

# iPlume

Inline Induced Flow  
Laboratory Exhaust System

PRODUCT GUIDE



PENNBARRY™

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# INTRODUCTION

## iPlume

The iPlume is an induced flow laboratory exhaust system utilizing a mixed flow wheel that allows contaminated effluent to be discharged from the building in a safe and efficient manner while maintaining a clean roofline.

## Features

- Mixed flow airfoil wheel
- Direct arrangement 4 or belt drive arrangement 9
- Induced flow windband
- Configurable in multiple fan arrangements with redundancy
- Isolation damper on slide out tray for ease of maintenance
- 125 mph wind load rating without guy wires
- Entrainment ratios up to 350%



# CERTIFICATIONS & LISTINGS



## AMCA CERTIFICATION

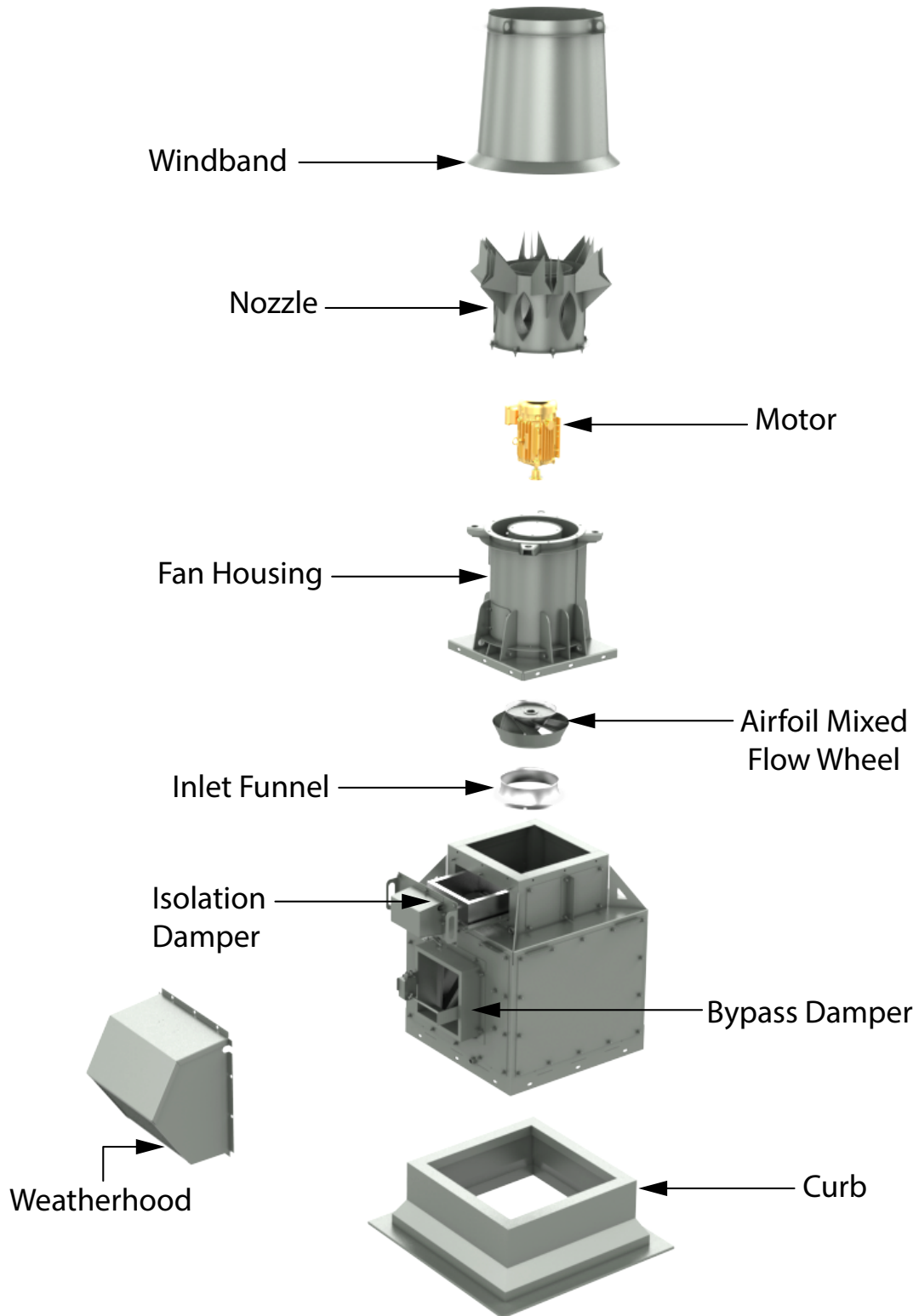
PennBarry certifies that the iPlume belt and direct drive models shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 211 and AMCA publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



