


HAMLETT ASSOCIATES, INC. SUBMITTAL REVIEW

REVIEW DATE: 1/18/2022
PROJECT NAME: ABSS Pleasant Grove ES
CONTRACTOR: Hamlett Associates Inc.
JOB NUMBER: ABSS #2019-09. Sud #19253. HAI #7604
ENGINEER: Sud Associates
ARCHITECT: DTW Architects
PRODUCT/MATERIAL ID: S#9 Exhaust Fans
SPEC. SECTION/PARAGRAPH NO.: Div 23 23 34 00
SUBCONTRACTOR/SUPPLIER: JR Mech

NOTES:

ARCHITECT/ENGINEER REVIEW/APPROVAL	HAMLETT ASSOCIATES REVIEW/APPROVAL						
<div style="text-align: right; margin-bottom: 10px;">  <p style="font-size: small;">SUD ASSOCIATES, P.A. CONSULTING ENGINEERS</p> </div> <p> <input checked="" type="checkbox"/> REVIEWED <input type="checkbox"/> REVIEWED WITH NOTATIONS <input type="checkbox"/> REVIEWED AS TO MANUF. ONLY <input type="checkbox"/> DISAPPROVED, RESUBMIT <input type="checkbox"/> FOR INFORMATION ONLY </p> <hr style="border: 0.5px solid red;"/> <p style="text-align: center; font-size: x-small; color: red;"> CHECKED FOR DESIGN ONLY. CONTRACTOR RESPONSIBLE FOR ALL SIZES, CAPACITIES AND QUANTITIES. VERIFY ALL DIMENSIONS & CONDITIONS AT THE BUILDING AND SITE. </p> <hr style="border: 0.5px solid red;"/> <p> BY _____ DATE 3/1/2022 </p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px; text-align: center;"><input checked="" type="checkbox"/></td> <td>Approved as noted</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Exceptions Indicated</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Rejected - Revise & Resubmit</td> </tr> </table> <p style="text-align: center; font-size: x-small; margin-top: 10px;"> THIS REVIEW IS FOR CONFORMANCE WITH THE GENERAL DESIGN CONCEPT AND FOR GENERAL ARRANGEMENT ONLY. REVIEW SHALL NOT BE CONSTRUED TO MEAN THAT HAMLETT ASSOC. ACCEPTS ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS UNLESS NOTED AND APPROVED BY HAMLETT AND BY THE ARCH/ENG. SUPPLIER IS RESPONSIBLE FOR ERRORS OR OMISSIONS IN THE SHOP DRAWINGS, FOR MEETING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS, FOR CONFIRMING AND CORRELATING JOBSITE DIMENSIONS, FOR INFORMATION THAT PERTAINS SOLELY TO FABRICATION PROCESSES OR TO TECHNIQUES EQUIPMENT AND/OR SUPPLIES </p> <p style="font-size: x-small; margin-top: 10px;"> PROJECT MANAGER Justin Graves </p> <p style="font-size: x-small; margin-top: 5px;"> ALL MATERIAL MUST BE SHIPPED AS PER HAMLETT ASSOCIATES </p>	<input checked="" type="checkbox"/>	Approved as noted	<input type="checkbox"/>	Exceptions Indicated	<input type="checkbox"/>	Rejected - Revise & Resubmit
<input checked="" type="checkbox"/>	Approved as noted						
<input type="checkbox"/>	Exceptions Indicated						
<input type="checkbox"/>	Rejected - Revise & Resubmit						



JR Mechanical, LLC

Submittal Cover Sheet

ABSS Pleasant Grove Elementary School Renovations
2847 Pleasant Grove Union School Rd
Burlington, NC 27217

Submitted to:
Hamlett Associates Inc.
3704 Security Mills Rd.
Climax, NC 27233

Exhaust Fans & Accessories
Spec Section: 233400
Submittal #233400-1.0

Manufacturer / Supplier
Greenheck / Hoffman & Hoffman
Representative: Chris Arbogast: (704) 364-4700

Reviewed by:
John Rocan Date: 1/07/2021

Approval Stamp

Date	December 31, 2021
Hoffman & Hoffman Order #	125.252.11666
Branch Office	Charlotte, NC
Salesman	Chris Arbogast



**PROJECT: ABSS Pleasant Grove Elementary School Bond Project Renovations
Burlington, NC**

**CONTRACTOR: JR Mechanical
Rock Hill, SC**

**ENGINEER: SUD Associates, P.A.
Durham, NC**

EQUIPMENT: Fans by Greenheck

General Notes:

Above per the attached data and cut sheets

- Fans include materials of construction, accessories and options as per the attached cut sheets.
- Following must be verified: electrical requirements, motor horsepower
- We don't include any controls, wall switches, manual or magnetic motor starters, hanger rods, special finishes, installation or wiring.

SUBMITTAL

APPROVAL REQUIRED

HOFFMAN HOFFMAN, INC.

