GeneralAire® 5500 Steam Humidifier

Installation & User Manual

Installation Kit and Mounting Straps are included.

READ AND SAVE THESE INSTRUCTIONS

Before installing or handling the humidifier, please carefully read and follow the instructions and safety standards described within this manual and on the labels attached to the Model 5500 Steam Humidifier. **Test water conductivity before installing the Model 5500 Steam Humidifier.**

Form No. 5500-32 Rev B
Code: +0700092EN REV 2.0 22042021

Before You Start

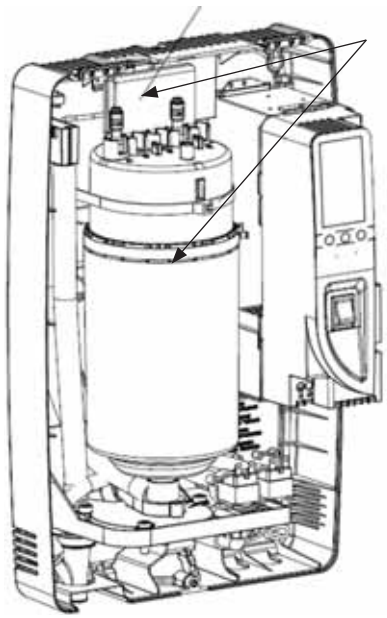
You must be a qualified contractor to install this product.

Before You Start

1. Test water conductivity.
2. Check for the following items inside the box:
   - Duct Steam Humidifier
   - Installation Manual
   - Installation Kit
     - Steam manifold
     - 6' Steam hose
     - 10' drain hose
     - Water tube supply kit (10' tubing)
     - Water fill connector
     - GFX4 Digital Automatic Humidistat
     - Ball valve
     - Hose clamps
     - Fasteners
     - Mounting straps

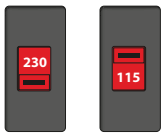
IMPORTANT: Remove the following items prior to installation:

- Remove internal packaging support located above the cylinder.
- Close the metal cylinder clamp on top of the cylinder.
- Remove the plastic tie around the cylinder body.



WARNING: You must select the desired power supply voltage in two places:

1. INTERNAL SWITCH: THE FACTORY DEFAULT SETTING IS 230 VAC; however, the humidifier can also be powered at a nominal voltage of 115 VAC 50/60 Hertz. **Ensure the 5500's internal power selection switch matches the power supplied to the 5500 (also described in this manual).**



2. CONTROL PANEL - ON INITIAL STARTUP: THE FACTORY DEFAULT SETTING IS SETTING #3 (230V/11A), if no selection is made. To change this setting, press the **'RESET/SEL'** button and then adjust the value on the display to one of the four options shown below. Press the **'DRAIN/ENT'** button to confirm.

Option	Voltage	Current	Output	Output	Output	
1	115 V	11 A	10.1 gpd	1.5 kg/h	3.5 lbs/hr	
2	115 V	14.5 A	13.9 gpd	2.2 kg/h	4.9 lbs/hr	
3	230 V	11 A	20.9 gpd	3.3 kg/h	7.3 lbs/hr	Default setting if no selection is made
4	230 V	14.5 A	28.5 gpd	4.5 kg/h	9.9 lbs/hr	

NOTE: If the incorrect setting is selected or the setting needs to be changed in the future, please contact Technical Support for further instruction.

WARNINGS

BEFORE INSTALLING OR HANDLING THE REMOTE BLOWER, PLEASE CAREFULLY READ AND FOLLOW THE INSTRUCTIONS AND SAFETY STANDARDS DESCRIBED IN THIS MANUAL AND ON THE LABELS ATTACHED TO THE REMOTE BLOWER.

THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED HVAC, PLUMBING, OR ELECTRICAL CONTRACTOR. ALL WARRANTIES ARE VOID IF INSTALLED BY A NON-TECHNICIAN.

IMPORTANT:

- Install the humidifier out of the reach of children.
- The humidifier must be installed in accordance with all local and national standards.
- All service and/or maintenance operations must be performed by qualified personnel who are aware of the necessary precautions and are capable of performing the operations correctly.
- The conditions of the environment and the power supply voltage must comply with the specified values listed on the data label in the humidifier.
- All other uses and modifications made to the humidifier that are not authorized by the manufacturer are considered incorrect, and the manufacturer assumes no liability for the consequences of any such unauthorized use.

CAUTION: ALWAYS DISCONNECT THE MAIN POWER TO THE HUMIDIFIER BEFORE OPENING OR SERVICING THE HUMIDIFIER OR REMOTE BLOWER!

IMPORTANT: BEFORE beginning installation:

- Check for shipping damage to cartons. Mark the shipping waybill accordingly.
- Open cartons and check for any hidden damage. Mark the shipping waybill accordingly.
- Check packing slip to ensure all items have been received. Notify General Filters of any shortages or damaged parts. You must notify General Filters within 5 working days of any shortages.

PLEASE NOTE: This product is to be installed only in a residential setting. The conditions of the environment and the power supply voltage must comply with the specified values listed on the data label in the humidifier. The humidifier must be installed in accordance with all local and national standards. All other uses and modifications made to the humidifier that are not authorized by the manufacturer are considered incorrect, the manufacturer assumes no liability for the consequences of any such unauthorized use and will void warranty.

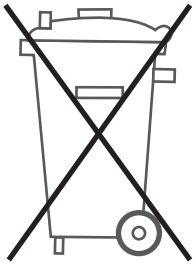
CAUTION: DISCONNECT THE MAIN POWER BEFORE OPENING OR SERVICING THE HUMIDIFIER!

CAUTION: ELECTRIC SHOCK HAZARD! The humidifier has components under power inside!

CAUTION: SCALDING HAZARD! The humidifier has hot parts (100°C / 212°F).

WARNING: Install out of reach of children. Your humidifier requires water to operate. Do NOT mount it above materials or machinery that could be damaged if a leak occurs. General Filters assumes no responsibility for consequential or inconsequential damage as a result of any leaks.

PLEASE NOTE: The humidifier contains powered electrical devices and hot surfaces. All service and/or maintenance operations must be performed by qualified personnel who are aware of the necessary precautions and are capable of performing the operations correctly. Disconnect the humidifier from the main power supply before accessing any internal parts.



Disposal of the parts of the humidifier: the humidifier is made up of metallic and plastic parts. All parts must be disposed of according to the local standards on waste disposal.

Contents

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1. HOW IT WORKS

The 5500 Steam Humidifier is an electrode humidifier. Unlike heating elements, electrode steam humidifiers produce steam for humidification by passing electric current through the water between metal electrodes inside the plastic steam generator cylinder. Steam output is directly proportional to the conductivity of the water, the power supply (115V or 230V), and the amount of electrode immersed in the water.

IMPORTANT: Test the water prior to installation with a conductivity tester (use GFI #5539 or CGF #GF-AP-2 or similar) to ensure water conductivity falls between 125 to 1250 µS/cm.

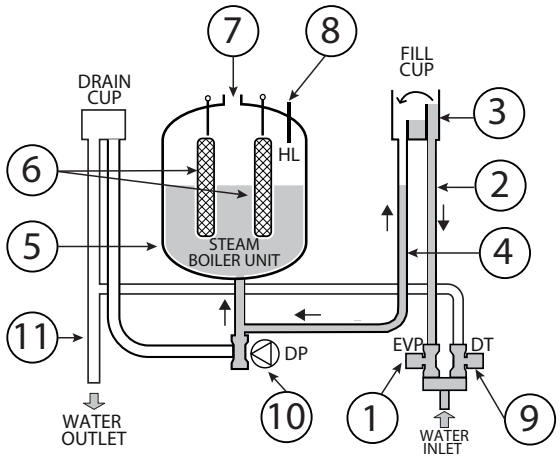


Fig. 1.a

1.1 OPERATING STAGES

On a call for humidity, the 5500 Steam Humidifier (See Figure 1.a.) controller will:

- Open the water fill valve ❶ and allow water to enter the cylinder. A flow restrictor prevents the unit from filling too quickly or with too much pressure.
- The water flows up the fill tube ❷ and into the fill cup ❸, which creates a 1" air gap to prevent backflow of contaminated water into the feed lines, through the second fill tube ❹ and into the bottom of the steam cylinder ❺. Any backflow or overflow of water travels through the overflow hose ⓫ to the drain.
- As the water fills the cylinder, it will reach the electrodes ❻ and electrical current will begin to flow. As the water continues to fill the cylinder, the current will increase. This is monitored by an amperage transformer connected to one of the power wires located on the electronic controller.
- When the desired current is reached, the fill valve will close, and the water will then begin to warm and produce steam.
- If the water reaches the cylinder full probe ❽ or if current rises too much, the drain pump ⓾ will be activated to drain away some water and reduce the current flow to acceptable levels.

NOTE: Any time the drain pump is activated, the tempering valve ❾ will be opened for tempering the hot drained water down to less than 140°F / 60°C in accordance to local and national standards.

Periodically, the unit will activate the drain pump ⑩ and drain water to reduce mineral concentration. Every 120 hours the unit automatically drains to remove mineral sediment on the bottom of the cylinder. A strainer in the cylinder helps to prevent mineral debris from jamming the drain pump.

If the 5500 Steam Humidifier remains powered but idle (i.e. without producing steam) for more than 72 hours (3 days), the cylinder will automatically be emptied of water and will not refill until the unit is restarted. If there is no water in the cylinder, there will be no current flow and no steam production.

The electrodes do not burn out but they will eventually become completely coated with mineral and the cylinder will then need to be replaced. Cleaning cylinders may cause electrode damage, therefore voiding its warranty.

See Section 7: Maintenance for more information.
See Figure 1.b. for basic components.

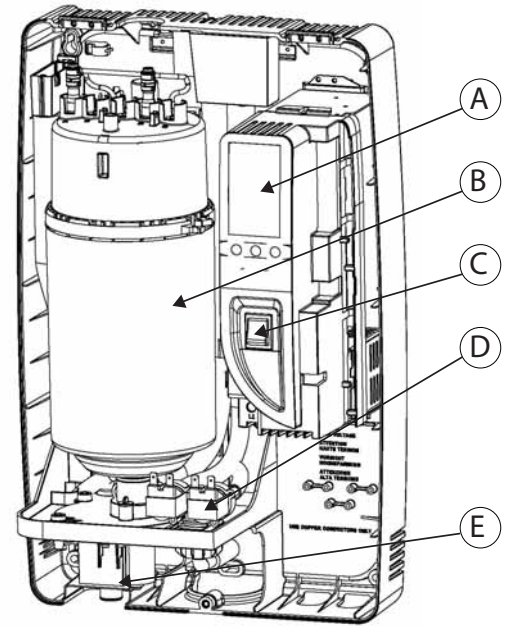


Fig. 1.b

NO.	DESCRIPTION
A	User Interface / Display
B	Steam Generator Cylinder
C	ON / OFF Switch
D	Fill and Tempering Valves
E	Drain Pump

Tab. 1.a

1.2 CYLINDER LIFE

Basics of the Steam Cylinder

The steam cylinder is the engine of the humidifier. As the water is evaporated inside the cylinder, minerals are left behind. Much of these minerals are removed through the cylinder drain, however, some are deposited on the walls of the cylinder and the cylinder electrodes. When a lower section of the electrodes develops a thick coating, the water level is raised to expose clean electrode surface. Eventually minerals cover the electrodes' entire length with a thick coating and little electrical current can pass between them, resulting in poor steam output. The humidifier can sense the low amperage and will display the **E8 Cylinder Expired error code**. There are several factors that influence cylinder life.

