

## DAMMON ENGINEERING, INC

Date: 2/22/2013 Project: USDA Aphis Facility  
Reviewed: David Dammon  
Reviewed as noted: \_\_\_\_\_  
Revise and ReSubmit: \_\_\_\_\_  
Rejected: \_\_\_\_\_  
Other: \_\_\_\_\_

Correction or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. This contractor is responsible for: confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction; coordinating his or her work with that of all other trades and performing all in a safe and satisfactory manner.

Submittal item: EFs 1 thru 9; # Warehouse Heaters  
Comments:



**AIR-SIDE**  
EQUIPMENT, INC

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5751 River Road Suite B  
Harahan, La. 70123

» [airsideinc.com](http://airsideinc.com)

*FEBRUARY 21, 2013*

## *SUBMITTAL DATA*

*Job:*

# *APHIS FACILITY USDA*

*ENGINEER: DAMMON ENGINEERING*

*PREPARED FOR:*

## *TAYLOR MECHANICAL*

*PRODUCTS SUBMITTED:*

*FANS GREENHECK FAN CORP.  
INFRARED HEATERS MARKEL*

*SUBMITTED BY  
KENNY SMITH*

FANS

GREENHECK

# ***SUBMITTAL***

*Job Title:*           **APHIS Facility - USDA**

*Date:*                 02/07/13

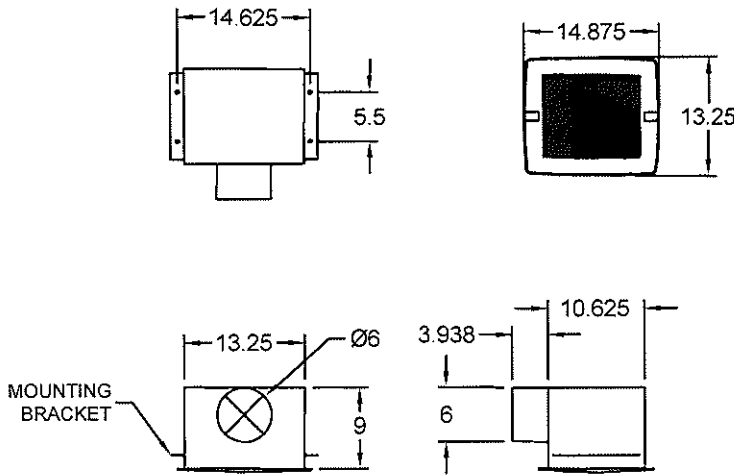
*Submitted By:*   Kenny Smith  
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HARAHAN , LA 70123-5105  
US

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**SUBMITTAL NOTES:**



P.O. Box 410    Schofield, WI 54476    (715) 359-6171    FAX (715) 355-2399    [www.greenheck.com](http://www.greenheck.com)



**Model: SP-A70**

**Ceiling Exhaust Fan**

**Standard Construction Features:**

- Corrosion resistant galv steel scroll and housing
- Sound absorbing insulation
- White designer non-yellowing grille
- Round outlet duct collar with integral backdraft damper
- Double inlet forward curved wheel
- Plug type disconnect
- Adj. mounting brackets
- Field rotatable discharge
- Energy Star Compliant

**Options & Accessories:**

- UL/cUL 507 Listed - Electric Fans
- Solid State Speed Control, (PN 5WSSC) Shipped Loose
- Designer Grille
- Motion Detector, Wall Mounted, (PN: 383008) Shipped Loose
- Polypropylene Wheel Material
- Energy Star Rated

**Dimensional**

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)
2	12	14

**Performance**

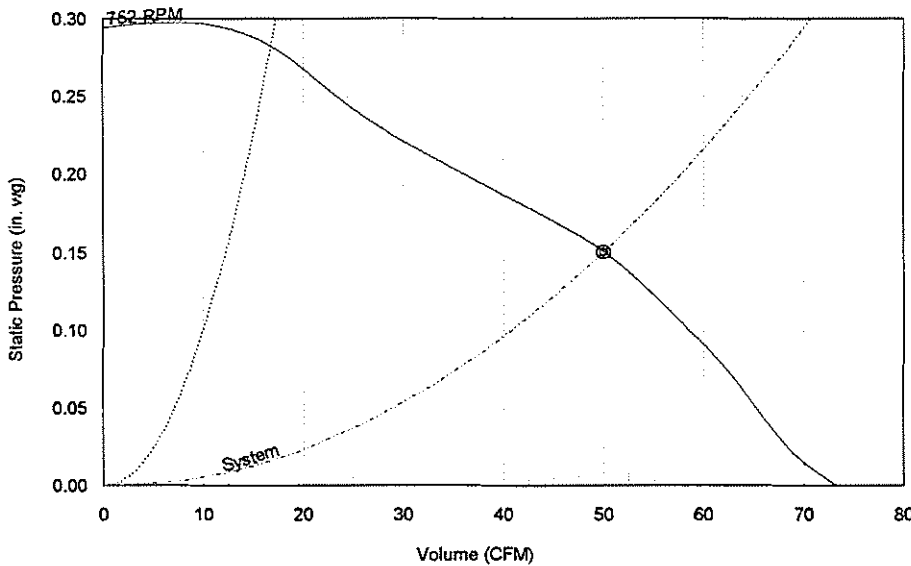
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Watts (W)	Amps (A)	Elevation (ft)	Airstream Temperature (F)
50	50	0.15	0.15	752	20	0.27	0	70

**Motor**

Motor Mounted	Watts (W)	V/C/P	Encl.	Amps (A)
Yes	20	115/60/1	ODP	0.27

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sone
Inlet	52	54	42	37	33	27	20	24	42	27	0.4



——— RPM Curve  
 - - - - System Curve  
 - - - - Surge Power Curve  
 - - - - Do not select to the left of this surge curve  
 ⊗ Desired operating point  
 ⊙ Actual operating point



**Notes:**

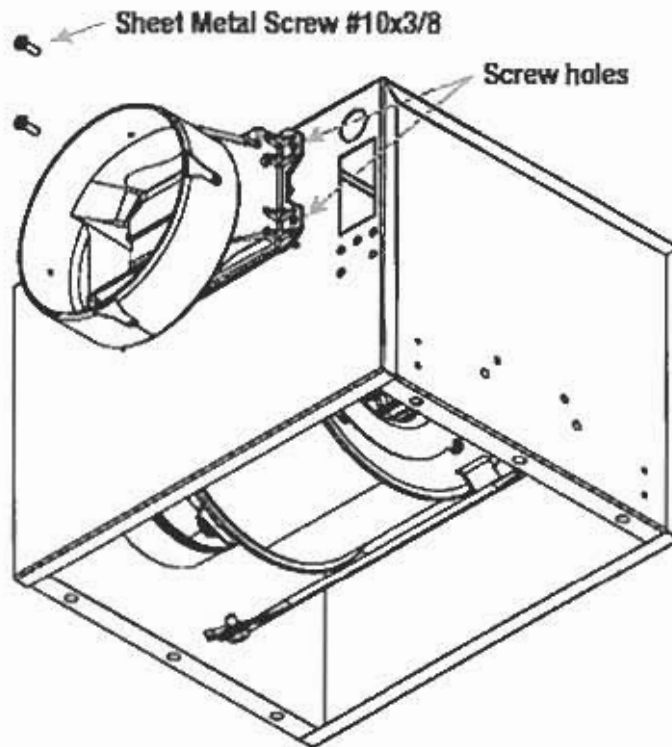
All dimensions shown are in units of in.  
 \*FLA - based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 LwA - A weighted sound power level, based on ANSI S1.4 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5.0 ft - The AMCA Certified Ratings Seal applies to some ratings only.  
 Sones are at 0.1 in. wg

## Round Duct Connector

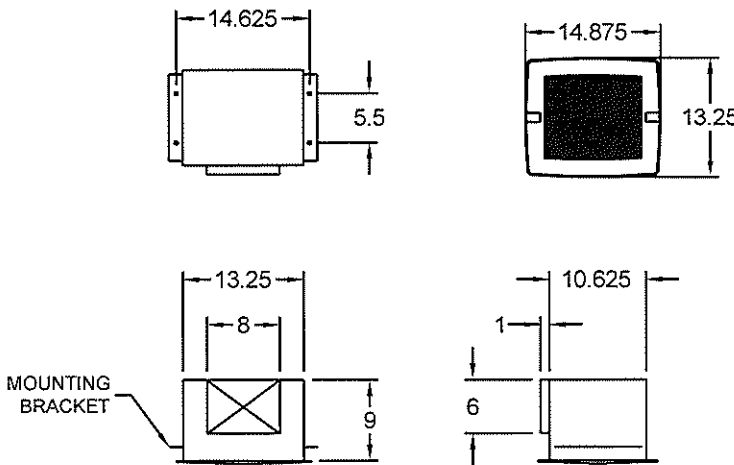
Model: RDC

### Standard Construction Features:

-Constructed of Polypropylene - Replaces the square discharge duct connector and damper using the existing mounting holes



Notes: All dimensions shown are in units of in.



