

PND, PNB, & MBP

Wall Propeller Fans

PRODUCT GUIDE



PENNBARRY™

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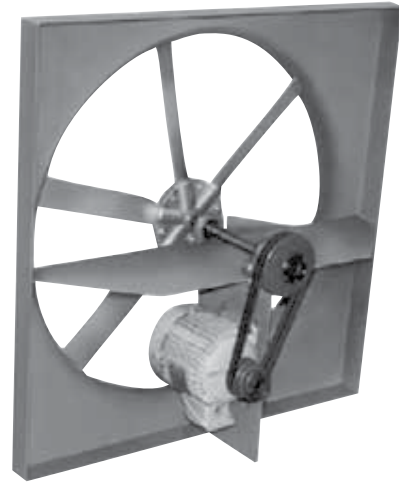
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INTRODUCTION

PennBarry Wall Mounted Propeller Panel Fans are highly efficient, incorporating deep-spun inlet scrolls to minimize losses due to fan inlet conditions. Rugged construction ensures long life even in the severest industrial application. Panel Fans, which are capable of moving large volumes of air quickly, are in service at industrial plants, power generating stations and commercial applications throughout the country. Even in special applications such as parking garages, mine ventilation, heat exchangers, and drying installations, PennBarry's Panel Fans continue to excel, providing reliable and efficient service for many years.



Inlet/Outlet Cone



Motor Cover

CERTIFICATIONS & LISTINGS



AMCA Certification

PennBarry certifies that the Model MBP Panel Fans 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 comply with the requirements of the AMCA Certified Ratings Program.

FEATURES & BENEFITS

Models PND and PNB

Propellers for PND direct drive models feature the latest improvements in adjustable pitch design. The blades and hubs are separate castings, accurately machined, matched and balanced. All propellers are cast of a special aluminum alloy of high tensile strength. Propellers with fixed pitch are furnished on standard units where capacity requirements are known. Adjustable pitch props are optional on orders specifying this feature.

Propellers are direct mounted on continuous duty, ball bearing, NEMA design, foot mounted motors specifically selected for the fan's application requirements.

The same propellers are also utilized on the PNB belt driven panel fans. Propellers are mounted on turned, ground and polished shafts, specially machined with standard size keyways at both ends. Fan bearings are self-aligning, grease lubricated, heavy-duty ball bearing pillow block units with locking collars separate from the inner race, specifically sized for long years of trouble-free service.

Heavy-duty fan bearings and motor mounting frames incorporate slide bases for adjustable motor positioning with all larger size motors.

Angle iron frames on larger size PNB units provide extra heavy construction for large air moving jobs where units are usually "built-in" as an integral part of the building design. Heavy-duty "stud" type motor mount adjustment provides easy, positive belt tensioning required on higher horsepower drives.

Model MBP - Slow Speed Panel Fan

Propellers for MBP models are fabricated of sheet metal in a wide-bladed configuration. This propeller is capable of moving large volumes of air against moderate pressure at low blade RPM, allowing the air moving job to be done quietly and efficiently. Blade sections are attached to the heavy-weight steel spider with high tensile strength steel fasteners. The propellers are secured to the fan shaft by means of malleable split taperlock bushings and hubs.

Fan bearings are self-aligning, grease lubricated, heavy duty ball bearing pillow block units, specifically sized for long years of trouble free service.

Heavy duty fan bearings and motor mounting frames incorporate slide base for easily adjustable motor positioning with all large size motors.

OPTIONS & ACCESSORIES

Variable Frequency Drives

Variable frequency drives (VFDs) are designed to meet performance requirements while increasing efficiency. By varying the fan motor input frequency and voltage, the VFD controls the motor speed and torque, helping to improve productivity and lower energy consumption. The VSC and VSA are ideal for both new and retrofit fan applications. VFD's shipped loose and separately.

Safety Service Switch

Safety service switches are available to allow positive electrical shut-off and safety. NEMA 1 and 3R switches are factory mounted when factory wiring is requested; others will be shipped loose. Wiring is only run from the motor to the junction box. (Factory wiring of explosion proof applications is not available.) A wide range of NEMA rated enclosures with service switches is available for indoor, outdoor, and explosion proof installations. Service switches are to be field wired by a licensed electrician.

