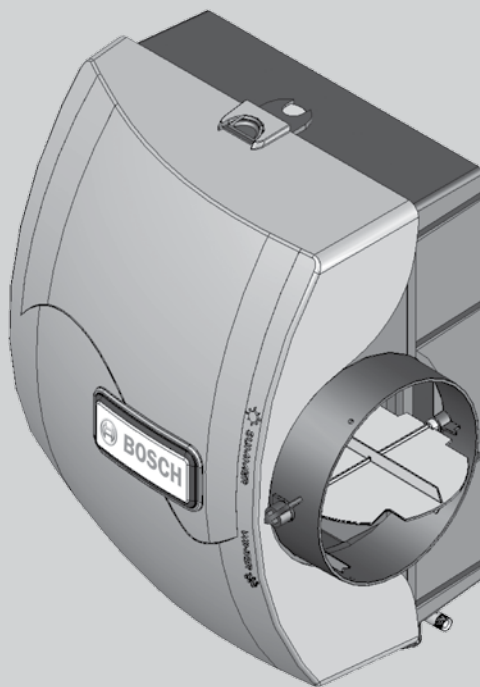
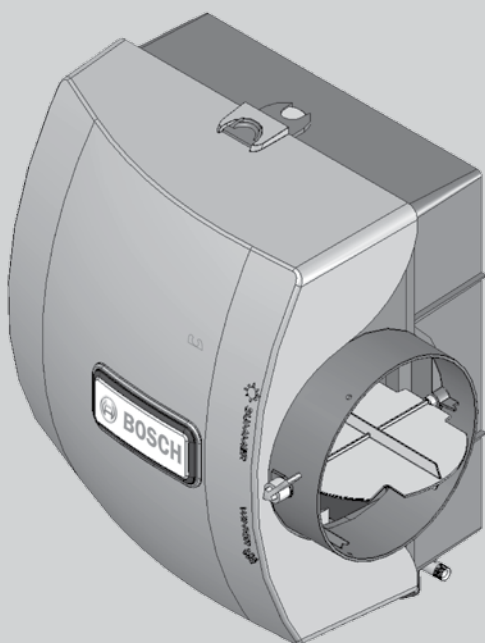


FLOW-THROUGH BYPASS HUMIDIFIER

FOR INSTALLATION ON A VERTICAL PLENUM SURFACE
OF ANY AIR HANDLER



HUMBSBP-12H6--A

HUMBLBP-17H6--A

6 720 220 343 Revised 07-12



BOSCH

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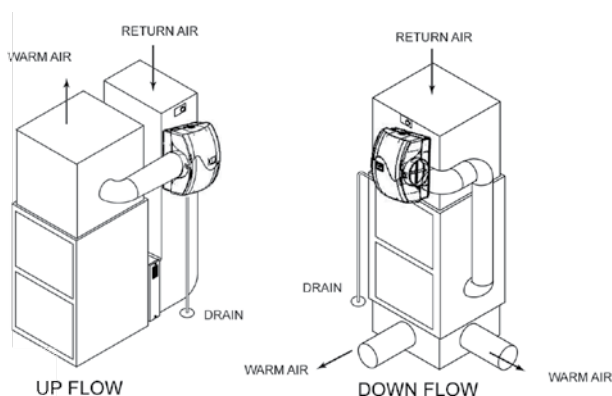




The installer should be an experienced service technician. Disconnect electrical power before beginning installation. Do not install where temperatures fall below 32 degrees F or where plenum temperatures exceed 150 degrees F. When wiring into a multi-speed blower circuit see Step 6.

INSTALLATION

The humidifier may be mounted with the 6" outlet to the right or left side. The humidifier may be mounted on the warm or return air plenum with equal efficiency. See Typical Installations.



Additional Materials That May Be Necessary

1. 1/4" diameter plastic supply tubing or 1/4" copper supply tubing for hot water applications
2. 6" diameter galvanized by-pass pipe
3. Electrical wire and wire nuts
4. Current sensing relay
5. #8 self piercing sheet metal screws
6. Accurate Humidity measuring device.

STEP 1: Carefully unpack the Bosch Humidifier and verify that all contents are present and undamaged. Remove the cover using the the release tabs on the top and bottom, exposing the humidifier evaporator pad. Remove the evaporator pad, drain pan, and distributor trough (all of this should come out as one piece).

Step 2: The BOSCH humidifier may be installed on either the supply or return plenum of a forced air handling system. Select a location for the humidifier that allows for service and maintenance. Cut out a rectangle. Extend horizontal center line of cut out to the adjacent plenum. Cut a 6" hole 10" to 15" from side of humidifier, on cabinet center line, using connecting collar as guide. The bypass is reversible and can be mounted on the right or left side of the humidifier. Use provided template provided in the humidifier package. See Figure 1.

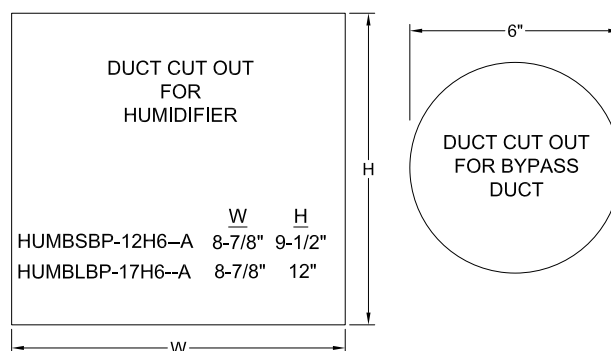


Figure #1

Step 3: Humidifier is self retaining. Slide top side in first, then slide chassis down. Level chassis and install center screws. If by-pass duct installs to opposite side of chassis, bend clip on chassis, remove side discharge, and reinstall discharge to opposite side of chassis. Install remaining four corner screws. See Figure 2.

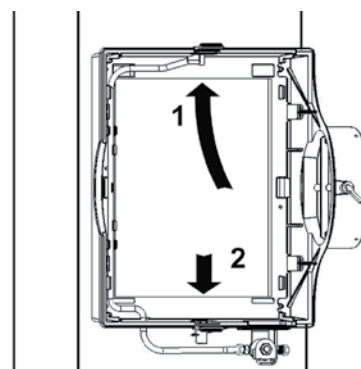


Figure #2

Step 4: Connect by-pass duct to collar and humidifier cabinet. Using holes at top and bottom of side panel discharge, pierce 2 self tapping screws through by-pass pipe. See Figure 3.



