Model: VEKTOR-H-9-4

Fume Exhaust System

Design Condition	
Number of Systems	1
Fans per System	1
Fans On Standby	No
System Type	Variable Volume
Lab Exh. Vol. (CFM)	310
Min Lab Exh. Vol. (CFM)	310
Add. BAP Air (CFM)	0
Wind Speed (MPH)	10.0

Fan Selection Criteria	
Volume (CFM)	310
External SP (in. wg)	1.5
Internal SP (in. wg)	0.01
Total SP (in. wg)	1.51
Air Stream Temp (F)	70
Elevation (ft)	20
Drive Loss (%)	18.2

Fan Performance	
Fan RPM	2955
Max Fan RPM	4050
Operating Power (hp)	0.64

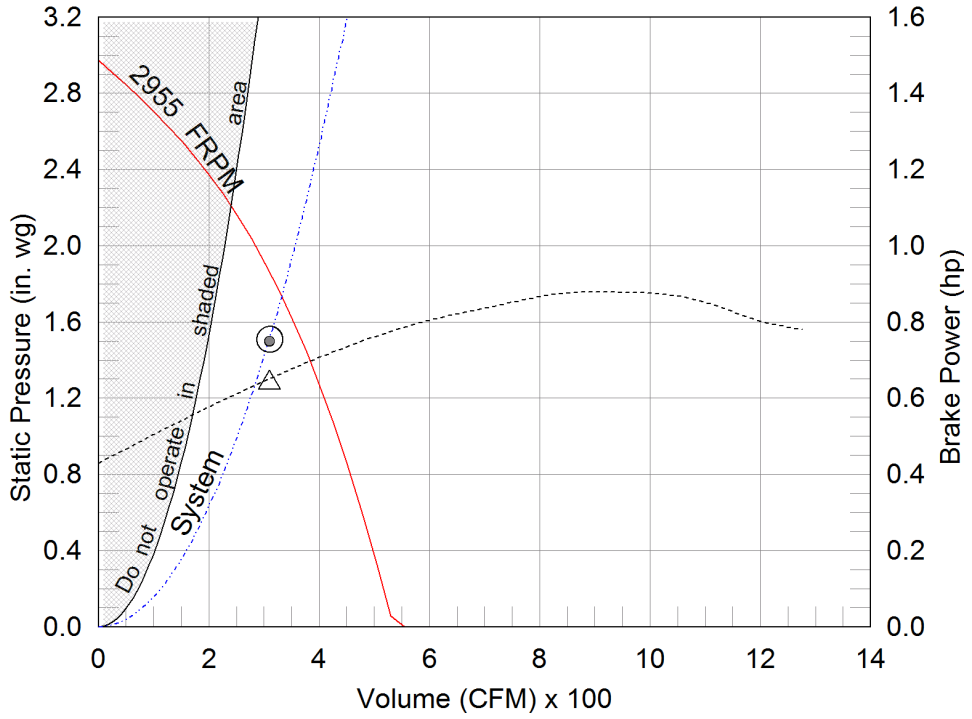
Motor Specs	
Motor Size (hp)	3/4
RPM	3600
Voltage	460
Cycle	60 Cycle
Phase	3
Enclosure	TEFC
Drives	Dual
Drive Service Factor	2

Discharge Performance	
Nozzle OV (ft/min)	3,444
Effective Plume Ht. (ft)	15.1

Weights	
Fan (LMD) (lb)	219
Motor/Drive (lb)	64
Accessories (lb)	220
Total System Weight (lb)	503

Fan Construction	
Material Type	Spark B
Drive Type	Belt
Arrangement	9
Nozzle Size (in.)	4

Plenum Configuration	
Bypass Air Plenum "BAP"	Yes
Arrangement	Inline



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

External SP	1.5 in. wg
Isolation Damper	0.01 in. wg
Total SP	1.51 in. wg

Note: Using External SP only, the fan would have been incorrectly selected at:
2948 RPM 0.64 Bhp

Sound Power by Octave Band (Individual Fan)

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA
Inlet Sound	84	87	87	82	78	73	69	63	84	73

LwA - A weighted sound power level, based on ANSI S1.4. The AMCA Certified Ratings Seal applies to LwiA values only.
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

Options & Accessories:

Motor with Class B Insulation
Bypass Air Plenum - Single Wall, Steel, Bottom Exhaust Intake
Coated with LabCoat, Dark Gray (041), Entire Unit
Switch - NEMA-3R, Heavy Duty, Mounted and Wired
System Warranty - 1 Year
UL/cUL-705 - "Power Ventilators"
Shaft Material - Turned and Polished Steel with Protective Coating
Curb Cap Material - Coated
Bypass Damper - VCD-23, Galvaneal, Coated, 6 x 6, Qty: 1
Isolation Damper - EMV-11, Extruded Aluminum, Coated, 15 x 15, Parallel Blades, mounted in BAP, one per fan
Roof Curb - GPFHL, 21/21, Galvanized Construction, 12 Inch Height, 1 Inch Insulation, Mill Finish
Extended Lube Lines - Nylon
Motor Cover
Weatherhood over Bypass damper with inlet screen

Standard Construction: Vektor-H High Plume Fans

Fan Housing and Conical Nozzle

Aerodynamically designed housing constructed of welded steel.
Interior and exterior surfaces of steel fan housings are coated with 4-6 mils dft LabCoat.
High velocity conical discharge nozzle coated with 4-6 mils dft LabCoat.
Integral housing drain system with threaded connection.
Fasteners are stainless steel.
Integral stainless steel lifting lugs on fan housing.
Integral lifting lugs on bypass plenums(bypass plenums are available as a Vektor fan option).
Access panel for inspection or removal of impeller, shaft, and bearings without removal of fan housing.
Standard coating color is dark gray-041.

Impeller

Fan impeller is non-overloading centrifugal backward inclined flat blade. Standard construction is welded aluminum.
Aluminum centrifugal impellers are coated with Hi Pro Polyester Resin.

Belt Drive Components

Air handling quality bearings selected with and L(10) life in excess of 100,000 hours(equivilent to an average or L(50) life of 500,000 hours).
Extended lube lines for fan bearing lubrication.
Fan bearings and extended lube lines are pre-filled with synthetic grease.
Shafts are polished and turned steel.
Fan and motor pulleys are constant speed and sized for 200% of motor horsepower.
Motor, belts, pulleys, and bearings are sealed from contaminated airstream.

Isolation and Bypass Dampers (Vektor System Options)

Gravity backdraft isolation dampers are model EMV-11, constructed of aluminum.
Bypass and isolation control dampers are model VCD-23, constructed of galvaneal.
Damper blades and frames are coated with Hi Pro Polyester Resin.
Bypass and isolation dampers are accessible from the exterior of the system.
Isolation dampers are parallel blade operation.
Bypass dampers are opposed blade operation.

Pre-Shipment Testing

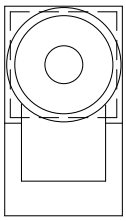
Fans and motors are factory tested to ensure proper operation.
Belt drive fans and motors are vibration balanced to below 0.15 inches/sec-pk filter in(per AMCA 204).

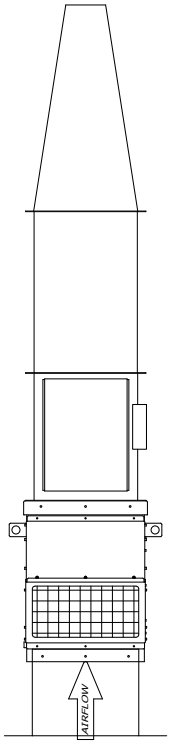
Certifications and Listings

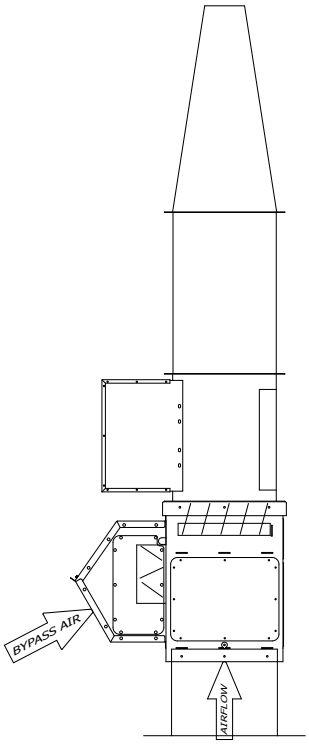
Vektor-H sizes 9-36 are licensed to bear the AMCA 210 label for Air Performance.
Vektor-H sizes 9-36 are licensed to bear the AMCA 300 label for Sound Performance.
Vektor-H fans with suitable motors are available with UL 705 listing.
Vektor-H fans with suitable construction are available with UL 762 listing.