HVAC Manufacturers Representative

Website: www.hoffman-hoffman.com

Asheville, NC (828) 252-5782	Charleston, SC (843) 884-3201
Charlotte, NC (704) 364-4700	Columbia, SC (803) 765-9360
Raleigh, NC (919) 781-8011	Greenville, SC (864) 676-1888
Wilmington, NC (910) 791-4775	Chesapeake, VA (757) 548-1700
Chattanooga, TN (423) 693-2890	Richmond, VA (804) 272-1500
Knoxville, TN (865) 450-9770	Roanoke, VA (540) 725-8701
Corporate: Greensboro, NC (336) 292-8777	

We have exercised care in the preparation of this submittal. We believe it satisfies our interpretation of the designer's intent and scope. It contains the list of materials, quantities, sizes, style and the finish as we propose to furnish for this job. Please examine and check carefully that all items are exactly as required and that our interpretation of the applicable plans and/or specifications are consistent with the design. Approval by the engineer and purchaser will be required before release of this equipment for production. If any discrepancies are discovered, please notify us as soon as possible.

ABSS Pleasant Grove Elementary School

SQ direct drive inline fans (EF-B1, EF-C2, RF-B1) include the following:

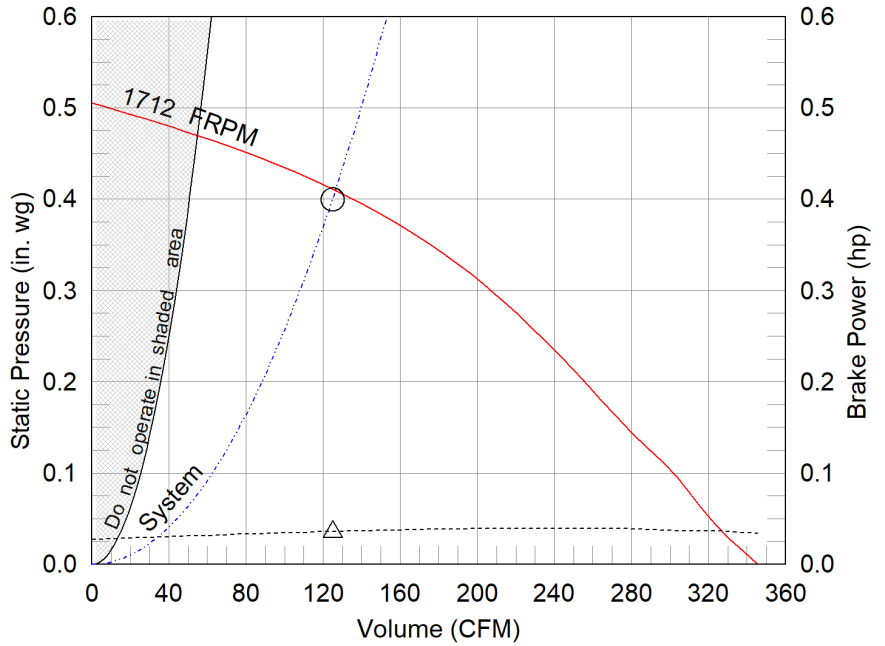
- UL-705 label
- NEMA-1 toggle disconnect switch
- Gravity backdraft damper
- Spring hanging isolators
- Vari-Green EC motor with integral dial speed controller
- EF-B1, EF-C2 include a 6" Ø hooded wall cap
- Standard one-year parts only warranty

Model: SQ-70-VG
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	2
Weight w/o Acc's (lb)	30
Weight w/ Acc's (lb)	42
Optional Damper (in.)	9 x 9

Performance	
Requested Volume (CFM)	125
Actual Volume (CFM)	125
Total External SP (in. wg)	0.4
Fan RPM	1712
Operating Power (hp)	0.04
Elevation (ft)	886
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Tip Speed (ft/min)	3,641
Static Eff. (%)	22

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	223



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

Motor	
Motor Mounted	Yes
Size (hp)	1/15
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Windings	1
FLA (Amps)	1.3
Min. Circuit Ampacity (MCA)	2
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	68	71	68	53	48	47	42	38	62	50	5.6
Radiated	70	74	61	47	44	41	36	33	60	48	5.0

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



Model: SQ-70-VG

Direct Drive Centrifugal Inline Fan

Tags: EF-B1 EF-C2

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor with Dial ONLY (Not capable for field conversion to 0-10)

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

Universal mounting

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped with Unit

Composite Wheel Material

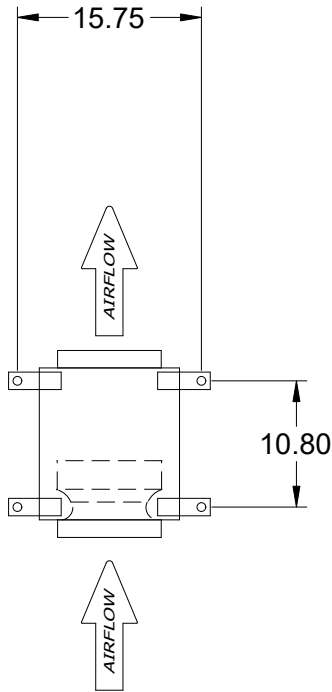
Isolators & Brackets, Spring, Hanging, 1 Inch (Qty 4, PN: 850343) (Shipped Loose)

Unit Warranty: 1 Yr (Standard)

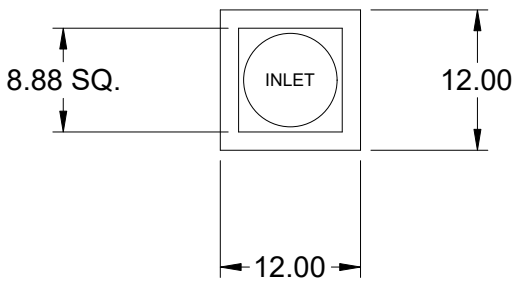
Damper Shipped Loose, Inline, BD-330-PB-9X9, Gravity Operated, Not Coated