**Model: SP-A190**

**Ceiling Exhaust Fan**

**Standard Construction Features:**

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

**Options & Accessories:**

- UL/cUL 507 Listed - Electric Fans
- Solid State Speed Control, (PN 5WSSC) Shipped Loose
- Designer Grille
- Motion Detector, Wall Mounted, (PN: 383008) Shipped Loose
- Round Duct Connector, (PN: RDC-6) Shipped Loose
- Polypropylene Wheel Material

**Dimensional**

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)
1	17	20

**Performance**

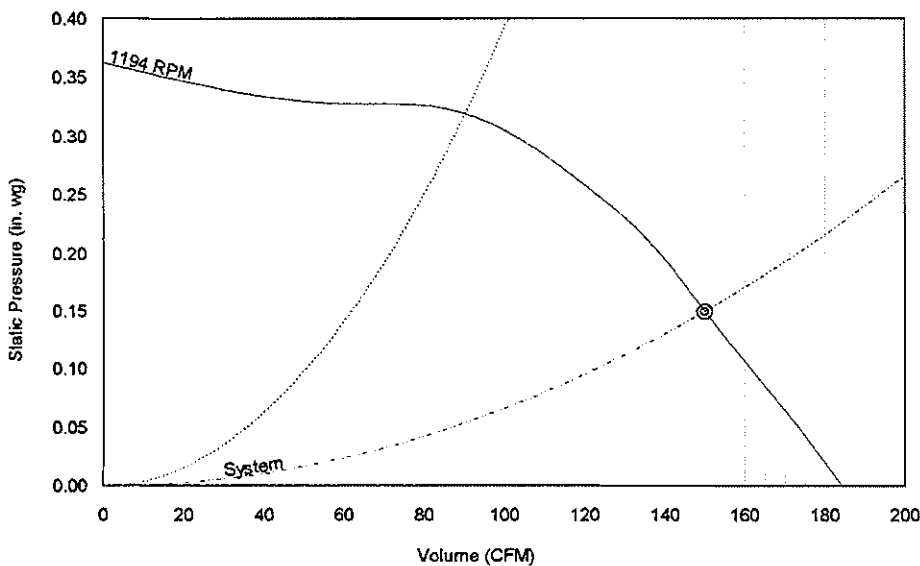
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Watts (W)	Amps (A)	Elevation (ft)	Airstream Temperature (F)
150	150	0.15	0.15	1194	113	1.3	0	70

**Motor**

Motor Mounted	Watts (W)	V/C/P	Encl.	Amps (A)
Yes	113	115/60/1	ODP	1.3

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sone
Inlet	62	50	48	47	43	35	30	24	48	33	1.2



**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 - The AMCA Certified Ratings Seal applies to some ratings only.  
Sones are at 0.1 in. wg

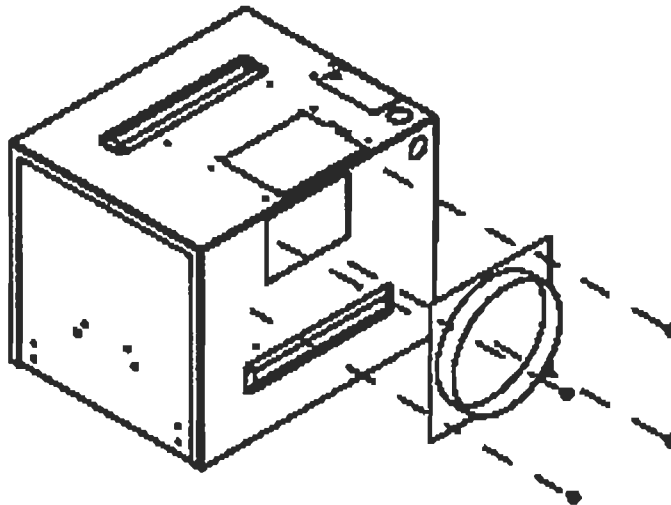
— RPM Curve  
- - - System Curve  
- - - Brake Power Curve  
Do not select to the left of this surge curve  
⊗ Desired operating point  
⊙ Actual operating point

## Round Duct Connector

Model: RDC

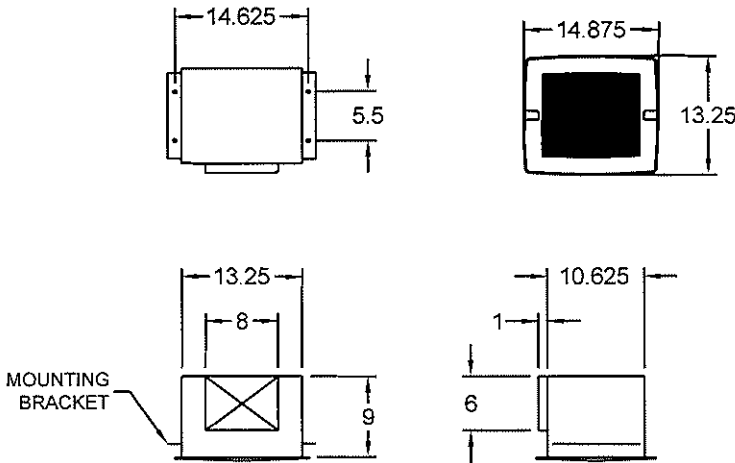
### Standard Construction Features:

-Constructed of galvanized steel - Replaces the square discharge duct connector and damper using the existing mounting holes



Notes: All dimensions shown are in units of in.





**Model: SP-A190**

**Ceiling Exhaust Fan**

**Standard Construction Features:**

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

**Options & Accessories:**

- UL/cUL 507 Listed - Electric Fans
- Solid State Speed Control, (PN 5WSSC) Shipped Loose
- Designer Grille
- Motion Detector, Wall Mounted, (PN: 383008) Shipped Loose
- Round Duct Connector, (PN: RDC-6) Shipped Loose
- Polypropylene Wheel Material

