

2011 Ventilation Fans



Panasonic ideas for life



Advanced Ventilation Solutions



So, what's the big idea? Actually, it's a series of little ideas, motivated by the desire to make people's lives simpler, more enjoyable, more productive or more secure. It all started nearly a century ago, with our founder's simple yet profound idea that our purpose is to contribute to the well-being of our customers and the betterment of society. Today, Panasonic is virtually a household name, providing customers the world over with a vast array of innovative, high quality products at affordable prices that fulfill our founder's mission of enhancing everyday life.



Our ultra-quiet, energy-efficient ventilation fans are a prime example of this philosophy. They remove excess moisture that could otherwise damage a home's structure, and they clear airborne pollutants and odors from the air so it's more healthy and pleasant to breathe. Contractors, builders, architects and homeowners rely on us for our quality and for the wide array of solutions we offer. From our remote in-line fans to our low-profile ceiling-mount models to our WhisperGreen® continuous ventilation models, our entire line is ENERGY STAR® qualified, where guidelines exist. We're also proud to have been named a 2010 ENERGY STAR Partner of the Year in recognition of our longstanding commitment to energy efficiency and to conserving our planet's resources.

Ideas for life... come to think of it, maybe it's a pretty big idea at that.



Certified - Panasonic ventilation fans are certified by the Home Ventilating Institute (HVI) and ENERGY STAR® qualified, where guidelines exist. All models also comply with ASHRAE 62.2, the ventilation standard required by LEED for Homes, ENERGY STAR IAP, California Title 24, EarthCraft, Washington Ventilation Code and other green building programs.

Super Quiet Operation - Totally enclosed DC condenser and AC motors assure quiet operation.

Long Life - Permanently lubricated motors are engineered for trouble-free, continuous operation for several years, along with rust-proof paint and a galvanized steel body.

Easy Installation - Detachable duct adapters, adjustable mounting brackets (up to 24" o.c.), fan/motor units that easily detach from the housing and uncomplicated wiring all lend to user-friendly installation. Select models also feature double-hanger bar systems allowing for ideal positioning.

Safety - Equipped with thermal cut-out fuse.

Design - Contemporary grille designs.

Energy Savings - For high energy efficiency, input wattage readings are among the lowest in the industry.

Airflow - A built-in damper in all ceiling-mounted models prevents backdraft.

Illumination - Compact fluorescent lamps with 10,000 hours of rated life and a 4-Watt night light are available on select models.

Green Manufacturing - All fan only models are RoHS Approved. Restriction of Hazardous Substances Directive (RoHS) restricts the use of the following six substances in the manufacturing process: Lead, Mercury, Cadmium, Hexavalent chromium [CR(VI)], Polybrominated biphenyls (PBB), and Polybrominated diphenyl ether (PBDE).



Table of Contents

Why is Ventilation Necessary? _____	6-7
Sizing Information and Instructions _____	8-9
Installation _____	10-11
Ventilation Controls _____	12
ENERGY STAR®/ Home Ventilating Institute _____	13
Green Building Programs and Green FAQs _____	14-15
Frequently Asked Questions _____	16-17
WhisperGreen® Ceiling Mount Fan With DC Motor _____	18-19
WhisperGreen-Lite™ Mount Fan With DC Motor and Light _____	20-21
WhisperCeiling™ Ceiling Mount Fan _____	22-23
WhisperLite® Ceiling Mount Fan With Light _____	24
WhisperWall™ Through-the-Wall Fan _____	25
WhisperFit™ Low Profile Ceiling Mount Fan _____	26
WhisperFit-Lite™ Low Profile Ceiling Mount Fan With Light _____	27
WhisperValue™ Super Low Profile Ceiling Mount Fan _____	28
WhisperValue-Lite™ Super Low Profile Ceiling Mount Fan With Light _____	29
WhisperComfort™ Ceiling Mount Spot ERV _____	30-31
WhisperWarm™ Ceiling Mount Fan With Heat _____	32-33
WhisperLine™ Remote Mount In-line Fan _____	34-35
Ceiling Radiation Damper _____	36
Optional Designer Grilles/Passive Inlet Vent _____	37
Useful Working Charts:	
Maximum CFM Sizing Chart _____	38
WhisperLine™ Ventilation Fan Sizing Charts _____	39
Performance Curves _____	40-47
Complete Specifications _____	48-49



Why is ventilation necessary?

Today's homes are designed and built to improve energy efficiency. However, these often-called "airtight" homes may actually cause health problems due to the stale air and pollutants they retain. What do they need? Mechanical ventilation!

Airtight Homes

Homes designed and built in recent years are more airtight and energy efficient than in the past. To obtain this airtight design, house wraps, newly designed windows and doors, sealing caulks and other insulating materials are used to create a seal for optimum energy efficiency. The resulting benefit is fewer drafts, which lowers the cost to heat and air-condition a home. But pollutants retained in airtight buildings can be hazardous to their occupants and can jeopardize structural integrity. That's why Panasonic stresses a "build tight and ventilate right" platform. Proper mechanical ventilation design can address poor indoor air quality, while retaining energy efficiency.

Biological Pollutants

Biological pollutants, to some degree, are found in all homes. These include mold, mildew, pollen, dust mites, pet dander, viruses and bacteria. Accumulation of these "biological pollutants" can result in hazardous health effects for the occupants, as well as structural damage to the building. Most biological pollutants tend to flourish in a humid, moist environment. Some examples of moisture sources inside the home include tubs and showers, whirlpool

baths, cooking, washing machines, dishwashers, fish tanks, plumbing leaks, defective gutters, inadequately waterproofed basements or crawl spaces, and even human breathing.

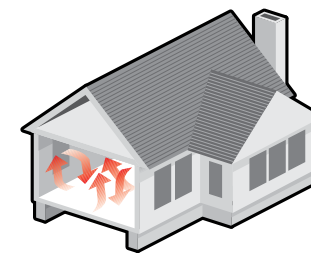
Moisture from these sources can accumulate in wall cavities, cracks and crevices, which can lead to the growth of various forms of mold and mildew. Proper ventilation is used to combat this accumulation.

A continued build-up can adversely affect anyone with asthma or allergies. Furthermore, it can also lead to the deterioration and destruction of structural supports and walls from the inside out.

Volatile Organic Compounds (VOCs)

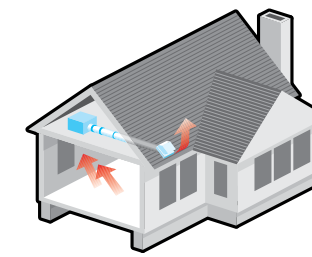
Volatile Organic Compounds are carbon-based compounds that easily evaporate. These types of gases are released from building materials, carpets, furniture and many other solid household items as part of aging, decomposition or curing, all of which are natural processes known as "outgassing". Some other household items that emit "VOCs" include hair sprays, paints, lacquers, finishes, oven cleaners and other cleaning solvents, pesticides, etc. Often colorless and odorless, VOCs can ultimately sensitize certain people to react to them.

Pesticides are designed to kill pests and not humans or pets. But that does not mean that prolonged exposure to pesticides isn't harmful. In fact, prolonged exposure to concentrated amounts of pesticides has been shown in some



Bad

Pollutants such as smoke, dust, heat, metals, humidity and CO² accumulate in a poorly vented building.



Good

Ventilation fans help to maintain indoor air flow and air quality.

Ideally, an airtight home designed with both continuous and intermittent ventilation will contribute to a healthy and comfortable living environment for the entire family.

instances to cause immune-system damage, headaches, dizziness, nausea, muscle spasms and multiple chemical sensitivity (MCS). So, it's important to limit prolonged exposure to these types of materials. Metals such as lead, mercury, cadmium and arsenic are commonly found in older paints, made prior to 1980, new exterior paints and chemically treated lumber. Minerals that accumulate in the home include asbestos and calcium. Asbestos is often found in older homes. Calcium can collect in humidifiers, which can then become an air-borne pollutant and can be inhaled.

Radon is a radioactive gas that is released from the natural decay of the mineral radium, which is usually found in small amounts in the soil. Radon is only a problem if it seeps into the home and accumulates. Prolonged exposure to high amounts of radon has been shown to contribute to lung cancer.

Smoking contaminates the air with nicotine, tars, acetaldehyde, nitrogen dioxide and carbon monoxide. These chemicals can accumulate in the home, not only affecting smokers but non-smokers as well.

Ways to improve indoor air quality

The first step to improve indoor air quality should be to reduce or remove the source of the pollutants. For example, paints, solvents or other chemicals should not be stored in the home but rather in a garage or shed. If the garage is attached to the home, make sure there is an

airtight seal between the garage and living quarters. This will prevent pollutants from entering the house. Another safeguard is to use building materials and cleaning products with a low level of toxicity.

Unfortunately, indoor pollutants are virtually impossible to eliminate completely, creating the need for a second step to improve indoor air quality—mechanical ventilation. Mechanical ventilation is used to remove stale, moist, polluted air and replace it with fresh outside air. Two widely used methods in today's building industry are continuous and intermittent ventilation.

Most industry experts agree that we should not rely on natural pressures and passive ventilation through vents, leaks or holes in the building envelope. Such ventilation relies heavily on wind and weather conditions and is neither consistent nor reliable.

Continuous Ventilation

Sometimes referred to as general, central, whole-house or primary ventilation, continuous ventilation is used to remove stale air and provide fresh air on a slow, continuous basis. A well-designed airtight home can generally use low volume continuous ventilation.

Intermittent Ventilation

Sometimes referred to as spot, local or secondary ventilation, intermittent ventilation is used to capture and remove pollutants quickly at the source. Pockets of excessive moisture and pollutants

can build up in the bathroom, kitchen, utility room, garage and home office. This secondary process serves to exhaust these problem areas quickly, before "bad air" can spread throughout the house. Just as important as continuous ventilation, intermittent ventilation complements the effort to improve indoor air quality.

Intermittent ventilation quickly ventilates contaminated areas and often uses less energy, which results in less exposure for occupants than the slower continuous ventilation process. Both systems exhaust pollutants from the air, but intermittent ventilation is more effective in concentrated areas.



Sizing Information and Instructions

Properly sized ventilation in airtight homes helps to ensure healthy indoor air quality. Both intermittent (spot) and continuous (whole house) ventilation should be considered. Intermittent ventilation is used to exhaust sources of moisture and odors, while continuous ventilation is used to remove accumulated indoor air pollutants. Ventilating fans should be located near the source of moisture and indoor air pollutants in bathrooms, laundry rooms, kitchens, hobby rooms and smoking rooms.

Airtight Homes

The first step when sizing for a ventilating fan is to determine the application. Decide whether you are sizing for intermittent or continuous ventilation (see pages 6 and 7). If intermittent, determine which application, (i.e. bathroom, kitchen or other). Use the following industry recommendations to determine Air Changes per Hour (ACH) for your specific application.

Intermittent (spot) ventilation:

The Home Ventilating Institute (HVI) recommends the following Air Changes per Hour (ACH). (See HVI on page 13)

I. Bathrooms - 8 ACH or **1 CFM/sq ft**

II. Kitchens - 15 ACH or **2 CFM/sq ft**

III. Other Rooms - 6 ACH or **.75 CFM/sq ft**

Continuous (whole house) ventilation:

Most building codes have adopted the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. The most current version, ASHRAE 62.2-2007, calls for continuous mechanical ventilation as shown below.

I. House or apartment - 7.5 CFM per person plus 1 CFM per 100 square feet

The second step is to calculate the area being ventilated. Calculate square feet or cubic feet depending on which sizing method you choose.

The third step is to calculate the Equivalent Duct Length of the planned duct run. This requires a basic understanding of static pressure caused by a duct run design and its components.

Static Pressure and Duct Run: A ventilating fan must overcome resistance when pulling air through the grille and pushing it through the duct and cap to the outside of the building. This resistance is known as static pressure. The amount of static pressure depends on the duct length, type of duct, elbows and the roof jack or wall cap.

Equivalent Duct Length (EDL): The Equivalent Duct Length Table (Figure B) shows you how to calculate the equivalent straight duct length in order to overcome static pressure. The EDL chart helps ensure fan performs as expected under the airflow resistance caused by the listed components.

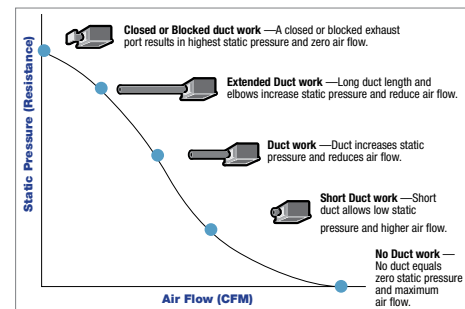


FIG. A

A ventilating fan's performance is plotted on a graph called a performance curve. The performance curve shows airflow in cubic feet per minute (CFM) along the horizontal axis and static pressure (resistance) along the vertical axis. Figure A shows how a performance curve works. The fan with a "Closed Duct" has high static pressure and no airflow; and the fan with "No Duct" has low static pressure and high airflow. In reality, an installed fan will be somewhere in between these two points.

Performance Curves are listed on **pages 40-47**.

Equivalent Duct Length					
		Duct Diameter			
		3"	4"	6"	8"
Duct	Smooth Metal	Same as measured duct length			
Material	Flex Aluminum	1.25 x duct length	1.25 X duct length	1.5 X duct length	1.5 X duct length
	Insulated Flex	1.5 X duct length	1.5 X duct length	1.75 X duct length	1.75 X duct length
Terminal	Wall Cap	30 feet	30 feet	40 feet	40 feet
Device	Roof Jack	30 feet	30 feet	40 feet	40 feet
Elbow	Adjustable	15 feet	15 feet	20 feet	20 feet

FIG. B

Sizing and selecting a Ceiling Mounted Fan:

Proper sizing requires that you determine the needed CFM, the square footage of the room or home, and the length and type of duct.

Example: Sizing for an 8 ft x 10 ft x 8 ft ceiling bathroom using 12 foot long, 4 inch diameter aluminum flex duct, one elbow, one wall cap.

Step 1: Determine application

Bathroom = 1 CFM/square foot

Step 2: Calculate the area to be ventilated in square feet.

Assuming an 8 ft ceiling: room length x width = area in square feet

$$8 \text{ ft} \times 10 \text{ ft} = 80 \text{ sq ft}$$

Step 3: Calculate your required CFM

$$1 \text{ CFM} \times 80 \text{ sq ft} = 80 \text{ CFM}$$

Step 4: Use the Equivalent Duct Length chart below to calculate duct run.

4a. 12 ft aluminum flex duct x 1.25 = 15 ft

4b. One elbow = 15 ft EDL

4c. One wall cap = 30 ft EDL

$$15 \text{ ft} + 15 \text{ ft} + 30 \text{ ft} = 60 \text{ ft EDL}$$

This is the equivalent duct length (or resistance) the fan must overcome to move air through the duct to the outside.

Step 5: Select a properly sized fan using the sizing chart on page 38.

5a. Identify the column with **60 ft EDL**

5b. Identify the color with **80 CFM**

5c. Identify the proper models with their duct size

FV-08VKSL3 4" duct

FV-08VKML3 4" duct

FV-08VKS3 4" duct

FV-08VKM3 4" duct

FV-08VK3 4" duct

FV-08VKL3 4" duct

FV-08VQ5 4" duct

FV-08VQL5 4" duct

FV-11VF2 4" duct

FV-11VFL2 4" duct

FV-11VH2 4" duct

FV-11VHL2 4" duct

FV-11VQ5 4" duct

FV-11VQL5 4" duct

Step 6: Review models in catalog pages to find a model with desired feature. Features may include light fixture, heater or low-profile housing.

Note: Check with your local building inspector to confirm that these methods are accepted in your area.

Sizing and selecting an In-Line Fan and Installation Kit:

Step 1. Determine the total square footage (sq ft) of either the bath or baths that require ventilation or the whole house, depending on the desired application.

Step 2. Determine the number of vents (intake pick-ups) to be used in the ventilated area.

Step 3. Estimate the length of ducting from the farthest vent (intake pick-up) to the outside exhaust point.

Step 4. Select fan from models on pages 34-35.

Step 5. Select an installation kit using the information on page 35.

Example: Two bathrooms with a total square footage of 200 sq ft. Each room will have a single vent (intake pick-up). Therefore, there are a total of two vents (intake pick-ups). The estimated length of ducting from the farthest vent (intake pick-up) to the outside exhaust point is 50 ft.

Step 1. 200 sq ft = 200 CFM

Step 2. 2 vents (intake pick-ups)

Step 3. 50 ft

Step 4. Moving along the chart on top of page 39 from left to right using the data in steps 1-3, the correct fan would be FV-20NLF1.

Step 5. Referring to the chart using the data in steps 1-3, the correct installation kit would be PC-NLF06D.



Installation

A practical guide to Panasonic fan installation

Proper fan installation is necessary to optimize performance. The following points outline installation techniques to help achieve optimum performance. For existing construction, depending on the building's structure and the ability to access the ducts, you may not be able to use all of these techniques. However, the more techniques used, the better the performance you can expect from your ventilation fan. In new construction where the walls and ceilings are open, with proper planning, applying these techniques should be relatively easy.

IMPORTANT: In order to reduce elbows and optimize fan performance, install the fan with the exhaust port pointed in the direction of the termination point. Be sure to use the duct diameter size specified for the selected fan. Reducing the duct diameter (at any point in the duct run) will create substantial static pressure and reduce the fan's performance by as much as 90%.

Selecting Duct: A smooth surface duct allows for optimum airflow. See Figure C. For best results, use galvanized sheet metal or possibly PVC. Flexible aluminum duct is durable, easy to install and often used. However, the ridges in aluminum flexible duct increase static pressure and can reduce air flow and fan performance. This results in lower CFMs, higher noise levels and higher energy consumption. The degree to which performance is affected depends on the length of duct, number and degree of elbows.

Sagging or weaving a fan duct will also increase static pressure and reduce a fan's performance. When using a flexible aluminum duct, support the entire length of the duct with braces or hangers to keep it as straight as possible for the entire run. If the duct lies across the attic,

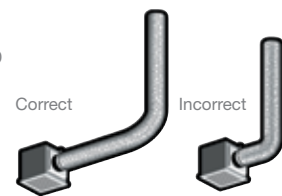
do not allow it to sag between each joist. Also, avoid weaving serpentine through trusses.