SQ-70-VG

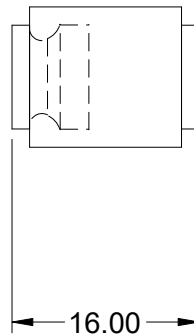
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

Disconnect Switch

Enclosure Rating: NEMA-1

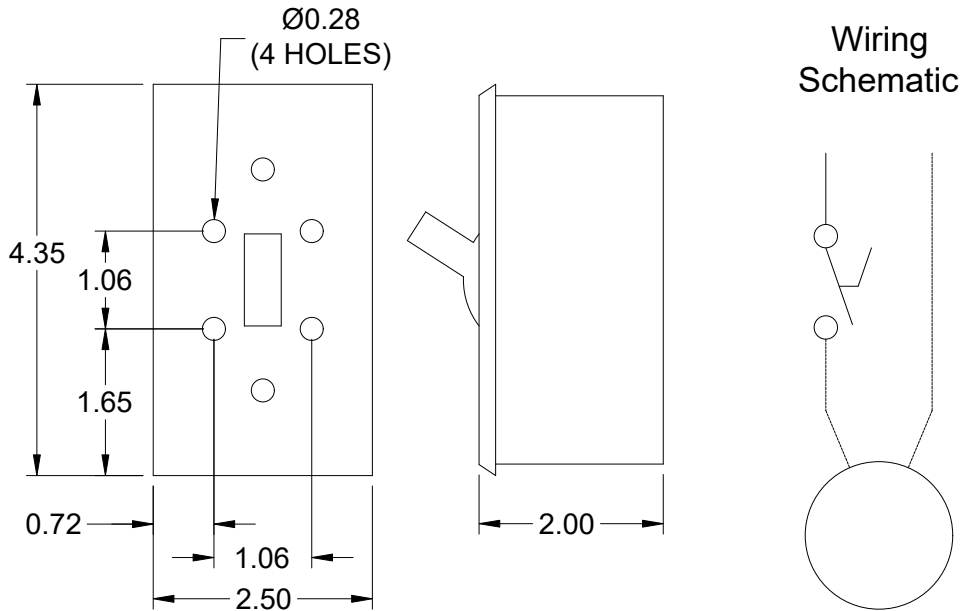
Standard Construction Features:

Enclosure constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against falling dust. This enclosure meets the rod entry and the indoor corrosion protection design tests. The rod entry test is intended to simulate incidental contact with enclosure equipment. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

Disconnect Switch Configuration

Type:	Toggle	Motor Size:	1/15 hp	Voltage:	115	UL Listed:	Yes
Manufacturer:	Pass and Seymour	Cycle:	60	Amperage:	15	CSA Approved:	Yes
Overload Protection:	None	Phase:	1	Switch Pole(s):	1	Rating:	1/2 hp
Junction Box Mtg.:	Ship With Unit	RPM:	1725	Exp. Resist. Wiring:	None		
Switch Mounting:	Shipped With Unit						

Electrical Drawing Details



Notes: All dimensions shown are in units of in.

Vari-Green

Motor & Control Options

An EC motor that uses AC input power and internally converts it to DC power. Motor accepts a 0-10VDC control signal along with a 24V source to power controls in the motor. Motor is operable in the 2-10VDC range and off while in the 0-1.9VDC range. 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.

An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the fan housing 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.

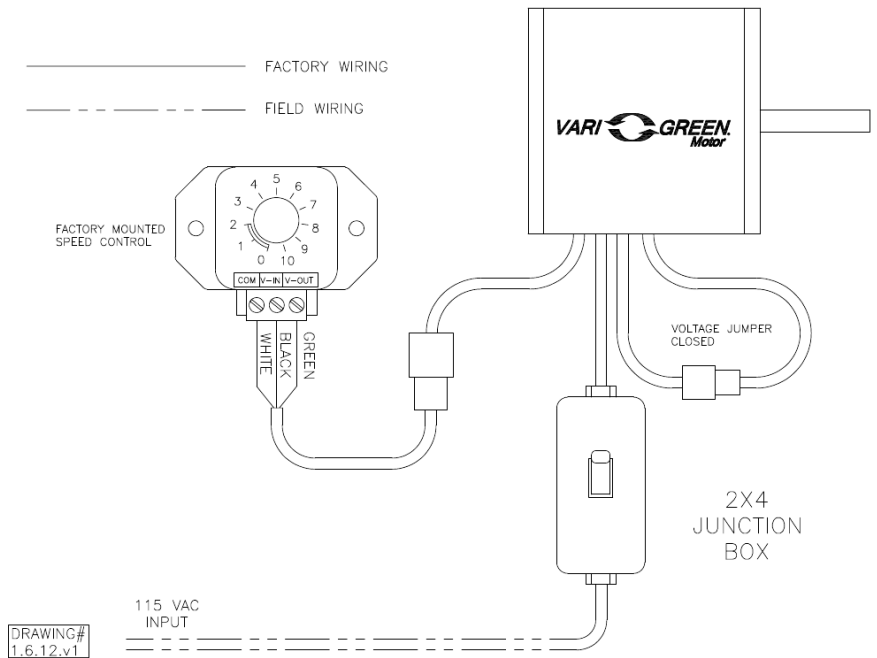
Motor Configuration

Input Voltage: 115
Speed Reference: 0-10VDC
Permanent Dial: No
Balance Dial Included: N/A