**Dimensional**

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)
1	17	20

**Performance**

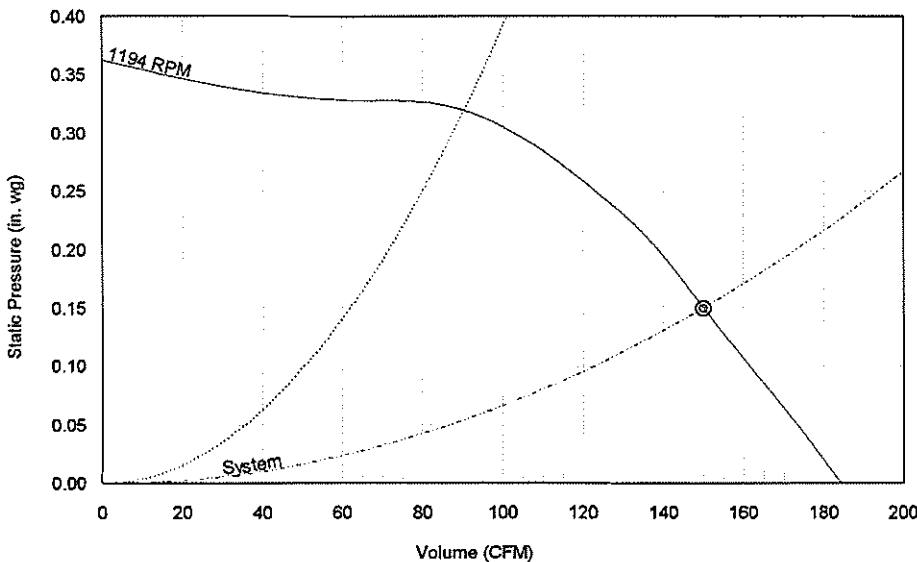
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Watts (W)	Amps (A)	Elevation (ft)	Airstream Temperature (F)
150	150	0.15	0.15	1194	113	1.3	0	70

**Motor**

Motor Mounted	Watts (W)	V/C/P	Encl.	Amps (A)
Yes	113	115/60/1	ODP	1.3

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sone
Inlet	62	50	48	47	43	35	30	24	48	33	1.2



**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 - The AMCA Certified Ratings Seal applies to some ratings only.  
Sones are at 0.1 in. wg

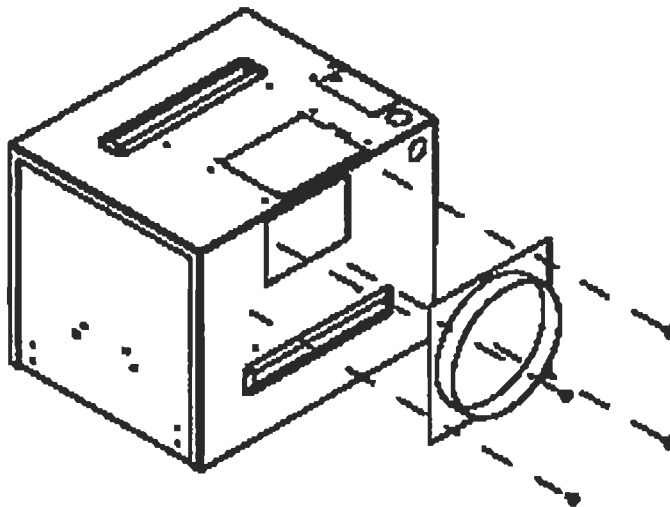
— RPM Curve  
— System Curve  
- - - Brake Power Curve  
Do not select to the left of this surge curve  
○ Desired operating point  
● Actual operating point

## Round Duct Connector

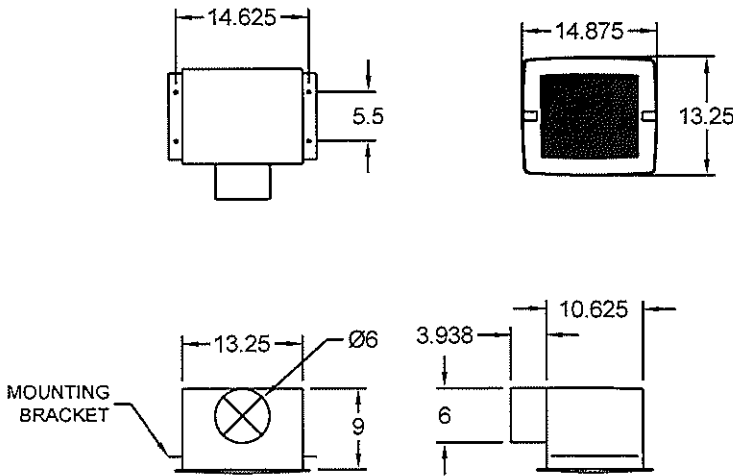
Model: RDC

### Standard Construction Features:

-Constructed of galvanized steel - Replaces the square discharge duct connector and damper using the existing mounting holes



Notes: All dimensions shown are in units of in.



**Model: SP-A90**

**Ceiling Exhaust Fan**

**Standard Construction Features:**

- Corrosion resistant galv steel scroll and housing
- Sound absorbing insulation
- White designer non-yellowing grille
- Round outlet duct collar with integral backdraft damper
- Double inlet forward curved wheel
- Plug type disconnect
- Adj. mounting brackets
- Field rotatable discharge
- Energy Star Compliant

**Options & Accessories:**

- UL/cUL 507 Listed - Electric Fans
- Solid State Speed Control, (PN 5WSSC) Shipped Loose
- Designer Grille
- Motion Detector, Wall Mounted, (PN: 383008) Shipped Loose
- Polypropylene Wheel Material
- Energy Star Rated

**Dimensional**

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)
1	12	14

**Performance**

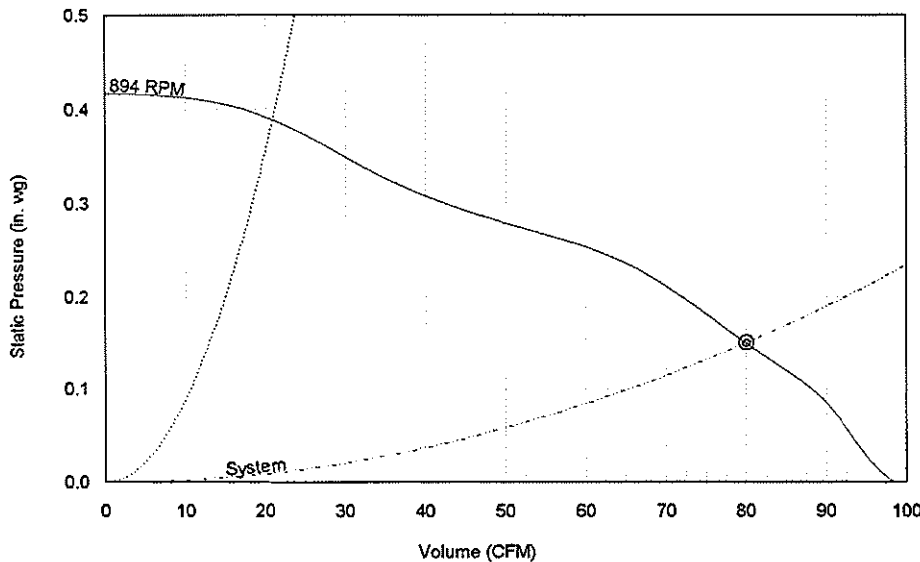
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Watts (W)	Amps (A)	Elevation (ft)	Airstream Temperature (F)
80	80	0.15	0.15	894	29	0.34	0	70

**Motor**

Motor Mounted	Watts (W)	V/C/P	Encl.	Amps (A)
Yes	29	115/60/1	ODP	0.34

**Sound Power by Octave Band**

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sone
Inlet	48	56	46	41	37	30	26	26	45	30	0.8



- - - - - RPM Curve  
 - - - - - System Curve  
 - - - - - Brake Power Curve  
 Do not select to the left of this surge curve  
 ⊙ Desired operating point  
 ⊙ Actual operating point