Water

Water characteristics (mineral percentage and types) influence cylinder life and can vary greatly from place to place. Most water conditions result in flaky scale that eventually fills the bottom of the cylinder until it can no longer function. Water with high silica content can result in a thin glass-like coating on the electrodes that is highly insulating resulting in shorter cylinder life. **Use only cold water since the supply water is used to temper the hot drain water.** Water quality affects the operation of this unit, so the 5500 Steam Humidifier should be supplied with water that is **untreated, drinkable, not softened, and not demineralized.** The water converted into steam is automatically replaced through an electric fill valve.

Water Filtration

Typically, additional filtration of the incoming water supply is not necessary. If mineral content is known to reduce cylinder life excessively or if cylinder life proves insufficient, then water filtration can be added. In most cases the addition of a two-element water filter can improve cylinder life. The filter should contain an activated carbon element and a particulate filter element rated for about 5 microns or less (micron is a size measurement) with a flow rate of at least 2 GPM. The activated carbon will absorb much of the mineral content while the particulate filter will catch any granular material or sediment. It is important to remember that an increase in cylinder life will be accompanied by the need to replace filter elements with each cylinder change.

Humidity Load and Cylinder Life

Humidity load demands affect cylinder life. Normal installations where humidity capacity is properly sized require only intermittent periods where full humidifier capacity is required. This allows the water level in the cylinder to be increased only as electrode segments become insulated thus extending cylinder life.

Installations that require constant operation at full capacity will reduce cylinder life. The water level in the cylinder is, on average, much higher and the electrodes become completely insulated more quickly.

The importance of providing adequate humidifier capacity should not be underestimated.

Maximum Production

Another factor affecting cylinder life is the maximum production setting. A higher production rate will result in a shorter cylinder life (See Figure 1.c.).

Structures Under Construction

In high-end construction projects, humidification is often required while the structure is being finished. Humidification is necessary to protect and stabilize wood floors, trim and decoration. Humidification load, however, in an unfinished structure may be five to eight times higher than when finished. 5500 Steam humidifiers may be operated while construction is underway, but reduced cylinder life is to be expected. **Good practice dictates that the steam cylinder also be replaced once the project is completed.**

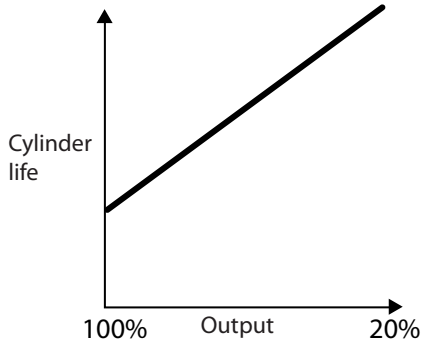


Fig. 1.c

1.3 CALCULATING HUMIDITY LOAD

Steps to Estimate Humidity Load

Humidity Load Calculation (GPD)

Total Square Footage
x Average Ceiling Height
x Factor from Table 1.b.
x 1.05 for each Fireplace
x 2.88

_____

Gallons per Day

Pounds of Moisture / Hour / Cubic Foot*

Temp °F/°C	35%	40%	45%	50%
68°F/20°C	0.00015	0.00018	0.00021	0.00024
70°F/21°C	0.00017	0.00020	0.00023	0.00026
72°F/22°C	0.00019	0.00022	0.00025	0.00028
* Based on .5 air charges per hour				

Tab. 1.b

Example:

- 2,500 SF house with 1,000 SF basement (3,500 SF total square footage)
- 9 ft. ceilings
- 70°F and 40% RH
- 2 fireplaces

Humidity Load = 3,500 x 9 x .00020 x 1.05 x 1.05 X 2.88 = 20 gpd

For more accurate results based on U.S. geographic region, see the GeneralAire® online humidity calculator at https://www.generalfilters.com/support/humidity-calculator.html.

2. MODEL INFORMATION

Model 5500

Fig. 2.a

Installation Kit (Included)

Fig. 2.b

RMB15/RMB35 Room Steam Kits
(Optional and sold separately)

Fig. 2.c

GFI #	CGF#	DESCRIPTION	PARTS INCLUDED
5580	GF-5500	Model 5500 steam unit features: • 115V – 230V dual voltage • 125 – 1250 µS/cm water conductivity • Duct steam injection • Drain pump output - 10 to 28.5 gpd (3.5 to 9.9 lbs./hr)	Includes humidifier and duct steam mounting kit components: 6 ft. steam hose, 8 inch steam manifold, GFX4 humidistat, 10 ft. drain hose, ball valve, water fill connector, water supply tubing kit, mounting straps, hardware kit.

Tab. 2.a

Optional Room Steam Kits (Purchased Separately)

GFI #	CGF#	DESCRIPTION	PARTS INCLUDED
7665	RMB15R	RMB15 – Room Steam Kit 115V. For use with 115V setting on steam unit.	115V room blower assembly and grille package
7660	RMB35R	RMB35 – Room Steam Kit 230V. For use with 230V setting on steam unit.	230V room blower assembly and grille package

Tab. 2.b

3. INSTALLATION

3.1 POSITIONING

The 5500 Steam Humidifier has been designed for wall mounting and since it is an electrode steam humidifier, should be placed close to the point where the steam will be ducted to minimize the steam hose length (and the amount of condensate).

IMPORTANT: Certain minimum clearances must be maintained around the unit for safety and maintenance. (See Figure 3.a. and Table 3.a)

IMPORTANT: DO NOT introduce steam into duct that has interior insulation.

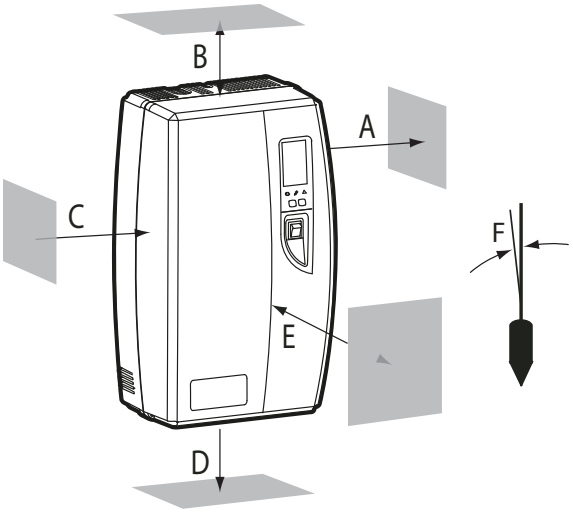


Fig. 3.a

Item	Description	Inches	mm
A	Side	6	150
B	Top	6	150
C	Side	6	150
D	Bottom	6	150
E	Front	24	600
F	Angularity	0.2^0 max	

Tab. 3.a

3.2 MOUNTING / DIMENSIONS AND WEIGHT

Removing the Front Cover

The front cover is fastened by two tabs at the top and one screw located at the bottom center of the unit. Use a Phillips head screwdriver to remove the screw (Figure 3.b.), then swing and lift cover away from the back part of the unit. Return it in reverse order. Be careful not to over-tighten the screw.

See Table 3b for dimensions and weights.

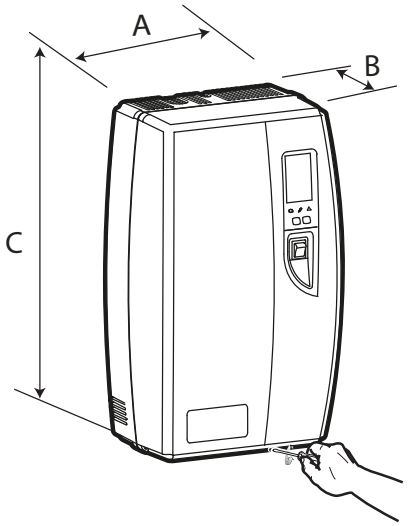


Fig. 3.b

Item	Description	Inches	mm
A	Width	13.0	345
B	Depth	8.25	206
C	Height	21.0	533
		Pounds	Kilos
	Empty weight	16	7.3
	Weight with water	24	10.9
	Shipping weight	26	11.8

Tab. 3.b

3.3 FASTENING TO THE WALL

The 5500 Steam Humidifier can be installed on a finished wall or exposed studs per the following options:

- **Option 1:** Attach directly to a wall using the supplied screws and anchors. Use the two inner holes of the supplied mounting strap as a template for the humidifier mounting holes (marked by "A" in Figure 3.c). Once marked, the two top screws can be installed first and then the steam unit can be hung on the screws using the keyhole slots.

- **Option 2:** Attach to studs using the supplied mounting straps (Figure 3.c.). The mounting straps can be used to span an open stud cavity or secured to studs through a finished wall. Secure the mounting straps to the studs using the two outer holes. Then secure the steam humidifier to the mounting straps using the two inner holes, which will align to the mounting holes in the steam unit.

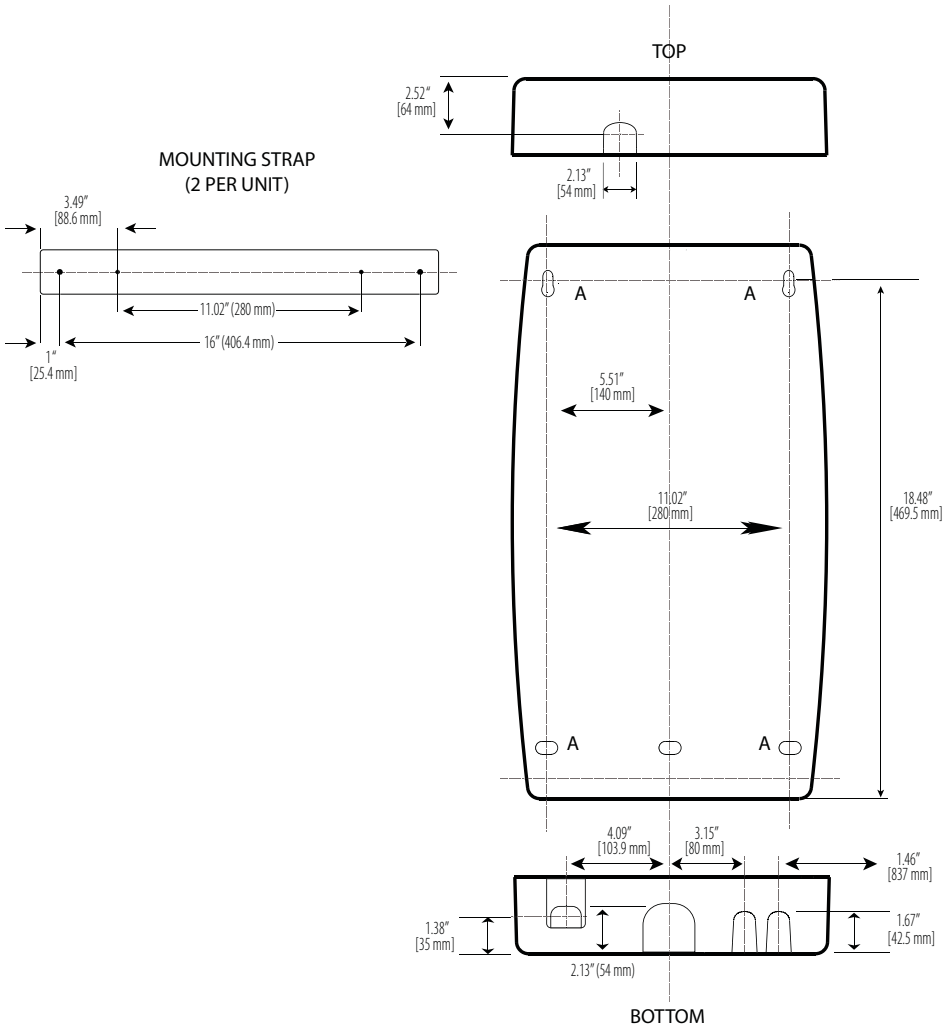


Fig. 3.c

3.4 CHARACTERISTICS OF THE SUPPLY WATER

The humidifier must be supplied with water with the following characteristics:

- Incoming Pressure: Between 20psi and 90psi or 0.1 and 0.8 MPa (1 - 6 bar)
- Maximum intermittent pressure: 110psi (8 bar). Maximum intermittent pressure includes water hammer or other supply water pressure spikes. High-water pressure can be addressed with water hammer arrestors or pressure regulators.
- Temperature: Between 33°F and 70°F or 1°C and 21°C
- Flow-rate: Minimum of 0.45 L/min or 0.12gpm
- Hardness: No greater than 40°fH (equal to 400 ppm of CaCO3)
- Conductivity: From 125 to 1250 µS/cm
- Absence of organic compounds
- The characteristics of the water of supply must fall within the following limits (Table 3.c.)