Model: VEKTOR-H-9-4

Fume Exhaust System



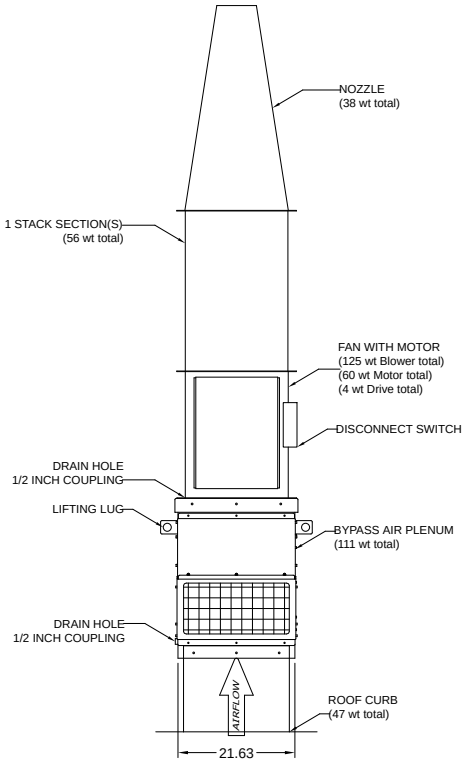


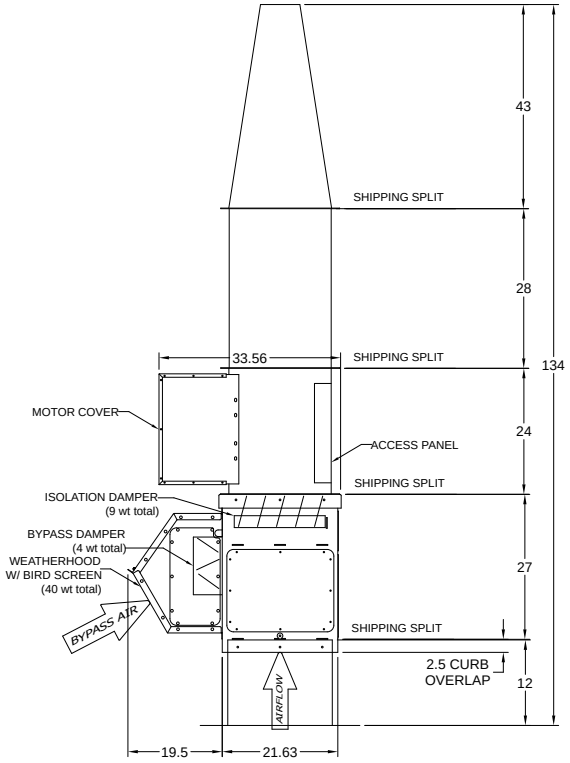


Notes: All dimensions shown are in units of in..
Drawings are not to scale. Drawings are of standard unit and do not include dimensions for accessories or design modifications.