Control Configuration

Control Type: Dial on Fan
Transformer: None

Vari-Green



Vertical Mount Exhaust Damper

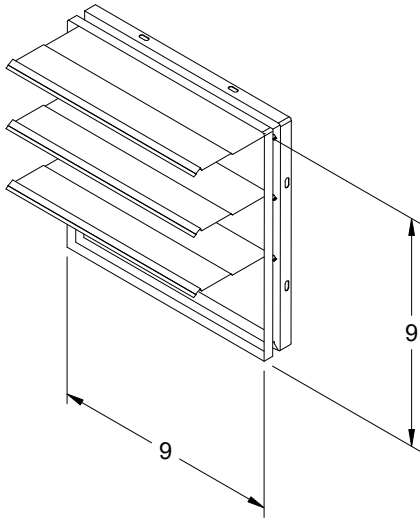
Model: BD-330

Standard Construction Features:

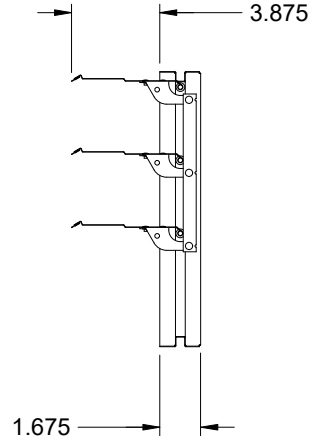
- Model BD-330 is a vertical mount exhaust damper and is constructed of 24 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.016 in. roll formed aluminum with vinyl seals on the closing edge - Axle/bearing is constructed of fiberglass reinforced nylon



Greenheck Fan Corporation certifies that the models BD-300, 320, and 330 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



TYP. SECTION VIEW

Notes: All dimensions shown are in units of in.

Isolator

Type: Spring, Hanging, 1 Inch

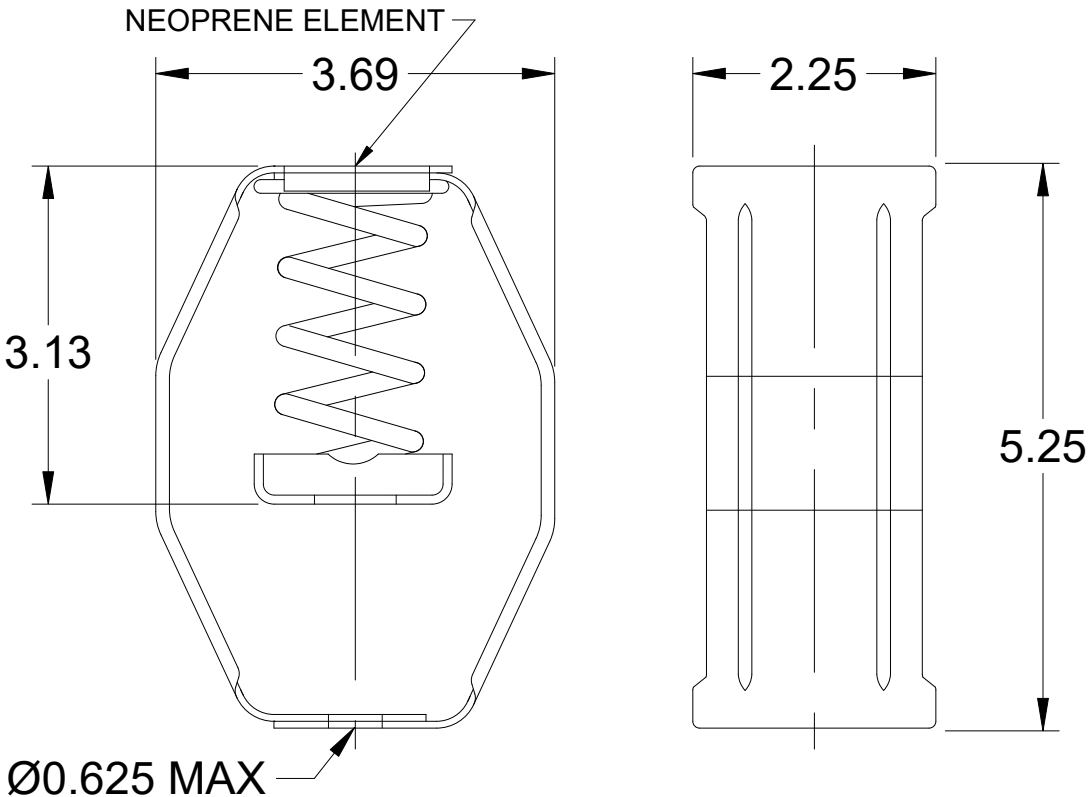
Standard Construction Features:

The spring hanging isolator is designed to reduce the transmission of vibration and noise produced by suspended equipment and piping. To assure stability, the spring element has a minimum lateral stiffness of 1.0 times the rated vertical stiffness. The hanger will allow a support rod misalignment through a 30 degree arc and the isolation brackets will carry a 500% overload without failure. The isolator has an epoxy powder coated bracket and spring coil which is color coded according to the load capacity and has a noise isolation pad, all which is assembled into a stamped or welded hanger bracket. This part number includes 4 isolators.