## UL CERTIFICATION

iPlume carries the UL/cUL 705 label, file #E28413

# iPLUME ASSEMBLY



# STANDARD FEATURES

## Induced Flow Nozzle and Windband

The AMCA 260 induced flow nozzle and windband are optimized using computational fluid dynamics (CFD) to minimize pressure drop and maximize induced flow.

## Airfoil Mixed Flow Wheel

The mixed flow wheel was designed using CFD analysis to create an efficient airpath.

## Lifting Lugs

Lifting lugs are on the windband, nozzle, fan section and plenum box to safely lift and transport the system.

## Fan and Plenum Drains

Drains are installed in the inlet funnel and the side of the mixing box to direct rain and condensation outside of the fan assembly. Rain mitigation below the fan is required for complete mitigation of water.

## Air Dried Phenolic with UV Topcoat

The air dried phenolic with UV topcoat system offers resistance to a wide range of chemicals and protection from UV.

## Stainless Hardware

All hardware in the plenum and fan exposed to the corrosive airstream are stainless steel.

## 125 MPH Wind Load Rating

The fan, plenum and curb assembly are rated for 125 mph winds without the use of guy wires.

## Bearing Life

Fan bearings have L10 200,000 hour life.



# OPTIONAL FEATURES

## Mixing Plenum Box

Mixing plenum boxes allow for multiple fans on the same plenum and a location for a bypass damper to provide dilution before the fan or modulate flow in a variable duct flow system. The box is available with coated mild steel construction or double walled construction with a stainless liner, insulation and a coated mild steel exterior.

## Isolation Damper

Isolation dampers are available in aluminum, epoxy coated aluminum or stainless steel construction. The damper is mounted in a slide out tray to perform maintenance without accessing the interior of the mixing box. The actuators are IP54, 2-position spring return with end switches mounted inside of a protective enclosure.

## Bypass Damper

Bypass dampers are available in aluminum, epoxy coated aluminum or stainless steel construction. The dampers are mounted under the weather hood on the mixing box and can be maintained without accessing the interior of the mixing box. The actuators are IP54, modulating with position feedback mounted under the weather hood.

## Jib Crane

Removable jib cranes mounted to the mixing box plenum to aid in disassembly and service of the fan

## Silencers

Inline silencers installed between the fans and nozzle sections reduce sound for sound sensitive installations.

## Spark Resistant Construction

Spark resistance construction, explosion proof motors, NEMA 7/9 disconnect switches and actuators with NEMA 7/9 enclosures are available for fans servicing hazardous areas.

## Piezometer Ring

Piezometer rings accurately measure the flow at the inlet of the fan without causing static pressure loss or system effect.

# LAB FAN CONTROLLER

PennBarry's lab fan controller maintains a safe outlet velocity based on real time flow conditions. The controller works in tandem with static pressure sensors, flow monitoring stations, VFDs (optional), and the building management system to adjust the dampers and fan speeds to the optimal safe and efficient set points. Integration into building management system is through BACnet, Modbus or Metasys protocols.

## Constant Flow Systems

The bypass damper modulates to maintain constant flow through the fan creating a constant velocity at the discharge. This mode offers energy savings to the building as unconditioned air is used to maintain flow but fan energy is constant without staging.

