



**Kraemer Consulting Engineers, P.L.L.C.**  
Mechanical & Electrical Engineers

# Submittal Review

## **SUBMITTAL REVIEW NOTES**

1. Correction or comments made on the submittals during review do not relieve the contractor from compliance and requirements of the sealed contract design drawings and specifications.
2. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents.
3. The contractor is responsible for confirming and correlating all quantities and dimensions; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.
4. The contractor is responsible for confirming the electrical requirements of each piece of equipment with the electrical drawings, Electrical Engineer, and Architect prior to ordering equipment.
5. The General Contractor and the Architect are also responsible for reviewing submittals prior to issuing to the field or ordering of equipment or materials.
6. Each trade is responsible for coordinating submittal information with the other trades as required.
7. Please review submittal thoroughly for additional stamps and notes on subsequent pages. A stamp on the front page does not constitute acceptance of entire submittal.
8. Submittals returned marked "REVIEWED - MAKE CORRECTIONS NOTED" do not require resubmittal provided that the Contractor agrees to comply with all exceptions noted in the submittal, and so states in a letter to the Architect. Provide final record submittal to the general contractor.
9. Submittals marked "REVISE AND RESUBMIT" requires a subsequent review based on the submittal comments.
10. Submittals marked "REJECTED" requires a subsequent review of an alternate equipment manufacturer. The submitted manufacturer is not acceptable based on the project contract documents and/or was not prior approved.
11. Final approval of the submittal for equipment procurement is the responsibility of the submitting contractor.
12. **Equipment proposed for early release by the contractor or Owner, prior to the issuance of signed and sealed set of construction documents, are to be considered "released at risk" with the understanding that possible changes to this equipment may be required based upon (1) city comments from the authority having jurisdiction, (2) information obtained from the Owner or (3) design changes based upon final coordination of the drawing set. The design consultant shall be held-harmless if additional costs or time delays are incurred due to these changes.**

**Job Name:**

**KCE Job Number:**

**Submittal Number:**

**Submittal Name:**

**Architect:**



**Reviewed - No Exceptions Taken**



**Reviewed - Make Corrections Noted**



**Reviewed – For Record Only**



**Revise and Resubmit**



**Rejected**

**Reviewed By:**

**Date:**

KRAEMER CONSULTING ENGINEERS, PLLC.  
2050 W WHISPERING WIND DR, SUITE 158  
PHOENIX, AZ 85085  
(PH): 602-285-1669  
(FX): 602-285-9450



**Kraemer Consulting Engineers, P.L.L.C.**  
Mechanical & Electrical Engineers

## Submittal Review Comment List

ITEM #	EQUIPMENT DESIGNATION	COMMENTS

**Submittal Register #:** 233400-0001  
**Spec Section:** 233400  
**Name:** Fans and Ventilation  
**Type:** Shop Drawings  
**Supplier/Manufacturer:**  
**Notes:**

**Date:** May 14, 2025  
**Required By:** 2025-05-28  
**Status:** Open

**Receiver:** KRAEMER CONSULTING ENG PLLC  
Wesley Colgan

THE CONTENT WITHIN HAS BEEN EVALUATED AND CHECKED FOR GENERAL CONFORMANCE AND COMPLIANCE WITH CONTRACT DOCUMENTS

THIS REVIEW DOES NOT RELIEVE THE SUBCONTRACTOR, FABRICATOR, OR VENDOR OF RESPONSIBILITY FOR COMPLIANCE WITH CONTRACT DOCUMENTS

ALSTON CONSTRUCTION COMPANY

**Project Name**

41-2501



**REVIEWED**

**REJECTED**

**REVISE**

**NOT REVIEWED**

**BY** JTutor

**DATE** 5/14/2025

**SUBMITTAL#** 233400-0001 **SPEC** 23-3400

This review is only for general conformance of the project and general compliance. Corrections or comments made on these drawings during this review do not relieve Subcontractor from compliance with the requirements of the plans and specifications. Subcontractor is responsible for all dimensions and fabrication to be confirmed and correlated at the job site

*Quality People. Building Solutions.*

Comfort Systems USA (Arkansas), Inc.  
P.O. Box 16620  
Little Rock, AR 72231  
Phone 501-834-3320  
Fax 501-834-5416

**Date:** 5/7/2025

**Return Request:** 5/17/2025

**Project:** Amazon – LIT 3

**Supplier:** Airetech

**Manufacturer:** Greenheck

**Submittal:** Fans & Ventilators

**Submittal Number:** 23 34 00-01

**Drawing # and Installation:** Mechanical Drawings

**ARCHITECT**

SM Design & Consulting  
855 Bloomfield Avenue, Suite 220  
Glen Ridge, NJ 07028  
973-259-9500

**ENGINEER**

Kreamer Consulting Eng, PLLC  
2050 W. Whispering Wind Drive, Suite 158  
Phoenix, AZ 85085  
602-285-1669

**GENERAL CONTRACTOR**

Alston Construction  
255 Schilling Blvd. Suite 110  
Collierville, TN 38017  
901-861-2000

**MECHANICAL SUBCONTRACTOR**

Comfort Systems USA (Arkansas), Inc.  
9924 Landers Rd.  
N. Little Rock, AR 72117  
501-834-3320

Notes:

[dpierce@comfortar.com](mailto:dpierce@comfortar.com)

9924 Landers Rd.  
No. Little Rock, AR 72117



## SUBMITTAL DATA

EQUIPMENT: Greenheck Exhaust Fans

SPEC SECTION: 23 3400

TAGS: EF-1 thru 6, EF-A-1&2, EF-B-1&2, EF-C-1&2  
EF-FP1, EF-GH-1 & 2

PROJECT: Amazon LIT3 - Port of Little Rock

LOCATION: Little Rock, Arkansas

ENGINEER:  Kraemer Consulting Engineers, P.L.L.C.  
Mechanical & Electrical Engineers

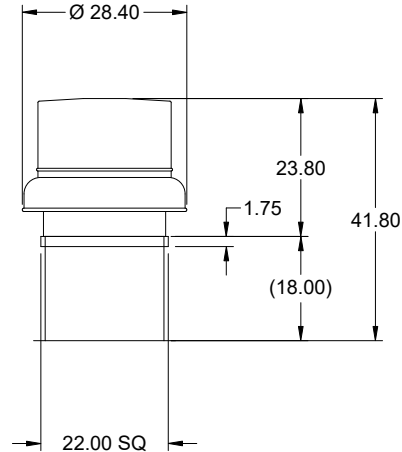
CONTRACTOR:   
A R K A N S A S

DATE: 4/24/2025

SUBMITTED BY: Forrest Moseley  
forrest@airetechcorp.com

# Model: G-160-VG

## Direct Drive Centrifugal Roof Exhaust Fan



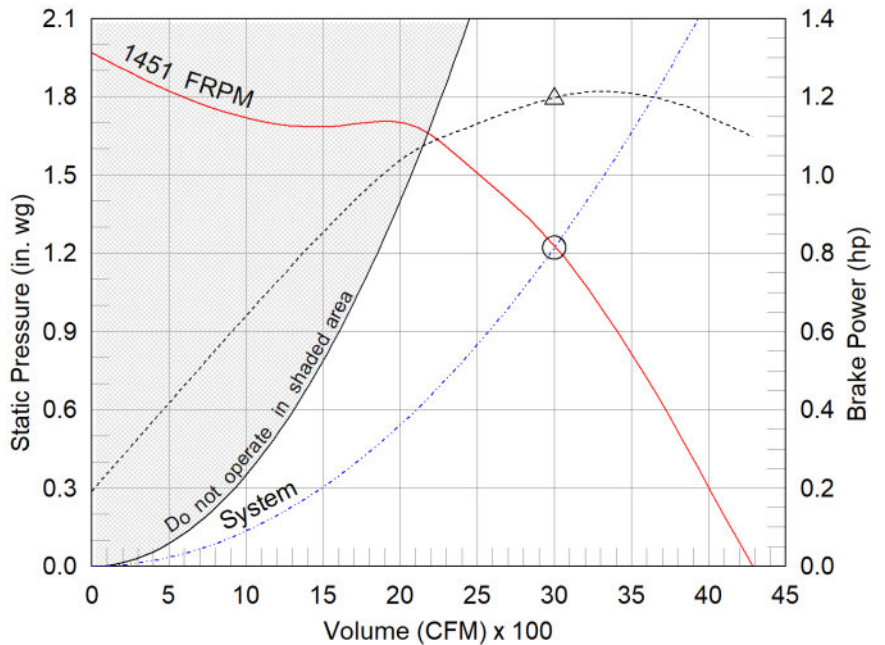
OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	93
Weight w/ Acc's (lb)	106
Weight w/ Acc's and Curb (lb)	138
Standard Curb Cap Size (in.)	22 x 22
Optional Damper (in.)	16 x 16
Roof Opening (in.)	18.5 x 18.5

Performance	
Requested Volume (CFM)	3,000
Actual Volume (CFM)	3,000
Total External SP (in. wg)	1.221
Fan RPM	1451
Operating Power (hp)	1.2
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	6,315
Static Eff. (%)	48

Misc Fan Data	
Fan Energy Index (FEI)	1.22
Outlet Velocity (ft/min)	1,630

Motor	
Motor Mounted	Yes
Size (hp)	2
Voltage/Cycle/Phase	208/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	12
Min. Circuit Ampacity (MCA)	15
Max. Overcurrent Protection (MOP)	30
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- System curve
- Brake horsepower curve

### Static Pressure Calculations

External SP	0.75 in. wg
Damper	0.471 in. wg
<b>Total External SP</b>	<b>1.221 in. wg</b>

### Notes:

All dimensions shown are in units of in.  
 \*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
 LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
 Sones - calculated using ANSI/AMCA 301 at 5 ft

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	78	82	86	79	74	71	67	61	82	70	18.5



## Model: G-160-VG

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 22 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, WD-100-PB-16X16, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-22-16-G18

# Vari-Green Motor & Control Options

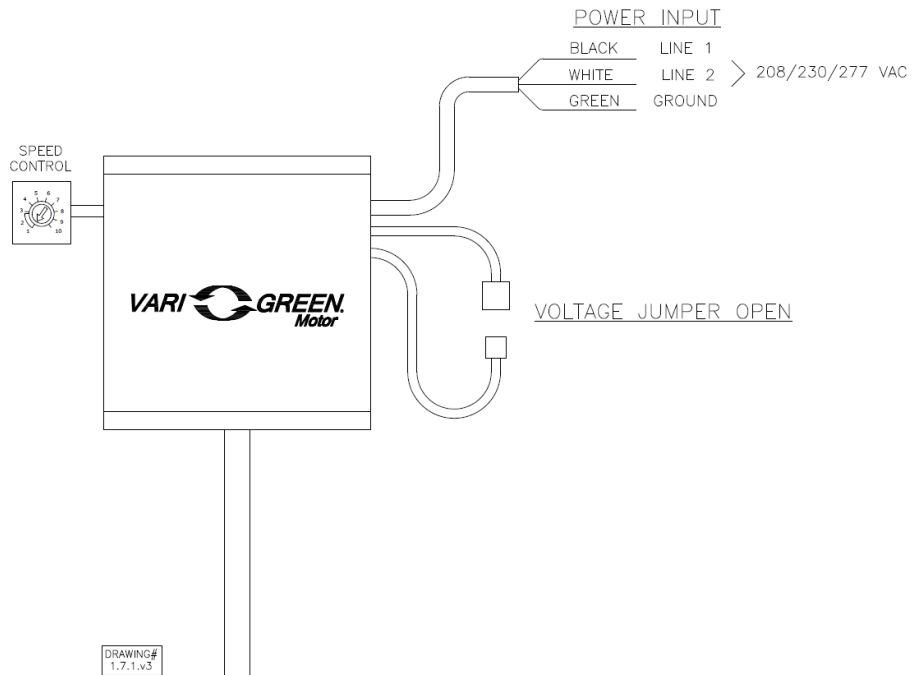
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