Coatings

Coatings such as Enamel, Airdry Epoxy, Airdry Phenolic Epoxy, and others are available. See the coatings brochure for details.

Stainless Steel Shaft:

If another material is desired for the motor shaft, stainless steel shafts are available for selection.

Spare Belt:

One or two extra sets of spare belts are available for selection.

Filter Housings

Sizes 18-60 can be supplied with two inch filter racks and disposable or permanent filters in a wide range of styles and efficiencies.

Front Guard (Type #2)

This optional guard is a 1/2" spiral wire guard mounted on fan discharge.

Propeller Rear Guard (Type #1)

This optional guard is a 1/2" spiral wire guard mounted between motor and propeller.

Full Rear Guard (Type #4)

This optional guard is a 1/2" expanded metal cage with angle iron frame for mounting over motor end of fan. The type #4 guard has a removable rear cover for access to motor and drive.

Supply Units

Air enters on the prop side and passes over the motor. A venturi extension is added to maintain the same air performance as the standard exhaust configuration.

Reversible Flow Units

This configuration allows for the same airflow in both supply and exhaust modes. A double bell venturi is also added to maintain performance in both directions. For this feature, add .39 velocity pressure (VP) loss in airflow calculations. This option is only available on the PND and PNB models.

Wall Box Housing

The wall box housing is a sheet metal full sleeve for mounting the unit and comes with a type 1 rear guard. An optional access door in the housing is available at an extra charge.

OPTIONS & ACCESSORIES

Dampers

Gravity dampers are appropriately sized to each panel size and are available for selection. Standard duty gravity dampers are suitable for up to 2200 fpm outlet velocity.

Heavy duty dampers are suitable for up to 3000 fpm outlet velocity. Gravity dampers are available for exhaust applications only. Dampers have flanges on the intake (rear) side. Sizes 60 and larger are shipped in multiple sections.

Motor operated dampers are also available for positive opening and closing. The 115V operator does not come wired. Motorized dampers can be used with both supply and exhaust applications.

Shutter Boot

The shutter boot is a sheet metal half sleeve to allow mounting of damper to fan discharge.