**Notes:**

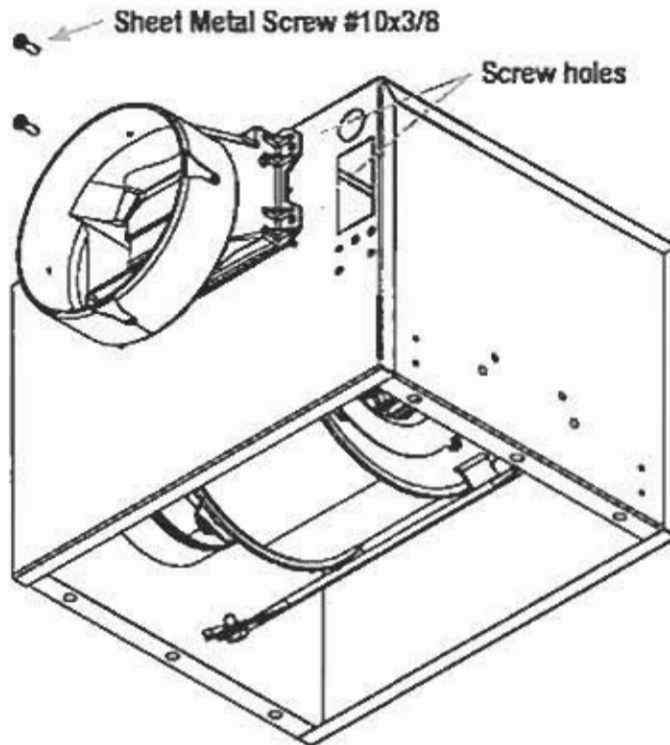
All dimensions shown are in units of in.  
 \*FLA - based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 LwA - A weighted sound power level, based on ANSI S1.4  
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5.0 ft - The AMCA Certified Ratings Seal applies to some ratings only.  
 Sones are at 0.1 in. wg

## Round Duct Connector

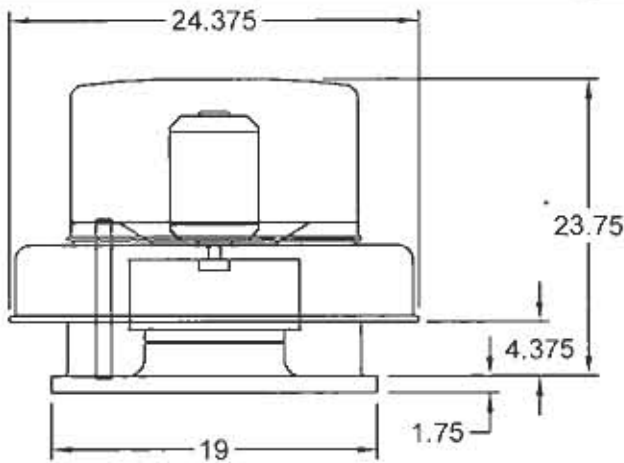
Model: RDC

### Standard Construction Features:

-Constructed of Polypropylene - Replaces the square discharge duct connector and damper using the existing mounting holes



Notes: All dimensions shown are in units of in.



Reference assembly view drawings for actual dimensions with mounted accessories

\*Overall height may be greater depending on motor

## Model: G-098-A

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 100-180), sleeve bearing motors (sizes 60-95) - Motor isolated on shock mounts - Corrosion resistant fasteners.

#### Options & Accessories:

PSC Motor  
UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle, Junction Box Mounted & Wired  
Damper, WD-100-PB-12X12 (Loose), Not Coated  
Damper Actuator, 115 VAC Actuated  
Solid State Speed Control, (PN 5WSSC) Shipped Loose

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Roof Opening (in.)	Optional Damper (in.)
1	46	59	14.5 x 14.5	12 x 12

### Performance

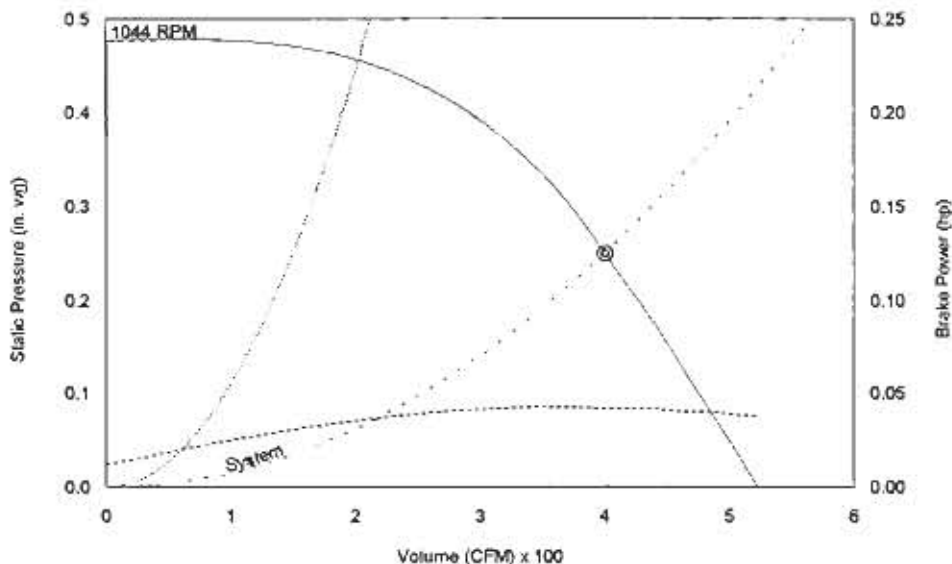
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
400	400	0.25	0.25	1044	0.04	0	70	3,057	37

### Motor

Motor Mounted	Size (hp)	V/C/P	Encl.	Motor RPM	Windings	NEC FLA* (Amps)
Yes	1/4	115/60/1	ODP	1725	1	5.8

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	70	67	65	57	53	47	40	38	60	49	5.2



#### 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 weighed 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

--- RPM Curve  
- - - System Curve  
- - - Brake Power Curve  
Do not select to the left of this surge curve  
⊗ Desired operating point  
⊙ Actual operating point

## Horizontal Mount Exhaust Damper

Model: WD-100

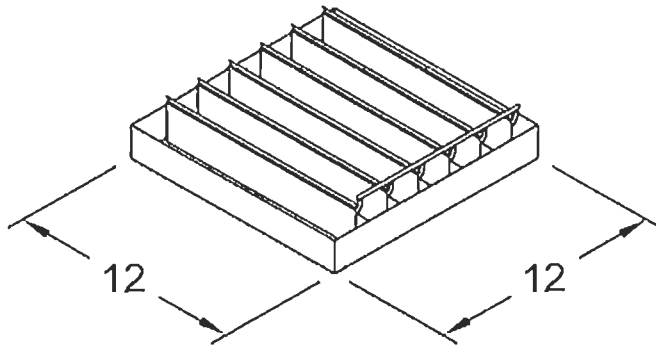
### Standard Construction Features:

- 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 acetal bushings - Synthetic axle bearings

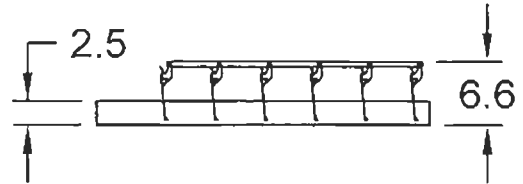
### Accessory Configuration

Actuator Type: 115 VAC

End Switch: No

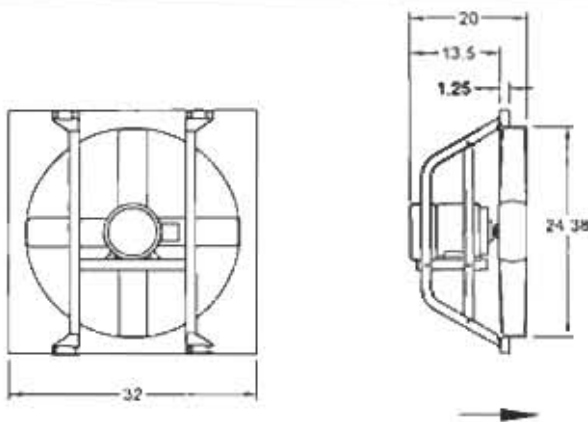


DAMPER



TYP. SECTION VIEW

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



AIR FLOW

See the Assembly Drawing For Selected Accessories.