Using dryer duct connectors made of nylon or vinyl is not recommended due to high static pressure caused by its ridges and curvature. Insulated flexible duct must be fully extended to avoid added resistance.

Elbows: Rule number one is to avoid elbows and bends whenever possible. However, the fact is that many installations require at least one elbow, as shown in Figure D. There are two precautions you can take when installing elbows to achieve optimum airflow.

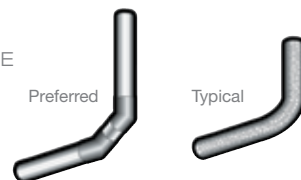
First, allow a 2-3 foot straight run out of the fan before the first elbow. This allows airflow to be uniform before passing through the first elbow. An installation that has a 90-degree elbow immediately after the fan exhaust port will cause air to flow back into the fan. This will reduce fan performance and increase noise. (Figure D)

FIG. D



Second, use a long radius angle, as shown in Figure E, to help ensure optimum airflow and minimum airflow noise.

FIG. E



The shortest, smooth inner surface duct with the least number of elbows will provide optimum fan performance.

FIG. C

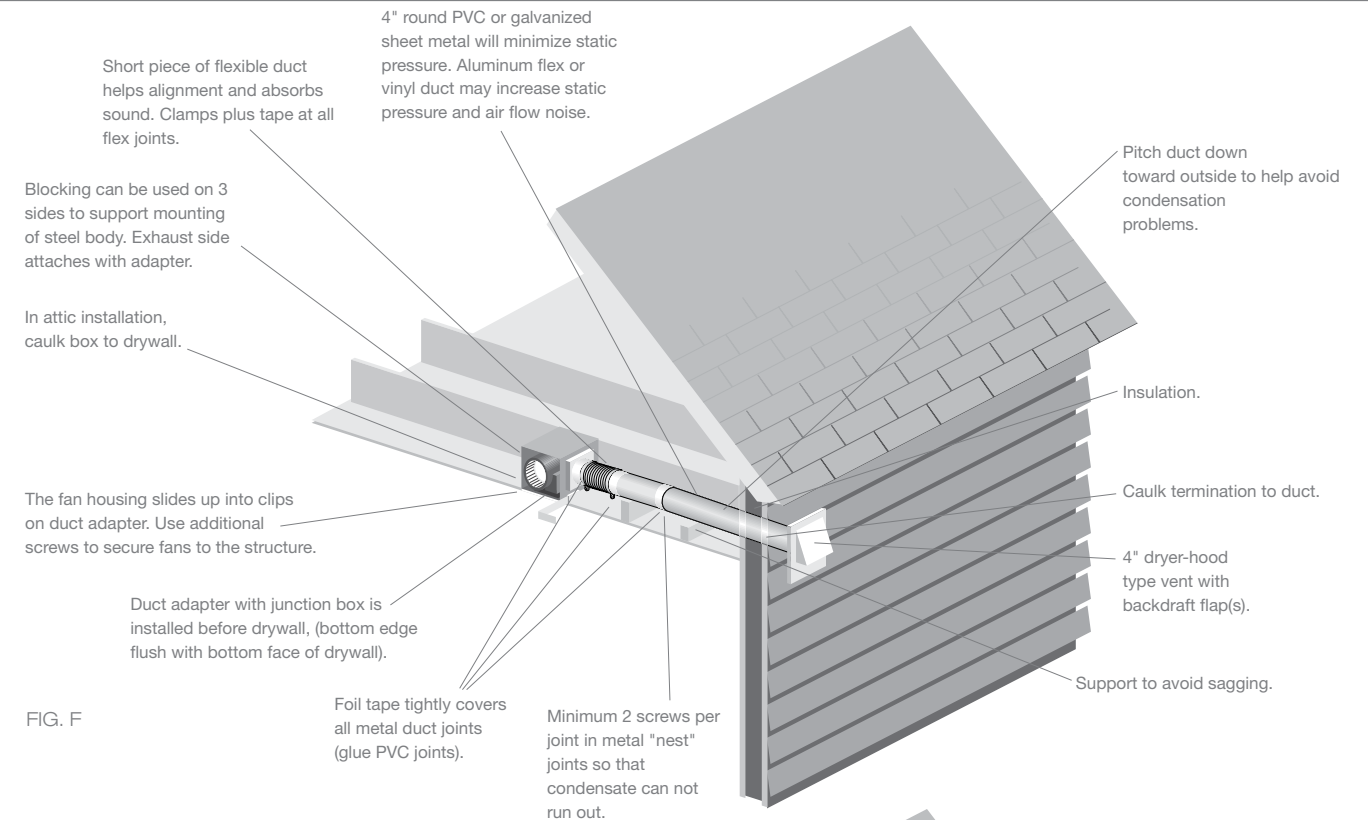
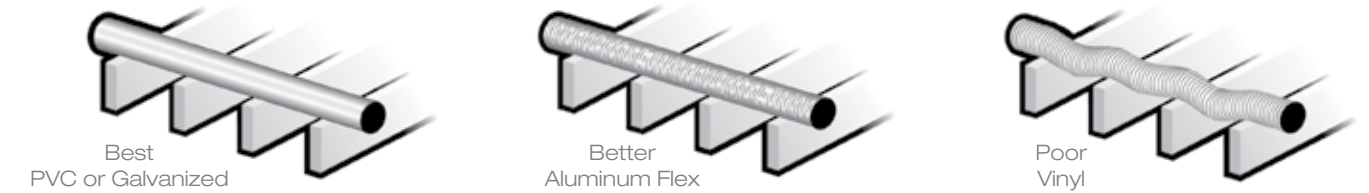
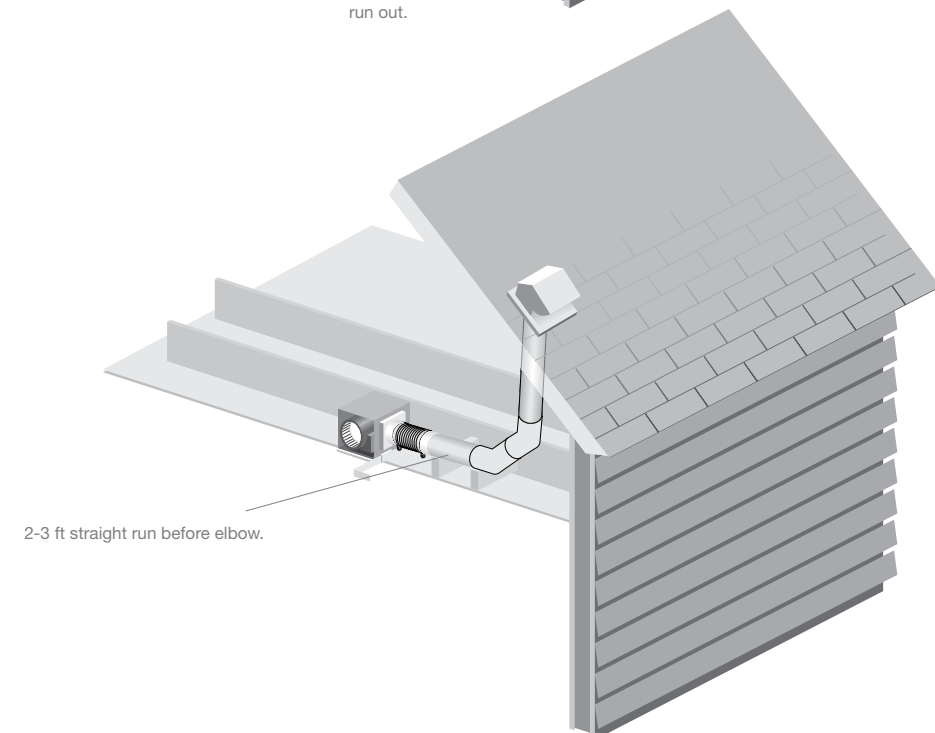


FIG. F

FIG. G



Trouble Shooting Advice:

1. During fan installation, the tape on the duct connector holding the damper shut must be removed.
2. Confirm with your contractor if screws were used to attach the duct to the fan. The damper may not open if obstructed by screws.
3. Check that the backdraft dampers on wall caps and roof jacks are able to move freely. Routine inspections are recommended as birds and other pests may inhabit these areas.
4. Ductwork must be connected securely to wall caps and roof jacks.



Ventilation Controls

As buildings become increasingly airtight, awareness of mechanical ventilation grows. Proper ventilation is essential for removing excessive moisture that promotes mold and mildew build-up, which can deteriorate a building's structure. Mechanical ventilation also helps remove accumulated volatile organic compounds (VOCs) that affect indoor air quality (IAQ) and may cause health problems for occupants.

Different lifestyles place different demands on the ventilation system. For example, a single adult, most likely, will require less ventilation than a family of five with pets. Also, an adult homeowner may be more likely to properly operate a manual ventilation control than a tenant or children that share a bathroom. Therefore, selecting a suitable control that runs ventilation at the proper time and duration will ensure that both the occupant's health and building structure are protected.

There are several types of manual and automatic controls that can be applied to ventilation systems. Some controls are more suitable for intermittent or continuous ventilation. Panasonic's new WhisperGreen® Premier fans incorporate built-in speed, delay and occupancy controls, making them ideal for both intermittent and continuous ventilation. The following discusses options to help select a suitable control.

Manual Controls: Manual controls require the occupant to activate the ventilation fan when needed. This allows people who are particularly sensitive to indoor air quality to manually control and maintain their comfort level. The disadvantage of manual controls is that some people may not sense the need for ventilation and not turn it on. The basic manual control is an on/off toggle switch. However, there are other controls with functions that may be more suitable to the occupant's lifestyle.

Delay timer: Shower curtains, towels, walls and cabinets retain moisture long after the occupant has finished and left the bathroom. The advantage of a delay timer is that it continues to evacuate moisture and odor after the occupant has finished. WhisperGreen® Premier fans incorporate a delay timer that can be set within the range of 30 seconds to 60 minutes for the desired delay effect.

Manual timers: There are two basic types of manual timers. The less expensive are spring-wound, known as "crank timers", suitable for intermittent bathroom ventilation. Electronic timers are more decorative and expensive but allow the occupant to select a time duration with the push of a button. Electronic timers do not produce the sometimes annoying ticking sound that crank timers are known for. WhisperGreen® Premier fans incorporate quiet electronic controls.

Speed controls: Speed controls allow the user to set the desired speed (airflow) of a ventilation device. Speed can be controlled either continuously or in steps. One of the disadvantages of speed controls is that they can cause undesirable noise when working in conjunction with the fan's AC motor. WhisperGreen® Premier fans incorporate a DC motor that operates quietly with its own built-in controls.

Automatic Controls: These controls can be full or semi-automatic. An example of a fully automatic control is a 24-hour duty cycle timer that is programmed to cycle on and off over a 24-hour period. A semi-automatic control is a control that has an override switch. An example would be an occupancy sensor with a manual on/off override.

Occupancy (motion) sensors: Occupancy sensors are suitable for intermittent ventilation. An advantage is that the ventilation system will operate without having to rely on the occupant's

interaction. The ventilation system will remain "on" and continue working for a duration after the occupant has left the room, much like a delay off timer. Select WhisperGreen® Premier fans have occupancy sensors integral to the fan grille. Dehumidistats can be used to turn a ventilation system on/off when relative humidity reaches a certain level. These controls are most likely to be used in bathrooms to evacuate excessive moisture. Dehumidistats have a few disadvantages. One disadvantage is that seasonal changes in outdoor relative humidity necessitate seasonal readjustments to function optimally. Another disadvantage of a dehumidistat is that they are often mistaken for thermostats and set at 70 and never adjusted. Finally, it does not automatically remove odors.

Automatic timers: Automatic timers operate fans at programmed times throughout the day. Typically a 24-hour programmable timer is used to run a fan in morning and evening hours when there is a high demand for ventilation. For continuous ventilation, the control can be programmed to operate throughout the day to help evacuate any accumulation of VOCs or other indoor air pollutants.

Controls can also be used in combination with each other to provide both intermittent and continuous ventilation. For example, a programmable timer may be used to cycle the fan on and off throughout the day to address overall indoor air quality. WhisperGreen® Premier fans have been designed as an ideal double-duty fan providing both intermittent and continuous ventilation with a DC motor activated by built-in speed, delay and occupancy controls. The key to selecting the right control or combination of controls is to first understand the occupant's lifestyle and ventilation needs. Then select a control that provides proper ventilation with little or no involvement by the occupant.



ENERGY STAR®

www.energystar.gov

ENERGY STAR Specifications	Min. CFMs/Watt	Max. Sones	Min. Warranty	Rated Airflow (0.25 in. w.g.)*
Bath Fans -10 to 80 CFM	1.4	2.0	1 year	60%
Bath Fans -90 to 130 CFM	2.8	2.0	1 year	70%
Bath Fans -140 to 500 CFM	2.8	3.0	1 year	70%
In-Line Fans	2.8	N/A	1 year	N/A

The ENERGY STAR program was created by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) to help customers identify products that can save them money and protect the environment by saving energy. When it comes to ventilation fans, ENERGY STAR qualified products feature super-quiet operation (low sone levels) and high CFM to Watt efficiency. As an ENERGY STAR partner, all Panasonic ventilating fans exceed ENERGY STAR standards where guidelines exist and

have been labeled accordingly. Panasonic ventilation fans may qualify for an energy saving rebate. Rebate programs are often provided by local utility companies and based on ENERGY STAR guidelines. Check with your local utility company or state ENERGY STAR Homes Program for details.

All qualifying fan models, with the exception of in-line models, when measured by industry standard testing procedures at 0.25 in. w.g. static pressure, shall deliver airflow (CFM)

equal to or greater than the above percentages of rated air flow delivered at 0.1 in. w.g. static pressure for that particular model.

Panasonic ventilation fans carry a three-year warranty. WhisperGreen® models carry a six-year warranty on the DC motor.

HOME VENTILATING INSTITUTE

www.hvi.org

All Panasonic ventilation fans are tested and certified by the Home Ventilating Institute (HVI). The HVI label is your assurance that the certified airflow and sound rating of Panasonic ventilation fans are the results of testing by an independent laboratory.

HVI is a non-profit association comprised of manufacturers of home ventilation products. HVI offers a variety of services including, but not limited to, test standards, certification programs for airflow, sound and energy performance. Through a Certified Rating Program, HVI provides a voluntary means for residential ventilation manufacturers to report comparable and credible product performance information based upon uniformly applied testing standards and procedures performed by independent laboratories. This program provides a fair and credible method of comparing ventilation performance of similar

products. In addition, the random verification program ensures that those products still meet their original performance.

HVI certification has been accepted and recognized as the method of performance assurance by many agencies such as the US Department of Housing and Urban Development, Bonneville Power Administration, National Building Code of Canada, Washington State Building Code, Minnesota Building Code, International Conference of Building Officials (ICBO), the International Code Council (ICC), ASHRAE, and the National Electrical Manufacturers Association.

HVI activities help to promote the health and growth of home ventilation while providing consumers with valuable information and confidence in their choices.



For more information about HVI contact:

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Green Building Programs & Green FAQs

Green Building Programs

Green building is the practice of increasing energy efficiency while promoting economic health for people and the environment. Effective green building can reduce operating costs through less energy consumption; improve occupant health by enhancing indoor air quality and lessening the impact on the environment.

ASHRAE 62.2-2007

There are several green building programs within the United States and nearly all adhere to the standards set by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) for the HVAC industry. ASHRAE Standard 62.2 is the national ventilation standard of design for low-rise residences up to three-story multi-family buildings. 62.2 requires continuous mechanical ventilation for the entire house to be 7.5 CFM per bedroom (master bedroom x 2) plus 1 CFM per 100 sq. ft. with some level not to exceed 1.0. Panasonic's full line of ventilation fans including

WhisperGreen and WhisperComfort are affordable and are an efficient way to meet this ventilation standard.

LEED and LEED for Homes

The US Green Building Council (USGBC www.usgbc.org) offers the Leadership in Energy and Environmental Design (LEED) program for commercial buildings and the LEED for Homes program for residential buildings. Neither program offers specific product certification, but both require mechanical ventilation adopted after ASHRAE 62.2.

ENERGY STAR® Homes Program

The US Environmental Protection Agency (EPA) operates the ENERGY STAR program, including the ENERGY STAR® Homes Program. This program offers certification of the home as energy efficient based on an evaluation of energy use and construction features. Even though it does not require a full ventilation strategy, EPA's Indoor airPLUS (IAP) is an option to help builders meet the growing consumer preference for improved indoor air

quality. The IAP requires compliance with ASHRAE 62.2, so Panasonic's WhisperGreen is the product of choice.

California Title 24

As the required code for California, Title 24 is the shorthand name for the Building Energy Efficiency Standards for Residential and Non-Residential Buildings. Developed by the California Energy Commission and first published in 1978, the standards were recently updated for 2008 and will be effective in 2009, including the requirement to meet ASHRAE Standard 62.2.

National Association of Home Builders (NAHB) Green Building Standard

A voluntary standard developed by NAHB to provide a design guide and rating system for houses. Similar to the LEED for Homes program but less stringent, it has both required and optional measures that help show a house is "green". The more options utilized such as fulfilling ASHRAE 62.2 provides a higher rating.

Green FAQs

What does Built Green or other builder program certification mean how can Panasonic help?

Programs like LEED for Homes and ENERGY STAR® IAP, all require various levels of insulation, use of renewable building and finishing products. They also require compliance with the ventilation requirements of 62.2.

ASHRAE 62.2 allows the designer or builder to choose the method that fits their project, climate, or budget. It only sets the continuous rate and provides guidance on how to increase the flow to allow for intermittent

operation. Essentially, the higher rate is the reciprocal of the run time. If it operates one-third of the time, it must be increased to three times the continuous rate in the table. The easiest way to meet the requirements is to use a WhisperGreen fan operating continuously. Most of the single speed Panasonic fans under 1.0 sone can be used to meet 62.2, but the rated flow at 0.25 inches of water gauge must meet the required flow. So WhisperGreen models are the preferred choice.

Where is my make-up air coming from if the house is airtight?

All houses leak to some extent. ASHRAE 62.2 assumes an average new construction tightness level that is based on national testing and that will allow some leakage. Air leaks in (if exhausting) or out (if supplying) of the house when the fan operates, through the cracks and holes in the building between building materials, around windows and doors, and through utility penetrations. While not required by 62.2, through-the-wall inlets from Panasonic and others can be installed to ensure some of the leakage happens through those inlets.