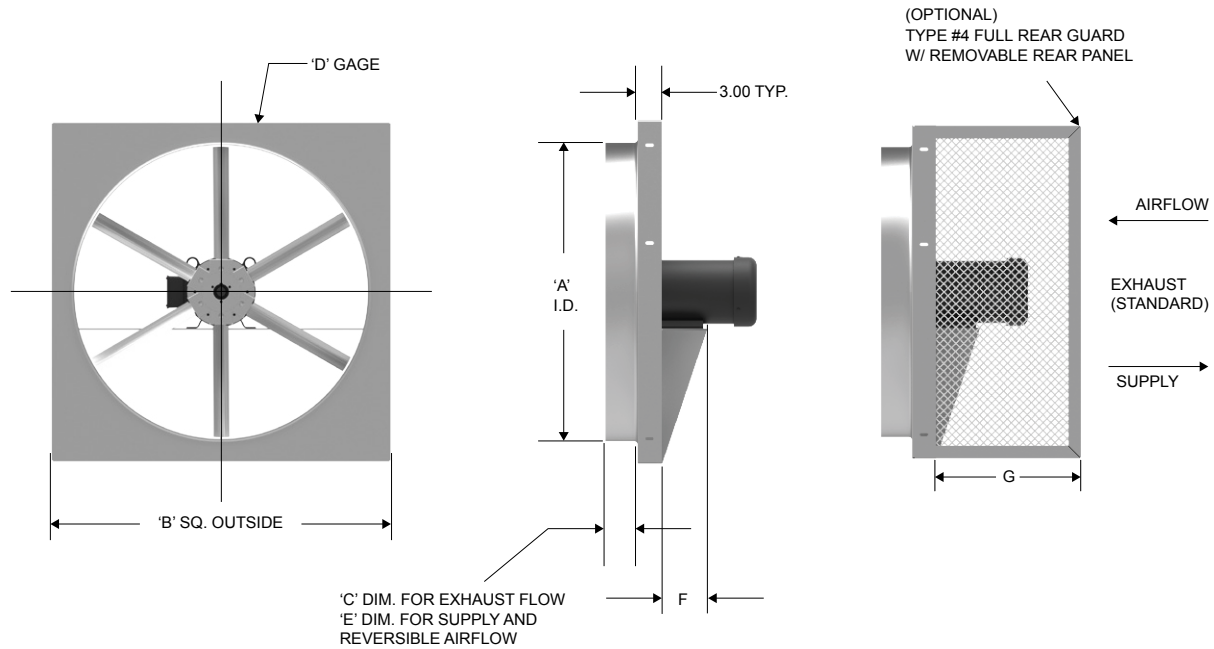
Weatherhood with Bird Screen

A 45° galvanized steel weatherhood is used on the inlet or as a discharge hood. This option is normally used on an outside wall to keep rain from entering the fan. It can also be used for directing the fan discharge downward. The weatherhood is supplied with a 3/4" expanded metal screen over the end. A 60° hood is available at an extra charge.

Fan Size Selection Chart (for preliminary sizing of fans on basis of outlet velocity and CFM)

Throat Velocity FPM	Velocity Pressure in. w.g.	CFM															
		18"	21"	24"	27"	32"	36"	42"	48"	54"	60"	72"	84"	96"	108"	120"	144"
600	0.02	1080	1470	1926	2436	3420	4632	5892	7698	9744	12030	17322	23574	30972	36969	48108	59282
800	0.04	1440	1960	2568	3248	4560	6176	7856	10264	12992	16040	23096	31432	41056	51960	64144	92376
1000	0.06	1800	2450	3210	4060	5700	7720	9820	12830	16240	20050	28870	39290	51320	64950	80180	115470
1200	0.09	2160	2940	3852	4872	6840	9264	11784	15396	19488	24060	34644	47178	61584	77938	96216	138562
1400	0.12	2520	3430	4494	5684	7980	10808	13748	17962	22736	28070	40418	55006	71848	90929	112252	151658
1600	0.16	2880	2920	5136	6496	9120	12352	15712	20528	25984	32080	46192	62864	82112	103920	128288	184752
1800	0.2	3240	4410	5778	7308	10260	13896	17676	23094	28232	36090	51966	70722	92376	116907	144324	207846
2000	0.25	3600	4900	6420	8120	11400	15440	19640	25660	32480	40100	57740	78580	102640	129900	160360	230940
2200	0.3	3960	5390	7062	8932	12540	16984	21604	28226	35728	44110	63514	86438	112904	142890	176306	254034
2400	0.36	4320	5880	7704	9744	13680	18528	23568	30792	38976	48120	69288	94296	123168	155876	192432	277124
2600	0.42	4680	6370	8346	10556	14820	20072	25532	33358	42224	52130	75062	102154	133432	168870	208468	300222
2800	0.49	5040	6860	8988	11368	15960	21616	26496	35923	45472	56140	80836	110012	143696	181858	224504	303316