## Model: SE1-24-432-B7

### Sidewall Direct Drive Exhaust Fan Standard Construction Features:

- Fan panels of galvanized steel - Aluminum blade propeller - Die formed, galvanized steel drive frame assembly - Corrosion resistant fasteners

### Options & Accessories:

UL/cUL 705 Listed - "Power Ventilators"  
Damper, WD-320-PB-26X26, Gravity Operated (Mounted). Not Coated  
Short Wall Hsg. Flush Ext., (1A-Exh), w/ OSHA Grd.  
Switch, NEMA-1, Toggle, Junction Box Mounted & Wired  
Weatherhood, Galvanized 45 deg. with Bird Screen

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Wall Opening (in.)	Optional Damper (in.)
2	64	227	33.75 x 33.75	26 x 26

### Performance

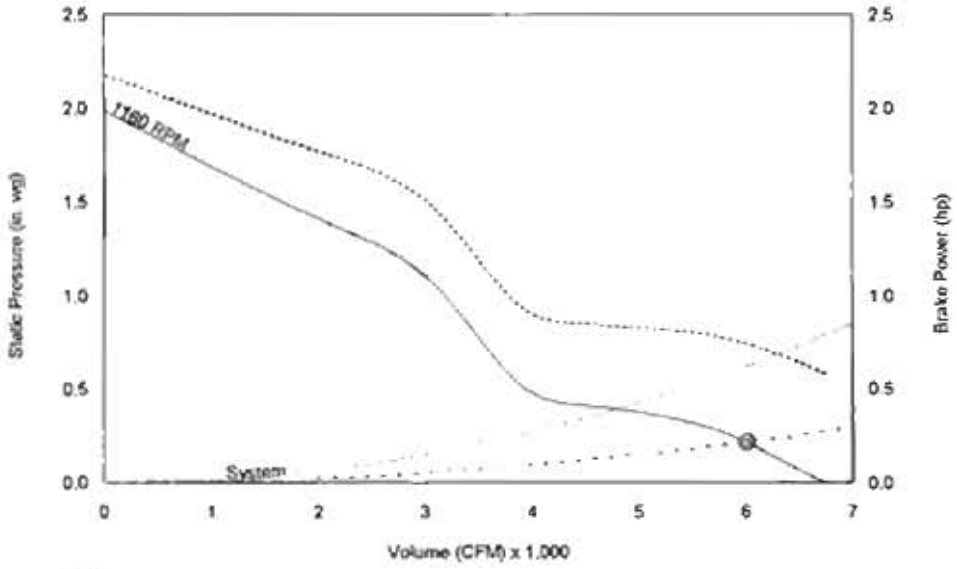
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
6,000	6,002	0.217	0.217	1160	0.74	0	70	7,268	28

### Motor

Motor Mounted	Size (hp)	V/C/P	Encl.	Motor RPM	Windings	NEC FLA* (Amps)
Yes	3/4	115/60/1	TEFC	1160	1	13.8

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	85	84	81	79	78	71	65	62	82	70	18.3



### 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 50 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using ANSI 301 at 50 ft

--- RPM Curve  
--- System Curve  
--- Brake Power Curve  
Do not select to the left of this surge curve  
o Desired operating point  
o Actual operating point

## Vertical Mount Exhaust Damper

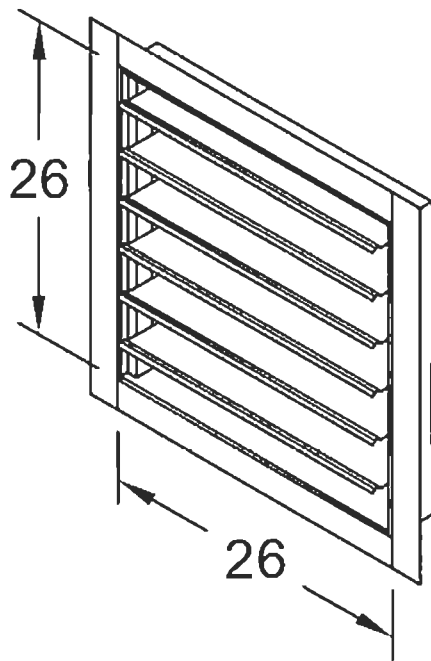
Model: WD-320

### Standard Construction Features:

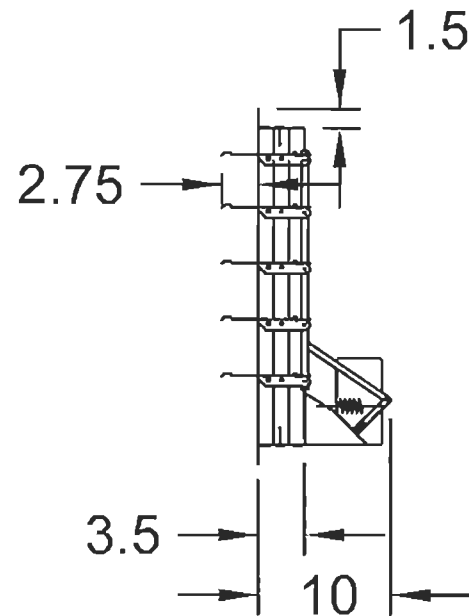
- Model WD-320 is a vertical mount exhaust damper and is constructed of 18 ga galvanized steel with pre-punched mounting holes and a flanged frame - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge - Steel axles are 0.188 in. diameter zinc plated mounted steel in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

### Accessory Configuration

Actuator Type: Gravity  
End Switch: No



DAMPER



TYP. SECTION VIEW

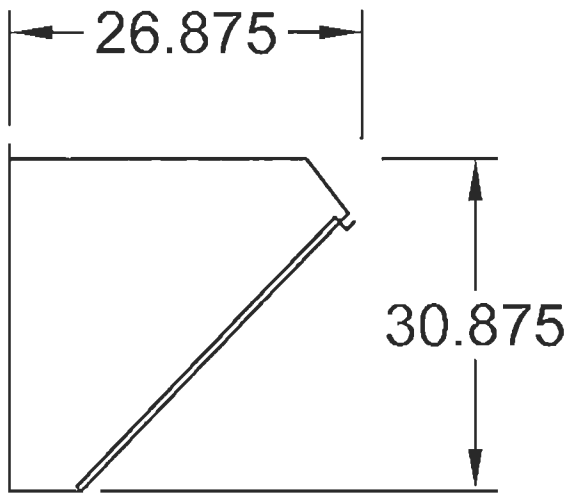
Notes: All dimensions shown are in units of in.  
Width And height furnished approximately 0.125 in. undersize