Isolator Configuration

Description:	SH-1-35	Color:	Blue
Manufacturer:	Kinetics Noise Control	Mounting:	Hanging
Load Capacity:	35 lb	Kit Part Number:	850343
Deflection:	1.52 in.		

Spring, Hanging, 1 Inch Deflection - Vibration Isolator

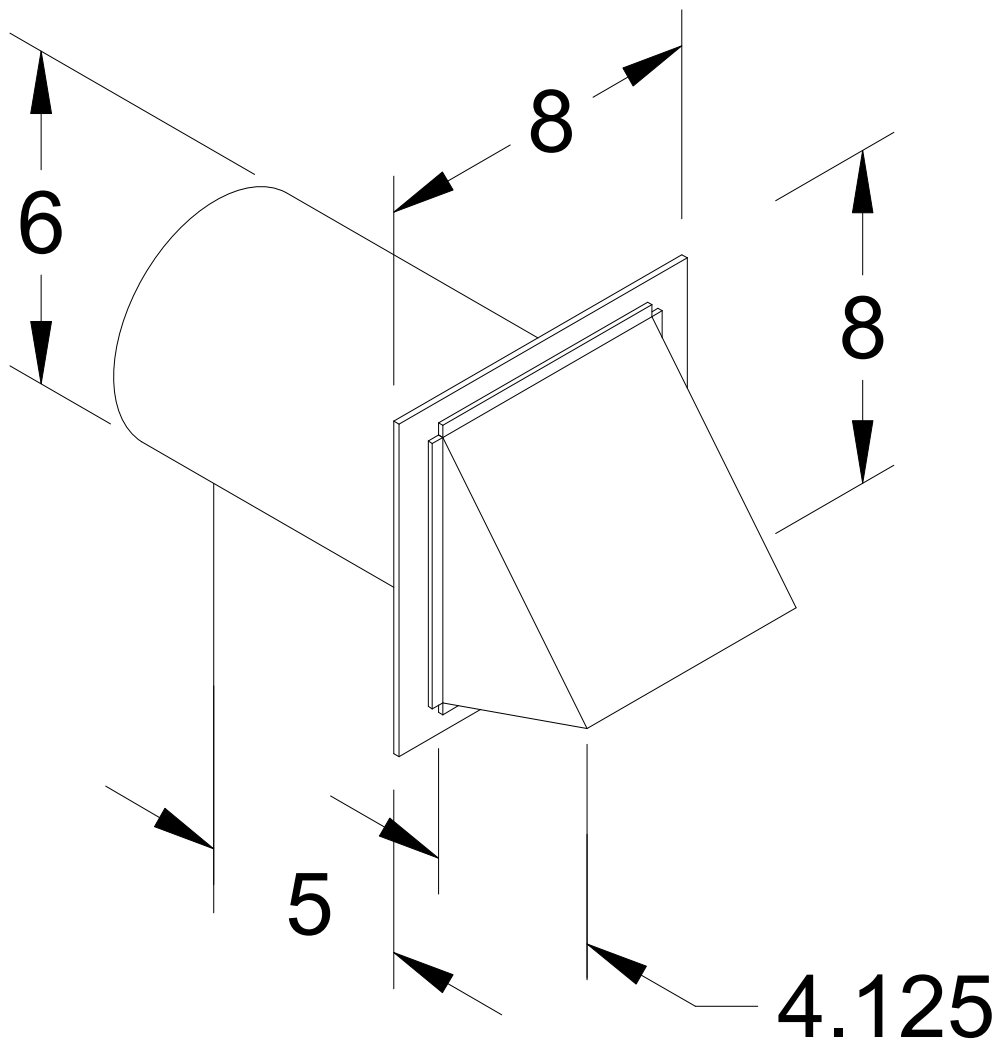


Notes: All dimensions shown are in units of in.

WC-6

Standard Construction Features:

- Aluminum construction
- Designed for outside wall applications
- Built in damper.



Notes: All dimensions shown are in units of in.

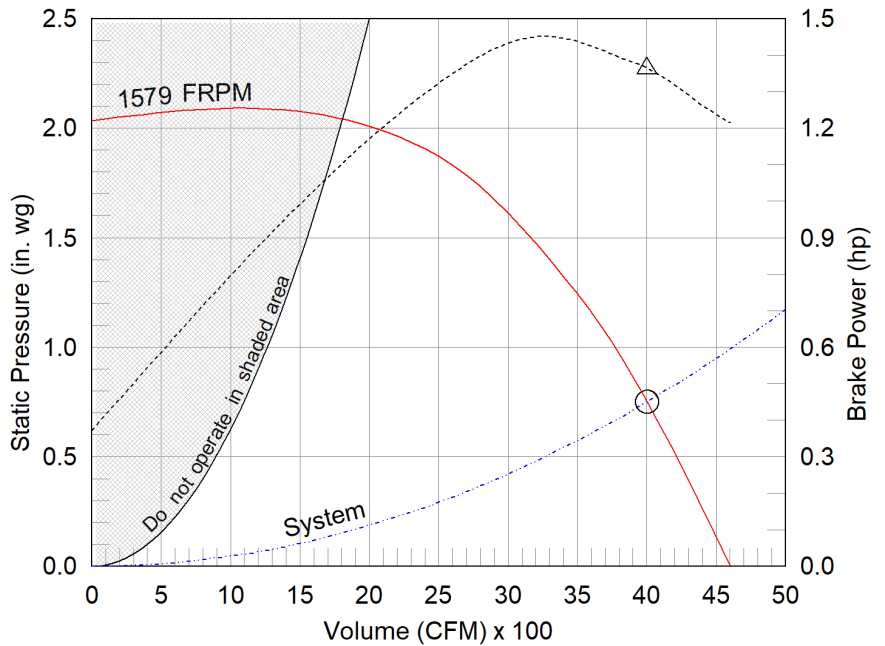
Model: SQ-160-VG
 Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	161
Weight w/ Acc's (lb)	183
Optional Damper (in.)	23 x 23

