



# Weaver

CONSTRUCTION MANAGEMENT

3679 S Huron Street, Suite 404 Englewood, Colorado 80110

Phone: (303) 789-4111 FAX: (303) 789-4310

## SUBMITTAL TRANSMITTAL

May 1, 2012

Submittal No: 15800-013

PROJECT: **Harold Thompson Regional WRF**  
Birdsall Rd.  
Fountain, CO 80817  
Job No. 2908

ENGINEER: **GMS, Inc.**  
611 No. Weber St., #300  
Colorado Springs, CO 80903  
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan  
Sewage Disposal District**  
901 S. Santa Fe Ave.  
Fountain, CO 80817  
719-382-5303 James Heckman

CONTRACTOR: **Kuck Mechanical Contractors, LLC.**  
395 West 67<sup>th</sup> Street  
Loveland, CO 80593  
970-461-3553 Melanie Peterson

SUBJECT: Sidewall Prop Fans and Inline Centrifugal Fans (EF-1 thru EF-6) @ the P&D Building

SPEC SECTION: 15800 - Heating & Ventilating

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: \_\_\_ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:

Date: 5/1/12

Reviewed by: John Jacob

(x) Reviewed Without Comments

( ) Reviewed With Comments

Engineer's Stamp:

ENGINEER'S

COMMENTS: \_\_\_\_\_



395 West 67th Street  
P.O. Box 388  
Loveland, CO 80539-0388  
Phone: (970) 461-3553  
Fax: (970) 461-3443

**DATE:** 05/01/12

**SENT TO:** Weaver General Contractors

**Attn:** John Jacob

**JOB:** Harold D. Thompson WRF (#01135)  
9001 Birdsell Rd.  
Fountain, CO 80817

**SUBMITTAL NO.:** 00020

**SUBMITTAL DUE:**

**PACKAGE:** n/a

**VENDOR NAME:** CFM

**SPECIFICATION #:** 15800

**SUBJECT:** P&D Bldg. - Fans

**REVIEW DETAILS:**

<b>Review #:</b> 1	<b>Received:</b> 04/13/12	<b>Priority:</b> Normal
<b>Desc:</b> P&D Bldg. - Fans	<b>Sent:</b> 05/01/12	<b>Status:</b> Open
<b>Reviewer:</b> John Jacob	<b>Returned:</b>	<b>Sepias:</b> 0
Weaver General Contractors	<b>Forwarded:</b>	<b>Prints:</b> 0

**Sent for the following action(s):**

- For Approval**
                 
  **For Distribution**
                 
  **For Your Use/Files**
                 
  **As Req'd per**

**Action Needed:**

Sincerely,  
Teesa Vassar  
  
Kuck Mechanical Contractors  
395 W. 67th St.  
Loveland, CO 80538



# CFM COMPANY

AIR CONDITIONING / HEATING / VENTILATING EQUIPMENT  
413 D North US Highway 287 • Fort Collins, CO 80524  
Phone: (970)-493-7293 • Fax: (970)-493-7297



## SUBMITTAL DATA

DATE: March 16, 2012

CFM COMPANY ORDER NO: 27120-EL

TO: Kuck Mechanical  
Attn: Tom Wasmer  
395 West 67<sup>th</sup> Street  
Loveland, CO 80539

PROJECT: Harold D Thompson Pumping & Disinfection Building

LOCATION: Fountain, CO

ARCHITECT:

ENGINEER: GMS, Inc.

### SUBMITTAL DATA ON THE FOLLOWING EQUIPMENT

MANUFACTURER	EQUIPMENT	SPECIFICATION SECTION
Indeco	Electric Heater	
Cerus	Magnetic Starter	15058
Greenheck	Sidewall Prop Fans	15800
Greenheck	Inline Centrifugal Fan	15800
Greenheck	Combination Louvers	15800
Greenheck	Stationary Louvers	15800

***Equipment has not been released for production.***

*Thank you for doing business with CFM Company North, and if you have any questions or concerns, please feel free to contact me.*

---

Eric Larsen

PLEASE RETURN ONE APPROVED SET OF THESE SUBMITTALS TO:  
CFM COMPANY NORTH  
413D North US Highway 287  
Fort Collins, CO 80524