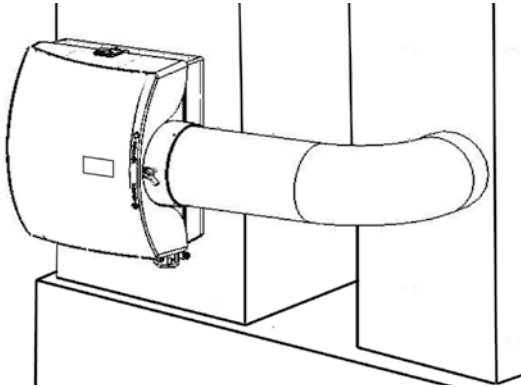


Figure #3

Step 5: Mount the self tapping saddle valve or code valve on either a cold or a hot water pipe. A side or top mount is best to avoid clogging from pipe sediment. Connect 1/4" O.D. tubing to the saddle valve. Copper tubing requires a brass compression nut and brass sleeve. Plastic tubing requires a brass insert inside the tubing, a plastic sleeve on the outside with a brass compression nut. See Figure 4.



Do not use plastic tubing on hot water or in contact with any hot plenum surface or duct. Installation of this saddle valve must meet or exceed local codes and ordinances.

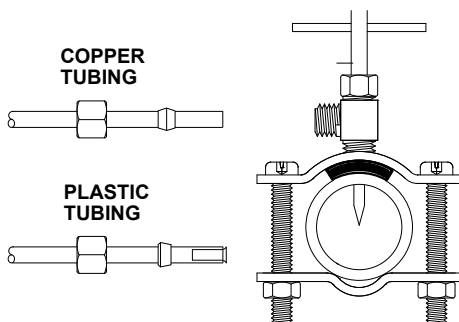


Figure #4

Step 6: Connect 1/4" water supply tube to brass filter at inlet of solenoid. See Figure 5.



Do not use plastic tubing on hot water or in contact with any hot plenum surface or duct. If using plastic tubing, use tube support and plastic compression sleeve.

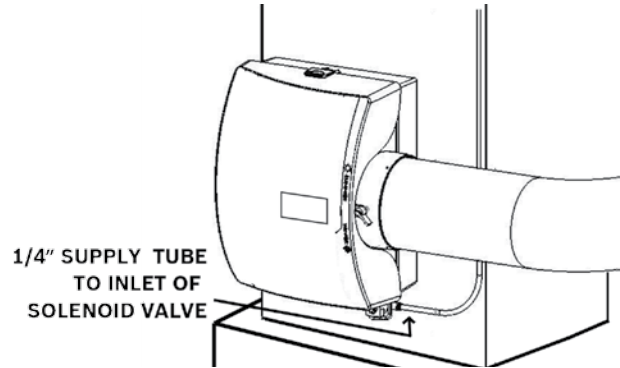


Figure #5

STEP 7: Replace the evaporator pad with the drain pan and distributor trough attached. Ensure that the drain pan is on the bottom and that the spout aligns with the outlet in the cabinet. The evaporator pad assembly can only be installed in one direction. Ensure that the notch at the top in the distributor trough goes in first. Do not force the evaporator pad assembly. If it does not go in easily, it might be backwards.

STEP 8: Replace the humidifier cover, ensuring that both tabs snap into place.

Step 9: Turn damper knob to the "winter" (open) position. Turn on water supply and check operation of humidifier. Set humidistat to a demand setting. (See Humidistat section for installation and settings) With the air handler off, the solenoid valve should be closed. Start the air handler, the solenoid valve should open when the blower motor is energized. Check flow of water through distributor trough and evaporator pad. The standard yellow orifice will supply approximately 3.5 GPH of water at a line water pressure of 60 psi. For low water pressures (20-40 psi) a larger orange orifice (P/N 7738002989) is available to provide the same flow. Leave humidistat set at the recommended setting.

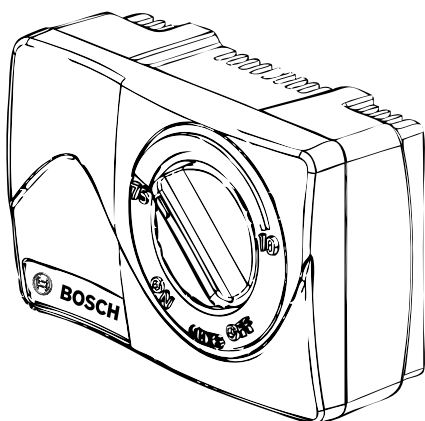
Connect drain hose to 1/2" spout on humidifier cabinet using hose clamp. Run 1/2" hose to suitable drain such as floor drain, sewer or laundry sink. Be sure hose has continuous slope and is not kinked at any point.



HUMIDITY CONTROL HUMIDISTAT HUMB-TST-A-A



INSTALLER: Leave owner's manual with home owner.



SAFETY



Improper electrical wiring can result in fire or loss of humidity control. Disconnect electrical power before installing and servicing. Failure to disconnect electrical power may result in injury or death. All local building and electrical codes must be followed. The humidistat must be installed by a qualified Technician. Failure to properly install the humidistat may result in property damage or personal injury.

Homeowners must read instructions and understand the operation of the humidistat and the humidifier(s) it controls.

Improper operation can result in over or under humidification. Over humidification can result in condensation, structural damage and mold. Condensation within a building's structure can cause loss of structural strength. Condensation can also enable mold and mildew growth resulting in personal injury and damage to building structure and contents.

APPLICATION

The humidistat provides low voltage control of humidifiers installed in central heating systems. The humidistat control has a DPST switch and is designed for wall mounting in the living area, or

mounting on the return air duct. Use contacts C and NO for humidistat operation. Use contacts C and NC for dehumidistat operation.

RANGE: 10% to 85% RH **ELECTRICAL RATING:** 30 VAC / 60 VA

OPERATION

Set the control knob to the desired humidity setting. The recommended setting for optimum whole-house humidification is 30% to 50%. The vertical position on the knob is approximately 42% RH.