		NORMAL WATER		LOW SALT CONTENT WATER	
	UNITS	MIN	MAX	MIN	MAX
Hydrogen ions (pH)		7	8.5		
Specific conductivity (R,20°C)	µS/cm	125	500		
Total dissolved solids (c R)	mg/l	(*)	(*)	(*)	(*)
Dry residue at 180°C	mg/l	(*)	(*)	(*)	(*)
Total hardness	mg/l CaC^3O	0	200	50	160
Temporary hardness	mg/l CaC^3O	=	150	=	200
Iron + Manganese	mg/l Fe + Mn	=	0.2	=	0.2
Chlorides	ppm Cl	=	20	=	30
Chlorides	mg/Si2O	=	20	=	20
Chlorine residue	mg/l Cl-	=	0.2	=	0.2
Calcium sulphate	mg/l CaS4O	=	60	=	100

Tab. 3.c

* Values are dependent on the specific conductivity: cR~=0.65*σR, 20°C; R180~=0.9*σR, 20°C.

NOTE: There is no relationship between the hardness and conductivity of water.

IMPORTANT: The following water types are not acceptable:

- Softened water (will lead to foam, electrode corrosion and greatly shortened cylinder life)
- Water containing disinfectants or corrosion inhibiters (potential irritants)
- Industrial water, boiler water or water from cooling circuits
- Any potentially chemically or bacteriologically-contaminated water
- Heated water

3.5 WATER CONNECTIONS

⚠ Before proceeding, make sure that the humidifier is disconnected from the main power supply.

Connection to the main water supply

Connect the fill valve and the water supply line using a soft ¼" poly hose capable of absorbing water hammering in order to avoid damage to the fill valve. Route the water line through the bottom of the unit. As soft poly tubing is used in the installation, install tubing support to prevent tubing collapse and leaks. The fitting threads onto the fill valve inlet located on the bottom of the humidifier using a 3/4" G connection (supplied).

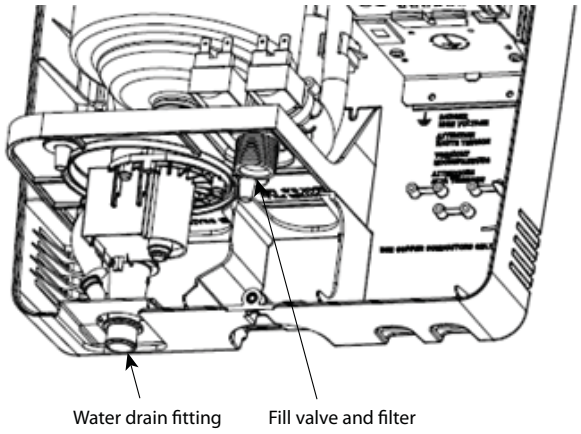


Fig. 3.d

NOTE: A strainer is built into the fill valve fitting underneath the unit that requires periodic cleaning. Be sure to allow clearance for access (See Figure 3.d.).

Water Drain and Drain Hose

The 5500 Steam Humidifier requires a connection to a drain. A 10' length of ¾" ID drain hose is included with unit. Attach the drain hose to the water drain fitting and secure with the hose clamp provided. The hose must have a constant downward slope (cannot be kinked, blocked, or create a trap) and can be routed directly to a floor drain, condensate pump, or drain standpipe. Trim the drain hose as needed and ensure that that drain hose is located such that it cannot be blocked or pinched after installation.

See Technical Specifications for drain flow rate.

Condensate Pump

When using a condensate pump, ensure pump is capable of storing about 1.1 gallons in 15 seconds with a pump output of 3 gpm or more.

3.6 STEAM DISTRIBUTION & INSTALLATION

The maximum allowed duct static pressure is 2 in. WC.

IMPORTANT: Allow 5 feet (1-1/2 M) of straight return duct downstream of the distributor pipe or nozzle for absorption of the steam. Always allow 3 feet (0.9M) of straight supply duct upstream of the distributor pipe or nozzle for evaporation of the steam. Turbulent air flow may require longer lengths.

8" Steam Manifold (included)

The model 5500 Steam Humidifier comes standard with an 8" steam manifold. An optional steam nozzle and steam manifolds are available separately for other installations.

The 8" steam manifold should be installed on a vertical surface and must be angled up (see Figure 3.e.). The steam distribution holes must always be facing up; the holes should never be installed facing downward. A condensate hose is not required. To install the 8" steam manifold, drill a 1" diameter hole in the vertical surface of the duct as shown in Figure 3.g. Apply silicone sealant to the mounting plate of the tube. Attach the manifold to the duct using (4) #10 sheet metal screws (supplied). Connect the steam hose with the hose clamps provided.

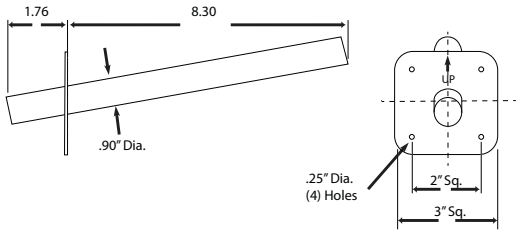


Fig. 3.e

Side Installation Horizontal Duct

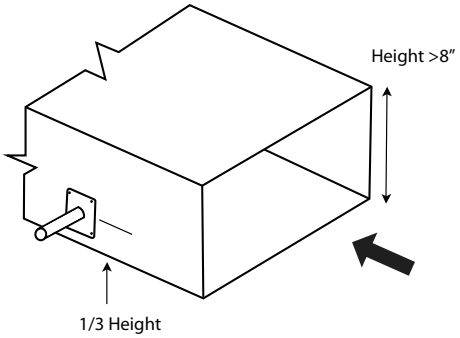


Fig. 3.f

Side Installation Vertical Duct

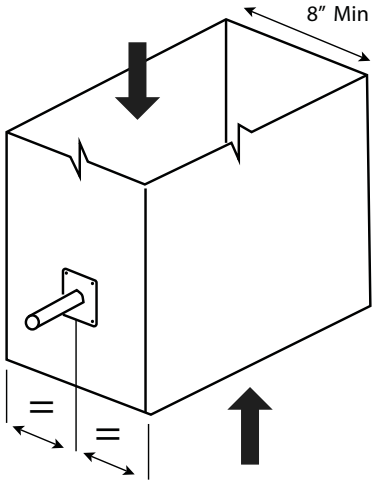


Fig. 3.g

Important: DO NOT introduce steam into a duct that has interior insulation.

Steam Nozzle (optional)

The optional steam nozzle (See Figure 3.h. and Table 3.d.) can be used for horizontal surface installations (i.e. the bottom of a horizontal duct) or vertical surface installations (See Figure 3.i.). A condensate hose is required. To install the steam nozzle, cut a 2-1/2" round hole in the duct. Apply silicone sealant to the mounting plate and insert the nozzle through the hole and secure with sheet metal screws. Connect the steam and condensate hoses using the hose clamps supplied. Select an accessible location on the duct, allowing at least 36" of straight duct (no elbows or obstructions) after the point where the steam nozzle will be installed and the clearances can be maintained as per the following drawings.

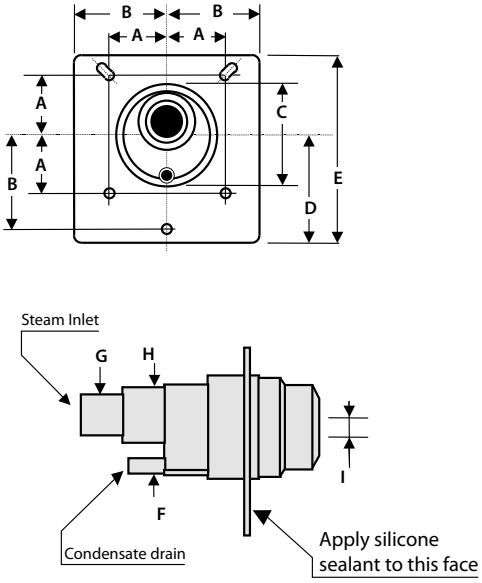


Fig. 3.h

	Inches	mm
A	1.24"	31.5 mm
B	1.96"	50 mm
C	2.20"	56 mm
F	2.26"	57.5 mm
E	3.93"	100 mm
F	Ø 0.31"	Ø 8 mm
G	Ø 0.86"	Ø 22 mm
H	Ø 1.18 "	Ø 30 mm
I	0.47 or 0.87"	12 or 22 mm

Tab. 3.d

Bottom Installation
Horizontal Duct

Side Installation
Horizontal Duct

Side Installation
Vertical Duct

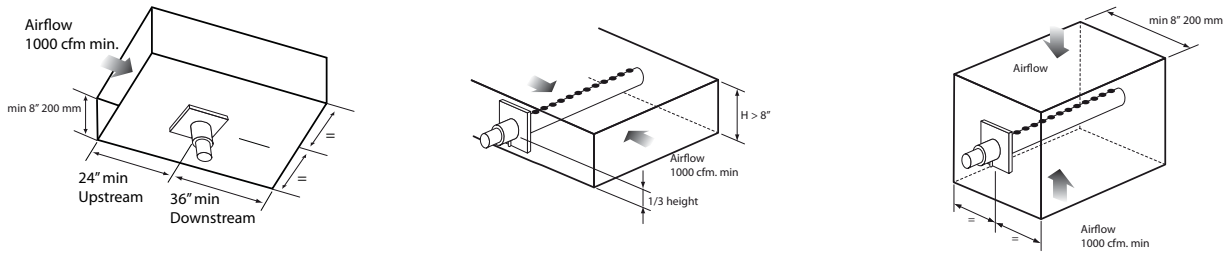


Fig. 3.i

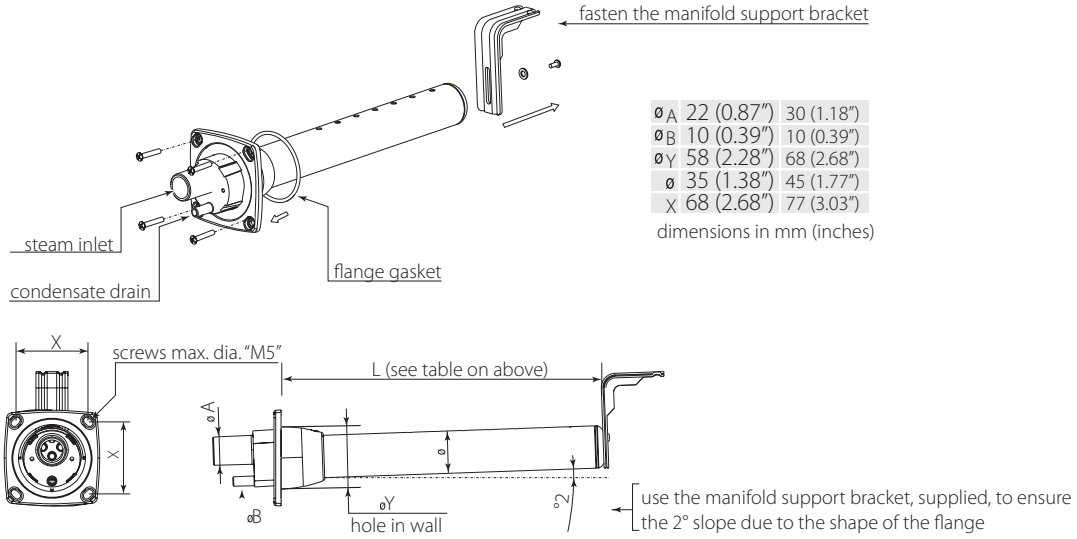
3.7 STEAM MANIFOLD (12" & 17.5" OPTIONS AVAILABLE)

For certain applications, a longer steam manifold may be required. Select an accessible location on the duct, allowing at least 36" of straight duct (no elbows or obstructions) after the point where the steam manifold will be installed and the clearances can be maintained as per the following drawings.