## Variable Flow Systems

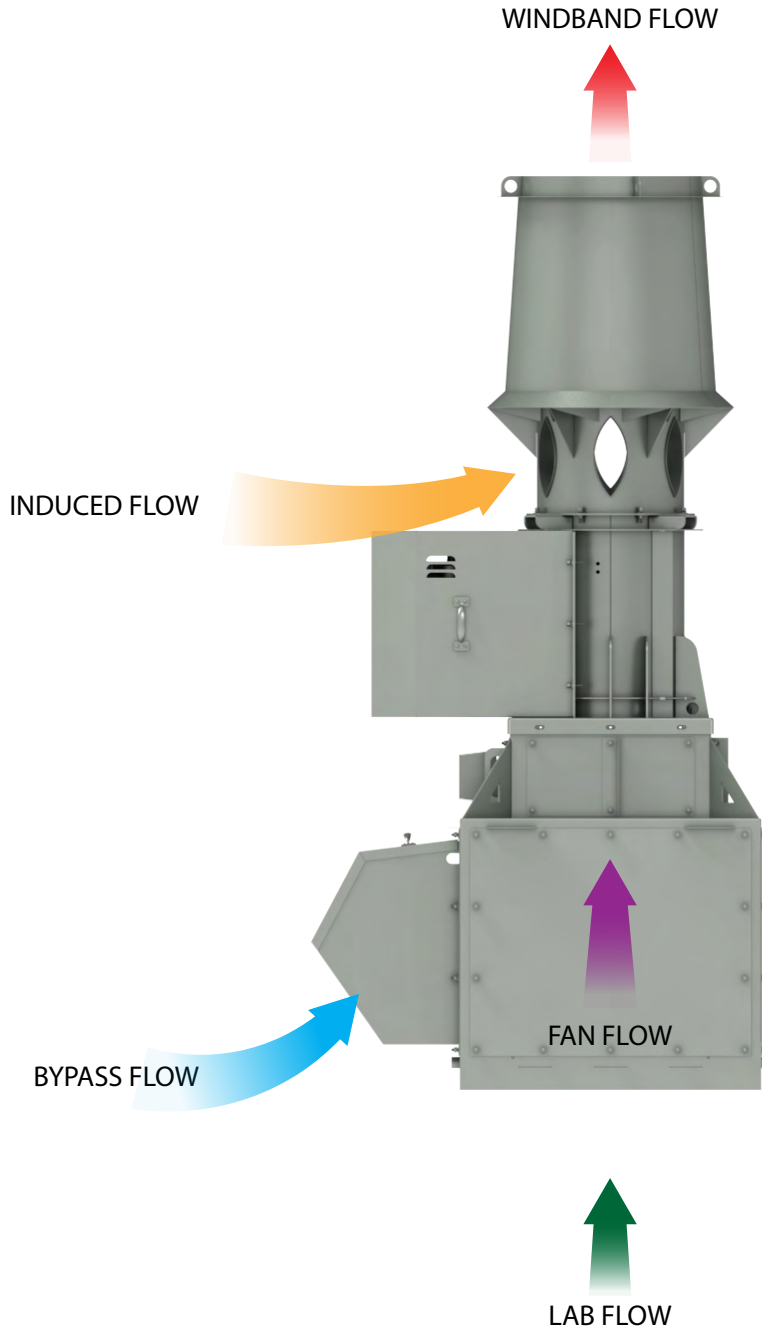
The controller interfaces with variable frequency drives to adjust fan speed and flow based on building conditions while maintaining a safe outlet velocity. The use of a Variable Nested Nozzle allow further turndown while maintaining velocity giving maximum realized energy savings.

## Multiple Fan Systems

Fans are staged to optimize energy savings based on building flow while maintaining a safe outlet velocity. Redundant fans are activated upon automatic detection of a fan failure and are cycled to prevent damage from disuse.