Setting the humidistat above or below the recommended settings may not provide satisfactory results for your home. Refer to the Care and Maintenance section of this manual for recommended settings.

INSTALLATION INSTRUCTIONS— PRECAUTIONS

The installer must be a qualified technician. Disconnect electrical power before beginning installation. Do not install the humidistat on the warm air duct. Conduct a thorough checkout before leaving the installation.

WALL MOUNT INSTRUCTIONS— HUMIDISTAT/DEHUMIDISTAT VERSIONS

1. Choose a location for the HUMB-TST-H-A about five feet above the floor on an inside wall with average room temperature and relative humidity conditions.
2. Drill a small hole in the wall and run low voltage wiring to the location chosen. Pull about 6" of wire through the hole. Use the entire mounting gasket (both inside and outside portions) to seal the wall opening or use foam tape to prevent drafts from affecting the humidistat operation. See Figure 6.
3. Squeeze the top and bottom of the base to release the face of the humidistat.
4. Mount the base horizontally over the wires. Attach directly to the wall, using the two screws provided in the slotted holes.



5. Connect the wires to the terminals on the control assembly as shown in wiring diagrams. Replace face plate.

DUCT MOUNTING ON THE RETURN AIR-WALL BASE

Humidistat/Dehumidistat versions (optional)



Do not install the humidistat on the warm air duct or within 48" of UV light.



Wall mount option requires Bosch P/N 7738002911

1. Locate the humidistat at least 24" upstream of the humidifier or bypass on the return air duct. Avoid areas of direct radiation like secondary heat exchanger in the fan compartment.
2. Cut a square in the duct 2-1/4" wide and 1-3/4" tall. Remove the inner portion of the mounting gasket and discard. Use the outer portion to seal between the plastic base and the duct. Line up the base with the cut out and accurately mark the holes thru the plastic duct mount plate. See Figure 6.

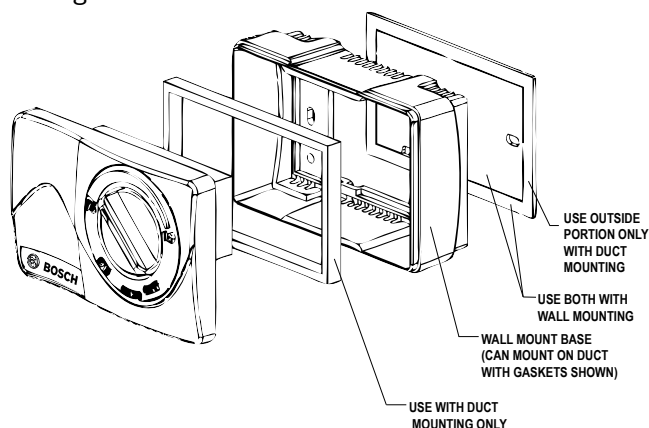


Figure #6 - Wall Mount Version

3. Remove the humidistat and drill four 3/32" mounting holes.
4. Place the outer portion of the mounting gaskets on the plastic base and mount the base with four screws. Low voltage wire may enter the humidistat under the gasket.

5. Connect wires to terminals on the control assembly as shown in wiring diagrams. Replace the face plate.

DUCT MOUNTING ON THE RETURN AIR-DUCT BASE

Humidistat/dehumidistat versions (recommended)



Do not install the humidistat on the warm air duct or within 48" of UV light.

1. Locate the humidistat at least 24" upstream of the humidifier or bypass on the return air duct. Avoid areas of direct radiation like secondary heat exchanger in the fan compartment.
2. Remove face by inserting screwdriver into the pry slot and twisting. See Figure 7.
3. Use the plastic duct mount plate as a template. Accurately mark and drill the (4) 3/23" mounting holes and cut away the 4-1/4" x 2-1/2" section of the duct mount plate.
4. Place duct mount base gasket on the humidistat base and mount the base with four screws. Low voltage wire may enter the humidistat under the gasket. See Figure 7.

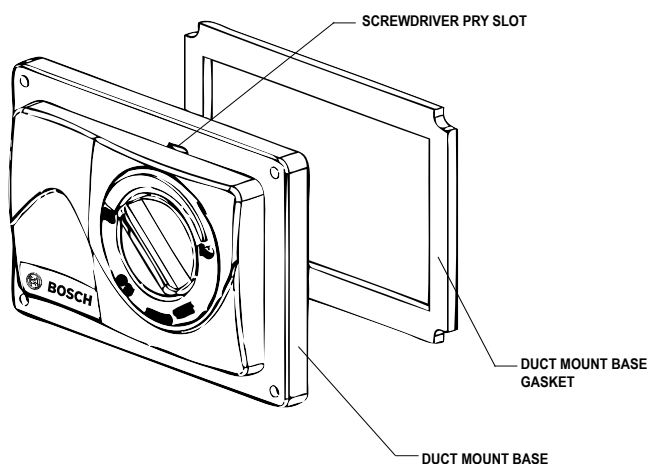


Figure #7 - Duct Mount Version

5. Connect wires to terminals on the control assembly as shown in the wiring diagrams. Replace face plate.



HUMB-TST-H-A CALIBRATION INSTRUCTIONS



Accurate humidity gauge required

1. Use an accurate humidity gauge to determine the current relative humidity in the room where the humidistat is located. This relative humidity will be used in step 5.
2. Remove the face plate from the housing.
3. Turn the knob on the HUMB-TST-H-A faceplate to the “on” position.
4. Very slowly, turn the knob clockwise until you hear a “click” from the humidistat control and leave the knob in this position.
5. Turn the ring (not the knob) so that the knob is pointed directly at the current relative humidity number determined in Step 1. To rotate the outer ring, locate the locking tab on the backside of the face plate. Carefully pry up the locking tab and rotate the outer ring until it matches up with the humidity level determined in Step 1.
6. The humidistat is now calibrated to match your humidity gauge.

WIRING



Disconnect electrical power before beginning installation. 120 volts may cause injury or even death.

Refer to the Heat Pump Wiring Diagram on page 10 for proper controller wiring.



All wiring should comply with local electrical codes.