Am I creating a negative pressure when exhausting air all the time?

The low exhaust rates required by 62.2 will virtually never create enough negative pressure to cause a combustion device to backdraft. High flow fans, such as large range hoods and clothes dryers, can create enough negative pressure to create a backdraft if natural draft combustion devices are used in a tight house. ASHRAE 62.2 sets a limit on how much total exhaust can be tolerated.

What makes a WhisperGreen fan a Green product?

The Green concept is a combination of energy efficiency, sustainability, improved interior environment (IAQ), and operating cost. WhisperGreen fans are the most energy efficient and quietest products on the market and the six year warranty and low energy use ensure sustainability.

Why can't I turn the WhisperGreen models with built-in controls off?

Your fan is designed to run 24 hours a day, 365 days a year using very little electricity. Your new home has been built to be very "tight" and energy efficient. While this helps on your energy costs, it can also lead to poor indoor air quality. By having a fan run constantly at a low speed, stale indoor air is continuously being ventilated and replaced by fresh air.

If the fan is running all day, aren't I wasting electricity?

The WhisperGreen fan features a DC motor, which makes very efficient use of electricity. Your fan, operating at 50 CFM continuously, uses 6.6 Watts of electricity. Using the national average kWh rate of \$.1105, it costs \$6.39 per year to have a fan that provides indoor air quality.

What does the motion sensor or the switch on WhisperGreen models with built-in controls do?

When the motion sensor senses motion, or when the switch is turned on, the fan boosts from its low, continuous ventilation speed to its high "spot" ventilation speed. The WhisperGreen fan has a high speed of 80 Cubic Feet per Minute. When the

fan is in this mode it is operating as a traditional bathroom exhaust fan.

When I turn my switch to the "on" position or when the motion sensor is blinking green, I don't hear a big boost in speed.

Another feature of the WhisperGreen fan is "SmartFlow" technology. Static pressure, the resistance that lies within the duct system and point of exhaust, can severely inhibit a standard bath fan's performance. For example, a fan designed to deliver 50 CFM of airflow might only be operating at 31 CFM due to high static pressure. "SmartFlow" technology allows the fan motor to react to higher static pressure situations, so that when set at 50 CFM, you might not hear a big boost in speed, but the fan is delivering 50 CFM of air flow.

When I turn the switch to the "off" position or when the motion sensor is not in use, why doesn't the fan slow down right away?

Your WhisperGreen fan features a built-in delay-low timer. This allows the fan to operate at the higher speed for a longer time to help remove excess moisture from the bathroom, for example, after a shower.

Required Continuous Ventilation Rate (CFM)

Floor area	0-1 BR	2-3 BR	4-5 BR	6-7 BR	>7 BR
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

Sizing example (based on ASHRAE 62.2):

Two Bedrooms at 1600 SQ. FT.	
Master Bedroom (7.5 CFM X 2)=	15 CFM
Second Bedroom =	7.5 CFM
1600 SQ. FT. X .01 =	16 CFM
Total	38.5 CFM

To comply with ASHRAE 62.2, a WhisperGreen FV-08VKM3 set at 40 CFM provides the ideal solution. Or to keep air pressure balanced inside the home, WhisperComfort provides supply air and complies with 62.2 by setting the exhaust fan at 40 CFM. For larger homes or whole house ventilation, a combination of WhisperComfort and/or WhisperGreen continuous ventilation fans can be utilized to fulfill the standards set by ASHRAE 62.2.

FAQS

Frequently Asked Questions

1. What is a sone?

A sone is an internationally recognized measurement of sound output. The smaller the sone, the more quiet it is. Likewise, the higher the sone, the louder the sound. According to HVI, one sone is equivalent to the sound of a quiet refrigerator.

2. What is CFM?

CFM, or Cubic Feet per Minute is a measurement of rate of air flow. The larger the CFM, the more powerful the fan.

3. What is static pressure?

Static pressure is a measure of the resistance against flow as the fan pushes air through a duct. Static pressure is measured in inches of water column or water gauge (w.g). It is expressed as 0.1" w.g. or 0.25" w.g. to show that the resistance is equal to a column of water one-tenth or one-quarter of an inch tall. Most bath fans sold in North America are rated and certified at 0.1" w.g. by the Home Ventilating Institute (HVI).

4. Why are Panasonic Fans so quiet?

Tip Speed.

Fan noise comes from the amount of the blower wheel blade tip speed – the tip speed is in proportion to the revolutions per minute (RPM) of the wheel or fan blade. A small wheel turning very fast will create more noise than a large wheel turning more slowly for a given airflow. Panasonic fans use a compact blower wheel with aerodynamic blades that moves a large

amount of air at reduced RPMs. The Panasonic blower wheel is designed more efficiently than most competitor models, so it turns at lower RPMs, reducing tip speed and noise.

Quiet Motor.

Panasonic is the first ventilation fan manufacturer to incorporate a DC motor in residential mechanical ventilation fans. Panasonic WhisperGreen series incorporates a totally enclosed DC motor designed for extremely quiet, energy efficient operation.

All other Panasonic fan series incorporate a totally enclosed four-pole condenser motor, which is an advanced version of a Permanent Split Capacitor (PSC) motor. These are among the most energy efficient fan motors made. The four-pole design helps the fan to rotate smoothly and evenly due to a more stable electrical field that keeps the fan shaft turning more evenly than shaded-pole motors used in mid-range fans or C-frame motors used in inexpensive fans.

5. What makes Panasonic Fans so highly energy efficient?

The input wattage readings on the Panasonic fans are among the lowest in the industry. This means that for a given

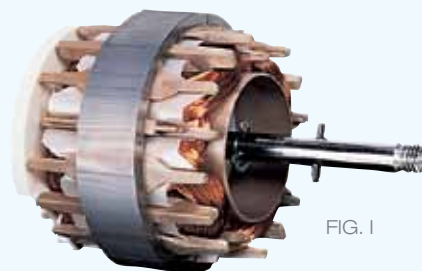


FIG. 1

airflow, Panasonic fans will use fewer kilowatt hours and cost less to operate than other fans. This lower wattage draw is accomplished in a number of ways:

Unique Motor Design.

Panasonic's DC brushless motor provides unparalleled energy efficiency with its magnetic rotor and print circuit board. The magnetic rotor prevents energy loss while standard AC motors that utilize aluminum die cast rotors expend energy. Also, Panasonic's DC motor is the only one to incorporate a print circuit board containing a unique IC chip which monitors and directs the RPM of the fan blade. The combination of these two unique features allows the DC motor to have higher energy efficiency than an AC motor.

Panasonic uses a four-pole condenser motor, which is composed on a main coil and a sub coil. The coils in a motor are essentially small electromagnets that are turned on and off to create an electrical field to "pull" the fan shaft around, making the fan blower wheel turn. The condenser is connected with the sub coil, which helps with rotation. The condenser acts like a capacitor to store electrical energy and deliver it quickly and in exact amounts to the coil. This improves the electrical efficiency of the motor and reduces power draw.

Selective Application.

Panasonic builds its own motors and components, which means tight control over quality. Panasonic engineers also optimize efficiency by matching the exact motor characteristics with the

desired performance of the fans.

6. Why do Panasonic Fans have such a long life?

Panasonic fans are designed to give the consumer trouble-free continuous operation for many years. These fans utilize high quality components and permanently lubricated motors. This leads to fans that provide a long operational life because their components wear very slowly. That is why Panasonic stands behind its products with one of the longest warranty periods in the industry.

Motor Production.

Panasonic motor production is fully automated, with an automatic defect detecting system. The quality assurance program is exemplary, leading to a defect rate of less than 0.0006%.

ISO 9001 plant.

The production facilities that build Panasonic fans have earned the distinction of being recognized by the International Standards Organization (ISO) under the ISO 9001 Quality Assurance program. Meeting ISO 9001 means that these factories have met the highest quality standards in the world.

Fan Housing.

The fan housing is made of heavy-gauge zinc-galvanized steel and painted to protect it from rust.

7. Can insulation material be used over fans installed in the ceiling?

YES. Loose fill or batt insulation

can be placed directly over the fan housing in the attic. Panasonic fans and fan/light combination units do not create excessive heat that is a common problem with recessed light fixtures or some competitors' fan/light combinations. Our efficient, cool-running motors and our fluorescent bulbs do not create enough ambient heat to be subject to these limitations.

8. Can a Panasonic fan be used over a bathtub and in showers?

YES. All Panasonic fans, with the exception of heater and Spot ERV models, are listed by Underwriters Laboratories for installation over tubs and showers, provided they are protected by a Ground Fault Circuit Interrupter (GFCI). GFCI is mandated by the National Electrical Code. While not specifically listed by UL as an application, the fan can also be installed in a steam shower enclosure. Keep in mind, however, that any ventilation device located in a damp environment such as a shower enclosure may have a reduced life due to the high humidity and potential for corrosion. Fans installed in a high humidity environment should be operated for longer periods of time to ensure the removal of the moisture and to reduce the potential for condensation in the fan body or ducting.

9. Can a Panasonic fan be used above a kitchen range?

No. Panasonic fans are not currently rated by UL for above-range installation since it was not designed to handle both grease and high temperature.

However, Panasonic fans can be used to provide auxiliary kitchen ventilation. An approach that works well in large kitchens is to use a ducted range hood or downdraft exhaust and a Panasonic ventilation fan to exhaust the general odors and moisture in the greater kitchen area.

10. Why are Panasonic fans not required to be IC rated?

Fans are not required by UL to be IC (Insulation Contact) rated because they do not have high temperature sources like recessed can lights. The Panasonic fan/light combo units use fluorescent lamps that are mounted in a light kit that is considered to be surface mounted, so they do not create high temperatures within the fan housing that would require an IC rating.

11. What's better, a motion sensor or humidity sensor?

While the humidity sensor checks the amount of moisture at the ceiling, a motion sensor "sees" the occupant coming into the room. The humidity sensor has to be set to either Rate of Rise or Relative Humidity. Depending on how the fan is set up, it may or may not turn on in certain conditions. For instance, if set for Rate of Rise (how quickly moisture builds up in a room), it might not turn on at all when there is a slow, steady build up of humidity over time. On the other hand, a motion sensor will go on once it senses motion to capture both moisture, odors and contaminants from the cleaners and chemicals that may be kept underneath the sink.

Built-in Controls with Motion Sensor

FV-08VKM3 80/0 CFM 4" Duct
FV-13VKM3 130/0 CFM 6" Duct

Built-in Controls

FV-08VKS3 80/0 CFM 4" Duct
FV-13VKS3 130/0 CFM 6" Duct

Single Speed

FV-05VK3 50 CFM 4" Duct
FV-08VK3 80 CFM 4" Duct
FV-13VK3 130 CFM 6" Duct

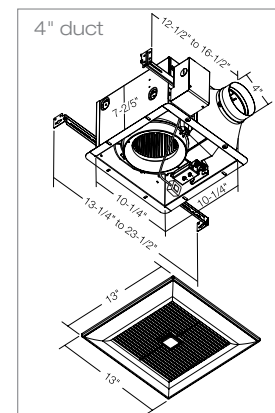


- Superior performance and quiet operation at .25" w.g.
 - Super energy efficient DC motor
 - SmartFlow™ technology for constant CFM output
 - CustomVent™ variable speed control with high/low delay timer (Built-in controls models only)
 - SmartAction® motion sensor (FV-08VKM3 & FV-13VKM3)
- ENERGY STAR® qualified fan
 - Totally enclosed DC motor for long life—rated for 60,000 hours continuous run
 - Easy installation (double hanger bar system)
 - Rustproof paint treatment on galvanized housing
 - Built-in damper to prevent backdraft
 - Fits in 2 x 8 construction
 - UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
 - Thermal fuse protection
 - ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
 - 6 year warranty on DC motor and 3 year warranty on parts
 - Optional designer grille and radiation damper available (See pages 36-37 for applicable models)

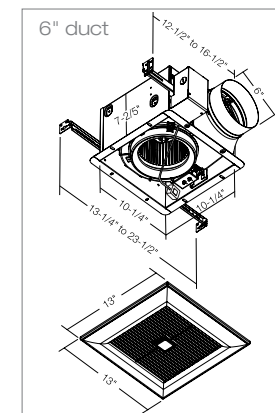
WhisperGreen Gen 3		FV-08VKS3/08VKM3												FV-13VKS3/13VKM3												FV-05VK3	FV-08VK3	FV-13VK3	
Characteristics (HVI tested data for 0.1" S.P.)	Static Pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
	Air Volume (CFM)	80	79	70	75	60	59	50	54	40	39	30	32	130	135	110	111	90	93	70	71	50	53	50	54	80	79	130	135
	Noise (sones)	<0.3	0.4	<0.3	0.4	<0.3	0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.7	<0.3	0.6	<0.3	0.6	<0.3	0.4	<0.3	<0.3	<0.3	0.3	<0.3	0.4	<0.3	0.7
	Power Consumption (watts)	7.0	11.0	5.4	10.1	5.0	8.7	4.3	7.5	3.7	6.6	3.2	5.8	11.9	21.5	9.0	15.6	6.2	12.5	4.1	9.8	2.4	5.9	4.3	7.5	7.0	11.0	11.9	21.5
	Energy Efficiency (CFM/Watt)	12.1	7.6	13.3	7.7	13.6	7.7	12.4	7.7	12.8	7.1	11.4	6.7	11.2	6.4	12.5	7.3	15.2	7.8	18.7	7.9	23.3	10.0	12.4	7.7	12.1	7.6	11.2	6.4
	Speed (RPM)	832	1130	791	1125	773	1106	749	1101	740	1093	745	1087	662	917	643	912	580	900	506	874	430	781	749	1101	832	1130	662	917
	Current (amps)	0.02	0.01	0.03	0.01	0.05	0.01	0.05	0.02	0.05	0.03	0.06	0.04	0.01	0.12	0.03	0.09	0.02	0.07	0.04	0.01	0.06	0.03	0.05	0.02	0.02	0.01	0.01	0.12
	Power Rating (V/Hz)	120/60												120/60												120/60	120/60	120/60	
	ENERGY STAR Qualified	Yes												Yes												Yes	Yes	Yes	
	Advanced Features	SmartAction Motion Sensor	FV-08VKS3: No, FV-08VKM3: Yes												FV-13VKS3: No, FV-13VKM3: Yes												No	No	No
High / Low Delay Timer		Yes												Yes												No	No	No	
CustomVent Variable Speed Control		Yes												Yes												No	No	No	
SmartFlow Optimum CFM Technology		Yes												Yes												Yes	Yes	Yes	
Approved Code/Standard/Regulation	UL tub/Shower Enclosure	Yes												Yes												Yes	Yes	Yes	
	Washington VIAQ Code	Yes												Yes												Yes	Yes	Yes	
	California Title 24 Compliant	Yes												Yes												Yes	Yes	Yes	
	Mfg in ISO 9001 Certified Facility	Yes												Yes												Yes	Yes	Yes	

N/A=not applicable
w.g.=water gauge
S.P.=static pressure

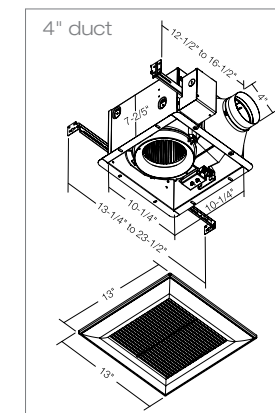
Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.



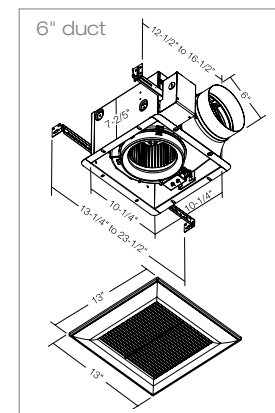
FV-08VKM3



FV-13VKM3



FV-05VK3/FV-08VK3/FV-08VKS3



FV-13VK3/FV-13VKS3

Built-in Controls with Motion Sensor
FV-08VKML3 80/0 CFM 4" Duct
FV-13VKML3 130/0 CFM 6" Duct

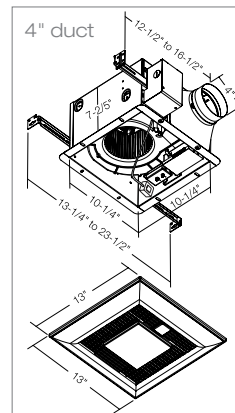
Built-in Controls
FV-08VKSL3 80/0 CFM 4" Duct
FV-13VKSL3 130/0 CFM 6" Duct

Single Speed
FV-08VKL3 80 CFM 4" Duct
FV-13VKL3 130 CFM 6" Duct

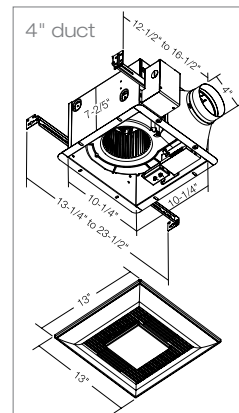


- New flush mount grille
- Superior performance and quiet operation at .25" w.g.
- Super energy efficient DC motor
- SmartFlow™ technology for constant CFM output
- CustomVent™ variable speed control with high/low delay timer (Built-in controls models only)
- SmartAction® motion sensor (FV-08VKML3 and FV13VKML3)
- Convenient night-light feature

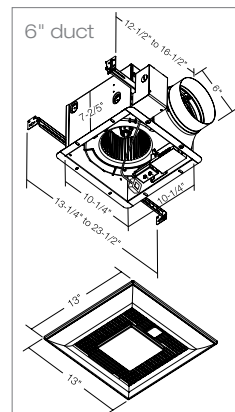
- ENERGY STAR® qualified fan and light fixture
- Totally enclosed DC motor for long life—rated for 60,000 hours continuous run
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant



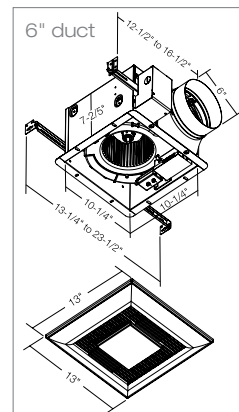
FV-08VKML3



FV-08VKL3/FV-08VKSL3



FV-13VKML3



FV-13VKL3/FV-13VKSL3

WhisperGreen-Lite Gen 3		FV-08VKSL3/08VKML3												FV-13VKSL3/13VKML3								FV-08VKL3		FV-13VKL3			
Characteristics (HVI tested data for 0.1" S.P.)	Static Pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
	Air Volume (CFM)	80	79	70	78	60	60	50	52	40	42	30	35	130	136	110	115	90	91	70	69	50	56	80	79	130	136
	Noise (sones)	<0.3	0.6	<0.3	0.6	<0.3	0.5	<0.3	0.5	<0.3	0.5	<0.3	0.5	0.8	1.3	0.6	1.2	0.3	1.1	<0.3	0.9	<0.3	0.8	<0.3	0.6	0.8	1.3
	Power Consumption (watts)	7.4	12.4	6.0	11.6	5.3	9.0	4.2	7.8	3.8	6.7	3.5	6.2	14.4	24.7	11.0	20.0	8.0	15.3	6.1	10.8	4.2	8.7	7.4	12.4	14.4	24.7
	Energy Efficiency (CFM/Watt)	11.2	6.6	11.9	6.8	12.1	7.2	12.5	7.0	11.1	6.6	8.8	5.8	9.0	5.5	10.1	5.8	11.5	6.1	12.0	6.7	12.3	6.7	11.2	6.6	9.0	5.5
	Speed (RPM)	866	1166	815	1157	675	941	785	1106	758	1084	611	879	742	968	707	972	676	969	669	932	648	939	866	1166	742	968
	Current (amps)	0.01	0.02	0.03	0.02	0.05	0.09	0.04	0.02	0.06	0.05	0.04	0.06	0.04	0.15	0.05	0.12	0.03	0.09	0.03	0.01	0.04	0.01	0.01	0.02	0.04	0.15
	Power Rating (V/Hz)	120/60												120/60								120/60		120/60			
	ENERGY STAR Qualified	Yes												Yes								Yes		Yes			
	Advanced Features	SmartAction Motion Sensor												SmartAction Motion Sensor								No		No			
	High / Low Delay Timer												High / Low Delay Timer								No		No				
	CustomVent Variable Speed Control												CustomVent Variable Speed Control								No		No				
	SmartFlow Optimum CFM Technology												SmartFlow Optimum CFM Technology								Yes		Yes				
Light Specifications	Lamp Watts	1 x 32												1 x 32								1 x 32		1 x 32			
	Color Rendering Index	84												84								84		84			
	Color Temperature (Kelvin)	3,500												3,500								3,500		3,500			
	Rated Life (hours)	10,000												10,000								10,000		10,000			
	Lamp Model #	LPFHT32E35												LPFHT32E35								LPFHT32E35		LPFHT32E35			
Night Light Specs	Night Light Watts	4												4								4		4			
Approved Code/Standard/Regulation	UL tub/Shower Enclosure	Yes												Yes								Yes		Yes			
	Washington VIAQ Code	Yes												Yes								Yes		Yes			
	California Title 24 Compliant	Yes												Yes								Yes		Yes			
	Mfg in ISO 9001 Certified Facility	Yes												Yes								Yes		Yes			

Complete Specifications on pages 48-49.
 Performance Curves on pages 40-47.

N/A=not applicable
 w.g.=water gauge
 S.P.=static pressure

*Lamp contains mercury. Dispose according to local, state and Federal laws.



INCLUDED: One 32-Watt Panasonic CFL/3500 Kelvin/High CRI/2400 Lumens/ENERGY STAR® qualified/10,000 hours rated average life/equivalent to (2) 75-Watt incandescent lamp/electronic ballast for flicker-free operation.

FV-05VQ5 50 CFM 4" or 6" Duct
FV-08VQ5 80 CFM 4" or 6" Duct
FV-11VQ5 110 CFM 4" or 6" Duct

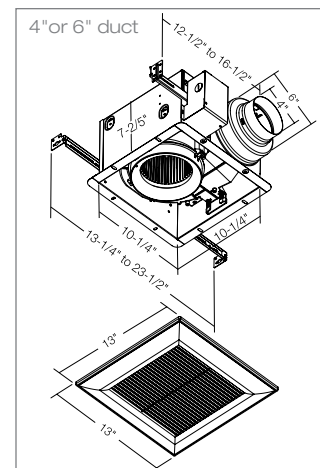
FV-15VQ5 150 CFM 6" Duct
FV-20VQ3 190 CFM 6" Duct

FV-30VQ3 290 CFM 6" Duct
FV-40VQ3 380 CFM 6" Duct

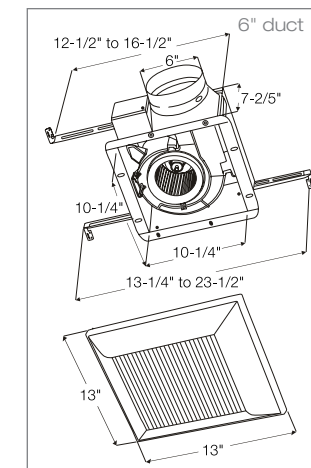


- **NEW** Dual adaptor for 4" or 6" ducts
- Superior performance and quiet operation at .25" w.g.
- ENERGY STAR® qualified
- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
- Easy installation (double hanger bar system)

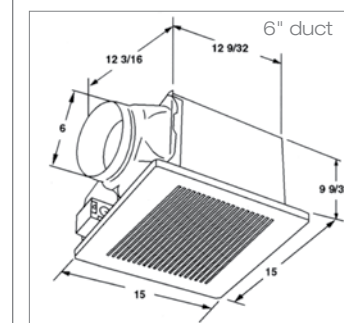
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty
- Optional designer grille and radiation damper available (See pages 36-37 for applicable models)



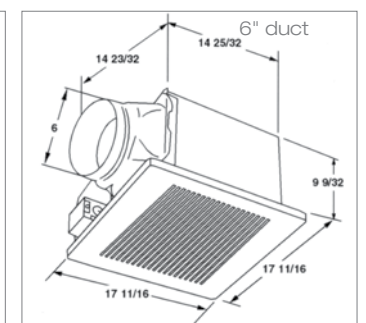
FV-05VQ5/FV-08VQ5/FV-11VQ5



FV-15VQ5



FV-20VQ3/FV-30VQ3



FV-40VQ3

WhisperCeiling		FV-05VQ5	FV-08VQ5	FV-11VQ5	FV-15VQ5	FV-20VQ3	FV-30VQ3	FV-40VQ3								
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	
	Air Volume (CFM)	50	36	80	62	110	91	150	127	190	144	290	257	380	348	
	Noise (sones)	<0.3	0.5	<0.3	0.4	<0.3	0.5	<0.3	0.5	1.3	N/A	2.0	N/A	3.0	N/A	
	Power Consumption (Watts)	11.0	11.5	14.7	14.5	21.1	20.7	28.4	27.3	42	42	64	62	112	111	
	Energy Efficiency (CFMs/Watt)	4.7	3.2	5.8	4.5	5.3	4.5	5.3	4.7	4.5	3.4	4.6	4.1	3.4	3.1	
	Speed	731	1060	829	1089	950	1161	691	911	696	871	877	990	736	823	
	Current	0.09	0.10	0.12	0.12	0.18	0.17	0.24	0.23	0.35	0.35	0.53	0.52	0.94	0.92	
	Power Rating (V/Hz)	120/60														
	ENERGY STAR Qualified	Yes														
	Approved Code/Standard/Regulation	UL Tub/Shower Enclosure	Yes													
Washington State VIAQ Code		Yes														
California Title 24 Compliant		Yes														
Mfg in ISO 9001 Certified Facility		Yes														

Complete Specifications on pages 48-49.
 Performance Curves on pages 40-47.

N/A=not applicable
 w.g.=water gauge
 S.P.=static pressure

FV-08VQL5 80 CFM 4" or 6" Duct
FV-11VQL5 110 CFM 4" or 6" Duct

FV-15VQL5 150 CFM 6" Duct

FV-08WQ1 70 CFM



Exterior Hood included

- **NEW** Dual adaptor for 4" or 6" ducts
- Contemporary flush mount grille
- Convenient night-light feature
- Superior performance and quiet operation at .25" w.g.
- ENERGY STAR® qualified fan and light fixture

- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty



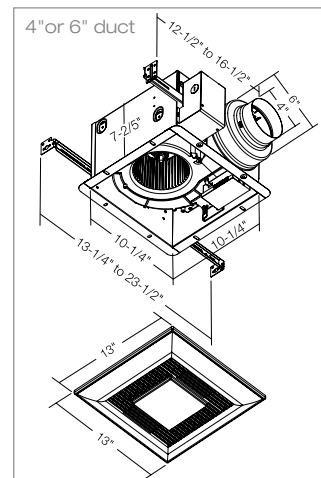
INCLUDED: One 32-Watt Panasonic CFL/3500 Kelvin/High CRI/2400 Lumens/ENERGY STAR® qualified/ 10,000 hours rated average life/equivalent to (2) 75-Watt incandescent lamp/electronic ballast for flicker-free operation.

*Lamp contains mercury. Dispose according to local, state and Federal laws.

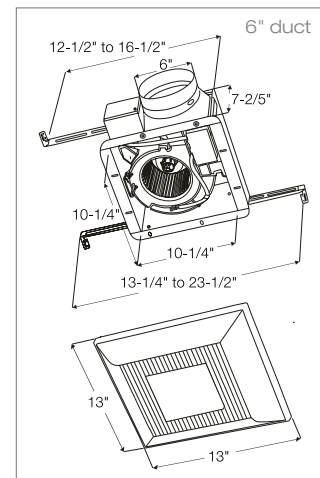
WhisperLite		FV-08VQL5		FV-11VQL5		FV-15VQL5	
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25	0.1	0.25
	Air Volume (CFM)	80	62	110	90	150	128
	Noise (sones)	<0.3	0.4	0.5	0.6	0.9	1.0
	Power Consumption (Watts)	14.9	14.7	23.4	23.0	31.8	30.9
	Energy Efficiency (CFMs/Watt)	5.5	4.3	4.7	3.9	4.8	4.2
	Speed	863	1117	1006	1193	800	988
	Current	0.12	0.12	0.20	0.19	0.27	0.26
	Power Rating (V/Hz)	120/60	120/60	120/60	120/60	120/60	120/60
Light Specifications	Lamp Watts	1 x 32	1 x 32	1 x 32	1 x 32	1 x 32	1 x 32
	Color Rendering Index	84	84	84	84	84	84
	Color Temp. (Kelvin)	3,500	3,500	3,500	3,500	3,500	3,500
	Lamp Model #	FHT32E35*	FHT32E35*	FHT32E35*	FHT32E35*	FHT32E35*	FHT32E35*
	Rated Average Life (hrs)	10,000	10,000	10,000	10,000	10,000	10,000
Night-Light	Lamp Watts	4	4	4	4	4	4
	UL Tub/Shower Enclosure	Yes	Yes	Yes	Yes	Yes	Yes
Approved Code/Standard/Regulation	Washington State VIAQ Code	Yes	Yes	Yes	Yes	Yes	Yes
	California Title 24 Compliant	Yes	Yes	Yes	Yes	Yes	Yes
	Mfg in ISO 9001 Certified Facility	Yes	Yes	Yes	Yes	Yes	Yes

Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.

N/A=not applicable
w.g.=water gauge
S.P.=static pressure



FV-08VQL5/FV-11VQL5



FV-15VQL5

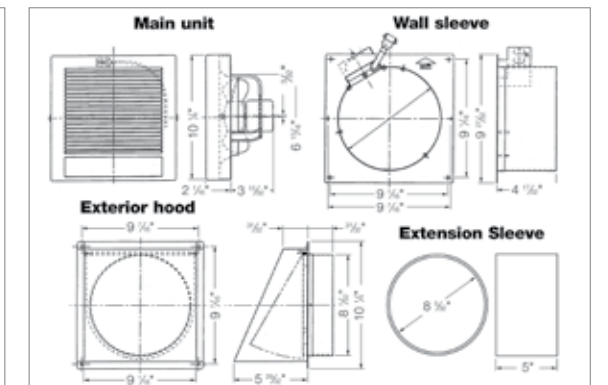
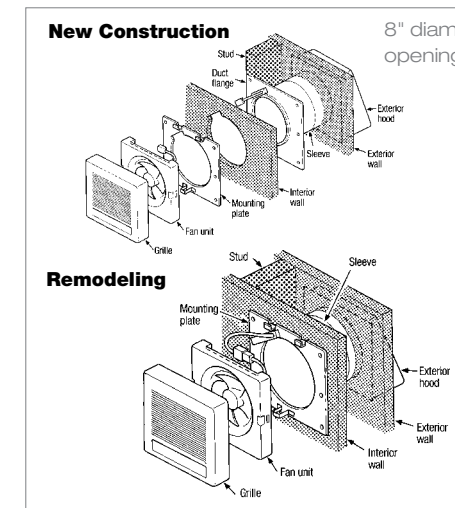
- Super quiet operation
- ENERGY STAR® qualified
- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
- Easy installation

- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Contemporary grille design
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- Hood with backdraft damper included
- 3 year warranty

WhisperWall		FV-08WQ1
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.03
	Air Volume (CFM)	70
	Noise (sones)	1.1
	Power Consumption (Watts)	18
	Energy Efficiency (CFMs/Watt)	3.9
	Speed	660
	Current	0.20
	Power Rating (V/Hz)	120/60
Installation	ENERGY STAR Qualified	Yes
	Duct Diameter (inches)	8
	Sleeve Extension (inches)	up to 10
Wall Cap Included	Bird Screen	Yes
	Spring Damper	Yes
	Painted Galvanized	Yes
Approved Code/Standard/Regulation	Grille Size (inches sq.)	10-1/4
	UL Tub/Shower Enclosure	Yes
	Washington State VIAQ Code	Yes
	Mfg in ISO 9001 Certified Facility	Yes

Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.

N/A=not applicable
w.g.=water gauge
S.P.=static pressure



FV-08WQ1

Panasonic ventilation fans may qualify for an energy saving rebate. Rebate programs are often provided by local utility companies and based on ENERGY STAR guidelines. Check with your local utility company for details.

FV-05VF2 50 CFM 4" Duct
FV-08VF2 80 CFM 4" Duct
FV-11VF2 110 CFM 4" Duct

FV-05VFL2 50 CFM 4" Duct
FV-08VFL2 80 CFM 4" Duct
FV-11VFL2 110 CFM 4" Duct



- Low profile housing design – Ideal for remodeling
- Super quiet operation
- ENERGY STAR® qualified
- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
- 4" duct with 3" duct adapter included
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits 2 x 6 and 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty
- Optional designer grille and radiation damper available (See pages 36-37 for applicable models)

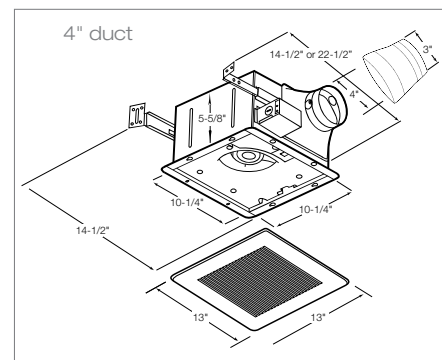
WhisperFit		FV-05VF2		FV-08VF2		FV-11VF2							
		4" Duct	3" Duct	4" Duct	3" Duct	4" Duct	3" Duct						
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25				
	Air Volume (CFM)	50	30	50	31	80	60	70	53	110	94	90	78
	Noise (sones)	0.4	N/A	0.5	N/A	0.8	N/A	0.8	N/A	1.5	N/A	1.5	N/A
	Power Consumption (Watts)	15.0	14.7	15.0	14.8	24.5	24.3	24.3	24.0	33.5	33.2	33.8	33.5
	Energy Efficiency (CFMs/Watt)	3.3	2.0	3.3	2.1	3.3	2.5	2.9	2.2	3.3	2.8	2.7	2.3
	Speed	637	932	741	978	757	956	845	1007	830	1000	1029	1128
	Current	0.13	0.12	0.13	0.12	0.20	0.20	0.20	0.20	0.28	0.28	0.28	0.28
	Power Rating (V/Hz)	120/60		120/60		120/60		120/60					
	ENERGY STAR Qualified	Yes		Yes		Yes ¹		Yes					
	UL Tub/Shower Enclosure	Yes		Yes		Yes		Yes					
Approved Code/Standard/Regulation	Washington State VIAQ Code	Yes		Yes		Yes		Yes					
	California Title 24 Compliant	Yes		Yes		Yes		Yes					
	Mfg in ISO 9001 Certified Facility	Yes		Yes		Yes		Yes					

Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.

N/A=not applicable
w.g.=water gauge
S.P.=static pressure



INCLUDED:
4 to 3 inch adaptor



FV-05VF2/FV-08VF2/FV-11VF2

- Convenient night-light feature
- Low profile housing design – Ideal for remodeling
- Super quiet operation
- ENERGY STAR® qualified fan and light fixture
- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
- 4" duct with 3" duct adapter included
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits 2 x 6 and 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty

WhisperFit-Lite		FV-05VFL2		FV-08VFL2		FV-11VFL2							
		4" Duct	3" Duct	4" Duct	3" Duct	4" Duct	3" Duct						
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25				
	Air Volume (CFM)	50	35	50	35	80	63	70	57	110	96	90	78
	Noise (sones)	<0.3	N/A	<0.3	N/A	0.5	N/A	0.6	N/A	1.3	N/A	1.5	N/A
	Power Consumption (Watts)	16.6	16.5	16.6	16.5	29.7	29.1	29.4	28.7	33.6	33.2	33.3	32.8
	Energy Efficiency (CFMs/Watt)	3.0	2.1	3.0	2.1	2.7	2.2	2.4	2.0	3.3	2.9	2.7	2.4
	Speed	703	917	769	989	828	981	937	1067	906	1033	1048	1162
	Current	0.14	0.14	0.14	0.14	0.25	0.24	0.25	0.24	0.28	0.28	0.28	0.27
	Power Rating (V/Hz)	120/60		120/60		120/60		120/60					
	ENERGY STAR Qualified	Yes		Yes		Yes ¹		Yes					
	UL Tub/Shower Enclosure	Yes		Yes		Yes		Yes					
Light Specifications	Lamp Watts	2x18		2x18		2x18							
	Color Rendering Index	84		84		84							
	Color Temp. (Kelvin)	3,500		3,500		3,500							
	Lamp Model #	FDS18E35/4 ¹		FDS18E35/4 ¹		FDS18E35/4 ¹							
Night-Light	Rated Average Life (hrs)	10,000		10,000		10,000							
	Lamp Watts	4		4		4							
Approved Code/Standard/Regulation	UL Tub/Shower Enclosure	Yes		Yes		Yes ¹							
	Washington State VIAQ Code	Yes		Yes		Yes							
	California Title 24 Compliant	Yes		Yes		Yes							
	Mfg in ISO 9001 Certified Facility	Yes		Yes		Yes							

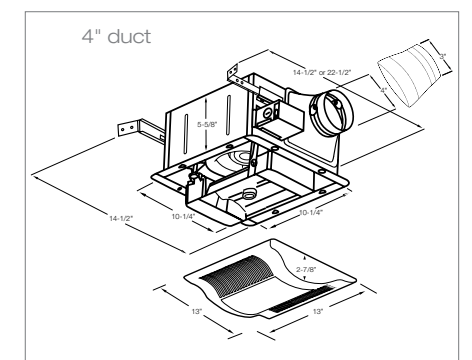
Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.