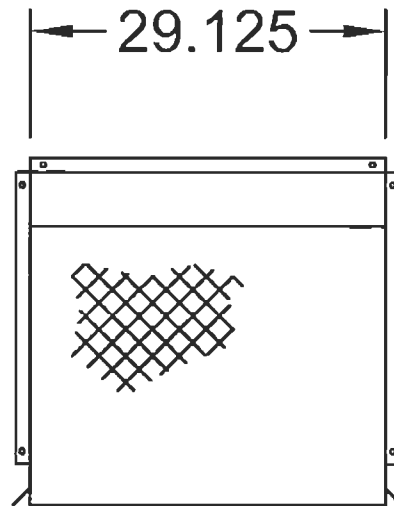
## 45 Degree Weatherhood

### Standard Construction Features:

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



SIDE VIEW

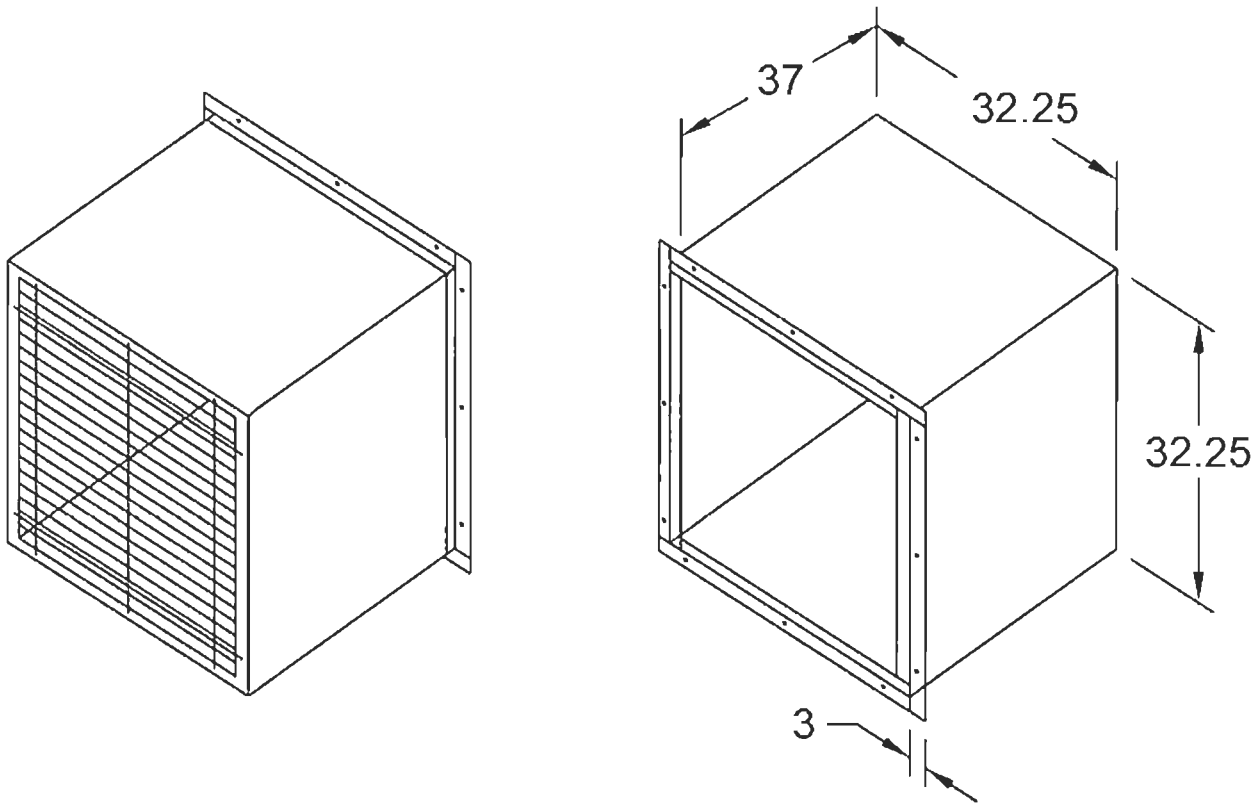


ELEVATION VIEW

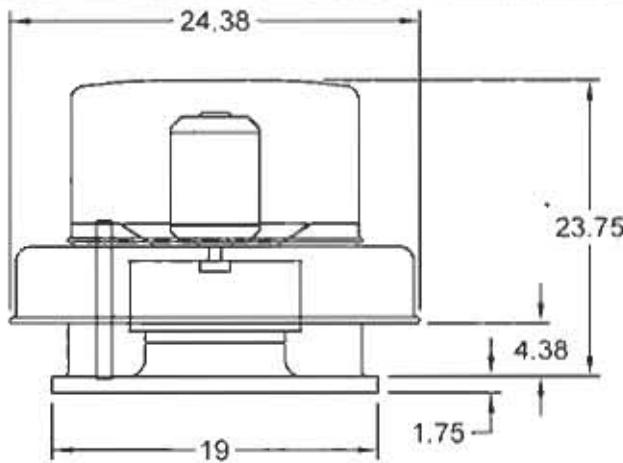
## Short Wall Housing

### Standard Construction Features:

- Galvanized steel construction - Heavy gauge mounting flanges - Pre-punched mounting holes - Inside flanges allow damper to be mounted - Overlapping weatherhood flange keeps rain out - OSHA Protective guard of welded steel wire completely protects the drive side of the wall housing.



Notes: All dimensions shown are in units of in.



Reference assembly view drawings for actual dimensions with mounted accessories

\*Overall height may be greater depending on motor

## Model: G-123-B

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 100-180), sleeve bearing motors (sizes 60-95) - Motor isolated on shock mounts - Corrosion resistant fasteners

#### Options & Accessories:

PSC Motor  
UL/UL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle, Junction Box Mounted & Wired  
Damper, WD-100-PB-12X12 (Loose), Not Coated  
Damper Actuator, 115 VAC Actuated  
Solid State Speed Control, (PN 5WSSC) Shipped Loose

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Roof Opening (in.)	Optional Damper (in.)
1	51	64	14.5 x 14.5	12 x 12

### Performance

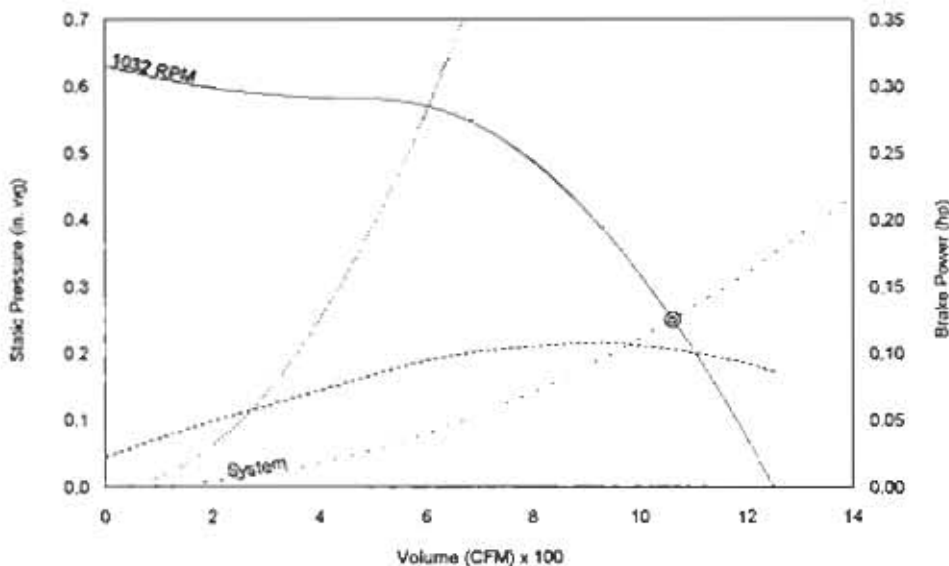
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
1,060	1,060	0.25	0.25	1032	0.1	0	70	3,530	41

### Motor

Motor Mounted	Size (hp)	V/C/P	End.	Motor RPM	Windings	NEC FLA* (Amps)
Yes	1/6	115/60/1	ODP	1140	1	4.4

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	66	71	69	63	57	54	49	48	65	54	7.1



#### 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 50 ft - dBA levels are not licensed by AMCA International  
Sones - calculated using AMCA 30<sup>1</sup> at 50 ft

--- RPM Curve  
--- System Curve  
--- Brake Power Curve  
Do not select to the left of this surge curve  
o Desired operating point  
o Actual operating point

## Horizontal Mount Exhaust Damper

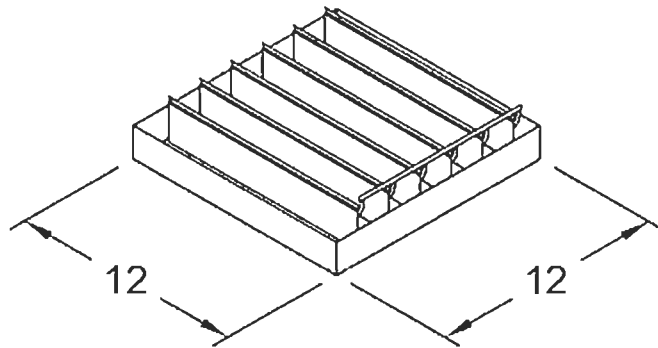
Model: WD-100

### Standard Construction Features:

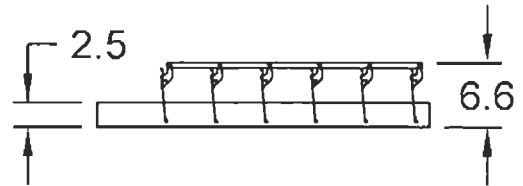
- Model WD-100 is a horizontal mount exhaust damper (air flow up) and is constructed of 18 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge, and spring assisted for ease of opening - Steel axles are 0.188 in. diameter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

