

# Aprilaire Steam Humidifiers— Features and Benefits.

**Water Level Control Probe—**  
*Maintains the proper amount of water in the steam chamber.*

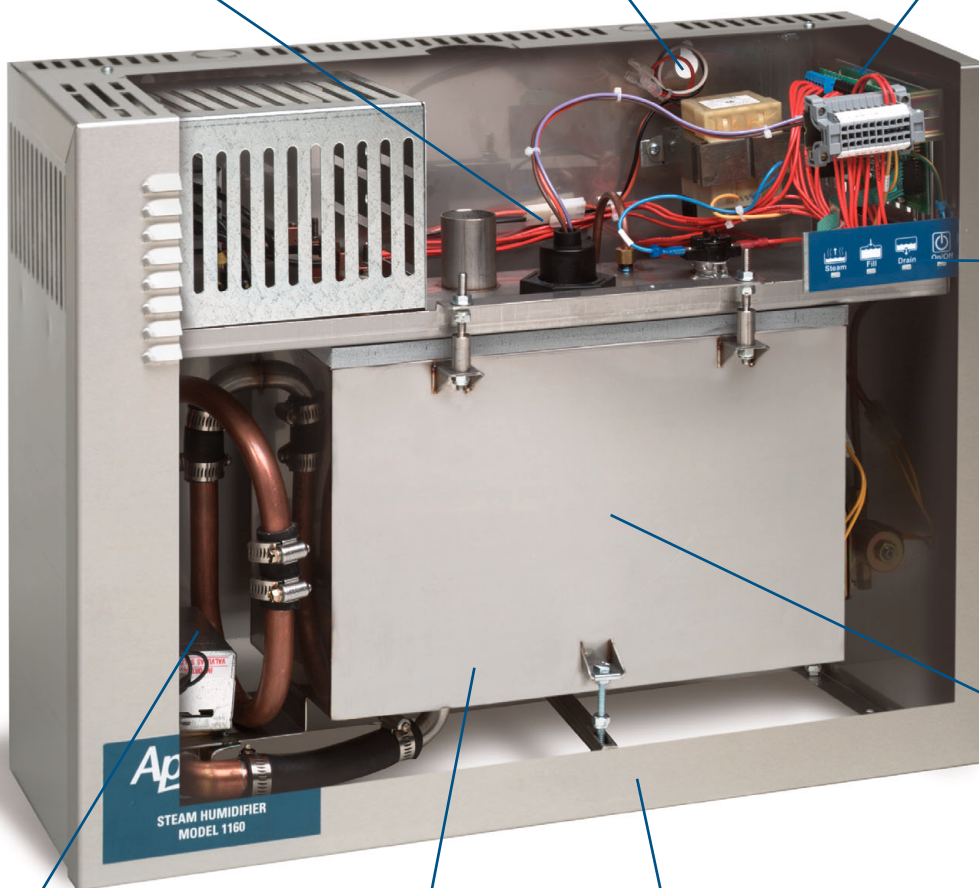
**Wall Mounting Keyholes Located  
On 16 Inch Centers—**  
*Save time and permit installation  
on any type of wall.*

**Internal Control Board—**  
*Controls all functions of the  
humidifier including:*

- Receiving and responding to control signals from the automatic controller
- Fill valve operation
- Steam chamber water level
- Heater operation
- Drain operation
- Providing diagnostics



**Display Panel—**  
*LEDs illuminate to  
show system status  
and diagnostics for  
troubleshooting.*



**Aprilaire**  
STEAM HUMIDIFIER  
MODEL 1160

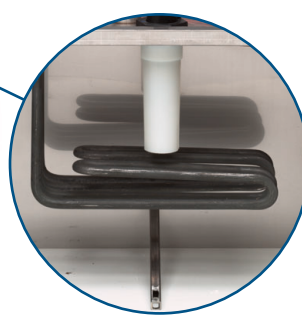
**Built-In P Trap—**  
*Prevents drain water  
from backing up into  
the unit while saving  
time and money on every  
installation.*

**304 Stainless Steel  
Construction—**  
*Ensures housing and other  
components exposed to water  
provide years of service.*

**Immersion Heater(s)—**  
*Designed for long life and  
capable of shedding mineral  
build-up, minimizing service  
calls.*