N/A=not applicable
w.g.=water gauge
S.P.=static pressure

*Lamp contains mercury. Dispose according to local, state and Federal laws.



INCLUDED: 2 Panasonic 18-Watt CFL/3500 Kelvin/ High CRI/1200 Lumens each/ENERGY STAR® qualified/10,000 hours rated average life/equivalent to 100-Watt incandescent lamp/electronic ballast for flicker-free operation



FV-05VFL2/FV-08VFL2/FV-11VFL2

FV-05VS1 50 CFM 4" Oval Duct
FV-08VS1 80 CFM 4" Oval Duct
FV-10VS1 100 CFM 4" Oval Duct

FV-08VSL1 80 CFM 4" Oval Duct
FV-10VSL1 100 CFM 4" Oval Duct



- Super low profile housing design
- Ultra low quiet operation
- ENERGY STAR® qualified
- UL listed for wall and ceiling installation

- Totally enclosed condenser motor for long life -rated for 30,000 hours continuous run
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits 2 x 4, 2 x 6, and 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty
- Optional designer grille and radiation damper available (See page 36-37 for applicable models)

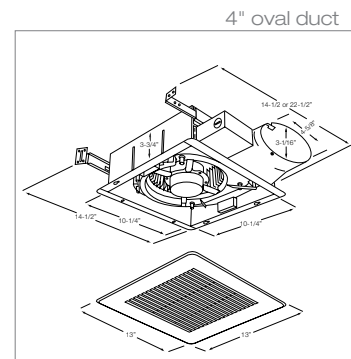
WhisperValue		FV-05VS1		FV-08VS1		FV-10VS1	
		4" Oval Duct		4" Oval Duct		4" Oval Duct	
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25	0.1	0.25
	Air Volume (CFM)	50	37	80	65	100	90
	Noise (sones)	0.8	N/A	1.4	N/A	1.5	N/A
	Power Consumption (Watts)	15.8	15.3	23.3	23.6	36.4	36.1
	Energy Efficiency (CFMs/Watt)	3.2	2.4	3.4	2.8	2.9	2.7
	Speed (RPM)	759	948	878	1026	840	979
	Current (amps)	0.04	0.04	0.11	0.11	0.30	0.30
Power Rating (V/Hz)		120/60		120/60		120/60	
Approved Code/ Standard/ Regulation	UL Tub/Shower Enclosure	Yes		Yes		Yes	
	UL Wall Installation	Yes		Yes		Yes	
	Washington State VIAQ Code	Yes		Yes		Yes	
	Mfg in ISO 9001 Certified Facility	Yes		Yes		Yes	

Complete Specifications on pages 48-49.
 Performance Curves on pages 40-47.

N/A=not applicable
 w.g.=water gauge
 S.P.=static pressure

WhisperValue U-Can Contractor Pack

Universal Housing Can	Motor/Grille Assembly	Complete Fan Unit	Master Pack
FV-05-08VSA1	FV-05VSB1	FV-05VS1	4
FV-05-08VSA1	FV-08VSB1	FV-08VS1	4
FV-05-08VSA1	FV-10VSB1	FV-10VS1	4



FV-10VS1

- Convenient night-light feature
- Super low profile housing design
- Ultra low quiet operation
- ENERGY STAR® qualified fan and light fixture

- Totally enclosed condenser motor for long life -rated for 30,000 hours continuous run
- Easy installation (double hanger bar system)
- Rustproof paint treatment on galvanized housing
- Built-in damper to prevent backdraft
- Fits 2 x 4, 2 x 6, and 2 x 8 construction
- UL listed for tub/shower enclosure when used with a GFCI branch circuit wire
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty

WhisperValue-Lite		FV-08VSL1		FV-10VSL1	
		4" Oval Duct		4" Oval Duct	
Characteristics (HVI Certified Data for 0.1" S.P.)	Static pressure in inches w. g.	0.1	0.25	0.1	0.25
	Air Volume (CFM)	80	67	100	90
	Noise (sones)	1.3	N/A	1.5	N/A
	Power Consumption (Watts)	24.4	24.9	36.6	36.3
	Energy Efficiency (CFMs/Watt)	3.3	2.7	2.9	2.6
	Speed (RPM)	944	1063	911	1019
	Current (amps)	0.11	0.11	0.30	0.30
Power Rating (V/Hz)		120/60		120/60	
Approved Code/ Standard/ Regulation	UL Tub/Shower Enclosure	Yes		Yes	
	Washington State VIAQ Code	Yes		Yes	
	Mfg in ISO 9001 Certified Facility	Yes		Yes	
Light Specifications	Lamp Watts	2x18		2x18	
	Color Rendering Index	84		84	
	Color Temp. (Kelvin)	3,500		3,500	
	Lamp Model #	FDS18E35/4*		FDS18E35/4*	
	Rated Average Life (hrs)	10,000		10,000	
Night-Light	Lamp Watts	4		4	

Complete Specifications on pages 48-49.
 Performance Curves on pages 40-47.

N/A=not applicable
 w.g.=water gauge
 S.P.=static pressure

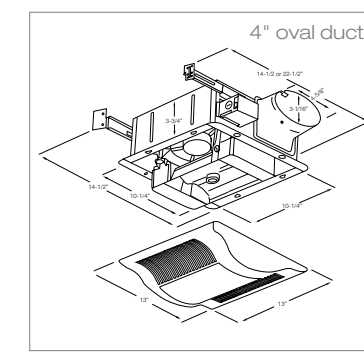
WhisperValue-Lite U-Can Contractor Pack

Universal Housing Can	Motor/Grille Assembly	Complete Fan Unit	Master Pack
FV-08VSLA1	FV-08VSLB1	FV-08VSL1	4
FV-08VSLA1	FV-10VSLB1	FV-10VSL1	4



INCLUDED: 2 Panasonic 18-Watt CFL/3500 Kelvin/ High CRI/1200 Lumens each/ENERGY STAR® qualified/10,000 hours rated average life/equivalent to 100-Watt incandescent lamp/electronic ballast for flicker-free operation

*Lamp contains mercury. Dispose according to local, state and Federal laws.



FV-08VSL1/FV-10VSL1

Energy Recovery Ventilator

FV-04VE1 40/20 CFM or 20/10 CFM 2 x 4" Ducts



- Totally enclosed AC condenser motor for long life – rated for 30,000 hours continuous run
- Rust-proof paint treatment on galvanized steel housing
- Supply air damper employed
- Balanced ventilation

- Dual setting air volume for 40/20 or 20/10 CFMs
- Supply and exhausted air filter employed
- One motor operates two fan wheels
- 2 x 4 inch ducts
- New high efficiency energy recovery core
- easily removed and cleaned
- Contemporary designed removable grill
- Suitable for renovation
- Easy installation (double hanger bar system and no required drain line)
- Fits in 2x 8 construction
- Thermal fuse protection
- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty

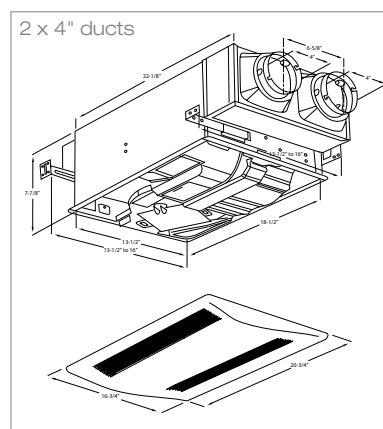
WhisperComfort		FV-04VE1		
		40 CFM	20 CFM	10 CFM
Characteristics	Static pressure in inches w. g.	0.1	0.1	0.1
	Air Volume Exhaust (CFM)	40	20	10
	Air Volume Supply (CFM)	30	20	10
	Noise (sones)	0.8	<0.3	N/A
	Power Consumption (Watts)	23	21	17
	Speed	1479	1292	1095
	Current	0.15	0.10	0.09
Specifications	Power Rating (V/Hz)	120/60		
	Motor Type	Condenser		
	Type of Motor Bearing	Ball		
	Thermal Fuse Protection	Yes		
	Blower Wheel Type	2 x Sirocco		
Supply Filter	MERV 6			
Apparent Sensible Effectiveness	Heating (%) 32 °F (0°C)	66% at 30 CFM		

Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.

N/A=not applicable
 w.g.=water gauge
 S.P.=static pressure

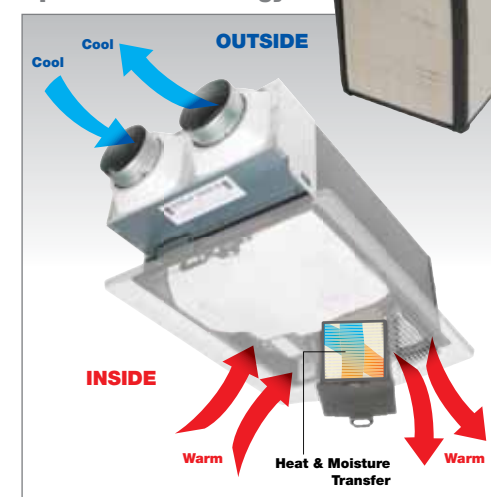
Note:

1. The testing of the ventilation performance is in general accordance with HVI standard.
2. The testing of the energy performance is in general accordance with CSA-C439 standard.

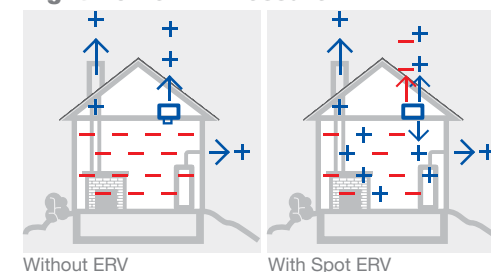


FV-04VE1

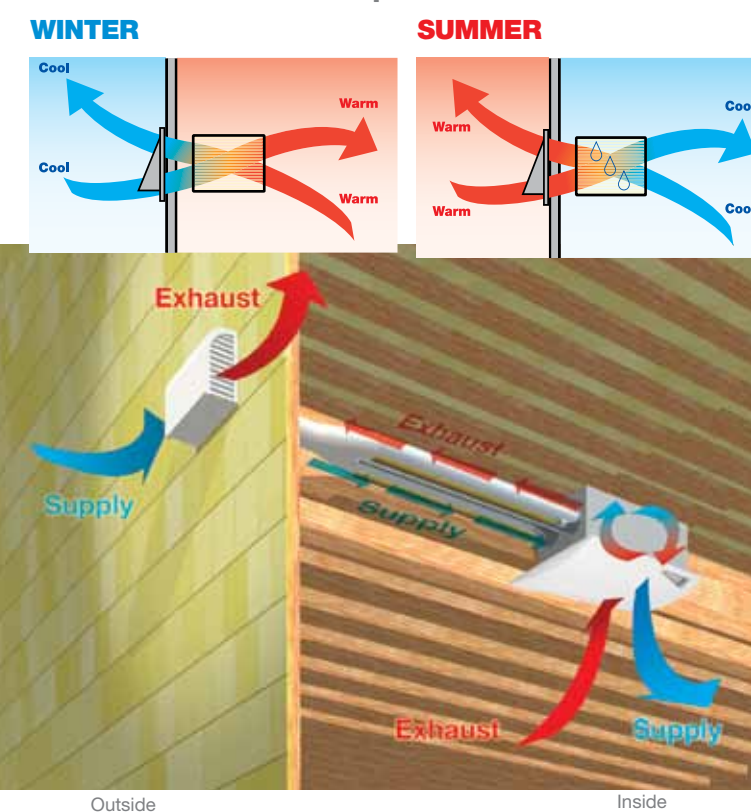
Spot ERV Technology



Tight Home Air Pressure



Balanced Ventilation With Spot ERV



Balanced Ventilation

Panasonic WhisperComfort spot ERVs use two ducts - one to exhaust stale air and the other to supply fresh air from outside. Its low-rate, continuous run helps ensure chemicals and indoor pollutants are vented out and replaced with fresh air.

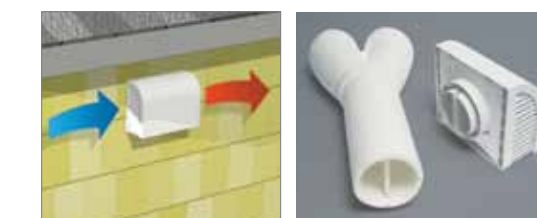
Patent-Pending Capillary Core

When air is brought in from the outside, the patented capillary core inside the WhisperComfort fans transfers up to 70% heat and moisture to the supply air coming in so that it tempers the indoor temperature and moisture levels. This helps maintain energy efficiency inside the house while bringing in new, clean air from outdoors.

Keeps Air Pressure Balanced

In tightly built homes and buildings, natural air leaks are minimized in the building envelope to increase energy efficiency. Just exhausting polluted air out without supplying new air creates negative pressure. The WhisperComfort ERV solves this by supplying air to replace the exhausted air, helping to balance the air pressure in the home.

Optional Exterior Wall Cap - FV-WC04VE1



FV-11VHL2 110 CFM 4" Duct



FV-11VH2 110 CFM 4" Duct

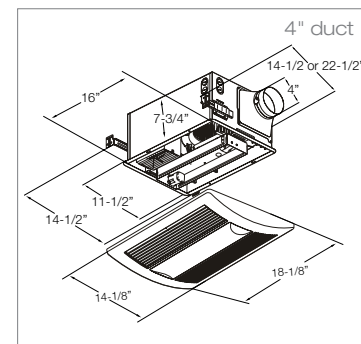


- Super quiet operation
 - Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run
 - Easy installation
- Rustproof paint treatment on galvanized housing
 - Built-in damper to prevent backdraft
 - Fits in 2 x 8 construction
 - Thermal fuse protection on motor and 3-level safety device for heater
 - Durable stainless steel sheathed heating element
 - Quick 1 minute warm-up
 - 3 year warranty
 - ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant

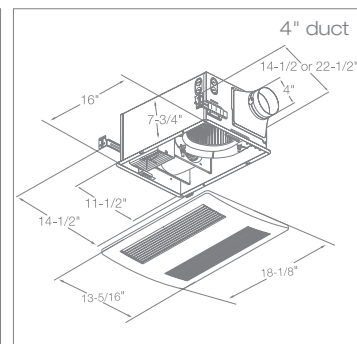
Minimum 20 Amp dedicated circuit recommended. For optimum performance, install heater no more than 8 feet from floor to ceiling



FV-11VHL2 INCLUDES: 2 Panasonic 18-Watt CFL/3500 Kelvin/High CRI/1200 Lumens each/ENERGY STAR® qualified/10,000 hours rated average life/equivalent to 100-Watt incandescent lamp/electronic ballast for flicker-free operation



FV-11VHL2



FV-11VH2

WhisperWarm™		FV-11VH2	FV-11VHL2
Characteristics (HVI Certified Data for 0.1" S.P.)	Static Pressure in inches w.g.	0.1	0.25
	Air Volume (CFM)	110	89
	Noise (sones)	0.6	N/A
	Power Consumption (watts)	30.7	30.5
	Energy Efficiency (CFM/Watt)	3.6	2.9
	Speed (RPM)	778	935
	Current (amps)	0.25	0.25
Specifications	Power Rating (V/Hz)	120/60	120/60
	Motor Type	Condenser	Condenser
	Type of Motor Bearing	Ball	Ball
	Thermal Fuse Protection	Yes	Yes
	Blower Wheel Type	Sirocco	Sirocco
Installation	ENERGY STAR Qualified	N/A	N/A
	Duct Diameter (Inches)	4	4
	Mounting Opening (Inches sq.)	17-3/8 x 12-5/8	17-3/8 x 12-5/8
Light Specifications	Grille Size (Inches)	18-1/8L x 13-5/16W	18-1/8L x 14-1/8W
	Lamp Watts	N/A	2 x 18W
	Color Rendering Index	N/A	84
	Color Temperature (Kelvin)	N/A	3,500
	Rated Life (hours)	N/A	10,000
Night Light Specs	Lamp Model #	N/A	FDS18E35/4*
	Night Light Watts	N/A	4
Heater	Stainless Steel Sheathed Element	Yes	Yes
	Directional Louver	N/A	N/A
	Heating Element (Watts)	1,400	1,400
	Blower Fan (CFM)	90	90
Combined	Blower Fan (Watts)	25	25
	Amps	12.2	12.5
Shipping	Gross Weight (lbs)	20.1	22.7



Complete Specifications on pages 48-49. Performance Curves on pages 40-47.

N/A=not applicable
w.g.=water gauge
S.P.=static pressure

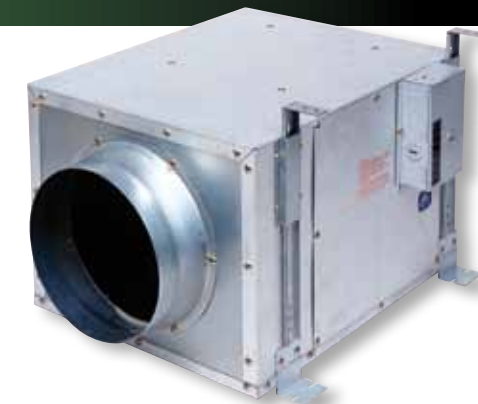
*Lamp contains mercury. Dispose according to local, state and Federal laws.