CHECKOUT

With the air handler in operation, turn humidistat to “ON” position. Observe humidifier operation.

SETTINGS



Do not set relative humidity too high during cold weather. Over humidification can result in condensation, structural damage and mold. Condensation within a building's structure can cause loss of structural strength. Condensation can also enable mold and mildew growth resulting in personal injury and damage to building structure and contents.

CARE AND MAINTENANCE

Your humidifier is engineered to give helpful and trouble-free humidification. For maximum efficiency and to ensure the safe and proper operation of your humidifier, the following cleaning procedures should be carried out at the end of each heating season:



If the humidifier is being supplied with hard water, maintenance will need to be more frequent than once a year.

1. Turn off water supply and electrical power to humidifier.
2. Remove water cover, distributor trough, evaporator pad and drain pan. Clean all mineral deposits from the distributor trough, drain pan, pad rails, and humidifier cabinet. A solution of 1/2 vinegar & 1/2 water will help loosen mineral deposits.
3. Replace humidifier evaporator pad. Install trough and drain pan. Replace cover. (**Replace evaporator pad yearly for peak performance and to maintain reliable operation. Replacing evaporator pad helps to ensure water travels freely to drain connection.**)
4. In heavy mineral areas or if the solenoid valve fails to function disconnect the 1/4” water supply line from the solenoid valve. Carefully pull the strainer screen from the valve body. Clean the mineral deposits from all parts. If the orifice is clogged, it may be opened by inserting a small pin. Reinsert the filter into the orifice fitting and screw the brass strainer body into the solenoid valve.
5. Reconnect the 1/4” water line to the solenoid valve if necessary. Turn on the water supply and



check all points for leakage. The operation of the unit may be checked by starting the air handler. The humidifier operates only when the air handler blower motor is energized. The humidifier is now ready for operation.

6. During the summer, turn off water supply and electrical power to humidifier. Close air damper.

Table 1

Outside Temperature		Recommended Setting
-20°F	-29°C	15%
-10°F	-23°C	20%
0°F	-18°C	25%
+10°F	-12°C	30%
+20°F	-7°C	35%
+30°F	-1°C	40%

HOW THE HUMIDIFIER WORKS

The operating principle of the humidifier is based on the most efficient and economical means of evaporating water to the air. The humidifier uses only 2.5 watts of electrical power during operation, less than the smallest household light bulb. The heat necessary for evaporating water is produced by the air handler.

The water supply to the humidifier is controlled by the electric solenoid valve. The humidistat connected in series with the solenoid provides low voltage control of the humidifier. The humidistat is designed for wall mounting in the living area or surface mounting on the return air duct.

ELECTRICAL RATING: 24 VAC / 60 Hz.

Water flows through a strainer, is metered through an orifice to provide the proper amount of water, and is supplied to the evaporator pad by the distributor trough. Approximately 200 CFM of air is by-passed from the warm air plenum through the humidifier and returned to the cold air plenum. Moisture is

evaporated to the air passing through the evaporator pad. Minerals are not blown into the air stream as occurs in atomizing humidifiers; they are left on the evaporator pad where a high percentage is carried off with the waste water. When the humidifier is installed and operating, no adjustments are necessary other than setting the control knob on the humidistat to the desired level of humidification. Leave knob on the humidifier in "WINTER" position. To turn the humidifier off, close water supply valve, switch electrical power off and turn humidistat off. If air handler is used for summer cooling or ventilating set air damper on "SUMMER".



Do not set relative humidity too high during cold weather. Excessive humidity may cause condensation on windows or in walls. Refer to recommended settings as described in Table 1.

HUMIDIFIER PACKAGED COMPONENT ACCESSORIES

Bosch HUM Series Includes:

Humidifier Components:

Vapor Pad

Solenoid Assembly

Integral Bypass Damper Accessories:

Manual Humidistat

Saddle Valve

The humidifier comes with a humidistat controller setup for the duct mounted option. The wall base (Bosch part: 7738002911) can be ordered for the wall mount controller option. Contact your local Bosch distributor to order this part.

CONTACT YOUR LOCAL BOSCH DEALER OR INSTALLING CONTRACTOR FOR PRODUCT SUPPORT.

Field Technical Support:

(954) 776-5471

Monday-Friday: 8 am - 5 pm EST

Bosch

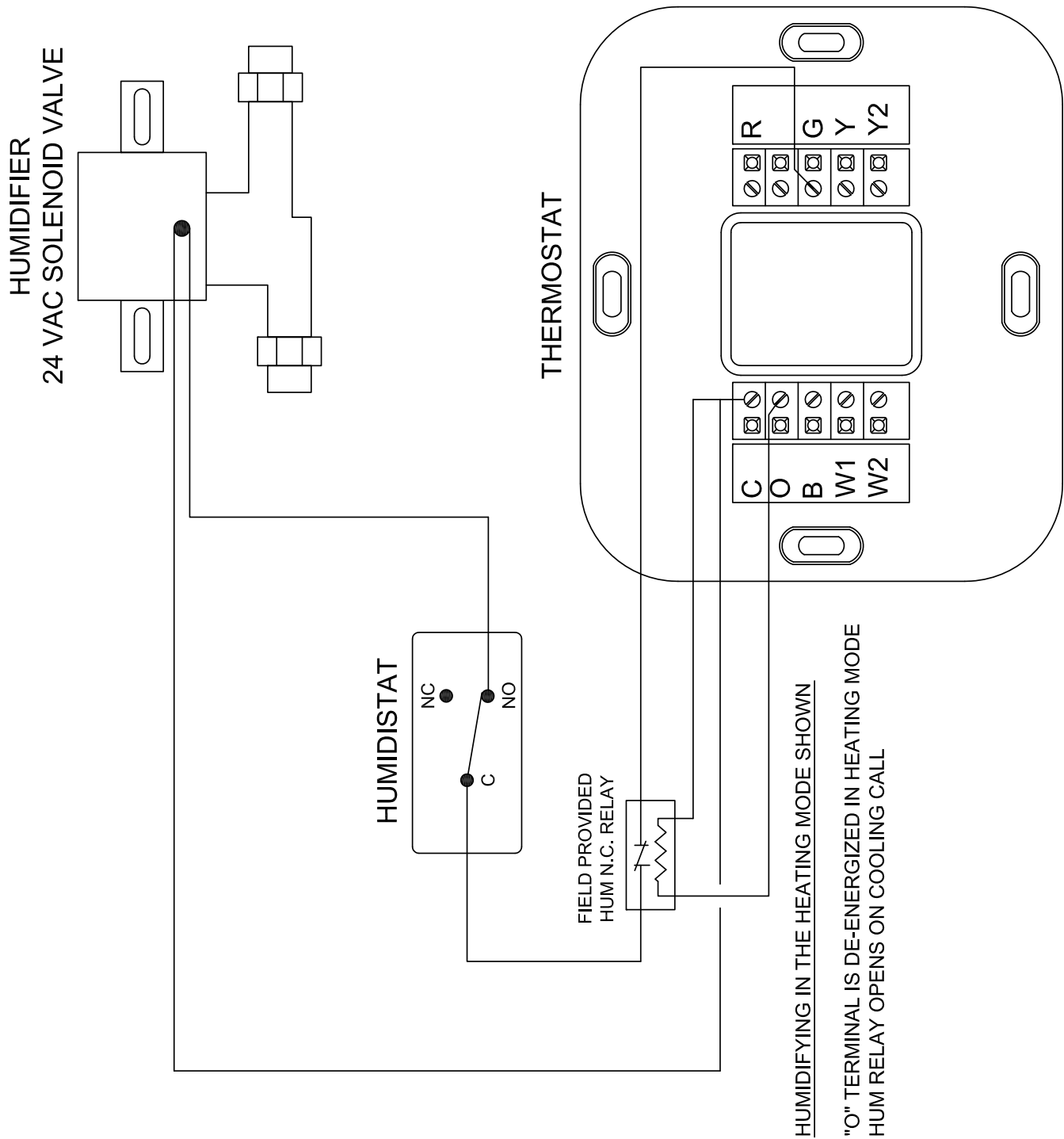
601 N.W. 65th Ct.

Ft. Lauderdale, FL 33309

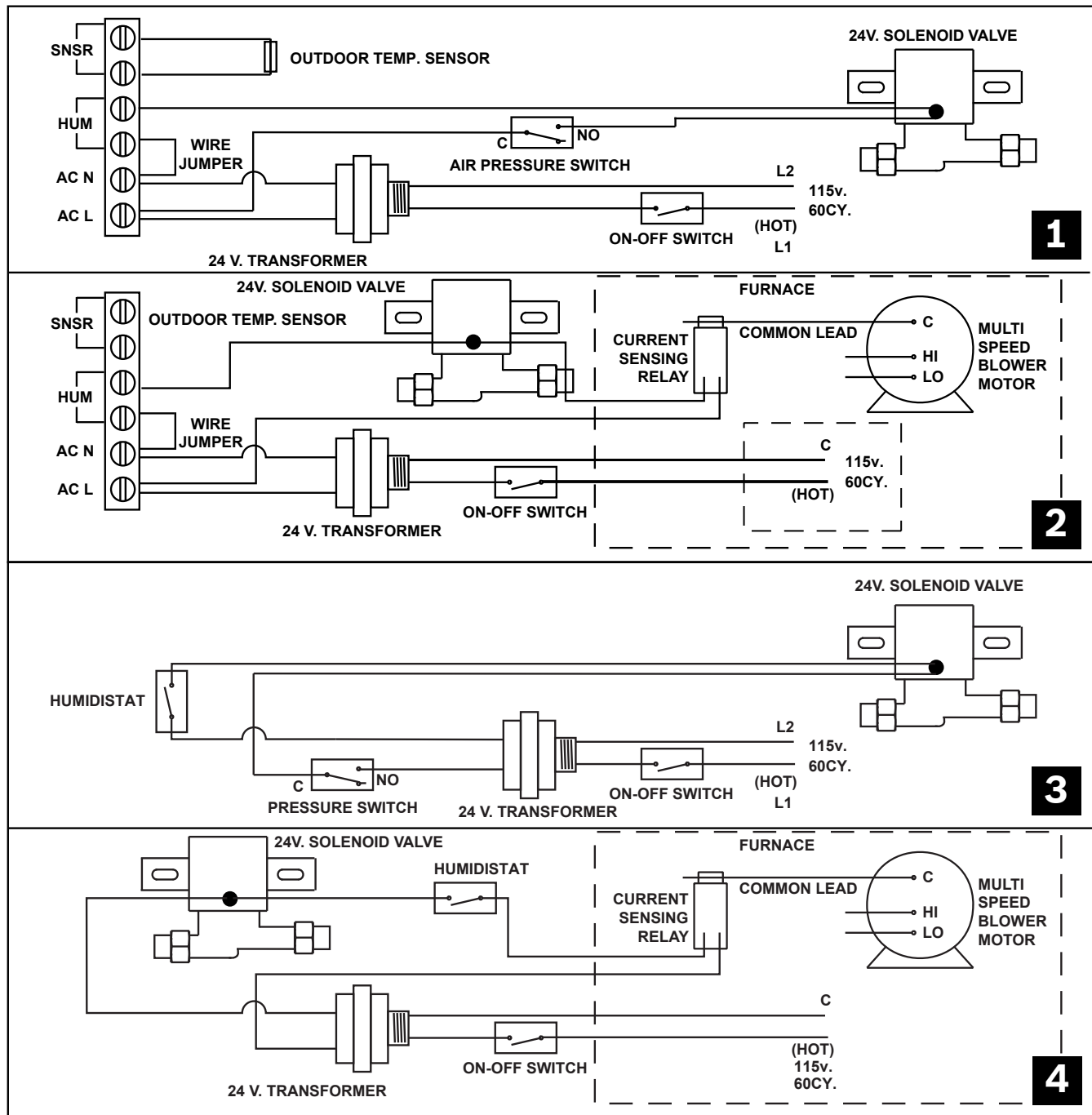
www.bosch-climate.us



Primary Heat Pump Wiring Diagram



Alternate Electrical & Control Connections



Manual Humidistat

1. To furnace control board 24 volts
2. To constant power using 24V transformer and pressure switch
3. To furnace control board 115 volts with 24V transformer
4. To constant power using 24V relay and current sensing relay