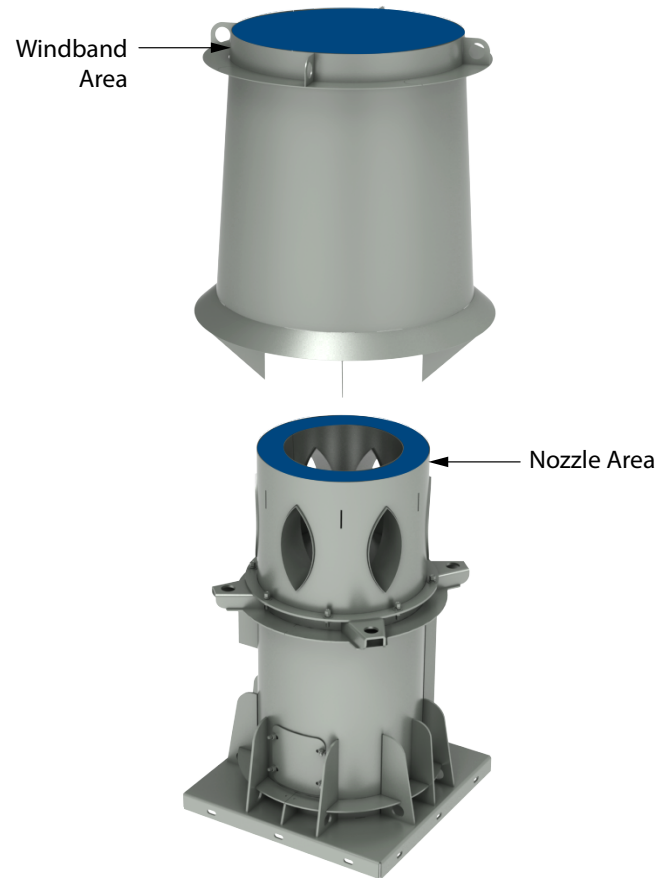


# INDUCED FLOW FANS



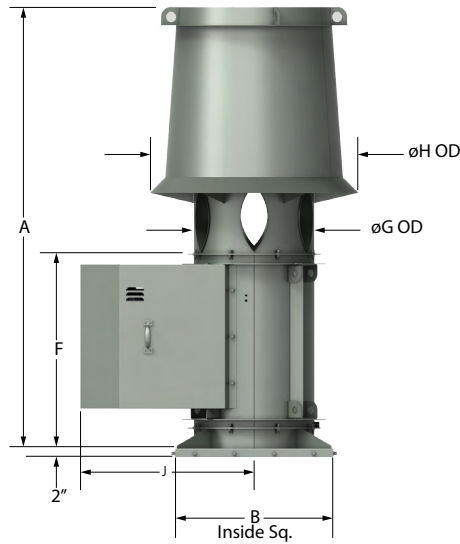
# NOZZLE AND WINDBAND AREA

Size	Nozzle	Nozzle Area (sq ft)	Windband Area (sq ft)
122	LV	0.86	2.62
	MV	0.58	2.62
	HV	0.45	2.62
	XV	0.35	2.62
135	LV	1.04	3.17
	MV	0.60	3.17
	HV	0.38	3.17
	XV	0.33	3.17
150	LV	1.29	3.92
	MV	0.82	3.92
	HV	0.50	3.92
	XV	0.41	3.92
165	LV	1.42	4.79
	MV	1.05	4.79
	HV	0.76	4.79
	XV	0.56	4.79
182	LV	1.74	5.85
	MV	1.20	5.85
	HV	0.80	5.85
	XV	0.60	5.85
200	LV	2.09	7.04
	MV	1.64	7.04
	HV	1.13	7.04
	XV	0.80	7.04
222	LV	2.59	8.70
	MV	2.10	8.70
	HV	1.75	8.70
	XV	1.38	8.70
245	LV	3.09	9.94
	MV	2.60	9.94
	HV	2.15	9.94
	XV	1.80	9.94
270	LV	3.75	12.05
	MV	2.82	12.05
	HV	2.05	12.05
	XV	1.60	12.05
300	LV	4.63	14.89
	MV	3.20	14.89
	HV	2.50	14.89
	XV	1.80	14.89
330	LV	5.60	18.03
	MV	3.30	18.03
	HV	2.50	18.03
	XV	2.00	18.03
365	LV	6.85	16.65
	MV	5.10	16.65
	HV	3.53	16.65
	XV	2.75	16.65
402	LV	8.33	20.21
	MV	6.90	20.21
	HV	4.90	20.21
	XV	3.60	20.21
445	LV	10.18	24.71
	MV	6.90	24.71
	HV	4.90	24.71
	XV	3.60	24.71