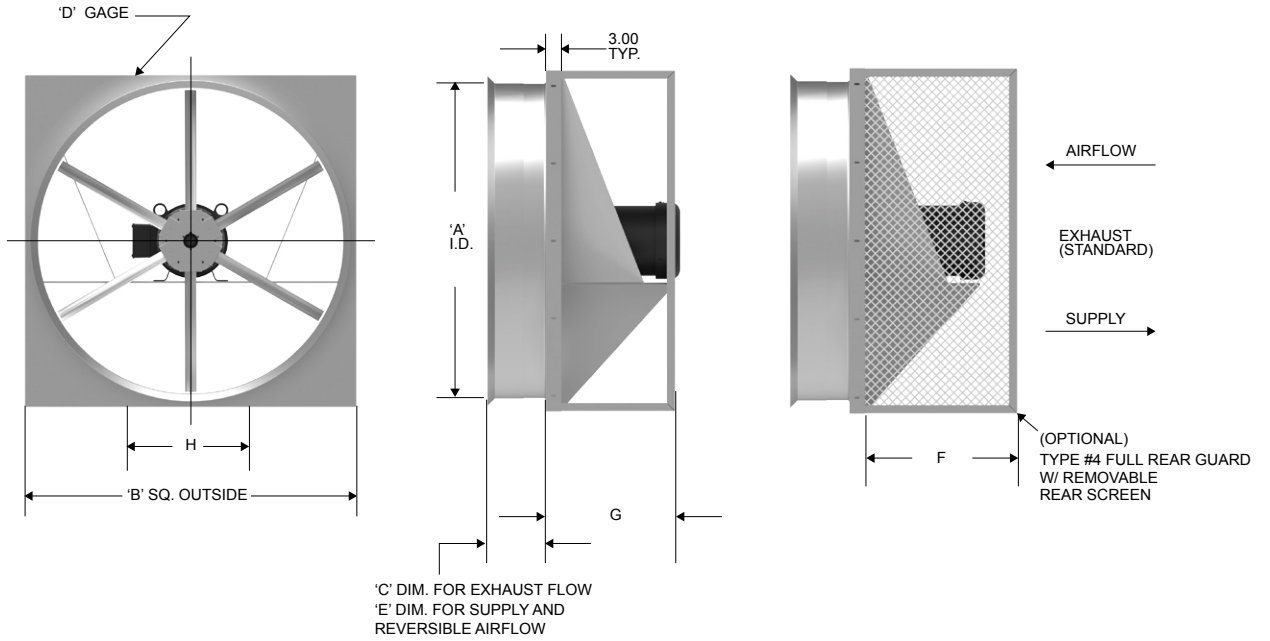
PND | DIMENSIONAL DATA, DESIGN 1



Size	A	B	C	D	E	F Maximum	G	Max Motor Frame	Unit Weight
12	12.19	16	1.5	16	4.63	4.13	7.63	145T	15 lbs.
15	15.19	19	2	16	5.13	4.13	7.63	145T	20 lbs.
18	18.19	22	2.5	16	5.63	7.31	11.63	184T	30 lbs.
21	21.22	25	2.5	16	5.63	7.31	11.63	184T	35 lbs.
24	24.25	28	3	16	6.13	6.56	15.88	184T	40 lbs.
27	27.28	34	3	16	6.13	6.25	15.88	184T	60 lbs.
30	30.31	36	3.5	14	7.5	8.63	18.88	215T	80 lbs.
32	32.34	38	3.5	14	7.5	8.63	18.88	215T	90 lbs.
36	36.38	42	4	14	9	13.63	18.88	256T	110 lbs.
42	42.44	48	4.75	14	9.75	12.75	18.88	256T	160 lbs.
48	48.5	54	4.75	14	9.75	12.81	17.88	256T	200 lbs.
54	54.56	60	5	14	11.75	12.19	17.88	256T	240 lbs.
60	60.63	66	5	14	11.75	11.88	17.88	256T	270 lbs.

All dimensions are in inches. Approximate fan weights are less motor and accessories. Propeller is six-bladed cast aluminum. See Direct Drive, Design 2 drawing for larger motor frame sizes. Dimensions should not be used for construction. Certified drawings are available upon request.