**Removable Steam Chamber—**  
*Quick release retention method  
enables easy chamber access  
and removal from the bottom  
of the unit.*

**Flexible Operation—**  
*Automatic control provides the proper  
amount of humidity—regardless of  
outdoor temperature—or in manual  
mode, allows the user to control to  
a specific set point.*



## Aprilaire Models 1150 and 1160 Steam Humidifier Operation

Upon a call for humidity from the automatic control, the water level control probe will check the water level within the steam chamber with a series of three probes. The fill valve will open and the steam chamber will begin to fill. When water reaches the top probe, the water valve will close. Once the steam chamber is full the heating elements will energize, causing the chamber water to heat and come to a boil. This boiling water will create the steam that will be delivered into the duct system through the vapor hose and steam distribution tube. As the water is boiled the water level in the steam chamber will drop, causing the water level control to allow the fill valve to open and introduce new make-up water.

Over time, the process of boiling the water in the steam chamber will cause the minerals and impurities in the water to drop out which can create build-up within the steam chamber, depending on the hardness and quality of the water. Therefore, the unit will periodically drain the steam chamber, simultaneously opening the fill drain to create a "drain and flush" cycle. This will help clean the steam chamber and reduce the amount of cleaning that is required during maintenance.

The humidifiers are controlled through a return duct mounted automatic humidity control that will sense the RH in the return air. If the actual building humidity level is below the set point, the control will send the humidifier a signal to begin heating up and producing humidity. Once this happens, the included air flow proving switch will check to ensure that the HVAC system blower is operating. If the blower is operating, the humidifier will continue to produce steam. If the blower is not operating, the humidifier will send the HVAC system a signal to turn the blower on and provide the airflow required to distribute humidity into the building.

### Operational Specifications:

- **Internal Control Board**—Manages the complete operation of the humidifier including fill cycles, heater operation, control signal and drain cycles.
- **User Interface/Display Panel**—Provides power switch for on/off operation, illuminates LEDs to show fill, drain, and steam production operations, and provides codes for service diagnostics.
- **Water Level Control Probe**—Manages the water level in the steam chamber by monitoring the water level and signaling the internal controller to fill or drain the chamber. Includes a safety shut down system to prevent the steam chamber from overflowing.
- **Immersion Heaters**—Produce steam through the use of resistive element immersion heaters located in a stainless steel steam chamber.
- **Contactors**—Controls heaters in modulating units and is rated for increased cycles associated with modulating control.
- **Power Relay**—Controls heaters in on/off units to reduce the unit noise level.
- **Operating Time Monitor**—Accumulates actual humidifier run time to activate the automatic drain and flush cycle, end-of-season drain function and the steam chamber cool down period.
- **Enable the HVAC equipment fan**—Allows the humidifier to produce steam when there is a call/need for humidification and the HVAC system is idle by turning the blower on.
- **Rapid Start-Up Function**—Turns the humidifier on at 100% output upon a call for humidity to bring the steam chamber to the proper temperature to produce steam. The humidifier will then shut off and restart based on the corresponding humidistat control signal.
- **Automatic Drain and Flush Cycle**—Drains the steam chamber periodically and flushes it with clean water to prevent mineral deposit build-up in the steam chamber.
- **End-of-Season Drain**—Drains the steam chamber of water after a 72-hour period in which no calls for humidity take place.
- **Cool Down Period**—Tempers the water before draining the steam chamber to prevent water hotter than 140°F from being introduced into the building drain.
- **Signal By Others**—Accepts an on/off signal, or 1-10 VDC or 4-20mA modulating signal for unit control.

# Aprilaire Steam Humidifiers— *Operation.*

## On/Off vs. Modulating Control

The Aprilaire **Model 1150** is a 12 lb/hr Steam Humidifier featuring an **on/off control** which will send a 10 VDC signal to turn the unit completely on at 100% output.

The Aprilaire **Model 1160** is a 24 lb/hr Steam Humidifier featuring a **modulating**, time proportioning control which will send a signal within the range of 0-10 VDC (with 0 being off, and 10 being 100% on). This works by measuring how far the actual building RH is away from set point and sending the appropriate signal to the humidifier. This modulation is referred to as either time based or time proportional. This means that the heaters will come on at 100% and then be cycled on and off to achieve the desired humidifier output.