Parts List for Humidifier

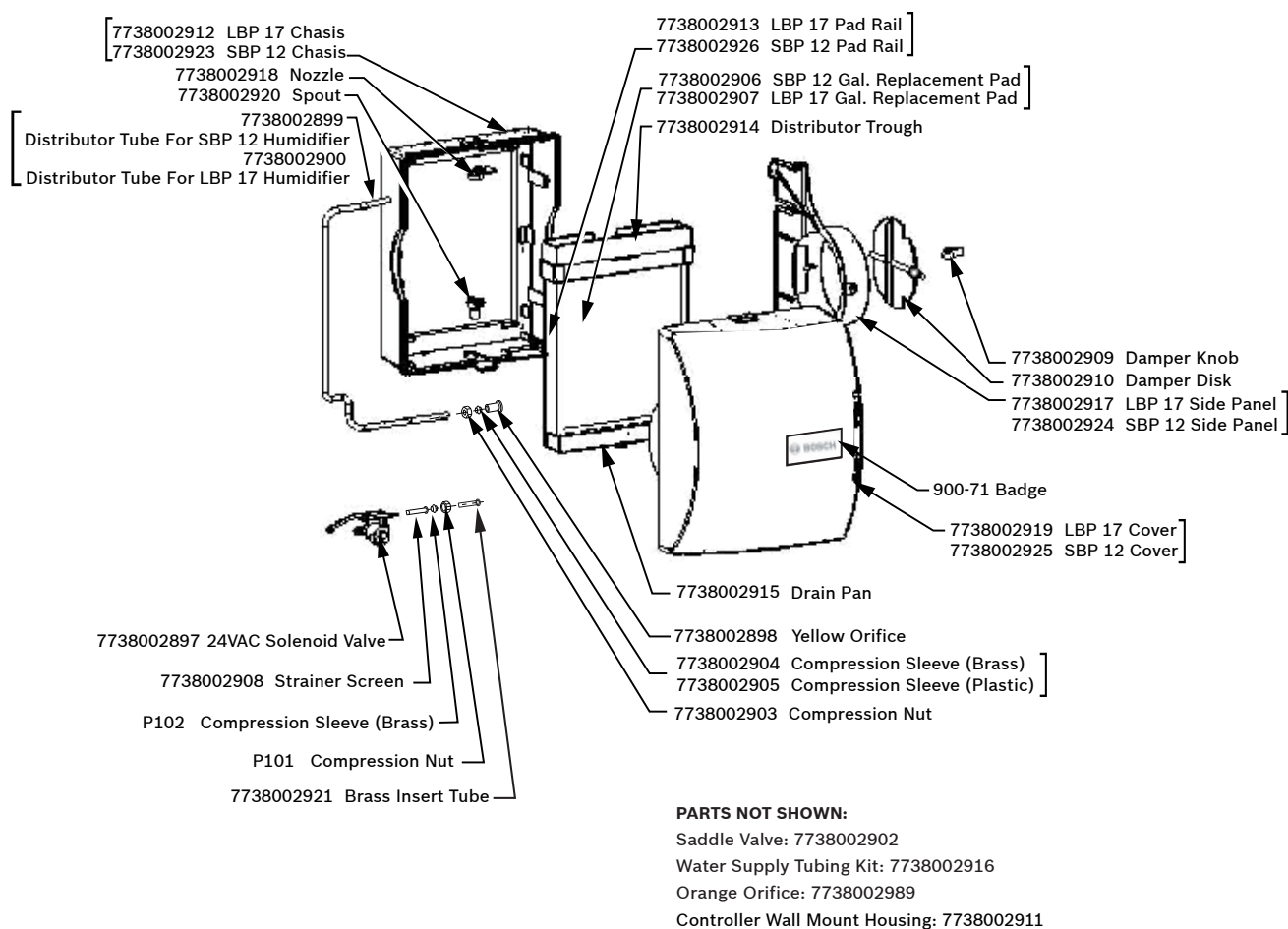


Table 2: Bosch Humidifier Specifications

Expected Humidity Performance Coverage in Square Feet Based on Construction Type

Model Number	Bosch Part Number	GPD	Loose (0.75 AC/H)	Average (0.50 AC/H)	Tight (0.30 AC/H)
HUMBSBP-12H6--A	7738002895	12	800 sq. ft.	1,200 sq. ft.	2,000 sq. ft.
HUMBLBP-17H6--A	7738002896	17	1,115 sq. ft.	1,650 sq. ft.	2800 sq. ft.

Table 3: Humidifier Performance Baseline Criteria

Outside Design Temp	0° F (-18° C)
Outside Design R.H.	70% R.H.
Inside Design Temp.	70° F (21° C)
Inside Design R.H.	30% R.H.
Air Changes/hour (AC/H)	0.30
Ceiling Height	8 ft
Air Handler Plenum Temp.	120° F (49° C)
Air Handler run time for calculating sq. ft.	8hr/1 day