### Accessory Configuration

Actuator Type: 115 VAC  
End Switch: No

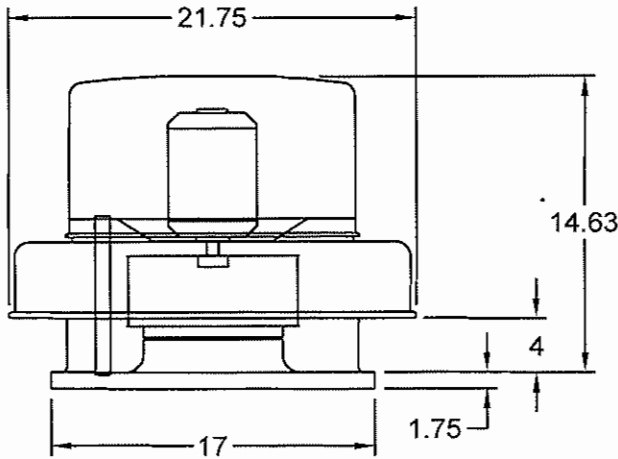


DAMPER



TYP. SECTION VIEW

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



Reference assembly view drawings for actual dimensions with mounted accessories

\*Overall height may be greater depending on motor

## Model: G-095-G

### Direct Drive Centrifugal Roof Exhaust Fan

#### Standard Construction Features:

- Aluminum housing - Backward inclined wheel - Aluminum curb cap with prepunched mounting holes - Birdscreen - Ball bearing motors (sizes 100-180), sleeve bearing motors (sizes 60-95) - Motor isolated on shock mounts - Corrosion resistant fasteners.

#### Options & Accessories:

UL/cUL 705 Listed - "Power Ventilators"  
Switch, NEMA-1, Toggle, Junction Box Mounted & Wired  
Damper, WD-100-PB-10X10 (Loose), Not Coated  
Damper Actuator, 115 VAC Actuated  
Solid State Speed Control, (PN 5WSSC) Shipped Loose

### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)	Roof Opening (in.)	Optional Damper (in.)
1	20	32	12.5 x 12.5	10 x 10

### Performance

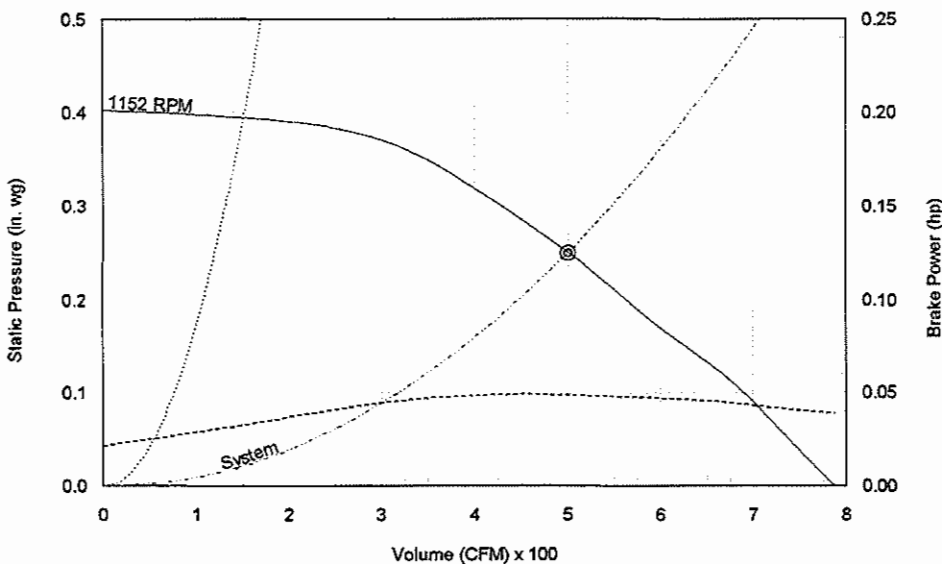
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Operating Power (hp)	Elevation (ft)	Airstream Temperature (F)	Tip Speed (ft/min)	SE (%)
500	500	0.25	0.25	1152	0.05	0	70	3,280	40

### Motor

Motor Mounted	Size (hp)	V/C/P	Encl.	Motor RPM	Windings	NEC FLA* (Amps)
Yes	1/12	115/60/1	ODP	1300	1	NA

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	75	69	63	55	50	50	43	36	60	48	5.1



- - - - - RPM Curve  
 - - - - - System Curve  
 - - - - - Brake Power Curve  
 - - - - - System Power Curve  
 - - - - - Do not select to the left of this surge curve  
 ⊗ Desired operating point  
 ⊙ Actual operating point



#### 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

## Horizontal Mount Exhaust Damper

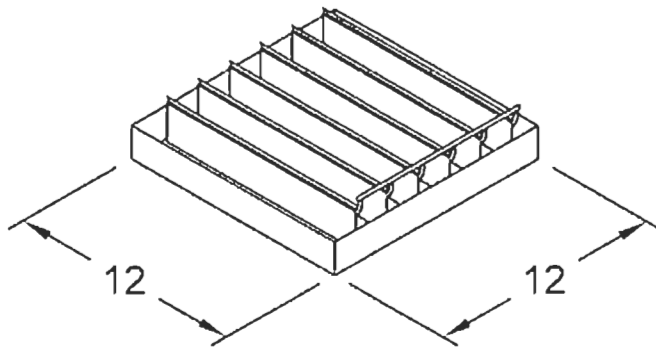
Model: WD-100

### Standard Construction Features:

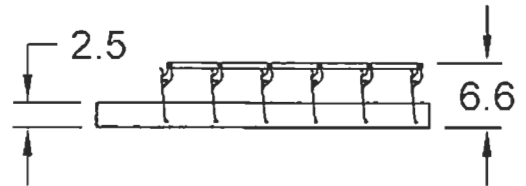
- Model WD-100 is a horizontal mount exhaust damper (air flow up) and is constructed of 18 ga galvanized steel with pre-punched mounting holes - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge, and spring assisted for ease of opening - Steel axles are 0.188 in. diameter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

### Accessory Configuration

Actuator Type: 115 VAC  
End Switch: No

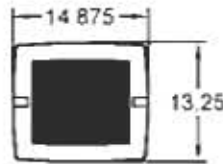
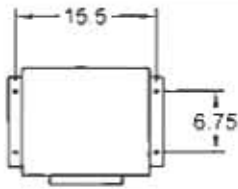


DAMPER



TYP. SECTION VIEW

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



## Model: SP-A200

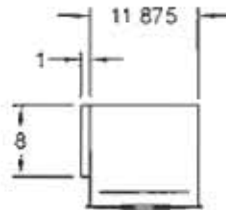
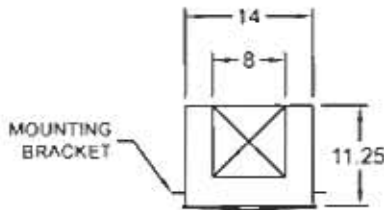
### Ceiling Exhaust Fan

#### 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

#### Options & Accessories:

- UL/cUL 507 Listed - Electric Fans
- Solid State Speed Control, (PN 5WSSC) Shipped Loose
- Designer Grille
- Switch, Single Pole Rocker NEMA 1, (PN: N1TS-1) Shipped Loose
- Round Duct Connector, (PN: RDC-8) Shipped Loose
- Polypropylene Wheel Material
- Energy Star Rated



