

TABLE OF CONTENTS

Product Information.....	3
Features.....	3
Specifications	3
Application.....	3
Installation Considerations	4
Installation.....	5
Wiring	5
Controlling the Outside Air Damper	6
Homeowner Considerations	6
Contact your local Bosch Dealer or Installing Contractor for product support.....	7
Product Limited Warranty	8



PRODUCT INFORMATION

The Bosch fresh outside air damper system allows fresh air to be introduced into the home for natural, healthy ventilation. As the building codes of residences are getting more restrictive on air leakage for energy efficiency improvements, fresh air can only enter the house as doors and windows are opened. This typically lends to overused, re-circulated stale air. Depending on the amount of air that is being exhausted through the bathroom fans, kitchen hoods, and local code requirements; outdoor air may be required as make-up air for your home. Bringing in outside air improves the overall indoor air quality for you and your family.

FEATURES

- Fully modulating (0-90°) damper position
- Power open / Power close 24VAC modulating damper motor
- Rated up to 1" w.c. with an 80 in-oz (5 in-lbs) torque damper motor
- Constructed of 30 gage, galvanized steel
- Two 28 gage, galvanized steel blades with rubber gasket sandwiched between blades
- Crimped and un-crimped ends for easy connection to round duct
- Fully opens or closes in 2.75 seconds
- LED indication lights of damper position; Green indicates fully open, Red indicates fully closed

- Hooded louver outside air intake with bird screen
- Wall mounted, variable position motor controller

SPECIFICATIONS

Available Sizes: 4", 5", and 6" round

Damper Motor Electrical Rating: 24 VAC, 2.6 VA operating, 0.7 VA holding

Damper Motor Electrical Connections:

Input: 24 VAC, common, G (blower call from air handler), VP from the wall controller

Output: 5 VDC to wall controller

Duct Material: 30 gage galvanized steel

Damper Material: 28 gage galvanized steel

Damper Motor Control: Wall mount potentiometer for damper opening allowing a certain percentage of air (0-100%)

Hooded Air Intake Louver: 4", 5", and 6" duct connection attached to an air intake hood to be mounted on exterior wall

APPLICATION

The Bosch fresh outside air damper system introduces outside air for ventilation, providing healthier indoor air quality and for exhaust make up air. A typical installation is demonstrated in Figure 1.

Although there are many variations of installations depending on physical constraints and routing of the air duct, Figure 1 shows in general how to