## Automatic Steam Humidifier Control Operation

The Automatic Steam Humidifier Control is return duct mounted and features two different modes or settings—automatic and manual.

In automatic mode, an outdoor temperature sensor is included, which provides RH set point compensation/adjustment based on actual outdoor temperature. When the weather is colder outside, one simply cannot introduce large amounts of humidity into the building and control condensation and other potential moisture problems. This control recognizes outdoor temperature and adjusts the set point in the building to a lower level. It will still provide humidity to the building, but will not attempt to maintain higher than acceptable levels. Automatic mode is typically used in comfort based applications.

In manual mode, the control is set to control the space to a specific set point, regardless of outdoor conditions. This mode is typically used in process-based applications.

In addition, an air flow proving switch is provided to ensure the proper airflow before allowing the humidifier to produce steam.

## Absorption Distance

Absorption distance is the amount of duct run after the steam distribution tube necessary for steam vapor to be completely absorbed into the air stream, preventing condensation from forming in the ductwork. Absorption distance is typically expressed in inches.

Aprilaire recommends a minimum of 36 in. of a straight duct run that is free of all branch take-offs, dampers, elbows, turning vanes or any other object.

To ensure your specific absorption requirements are met, please refer to the Steam Humidifier Absorption Distance Calculation Worksheet found in the owner's manual or at [www.aprilairecontractor.com](http://www.aprilairecontractor.com).

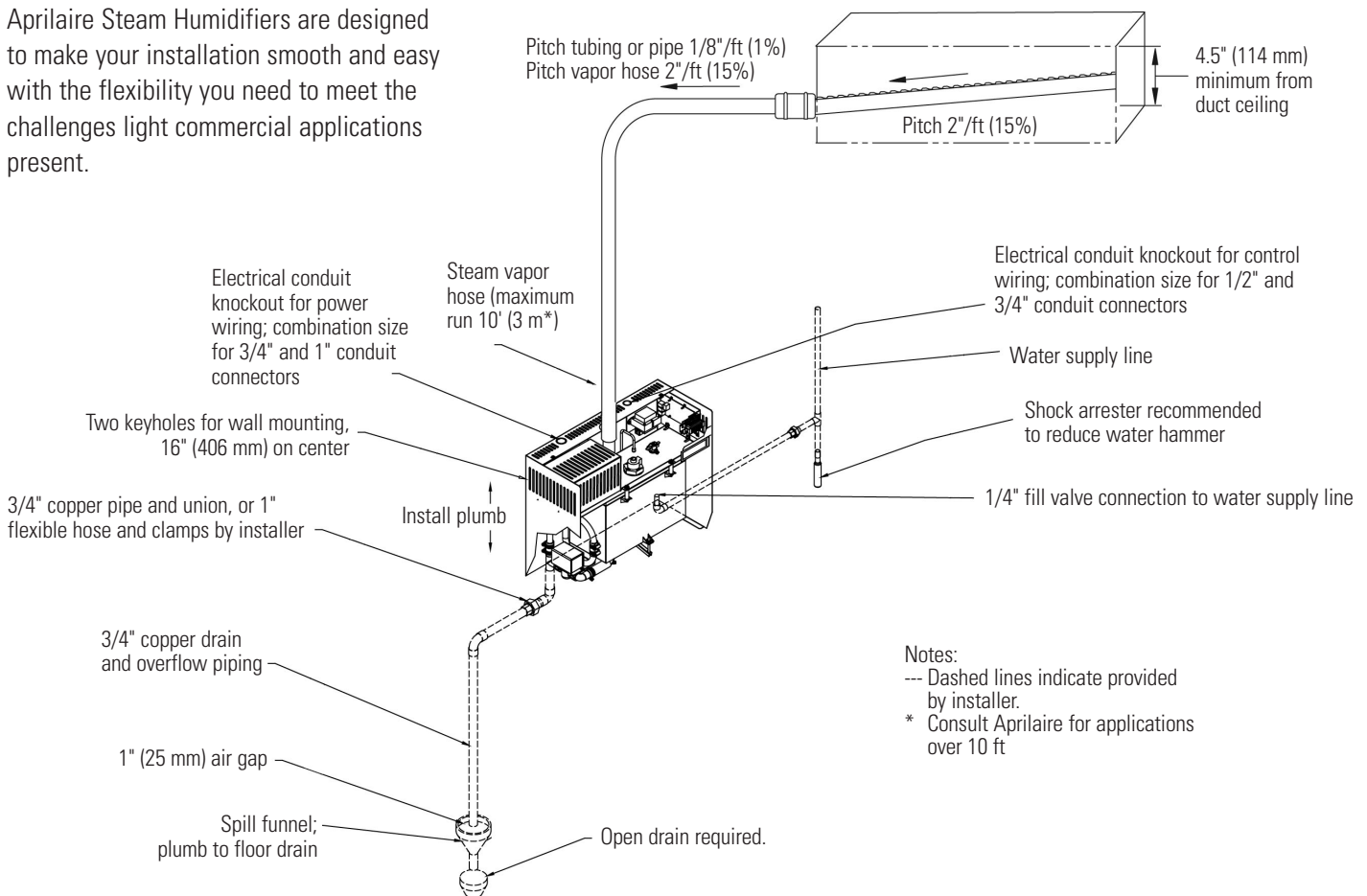
## Recommended Temperature and Humidity Ranges for Various Applications