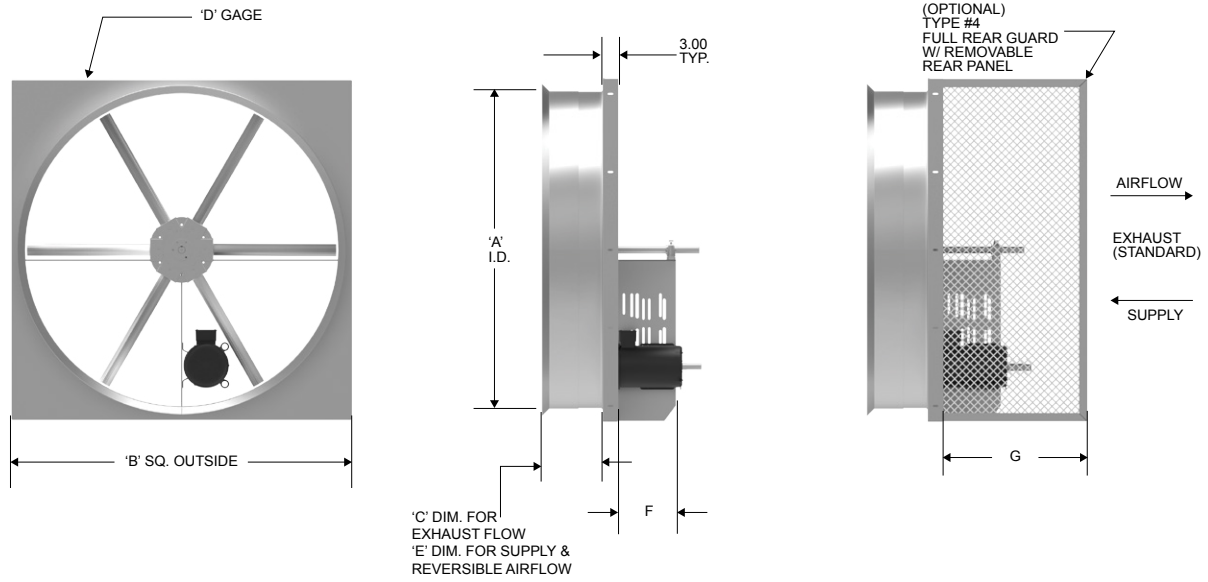
PND | DIMENSIONAL DATA, DESIGN 2



Size	A	B	C	D	E	F	284-286 Frame		324-326 Frame		364-365 Frame		Unit Weight
							G	H	G	H	G	H	
48	48.5	54	4.75	14	9.75	26.88	14.5	24.5	16.25	28.5	17.5	32.5	270 lbs.
54	54.65	60	5	14	11.75	26.88	14.5	24.5	16.25	28.5	17.5	32.5	300 lbs.
60	60.63	66	5	14	11.75	26.88	14.5	24.5	16.25	28.5	17.5	32.5	350 lbs.

All dimensions are in inches. Approximate fan weights are less motor and accessories. Propeller is six-bladed cast aluminum. Dimensions should not be used for construction. Certified drawings are available upon request.