To mount the steam manifold, cut or drill a 2-1/2" hole in the duct (See Figure 3.i). Apply caulk to the mounting plate of the manifold. Attach the steam manifold to the duct using (4) #10 sheet metal screws (supplied). Install end bracket to maintain correct slope.

IMPORTANT: Allow 5 feet (1-1/2 m) of straight return duct downstream of the distributor pipe or nozzle for absorption of the steam. Always allow 3 feet (0.9 m) of straight supply duct upstream of the distributor manifold or nozzle for evaporation of the steam. Turbulent air flow may require longer lengths.

The return condensate hose from the steam nozzle / steam manifold must be trapped. Coil the hose into a vertical loop and secure it below the steam nozzle / steam manifold. This trap prevents steam from being released into the cabinet. The end of the ¼" ID hose may be run through the knockout at the top of the humidifier and inserted into the hole located on top of the fill cup.



Optional stainless-steel steam manifold
USA: 25-10 12" or 25-11 17.5" Canada: GF-DP030 Kit 12" or GF-DP045 Kit 17.5"

Fig. 3.j

3.8 STEAM HOSES

To avoid these problems, remember one simple fact when running the steam hose: steam naturally flows up hill and condensate naturally flows downhill. Run the steam hose or piping to avoid any kinks, sharp elbows, or low spots that could collect or restrict the flow of steam to the distributor manifold, or the flow of condensate back to the humidifier. Support the hose adequately to avoid sags. The following diagrams are provided as guidelines. Contact General Filters for unusual installations.

IMPORTANT WARNING: Most operational problems are created by improper steam hose installation from the humidifier unit to the duct distributor manifold.

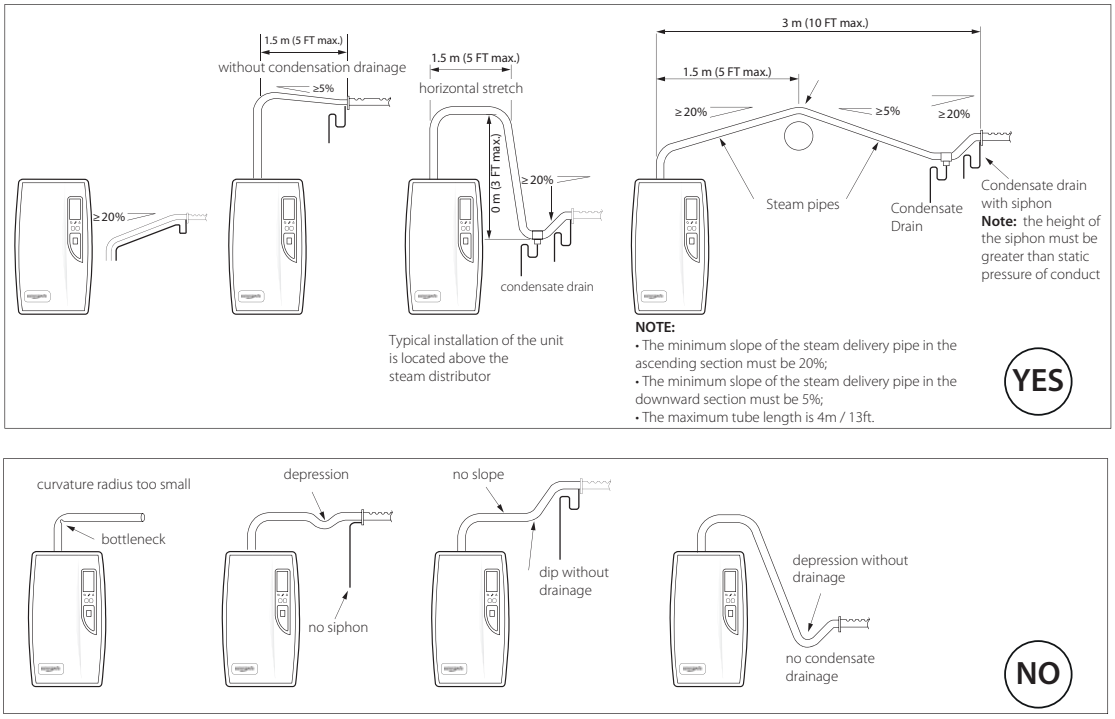


Fig. 3.k

IMPORTANT: The standard steam unit comes with 6 feet (1.8m) of steam hose. Maximum total length of rubber steam hose is 3.65m (12 feet). The maximum total length of insulated copper tubing may be up to 6.1m (20 feet). The maximum combined allowed length of steam hose and insulated copper tubing is 9.75m (32 feet). In all cases, minimize sharp bends and elbows. Use two 45° elbows instead of one 90° elbow. Hose inner diameter 7/8" (22 mm); Hose outer diameter 1¼" (30 mm). Additional steam hose is available GFI #7513 / CGF #GF-20-2.

3.9 ROOM STEAM KIT

Refer to instructions included in the RMB15 (115V) / RMB35 (230V) Room Steam Kit.

3.10 POWER SUPPLY VOLTAGE SELECTION

The humidifier can be powered at either a nominal voltage of 115 Vac 50/60 Hertz or a nominal voltage of 230 Vac 50/60 Hz. If the main power supply is 115 Vac, the setting must be changed accordingly, following the procedure described below:

- Make sure the power cable is disconnected from the main power supply and the power button is in the OFF position.
- Remove the top cover from the unit.
- Set the line voltage selector (shown in figure 3.l.) to the desired voltage.

WARNING: Select desired power supply voltage. **The factory setting is 230 Vac.**

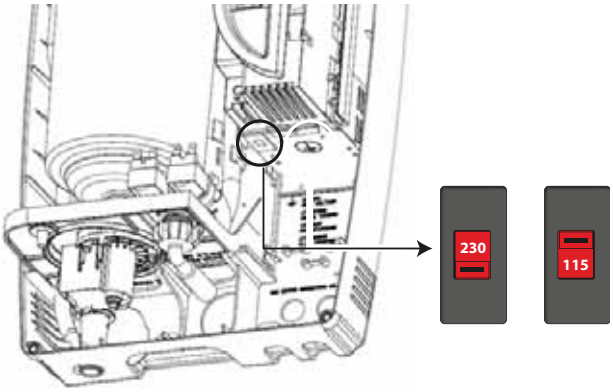


Fig. 3.l

3.11 POWER WIRING

Insert the power and ground connection cables into the electrical panel compartment using the cable clamps (See Fig. 3.m).

Connect the power cables to the terminal block at the bottom left of the control module; polarity does not matter (See Figure 3.n).

WARNING: All wiring must be in accordance with local, state and national electric codes.

NOTE: To avoid unwanted interference, the power cables should be kept separate from any control wiring.

NOTE: Tolerance allowed on main voltage = - 15% to + 10%.

Connect the ground wire to the unit's chassis ground, located just behind the power wiring terminal block. (See Figure 3.o.) Refer to Table 3.e for electrical specifications.

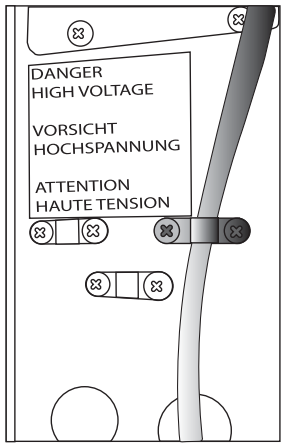


Fig. 3.m

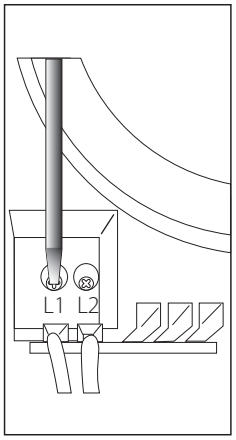


Fig. 3.n

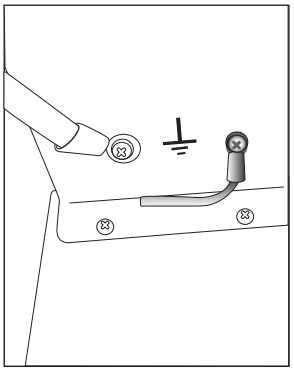


Fig. 3.o

Model	Power Supply (single phase)	Steam Output (lbs/hr)	Steam Output (kg/h)	Power (kw)	Current (A)	External Power Wires	External Fuse (A) or Breaker
5500	115-230 VAC 50/60 Hz	9.9 @ 230V 4.9 @ 115V	4.5 @ 230V 2.1@115V	3.3 max.	14	AWG12	20

Tab. 3.e

3.12 CONTROL WIRING

5500 Steam Humidifiers allow for the connection of any simple or automatic humidistat, safety devices such as a high-limit humidistat, air flow proving switch, or remote ON/OFF switch). The control wiring terminal blocks are located at the top right of the control module (Figure 3.p).

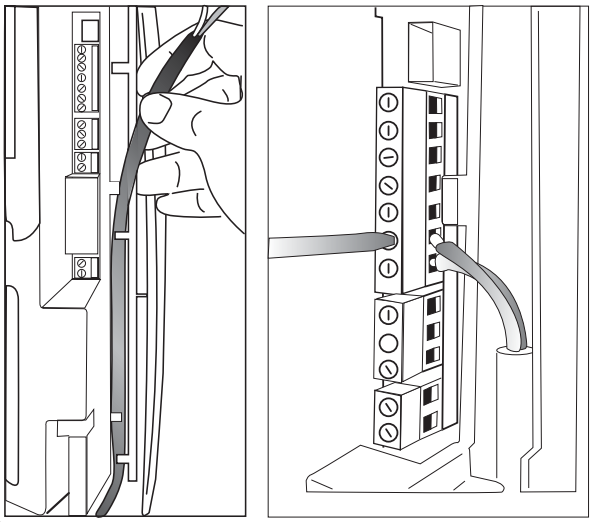


Fig. 3.p

The humidifier is operated by the closing of a mechanical humidistat H, by the closing of a voltage-free remote contact, or by a combination of both. The most common is a combination of a humidistat and pressure switch.