# Model: SCE3-24-415-A10

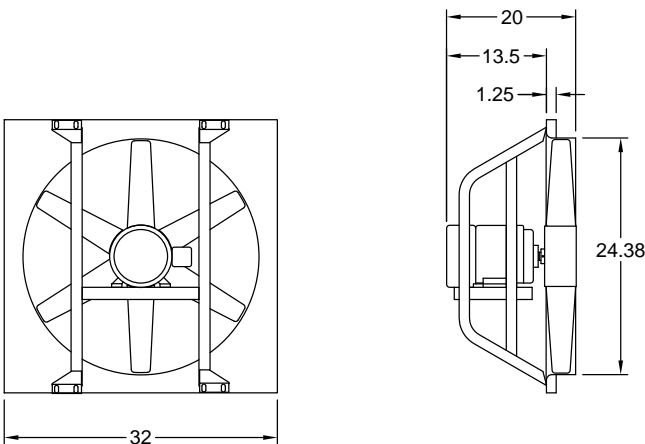
## Sidewall Direct Drive Exhaust Fan

### Standard Construction Features:

- Galvanized steel fan panel - Die formed, galv steel drive frame assembly - Cast alum airfoil blade propeller - Ball bearing motors - Corrosion resistant fasteners

### Options & Accessories:

- Motor VFD Rated
- UL/cUL 705 Listed - "Power Ventilators"
- Damper, WD-320-PB-26X26, Gravity Operated (Mounted), Coated Short Wall Hsg, Flush Int., (2A-Exh), w/ OSHA Grd., Ctd with Permatecor, Gray (040)
- Switch, NEMA-3R, Toggle, Junction Box Mounted & Wired
- Weatherhood, Galvanized 45 deg. with Bird Screen, Ctd with Permatecor, Gray (040)
- Coating Permatecor, Gray (040), Fan & Attached Accessories



→  
**AIR FLOW**

See the Assembly Drawing For  
 Selected Accessories

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Wall Opening (in)	Optional Damper (in)
3	85	247	33.75 x 33.75	26 x 26

### Performance

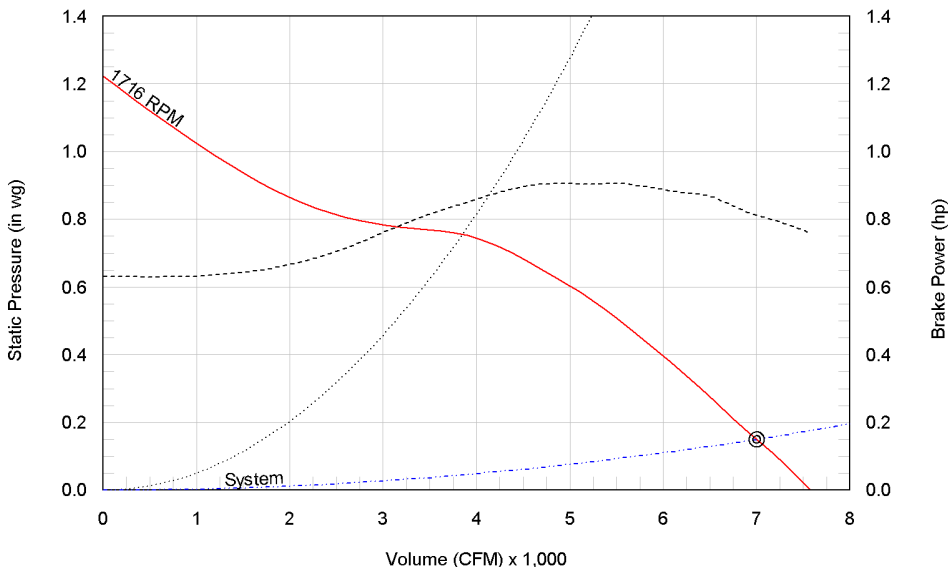
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in wg)	Actual SP (in wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
7,000	7,000	0.15	0.15	1,716	0.81	5,422	70	10785	20.3

### Motor

Motor Mounted	Size (hp)	V/C/P	Encl.	Motor RPM	Windings	NEC FLA* (Amps)
Yes	1	460/60/3	TEFC	1750	1	2.1

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	88	91	97	93	89	85	78	74	95	83	38



### Notes:

All dimensions shown are in units of in.  
 \*FLA - based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 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 5.0 ft - dBA levels are not licensed by AMCA International  
 Sones - calculated using AMCA 301 at 5.0 ft

# Disconnect Switch

Enclosure Rating: NEMA-3R

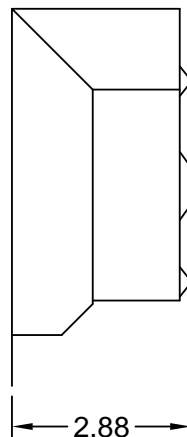
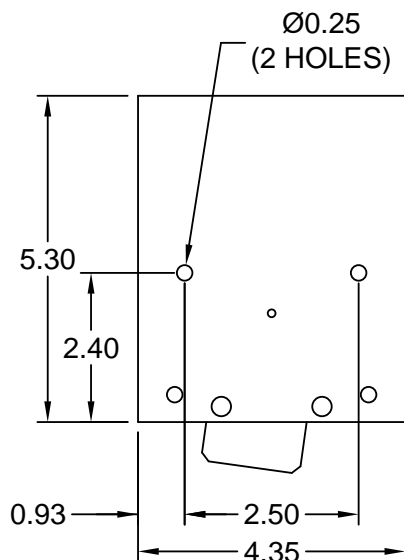
## Standard Construction Features:

Enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment: to provide a degree of protection against falling dirt, rain, sleet, snow, and windblown dust. The enclosed equipment will be undamaged by the external formation of ice on the enclosure. This enclosure meets the rod entry, rain, external icing, outdoor corrosion protection and gasket design tests. Enclosure is equipped with provision to lockout in the off position with customer supplied lock.