Humidifier Dimensional Drawings

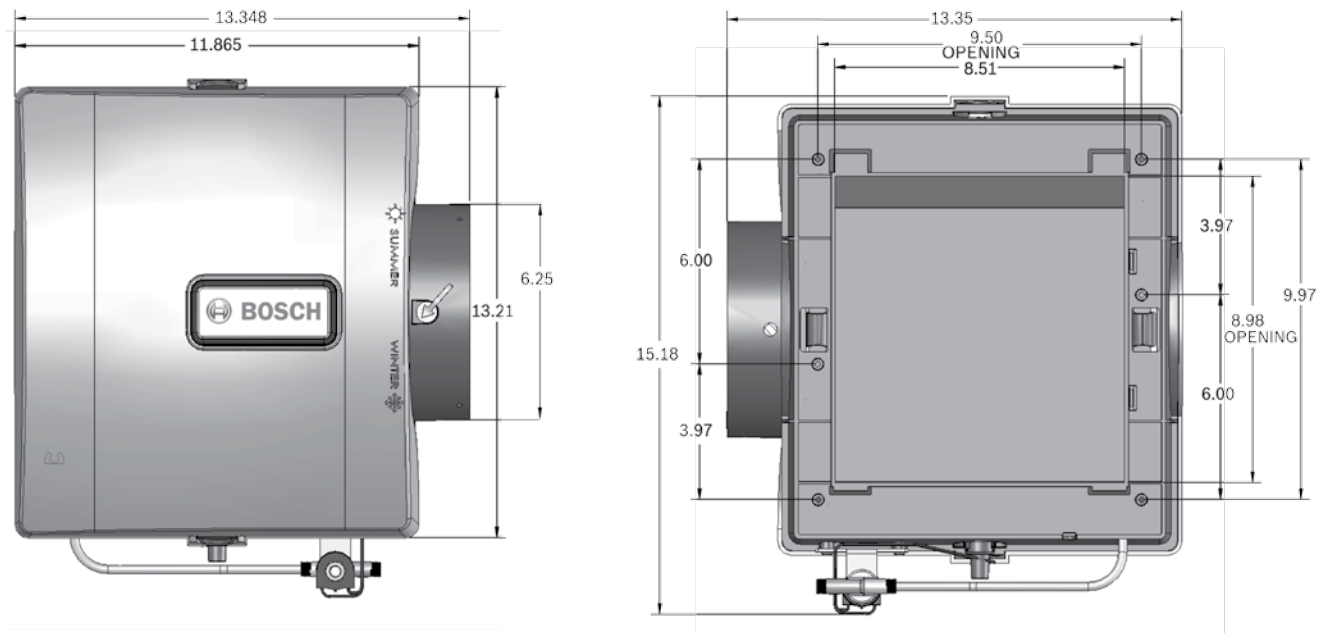


Figure #6 – HUMBSBP-12H6--A Dimensional Drawing

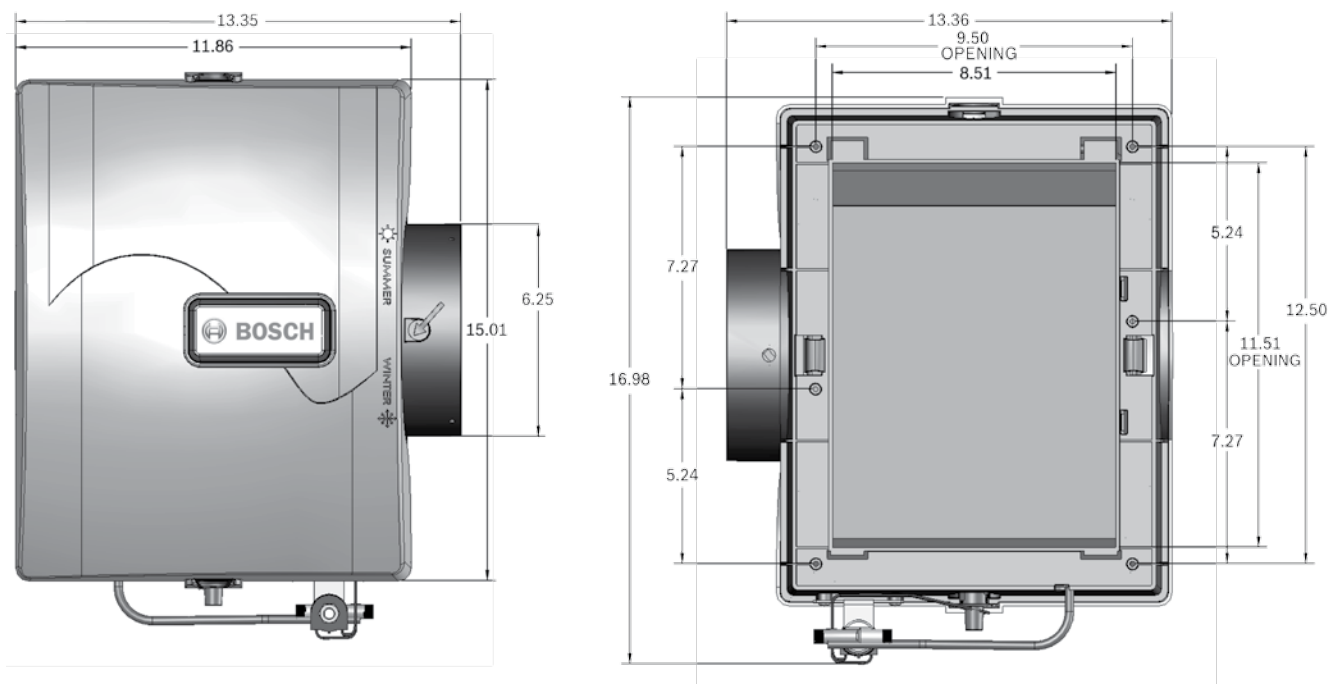


Figure #7 – HUMBLBP-17H6--A Dimensional Drawing

TROUBLESHOOTING

Problem	Checks and Corrections
Humidifier will not operate	<ol style="list-style-type: none"> 1. Set thermostat to operate air handler in heating mode. Operation may be necessary for system power. 2. Humidity level in home may be higher than humidistat setting. Increase humidity setting on humidistat. 3. Verify water supply is on. 4. Check for voltage at the solenoid valve. Voltage should be 24VAC. Bypass the humidistat if necessary to isolate the solenoid valve circuit. 5. Verify wiring of humidifier and humidistat.
Proper voltage present at solenoid valve (24 VAC) but no water flow	<ol style="list-style-type: none"> 1. Verify water supply is on. 2. Verify metering orifice is not obstructed. Very hard water with high mineral content may restrict the metering orifice in as little as one heating season. Replace metering orifice if restricted.
Humidifier runs without air handler operation or humidifier never shuts off	Verify humidifier and humidistat wiring. Humidifier should operate with air handler in heating mode.
Too much humidity in home and/or condensation on windows	Reduce the setting on the humidistat. Refer to CARE AND MAINTENANCE section of this manual to estimate a humidity setting for the home based on outside temperature.
No humidifier operation in "ON" position	<ol style="list-style-type: none"> 1. Set thermostat to operate air handler in heating mode. Operation may be necessary for system power. 2. Check voltage at humidifier control terminals. Voltage should be 20-30 VAC. 3. Inspect humidifier wiring. Refer to wiring diagrams. <p>DO NOT LEAVE IN "ON" POSITION, AS OVER HUMIDIFICATION MAY OCCUR.</p>
Humidifier operation in "ON" position only	<ol style="list-style-type: none"> 1. Humidity level in the home is higher than knob setting. Humidifier control will not operate the humidifier until humidity level is reduced.
Humidifier operation continuous	<ol style="list-style-type: none"> 1. When the humidity in the home is less than the knob setting, the control will operate humidifier until the humidity is higher. Reduce knob setting. 2. Use "ON" position. Verify that the humidifier operates. 3. Remove wires from control terminals. If humidifier continues to operate, check solenoid valve.
Humidifier turns on and off repeatedly	<ol style="list-style-type: none"> 1. Check voltage at humidifier control terminals. Voltage should be 20-30 VAC. 2. If mounted on return air duct, make sure humidifier control is at least 24" upstream of humidifiers air discharge.
Where can I purchase replacement parts?	Replacement parts can purchased through your authorized Bosch Distributor or visit www.bosch-climate.us or more information.