The diagrams following show the connections to be made on the terminal block, in case of:

- Figure 3.q: Operation controlled by an external mechanical humidistat
- Figure 3.r: Operation performed by a simple enabling contact
- Figure 3.s: A combination of both humidistat and pressure switch

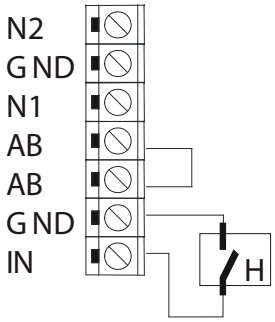


Fig. 3.q

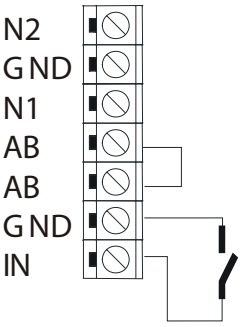


Fig. 3.r

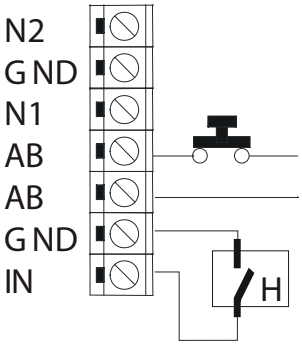


Fig. 3.s

Contact AB-AB:

- Closed: humidifier enabled to produce steam (production starts when humidistat closes).
- Open: steam production is immediately stopped.
- The remote ON/OFF contact is usually a series of external potential-free contacts that enable the humidifier to produce steam when all of them are closed, indicating the duct/AHU is ready to accept steam. Connect the 12500 Pressure Switch NO and C terminals to the AB-AB contacts.

For Example:

- Fan contact closes when fan is running.
- Downstream cooling coil contact closes when coil is off, etc.

Contact IN-GND:

- Closed: steam production starts if contact AB-AB is closed.
- Open: steam production is stopped after 5 seconds.

3.13 CONNECT THE GFX4 HUMIDISTAT FOR ON/OFF OPERATION

Reference Fig 3.t See the GFX4 installation manual for complete instructions.

1. Remove the humidistat from the base, squeeze the louvered base at the top and bottom. To remove the humidistat from the wall, lift up on the humidistat and pivot top away from wall.
   - Before wall mounting, remove the black foam gasket.
   - Before return air duct mounting, remove the breakout piece.
2. If return air duct mounting, route wires between humidistat and base.
3. Mount the sensor outside the house, at least 4 feet away from any exhaust vent. If in air intake, place 1 foot or closer to outside wall. Place at least 6" higher than possible snow. **Do not** mount on south side of the house or in direct sunlight. **Do not route** sensor wire near high voltage wires.
4. Connect the GFX4 and steam humidifier to the HVAC equipment as shown in Figure 3.s. to activate the HVAC blower.

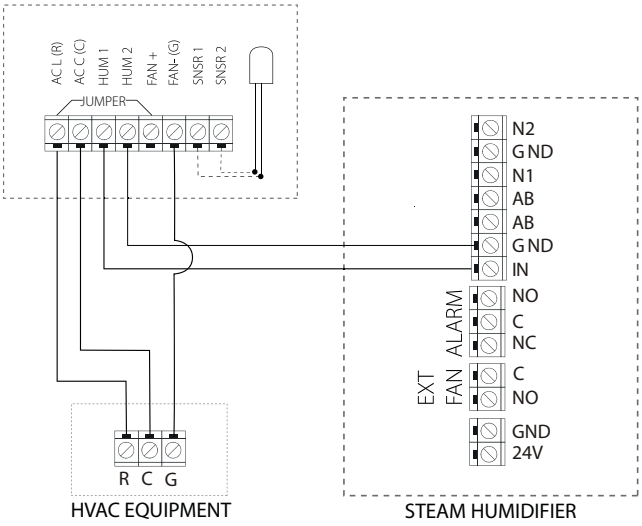


Fig. 3.t

3.14 MODULATING OPERATION

Connect an external 0 to 10 VDC modulating input between terminals IN-GND. Connect any safety switches (high-limit, air flow switch, remote ON/OFF) in series to terminals AB-AB. If no safety switches are used, then a jumper must be installed between AB-AB. **DO NOT apply any voltage to AB-AB.**

3.15 PRESSURE, SAFETY, AND HIGH LIMIT SWITCHES (FIELD SUPPLIED)

Recommended as an additional precaution. Remove the jumper between terminals AB-AB and connect any simple high-limits air flow switch (suggest part HC-201; GFI #7520 or similar); a pressure switch (suggest part 12500; GFI #7021 or similar), and remote contacts in series to terminals AB-AB; otherwise, if no such dry contacts are available, the jumper must remain in place between terminals AB-AB. DO NOT apply any voltage to AB-AB. Thread the control wiring through the bottom of the unit, and the strain relief (see photo at top of previous page), and then up the side of the control module to the top right wiring terminal blocks. Connect the control wiring to the control wiring terminal blocks found at the top right side of the control module. See Fig 3.u.

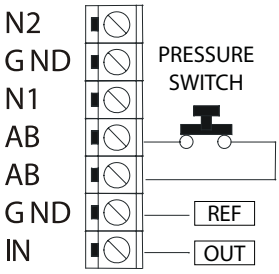


Fig. 3.u

CONDITIONER RELAY INTERLOCK

Auxiliary DPDT safety relay: Use this method in the following situations:

1. To prevent the air conditioner from running when there is a call for humidity. The DPDT relay will open the "Y" circuit and close the "G" circuit for operation while a call for humidity is present (See Figure 3.w.). The demand for humidity will override the call for cooling.
2. In systems using a thermostat where G and Y are a single circuit, the DPDT relay will allow blower operation to occur without back-feeding the compressor. DO NOT use this method when simultaneous humidification and cooling will be desired. Use a high limit humidistat in to avoid condensation in ductwork. The humidistat should be set to OFF during the air conditioning season if humidification is not desired.
3. For homes without an air conditioner, see Figure 3.v).
4. For variable speed or DC systems, consult the furnace manufacturer.

3.16 FURNACE BLOWER OPERATION / AIR

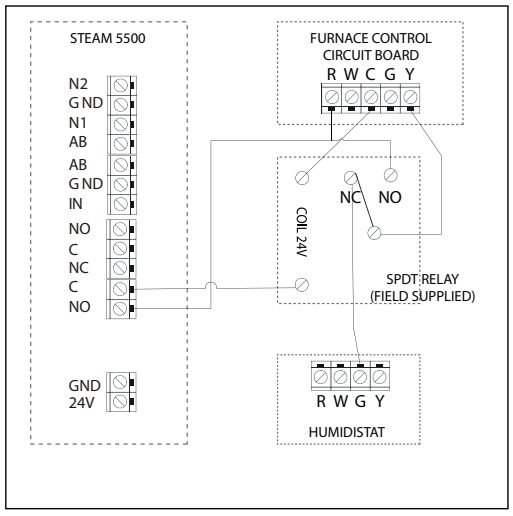


Fig. 3.v

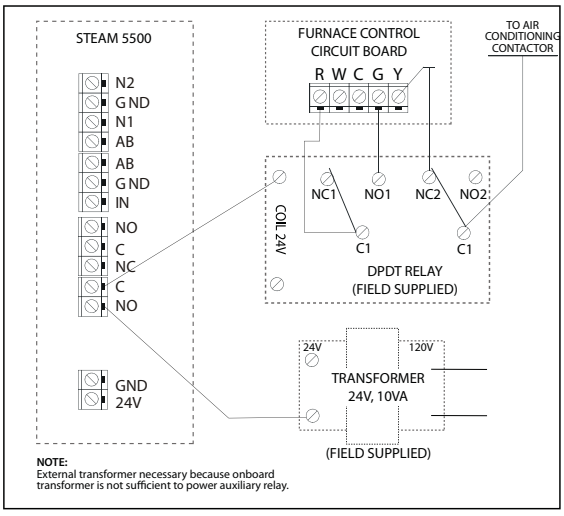


Fig. 3.w

3.17 WIRING CONNECTIONS

Terminals	Functions	Electrical Specifications
L1-L2 -GROUND	Power supply and ground connections	Power supply 115 VAC 1-phase 50-60Hz 1.86kW or 230 VAC 1-phase 50-60Hz 4.05kW
KEY	Programming port	Connecting to programming port or supervisor
AB-AB	Remote enabling input	Imposes an external NO contact; Rmax=300 Ohm; Vmax=33 Vdc; Imax=-6mAdc; humidifier enabled = contact closed
IN-GND	Humidistat control signal input	If programmed 0...10V: Input impedance 10 kohm
		If programmed ON-OFF: Vmax 33Vdc Imax = 5mA Rmax = 300 Ohm
NC-C-NO	NC alarm contact/ Common alarm contact / NO alarm contact	250V; 8 Amp max with resistive load; 4 Amp max with inductive load
NO-C	External fan relay (furnace blower)	250VAC; 8 Amp max with resistive load; 4 Amp max with inductive load
24GND	Power for external humidistat	Power supply for external humidistat 24 VAC; 2 Watt
F-INT FAN	For Room Steam Kit	For optional RMB only, not for furnace or air handler connections

Tab. 3.f

3.18 WIRING DIAGRAM OF CONTROLLER

Always use AWG12 wires and dedicated 20A breaker for power supply connections to L1 / 2 in Figure 3.x.

