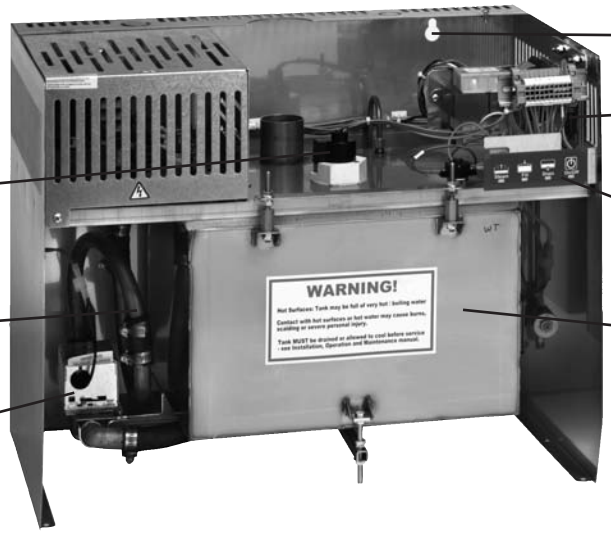
SPECIFICATION SHEET

STEAM HUMIDIFIER
MODELS 1150,1160 & 1180



Wall Mounted Keyholes
Internal Control Board
Water Level Control Probe
Display Panel
Built-in P-Trap
Removeable Steam Chamber
Automatic Drain Valve

Functional Specifications

- **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.

- **Internal Control Board**—Manages the complete operation of the humidifier including fill cycles, heater operation, control signal and drain cycles.

  • **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 (1160/1180 only).

  • **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 140ºF from being introduced into the building drain.

  • **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.

  • **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.

  • **Signal By Others**—Accepts an on/off signal, or 1-10 VDC or 4-20mA modulating signal for unit control. (Modulating on 1160/1180 only.)

- **Power Relay**—Controls heaters in on/off units to reduce the unit noise level.

- **Contactor**—Controls heaters in modulating units and is rated for increased cycles associated with modulating control.

- **Immersion Heaters**—Produce steam through the use of resistive element immersion heaters located in a stainless steel steam chamber.

- **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 overfilling.

PRODUCT SPECIFICATIONS

Performance	Model 1150	Model 1160	Model 1180
Maximum Steam Capacity	12 lbs/hr	24 lbs/hr	48 lbs/hr
Electrical			
Electrical Voltage Requirement	240/1/60		240/3/60
Current Draw (Amps)	16.7	33.3	38.5
Recommended Breaker Size	20	50	50
Supply & Drain Valve Voltage	24 VAC		
Control			
Control Signal Type	On/Off	Modulating	
Controller Power Voltage	24 vdc		
Plumbing			
Supply Water Type	Tap or Softened		
Water Usage at Maximum Capacity	1.4 gal/hr	2.9 gal/hr	5.8 gal/hr
Supply Water Line Size	1/4" flexible copper		
Drain Line Size	1" ID Flexible Hose or 3/4" Rigid Copper		
Construction			
Cover/Shroud	.080 Epoxy Coated Aluminum		
Frame	304 Stainless Steel		
Steam Distribution Tube	1-1/2" DIA x 16" L	1-1/2" DIA x 20" L	2" DIA x 25.5" L
Steam Hose	1-1/2" DIA x 10' L		2" DIA x 10' L
Operating Sound Level	<60 dB	65 dB	
Mounting Holes	16" O.C. Wall Mount		
Shipping Weight	70 lbs	70 lbs	120 lbs
Operating Weight	72 lbs	80 lbs	130 lbs

MODEL 1150/1160/1180 STEAM HUMIDIFIER

BASIC APRILAIRE STEAM HUMIDIFIER OPERATION:

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

The process of boiling the water in the steam tank will cause the minerals and impurities in the water to drop out, and given the hardness and quality of the water, this can create build up within the steam tank. Therefore, periodically, the unit will drain the tank and simultaneously open the fill drain to create a "drain and flush" cycle to help clean the steam tank and reduce the amount cleaning that is required during maintenance.

The units are controlled through a return duct mounted humidity controller that will sense the RH in the return air and if the actual building humidity level is below the set point the controller will send the humidifier a signal to begin heating up and producing humidity. Once this happens, the air flow proving switch (included) will ensure that the equipment blower is operating. If the blower is operating the unit will continue to produce steam, if the equipment fan is not operating, the humidifier will send the equipment a signal to turn the fan on (If wired to do so during installation) and provide the airflow required to distribute humidity into the building. (Refer to the Installation, Operation and Maintenance Manual for compete sequence of operation.)

CONTROL OPERATION:

The model 1150 (12 lb/hr) unit features an on/off control which will send a 10 vdc signal to turn the unit completely on at 100% output.

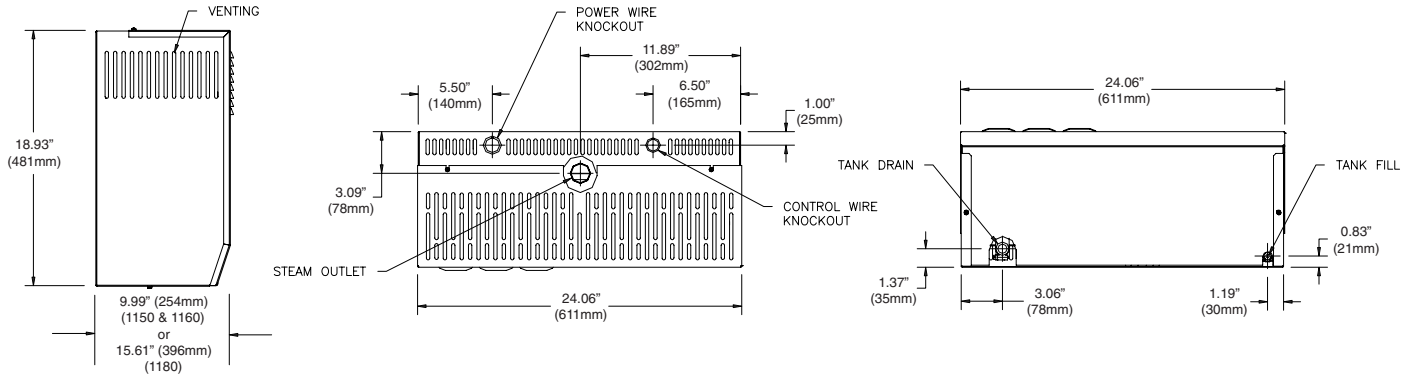
The model 1160 (24 lb/hr) and 1180 (48 lb/hr) units feature a modulating time proportioning control which will send a signal within the range of 0-10 vdc, with 0 being off, and 10 being 100% on. This works by measuring how far the actual building RH is away from set point and sending the appropriate signal to the humidifier. This modulation is referred to as 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 features two different modes or settings: Automatic and Manual

In the Automatic Mode (Default), an outdoor temperature sensor and is equipped to provide RH set point compensation/adjustment based on the 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 controller recognizes this 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. This mode is typically used in comfort based applications.

In the 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.



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www.aprilairecontractor.com • PO Box 1467 • Madison, WI 53701-1467 • Phone 800/334-6011 • Fax 608/257-4357

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