FV-010NLF1 120 CFM 4" Duct

FV-20NLF1 240 CFM 6" Duct

FV-30NLF1 340 CFM 6" Duct

FV-40NLF1 440 CFM 8" Duct



Housing:

- Galvanized steel for long life
- Insulated housing to prevent condensation and noise
- Tapered duct adaptor for easy connection

Motor:

- Super quiet/energy efficient
- Totally enclosed condenser motor for long life—rated for 30,000 hours continuous run

Safety:

- Motor equipped with thermal cut-off fuse

Easy Installation:

- 5 positions for installation
- Joist or truss attachment brackets included
- Suspension brackets included

Grille:

- Low profile family design
- Adjustable airflow for multi-inlet balance

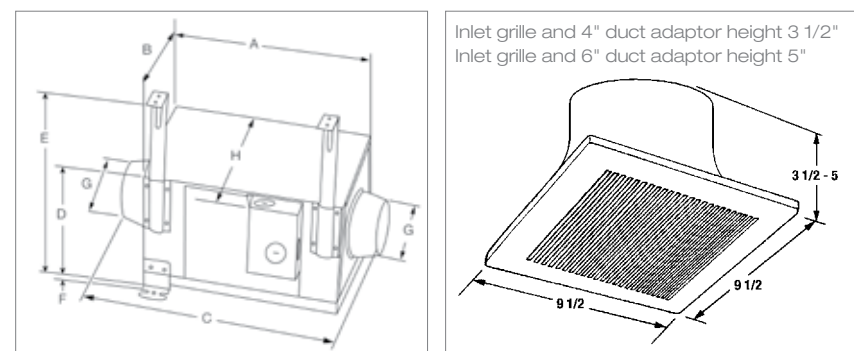
Other Benefits:

- ASHRAE 62.2, LEED for Homes, ENERGY STAR IAP, CA Title 24, EarthCraft and WA Ventilation Code compliant
- 3 year warranty

WhisperLine	FV-10NLF1			FV-20NLF1			FV-30NLF1			FV-40NLF1		
	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4
Static pressure in inches w. g.	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4
Air Volume (CFM)	120	105	82	240	225	200	340	322	302	440	425	408
Noise (sones)	1.0			1.4			1.7			2.1		
Power Consumption (Watts)	36			57			98			132		
Energy Efficiency (CFMs/Watt)	3.3			4.2			3.5			3.3		
Speed	1590			1260			1337			1150		
Current	0.31			0.46			0.86			1.10		
Power Rating (W/Hz)	120/60			120/60			120/60			120/60		
ENERGY STAR Qualified	Yes			Yes			Yes			Yes		
Duct Diameter (inches)	4			6			6			8		
Grill Size (inches sq.)	9-1/2			9-1/2			9-1/2			9-1/2		
UL Tub/Shower Enclosure	Yes			Yes			Yes			Yes		
Washington State VIAQ Code	Yes			Yes			Yes			Yes		
Mfg in ISO 9001 Certified Facility	Yes			Yes			Yes			Yes		

Note: Sones were measured at manufacturer's facility in a sound-proof room at intake side from a distance of 5 ft. To ensure quiet operation of ENERGY STAR® qualified in-line and remote fans, each fan should be installed using sound attenuation techniques appropriate for the installation. For bathroom and general ventilation applications, at least 8 feet of insulated flexible duct must be installed between the exhaust or supply grille(s) and the fan. N/A=not applicable w.g.=water gauge S.P.=static pressure

Complete Specifications on pages 48-49.
Performance Curves on pages 40-47.



Fan Model	A	B	C	D	E	F	G	H
FV-10NLF1	13-3/8"	9-1/2"	17-5/16"	7-7/8"	12-5/8" - 22-3/4"	5/16"	4"	11"
FV-20NLF1	13-3/8"	9-1/2"	21-5/8"	9-7/16"	12-5/8" - 24-7/16"	5/16"	6"	11"
FV-30NLF1	15-11/32"	10-5/8"	23-5/8"	11"	12-5/8" - 26"	5/16"	6"	12-1/8"
FV-40NLF1	16-1/2"	13-3/8"	22"	11"	12-5/8" - 26"	5/16"	8"	14-7/8"

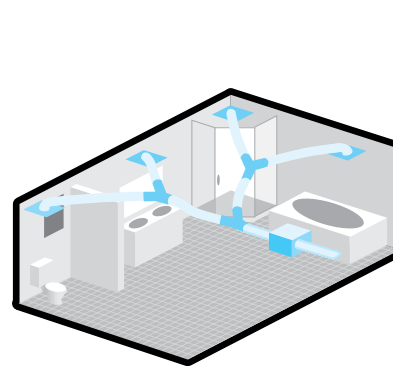
WhisperLine Installation Kits						
Item	Model No.	Description	Inlet Grille	Backdraft Damper	Clamp	Y-Adaptor
Accessory Kit	FV-NLF04G	4" Inlet Grille	1 (4")	-	-	-
	FV-NLF06G	6" Inlet Grille	1 (6")	-	-	-
	PC-NLF04S	4" Single Inlet Kit	1 (4")	1 (4")	6	-
	PC-NLF06S	6" Single Inlet Kit	1 (6")	1 (6")	6	-
	PC-NLF04D	4" Double Inlet Kit	2 (4")	2 (4")	12	1 (4"- 4"x 2)
	PC-NLF06D	6" Double Inlet Kit	2 (6")	2 (6")	12	1 (6"- 6"x 2)
Y-Adaptor	PC-NLF64D	6"- 4" Double Inlet Kit	2 (4")	2 (4")	12	1 (6"- 4"x 2)
Y-Adaptor	PC-NLF86Y	8"- 6" Y-Adaptor	-	-	-	1 (8"- 6"x 2)



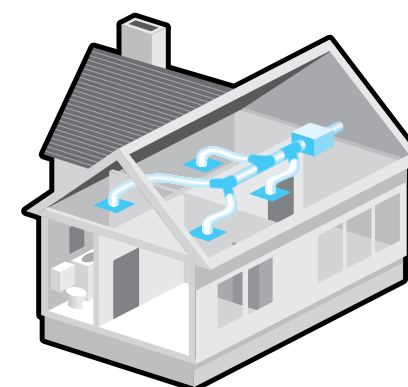
Single Inlet Kit



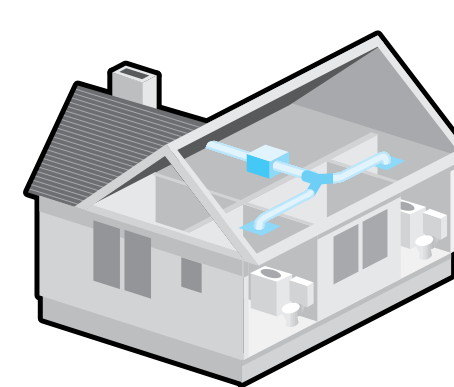
Double Inlet Kit



Multiple task ventilation inlets in a single bathroom
i.e. shower, whirlpool, toilet and vanity



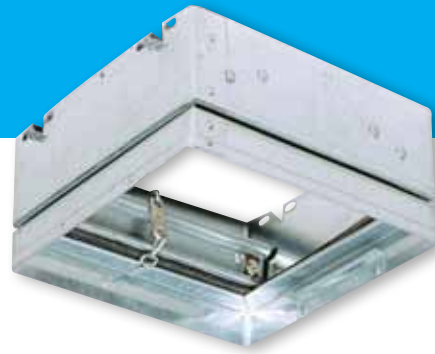
Continuous (low rate) ventilation with multiple inlets through the home for indoor air quality improvement



Ventilate two bathrooms with one in-line fan

CEILING RADIATION DAMPER

PC-RD05C3



- UL classification (UL standard 555C) for use in 1, 2 or 3 hour fire-rated floor/ceiling and roof/ceiling designs
- Available for 50 - 150 CFM fans
- 165° F fusible link
- High temperature, non-asbestos, reinforced fiber thermal fabric
- Galvanized steel frame

Local fire codes may require a ventilation fan installed in a fire rated floor/ceiling or a roof/ceiling assembly to be equipped with a specially tested and classified radiation damper. In case of a fire, the radiation damper closes to prevent the spread of fire and heat. Panasonic radiation dampers are designed to protect ceiling penetrations in 1, 2 or 3 hour fire-rated floor/ceiling and roof/ceiling designs. All Panasonic radiation dampers meet or exceed the following:

UL Classified: Panasonic radiation dampers, assembled together with Panasonic ventilation fans, meet or exceed UL 555C. Quantity and frequency of permissible ceiling penetrations are described in the UL fire resistance directory.

National Fire Protection Association (NFPA): Panasonic radiation dampers assembled together with Panasonic ventilation fans, meet or exceed NFPA-90A.

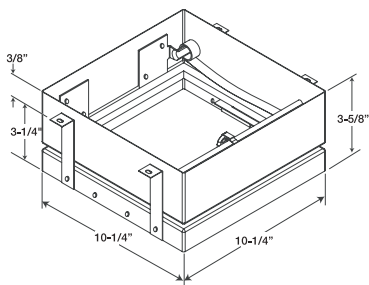
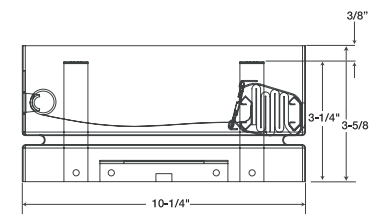
Panasonic ceiling radiation dampers are U.L. and Warnock Hersey classified to provide fire and heat protection where HVAC components penetrate the ceiling membrane. What this means is that dampers are specially tested and classified in accordance with U.L. standard 555C for use in up to 3-hour fire rated floor/ceiling and roof/ceiling assembly. These radiation dampers meet the NFPA (National Fire Protection Association) 90A Standard and qualify for various Fire Marshal codes. However, fire marshals in different states or countries may have different guidelines and we recommend that you consult with local authorities before installation.



Damper Model PC-RD05C3

Fan Model approved for:

Applicable ENERGY STAR® Models:
WhisperGreen: FV-13VK3, FV-08VK3, FV-05VK3
WhisperCeiling: FV-15VQ5, FV-11VQ5, FV-08VQ5, FV-05VQ5
WhisperFit: FV-11VF2, FV-08VF2, FV-05VF2
WhisperValue: FV-10VS1, FV-08VS1, FV-05VS1



OPTIONAL DESIGNER GRILLES

FV-GL3MTL

FV-GL3TDA

FV-GL3TDB



- Easy and affordable to change
- Change your grille to fit your room decor without compromising the performance and quality of the unit

Applicable Models

WhisperGreen: FV-13VKS3, FV-13VK3, FV-08VKS3, FV-08VK3, FV-05VK3

WhisperCeiling: FV-15VQ5, FV-11VQ5, FV-08VQ5, FV-05VQ5

WhisperFit: FV-11VF2, FV-08VF2, FV-05VF2

WhisperValue: FV-10VS1, FV-08VS1, FV-05VS1 (For FV-GL3MTL only)

Characteristics	FV-GL3TDA	FV-GL3TDB	FV-GL3MTL
Grille Size (inches sq.)	13	14-1/5	13
Shipping Gross Weight (lbs)	1.1	1.3	1.5
Trend Style Category	Traditional	Traditional	Commercial
Material	ABS	ABS	26 Gauge Galvanized Steel
UL Approved ¹	Yes	Yes	Yes
HVI Certified ¹	Yes	Yes	Yes
Mfg. in ISO 9001 Certified Facility	Yes	Yes	Yes
RoHs Compliant	Yes	Yes	Yes

¹ Approved with applicable models.



PASSIVE INLET VENT

FV-GKF32S1

Panasonic Passive Inlet provides make-up (outside) air to help balance indoor vs. outdoor air pressure.

- Foam pad reduces outdoor noise and condensation
- Insulation lining to prevent condensation
- Durable ABS and PP resin body
- 7 stainless steel installation screws included



	Passive Inlet	FV-GKF32S1
Specifications	Air Volume Positions	2
	CFM Settings	12 & 18
Features	Open/Close Louver Setting	Yes
	Washable Air Filter	Yes
	Bug Screen	Yes
	3" x 12" Sleeve Included	Yes
Installation	Body	ABS & PP
	Wall Opening (diameter)	3 inch
	Installation Screw Included	Yes



MAX CFM TABLE using Q5 Dual Adapter and 3-4" and 4-6" increasers

Table of Maximum Airflows at various Equivalent Duct Lengths (EDL)					
Model	Duct size	40 feet	60 feet	80 feet	100 feet
FV-05VF2	4"	50 cfm	40 cfm	40 cfm	40 cfm
	3"	40 cfm	30 cfm	30 cfm	30 cfm
FV-05VFL2	4"	50 cfm	40 cfm	40 cfm	40 cfm
	3"	40 cfm	30 cfm	30 cfm	30 cfm
FV-05VK3	4"	50 cfm	50 cfm	50 cfm	50 cfm
FV-05VQ5	4"	50 cfm	50 cfm	40 cfm	40 cfm
	6"	50 cfm	50 cfm	50 cfm	50 cfm
FV-05VS1	4" Oval	50 cfm	50 vfm	40 cfm	40 cfm
FV-08VF2	4"	70 cfm	60 cfm	60 cfm	50 cfm
	3"	50 cfm	40 cfm	30 cfm	30 cfm
FV-08VFL2	4"	70 cfm	60 cfm	60 cfm	50 cfm
	3"	50 cfm	40 cfm	30 cfm	30 cfm
FV-08VK3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VKL3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VKM3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VKML3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VKS3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VKSL3	4"	80 cfm	80 cfm	80 cfm	70 cfm
FV-08VQ5	4"	70 cfm	60 cfm	60 cfm	60 cfm
	6"	80 cfm	80 cfm	80 cfm	80 cfm
FV-08VQL5	4"	70 cfm	60 cfm	60 cfm	60 cfm
	6"	80 cfm	80 cfm	80 cfm	80 cfm
FV-08VS1	4" Oval	70 cfm	70 cfm	60 cfm	60 cfm
FV-08VSL1	4" Oval	70 cfm	70 cfm	60 cfm	60 cfm
FV-10VS1	4" Oval	100 cfm	90 cfm	80 cfm	70 cfm
FV-10VSL1	4" Oval	100 cfm	90 cfm	80 cfm	70 cfm
FV-11VF2	4"	90 cfm	80 cfm	70 cfm	70 cfm
	3"	60 cfm	50 cfm	40 cfm	40 cfm
FV-11VFL2	4"	90 cfm	80 cfm	70 cfm	70 cfm
	3"	60 cfm	50 cfm	40 cfm	40 cfm
FV-11VH2	4"	90 cfm	80 cfm	90 cfm	90 cfm
	4" to 6" adapter	110 cfm	110 cfm	110 cfm	110 cfm
FV-11VHL2	4"	90 cfm	80 cfm	90 cfm	90 cfm
	4" to 6" adapter	110 cfm	110 cfm	110 cfm	110 cfm
FV-11VQ5	4"	90 cfm	80 cfm	90 cfm	90 cfm
	6"	110 cfm	110 cfm	110 cfm	110 cfm
FV-11VQL5	4"	90 cfm	80 cfm	90 cfm	90 cfm
	6"	110 cfm	110 cfm	110 cfm	110 cfm
FV-13VK3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-13VKL3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-13VKM3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-13VKML3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-13VKS3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-13VKSL3	6"	130 cfm	130 cfm	130 cfm	130 cfm
FV-15VQ5	6"	150 cfm	150 cfm	140 cfm	140 cfm
FV-15VQL5	6"	150 cfm	150 cfm	140 cfm	140 cfm
FV-20VQ3	6"	190 cfm	180 cfm	170 cfm	170 cfm
FV-30VQ3	6"	260 cfm	240 cfm	230 cfm	220 cfm
FV-40VQ3	6"	340 cfm	320 cfm	300 cfm	280 cfm

Sizing and selecting a Ceiling Mounted Fan

Steps to select a fan:

1. Calculate the CFM needed for your application
2. Calculate the Equivalent Duct Length (EDL) for your installation

Sizing and selecting an In-Line Fan and Installation Kit

WhisperLine In-Line – Bathroom (to achieve 8 ACH as per HVI)						
Total Sq Ft bath or baths	Installation Kit	Longest duct run from grille to fan and to the outside exhaust point				
		20 feet	30 feet	40 feet	50 feet	75 feet
50	one 4" pickup in one bath	PC-NLF04S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
75	one 6" pickup in one bath	PC-NLF06S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
100	one 6" pickup in one bath	PC-NLF06S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
	two 6" pickups in one bath	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
125	two 6" pickups in two baths	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
	one 6" pickup in one bath	PC-NLF06S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-20NLF1
150	two 6" pickups in one bath	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-20NLF1
	two 6" pickups in two baths	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-20NLF1
175	one 6" pickup in one bath	PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
	two 6" pickups in one bath	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
200	two 6" pickups in one or two baths	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
225	two 6" pickups in one or two baths	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-30NLF1
	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
250	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
	two 6" pickups in one or two baths	PC-NLF06D	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
275	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S (30NLF1)	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S + PC-NLF86Y (40NLF1)	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
300	three 6" pickups in one, two, or three baths	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
	three 6" pickups in two or three baths	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
325	three 6" pickups in two or three baths	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
	four 6" pickups in two, three, or four baths	PC-NLF06D x 2 + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
350	three 6" pickups in two or three baths	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	NA	NA
	four 6" pickups in two, three, or four baths	PC-NLF06D x 2 + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
375	four 6" pickups in two, three, or four baths	PC-NLF06D x 2 + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
	four 6" pickups in two, three, or four baths	PC-NLF06D x 2 + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1