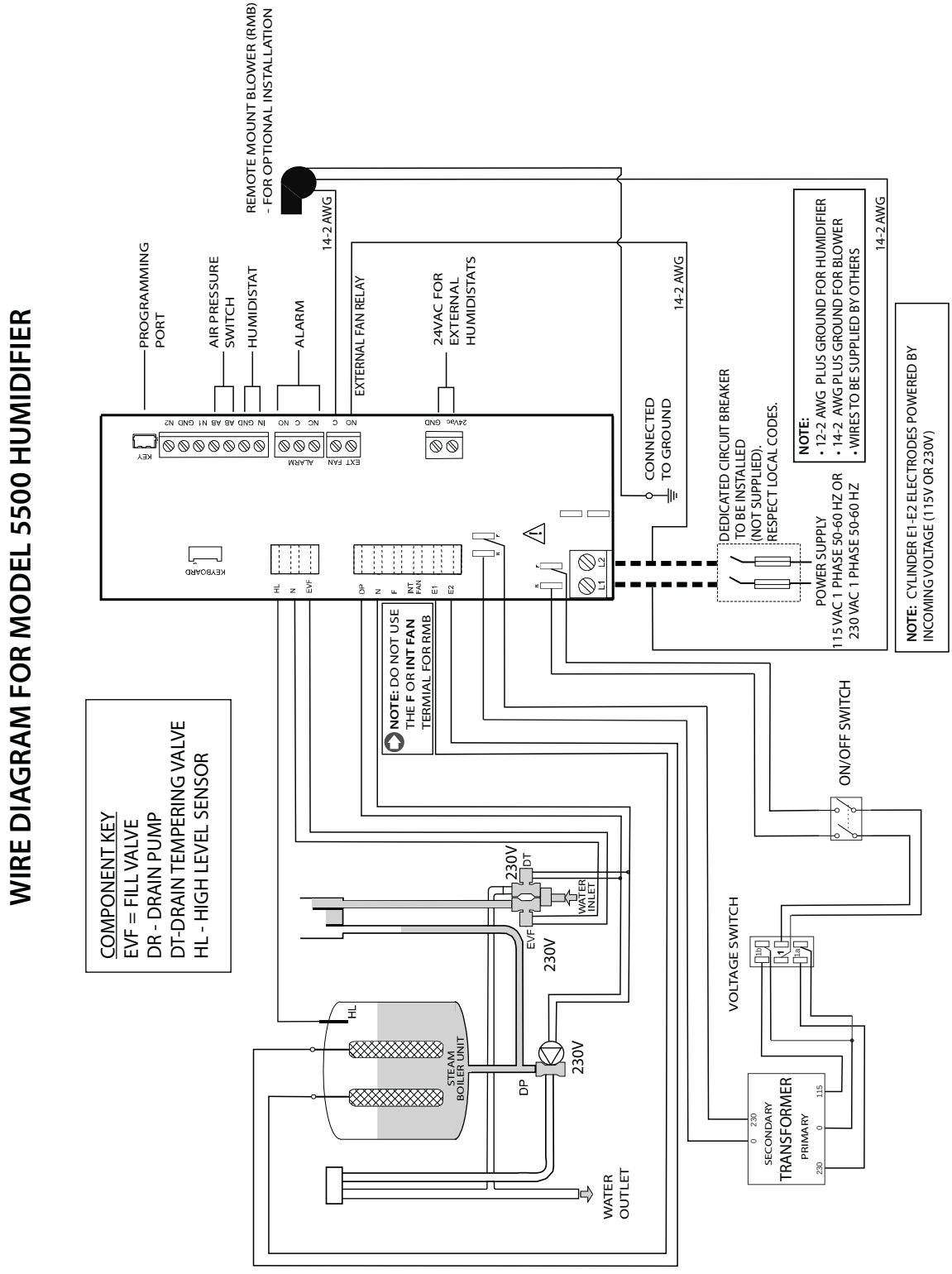


Fig. 3.x

4. START UP

1. Before starting, check that there are no water leaks and that the electrical components are dry.
2. **DO NOT connect power if the humidifier is damaged or even partially wet!**

When installation is completed, flush the supply pipe for 10 minutes by piping water directly into the drain without sending it into the humidifier. This will eliminate any scale or residue that may cause foam when boiling.

4.1 START-UP CHECKLIST

Before starting the humidifier, the following should be checked:

1. Water is connected, the line has been flushed, and external valves are open.
2. The drain hose is installed with no kinks or restrictions and run to an open drain or condensate pump.
3. Electricity is connected in accordance with instructions, local codes and data labels in the unit.
4. The power fuses are installed and intact.
5. All AWG12 control wiring is done and tested.
6. The airflow switch (if installed) is wired to open on air flow loss.
7. The Hi-limit humidistat (if installed) is wired to open on humidity rise above set point.
8. Control board wires should be checked to make sure all connectors are tight.
9. The steam hose and drain hose (and condensate hose, if installed) is run correctly with no sags or kinks and sloped properly according to the manual.

4.2 STARTING THE HUMIDIFIER

- Ensure that the external power is turned on.
- Push the top part of the ON/OFF button so that the "1" part is in (See item #13 in figure 4.a.). The yellow power LED will be lit. The 5500 Steam Humidifier is now ready to operate.
- When there is a call for humidity, the 5500 Steam Humidifier will close its power relays and send power to the electrodes in the plastic steam cylinder. The green Operation LED will light, indicating that operation has begun.

4.3 CONTROLLER DISPLAY

The 5500 Steam Humidifier Controller features a comprehensive information display that shows the operation of the system at a glance:

Location	Description
1	Display is % of nominal capacity
2	Maintenance alarm
3	Display is amperage (default)
4	Steam is being produced
5	Cylinder filling
6	Foaming
7	Water presence inside the cylinder
8	Cylinder draining
9	Red LED: alarm
10	Yellow LED: power (unit is ON)
11	Green LED: unit is operating
12	Drain button for manual draining of cylinder and confirming parameter values
13	ON/OFF button
14	Reset button to reset alarms and access parameters
15	Reset button to reset alarms and access parameters
16	Fan relay is activated (when fan icon on the control module is stationary, not flashing)

Tab. 4.a

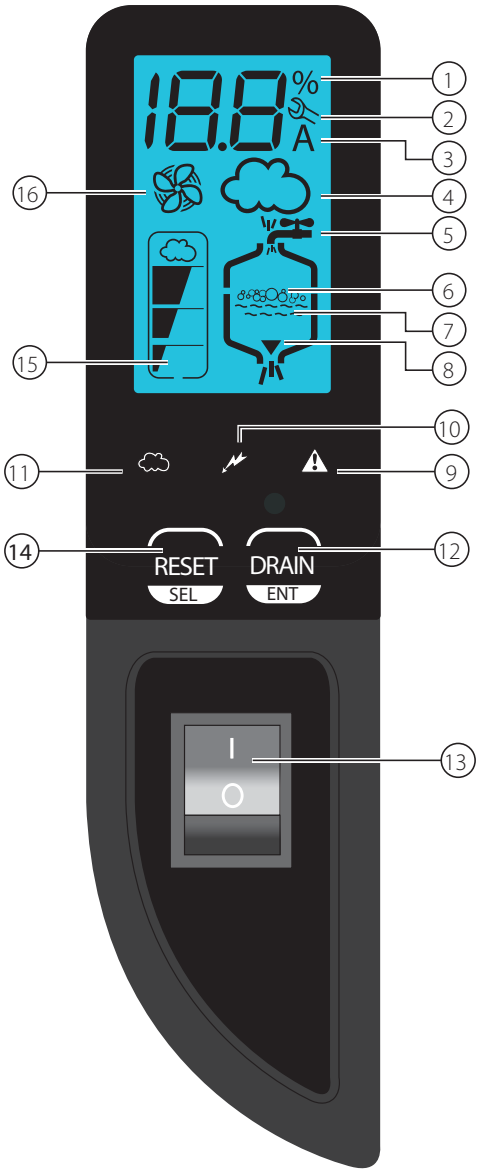


Fig. 4.a

4.4 INITIAL CONFIGURATION

Select Voltage

- Before starting the unit, confirm power supply voltage and circuit breaker.
- Confirm the voltage switch is on the correct voltage as described in Section 3.
- Press the **ON** button (item 13), the unit switches on and the display show **03**, with the **'SET'** symbol flashing.
- Press the **'RESET/SEL'** button and then select the value on the display to one of the four options shown below. Press the **'DRAIN/ENT'** button to confirm.

OPTION	VOLTAGE	CURRENT	OUTPUT	OUTPUT	OUTPUT	
1	115 V	11 A	10.1 gpd	1.6 kg/h	3.5 lbs/hr	
2	115 V	14.5 A	13.9 gpd	2.2 kg/h	4.9 lbs/hr	
3	230 V	11 A	20.9 gpd	3.3 kg/h	7.3 lbs/hr	Default setting if no selection is made
4	230 V	14.5 A	28.5 gpd	4.5 kg/h	9.9 lbs/hr	

Tab. 4.b

- At the end of this initialization operation, a sequence of characters will be shown on the display to indicate the selected output and voltage, according to the following scheme:
  - CH + size (kg/h) + U + voltage (1 = 115V, 2 = 230V)
    1. CH01U1 = 1.6 kg/h 115V
    2. CH02U1 = 2.2 kg/h 115V
    3. CH03U2 = 3.3 kg/h 230V **Default setting is Option 3 if no selection is made.**
    4. CH04U2 = 4.5 kg/h 230V
  - If no selection is made within 10 seconds, the unit will start using the default setting **Option 3**. The unit can be configured again the next time it is turned on.
  - The unit can produce steam even if not configured, but the warning **'EH'** will be shown on the display.
- The yellow power LED comes on and steam unit is ready to operate.
- The green LED 'cloud' will light up when the boiler electrodes are powered on and creating steam.

4.5 NEW STEAM SYSTEM OR REPLACEMENT STEAM CYLINDER

When starting with a new cylinder, you should activate the cylinder cleaning function as follows:

1. Switch the 5500 Steam Humidifier off.
2. Press and hold both buttons, **"RESET/SEL"** and **"DRAIN/ENTER",** and switch the 5500 Steam Humidifier back on. When the wrench blinks then release the two buttons.
3. Press and hold **"RESET/SEL"** until the display shows 04.

   WARNING: DO NOT confirm any value **higher than 04.** If 05 or higher is displayed, press **"RESET/SEL"** until the display goes back to the normal operating mode and restart from step 1.
4. Press **"DRAIN/ENTER"** (minimum 1 second): the cleaning starts and the display shows PC.

During the cleaning, the electrodes are powered and water in the cylinder rises until it touches the high-level sensor or reaches the high current limit; whichever comes first. After either of the events is detected, the cylinder is fully discharged with the electrodes un-powered (the drain pump and the drain tempering valve are activated for 3 minutes). It is recommended that two cleanings are performed when starting a new steam unit. After the cleaning ends, the humidifier begins its regular function. When starting the unit with a new or empty cylinder, it may take a significant amount of time (hours) for the unit to build up enough mineral concentration to reach rated capacity. This time can be shortened by the addition of a teaspoon of salt or ¼ of an antacid tablet through the steam outlet on top of the cylinder.

5. OPERATING THE HUMIDIFIER

5.1 DISPLAYING INFORMATION

The information shown on the display during the normal operation of the humidifier is the instant current in amperes running between the electrodes.

To display other information, press and hold the **"RESET/SEL"** button until the display shows the required information. When holding the button, every 2 seconds the display will scroll between the current, the percentage (%) of steam production, the hour counter and then the current again (Fig. 5.a).

Fig. 5.a

1. **Instant current:** this is the current that flows through the water to make it boil (default display).
2. **Percentage (%) of steam production:** this is the steam production (proportional to the current), expressed as a percentage of rated production.
3. **Hour counter:** counts the operating hours, proportional to the % of cylinder production **(this must be reset whenever the cylinder is replaced).** For example, if the cylinder has worked for 100 hours at 50% production, the number of proportional operating hours is 50. The value is expressed in tens of hours, so for example when the display shows 13, the real number of operating hours is between 130 and 139 hours. Once 1990 hours have elapsed (199 on the display), the hours are displayed in hundreds. Example: 21 = 2100 hours.

5.2 SELECTING SIGNAL TYPE

(Skip this step if using included GFX4)

The steam humidifier is pre-set for the included GFX4 humidistat (signal type 0). If the included GFX4 humidistat is used, this section may be omitted. If another humidistat is used, review this section to see if changes are needed.

NOTE: select the correct control signal type on the keypad before connecting the control wiring. If no selection is made within 3 seconds, the software automatically returns to normal operating mode.

1. Switch steam humidifier off.
2. Press and hold both **"RESET"** and **"DRAIN"** and switch the 5500 Steam Humidifier back on. When the wrench blinks, release the two buttons.
3. Press **"RESET/SEL"** until the display shows 02.

WARNING: DO NOT confirm any value higher than 04. If 05 or higher is displayed, press **"RESET/SEL"** until the display goes back to the normal operating mode and restart from step 1.

4. Press **"DRAIN/ENTER"** (minimum 1 second) to confirm: the display shows "P1" then the current signal type and "set".
5. Press **"RESET/SEL"** to change signal type between 0 and 1:

   0 = On-Off humidistat such as the GeneralAire® "M" or "GFX" series humidistat.