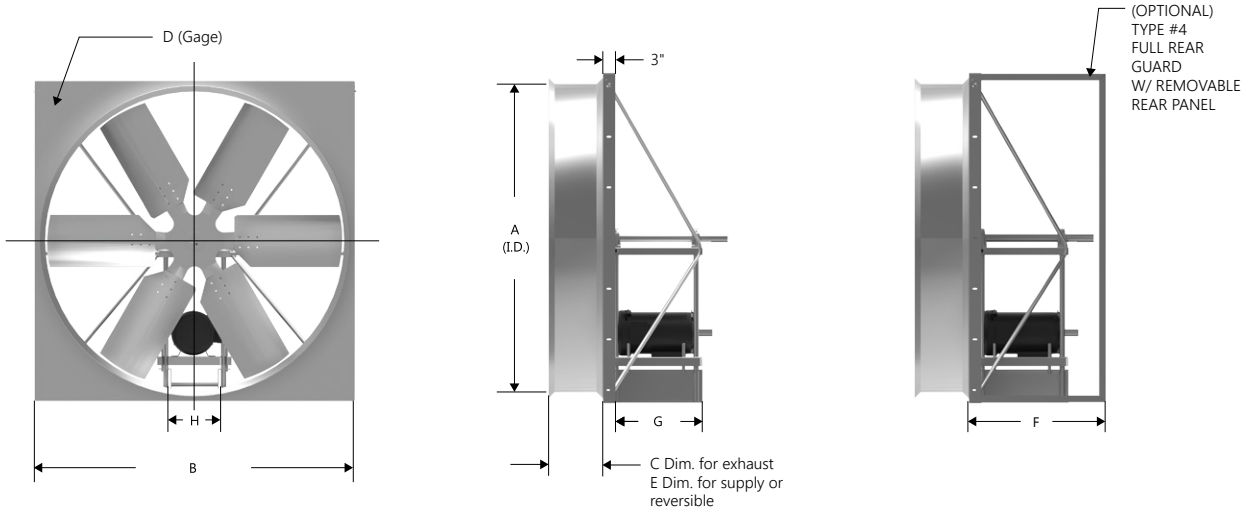
PNB | DIMENSIONAL DATA, DESIGN 1 & 2



Size	A	B	C	D	E	Design 1			Design 2			Unit Weight
						F	G	Max Motor Frame	F	G	Max Motor Frame	
24	24.25	28	3	16	6.13	10	15.88	184T	-	-	-	55 lbs.
27	27.28	34	3	16	6.13	10	15.88	184T	-	-	-	75 lbs.
30	30.31	36	3.5	14	7.5	13	18.88	215T	-	-	-	100 lbs.
32	32.34	38	3.5	14	7.5	13	18.88	215T	-	-	-	110 lbs.
36	36.38	42	4	14	9	13	18.88	215T	-	-	-	140 lbs.
42	42.44	48	4.75	14	9.75	13	18.88	215T	-	-	-	200 lbs.
48	48.5	54	4.75	14	9.75	11	17.88	184T	17	26.88	256T	280 lbs.
54	54.56	60	5	14	11.75	11	17.88	184T	17	26.88	256T	350 lbs.
60	60.63	66	5	14	11.75	11	17.88	184T	17	26.88	256T	390 lbs.

All dimensions are in inches. Approximate fan weights are less motor and accessories. Propeller is six-bladed cast aluminum. Dimensions should not be used for construction. Certified drawings are available upon request.

PNB | DIMENSIONAL DATA, DESIGN 3



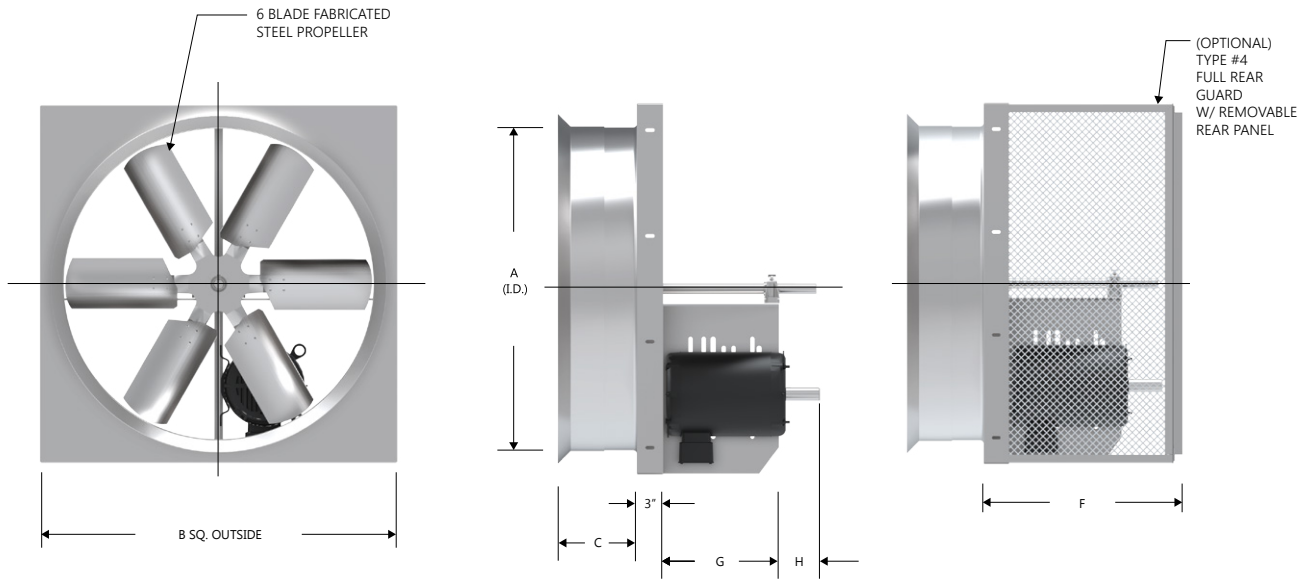
Size	A	B	C	D	E	F	284-286T Frame		324-326T Frame		364-365T Frame		Unit Weight
							G	H	G	H	G	H	
48	48.5	54	4.75	14	9.75	35.88	26.25	31	28.25	35	30.75	37	300 lbs.
54	54.65	60	5	14	11.75	35.88	26.25	31	28.25	35	30.75	37	350 lbs.
60	60.63	66	5	14	11.75	35.88	26.25	31	28.25	35	30.75	37	400 lbs.