Application	Temperature	Relative Humidity
Computer Rooms	72°F (± 2°F)	50% (± 5%)
Office Buildings	70°F - 74°F	20% - 30%
Libraries and Museums	68°F - 72°F	40% - 55%
Bowling Centers	70°F - 74°F	20% - 30%
Photo Darkrooms	70°F - 72°F	45% - 55%
Printing Plants	76°F - 80°F	43% - 47% (± 2%)
Telephone Terminal Rooms	72°F - 78°F	30% - 40%
Radio and TV Studios	72°F - 78°F	30% - 40%

Source: ASHRAE

## Easy to install. Easy to maintain.

Aprilaire Steam Humidifiers are designed to make your installation smooth and easy with the flexibility you need to meet the challenges light commercial applications present.



## An Aprilaire Steam Humidification System, not just a humidifier.

The Aprilaire Steam Humidifier is more than just a humidifier—it's a complete steam humidification system in a box—including everything you need to complete your job. Each Aprilaire Steam Humidifier includes:

- Steam Humidifier
- Automatic Steam Humidifier Control
- Air Flow Proving Switch
- Steam Distribution Tube
- 10 ft Flexible Steam Hose

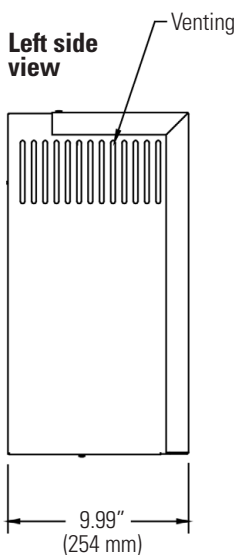
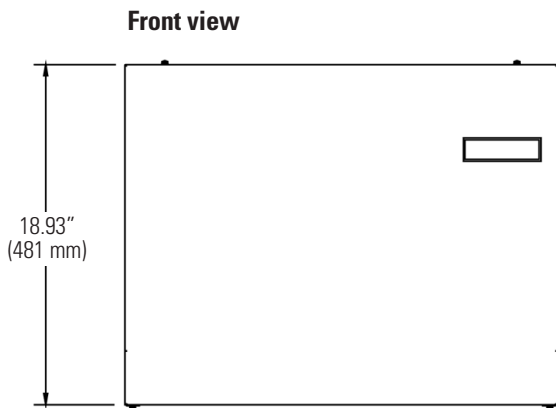
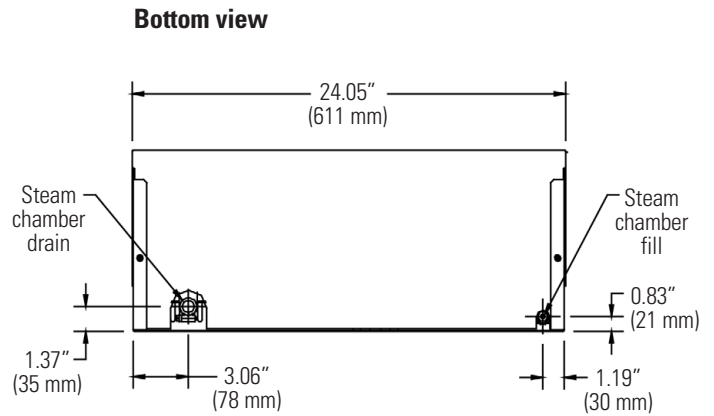
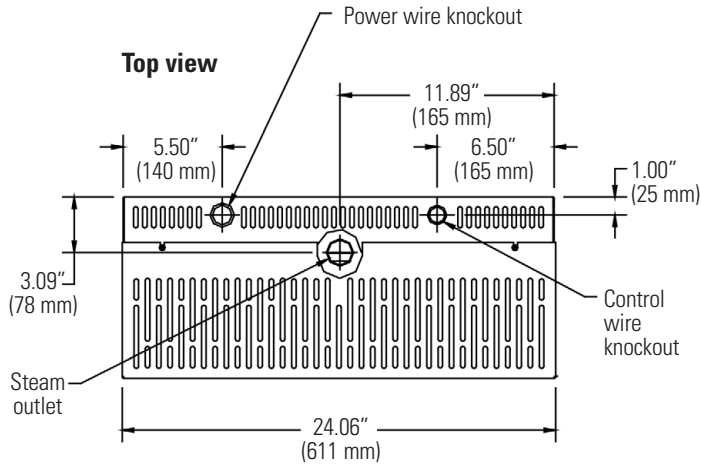
If your job requires the unit to be installed in a hanging configuration or additional safety devices are desired, Aprilaire has a variety of optional accessories that are available through your local distributor to make your installation as simple as possible:

- Duct Mounted High Limit Controller
- Suspension Hanging Brackets



# Aprilaire Steam Humidifiers— Installation.

## Dimensional Data



## Technical Specifications for Aprilaire Steam Humidifiers

Technical Specification	Model 1150	Model 1160
Capacity	12 lb/hr	24 lb/hr
Construction	304 Stainless Steel	
Steam Distribution Tube	1-1/2" DIA x 16" L	1-1/2" DIA x 20" L
Steam Hose	1-1/2" DIA x 10' L	
Operating Weight	70 lb	80 lb
Maximum Ambient Operating Temperature	80°F	80°F
Operating Sound Level	<60 dB	65 dB
Supply Water Type	Standard Tap or Softened	
Water Usage at Maximum Capacity	1.4 gal/hr	2.9 gal/hr
Electrical Supply Voltage	240/1/60	
Current (AMP Draw)	16.7	33.3
Control Power Voltage (From Humidifier)	24 VDC	
Control Signal	On/Off, 10 VDC	Modulating, 0-10 VDC
Humidistat Dimensions	5.95" W x 4.13" H x 1.85" D	
Air Flow Switch Dimensions	3.88" W x 5.81" H x 3.19" D	

## Aprilaire helps you make opportunities happen.

And we'll help you take advantage of them. Give your light commercial customers more with Aprilaire indoor air quality products. Call Aprilaire today.

### Sales support 1-800-334-6011

- We'll help you sell these applications with sales materials and training that use a problem/solution approach
- All Aprilaire advertising promotes products that are cost effective, high quality, engineered to last and built for reliability

### Applications support 1-800-334-6011

- Toll-free technical support to help you with application or installation information
- Experienced technical support staff can walk you through virtually any problem
- Download tech documents at [www.aprilairecontractor.com](http://www.aprilairecontractor.com)
- Email: [techsupport@aprilaire.com](mailto:techsupport@aprilaire.com)

### 24-hour shipping and local stocking

- See your local Aprilaire wholesaler for pricing and availability

**Offer the Aprilaire Steam Humidifiers to meet your light commercial customers' needs for proper humidification.**

## To get more from your customers, offer your customers more.

Indoor air quality solutions that are essential for business.

### HVAC Automation (Windows®-based)

Save energy while providing a more productive environment for your employees.



### Electronic Thermostats

Ultra-thin, easy-to-use digital and programmable controls featuring energy-saving accuracy.



### Zoned Comfort Control Systems

The most reliable way to achieve comfort and energy savings in every area of your light commercial space.



### UV Germicidal Lamps

Germicidal lamps help reduce absenteeism and mold issues and improve system efficiency by keeping coils clean.



### Steam Humidifiers

Help protect inventories and critical processes while providing a healthier, more comfortable environment.



### Aprilaire High Efficiency Air Cleaners

Deliver clean, healthy air protecting customers, employees and equipment.