Model: VEKTOR-H-9-4

Fume Exhaust System





Notes: All dimensions shown are in units of in.. All weights shown are in units of lb.
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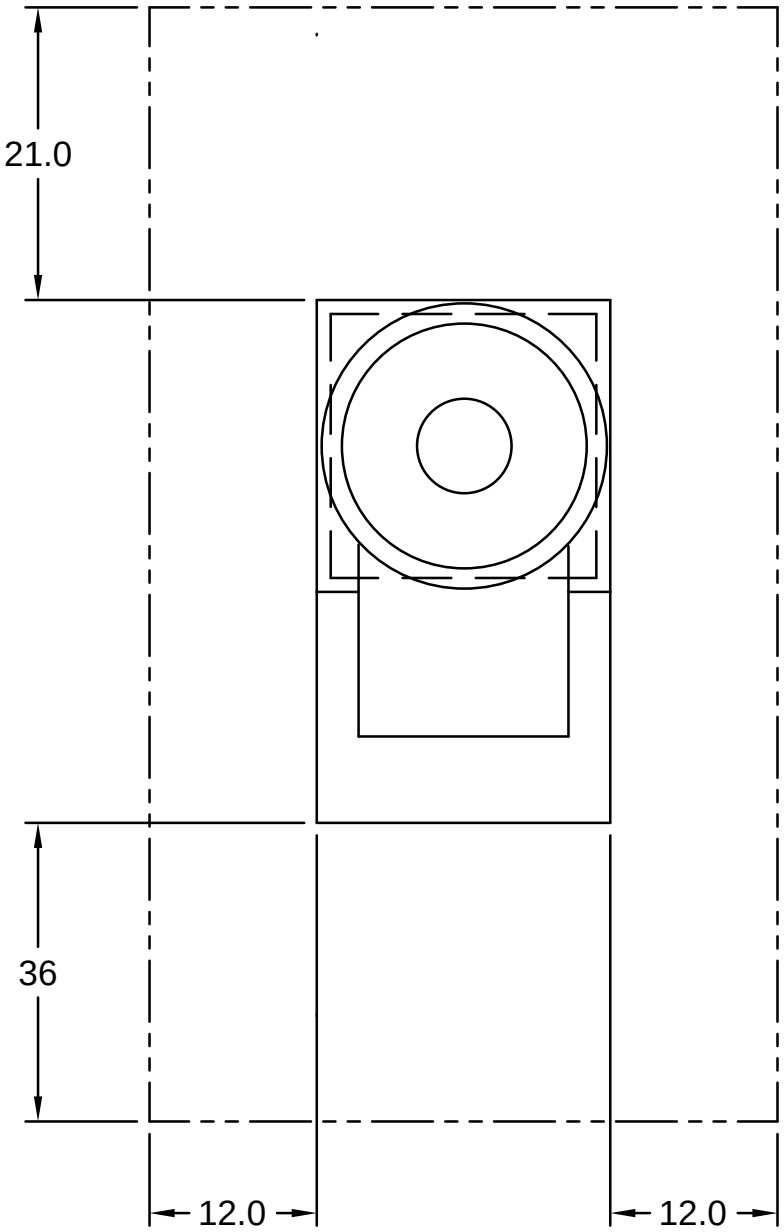
Model: VEKTOR-H-9-4 **Fume Exhaust System**

Recommended Service Clearances



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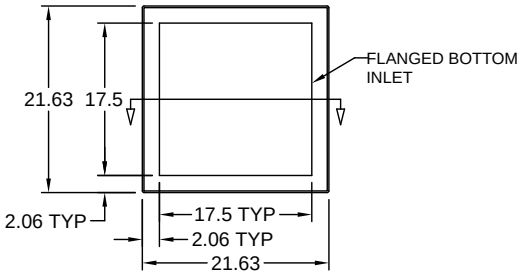
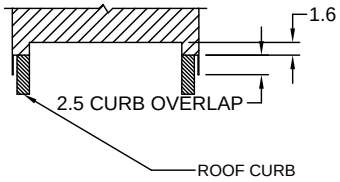
Model: VEKTOR-H-9-4

Fume Exhaust System





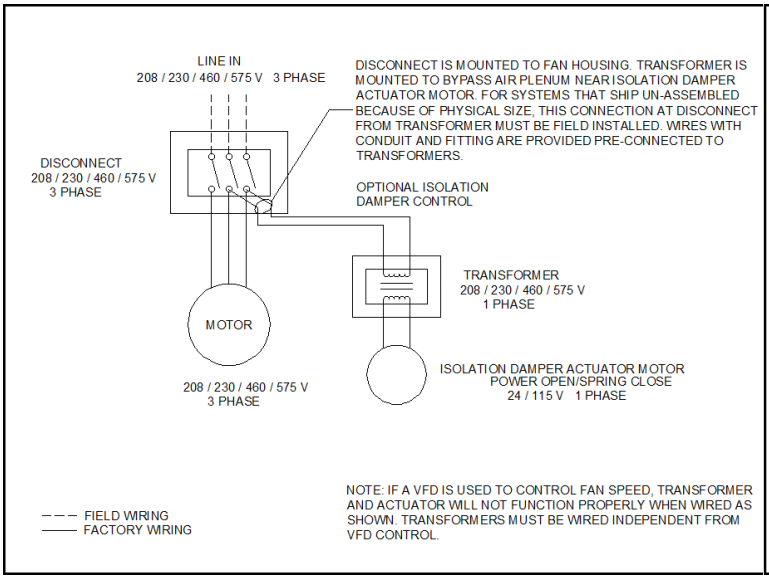
A MAXIMUM INLET VELOCITY OF 1500 FPM IS RECOMMENDED

Notes: All dimensions shown are in units of in..
Drawings are not to scale. Drawings are of standard unit and do not include dimensions for accessories or design modifications.