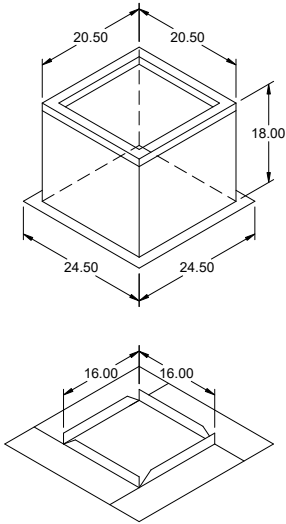
### Motor Configuration

Input Voltage: 208  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None





## Model: GPI

### Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-22	Nominal	1.5	32	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	22	22	20.5	20.5	17	17	21	21

\*May not be applicable

#### Damper Tray

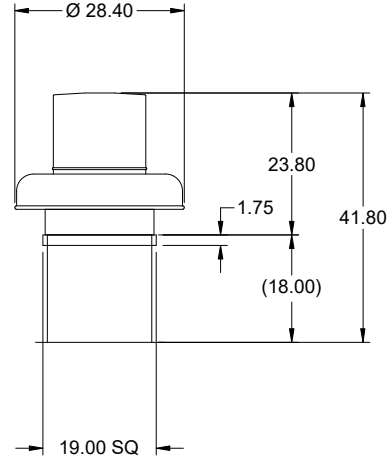
Damper Tray Width (in.)	Damper Tray Length (in.)
16	16

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

# Model: G-130-VG

## Direct Drive Centrifugal Roof Exhaust Fan



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	42
Weight w/ Acc's (lb)	49
Weight w/ Acc's and Curb (lb)	76
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	800
Actual Volume (CFM)	800
Total External SP (in. wg)	0.35
Fan RPM	867
Operating Power (hp)	0.07
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	2,979
Static Eff. (%)	60

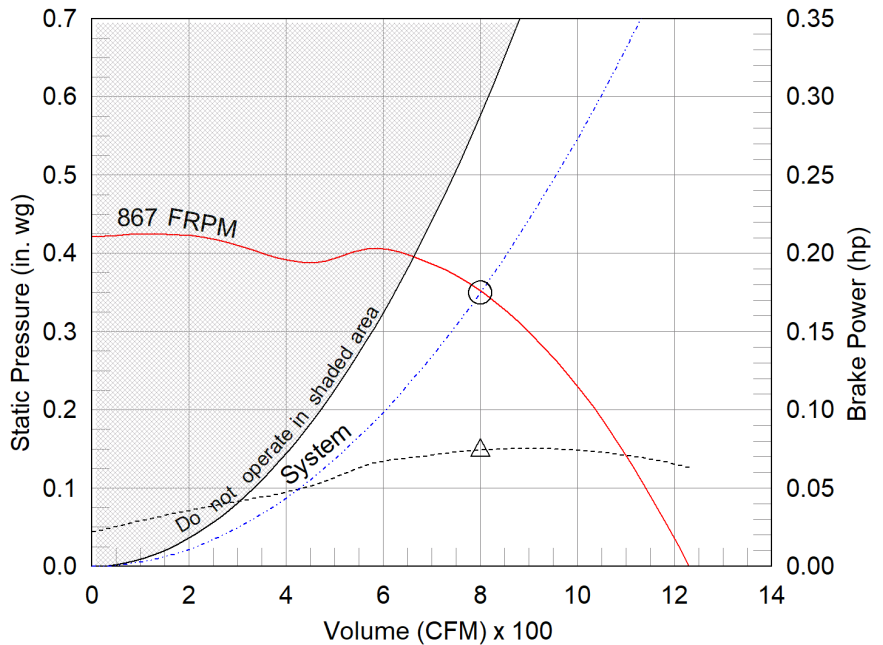
Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	714

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1150
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	71	69	64	61	57	56	46	40	64	52	6.0

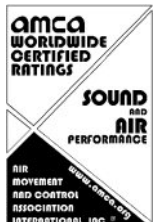
OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

### Notes:

All dimensions shown are in units of in.  
\*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI/AMCA 301 at 5 ft



## Model: G-130-VG

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 19 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-19-12-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green Motor & Control Options

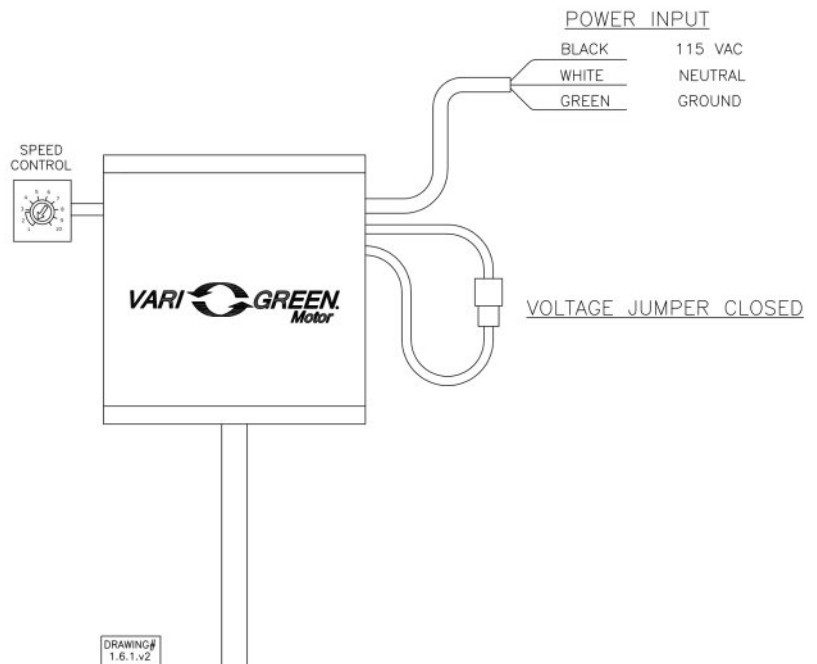
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

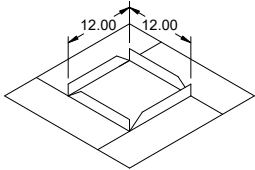
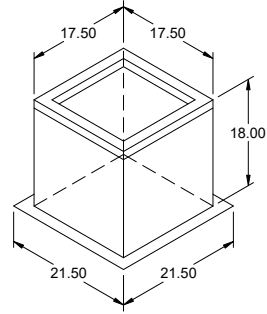
### Motor Configuration

Input Voltage: 115  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None





## Model: GPI

### Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-19	Nominal	1.5	27	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	19	19	17.5	17.5	14	14	18	18

\*May not be applicable

#### Damper Tray

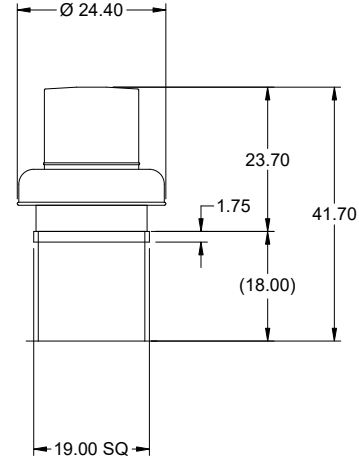
Damper Tray Width (in.)	Damper Tray Length (in.)
12	12

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

# Model: G-099-VG

## Direct Drive Centrifugal Roof Exhaust Fan



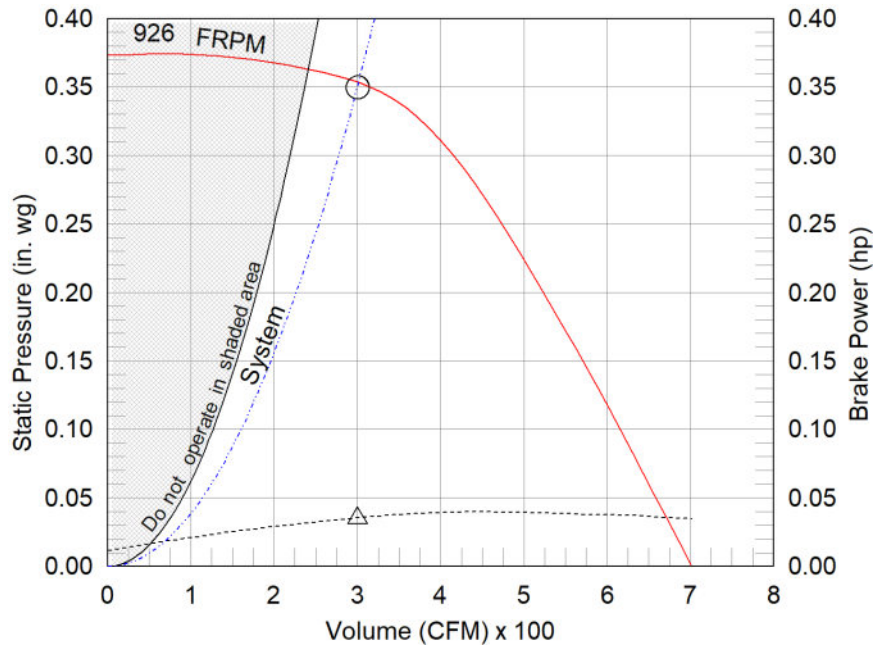
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Weight w/ Acc's and Curb (lb)	70
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	300
Actual Volume (CFM)	300
Total External SP (in. wg)	0.35
Fan RPM	926
Operating Power (hp)	0.04
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	2,713
Static Eff. (%)	47

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	313

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



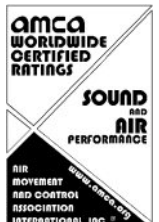
- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

**Notes:**

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LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI/AMCA 301 at 5 ft

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	67	65	62	57	51	49	44	41	59	48	4.9



## Model: G-099-VG

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 19 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-19-12-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green