   1 = external 0...10 Vdc modulating signal such as the GeneralAire® ADCD series humidistat.
6. Press **"DRAIN/ENTER"** (minimum 1 second) when done to confirm the new value of P1 and exit to the normal operating mode.
7. Switch steam humidifier off: you can now proceed with connecting the control wiring.

5.3 CHANGING THE MAXIMUM PRODUCTION

The Maximum Production feature can be adjusted between 20% to 100% of the nominal production, in 5% increments, in order to suit the environmental characteristics. The **5500 Steam Humidifier** is factory set at 100%.

1. Switch steam humidifier off.
2. Press both and hold both buttons **"RESET/SEL"** and **"DRAIN/ENTER"** and switch steam humidifier back on. When the wrench blinks, release the two buttons.
3. Press **"RESET/SEL"** until the display shows 01.

⚠ **WARNING: DO NOT confirm any value higher than 04.** If 05 or higher is displayed, press "reset" until the display goes back to the normal operating mode and restart from step 1.

4. Press **"DRAIN/ENTER"** (minimum 1 second) the display shows "P0" then the current Maximum Production Percent and "set".
5. Press **"RESET/SEL"** to change the Maximum Production in steps of 5% between 20% and 100%.
6. Press and hold **"DRAIN/ENTER"** (minimum 1 second) when done to confirm the new Maximum Production and exit to the normal operating mode.

5.4 GFX4 HUMIDISTAT

See GFX4 installation manual for complete instructions. Press to select **OFF, AUTO** (if outdoor sensor is connected) or **MANUAL** mode.

OFF mode: The humidifier is turned off.

AUTO mode:
The GFX4 will automatically raise the humidity as the outdoor temperature increases to provide the highest possible humidity. The GFX4 will automatically lower the humidity as temperatures drop. This minimizes the risk of condensation on cold surfaces like windows. You can adjust the Auto Humidity Index Set Point from 0 (low) to 10 (high) by pressing ▲ or ▼. The Humidity Index is based on the outdoor temperature and indoor humidity.

The humidifier will switch **ON/OFF** according to the calculated auto humidity index set point. Lower Index settings are for older homes with less insulation and vapor barriers. Higher Index settings are for newer homes with complete vapor barriers, triple pane windows and high R value insulation. If condensation occurs reduce Index setting by 2 points until condensation stops.

MANUAL mode:
The GFX4 will automatically maintain the selected humidity. You can set your desired humidity level by pressing ▲ or ▼. The humidifier will turn on or off according to your manual setting. The humidifier will operate when the measured relative humidity falls more than 2% below the set point. Humidity

will have to be lowered when weather is colder or if condensation is suspected.

SUGGESTED SETTING	OUTDOOR TEMPERATURES
15%	-20˚F / -29˚C
20%	-10˚F / -23˚C
25%	0˚F / -18˚C
30%	+10˚F / -12˚C
35%	+20˚F / -7˚C
40%	+30˚F / -1˚C

Tab. 5.c

NOTE: If the outdoor temperature sensor fails, flashes and the unit will default to **MANUAL mode.**

To toggle between indoor / outdoor temperature and indoor humidity: Press .

To change the temperature unit: Press **°C / °F.**
To set the temperature / humidity offset in **MANUAL** or **AUTO** mode:

1. Simultaneously press ▲ and ▼ when viewing the temperature or humidity reading.
2. Use▲ or ▼ to change the setting (-3 to 3).
3. Press ▲ and ▼ simultaneously or wait 5 seconds to confirm, then move onto the next setting.

WARNING: DO NOT allow excess humidification. Excess humidity can cause condensation; triggering mold and mildew growth.

GFX4 HUMIDISTAT

5.5 ALARMS

In the event of an alarm, the red alarm LED will flash, the alarm relay will close, and the alarm code will flash in the display. Multiple alarms will flash in sequence, alternating with the main display. Pressing the **"RESET/SEL"** button for 2 seconds will reset the alarms, although still active alarms will continue to display.

DISPLAY	DESCRIPTION	ACTION	RED LED	ALARM RELAY	NOTES
--	Remote on-off open	Unit disabled	Off	Off	Jumper terminals AB-AB
EH	Unit not configured	If no selection is made within 10 seconds, the unit will start using the default setting Option 3	On	On	Unit will produce steam. The unit can be configured again the next time it is turned on
E1	High current alarm	Unit disabled	On	On	Turn off, check connections, check cylinder (no limescale bridges between electrodes, no electrodes short-circuited)
E2	Low production, low supply water conductivity or excessive foam/limescale in the cylinder	Unit disabled Press "RESET/SEL" key for 1 second to reset	On	On	Check supply water conductivity, replace the cylinder
E3	Cylinder almost exhausted	Press "RESET/SEL" key for 1 second to reset	Off	Off	Change cylinder (not urgent)
E4	Fill alarm, unable or slow fill (current does not increase within timeout)	Press "RESET/SEL" key for 1 second to reset, otherwise the warning will be reset automatically every 10 minutes until the supply water is available again	On	On	Check water supply and fill valve; check drain pump for leakage; Make sure the filter on the fill solenoid valve is not blocked; check that the steam outlet is not working against excessive backpressure; check that the steam outlet hose is not choked or that there are no pockets of condensate; check that the power cables are connected to the cylinder
E5	Drain alarm, unable to drain (current does not decrease within timeout)	Press "RESET/SEL" key for 1 second to reset	On	On	Check drain pump and drain connection
E7	Foam detected	Press "RESET/SEL" key for 1 second to reset	Off	Off	If foam continues, perform additional cleaning cycles
E8	Cylinder lifetime expired	Unit disabled: reset the hour counter (read chap. "Resetting the Hour Counter")	On	On	Change the cylinder if necessary
E9	High controller temperature (above 176°F / 80°C)	The warning is automatically reset if the temperature decreases below 176 °F / 80 °C	Off	Off	Check the ambient temperature, replace the controller

Tab. 5.d

6. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
The humidifier does not turn on	1. No electrical power 2. ON/OFF switch of the humidifier in position 0 (open) 3. Control connectors improperly connected 4. Blown fuses 5. Transformer failure	1. Check the safety devices upstream from the humidifier and the presence of power 2. Close the switch on the panel: position I 3. Check that connectors are properly inserted in terminal block 4. Check the condition of fuses 5. Check that the proper voltage is connected and turned on
The humidifier does not start operation	1. Remote ON/OFF contact open 2. The humidistat has not been connected correctly 3. Humidistat failure 4. Control signal not compatible with the type set 5. Value measured by the sensor/s higher than the corresponding set point 6. Fan relay not activated, or furnace blower not activated or connected to C/NO on steam humidifier	1. Close ON/OFF contacts 2. Check the external connection 3. Replace the humidistat 4. Check furnace fan / blower operation
The humidifier fills with water without producing steam	1. High steam back pressure 2. Fill valve strainer clogged 3. Mineral in the fill cup 4. Drain pump valve leaking	1. Check that the steam hose is not kinked or sagging, trapping condensate 2. Clean the fill valve strainer 3. Clean the fill cup 4. Check for voltage at the drain pump valve and/or drain pump replacement
Excess humidity or moisture in the duct	1. The distributor is not installed correctly (too near the top of the duct or the condensate return is blocked) 2. Air flow rate is too low 3. Humidifier active when the fan in the duct is off	1. Check that the steam distributor is installed correctly 2. Increase air flow in duct or decrease PO maximum steam production setting 3. Check the connection of the device (flow switch or differential pressure switch) controlling the humidifier to the ventilation in the duct
Water leaks on to the floor below	1. The humidifier drain is blocked 2. The supply water or overflow circuit has leaks 3. The steam hose is not properly fastened to the cylinder 4. The bushing and / or O-ring at the base of the cylinder are missing or not properly seated	1. Clean the drain assembly and pan 2. Check the entire water circuit 3. Check the fastening of the hose clamps on the steam outlet 4. Lift out the cylinder and check to see the bushing and / or O-ring are properly seated (See illustration Page 21)
Water in the cylinder turns black	1. Minerals in the cylinder have over-concentrated and are deteriorating the electrodes	1. Check for sags & kinks that could trap condensate in the steam hoses that could cause a back pressure on the cylinder 2. Check the duct static pressure 3. Check the fill valve and inlet strainer 4. Check the drain pump operation 5. Correct installation problems and replace cylinder
Heavy arcing occurs within hours of start-up	1. The feed water contains large amounts of iron, copper or other conductive contaminants	1. Contact the factory for an optional drain timer to force additional drains to control the minerals 2. Discontinue use if you are using a water softener 3. Check the electrodes in the cylinder to be sure they were not damaged in shipping
Humidifier continuously fills and drains without producing steam	1. Mineral has bridged between the electrodes 2. There is back pressure from the steam hoses or duct 3. The flow regulator in the fill valve is broken or out of place 4. Water conductivity is very high 5. Water is foaming excessively	1. Use instruction in Section 4.4 to power clean or replace the cylinder 2. Check the steam hoses for kinks or gullies that might be trapping condensate 3. Replace the fill valve 4. Consider using a mix of demineralized water with raw water 5. Check cylinder - replace if exhausted. If feed water contains silica or nitrates, install a 1-micron water filter

Tab. 6.e

7. MAINTENANCE

7.1 PERIODIC CHECKS

- **After one hour of operation:** Check that there are no significant water leaks.
- **Every fifteen days:** Check operation for water leaks and the general condition of the cylinder. Check that during operation there is no arcing between the electrodes.
- **Every three months:** Check operation for water leaks and, if necessary, replace the cylinder. Check that there are no blackened parts of the cylinder. If there are blackened parts of the cylinder, check the condition of the electrodes and, if necessary, replace the cylinder.
- **Annually:** Replace the cylinder.

⚠ **CAUTION:** ALWAYS disconnect the main power before doing maintenance.

CAUTION: ALWAYS disconnect the main power before touching the cylinder that has leaked, as current may flow through the water.

7.2 CYLINDER MAINTENANCE

The life of the cylinder depends on a number of factors, as previously described. As previously mention in this manual, maximum production can shorten cylinder life. Since the 5500 is pre-set from the factory at 100%, reducing the factory setting to lower than maximum production will extend cylinder life. (See Figure 7.a.)

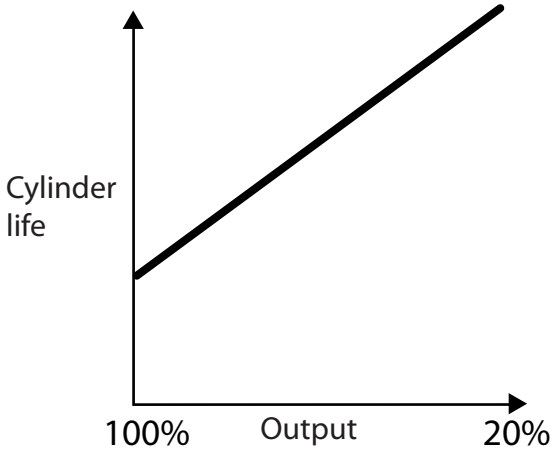


Fig. 7.a

⚠ IMPORTANT WARNINGS

The humidifier and its cylinder contain live electrical components and hot surfaces; therefore, all service and/or maintenance operations must be performed by expert and qualified personnel, who are aware of the necessary precautions. Before performing any operations on the cylinder, check that the humidifier is disconnected from the power supply. Remove the cylinder from the humidifier only after having drained it completely using the manual "drain" button or procedure. Check that the model and the power supply voltage of the new cylinder corresponds to the data on the rating label.

Replacing the Cylinder

IMPORTANT WARNING: the cylinder may be hot. Allow it to cool before touching it and/or use protective gloves.