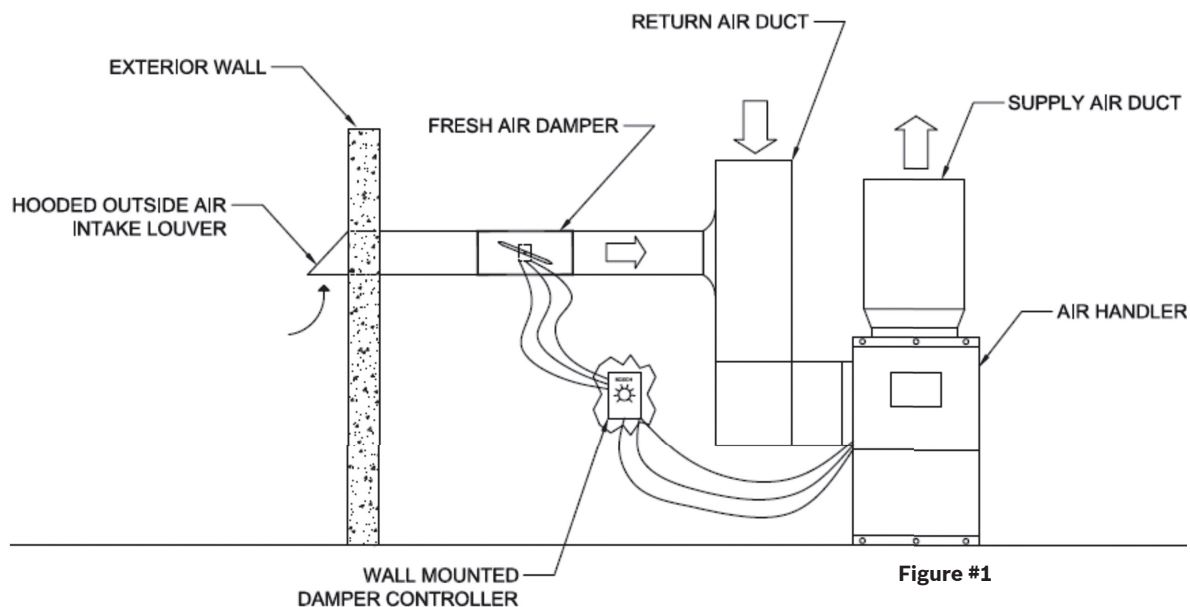


Figure #1

connect the Bosch Fresh Outside Air damper system to the HVAC system.

You want to introduce outside air if:

- You want to improve the IAQ (indoor air quality) of your home by bringing in fresh air while exhausting air via exhaust or kitchen fans. Introducing outside air will positively pressurize your home which will force out stale, recirculated air when doors and windows are opened.
- When required by your local code for make-up air.
- Your home is experiencing negative pressurization. This could adversely affect combustion appliances in your home, This would include gas fired water heaters, gas stoves and other combustion equipment.



The Bosch fresh outside air damper system is not intended to provide combustion air for appliances. The recommendations by the manufacturer of the appliance must be followed. This product is intended for addressing IAQ only.

INSTALLATION CONSIDERATIONS

Installing the fresh air duct system requires carefully selecting the location of installation. The following points should be considered when determining where and how the fresh air damper system will be installed:

1. Installation of the fresh air system as well as all electrical should be installed by experienced and licensed professionals. All local codes should be followed during the installation.
2. The quantity of outside air needed. Follow the general guidelines here when determining the size of the damper that is needed for your application:
 - 4" Damper – 70 CFM
 - 5" Damper – 100 CFM
 - 6" Damper – 150 CFM
3. The routing of the spiral duct must be considered. Length of duct as well as any fittings will provide excess pressure drop to the HVAC duct system; this may adversely affect the fan motor on the HVAC system. The duct design should provide as little of pressure drop as possible.
4. The location of where the outside air hooded intake is mounted on the exterior wall of the building. The 4", 5" or the 6" round duct will penetrate the wall at this location also. The material of the wall must be considered and how the space around the duct will be patched and sealed.
5. The fresh air intake should be located no closer than 10' from exhaust air outlets, other fresh air intake for combustion appliances, or chimney stacks. Refer to the local codes as the requirement may be more stringent. The most stringent requirement shall be followed.
6. The hooded louver intake should be located outside, and not in a garage, attic space, or any other confined space.
7. The outside air duct should be connected to the return air duct as shown in Figure 1. It is not recommended to have the outside air duct discharge air directly into the space. This air



This is a general guideline and Bosch recommends that a qualified HVAC contractor or a professional engineer size the duct and verify that the additional pressure drop will not adversely affect the air flow delivered by the HVAC fan motor.



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Refer to the local codes on requirements and restrictions on installation locations. Also verify if the wall has a fire rating; as the patch must provide the equivalent rating of the wall.

introduced to the space will be unfiltered and unconditioned; potentially leading to moisture concerns.

8. An air balance calculation should be conducted to verify that there is not a negative pressure being created. The amount of outside air being introduced should be adjusted to provide a positive pressure within the building if it is found to be negative.
9. The damper should be in a position that allows for easy maintenance and inspection.
10. The motorized damper is intended to be installed in a conditioned space, not outdoors exposed to the elements.
11. It is recommended to insulate the outside air duct within the conditioned space to prevent condensation forming in cold weather climate conditions.
12. The height of the hooded louver intake should be considered as well. The higher above grade the intake is located, the better quality of fresh air that is available. The minimum distance above grade should be 2' (24").

INSTALLATION

The fresh air duct system can be installed once the above mentioned installation concerns have been considered, the installation location of the intake louver and the routing of the duct has been determined.