## Motor & Control Options

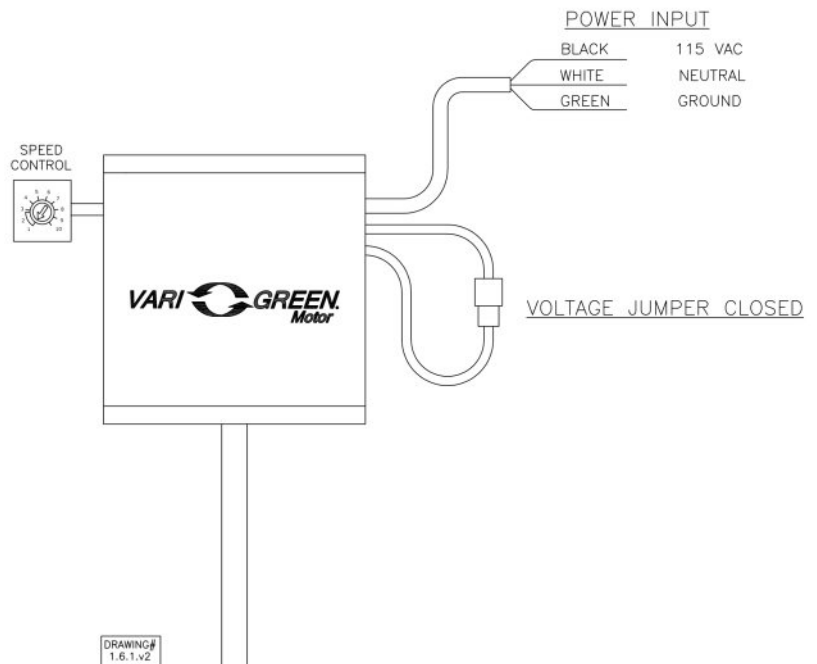
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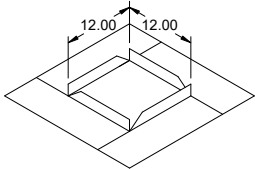
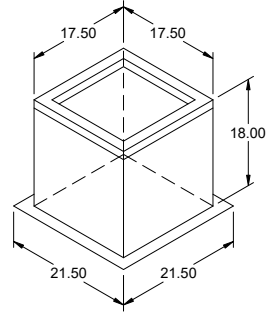
### Motor Configuration

Input Voltage: 115  
 Speed Reference: Dial on Motor  
 Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
 Transformer: None





## Model: GPI

### Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

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#### Dimensions

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18	19	19	17.5	17.5	14	14	18	18

\*May not be applicable

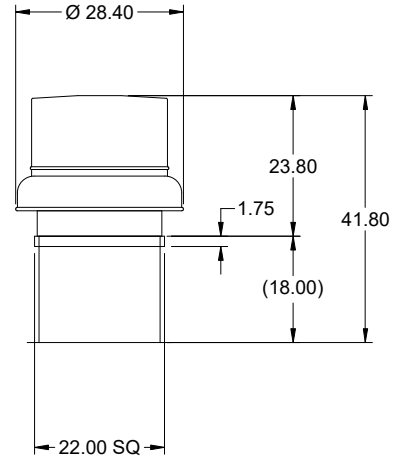
#### Damper Tray

Damper Tray Width (in.)	Damper Tray Length (in.)
12	12

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

**Model: G-140-VG**  
Direct Drive Centrifugal Roof Exhaust Fan



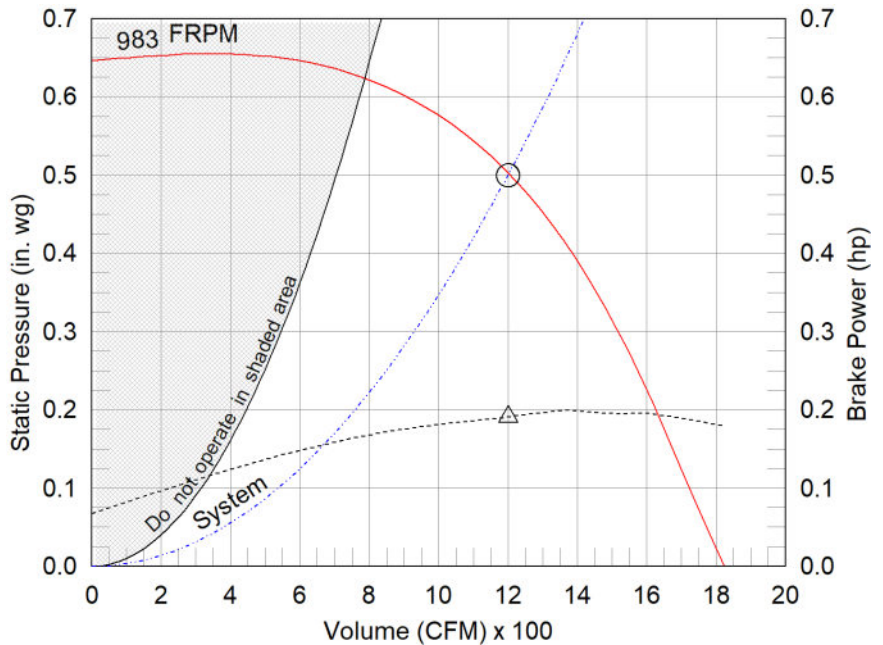
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	49
Weight w/ Acc's (lb)	57
Weight w/ Acc's and Curb (lb)	89
Standard Curb Cap Size (in.)	22 x 22
Optional Damper (in.)	16 x 16
Roof Opening (in.)	18.5 x 18.5

Performance	
Requested Volume (CFM)	1,200
Actual Volume (CFM)	1,200
Total External SP (in. wg)	0.5
Fan RPM	983
Operating Power (hp)	0.19
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	3,762
Static Eff. (%)	49

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	909

Motor	
Motor Mounted	Yes
Size (hp)	1/2
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1200
Efficiency Rating	High
Windings	1
FLA (Amps)	6.4
Min. Circuit Ampacity (MCA)	8
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



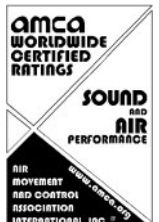
- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

**Notes:**

All dimensions shown are in units of in.  
\*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI/AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	71	75	69	62	56	52	48	41	66	54	7.2



## Model: G-140-VG

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 22 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-16X16, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-22-16-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green Motor & Control Options

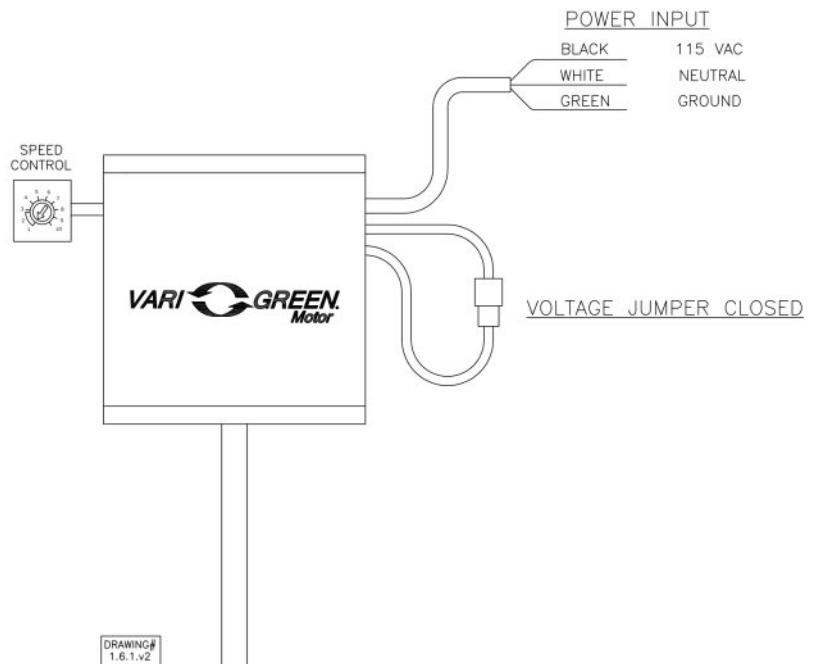
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

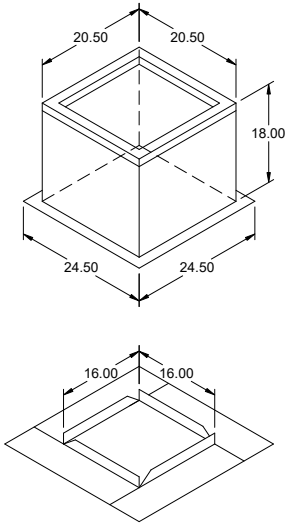
### Motor Configuration

Input Voltage: 115  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None





## Model: GPI

### Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-22	Nominal	1.5	32	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	22	22	20.5	20.5	17	17	21	21

\*May not be applicable

#### Damper Tray

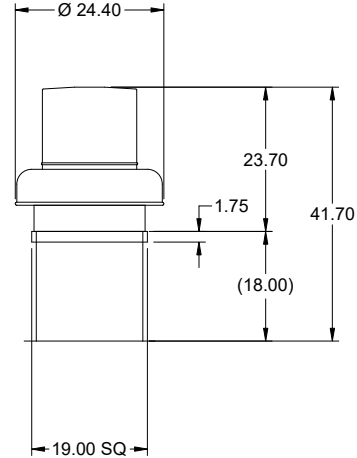
Damper Tray Width (in.)	Damper Tray Length (in.)
16	16

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

# Model: G-099-VG

## Direct Drive Centrifugal Roof Exhaust Fan



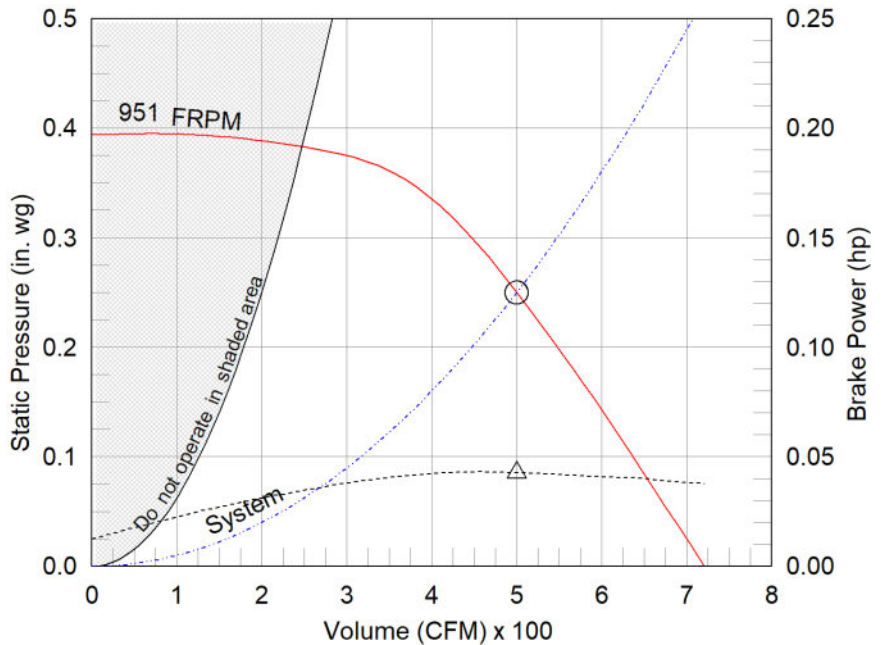
Dimensional	
Quantity	1
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Weight w/ Acc's and Curb (lb)	70
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	500
Actual Volume (CFM)	500
Total External SP (in. wg)	0.25
Fan RPM	951
Operating Power (hp)	0.04
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	2,787
Static Eff. (%)	46