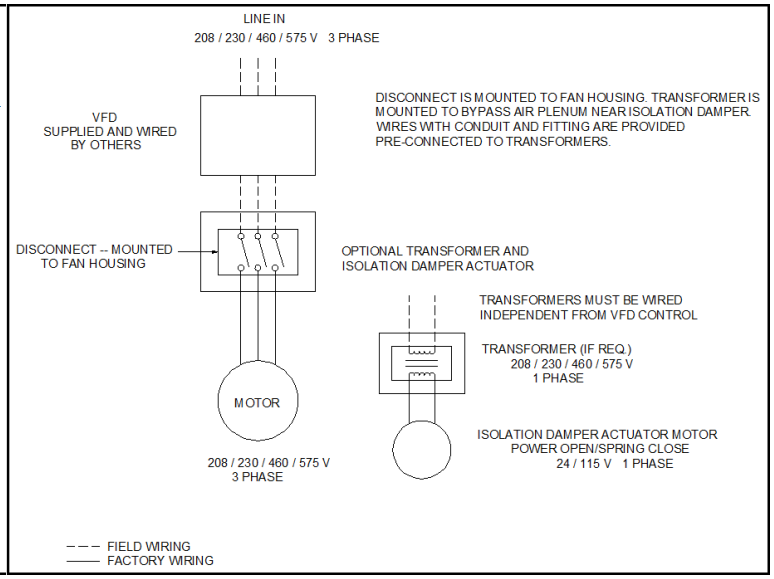
Fan Motor Report and Wiring Diagram

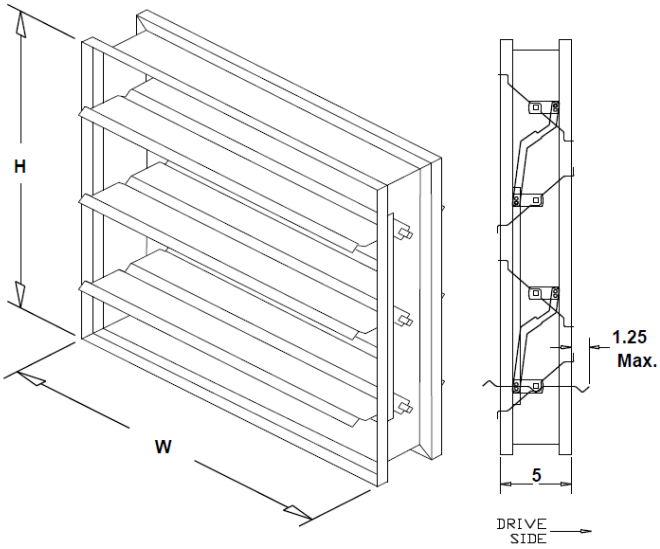
Motor Size (hp):	3/4	**Motor Design:**	NEMA
Motor RPM:	3600	**Motor Duty:**	
Windings:	1	**Insulation Class:**	B
Cycle:	60 Cycle	**Motor Base Type:**	Rigid
Phase:	3	**Motor Frame Size:**	143T
Voltage:	460	**VFD Rated:**	No

No VFD (3 phase)



System with VFD (3 phase)





VCD-23

Low Leakage Control Damper-Bypass

Application and Design

The model VCD-23 is a low leakage control for application as an automatic control or manual balancing damper. This model is intended for applications in low to medium pressure and velocity systems. A wide range of electric and pneumatic actuators are available.
Non-jackshafted dampers will be supplied with a blade drive lever for internal actuator mounting. When external actuator mounting is specified in which case an extension pin with clip kit will be provided. Note: The extension pin with clip kit includes the extension pin and clip.

RATINGS
Leakage: Class 1A @ 1 in. wg, Class 1 @ 4 in. wg
Temperature: 200.0 F - 250.0 F Consult factory for higher temperatures.

Installation instructions available at www.greenheck.com

Notes: All dimensions shown are in units of inches.