1. Install the damper in the chosen location. The orientation of the damper should follow the air flow direction label. The crimped end should be oriented towards the air handler. Support the damper with two metal duct straps; the weight of the damper should not be supported by the duct work.
2. Ensure that the actuator motor is positioned on the side and not the top of the duct when installing in a horizontal position.
3. Drill or cut the required diameter hole through the exterior wall for the intake hood and duct.
4. Securely fasten the hooded louver intake to the exterior wall.
5. Route the required sized duct as determined by the HVAC contractor or professional engineer from the louver intake duct connection to the damper.
6. Route the required sized duct as determined by the HVAC contractor or professional engineer from the damper to the connection location to the HVAC system return air duct.
7. Ensure that the bird screen is installed securely in the hooded louver and that there are no gaps.



The duct installation, sizing, supporting, and sealing should be conducted following the latest SMACNA standards or following more stringent local codes.

WIRING

The motorized damper motor is controlled by a 24 VAC wall mounted, variable position potentiometer switch. The wall controller has 3 wire leads to make connections. Follow the wiring schematic shown in Figure 2 on the next page.

1. Choose an appropriate location to mount the wall controller. Available wall cavity space and ease of access to the wall cavity space should be considered when choosing an installation location.
2. Route an 18 AWG size wire from the air handler from the "G" terminal and connect to the "G" connection the damper actuator motor.
3. Route an 18 AWG size wire from the air handler from the "R" terminal and connect to the "24 VAC" connection the damper actuator motor.
4. Route an 18 AWG size wire from the air handler from the "C" terminal and connect to the "COM" connection the damper actuator motor.
5. Route an 18 AWG size wire from the "COM" connection on the damper actuator motor to the black wire lead out of the wall controller and connect using a wire nut.
6. Route an 18 AWG size wire from the "+5" connection on the damper actuator motor to the red wire lead out of the wall controller and connect using a wire nut.



7. Route an 18 AWG size wire from the “VP” connection on the damper actuator motor to the white wire lead out of the wall controller and connect using a wire nut.
8. Recheck all connections at the air handler, actuator motor, and the wall mounted controller to ensure they have all been tightened and the wiring is secure.



Ensure all applicable electrical codes are followed in wiring the fresh air duct system.

CONTROLLING THE OUTSIDE AIR DAMPER

Controlling the outside air damper is achieved by adjusting the knob on the wall mounted controller. The percentage of outside air that the homeowner will want will vary based on size of the home, activities going on within the home (i.e. dancing, cooking), and number of people.

The wall mounted controller has lines of 10% increments marked on the plate. Simply turn the knob to the appropriate amount of outside air. If the

percentage of air is adjusted for a short time duration due to activities or possibly by smoke being created by burning food, ensure that the controller is returned to the initial setting once the situation is back to “normal”.

Leaving the damper wide open when it is not needed can lead to IAQ issues by introducing humid air or dry air (depending on your geographical location and time of year) and can unnecessarily strain the HVAC system leading to discomfort and long run times of the HVAC system.

The wiring as described above however will ensure that the damper is closed when the HVAC fan motor is not energized. Fresh air should only be introduced if the fan is running.

HOMEOWNER CONSIDERATIONS

Some considerations that the homeowner should take when using and controlling the fresh air duct system:

1. The introduction of fresh outside air will increase the rate at which the air filter will become loaded with debris and other