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	521

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



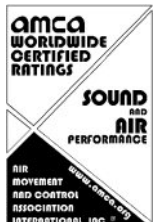
- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

**Notes:**

All dimensions shown are in units of in.  
\*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI/AMCA 301 at 5 ft

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	68	67	64	58	53	50	45	42	61	49	5.3



## Model: G-099-VG

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 19 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-19-12-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green Motor & Control Options

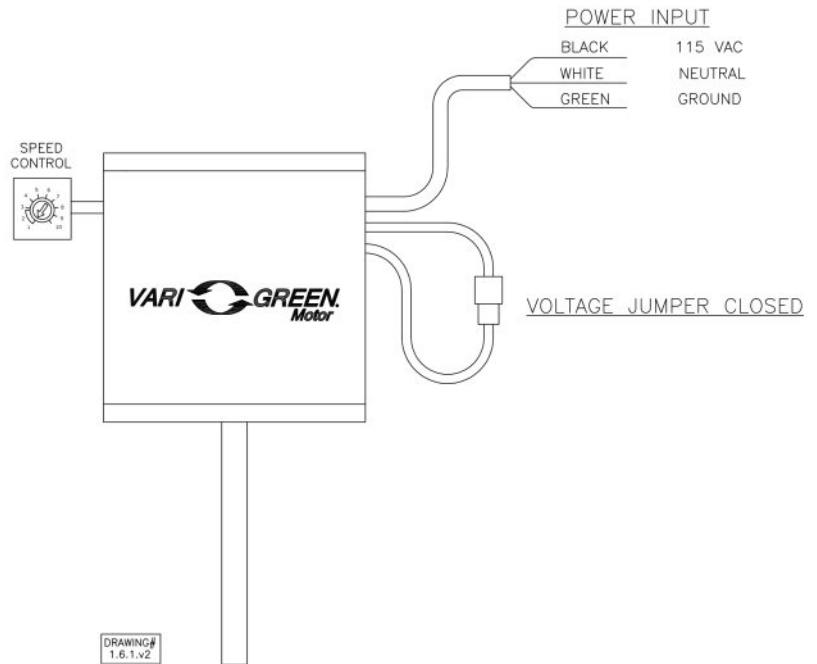
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

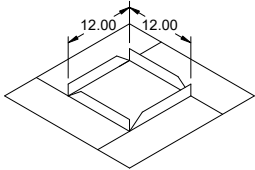
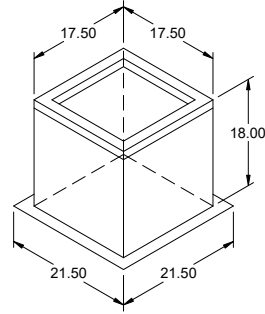
### Motor Configuration

Input Voltage: 115  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None





## Model: GPI

### Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	1	GPI-19	Nominal	1.5	27	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	19	19	17.5	17.5	14	14	18	18

\*May not be applicable

#### Damper Tray

Damper Tray Width (in.)	Damper Tray Length (in.)
12	12

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

# Model: SP-A200

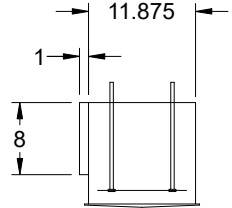
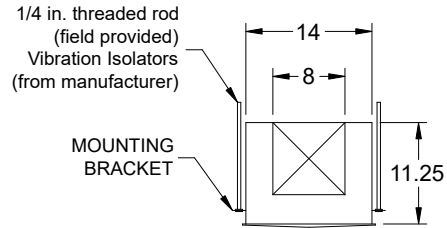
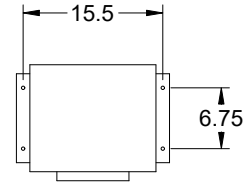
## Ceiling Exhaust Fan

### Standard Construction Features:

- Corrosion resistant galvanized steel scroll and housing - Sound absorbing insulation - White designer non-yellowing grille - Rectangular outlet duct collar with integral spring loaded backdraft damper - Double inlet forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Field rotatable discharge

### Selected Options & Accessories:

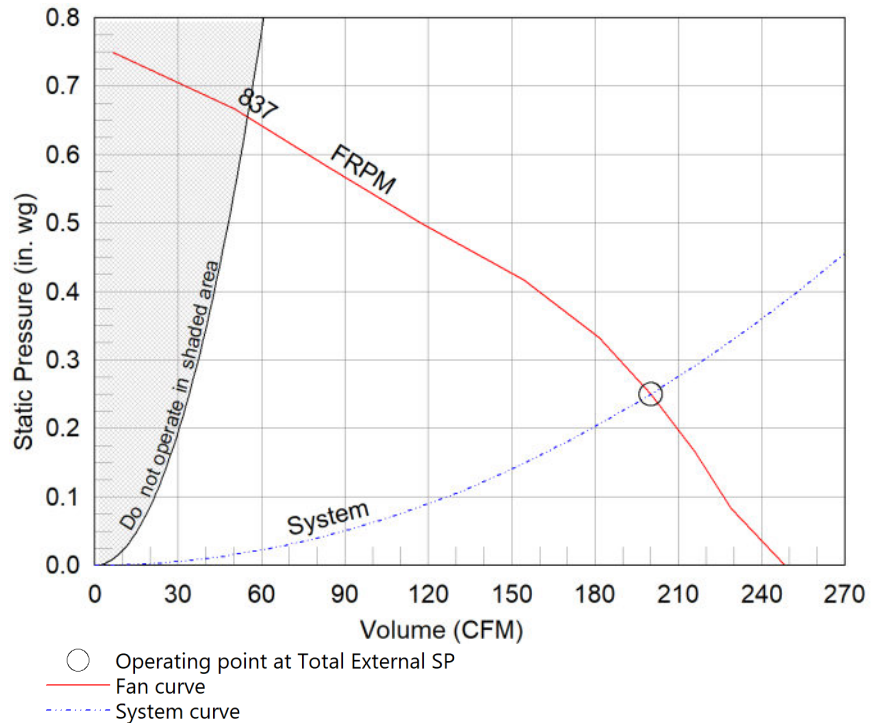
Motor with Thermal Overload  
Motor with CSA Approval  
Motor with 40 Degree C Ambient Temperature  
UL/cUL 507 Listed - Electric Fan  
Solid State Speed Control, 6 Amp, Shipped Loose  
Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose  
Adjustable easy installation mounting bracket  
Aluminum Grille, (PN: 486006) Shipped Loose  
Polypropylene Wheel Material  
Can Be Used to Comply with: ASHRAE 62.2, California Title 24, and Washington State Energy Code



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	24
Weight w/ Acc's (lb)	27

Performance	
Requested Volume (CFM)	200
Actual Volume (CFM)	200
Total External SP (in. wg)	0.25
Fan RPM	837
* FLA (A)	0.46
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Sones	1.5

Motor	
Motor Mounted	Yes
** Input Watts (W)	43
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



### Notes:

All dimensions shown are in units of in.  
\*FLA is approximate and will vary slightly with the motor.  
Sones - calculated using AMCA 301 at 5 ft  
\*\* Wattage is approximate and may vary between motors.

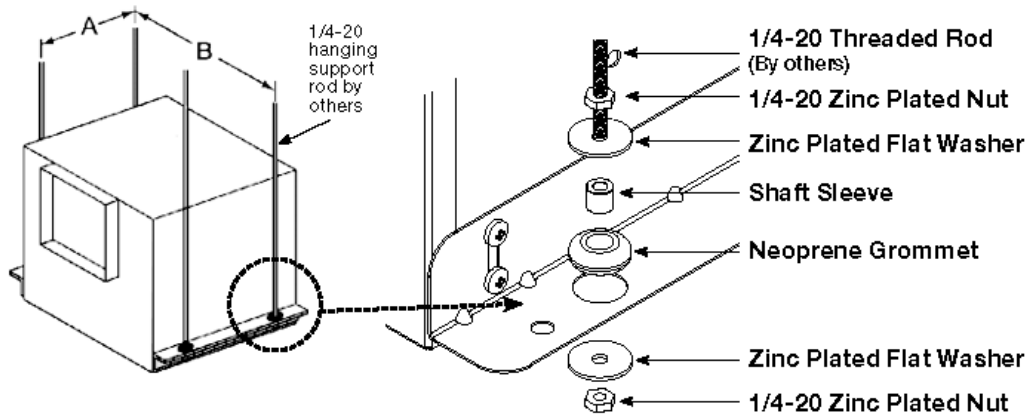


# Isolation Kit

Type: Hanging

## Standard Construction Features:

- Neoprene vibration isolation for hanging installation - Kit includes four isolators and all hardware necessary for mounting one unit except for the 0.25 in. x 20 in. threaded rod to be supplied by others - Fan mounting brackets include prepunched mounting holes for ease of installation

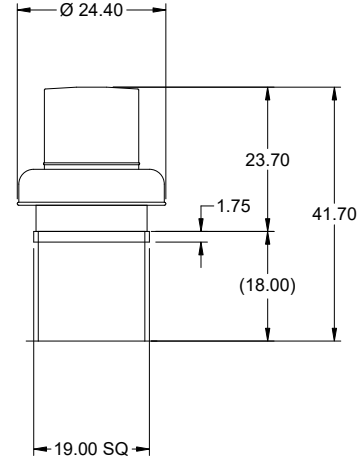


Unit Size	A	B
B50-B200	4 1/2 (114)	15 5/8 (397)
A50-A190	5 1/2 (140)	14 5/8 (371)
A200-A390	6 3/4 (171)	15 1/2 (394)
A410, A510, A710, A780	9 1/4 (235)	19 5/8 (498)
A700	5 1/2 (140)	25 1/8 (638)
A900 - A1050, A1410 - A1550	9 1/4 (235)	25 3/8 (645)
A1750, A2150	9 1/4 (235)	36 3/4 (933)
A3600	9 1/4 (235)	48 5/8 (1235)
All dimensions shown in inches (millimeters).		