# DIMENSIONAL DRAWINGS

## 1x1 No Plenum



DIMENSIONAL & WEIGHT DATA									
MODEL	A	B	F	G	H	J	Direct Drive Max Frame	Belt Drive Max Frame	WEIGHT* (LBS)
122	69 3/4	24 1/2	28 7/8	17 7/8	30 1/16	29 7/16	145T	184T	356
135	76 3/4	26 1/2	31 1/16	19 3/4	33 1/8	29 7/8	145T	215T	413
150	84 11/16	28 1/2	34 3/8	21 15/16	36 13/16	33 3/8	145T	256T	519
165	85 3/8	30 1/2	37 3/4	23 7/16	40 5/16	34 1/8	184T	256T	567
182	94 3/8	33 1/2	41 1/4	25 13/16	44 15/16	35 3/8	215T	256T	687
200	102 13/16	36 1/2	44 15/16	28 3/8	49 3/16	36 3/8	256T	256T	791
222	113 15/16	39 1/2	49 7/16	31 7/16	54 3/4	40	286T	286T	974
245	109 3/16	42 1/2	54 3/16	34 11/16	53 3/16	41 1/16	286T	286T	1072
270	119 15/16	45 1/2	59 5/16	38 3/16	59 1/16	45 1/2	326T	326T	1293
300	132 13/16	51 1/2	65 1/2	42 7/16	65 9/16	49 7/16	326T	365T	1579
330	145 15/16	55 1/2	71 3/4	46 3/8	72 1/8	51 1/16	365T	365T	1868
365	137 7/16	60 1/2	78 7/8	51 3/8	67 3/8	56 1/2	404T	405T	2358
402	150 13/16	66 1/2	86 1/2	56 11/16	74 3/16	59 1/8	405T	405T	2766
445	166 7/8	72 1/2	95 3/8	62 3/4	82 1/8	65 3/8	445T	444T	3366

All dimensions are in inches.

\*Does not include weight for motor and drives. Belt Driven weights.

A = Overall system height (without curb)

B = Width Of Curb Cap (Inside)

F = Height Of Fan

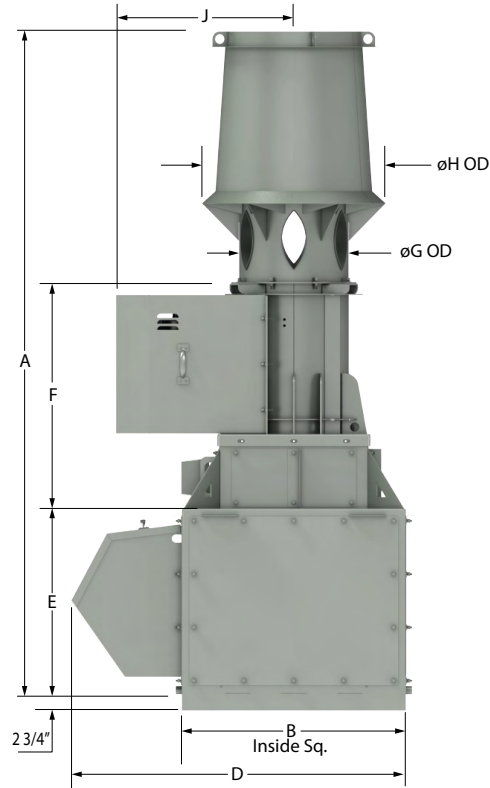
G = Dia. Of Nozzle

H = Dia. Of Windband Collar

J = Max. Weather Cover

# DIMENSIONAL DRAWINGS

## 1x1 Plenum



DIMENSIONAL & WEIGHT DATA											
MODEL	A	B	D	E	F	G	H	J	Direct Drive Max Frame	Belt Drive Max Frame	WEIGHT* (LBS)
122	111 13/16	36 5/16	52 9/16	42	28 7/8	17 7/8	30 1/16	29 7/16	145T	184T	1074
135	118 3/4	39 5/16	55 5/16	42	31 9/16	19 3/4	33 1/8	29 7/8	145T	215T	1186
150	126 3/4	45 5/16	61 9/16	42	34 5/8	21 15/16	36 13/16	33 3/8	145T	256T	1388
165	127 3/8	46 5/16	62 5/16	42	37 3/4	23 7/16	40 5/8	34 1/8	184T	256T	1474
182	142 7/16	53 5/16	71 11/16	48	41 1/4	25 13/16	44 15/16	35 3/8	215T	256T	2128
200	150 13/16	57 5/16	75 3/4	48	44 15/16	28 3/8	49 3/16	36 3/8	256T	256T	2305
222	161 15/16	61 5/16	79 3/4	48	49 7/16	31 7/16	54 3/4	40	286T	286T	2614
245	157 1/4	62 5/16	80 3/4	48	54 3/16	34 11/16	53 9/16	41 9/16	286T	286T	2738
270	167 15/16	65 5/16	83 3/4	48	59 5/16	38 3/16	59 1/16	45 1/2	326T	326T	2937
300	186 7/8	71 5/16	91 7/8	54	65 1/2	42 7/16	65 9/16	49 7/16	326T	365T	3471
330	200 1/16	78 1/4	98 13/16	54	71 3/4	46 5/8	72 1/8	51 9/16	365T	365T	3931
365	197 1/2	81 1/4	103 15/16	60	78 7/8	51 5/8	67 3/8	56 1/2	404T	405T	4601
402	210 7/8	86 1/4	108 15/16	60	86 1/2	56 3/4	74 5/16	59 1/8	405T	405T	5139
445	250 15/16	92 1/4	123 5/16	84	95 3/8	62 3/4	82 1/8	65 3/8	445T	444T	6331