Size	A	B	C	D	E	F per Frame Size		G per Frame Size								Unit Weight	
						Up to 320	Over 320	143T-145T	182T-184T	213T-215T	254T-256T	284T-286T	324T-326T	364T-365T	404T-405T		444T-445T
72	72.75	78	8	10	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	550 lbs.
84	84.88	90	8	10	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	680 lbs.
96	97.00	102	8	10	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	830 lbs.
108	109.13	114	8	7	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	1020 lbs.
120	121.25	126	8	7	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	1250 lbs.
132	133.38	138	8	0.25	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	1500 lbs.
145	145.50	150	8	0.25	8	36	54	15.25	17	20.5	25	28	30.5	32.5	35	40	1800 lbs.

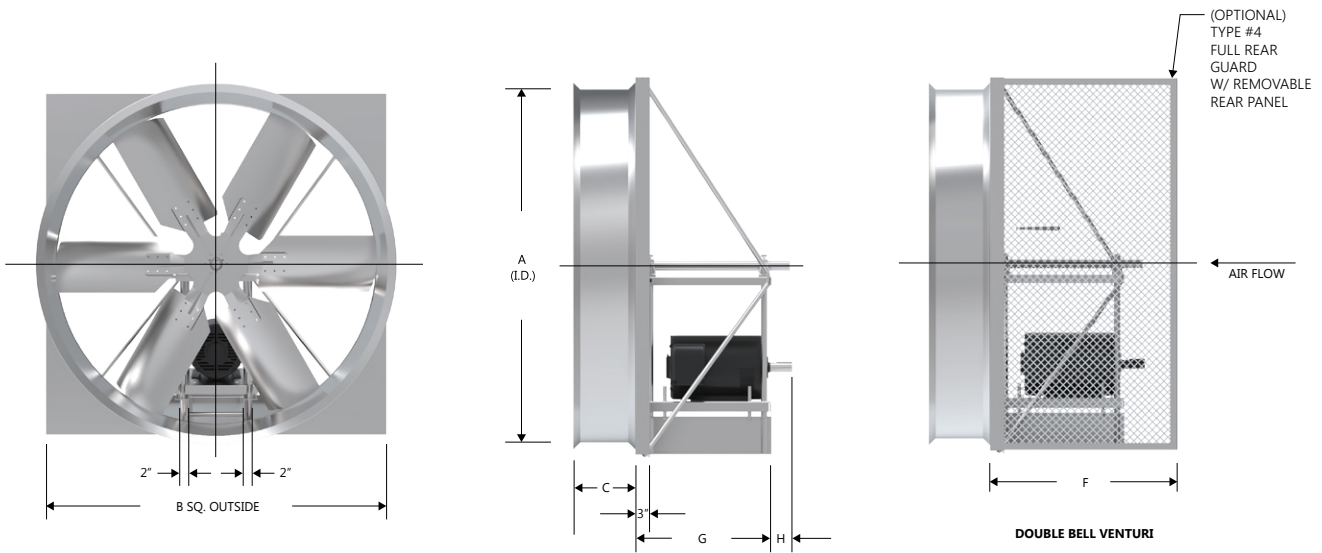
All dimensions are in inches. Approximate fan weights are less motor and accessories. Propeller is six-bladed cast aluminum. Dimensions should not be used for construction. Certified drawings are available upon request.