Description	Qty
Neoprene Grommets	4
1 x 32 Zinc Plated Nuts	8
Zinc Plated Flat Washers	8
3/8 x 3/16 Shaft Sleeves	4

# Model: G-099-VG

## Direct Drive Centrifugal Roof Exhaust Fan



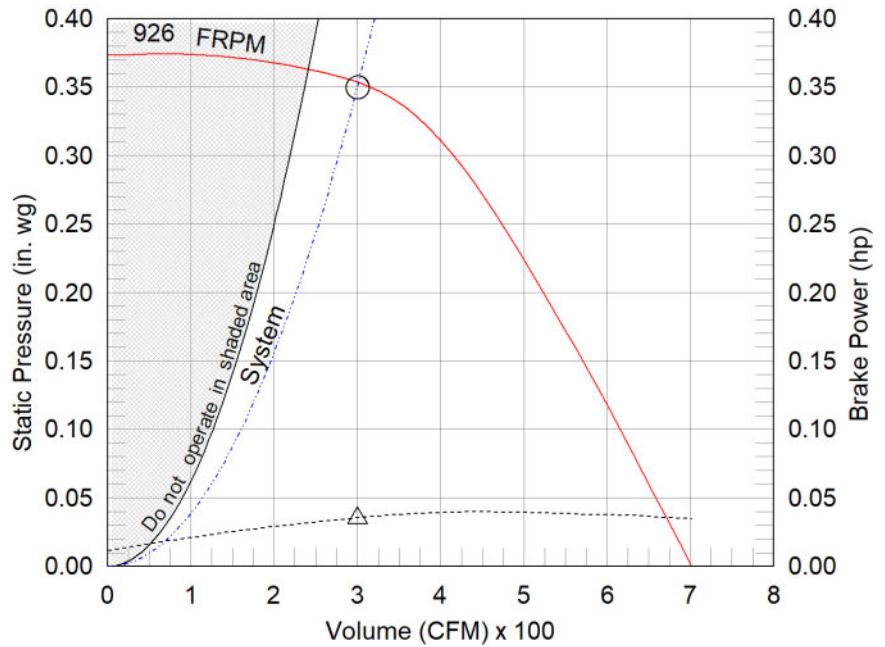
Dimensional	
Quantity	2
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Weight w/ Acc's and Curb (lb)	70
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	300
Actual Volume (CFM)	300
Total External SP (in. wg)	0.35
Fan RPM	926
Operating Power (hp)	0.04
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	2,713
Static Eff. (%)	47

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	313

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



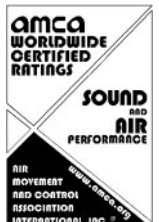
- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

### Notes:

All dimensions shown are in units of in.  
 \*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
 LwA - A weighted sound power level, based on ANSI S1.4  
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
 Sones - calculated using ANSI/AMCA 301 at 5 ft

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	67	65	62	57	51	49	44	41	59	48	4.9



## Model: G-099-VG

### Direct Drive Centrifugal Roof Exhaust Fan

Tags: EF-A-1 EF-A-2

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 19 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-19-12-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green Motor & Control Options

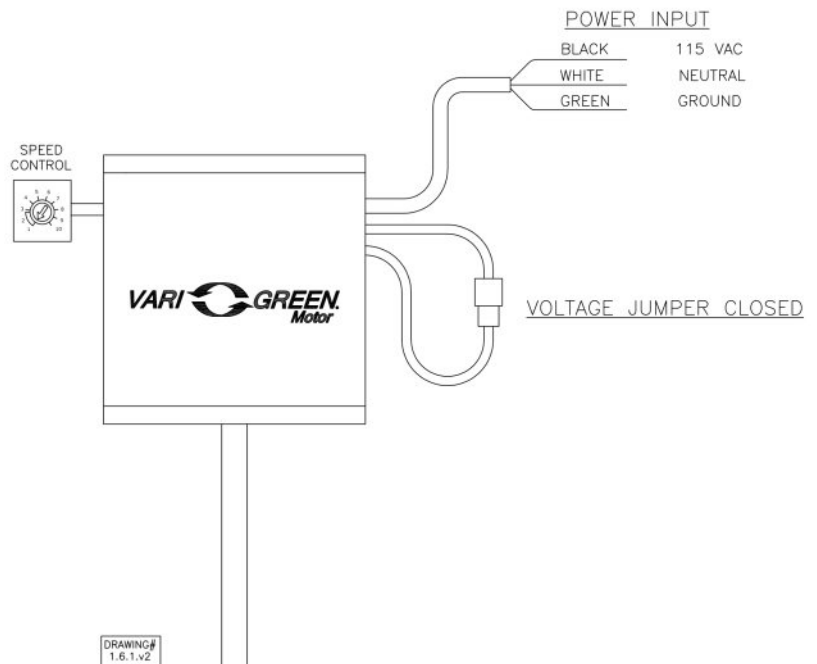
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

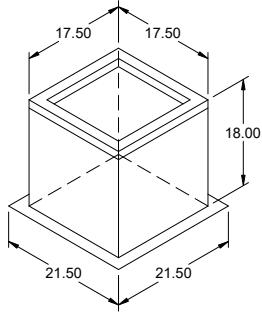
### Motor Configuration

Input Voltage: 115  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None



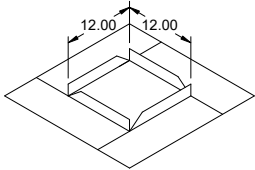


## Model: GPI

### Roof Curb

Tags:

EF-A-1 EF-A-2



### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	2	GPI-19	Nominal	1.5	27	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	19	19	17.5	17.5	14	14	18	18

\*May not be applicable

#### Damper Tray

Damper Tray Width (in.)	Damper Tray Length (in.)
12	12

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

# Model: SP-A200

## Ceiling Exhaust Fan

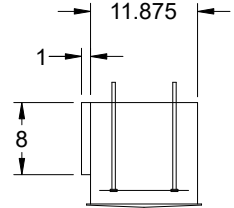
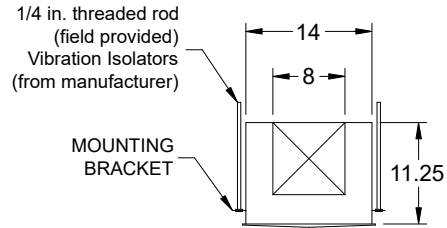
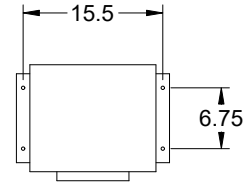
Tags: EF-B-1 EF-B-2

### Standard Construction Features:

- Corrosion resistant galvanized steel scroll and housing - Sound absorbing insulation - White designer non-yellowing grille - Rectangular outlet duct collar with integral spring loaded backdraft damper - Double inlet forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Field rotatable discharge

### Selected Options & Accessories:

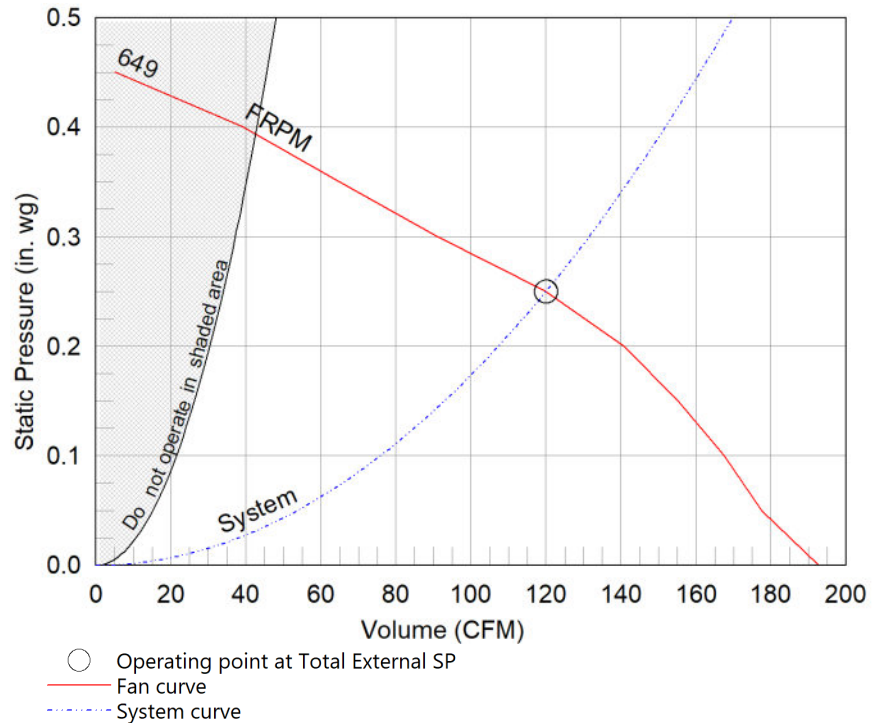
Motor with Thermal Overload  
Motor with CSA Approval  
Motor with 40 Degree C Ambient Temperature  
UL/cUL 507 Listed - Electric Fan  
Solid State Speed Control, 6 Amp, Shipped Loose  
Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose  
Adjustable easy installation mounting bracket  
Aluminum Grille, (PN: 486006) Shipped Loose  
Polypropylene Wheel Material  
Can Be Used to Comply with: ASHRAE 62.2, California Title 24, and Washington State Energy Code



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	24
Weight w/ Acc's (lb)	27

Performance	
Requested Volume (CFM)	120
Actual Volume (CFM)	120
Total External SP (in. wg)	0.25
Fan RPM	649
* FLA (A)	0.46
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Sones	1.1

Motor	
Motor Mounted	Yes
** Input Watts (W)	19
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



### Notes:

All dimensions shown are in units of in.  
\*FLA is approximate and will vary slightly with the motor.  
Sones - calculated using AMCA 301 at 5 ft  
\*\* Wattage is approximate and may vary between motors.

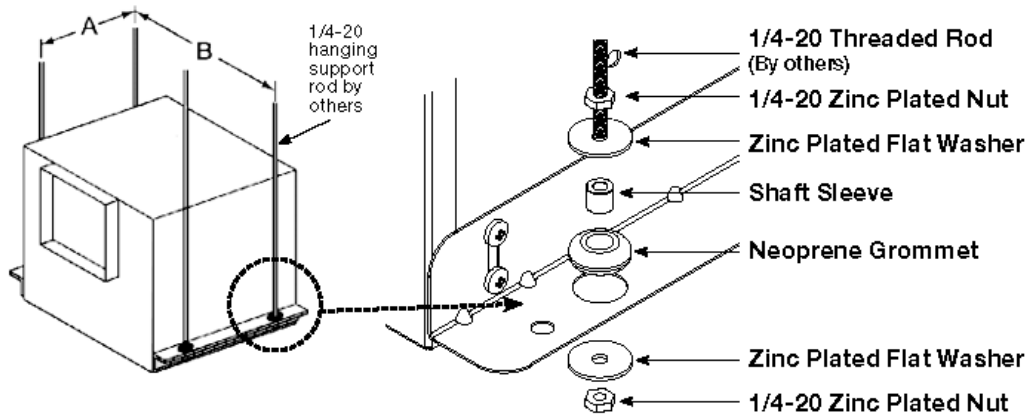


# Isolation Kit

Type: Hanging

## Standard Construction Features:

- Neoprene vibration isolation for hanging installation - Kit includes four isolators and all hardware necessary for mounting one unit except for the 0.25 in. x 20 in. threaded rod to be supplied by others - Fan mounting brackets include prepunched mounting holes for ease of installation

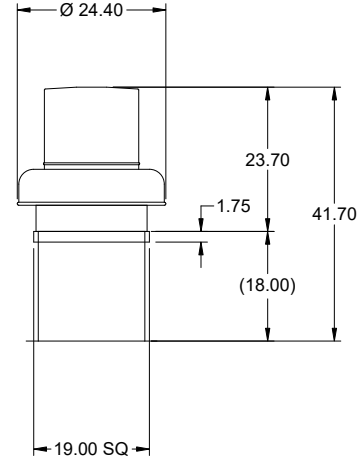


Unit Size	A	B
B50-B200	4 1/2 (114)	15 5/8 (397)
A50-A190	5 1/2 (140)	14 5/8 (371)
A200-A390	6 3/4 (171)	15 1/2 (394)
A410, A510, A710, A780	9 1/4 (235)	19 5/8 (498)
A700	5 1/2 (140)	25 1/8 (638)
A900 - A1050, A1410 - A1550	9 1/4 (235)	25 3/8 (645)
A1750, A2150	9 1/4 (235)	36 3/4 (933)
A3600	9 1/4 (235)	48 5/8 (1235)
All dimensions shown in inches (millimeters).		