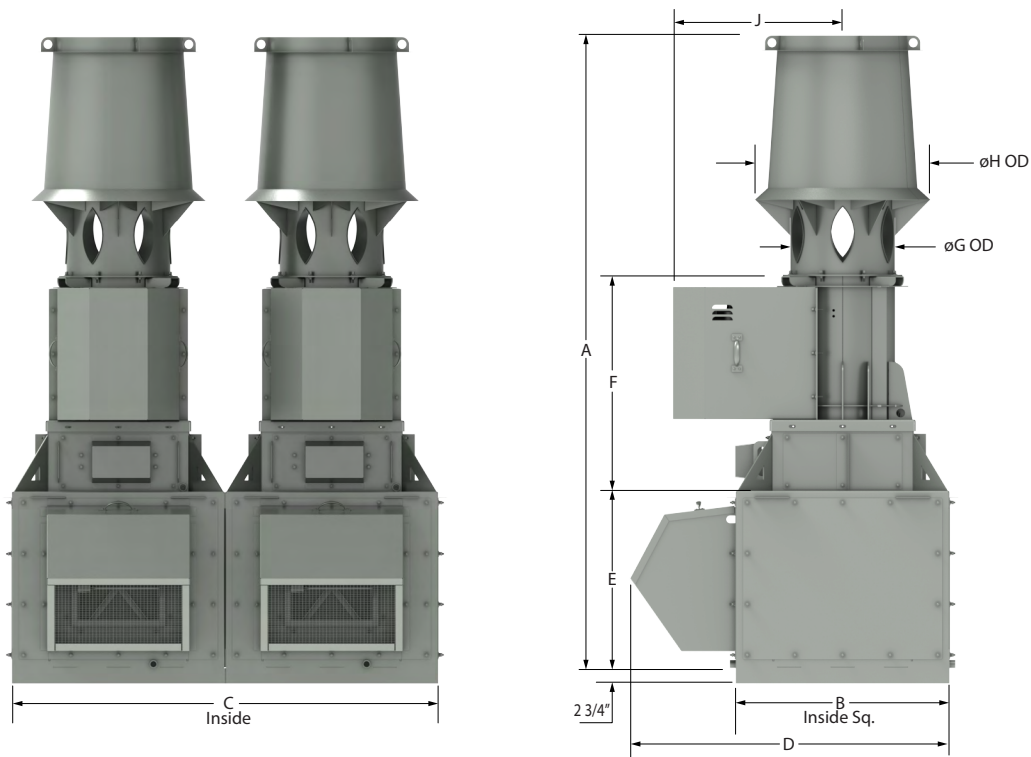
All dimensions are in inches.

\*Does not include weight for motor and drives. Belt Driven weights.

- A = Overall System Height (Without Curb)
- B = Width Of Plenum (Inside)
- D = Overall Width Of The System
- E = Height Of Plenum
- F = Height Of Fan
- G = Dia. Of Nozzle
- H = Dia. Of Windband Collar
- J = Max. Weather Cover