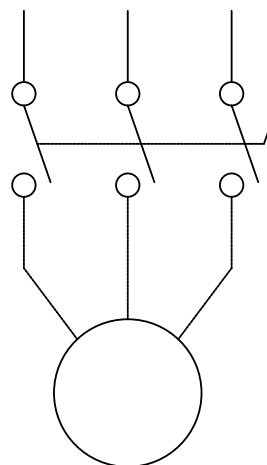
## Disconnect Switch Configuration

Type:	Toggle	Motor Size:	1 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
Mounting:	Mounted and Wired	RPM:	1750	Wiring (Exp. Resist.):	None		

## Electrical Drawing Details

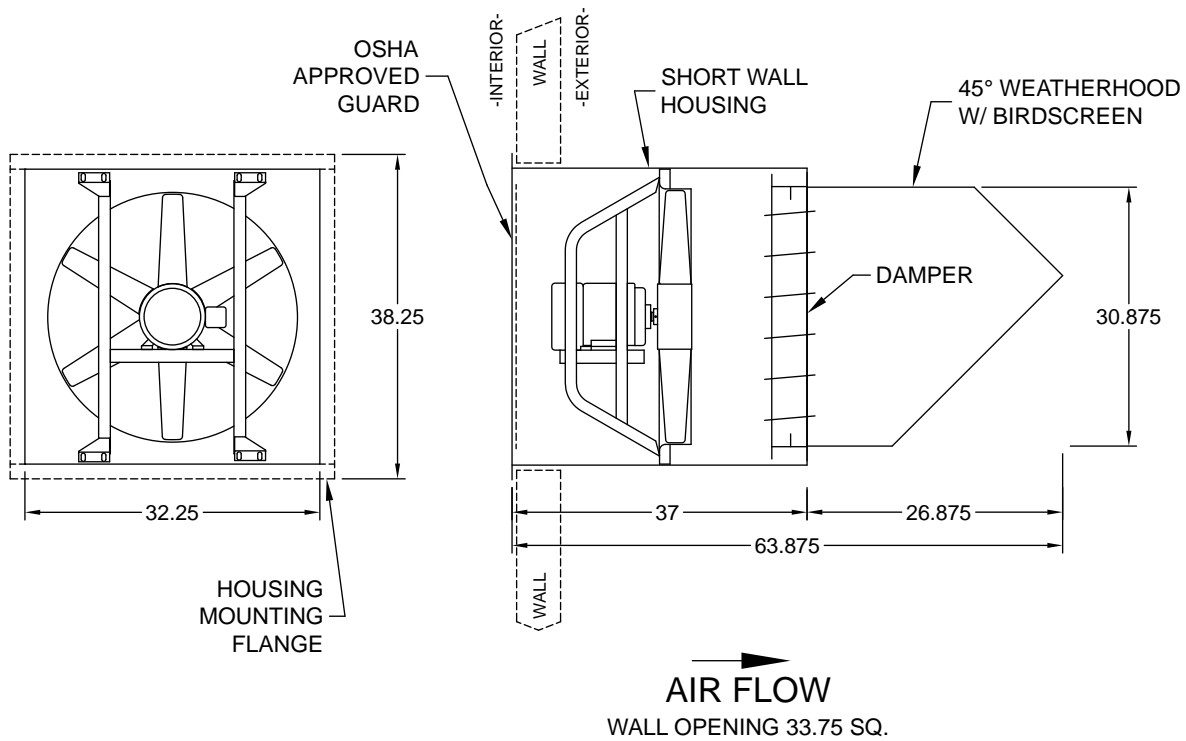


## Wiring Schematic



# Assembly Drawing

Type: Sidewall Direct Drive Exhaust Fan



Notes: All dimensions shown are in units of in.