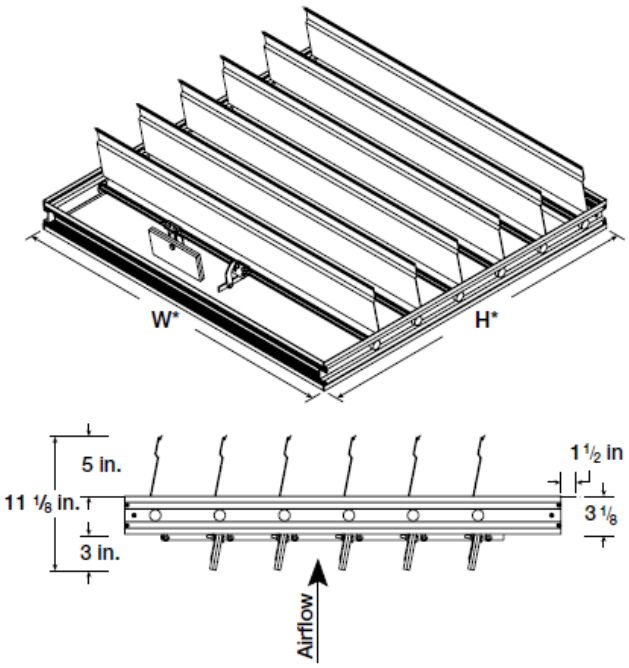
W and H furnished approximately 0.25 in. undersized and only refer to damper dimensions (sleeve thickness is not included).

Electrical accessory wiring terminates at the accessory.
Field wiring is required to individual components.

Construction Features

Temperature:	180	Frame Thickness (ga):	16	Coating Type:	Hi-Pro Polyester
Frame Material:	Galvaneal	Blade Thickness (ga):	16	Coating Thickness:	2-3 mils
Blade Action:	Opposed	Blade Seal:	TPE		
Jamb Seal Mat.:	304 SS	Actuator Mount:	External		
Axle Material:	Plated Steel				
Axle Bearings:	Synthetic				
Linkage Material:	Plated Steel				

Damper Qty	Damper Width (in)	Damper Height (in)
1	6	6



EMV-11

Horizontal Mount Exhaust Damper-Isolation

Application and Design

The EMV-11 is a horizontally mounted backdraft damper that is designed to allow vertical airflow up and prevent reverse airflow. This damper is opened by air pressure differential and closed by gravity. Standard models include adjustable counterbalance to assist opening.

Notes: All dimensions shown are in units of inches.

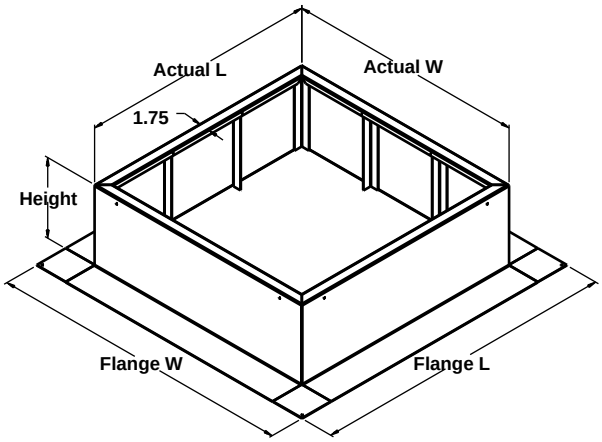
W and H furnished approximately 0.25 in. undersized and only refer to damper dimensions (sleeve thickness is not included).

Construction Features

Temperature:	180	Frame Thickness (in):	0.125	Coating Type:	Hi-Pro Polyester
Frame Material:	Extruded Aluminum	Blade Thickness (in):	0.07	Coating Thickness:	2-3 mils
Blade Action:	Parallel	Blade Seal:	Vinyl		
Axle Material:	Stainless				
Axle Bearings:	SS Sleeve				
Linkage Material:	Stainless				
Counterbalance Weight Material:	Stainless Steel				

Damper Qty	Damper Width (in)	Damper Height (in)
1	15	15

Counterbalance weights may require field adjustment. Instructions are available at www.greenheck.com.



NOTES: All dimensions shown are in units of inches

GPFHL Heavy Load 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 welded galvanized steel (14 ga) or welded aluminum (0.1 in.) • Straight sided • Single roof flashing flange (5 in. width) • Vertical support members • Insulated (1 in. thick, 3 lb density) insulation • Height available from 12 in. to 24 in. and 2 in. increments. Maximum height is 18 in. for aluminum construction.
NOTES:
• Maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 1.5 in.
• Minimum roof opening dimension should be at least 2.5 in. more than damper dimension or recommended duct size
• Roof opening dimension may NOT be the structural opening dim.
• Damper tray is optional and must be specified; tray size same as dpr size
• Heavy load curb designed for high wind/hurricane zones & intended to support compression loads greater than 1,000 lbs

Mark	Qty.	Cap W x L	Actual W x L	Flange W x L	Height	Damper Tray W x L
EXHAUST FAN	1	21.5 x 21.5	20.5 x 20.5	30.5 x 30.5	12	