Description	Qty
Neoprene Grommets	4
1 x 32 Zinc Plated Nuts	8
Zinc Plated Flat Washers	8
3/8 x 3/16 Shaft Sleeves	4

# Model: G-099-VG

## Direct Drive Centrifugal Roof Exhaust Fan



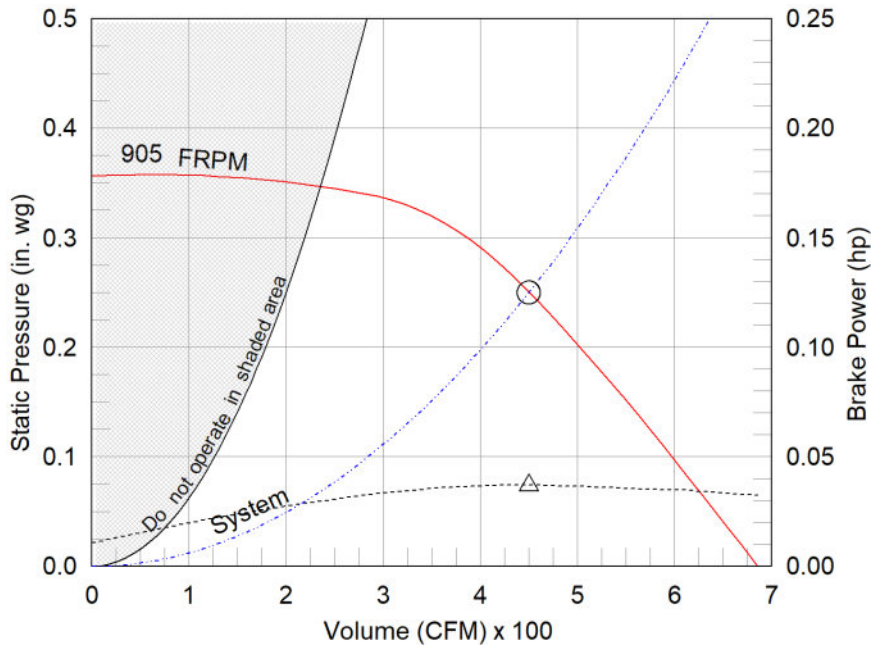
Dimensional	
Quantity	2
Weight w/o Acc's (lb)	36
Weight w/ Acc's (lb)	43
Weight w/ Acc's and Curb (lb)	70
Standard Curb Cap Size (in.)	19 x 19
Optional Damper (in.)	12 x 12
Roof Opening (in.)	15.5 x 15.5

Performance	
Requested Volume (CFM)	450
Actual Volume (CFM)	450
Total External SP (in. wg)	0.25
Fan RPM	905
Operating Power (hp)	0.04
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	2,651
Static Eff. (%)	48

Misc Fan Data	
Fan Energy Index (FEI)	-
Outlet Velocity (ft/min)	469

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Efficiency Rating	High
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.



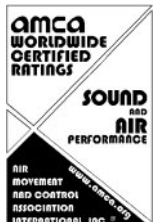
- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

**Notes:**

All dimensions shown are in units of in.  
\*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI/AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	68	65	62	56	51	49	44	41	59	48	4.9



## Model: G-099-VG

### Direct Drive Centrifugal Roof Exhaust Fan

Tags: EF-C-1 EF-C-2

#### Standard Construction Features:

- Aluminum housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-300) wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Selected Options & Accessories:

Motor - Vari-Green EC motor  
Control - Dial for balancing  
Standard Curb Cap Size - 19 Square  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle,  
Junction Box Mounted & Wired in weather-protected motor compartment  
Foam Curb Seal (Factory Applied)  
Birdscreen: Galvanized, nom. 84% Free Area  
Aluminum Wheel Material  
Conduit Chase Qty 1  
Unit Warranty: 1 Yr (Standard)  
Damper Shipped Loose, BD-100-PB-12X12, Gravity Operated, Not Coated, Nominal Size

#### Selected Sub Marks

See individual submittals for full details  
GPI-19-12-G18

***The Vari-Green Motor included in this order has a 'Multi-Voltage' ability. The red wire on the motor is called a 'Voltage Doubler', and when it is connected the motor can be powered by 115V.***

***If the Red wire is disconnected, then the motor can be powered with 208-230/277V. The motor will leave the factory with the voltage doubler wired per the order.***

# Vari-Green Motor & Control Options

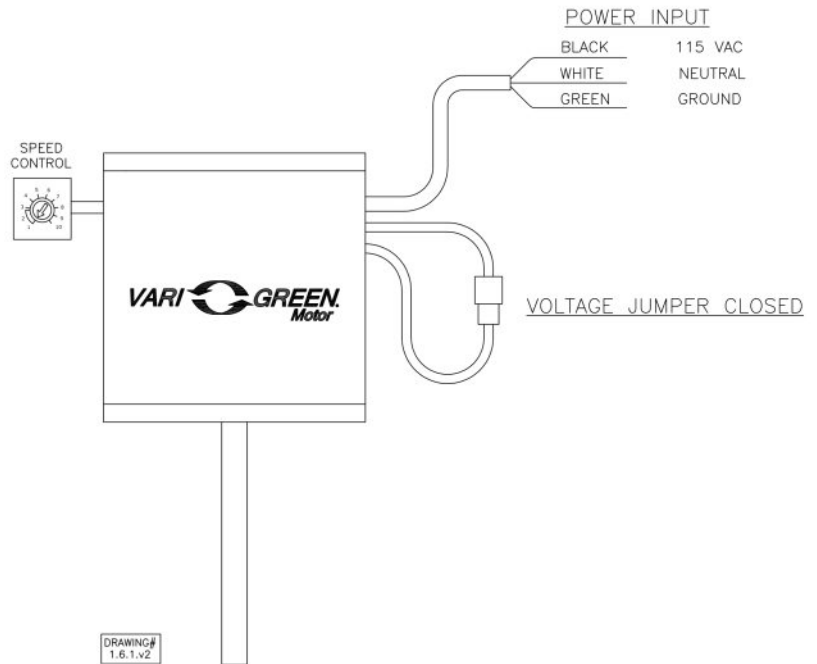
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the motor enclosure adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated and the motor will automatically reduce speed or turn off if overloaded or it becomes too hot.

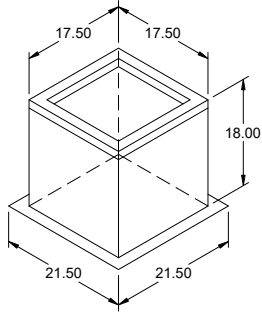
### Motor Configuration

Input Voltage: 115  
Speed Reference: Dial on Motor  
Permanent Dial: Yes

### Control Configuration

Control Type: Dial on Motor  
Transformer: None



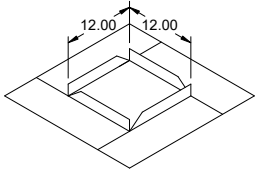


## Model: GPI

### Roof Curb

Tags:

EF-C-1 EF-C-2



### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Straight Sided without a cant - 2 in. mounting flange - 3 lb density insulation - Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension. - Damper Tray is optional and must be specified. Tray size is same as damper size. - Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

#### General

Tag	Qty	Model	Sizing Method	Undersizing (in.)	Weight (lb)	Shipped Assembled	Union Label
	2	GPI-19	Nominal	1.5	27	Yes	No Preference

#### Dimensions

Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Hinge Base Width* (in.)	Hinge Base Length* (in.)
18	19	19	17.5	17.5	14	14	18	18

\*May not be applicable

#### Damper Tray

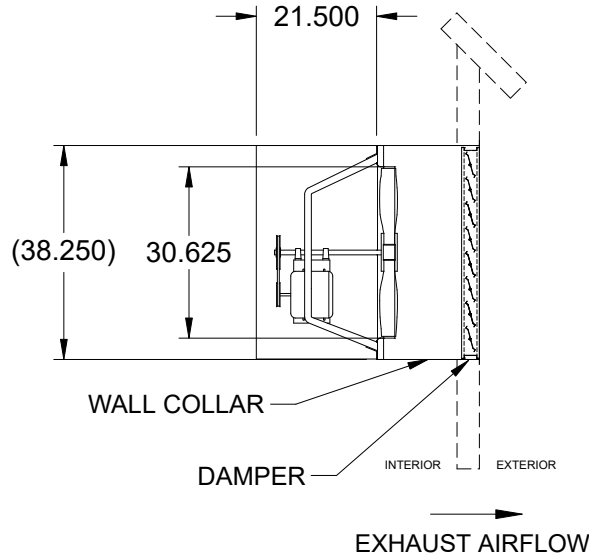
Damper Tray Width (in.)	Damper Tray Length (in.)
12	12

#### Accessories

Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

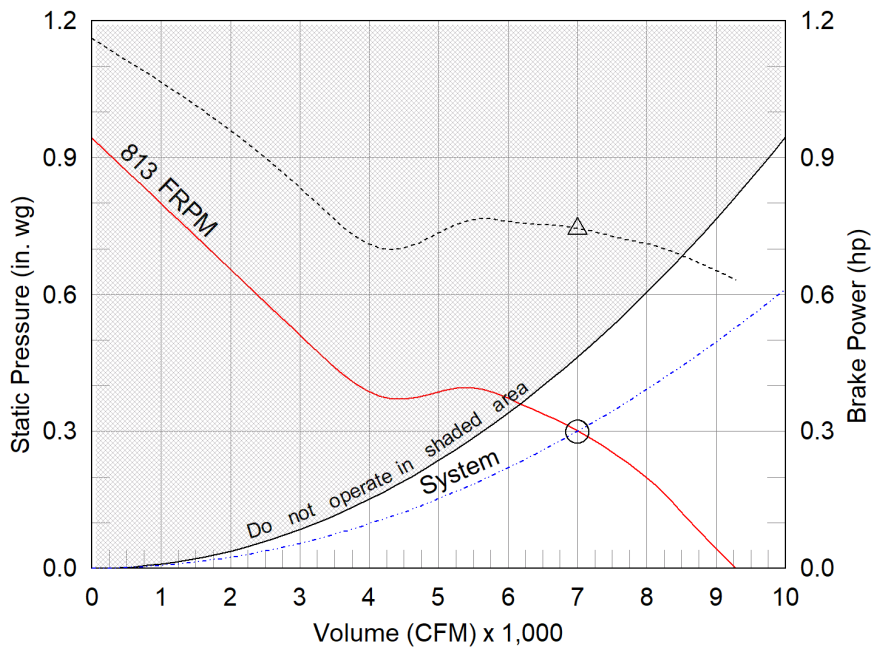
# Model: SBE-1H30-10

Sidewall Belt Drive Fan  
Motor Access From Int. of Bldg.