# Vertical Mount Exhaust Damper

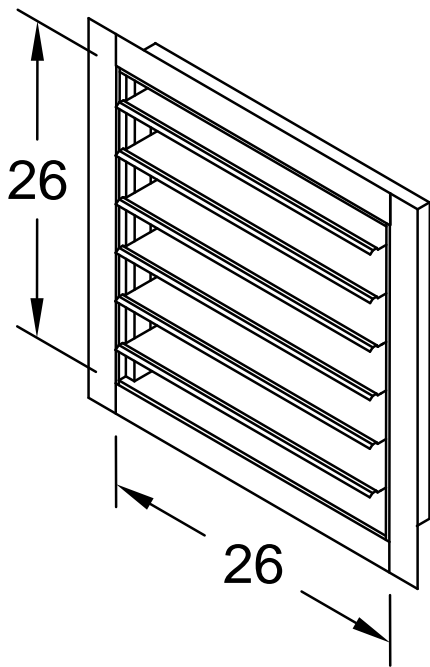
Model: WD-320

## Standard Construction Features:

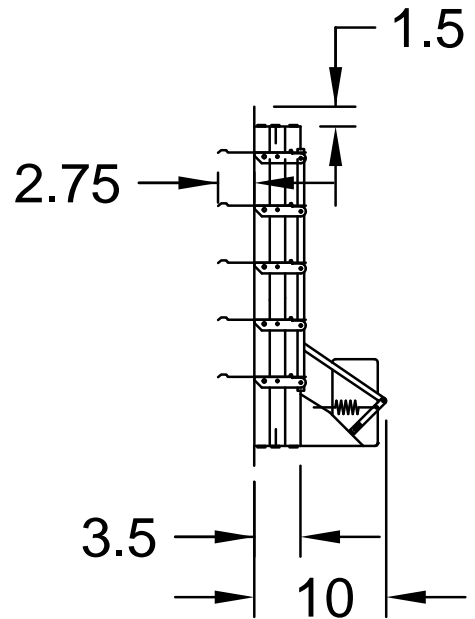
- Model WD-320 is a vertical mount exhaust damper and is constructed of 18 ga galvanized steel with pre-punched mounting holes and a flanged frame - Damper blades are 0.025 in roll formed aluminum with vinyl seals on the closing edge - Steel axles are 0.188 in diameter zinc plated mounted steel in acetal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

## Accessory Configuration

Actuator Type:	Gravity	Coating Type:	Permatecor
End Switch:	No	Coating Color:	Gray (040)



DAMPER

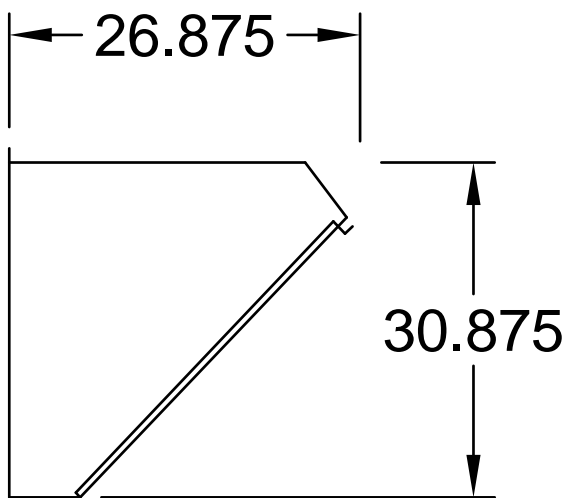


TYP. SECTION VIEW

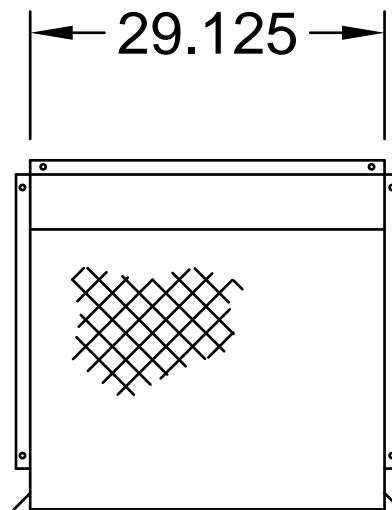
## 45 Degree Weatherhood

### Standard Construction Features:

Galvanized Steel or aluminum construction. 0.5 welded wire birdscreen. Prepunched mounting holes. Field assembled.



SIDE VIEW



ELEVATION VIEW



## AMCA



AMCA Licensed for Sound and Air Performance Without Appurtenances (Accessories). Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.

The AMCA licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.

## Model: SQ-100-VG

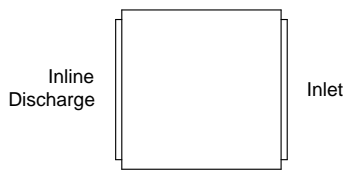
### Direct Drive Centrifugal Inline Fan

#### Standard Construction Features:

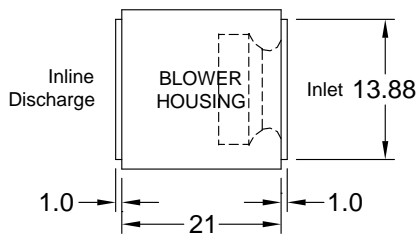
- Galvanized steel housing - Backward inclined aluminum wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 100-160), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