### Dimensional

Qty	Weight w/o Accessories (lb)	Weight with Accessories (lb)
1	24	27

### Performance

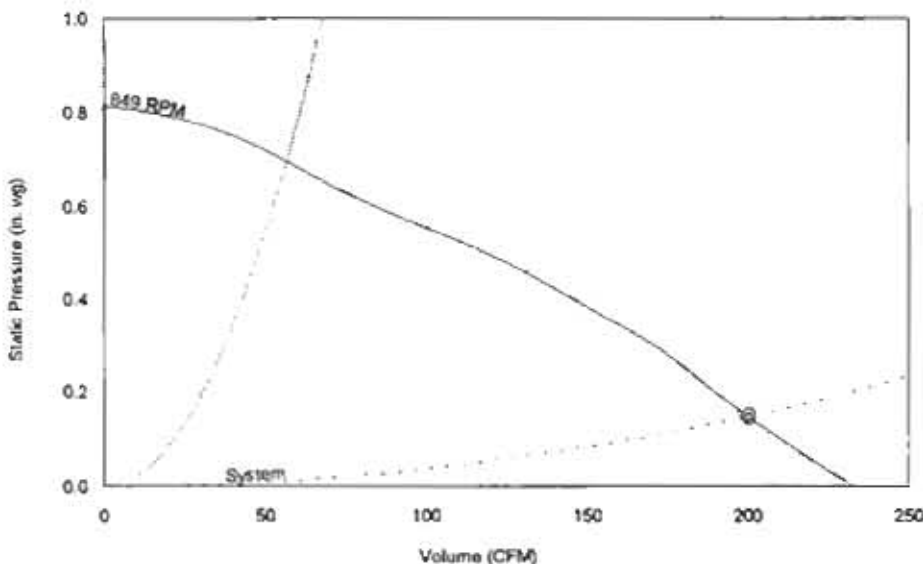
Requested Volume (CFM)	Actual Volume (CFM)	Requested SP (in. wg)	Actual SP (in. wg)	Fan RPM	Watts (W)	Amps (A)	Elevation (ft)	Airstream Temperature (F)
200	200	0.15	0.15	849	48	0.43	0	70

### Motor

Motor Mounted	Watts (W)	V/C/P	Encl.	Amps (A)
Yes	48	115/60/1	ODP	0.43

### Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sone
Inlet	53	56	52	47	45	38	31	28	50	35	1.5



— RPM Curve  
 - - - System Curve  
 - - - Brake Power Curve  
 Do not select to the left of this surge curve  
 8 Desired operating point  
 Actual operating point



#### Notes:

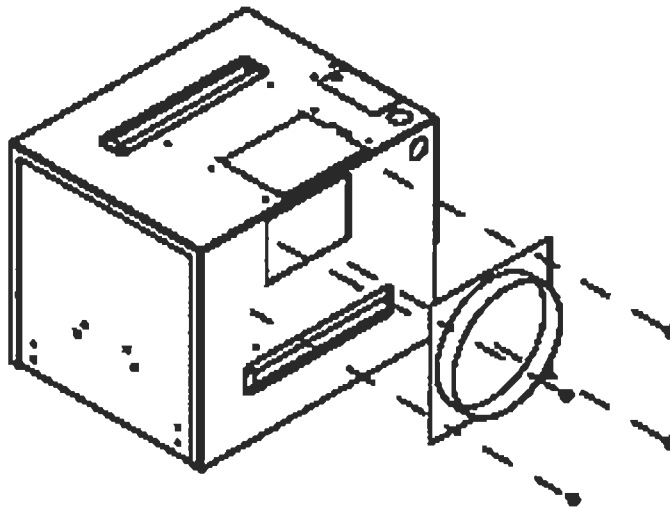
All dimensions shown are in units of in.  
 \*FLA - based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.  
 LwA - A weighted sound power level, based on ANSI S1.4  
 dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 50 ft - The AMCA Certified Ratings Seal applies to some ratings only  
 Sones are at 0.1 in wg

## Round Duct Connector

Model: RDC

### Standard Construction Features:

-Constructed of galvanized steel - Replaces the square discharge duct connector and damper using the existing mounting holes



Notes: All dimensions shown are in units of in.



## 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 B: Free inlet, Ducted outlet. Performance ratings include the effects of an inlet grille and backdraft damper. Speed (RPM) shown is nominal. Performance is based on actual speed of test. The sound ratings shown are for loudness values in spherical sones at 5 ft. (1.5m) in a spherical free field calculated per Annex B of AMCA 311. Values shown are for installation type B: free inlet spherical sone levels. 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.

# HEATERS

MARKEL

## *CH Series Heavy Duty Metal Sheath Electric Infrared Heater*

**SERIES:**

CH -2, 4, 6, 13. & 27

**HOUSING:**

.040 Gold anodized Aluminum housing for efficient, long-term reflectivity and corrosion resistance. High-density radiant heat. Housing is ETL Listed for indoor, dry environment applications only.

**REFLECTOR:**

60 degree symmetric heat pattern.

**ELEMENTS:**

Rugged U-shaped metal sheath elements. .430" diameter Inconel metal sheath. Nickel-chrome alloy coiled filament imbedded within a Magnesium Oxide insulating powder and threaded end terminations. Available wattages from 1800 to 4500 Watts per element. Available voltages from 120 to 600 Volts.

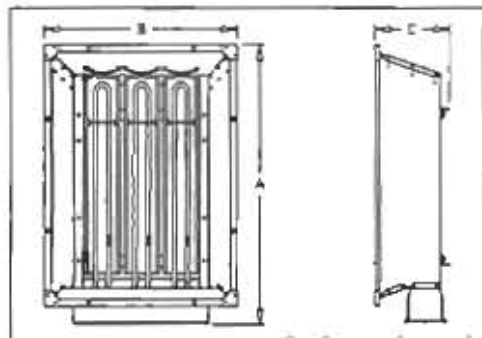
**CONTROLS:**

Heavy Duty, Metal Sheath heaters are not manufactured with any control device on the unit. All controls and accessories should be specified as remote mounted. Please consult the technical sales department of factory for help in determining applicable controls. Please follow installation instructions that accompany each heater.

**ACCESSORIES:**

Wire guards, thermostats, SCR controllers, and power contactor panels.

Mounting Clearances		Recommended Mounting Height	
All CH Models	24" from ceiling 36" from vertical surface & from another heater 72" from face of heater to combustible surface	1.8 & 2.0 KW	8' - 10'
		4.5 KW	8' - 12'
		6.0 KW	10' - 14'
		13.5 KW	12' - 16'
CH-27 Only	87" from face of heater to combustible surface	27.0 KW	15' - 30'



SERIES	DIMENSIONS (in.)		
	A LENGTH	B WIDTH	C DEPTH
CH-2	26	9	7.25
CH-4	46.5	9	7.25
CH-6	28.5	19.88	7.5
CH-13	50.5	19.88	7.5
CH-27	96.75	28.25	14.88

# CH Series Heavy Duty Metal Sheath Electric Infrared Heater

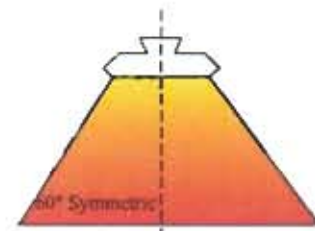
[Click to Email](#)

## SUBMITTAL DATA, CH SERIES METAL SHEATH

[Print Form](#)

AGENT	PROJECT	ENGINEER	DATE
AIR-SIDE EQUIPMENT	APHIS FACILITY - USDA	DAMMON ENGINEERING	2/21/2013

TAG	WAREHOUSE				
QTY.	5				
MODEL	CH-260-3A				
LENGTH					
WATTS	6 KW				
VOLTS / PHASE	240/1				
OPTIONS	THERMOSTAT				
	SCR CONTROL				
	WIREGUARD				
NOTES	GROUND FLT				



NOTE: Take into account that the CH Series is designed with a 60° symmetrical reflector heat pattern. The sizing chart can assist you based upon your mounting height.

Markel Products Company