# DIMENSIONAL DRAWINGS

## 2x1 Plenum



DIMENSIONAL & WEIGHT DATA												
MODEL	A	B	C	D	E	F	G	H	J	Direct Drive Max Frame	Belt Drive Max Frame	WEIGHT* (LBS)
122	111 13/16	36 5/16	72 13/16	52 5/16	42	28 7/8	17 7/8	30 1/16	29 7/16	145T	184T	2148
135	118 3/4	39 5/16	78 13/16	55 5/16	42	31 1/16	19 3/4	33 1/8	29 7/8	145T	215T	2372
150	126 3/4	45 5/16	90 13/16	61 5/16	42	34 3/8	21 15/16	36 13/16	33 3/8	145T	256T	2776
165	127 3/8	46 5/16	92 13/16	62 9/16	42	37 3/4	23 7/16	40 5/8	34 1/8	184T	256T	2948
182	142 7/16	53 5/16	106 13/16	71 11/16	48	41 1/4	25 13/16	44 15/16	35 3/8	215T	256T	4256
200	150 13/16	57 5/16	114 13/16	75 3/4	48	44 15/16	28 3/8	49 3/16	36 5/8	256T	256T	4610
222	161 15/16	61 5/16	122 13/16	79 3/4	48	49 7/16	31 7/16	54 3/4	40	286T	286T	5228
245	157 1/4	62 5/16	124 13/16	80 3/4	48	54 3/16	34 11/16	53 5/16	41 5/16	286T	286T	5476
270	167 15/16	65 5/16	130 13/16	83 3/4	48	59 5/16	38 3/16	59 1/16	45 1/2	326T	326T	5874
300	186 7/8	71 5/16	142 13/16	91 7/8	54	65 1/2	42 7/16	65 5/16	49 7/16	326T	365T	6942
330	200 1/16	78 1/4	156 3/4	98 13/16	54	71 3/4	46 5/8	72 1/8	51 5/16	365T	365T	7862
365	197 1/2	81 1/4	162 3/4	103 15/16	60	78 7/8	51 5/8	67 3/8	56 1/2	404T	405T	9202
402	210 7/8	86 1/4	172 3/4	108 15/16	60	86 1/2	56 3/4	74 5/16	59 1/8	405T	405T	10278
445	250 15/16	92 1/4	184 3/4	123 3/16	84	95 3/8	62 3/4	82 1/8	65 3/8	445T	444T	12662

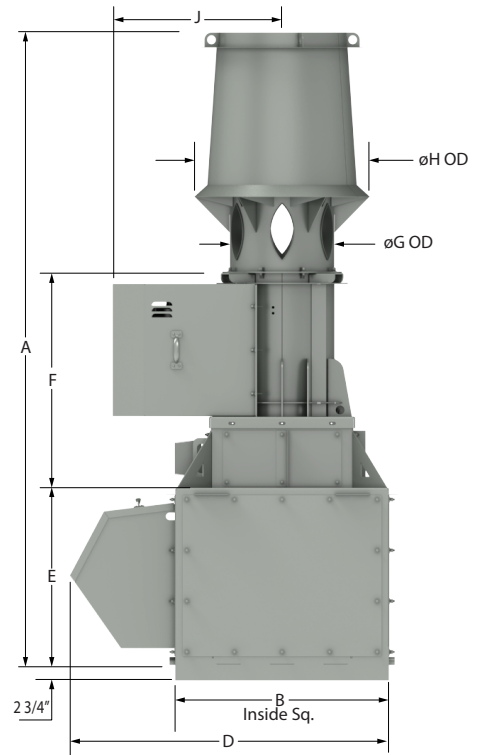
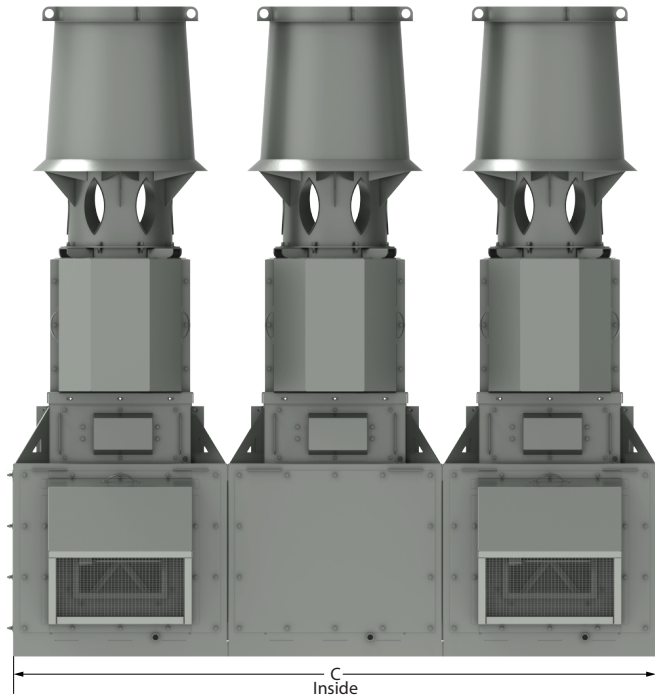
All dimensions are in inches.