#### Options & Accessories:

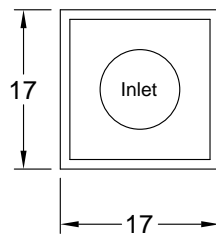
Motor - Vari-Green ECM w/Mounted Potentiometer Dial (Accepts 115 VAC)  
 UL/cUL 705 Listed - "Power Ventilators"  
 Switch, NEMA-1, Toggle, Junction Box Mounted & Wired  
 Damper, Inline, WD-330-PB-14X14, Gravity Operated (Loose)  
 Motor Cover  
 Isolators & Brackets (Qty:4), Spring Hanging (PN 850343)(Shipped Loose)



PLAN VIEW



ELEVATION VIEW



END VIEW

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Optional Damper (in)
1	56	79	14 x 14

### Performance

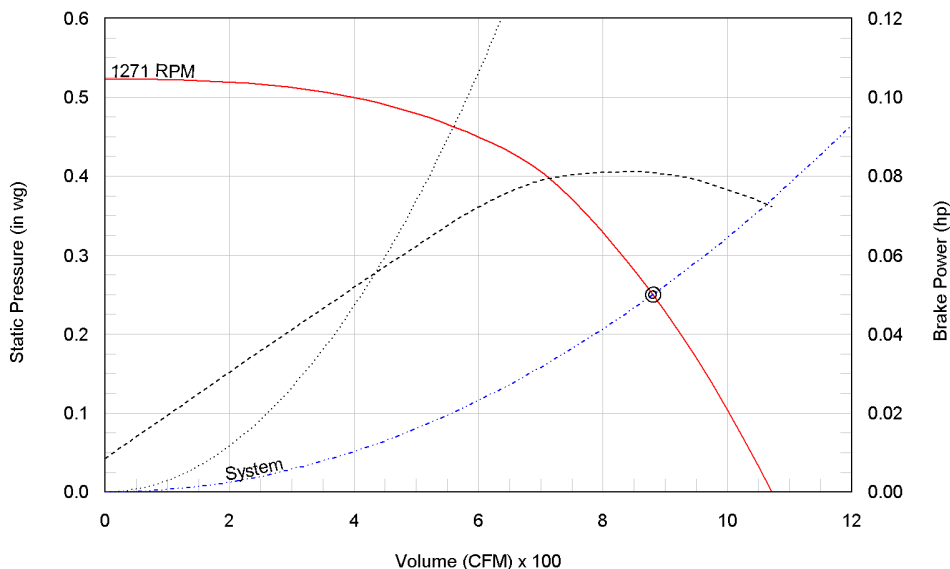
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in wg)	Actual SP (in wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
880	880	0.25	0.25	1,271	0.08	5,422	70	3723	42.8

### Motor

Motor Mounted	Size (hp)	V/C/P	Encl.	Motor RPM	Windings
Yes	1/4	115/60/1	ODP	1725	1

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	66	69	66	65	62	56	49	48	67	55	7.1
Radiated	66	71	60	59	57	50	43	44	62	50	5.6



#### Notes:

All dimensions shown are in units of in.  
 \*FLA - based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 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 5.0 ft - dBA levels are not licensed by AMCA International  
 Sones - calculated using AMCA 301 at 5.0 ft

# Disconnect Switch

Enclosure Rating: NEMA-1

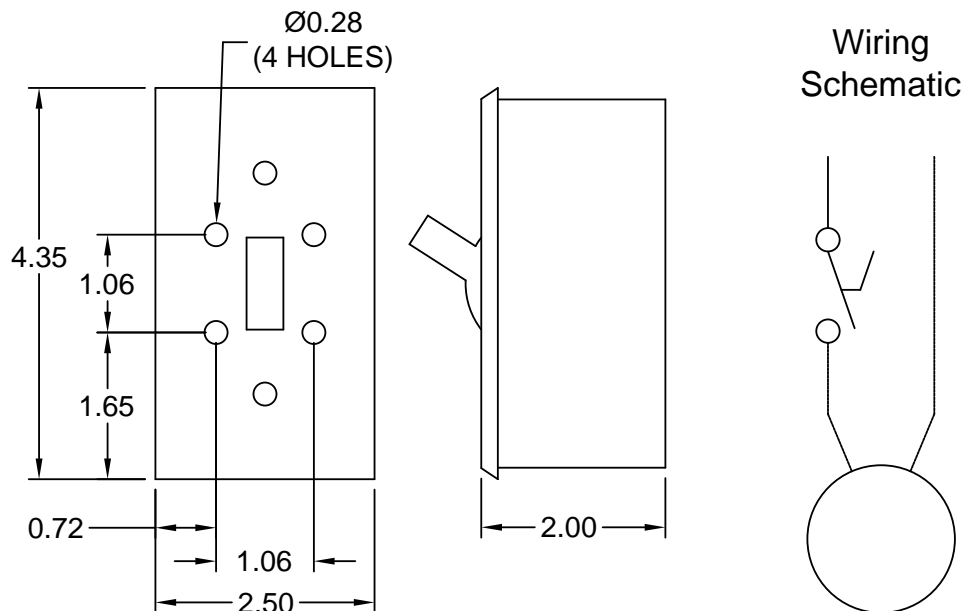
## Standard Construction Features:

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

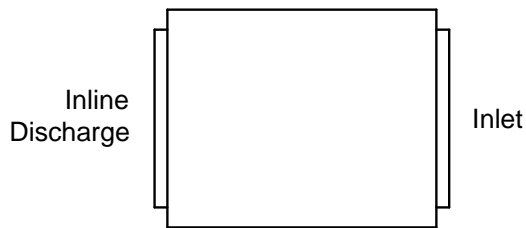
Type:	Toggle	Motor Size:	1/4 hp	Voltage:	115	UL Listed:	Yes
Manufacturer:	Pass and Seymour	Cycle:	60	Amperage:	15	CSA Approved:	Yes
Overload Protection:	None	Phase:	1	Switch Pole(s):	1	Rating:	1/2 hp
Mounting:	Mounted and Wired	RPM:	1725	Wiring (Exp. Resist.):	None		

## Electrical Drawing Details

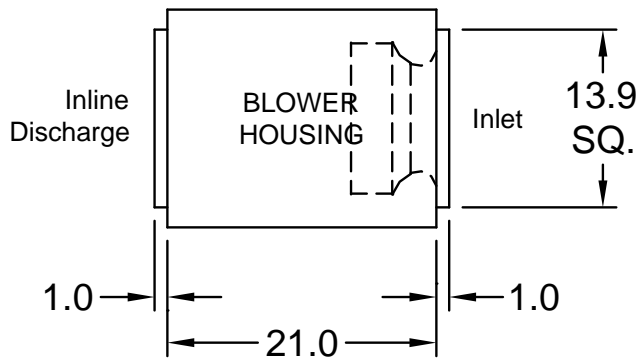


# Assembly Drawing

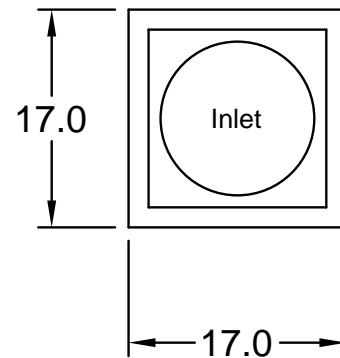
Type: Direct Drive Centrifugal Inline Fan



PLAN VIEW



ELEVATION VIEW



END VIEW

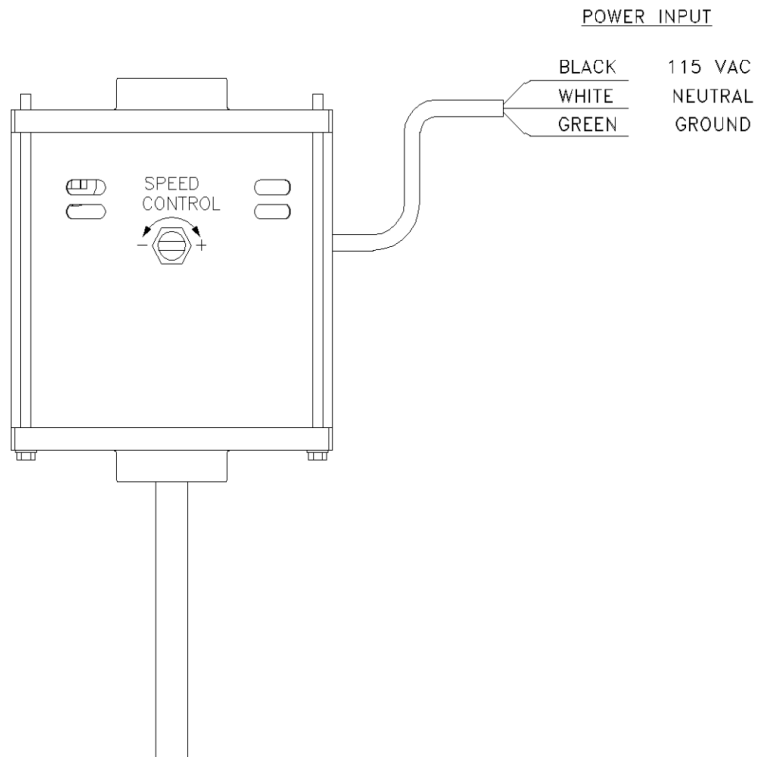
Notes: All dimensions shown are in units of in.

# Vari Green Motor & Control Options

An electrically commutated 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%.