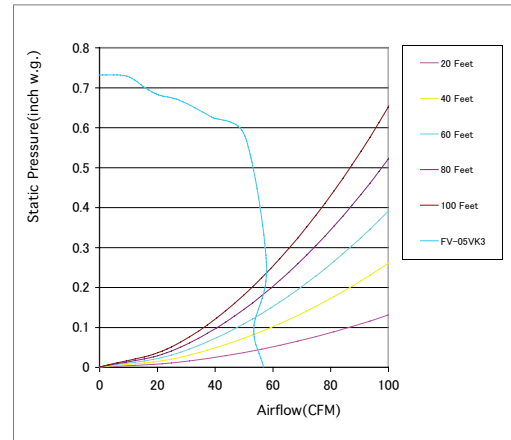
* PC-NLF46A not required for FV-20NLF1

WhisperLine In-Line – Whole House (to achieve 0.35 ACH)						
House Sq Ft	PICKUPS	Installation kit	Longest duct run from grille to fan and to the outside exhaust point			
			20 feet	30 feet	40 feet	50 feet
750	one 4" pickup	PC-NLF04S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
750	two 4" pickups	PC-NLF04D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,000	one 4" pickup	PC-NLF04S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,000	two 4" pickups	PC-NLF04D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,250	one 6" pickup	PC-NLF06S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,250	two 6" pickups	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,500	one 6" pickup	PC-NLF06S	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
1,500	two 6" pickups	PC-NLF06D	FV-10NLF1	FV-10NLF1	FV-10NLF1	FV-10NLF1
2,000	two 6" pickups	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
2,500	two 6" pickups	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
3,000	two 6" pickups	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
3,000	three 6" pickups	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
3,500	two 6" pickups	PC-NLF06D	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
3,500	three 6" pickups	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
4,000	two 6" pickups	PC-NLF06D	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
4,000	three 6" pickups	PC-NLF06D + PC-NLF06S	FV-20NLF1	FV-20NLF1	FV-20NLF1	FV-20NLF1
4,500	two 6" pickups	PC-NLF06D	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
4,500	three 6" pickups	PC-NLF06D + PC-NLF06S	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
5,000	three 6" pickups	PC-NLF06D + PC-NLF06S	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
5,000	four 6" pickups	Two PC-NLF06D	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
5,500	three 6" pickups	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
5,500	four 6" pickups	PC-NLF06D + PC-NLF06S	FV-30NLF1	FV-30NLF1	FV-30NLF1	FV-30NLF1
6,000	three 6" pickups	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
6,000	four 6" pickups	Two PC-NLF06D + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
6,500	three 6" pickups	PC-NLF06D + PC-NLF06S + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
6,500	four 6" pickups	Two PC-NLF06D + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
7,000	four 6" pickups	Two PC-NLF06D + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1
7,500	four 6" pickups	Two PC-NLF06D + PC-NLF86Y	FV-40NLF1	FV-40NLF1	FV-40NLF1	FV-40NLF1



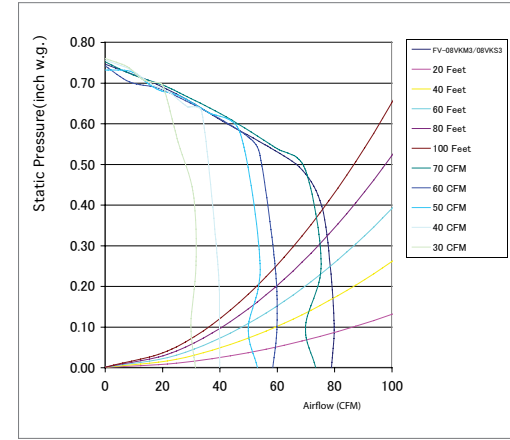
Single Speed
FV-05VK3

50 CFM 4" Duct



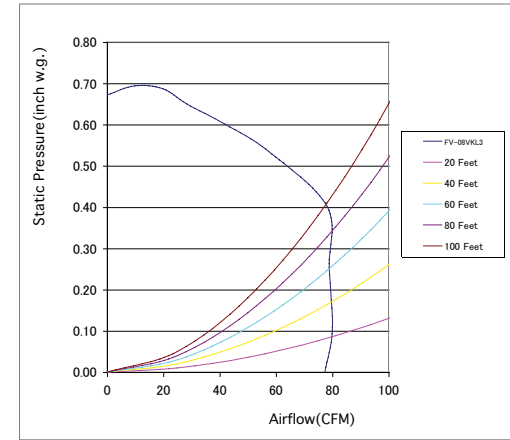
Built-in Controls
FV-08VKM3/S3

80/0 CFM 4" Duct



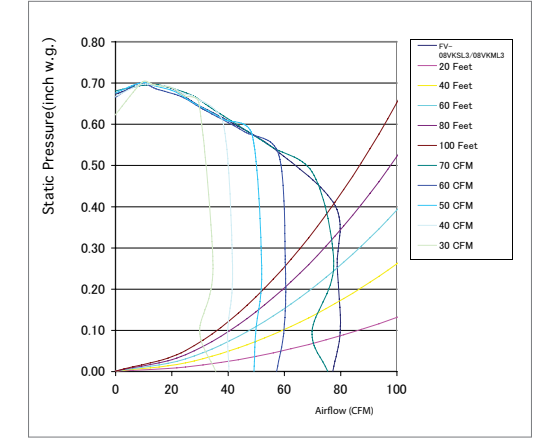
Single Speed
FV-08VKL3

80 CFM 4" Duct



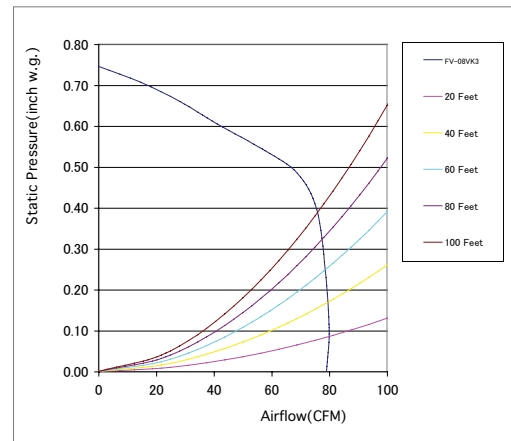
Built-in Controls
FV-08VKML3/SL3

80/0 CFM 4" Duct



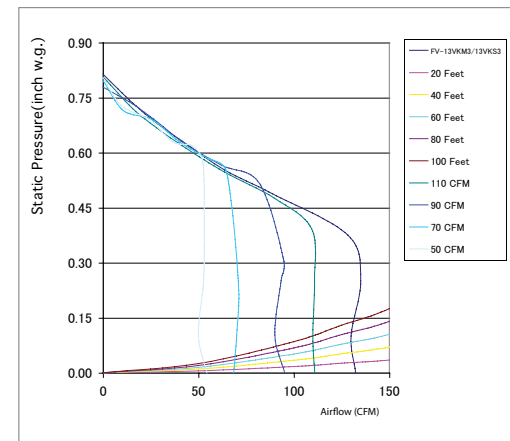
Single Speed
FV-08VK3

80 CFM 4" Duct



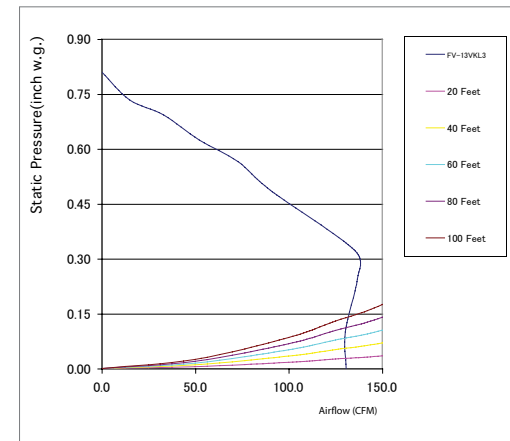
Built-in Controls
FV-13VKM3/S3

130/0 CFM 6" Duct



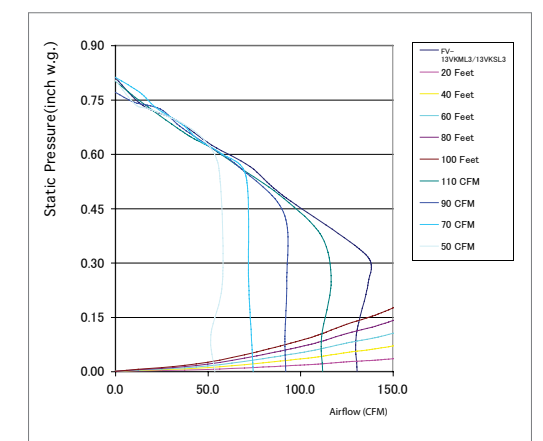
Single Speed
FV-13VKL3

130 CFM 6" Duct



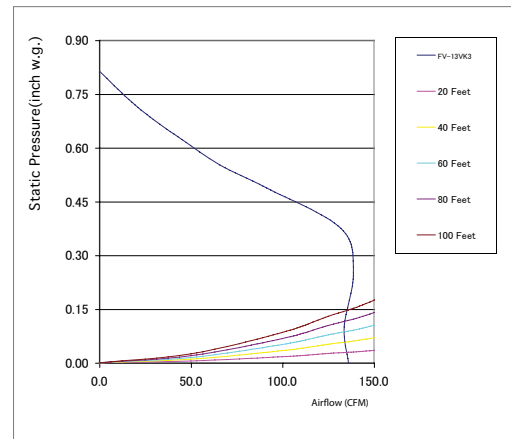
Built-in Controls
FV-13VKML3/SL3

130/0 CFM 6" Duct



Single Speed
FV-13VK3

130 CFM 6" Duct

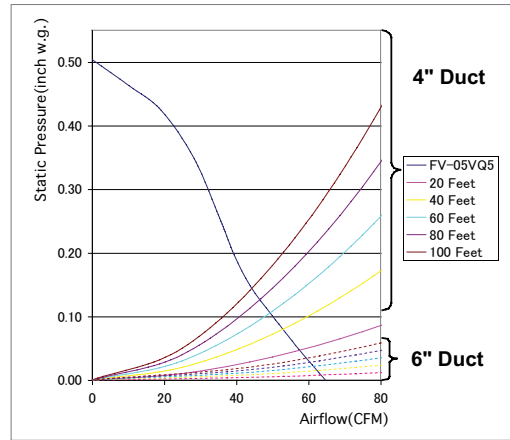


CFM based on HVI certification.



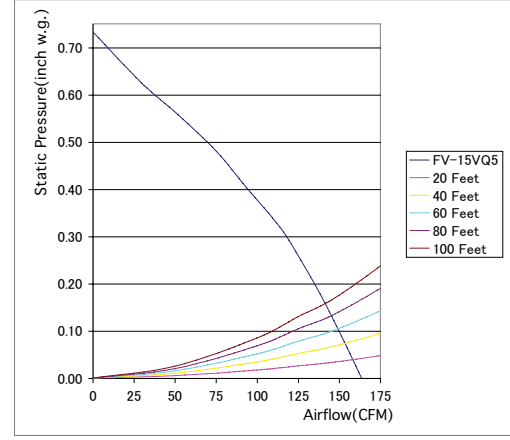
FV-05VQ5

50 CFM 4" or 6" Duct



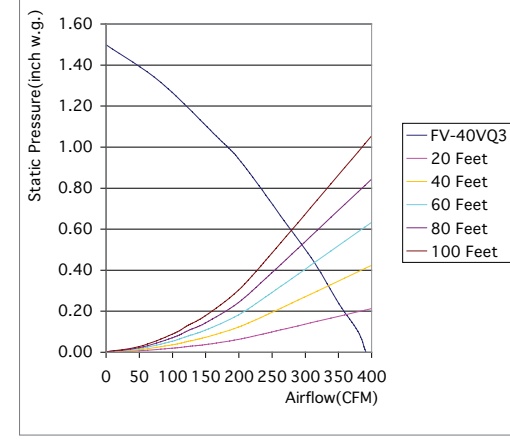
FV-15VQ5

150 CFM 6" Duct



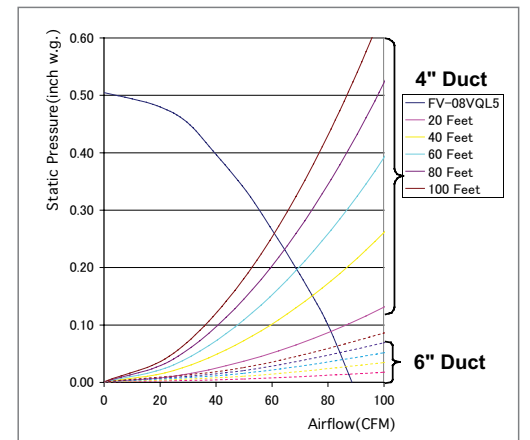
FV-40VQ3

380 CFM 6" Duct



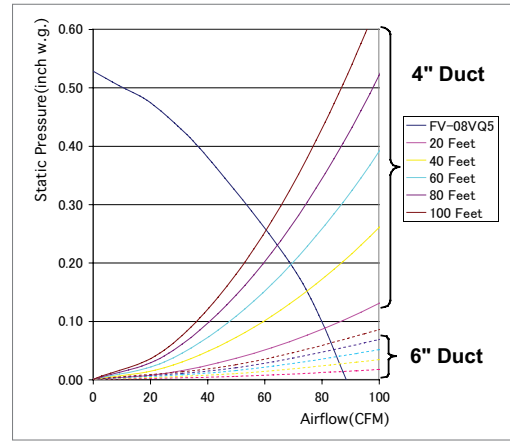
FV-08VQL5

80 CFM 4" or 6" Duct



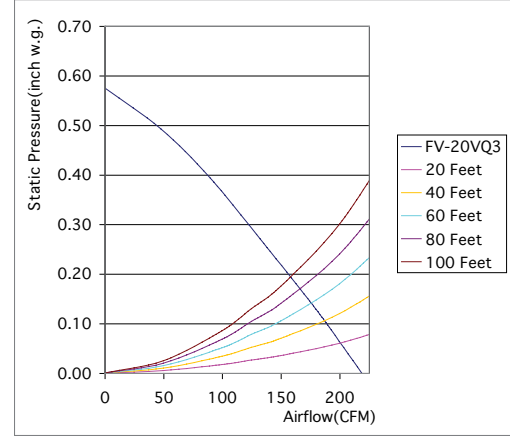
FV-08VQ5

80 CFM 4" or 6" Duct



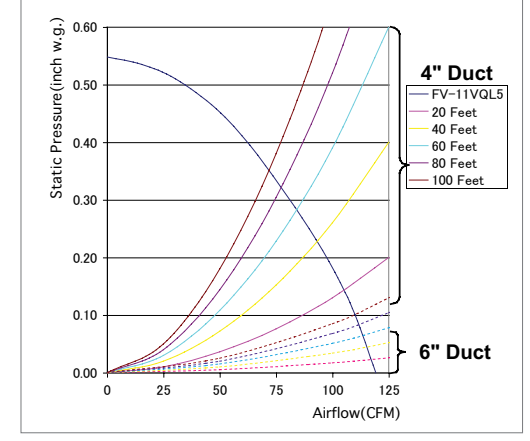
FV-20VQ3

190 CFM 6" Duct



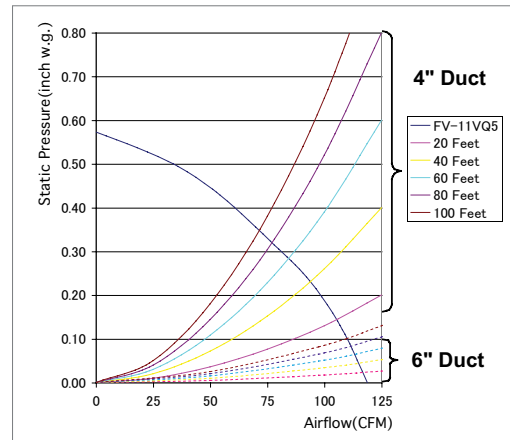
FV-11VQL5

110 CFM 4" or 6" Duct



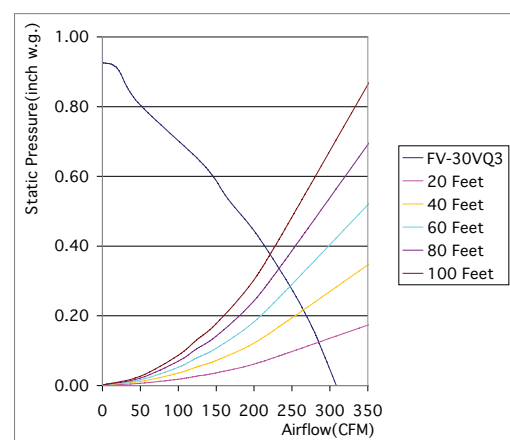
FV-11VQ5

110 CFM 4" or 6" Duct



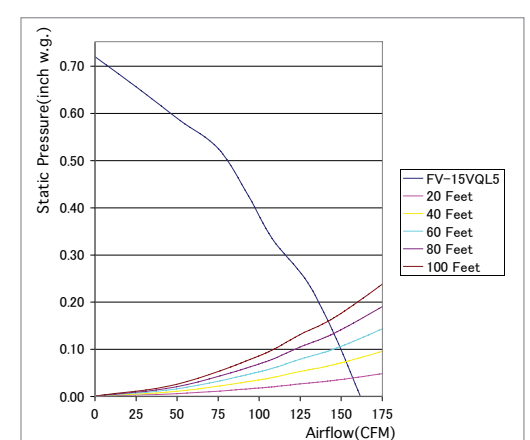
FV-30VQ3

290 CFM 6" Duct



FV-15VQL5

150 CFM 6" Duct

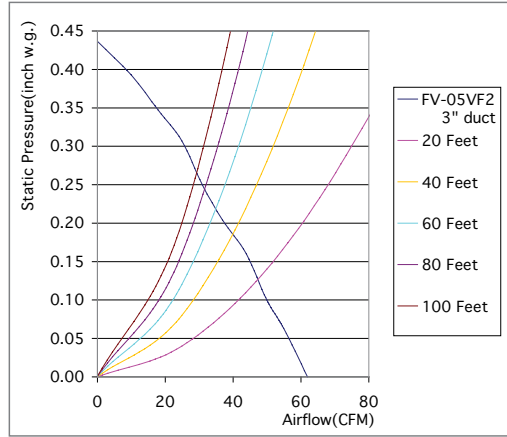


CFM based on HVI certification.