\*Does not include weight for motor and drives. Belt Driven weights.

- A = Overall System Height (Without Curb)
- B = Width Of Plenum (Inside)
- C = Length Of Plenum (Inside)
- D = Overall Width Of The System
- E = Height Of Plenum
- F = Height Of Fan
- G = Dia. Of Nozzle
- H = Dia. Of Windband Collar
- J = Max. Weather Cover

# DIMENSIONAL DRAWINGS

## 3x1 Plenum



DIMENSIONAL & WEIGHT DATA												
MODEL	A	B	C	D	E	F	G	H	J	Direct Drive Max Frame	Belt Drive Max Frame	WEIGHT* (LBS)
122	111 13/16	36 3/16	109 3/16	52 3/16	42	28 7/8	17 7/8	30 1/16	29 7/16	145T	184T	3222
135	118 3/4	39 3/16	118 3/16	55 3/16	42	31 3/16	19 3/4	33 1/8	29 7/8	145T	215T	3558
150	126 3/4	45 3/16	136 3/16	61 3/16	42	34 3/8	21 15/16	36 13/16	33 3/8	145T	256T	4164
165	127 7/8	46 3/16	139 3/16	62 3/16	42	37 3/4	23 7/16	40 3/8	34 1/8	184T	256T	4422
182	142 7/16	53 3/16	160 3/16	71 11/16	48	41 1/4	25 13/16	44 15/16	35 3/8	215T	256T	6384
200	150 13/16	57 3/16	172 3/16	75 3/4	48	44 15/16	28 3/8	49 3/16	36 3/8	256T	256T	6915
222	161 15/16	61 3/16	184 3/16	79 3/4	48	49 7/16	31 7/16	54 3/4	40	286T	286T	7842
245	157 1/4	62 3/16	187 3/16	80 3/4	48	54 3/16	34 11/16	53 3/16	41 3/16	286T	286T	8214
270	167 15/16	65 3/16	196 3/16	83 3/4	48	59 3/16	38 3/16	59 1/16	45 1/2	326T	326T	8811
300	186 7/8	71 3/16	214 3/16	91 7/8	54	65 1/2	42 7/16	65 3/16	49 7/16	326T	365T	10413
330	200 1/16	78 1/4	235 1/4	98 13/16	54	71 3/4	46 5/8	72 1/8	51 3/16	365T	365T	11793
365	197 1/2	81 1/4	244 1/4	103 15/16	60	78 7/8	51 3/8	67 3/8	56 1/2	404T	405T	13803
402	210 7/8	86 1/4	259 1/4	108 15/16	60	86 1/2	56 3/4	74 3/16	59 1/8	405T	405T	15417
445	250 15/16	92 1/4	277 1/4	123 3/16	84	95 3/8	62 3/4	82 1/8	65 3/8	445T	444T	18993

All dimensions are in inches.

\*Does not include weight for motor and drives. Belt Driven weights.

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- B = Width Of Plenum (Inside)
- C = Length Of Plenum (Inside)
- D = Overall Width Of The System
- E = Height Of Plenum
- F = Height Of Fan
- G = Dia. Of Nozzle
- H = Dia. Of Windband Collar
- J = Max. Weather Cover

# PENNBARRYPRODUCTSOLUTIONS



## Commercial

- Roof & wall exhaust centrifugal fans
- Ceiling, wall, & inline centrifugal fans
- Roof supply centrifugal fans
- Square & round centrifugal fans
- Wall mounted axial fans
- Hooded roof axial fans
- Upblast roof axial fans
- Gravity ventilators
- Roof curbs



## Industrial

- Freestanding centrifugal fans
- Industrial & material handling fans
- Tubular centrifugal inline fans
- Mixed flow centrifugal fans
- Plug & plenum fans
- Wall mounted propeller fans
- Tube axial fans
- Vane axial fans
- Bifurcator fans
- Lab exhaust



## Kitchen ventilation

- Make-up air units
- Exhaust fans



## Energy recovery

- Outdoor units
- Indoor units

PennBarry is proud to be your preferred manufacturer of commercial and industrial fans and blowers. Learn how PennBarry can assist you in your next application by contacting your PennBarry Representative or visiting us on the web at [www.pennbarry.com](http://www.pennbarry.com)

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