Motor Type: Dial on Motor

## Wiring Diagram



# Vertical Mount Exhaust Damper

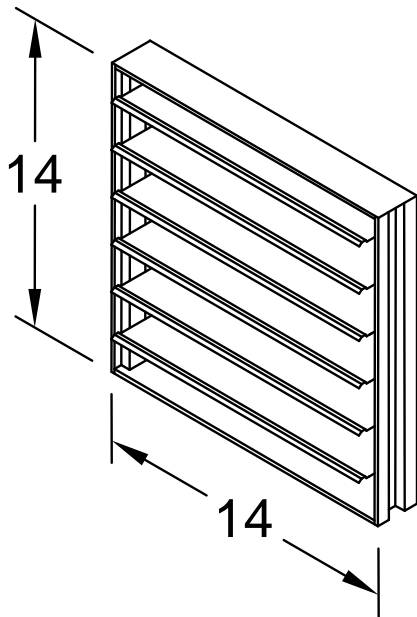
Model: WD-330

## Standard Construction Features:

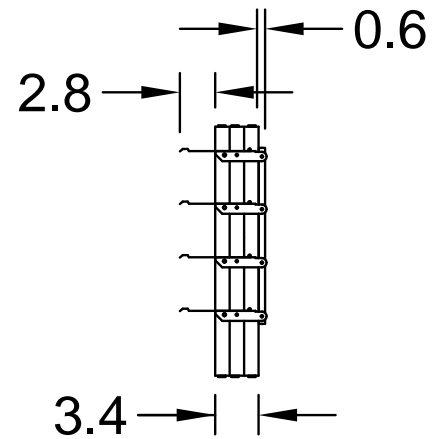
- Model WD-330 is a vertical mount exhaust damper and is constructed of extruded aluminum with pre-punched mounting holes
- Damper blades are 0.025 in roll formed aluminum with vinyl seals on the closing edge
- Steel axles are 0.188 in diameter zinc plated steel
- Synthetic sleeve type bushings

## Accessory Configuration

Actuator Type: Gravity  
End Switch: No



DAMPER - INLINE DISCHARGE



TYP. SECTION VIEW

# Isolator

Type: Spring Hanging

## Standard Construction Features:

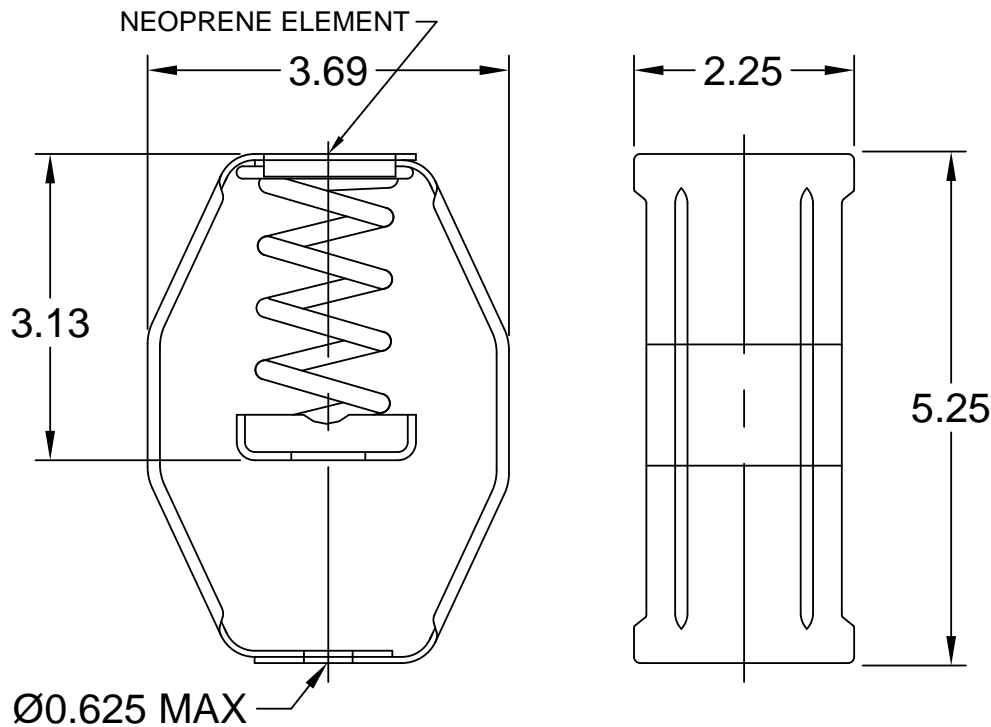
The spring hanging isolator is designed to reduce the transmission of vibration and noise produced by suspended equipment and piping. To assure stability, the spring element has a minimum lateral stiffness of 1.0 times the rated vertical stiffness. The hanger will allow a support rod misalignment through 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 - Vibration Isolator