Performance	
Requested Volume (CFM)	4,000
Actual Volume (CFM)	4,000
Total External SP (in. wg)	0.75
Fan RPM	1579
Operating Power (hp)	1.36
Elevation (ft)	886
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Tip Speed (ft/min)	6,922
Static Eff. (%)	35

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	1,114

Motor	
Motor Mounted	Yes
Size (hp)	2
Voltage/Cycle/Phase	460/60/3
Enclosure	TEFC
Motor RPM	1725
Windings	1
FLA (Amps)	3.2
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



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

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	79	78	86	84	75	74	70	66	84	73	20
Radiated	82	79	82	78	67	58	52	50	78	66	13.6

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



Model: SQ-160-VG

Direct Drive Centrifugal Inline Fan

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

Universal mounting

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped with Unit

Aluminum Wheel Material

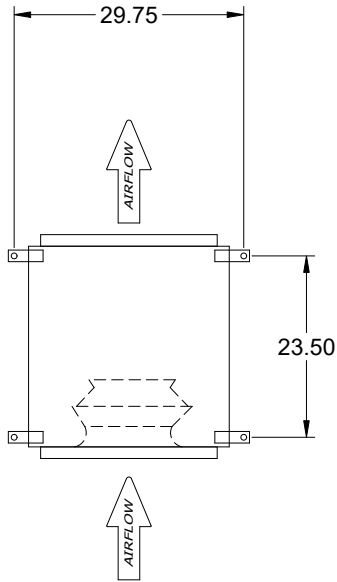
Isolators & Brackets, Spring, Hanging, 1 Inch (Qty 4, PN: 850345) (Shipped Loose)

Unit Warranty: 1 Yr (Standard)

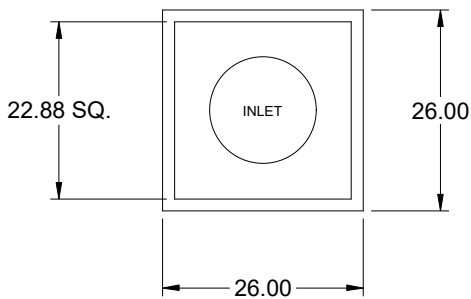
Damper Shipped Loose, Inline, WD-330-PB-23X23, Gravity Operated, Not Coated

SQ-160-VG

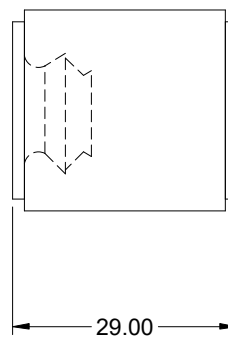
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

Disconnect Switch

Enclosure Rating: NEMA-1

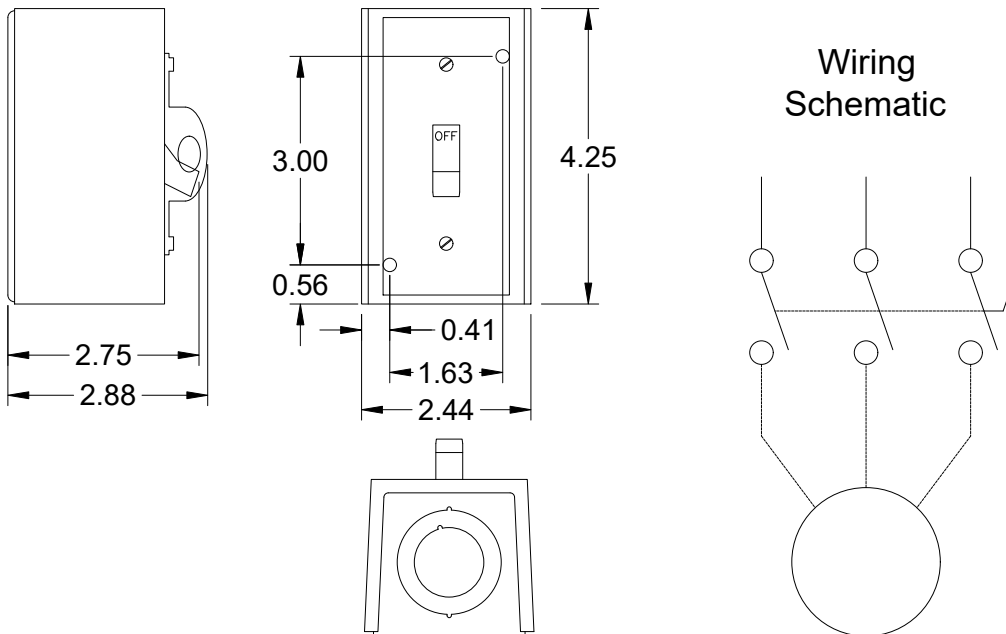
Standard Construction Features:

Enclosure constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against falling dust. This enclosure meets the rod entry and the indoor corrosion protection design tests. The rod entry test is intended to simulate incidental contact with enclosure equipment. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

Disconnect Switch Configuration

Type:	Toggle	Motor Size:	2 hp	Voltage:	460	UL Listed:	Yes
Manufacturer:	Square D	Cycle:	60	Amperage:	30	CSA Approved:	Yes
Overload Protection:	None	Phase:	3	Switch Pole(s):	3	Rating:	10 hp
Junction Box Mtg.:	Ship With Unit	RPM:	1725	Exp. Resist. Wiring:	None		
Switch Mounting:	Shipped With Unit						

Electrical Drawing Details



Notes: All dimensions shown are in units of in.