DO NOT attempt to clean the cylinder or its components. Damage may result that will affect operation and void the warranty.

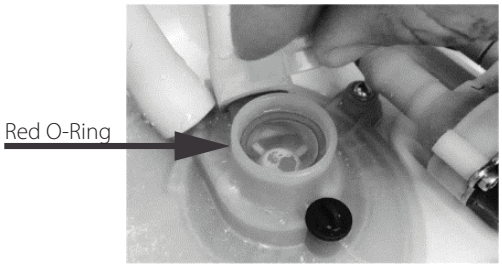


Fig. 7.b

To Replace the Cylinder:

1. Completely drain the cylinder by pressing and holding the **"DRAIN"** button until the cylinder is empty.
2. Turn the humidifier off and disconnect the main power.
3. Remove the cover by unscrewing the single screw at the center bottom of the cover.
4. Disconnect the electrical connections from the cylinder. Loosen steam hose clamp and remove steam hose.
5. Flip up the cylinder holding bracket and lift the cylinder out of the unit. Some water may spill out from the bottom of the cylinder.
6. Install a new O-ring if necessary. The O-ring only needs to be replaced if worn, damaged, or lost. (See Figure 7.b.)
7. Install the new cylinder in the humidifier by performing the previous operations in reverse.
   - Connect the power cables to the electrodes in the cylinder, inserting the "snap-on" wire caps as shown on the yellow cylinder label. Make sure the connector is inserted correctly (you will hear a "click" when in place).
   - Replace the steam hose to the cylinder and tighten the hose clamp.

CAUTION: DO NOT tighten the 7/8" hose clamp so tight that it crushes the cylinder outlet.

WARNING: Electrical connections to the cylinder must be properly installed. Listen for, and feel a significant "click" on connection or possible fire hazard may result.

7.3 MAINTENANCE OF OTHER PLUMBING COMPONENTS

IMPORTANT WARNINGS:

- Always disconnect power when performing any maintenance on the humidifier.
- When cleaning the plastic components, do not use detergents or solvents.
- Minerals can be removed using a solution by using vinegar or a weak solution of acetic acid and a soft brush, then rinse the plumbing components (drain pump, fill/tempering valve, water line fill connector) thoroughly with fresh water.

Cleaning the Fill Valve

- Disconnect the cables and the hoses, remove the valve and check the condition of the inlet filter; clean if necessary, using a cleaning solution and a soft brush.

Cleaning the Drain Pump

- Remove the valve body, clean if necessary, using the same cleaning solution as for the steam cylinder and a soft brush.

Cleaning the Drain Pan

- Clean the pan of any mineral deposits and check that the water flows freely from the pan to the drain at the drain pump.

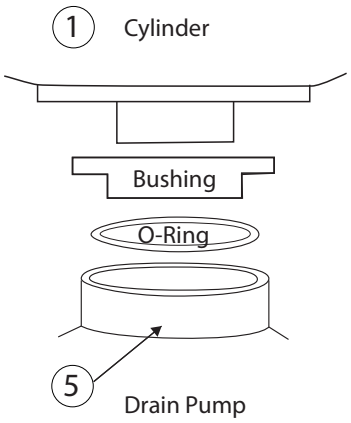
Cleaning the Supply, Fill, Overflow Pipes

- Check that these are clear and clean or replace if necessary.

IMPORTANT WARNING: after having replaced or checked the plumbing, check that components have been reconnected correctly with the proper seals. Re-start the humidifier and perform several cleaning cycles (from 2 to 4. Read section "Initial configuration of the Steam Unit".)

7.4 REPLACEMENT PARTS

To replace any faulty components, only use original accessories and spare parts available from authorized dealers. No changes must be made without the express authorization of the manufacturer.



Exploded View of O-Ring Placement

- Bushing is permanently affixed to drain pump.
- O-ring is included with replacement cylinder.

Fig. 7.c

Tab. 7.f

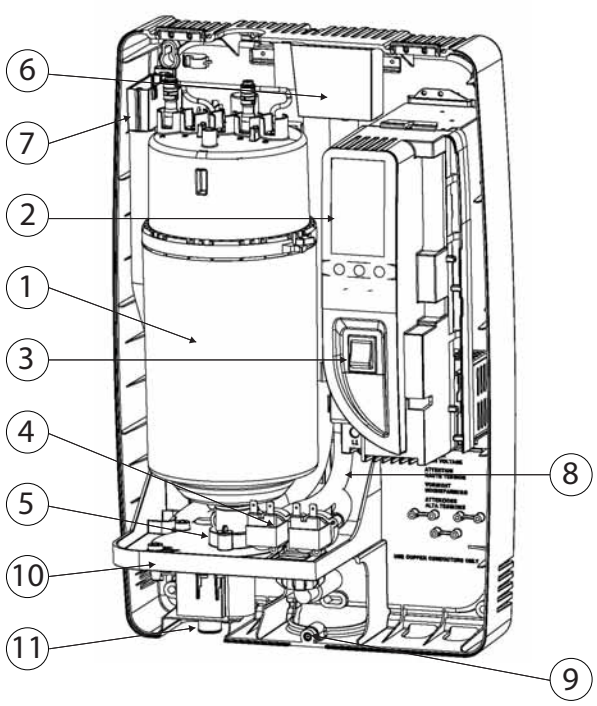


Fig. 7.d

ITEM	USA GFI PART NO.	CANADA CGF PART NO.	DESCRIPTION
1	7746	GF-5500-02	5500-02 REPLACEMENT STEAM CYLINDER
2	7747	GF-5500-03	5500-03 CONTROL MODULE ASSEMBLY 115V/230V
3	7551	GF-35-18	35-18 ON/OFF SWITCH
4	7753	GF-5500-08	5500-08 FILL & DRAIN TEMPERING VALVE 230V
5	7805	GF-25-7	25-7 KIT FOR DRAIN PUMP 230V
6	7806	GF-25-2	25-2 FILL TANK + PLUG FOR DRAIN PUMP
7	7810	GF-25-8	25-8 DRAIN TANK + PLUG FOR DRAIN PUMP
8	7808	GF-35-25	25-5 DUCT TUBING KIT FOR DRAIN PUMP
9	7553	GF-35-25	35-25 COVER HOLDING SCREWS FOR CH SERIES
10	7809	GF-25-6	25-6 BOTTOM TANK FOR DRAIN PUMP
11	7750	GF-5500-06	5500-06 STRAIGHT DRAIN FITTING
Not Shown	7513	GF-20-2	20-2 STEAM HOSE 7/8" I.D.
Not Shown	7748	GF-5500-04	5500-04 INTERNAL WIRE KIT
Not Shown	7749	GF-5500-05	5500-05 DRAIN HOSE 3/4" I.D.
Not Shown	7751	GF-5500-01	5500-01 MOUNTING STRAPS
Not Shown	7752	GF-5500-07	5500-07 8" STEAM MANIFOLD KIT

8. TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION	NOTES
Capacity / VAC / kW	4.9 lbs/hr (2.2 kg/h) / 115 VAC 1-phase 50-60 Hz / 1.86 kW 9.9 lbs/hr (4.5 kg/h) / 230 VAC 1-phase 50-60 Hz / 4.05 kW	
Steam pressure	3.81 in WC / 950 Pa (.137 PSI)	
Dimensions (inches / mm)	21" H x 13" W x 8.25" D / 533mm H x 343mm W x 210mm D	
Weight empty/packaged/installed with water (pounds / kilograms)	16 / 26 / 24 lbs. (7.3 / 12 / 11 kg)	
IP class	IP20	
Electrode power cables	AWG12	
Power relays (amps)	2 x 30	On board
Ground connection	Screw	
Input water type	Potable water	No demineralized or softened water
Conductivity range (microSiemens)	125-1250 µS/cm	
Water fill connection	1/4" O.D. Compression	Adapter to 3/4" BSP
Water fill - instant flow	0.09 – 0.16 gpm (0.35 – 0.60 l/min)	
Drain hose	¾" ID x 10 ft. drain hose supplied (19 mm ID)	From bottom of unit
Drain water temp F / C	< 140°F / < 60°C	Drain tempering device
Drain flow	Initial Max drain rate using ¼" OD supply tubing and full cylinder – approx 1.1 gallons for first 15 seconds of drain cycle (~4.4 gpm (13.2 l/min)) Initial Max drain rate using hose with ¾" BSP fitting – 6.3 gpm (23.8 l/min) Average drain rate – 3.8 gpm (14.4 l/min) (measured over a one minute period starting with full cylinder)	
Serial communication	DS485	
Unit voltages	Primary 115 / 230 Volts AC / Control Wiring 12 Volts DC	
Electrical requirements	Require AWG12 external power wires to electrical panel with a dedicated 20A	
Max output	28.5 GPD max. If unit is not configured (section 4.4) then default setting from factory is 20.9 GPD at 230V	
Steam hose	6' blue steam hose ID 7/8" (22mm), OD 1 ¼" (30mm), (GFI #7525)	
8" Steam manifold (standard)	8" steam manifold supplied with duct mounting kit	
OPTIONAL		
GF-12500 air pressure switch	Actuated by positive, negative or differential pressure of .05" W. C. or more (GFI #7021)	
RMB35 room steam kit	230V Includes room blower assembly and grille package (GFI #7660)	
Steam nozzle	Optional accessory can be used for bottom duct installation (GFI #7500 / CGF#GF-20-1)	
GF-DPO30KIT	Optional accessory 12" length steam distribution manifold (GFI #7521)	
GF-DP045KIT	Optional accessory 17.5" length steam distribution manifold (GFI #7522)	
FIELD SUPPLIED		
Copper tubing	OD 3/4" to fit ID of blue steam hose	
Inline pre-filter	Any activated carbon element and particulate element rated for 5 micron or less and min 25 GPM	
Condensate pump	3 gpm min. flow at 0 head and 1 gallon reservoir min. The technician is responsible for selecting the appropriate condensate pump for the installation	

Tab. 8.a

NOTES:

9. LIMITED WARRANTY

GeneralAire® Model 5500 Steam Humidifiers, if properly registered on www.generalfilters.com/support/warranty-registration, are warranted to the consumer against defects in materials and workmanship for a period of five years from the date of installation, so long as the product has been installed by a qualified contractor and operated in accordance with all appropriate manuals and wiring diagrams in a residential structure.

Installation in commercial, industrial or office building locations will void all warranties. Installation to a water source that does not meet unit specification will void all warranties. Replacement of routinely replaceable parts such as steam cylinders and gaskets, are not covered by this limited warranty or any other warranties.

Any other defective parts will be repaired without charge except for removal, reinstallation and transportation costs. To obtain repair service under this limited warranty, the consumer must send the defective part to General Filters, Inc.

THERE ARE NO EXPRESS WARRANTIES COVERING THIS HUMIDIFIER OTHER THAN AS SET FORTH ABOVE. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. THE MANUFACTURER ASSUMES NO LIABILITY IN CONNECTION WITH THE INSTALLATION OR USE OF THIS PRODUCT, EXCEPT AS STATED IN THE LIMITED WARRANTY. THE MANUFACTURER WILL IN NO EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow either limitations on implied warranties, or exclusions from incidental or consequential damages, so the above exclusion and limitation may not apply to you.

Any questions pertaining to this limited warranty should be addressed to General Filters, Inc. General Filters, Inc. has elected not to make available the informal dispute settlement mechanism which is specified in the Magnuson-Moss Warranty Act.

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Register your warranty online Canada: www.cgfproducts.com / Warranty Registration

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