	51.7	64.8*	100	2-50 Amp*	C12 (2)			
HDBGH HCGH HSGH HTGH	H_GHBU*	30	208	1	10.3	49.7*	80	2-35 Amp*	C62	HBBH HCHH HSHH HTHH	H_HHCU*	175	208	3	60.3	167.3*	300	4-60 Amp*	C62 (2)	
	H_GHDU	30	230	1	10.3	44.9	70	1-60 Amp	C62		H_HHEU*	175	230	3	60.3	151.3*	250	4-60 Amp*	C62 (2)	
	H_GHFU	30	277	1	10.3	37.3	60	1-50 Amp	C62		H_HHTU*	175	380	3	60.3	91.6*	150	4-35 Amp*	C12 (2)	
	H_GHLU	30	380	1	10.3	27.2	45	1-40 Amp	C65		H_HHWU*	175	415	3	60.3	83.9*	150	2-60 Amp*	C12 (2)	
	H_GHQU	30	415	1	10.3	24.9	40	1-40 Amp	C65		H_HHGU*	175	460	3	60.3	75.6*	125	2-60 Amp*	C12 (2)	
	H_GHMU	30	460	1	10.3	22.5	35	1-30 Amp	C65		H_HHHU*	175	575	3	60.3	60.5*	100	2-50 Amp*	C12 (2)	
	H_GHNU	30	575	1	10.3	17.9	30	1-25 Amp	C65		H_HHCU*	200	208	3	68.9	191.2*	300	4-60 Amp*	C62 (2)	
	H_GHCU	40	208	3	13.8	38.3	60	1-60 Amp	C62		H_HHEU*	200	230	3	68.9	172.9*	300	4-60 Amp*	C62 (2)	
	H_GHEU	40	230	3	13.8	34.6	60	1-50 Amp	C62		H_HHTU*	200	380	3	68.9	104.7*	175	4-40 Amp*	C12 (2)	
	H_GHTU	40	380	3	13.8	20.9	35	1-35 Amp	C65		H_HHWU*	200	415	3	68.9	95.9*	150	4-35 Amp*	C12 (2)	
	H_GHWU	40	415	3	13.8	19.2	30	1-30 Amp	C65		H_HHGU*	200	460	3	68.9	86.4*	150	2-60 Amp*	C12 (2)	
	H_GHGU	40	460	3	13.8	17.3	30	1-25 Amp	C65		H_HHHU*	200	575	3	68.9	69.2*	110	2-50 Amp*	C12 (2)	
	H_GHHU	40	575	3	13.8	13.8	25	1-20 Amp	C65											

\* = Circuit Breaker is REQUIRED per NEC 48 amp guidelines.

# True Touchscreen Control Display



## FRONT PANEL DISPLAYS & CONTROLS

The display on the front panel of the humidifier cabinet contains the “On-Off-Drain” switch, the LCD True Touchscreen display and the “Fill”, “Drain” and “High Water” LED’s.

### “ON-OFF-DRAIN” SWITCH

In the “On” position the humidifier will operate if all controls are calling for humidity. The “Off” position is used for seasonal shut down if desired. The “Drain” position is used to drain water from the steam cylinder for maintenance. The fill solenoid valve will be on whenever the drain is activated to reduce the drain water temperature.

## LCD TRUE TOUCHSCREEN DISPLAY

This LCD True Touchscreen display offers the necessary interface to control and monitor many aspects of the humidifier. On the home screen is the current steam output in Lbs./Hr. (or Kg/Hr). To select either is available in the settings menu. A “Service Required” indicator and button outlining current service issues, indicators for the four basic controls necessary for operation (control humidistat, high limit humidistat, air flow switch and door interlock), and various buttons which navigate to other menu pages when pressed are also available on the home page screen. The menu pages and their capabilities are detailed further in “True Touchscreen Menu Pages” section of this document.

### “FILL” LED

The FILL LED is a blue light illuminated when the Fill Valve is activated. An activated Fill Valve allows water to flow into the cylinder of the humidifier. An analogous indicator, and a description of its operation, is offered in the “Component Activity” menu.

### “DRAIN” LED

The DRAIN LED is a red light illuminated when the Drain Valve is activated. An activated Drain Valve allows water to drain from the humidifier. An analogous indicator, and a description of its operation, is offered in the “Component Activity” menu.

### “HIGH WATER” LED

The HIGH WATER LED is an orange light illuminated when the High Water Sensor is activated. An activated High Water Sensor indicates that the water has risen to the maximum allowable level in the cylinder. This can be a normal situation, particularly if the cylinder is being filled with mostly unconditioned water. An activated High Water Sensor can also be a sign that the cylinder is close to end-of-life and needs replacing, or, in rarer cases, the cylinder is not conductive enough for the fresh water entering the humidifier. An analogous indicator, and a description of its operation, is offered in the “Component Activity” menu. More information on troubleshooting High Water situations can also be found through the “Help” menu on the home screen.

## HUMIDIFIER TRUE TOUCHSCREEN MENU PAGES

The humidifier True Touchscreen user interface uses color conventions to help the user navigate the controls. The colors of different buttons indicate the following.