Vari-Green

Motor & Control Options

An EC motor that uses AC input power and internally converts it to DC power. Motor accepts a 0-10VDC control signal. Motor is operable in the 2-10VDC range and off while in the 0-1.9VDC range. 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.

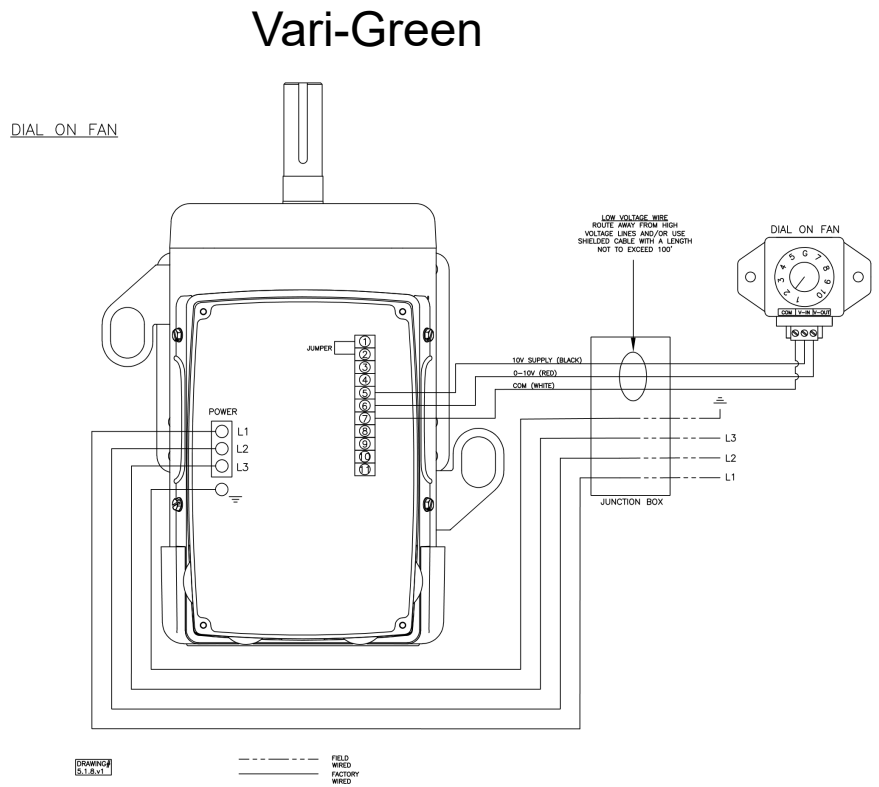
An EC motor that uses AC input power and internally converts it to DC power. Potentiometer (dial) mounted on the fan housing adjusts the speed (RPM) down 80%. Vari-Green motors feature a soft-start and inherent thermal and current protection built into each unit. Inrush current at start up is eliminated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

Motor Configuration

Input Voltage: 460
Speed Reference: 0-10VDC
Permanent Dial: No
Balance Dial Included: N/A

Control Configuration

Control Type: Dial on Fan
Transformer: None

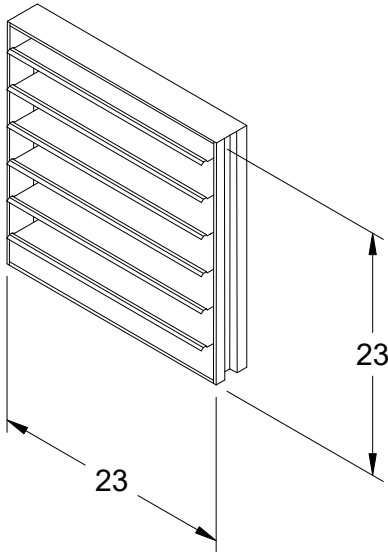


Vertical Mount Exhaust Damper

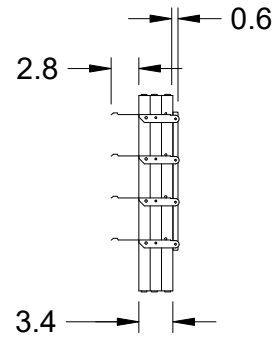
Model: WD-330

Standard Construction Features:

- Model WD-330 is a vertical mount exhaust damper and is constructed of galvanized steel with pre-punched mounting holes - 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 steel - Nylon type bushings