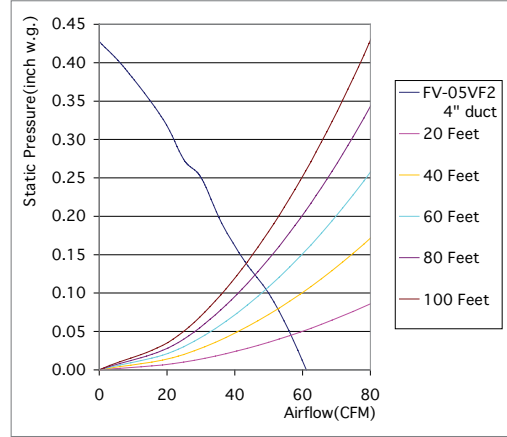
FV-05VF2

50 CFM 3" Duct



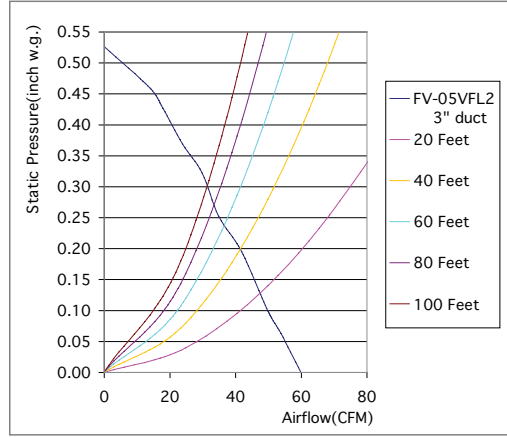
FV-05VF2

50 CFM 4" Duct



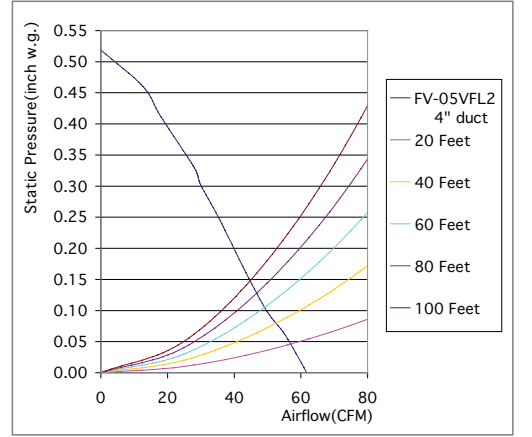
FV-05VFL2

50 CFM 3" Duct



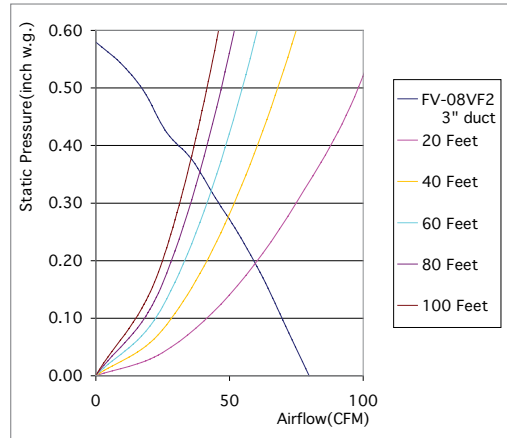
FV-05VFL2

50 CFM 4" Duct



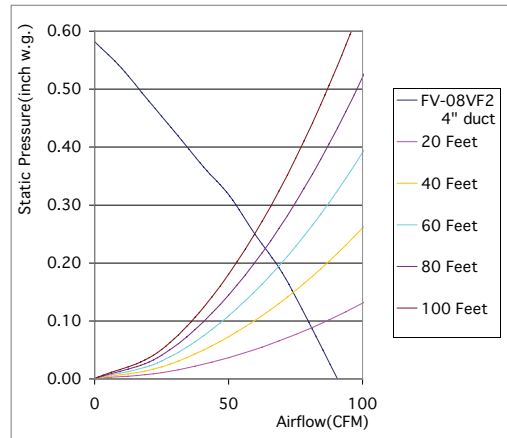
FV-08VF2

80 CFM 3" Duct



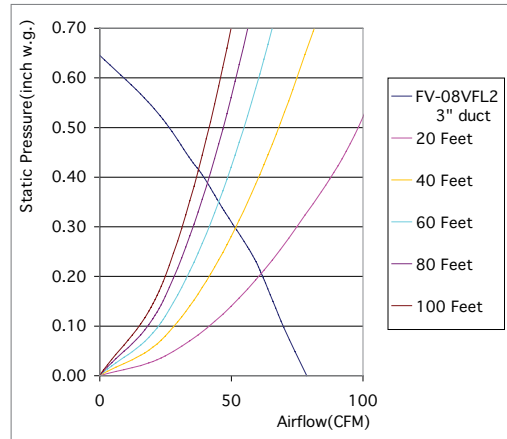
FV-08VF2

80 CFM 4" Duct



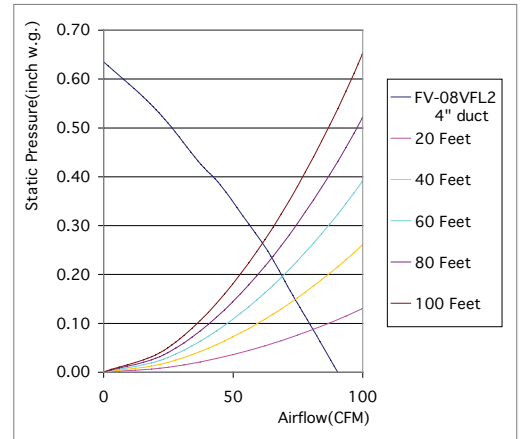
FV-08VFL2

80 CFM 3" Duct



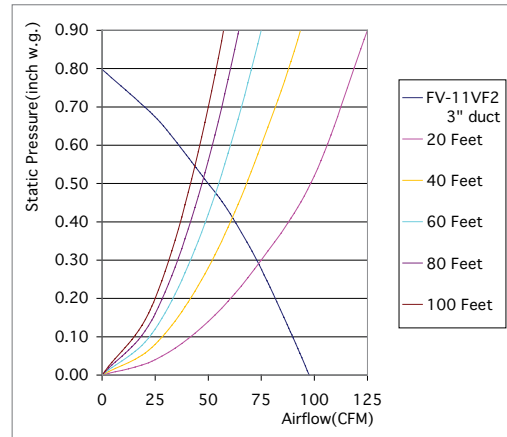
FV-08VFL2

80 CFM 4" Duct



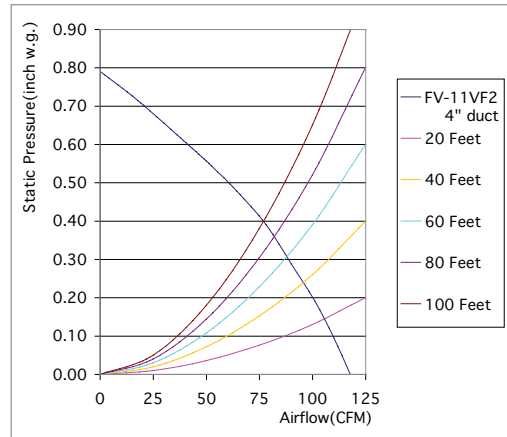
FV-11VF2

110 CFM 3" Duct



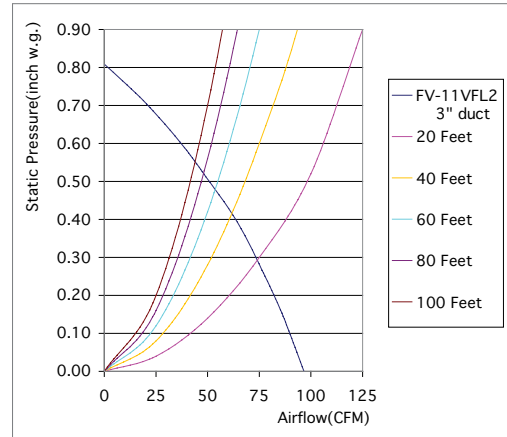
FV-11VF2

110 CFM 4" Duct



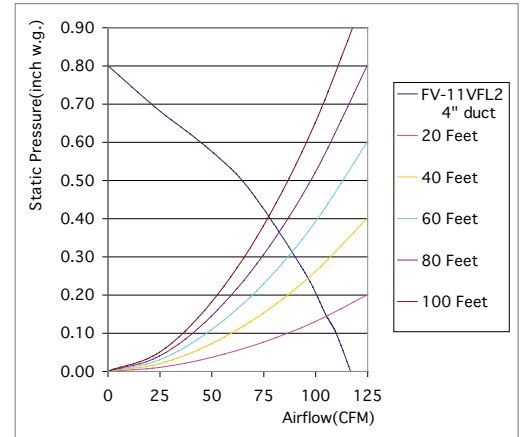
FV-11VFL2

110 CFM 3" Duct



FV-11VFL2

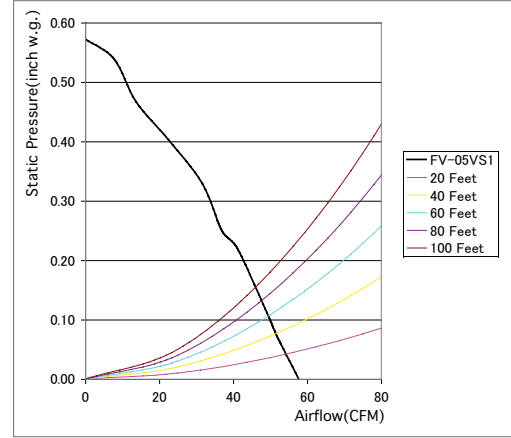
110 CFM 4" Duct



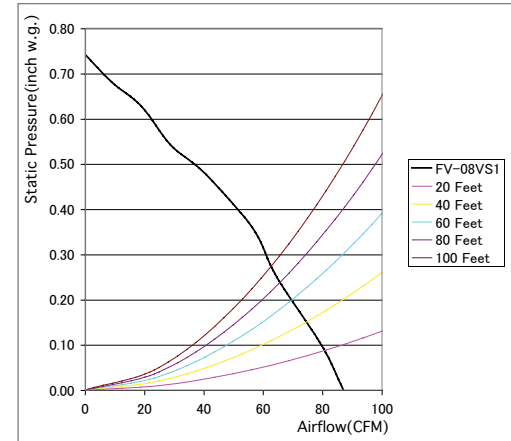
CFM based on HVI certification.

WhisperValue™
VENTILATION FAN

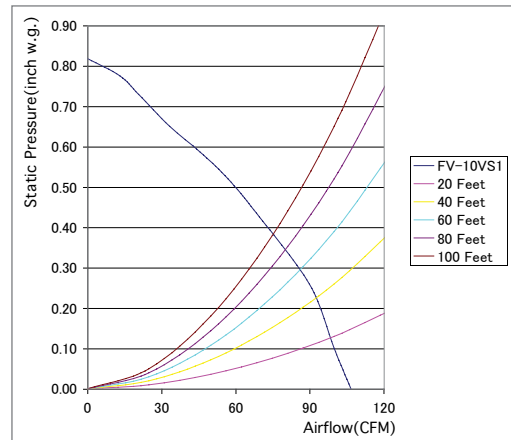
FV-05VS1
50 CFM 4" Oval Duct



FV-08VS1
80 CFM 4" Oval Duct

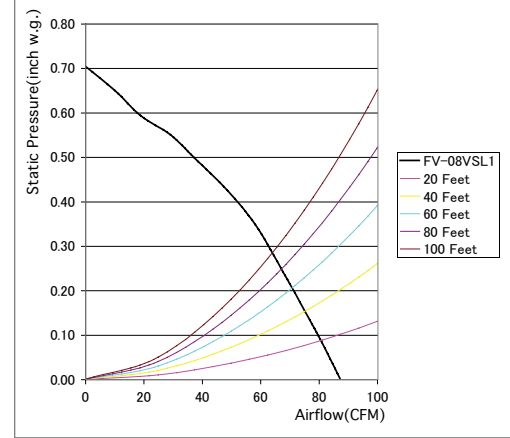


FV-10VS1
100 CFM 4" Oval Duct

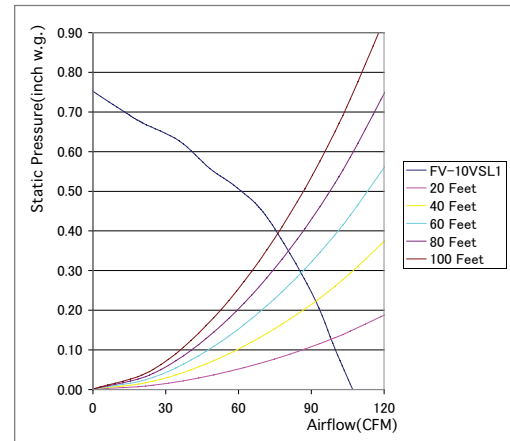


WhisperValue-Lite™
VENTILATION FAN

FV-08VSL1
80 CFM 4" Oval Duct

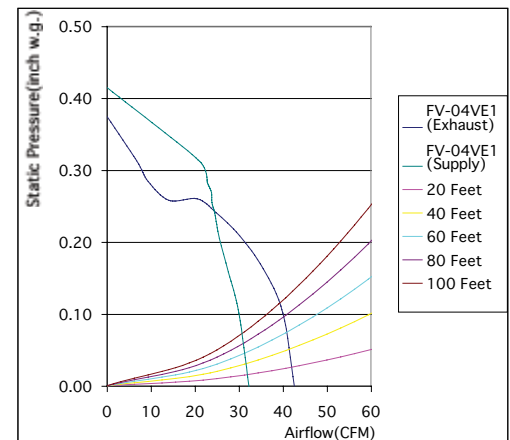


FV-10VSL1
100 CFM 4" Oval Duct



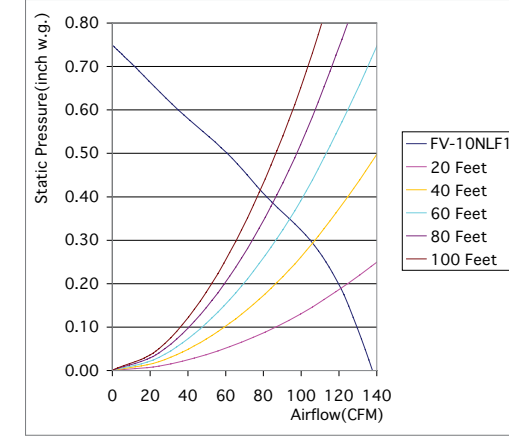
WhisperComfort™
VENTILATION FAN

FV-04VE1
40 CFM 2 x 4" Ducts

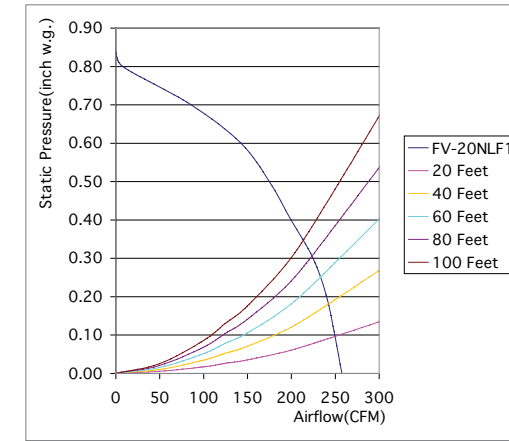


WhisperLine™
VENTILATION FAN

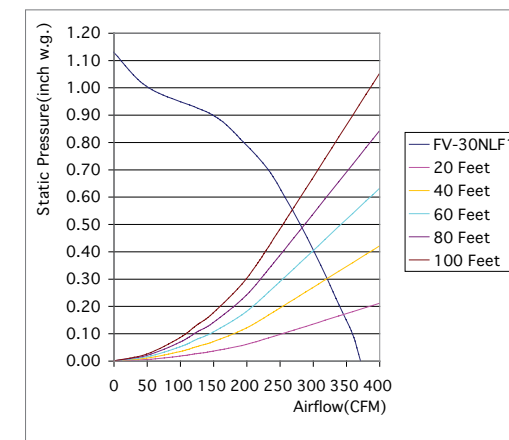
FV-10NLF1
120 CFM 4" Duct



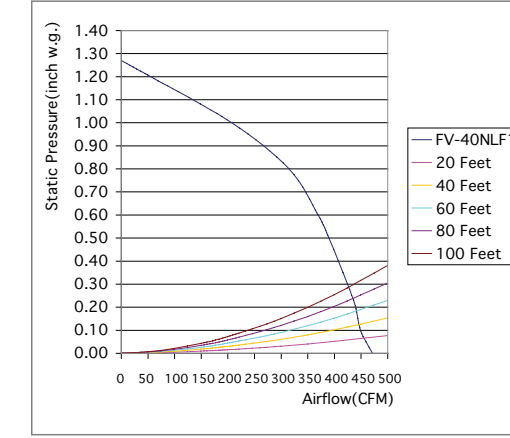
FV-20NLF1
240 CFM 6" Duct



FV-30NLF1
340 CFM 6" Duct

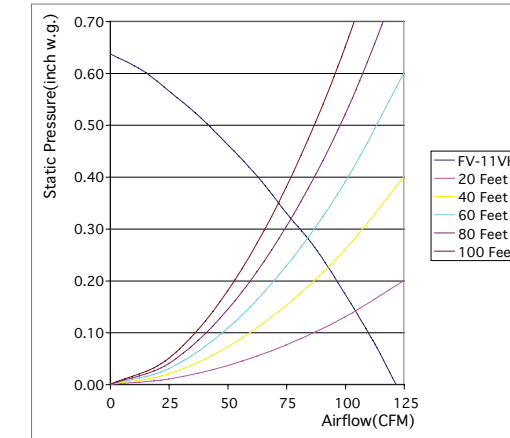


FV-40NLF1
440 CFM 8" Duct

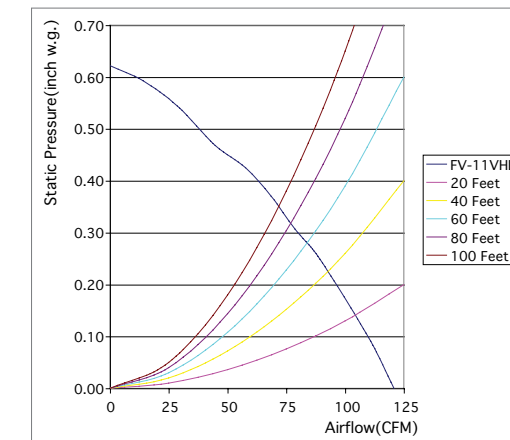


WhisperWarm™
VENTILATION FAN

FV-11VH2
110 CFM 4" Duct



FV-11VHL2
110 CFM 4" Duct



Notes:

2011 Ventilation Fans



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