Dimensional	
Quantity	1
Weight w/o Acc's (lb)	87
Weight w/ Acc's (lb)	273
Max T Motor Frame Size	184
Optional Damper (in.)	32 x 32
Wall Opening (in.)	39.75 x 39.75

Performance	
Requested Volume (CFM)	7,000
Actual Volume (CFM)	7,000
Total External SP (in. wg)	0.3
Fan RPM	813
Operating Power (hp)	0.74
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Drive Loss (%)	7.0
Tip Speed (ft/min)	6,383
Static Eff. (%)	48



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- · · Brake horsepower curve

Motor	
Motor Mounted	Yes
Size (hp)	1
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Efficiency Rating	Standard
Windings	1
NEC FLA* (Amps)	4.6

**Notes:**

All dimensions shown are in units of in.  
\*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).  
LwA - A weighted sound power level, based on ANSI S1.4  
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using AMCA 301 at 5 ft

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	82	81	80	79	79	76	71	67	83	71	19.7



## Model: SBE-1H30-10

### Sidewall Belt Drive Fan

"Greenheck model BAER with a fabricated steel propeller meets or exceeds models SBE/SBS performance and can be considered a direct replacement for these models."

#### Standard Construction Features:

- Galvanized steel fan panel - Die formed, galvanized steel drive frame assembly  
- Fabricated steel propeller for Levels 1 and 2, welded and painted steel for Level 3 - Adjustable motor pulley - Ball bearing motors - Fan shaft mounted in ball bearing pillow blocks - Static resistant belts - Corrosion resistant fasteners

#### Selected Options & Accessories:

"Greenheck model BAER with a fabricated steel propeller meets or exceeds models SBE/SBS performance and can be considered a direct replacement for these models."

Airflow Direction: Exhaust

Motor Access: From Int. of Bldg.

Wall Collar Assembled, Factory Installed

Switch, NEMA-1, Toggle,

Junction Box Mounted & Wired

OSHA Approved Motor Side Guard, Factory Installed

Galvanized Damper Guard, Factory Installed

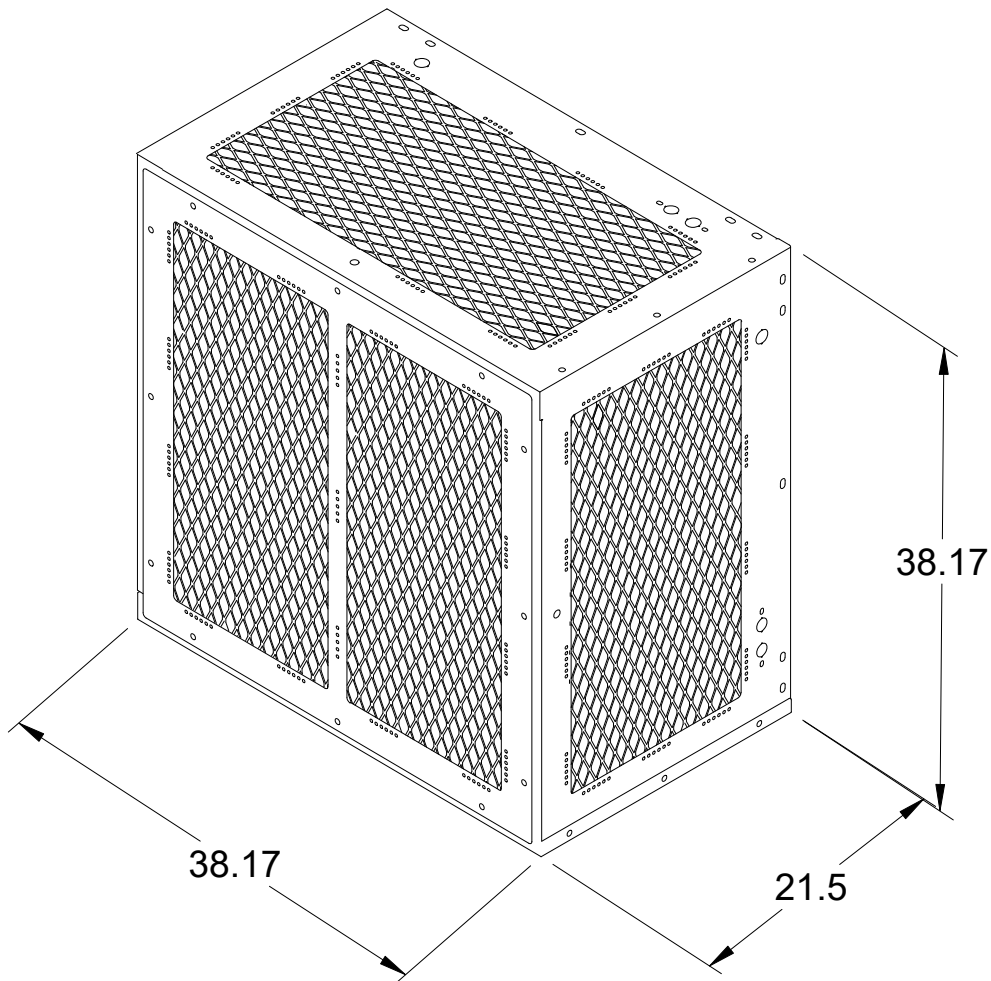
Unit Warranty: 1 Yr (Standard)

Damper Mounted, WD-320-PB-32X32, Gravity Operated, Not Coated

## OSHA Motor Side Guard

### Standard Construction Features:

- Protective guards with solid steel side panels and an expanded metal screen end panel are available to completely enclose the motor and drive side of the fan.



Notes: All dimensions shown are in units of in.

# Model: SP-A200

## Ceiling Exhaust Fan

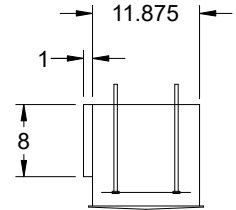
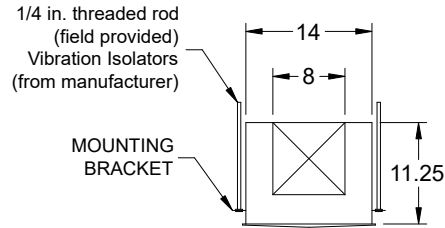
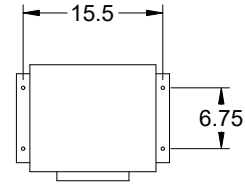
Tags: EF-GH-1 EF-GH-2

### Standard Construction Features:

- Corrosion resistant galvanized steel scroll and housing - Sound absorbing insulation - White designer non-yellowing grille - Rectangular outlet duct collar with integral spring loaded backdraft damper - Double inlet forward curved wheel - Plug type disconnect - Adjustable mounting brackets - Field rotatable discharge

### Selected Options & Accessories:

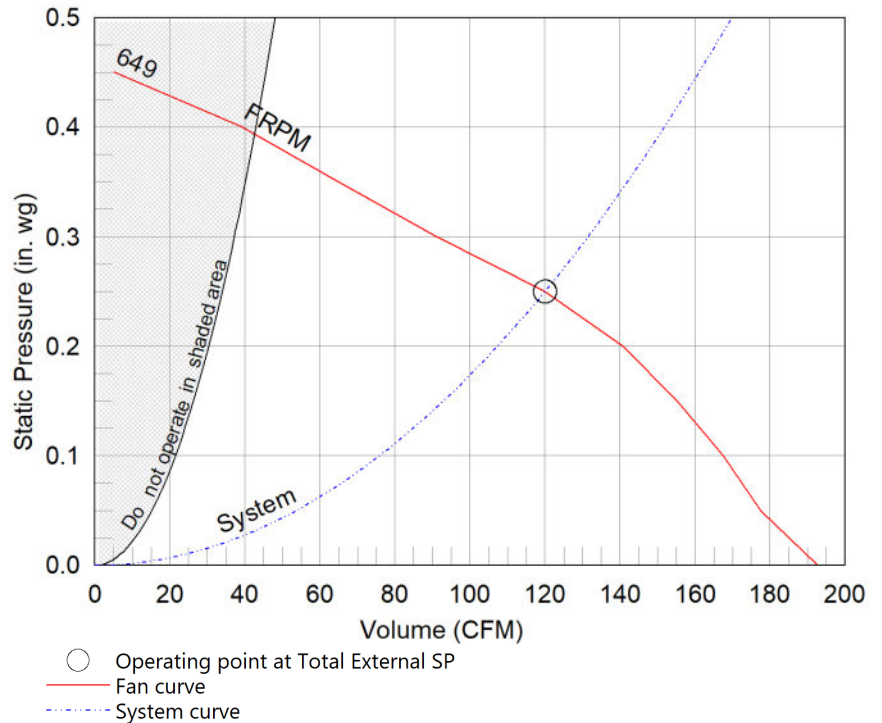
- Motor with Thermal Overload
- Motor with CSA Approval
- Motor with 40 Degree C Ambient Temperature
- UL/cUL 507 Listed - Electric Fan
- Solid State Speed Control, 6 Amp, Shipped Loose
- Isolation Kit, (PN: VI KIT-SP/CSP), Shipped Loose
- Adjustable easy installation mounting bracket
- Aluminum Grille, (PN: 486006) Shipped Loose
- Polypropylene Wheel Material
- Can Be Used to Comply with: ASHRAE 62.2, California Title 24, and Washington State Energy Code



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	24
Weight w/ Acc's (lb)	27

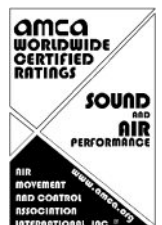
Performance	
Requested Volume (CFM)	120
Actual Volume (CFM)	120
Total External SP (in. wg)	0.25
Fan RPM	649
* FLA (A)	0.46
Elevation (ft)	338
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Sones	1.1

Motor	
Motor Mounted	Yes
** Input Watts (W)	19
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP



### Notes:

- All dimensions shown are in units of in.
- \*FLA is approximate and will vary slightly with the motor.
- Sones - calculated using AMCA 301 at 5 ft
- \*\* Wattage is approximate and may vary between motors.