DAMPER



TYP. SECTION VIEW

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

Isolator

Type: Spring, Hanging, 1 Inch

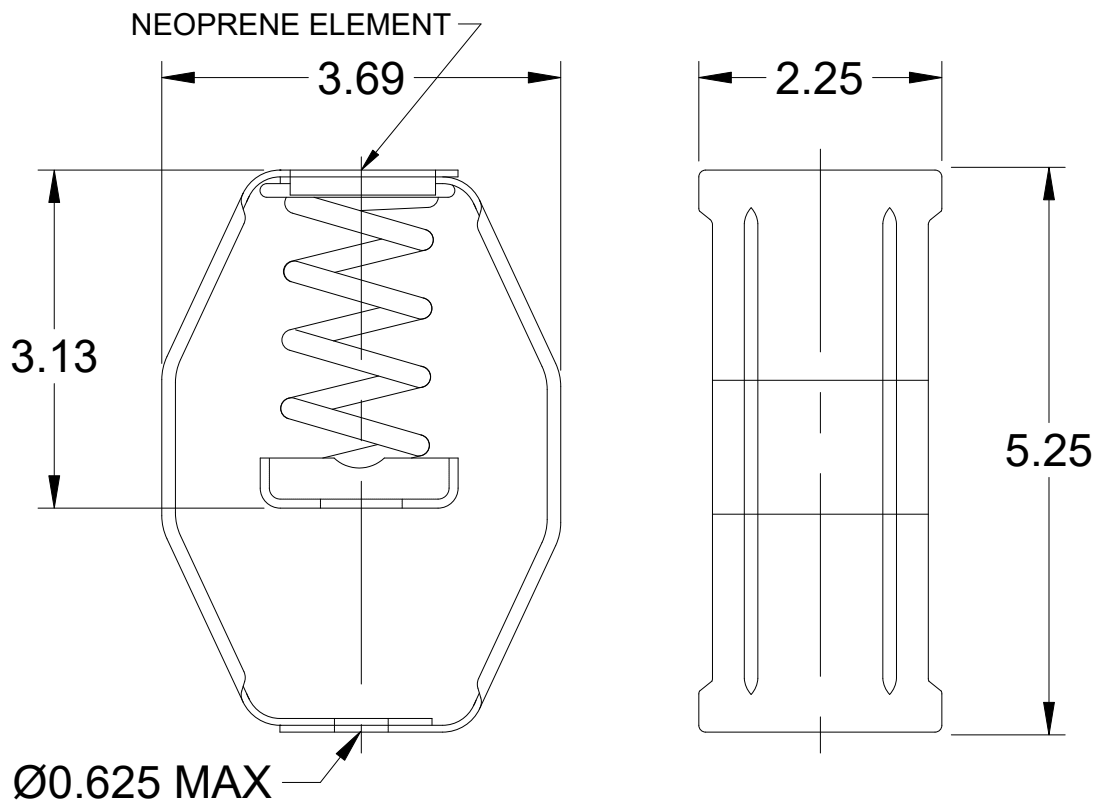
Standard Construction Features:

The spring hanging isolator is designed to reduce the transmission of vibration and noise produced by suspended equipment and piping. To assure stability, the spring element has a minimum lateral stiffness of 1.0 times the rated vertical stiffness. The hanger will allow a support rod misalignment through a 30 degree arc and the isolation brackets will carry a 500% overload without failure. The isolator has an epoxy powder coated bracket and spring coil which is color coded according to the load capacity and has a noise isolation pad, all which is assembled into a stamped or welded hanger bracket. This part number includes 4 isolators.

Isolator Configuration

Description:	SH-1-125	Color:	Gray
Manufacturer:	Kinetics Noise Control	Mounting:	Hanging
Load Capacity:	125 lb	Kit Part Number:	850345
Deflection:	1.25 in.		

Spring, Hanging, 1 Inch Deflection - Vibration Isolator



Notes: All dimensions shown are in units of in.

Warranty

1 Yr (Standard)

WARRANTY AND LIABILITY: SELLER warrants to Buyer that products manufactured are free from defects in material and workmanship for a period of 1 Yr (Standard) from the date of shipment. SELLER's obligations and liabilities under this warranty are limited to furnishing FOB factory or warehouse at SELLER's designated shipping point, freight allowed to Buyer's city, (or point of export for shipments outside the conterminous United States) replacement equipment (or at the option of SELLER parts therefore) for all Seller's products not conforming to this warranty and which have been returned to the manufacturer. No liability whatever shall attach to SELLER until said products have been paid for and such liability shall be strictly limited to the purchase price of the equipment shown to be defective. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by SELLER prove defective during this period, they should be returned to the nearest authorized motor service station. SELLER will not be responsible for any removal or installation costs. Electrical components, excluding motors, are warranted only to the extent warranted by the original manufacturer. To the extent that SELLER is entitled to pass through a warranty of the original equipment manufacturer of the electrical goods sold, SELLER will pass through such warranties to Buyer. The legal remedies described in this Warranty are the sole exclusive remedy of Buyer. SELLER MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This warranty is extended solely to the Buyer. It is nontransferable and non-assignable, and the Buyer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Buyer. ANY MISUSE, NEGLIGENCE, FAILURE TO FOLLOW INSTRUCTIONS OR MANUALS OF INSTALLATION OF MAINTENANCE REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS. THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. SELLER PROVIDES NO INDEPENDENT WARRANTY FOR THIRD PARTY PRODUCTS OR COMPONENTS SOLD TOGETHER OR INCORPORATED WITH SELLER'S PRODUCT(S). THE SELLER HAS THE RIGHT TO SETTLE ANY AND ALL DISPUTES REGARDING THE WARRANTY.