- Gray** — Dim LCD is the only gray button. More information is available in the “home” page description.
- Orange** — Orange buttons represent the object or subject described across the button. Most orange buttons have an indicator next to them, which can change in color, e.g. green, yellow or gray. Pressing orange buttons will bring you to a page which describes the object or subject in question.
- Yellow** — Yellow buttons navigate a user to a new page dedicated to a set of functions. For example, the “Humidistat

Demand” button brings the user to a page that shows what percentage demands both the Control and High Limit Humidistats are currently requesting, and details their functions. The bottom of each page, other than the home screen, has a square “Back” or “Home” button dedicated to directing the user back to their previous page.

**Enter Password** 4. **White** — White buttons are used for confirming or entering data into the touchscreen. For example, they are used to confirm a change to the “Max Output” parameter, or entering a password to access the “Settings” menu.

**How do I route my steam hose?** 5. **Maize** — Help buttons are used exclusively in the “Help” page. These help buttons answer frequently asked questions about the operation, maintenance and troubleshooting of the humidifier. It is also a convenient place to look at humidifier electrical data when an IOM is not available.

## “HOME” PAGE



The home page is the main screen through which most other pages can be accessed. The large blue square to the left shows the steam output. The orange and yellow buttons on the home page are considered “Operational & Status” indicators. Touching any of these displays will show dialog explaining the subject or status of that button. The orange buttons also have indicator boxes to the left showing actual status. Green shows ready to operate.

- Dim LCD** (gray) - As a power saving feature, pressing the Dim LCD button will shut the backlight of the LCD off. Once off, pressing anywhere on the True Touchscreen will turn the backlight on. The humidifier can also automatically turn off the backlight after 15 minutes. See the “Settings” page for more information on enabling/disabling the Auto-Dim feature.
- Humidistat Demand** (yellow) - Brings the user to a page that shows what percentage demands both the Control and High Limit Humidistats are currently requesting, and further details their functions.
- Component Activity** (yellow) - Button lists the internal components used in the humidifier. Their respective indicators showing whether the components are activated or not. From this page, the user can view more information on the components and their functions.
- Setpoints** (yellow) - The three setpoints of the unit are listed on this page. The setpoint is the target Lb./Hr. output of the humidifier.
- Settings** (yellow) - Any settings of the humidifier, e.g. Max Output, Timers or Fan Speed, can be accessed through this page. This page is password protected. For more information, refer to the “Settings” page section.
- Help** (yellow) - Frequently asked questions about the humidifier can be answered through the Help page. It is a convenient resource to resolve many issues quickly and effectively.
- Service Required** (orange) - Invokes a page that describes what service is needed by the humidifier, if any. Indicator light to the left of the button turns red when service is needed, and will otherwise remain green. Refer to the separate “Service Required” page for more information.
- Steam** (orange) - Explains the status of the “Steam” indicator light. The humidifier will only produce steam if the “Steam” indicator light is green. The indicator will be brown when the On/Off/Drain switch is in the “Off” position. It will turn yellow if the switch is in the “On” position, but one or more of the four basic controls are not satisfied (Control Humidistat, High Limit, Air Flow, Door Interlock). The light will turn green if all of the above switches and controls are satisfied.
- Control Humidistat** (orange) - Explains the status of the Control Humidistat indicator light, and also shows the current demand of the Control Humidistat.
- High Limit Humidistat** (orange) - Explains the status of the High Limit Humidistat indicator light, and also shows the current demand of the High Limit Humidistat.
- Air Flow** (orange) - Explains the status of the Air Flow switch.
- Door Interlock** (orange) - Explains the status of the Door Interlock switch.



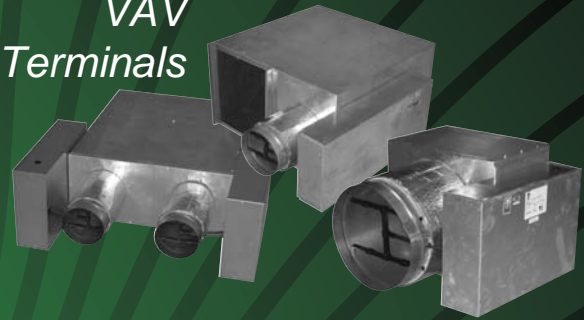
# Your Path to Quality HVAC Solutions

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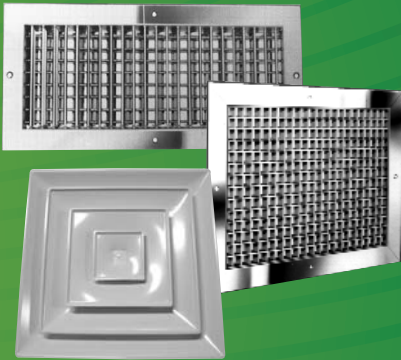
*Vents & Fans*



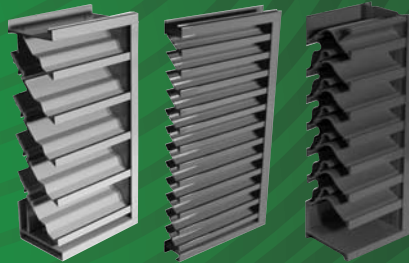
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Recovery*



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*Humidifiers*



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