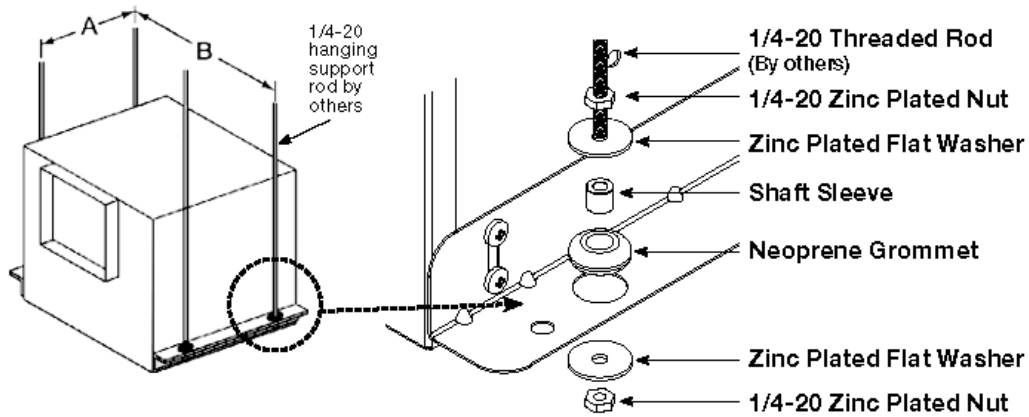


# Isolation Kit

Type: Hanging

## Standard Construction Features:

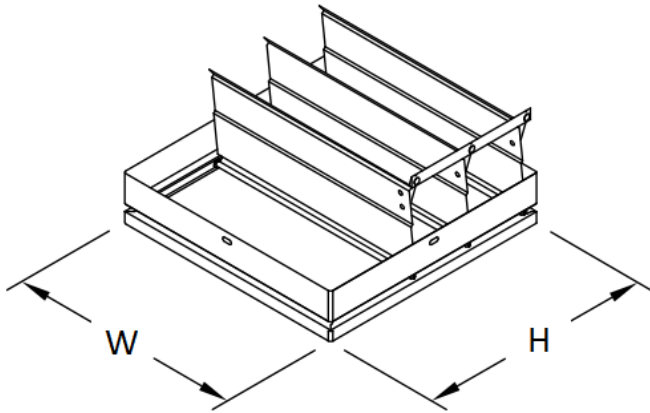
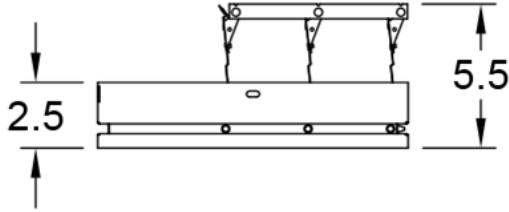
- Neoprene vibration isolation for hanging installation - Kit includes four isolators and all hardware necessary for mounting one unit except for the 0.25 in. x 20 in. threaded rod to be supplied by others - Fan mounting brackets include prepunched mounting holes for ease of installation



Unit Size	A	B
B50-B200	4 1/2 (114)	15 5/8 (397)
A50-A190	5 1/2 (140)	14 5/8 (371)
A200-A390	6 3/4 (171)	15 1/2 (394)
A410, A510, A710, A780	9 1/4 (235)	19 5/8 (498)
A700	5 1/2 (140)	25 1/8 (638)
A900 - A1050, A1410 - A1550	9 1/4 (235)	25 3/8 (645)
A1750, A2150	9 1/4 (235)	36 3/4 (933)
A3600	9 1/4 (235)	48 5/8 (1235)
All dimensions shown in inches (millimeters).		

Description	Qty
Neoprene Grommets	4
1 x 32 Zinc Plated Nuts	8
Zinc Plated Flat Washers	8
3/8 x 3/16 Shaft Sleeves	4

Horizontal Mount Exhaust Damper  
Model: BD-100



**Standard Construction Features:**

- Model BD-100 is a horizontal mount exhaust damper (air flow up) and is constructed of 24 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.016 in. roll formed aluminum with vinyl seals on the closing edge, and spring assisted for ease of opening - Axle/bearing is constructed of fiberglass reinforced nylon



Greenheck Fan Corporation certifies that the models BD-100 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance Ratings.

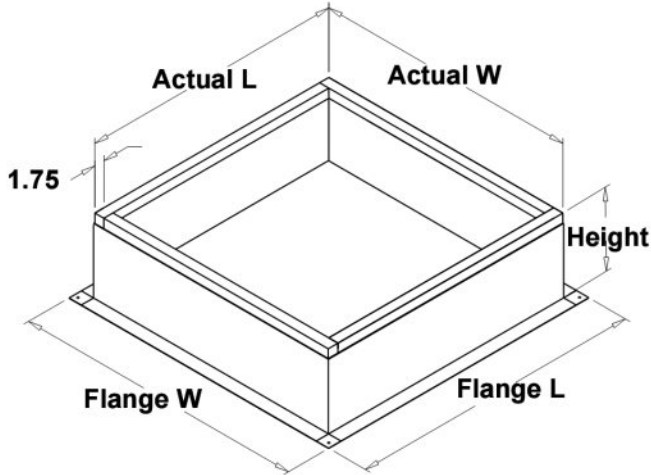
**Damper Configuration:**

ID #:	Tag:	Quantity:	W (in.):	H (in.):	Act Qty:	Actuator Model:
16	EF-2	1	12	12		N/A
19	EF-3	1	12	12		N/A
22	EF-4	1	16	16		N/A
25	EF-5	1	12	12		N/A
4	(Multiple)	2	12	12		N/A
9	(Multiple)	2	12	12		N/A

Notes: All dimensions shown are in units of in.  
Width And height furnished approximately 0.25 in. undersize

Roof Curb  
Model: GPI

**Standard Construction Features:**



- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure
- Constructed of either 18 ga galvanized steel or 0.064 in. aluminum
- Straight Sided without a cant
- 2 in. mounting flange
- 3 lb density insulation
- Height - Available from 12 in. to 42 in. as specified in 0.5 in. increments.

**Notes:**

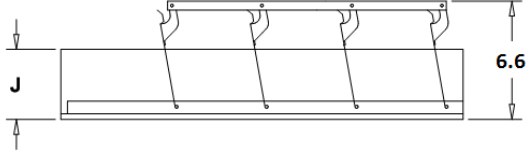
- The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in..
- The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size.
- The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension.
- Damper Tray is optional and must be specified. Tray size is same as damper size.
- Security bars are optional and must be specified. Frames and gridwork are all 12 ga steel.

**Roof Curb Configuration:**

ID #:	Tag:	Qty:	Curb Cap W x L:	Actual W x L:	Flange W:	Flange L:	Height:	Step Hgt:	Damper Tray W x L:
12	EF-1	1	22 x 22	20.5 x 20.5	24.5	24.5	18	N/A	16 x 16
16	EF-2	1	19 x 19	17.5 x 17.5	21.5	21.5	18	N/A	12 x 12
19	EF-3	1	19 x 19	17.5 x 17.5	21.5	21.5	18	N/A	12 x 12
22	EF-4	1	22 x 22	20.5 x 20.5	24.5	24.5	18	N/A	16 x 16
25	EF-5	1	19 x 19	17.5 x 17.5	21.5	21.5	18	N/A	12 x 12
4	(Multiple)	2	19 x 19	17.5 x 17.5	21.5	21.5	18	N/A	12 x 12
9	(Multiple)	2	19 x 19	17.5 x 17.5	21.5	21.5	18	N/A	12 x 12

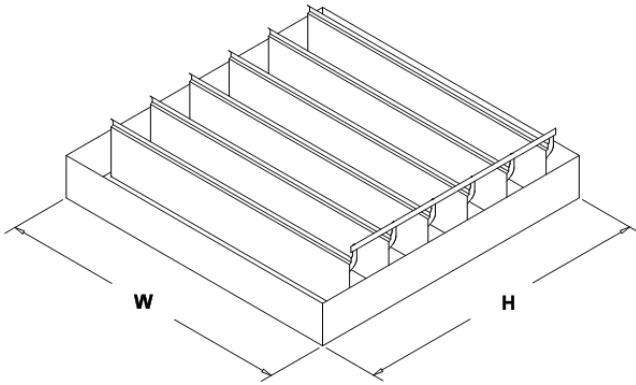
Notes: All dimensions shown are in units of in.

**Horizontal Mount Exhaust Damper**  
Model: WD-100



**Standard Construction Features:**

- Model WD-100 is a horizontal mount exhaust damper (air flow up) and is constructed of 18 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge, and spring assisted for ease of opening - Steel axles are 0.188 in. diameter zinc plated mounted in nylon bushings - Synthetic axle bearings



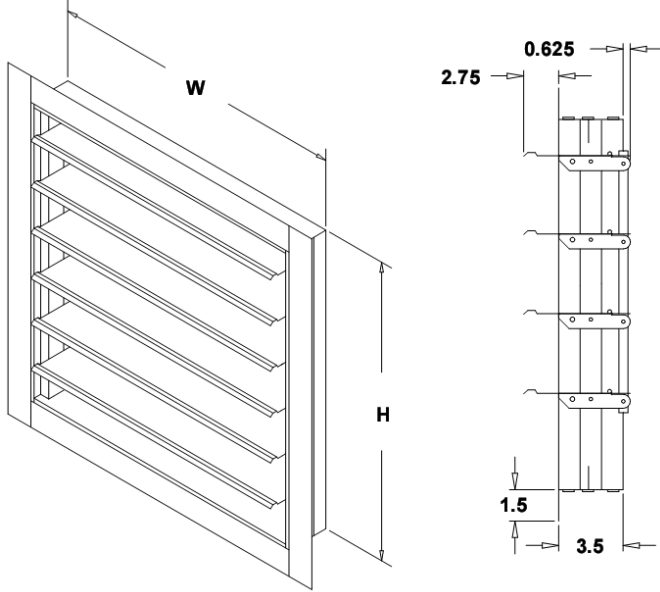
**Damper Configuration:**

ID #:	Tag:	Quantity:	W (in.):	H (in.):	J (in.):	Act Qty:	Actuator Model:
12	EF-1	1	16	16	2.5		N/A

Notes: All dimensions shown are in units of in.  
Width And height furnished approximately 0.125 in. undersize

## Vertical Mount Exhaust Damper

Model: WD-320



### Standard Construction Features:

- Model WD-320 is a vertical mount exhaust damper and is constructed of 18 ga galvanized steel with pre-punched mounting holes and a flanged frame - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge - Steel axles are 0.188 in. diameter zinc plated mounted steel in nylon bushings - Synthetic axle bearings

### Damper Configuration:

ID #:	Tag:	Quantity:	W (in.):	H (in.):	Act Qty:	Actuator Model:
2	EF-FP1	1	32	32	0	

Notes: All dimensions shown are in units of in.  
Width And height furnished approximately 0.125 in. undersize