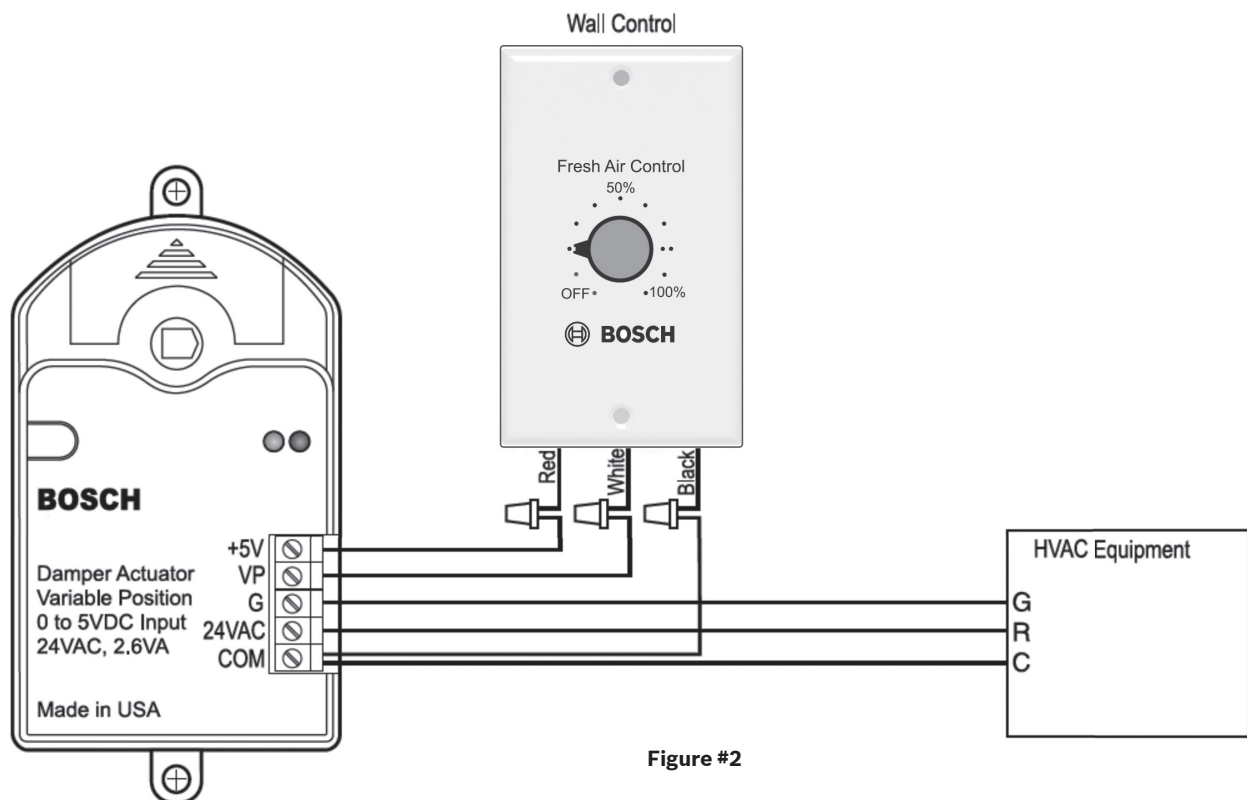


Figure #2



particulates. It is recommended that the filter is checked every 30 days, and changed if necessary.

- Depending on the time of the year and the outside conditions, the opened percentage may need to be adjusted. In hot, humid weather, you may want to decrease the percentage as this will introduce moisture into the home. If the air is exceptionally dry, you would also want to use a lower setting as this would remove moisture from your house. Speak with your local Bosch representative or your installing contractor for suggestions that apply to your specific geographical location.

- Routinely check the bird screen underneath the hooded louver intake to ensure that there is not debris blocking the air flow.

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

Table 1: Replacement Parts

Bosch Part Number	Descriptive Part Number	Description
7738002927	FADB-04007-6--A	4" OUTSIDE AIR DAMPER W/ LOUVER AND CONTROL KIT
7738002928	FADB-05011-6--A	5" OUTSIDE AIR DAMPER W/ LOUVER AND CONTROL KIT
7738002929	FADB-06015-6--A	6" OUTSIDE AIR DAMPER W/ LOUVER AND CONTROL KIT
7738002930	--	Variable Manual Control
7738002931	--	Outdoor Air Hood - 4"
7738002932	--	Outdoor Air Hood - 5"
7738002933	--	Outdoor Air Hood - 6"
7738002934	--	Actuator Motor



PRODUCT LIMITED WARRANTY

Models Covered

This limited warranty is provided by FHP Manufacturing Company (“FHP”) and covers Bosch Fresh Air Damper (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 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.**



Note that any repaired or replaced product will be warranted for only the unexpired term of the original warranty.



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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