PRODUCT LIMITED WARRANTY

Models Covered

This limited warranty is provided by FHP Manufacturing Company ("FHP") and covers Bosch Humidifier (hereinafter referred to as "Product"). This warranty is provided to the original purchaser of the Product as long as the Product remains installed at its original place of installation.

WARRANTY COVERAGE

Limited Warranty

FHP warrants that the Product at the time of shipment by FHP shall remain free from defects in workmanship and materials for the shorter of five (5) years from proof of certificate of occupancy date, five (5) years from proof of certified start up date or six (6) years from date of manufacture, provided it is installed and properly maintained by a qualified and trained HVAC contractor and the other conditions of this warranty are met. If FHP determines that the Product or any part of the Product has a defect in workmanship or materials, FHP, at its option, will repair or replace the defective part.

Humidifier Pad

FHP warrants that the Product shall remain free from defects in workmanship and materials for the shorter of one (1) year from date of installation or eighteen (18) months from date of manufacture, provided it is installed and properly maintained by a qualified and trained HVAC contractor and the other conditions of this warranty are met. If FHP determines that the Product has a defect in workmanship or materials, FHP, at its option, will repair or replace the defective part.

ITEMS NOT COVERED

This limited warranty does not cover the following circumstances:

1. Components or parts not provided by FHP.
2. Components or parts on which the tags or nameplates have been removed, altered or defaced.

3. Scratches in or discoloration of finishes.
4. Serviceable items and normal maintenance as required per the Installation and Maintenance Manual.
5. The workmanship of any installer. FHP disclaims and does not assume any liability of any nature for unsatisfactory performance caused by improper installation, repair or maintenance.
6. Any labor or material costs for removal, reinstallation, repair and replacement of the defective component or part.
7. Electricity or fuel costs, or any increases or unrealized savings in same, for any reason whatsoever.
8. Damage caused by excessive temperatures or pressures, fuel or gas explosion, electrochemical reaction, water and air impurities, electrical failures, use during construction, flooding or acts of God.
9. Any damage or failure resulting from the introduction of harmful chemicals, caustic fluids, or liquids detrimental to any unit component, including but not limited to improperly applied or maintained heat transfer fluids or chlorinated pool or spa water
10. Any damage or failure resulting from improper unit sizing.
11. Shipping charges, delivery expenses or administrative fees incurred by the purchaser in repairing or replacing the Product.

CONDITIONS OF WARRANTY

The warranty herein is void under the following circumstances:

1. Failure or malfunction resulting from improper or negligent operation, accident, abuse, freezing, electrical imbalance characteristics, misuse, unauthorized alteration, incorrect electrical supply, electrical surges, or improper installation, repair or maintenance. See the Installation and Maintenance Manual for installation and maintenance information.



2. Failure or malfunction resulting from any conditions within the structure, including mold and/or mildew and/or any chemical or toxin secreted there from or damage resulting from mold, fungus or bacteria.
3. Failure or malfunction resulting from a contaminated or corrosive air or liquid supply, the addition of unapproved chemicals, operation at abnormal temperatures, pressures or flow rates, opening of the refrigerant circuit by unqualified personnel or any attachment, accessory or component not authorized and approved by FHP. See the Installation and Maintenance Manual for installation and maintenance information.
4. Failure or malfunction due to misapplication or faulty building design or construction, including inadequate refrigerant levels, condensate drain, duct work design or installation.
5. Product on which payment to FHP is or has been in default.
6. Work performed without prior authorization or approval and without authorization/requisition number and without proper documentation verifying compliance with above terms.

LIMITED WARRANTY

OTHER THAN THE OBLIGATIONS OF FHP EXPRESSLY SET FORTH HERIN, **FHP DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** FHP'S SOLE OBLIGATION WITH RESPECT TO THE PRODUCT AND **PURCHASER'S EXCLUSIVE REMEDIES ARE SET FORTH IN THE FOREGOING LIMITED WARRANTY. FHP SHALL NOT BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR SIMILAR DAMAGES** INCLUDING, WITHOUT LIMITATION, INJURY OR DAMAGE TO PERSONS OR PROPERTY OR DAMAGES FOR LOSS OF USE, LOST PROFITS, INCONVENIENCE OR LOSS OF TIME.



Some states do not allow the exclusion of limitation of damages, or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you.

WARRANTY CLAIMS PROCESS

If you have a warranty claim you should notify the contractor who installed your Product and ask that the contractor notify FHP Manufacturing Company, 601 N.W. 65th Court, Ft. Lauderdale, FL 33309. To process your claim, you will need a copy of your original invoice or other proof of purchase, the product serial number and documentation showing the original installation date and location. The alleged defective components or parts must be returned to FHP in accordance with FHP procedure then in force for handling goods returned for the purpose of inspection to determine cause of failure (contact FHP if you have questions regarding the return process). If FHP determines that the returned components and/or parts are defective and that this warranty applies, FHP will furnish the repaired or replacement components and/or parts to the contractor who installed your Product.

This Warranty applies to FHP products installed in the Continental United States and Canada only





BOSCH

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