Notes: All dimensions shown are in units of in

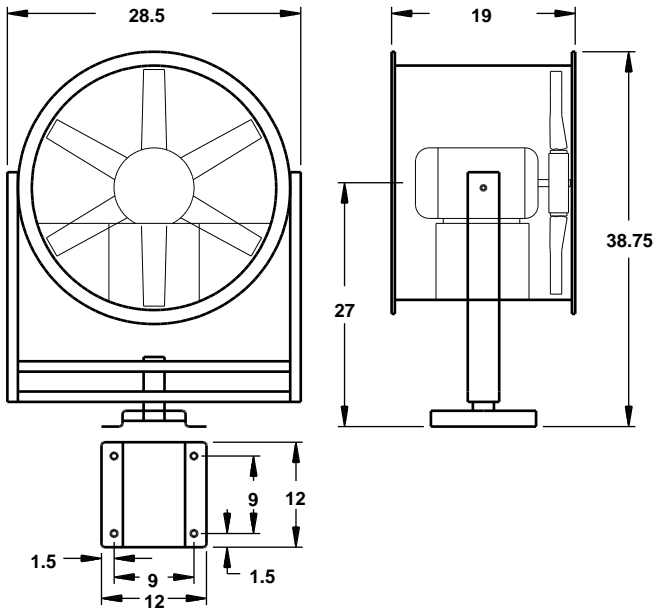
## AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.





# MCY

## Mancooler Yoke Mount-Direct Drive

Tag EF-5,6

### STANDARD CONSTRUCTION FEATURES

HOUSING: Continuously welded heavy gauge steel coated with Permatector • Full swivel yoke mounting arrangement • Ball bearing motors • Motor wiring • OSHA inlet/outlet guards • Corrosion resistant fasteners  
PROPELLER: Cast aluminum airfoil blade propeller

### SELECTED OPTIONS & ACCESSORIES

Class B Motor Insulation or Greater  
Switch - Nema-1, Toggle, Mounted & Wired

NOTES: All dimensions shown are in units of inches  
Fan weight is without accessories

### DIMENSIONS

Approx. Fan Weight (lb)
160

### PERFORMANCE (Elevation ft = 5,422, Airstream Temperature F = 70)

Qty	Model	Volume (CFM)	Term. Vel. (ft/min)	Throw ft (ft)	FRPM (RPM)	Operating Power (hp)	Motor Information			
							Size (hp)	V/C/P	Encl:	RPM
2	MCY-20-224-A5	4,380	150	46	1,725	0.58	1/2	115/60/1	ODP	1725

### SOUND

Inlet Sound Power by Octave Band								Lwa	dBA	Sones
62.5	125	250	500	1000	2000	4000	8000			
81	86	88	88	84	78	71	67	88	77	26



# NEMA-1

## Toggle

### STANDARD CONSTRUCTION FEATURES

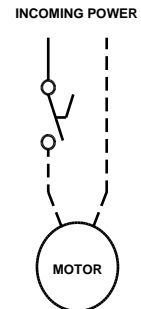
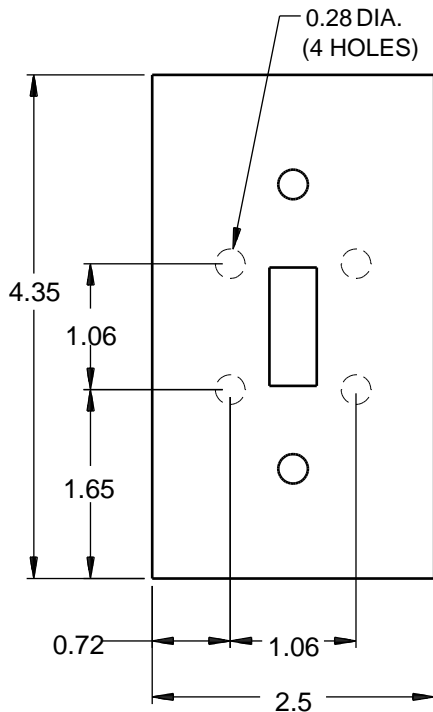
Enclosure constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment and to provide a degree of protection against falling dust. This enclosure meets the rod entry and the indoor corrosion protection design tests. The rod entry test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

### Disconnect Configuration

<b>Switch Manufacturer</b>	Pass and Seymour
<b>Type</b>	Toggle
<b>Overload Protection</b>	None
<b>Mounting</b>	Mounted and Wired

<b>Motor Size (hp)</b>	1/2
<b>Power</b>	60 Cycle
<b>Phase</b>	1
<b>RPM</b>	1725

<b>Voltage (V)</b>	115
<b>Amperage (A)</b>	15.0
<b>Poles</b>	1
<b>Wiring</b>	N/A



- NOTES:
- UL Listed
  - CSA Listed
  - Rating: 1/2 HP
  - All dimensions are in inches.

## AMCA



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