MBP | DIMENSIONAL DATA, MOTOR FRAMES

STANDARD MOTOR FRAME 56-256



LARGE MOTOR FRAME 284-365



Size	A	B	C	Design 1				Design 2				Large Motor Frame				
				F	G	H	Max Motor Frame	F	G	H	Max Motor Frame	F	G	H	Max Motor Frame	
24	24.25	28	6.25	18.88	13	3	184T	-	-	-	-	-	-	-	-	-
27	27.28	34	6.25	18.88	13	3	184T	-	-	-	-	-	-	-	-	-
32	32.34	38	7.5	21.88	16	3	215T	-	-	-	-	-	-	-	-	-
36	36.38	42	9	21.88	16	3	215T	-	-	-	-	-	-	-	-	-
42	42.44	48	9.75	21.88	16	3	215T	-	-	-	-	-	-	-	-	-
48	48.5	54	9.75	20.88	14	4.75	184T	27.88	20	4.75	256T	30.13	26.38	4.75	286T	
54	54.56	60	11.75	20.88	14	4.75	184T	27.88	20	4.75	256T	33.13	28.38	4.75	286T	
60	60.63	66	11.75	20.88	14	4.75	184T	27.88	20	4.75	256T	35.88	31	4.75	365T	
72	72.75	78	11.75	29.5	20.63	4.75	184T	36	28.38	4.75	256T	40	35.5	4.75	365T	

All dimensions are in inches. Dimensions should not be used for construction. Certified drawings are available upon request.

FAN SELECTIONS

Model

PNB = Belt Drive Panel Fan
 PND = Direct Drive Panel Fan
 MBP = Slow Speed Panel Fan

Construction

<p>Application E = Exhaust / relief R = Reversible ^{BD} S = Supply / intake</p> <p>Application Flow (CFM) <enter value></p> <p>Application Static Pressure (inwg) <enter value></p> <p>Crating Option 0 = Standard 1 = Premium 1 2 = Premium 2</p> <p>Drive Type B = Belt ^{MB} D = Direct ^D</p> <p>Drive Kit Option 0 = None ^{MB} A = Adjustable drive kit ^{MB}</p>	<p>C = Constant drive kit ^{MB} L = Life safety ^{MB} X = Special ^{MB}</p> <p>Fan RPM <####></p> <p>Propeller Pitch A = 12° ^D B = 14° ^D C = 16° ^D E = 18° ^D F = 20° ^D G = 22° ^D K = 24° ^D M = 26° ^D P = 28° ^D Q = 30° ^D</p> <p>Unit Material A = Aluminum H = Steel X = Special</p>	<p>Unit Size 12^D 15^D 18^D 21^D 24 27 30 32 36 42 48 54 60 72^{MB} 84^B 96^B 108^B 120^B 132^B 144^B</p>
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Motor

<p>Efficiency P = Premium S = Standard</p> <p>Horsepower 0.250 = 1/4 0.333 = 1/3 0.500 = 1/2 0.750 = 3/4 01.00 = 1 01.50 = 1 1/2 02.00 = 2 03.00 = 3 05.00 = 5 07.50 = 7 1/2 10.00 = 10 15.00 = 15 20.00 = 20 25.00 = 25 30.00 = 30 40.00 = 40 50.00 = 50 60.00 = 60 75.00 = 75</p>	<p>100.0 = 100 125.0 = 125 150.0 = 150 200.0 = 200 250.0 = 250 300.0 = 300 350.0 = 350 X = Special</p> <p>Motors and Drives F = Factory supplied L = Less motor, less drive N = Customer supplied motor, factory mounted* X = Special</p> <p>Motor Enclosure 0 = None 2 = TE w/o Overload 4 = ODP w/o Overload 5 = EXP C2D1 6 = Severe Duty 7 = TE w/ SGR X = Special</p>	<p>Motor Frame FS = Factory Supplied 01 = 48 02 = 56 05 = 143T 06 = 145T 07 = 182T 08 = 184T 09 = 213T 10 = 215T 11 = 254T 12 = 256T 13 = 284T 14 = 286T 15 = 324T 16 = 326T 17 = 364T ^{BD} 18 = 365T ^{BD} 19 = 404T ^B 20 = 405T ^B 21 = 444T ^B 22 = 445T ^B X = Special</p>
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FAN SELECTIONS

Motor

Motor Pole

0 = None
 1 = 1800 4 pole motor
 2 = 3600 2 pole motor
 3 = 3000 2 pole motor
 4 = 1500 4 pole motor
 5 = 1200 6 pole motor
 6 = 1000 6 pole motor
 X = Special

Voltage/Phase/Cycle

B = 110V/1PH/50HZ*^D
 C = 115V/1PH/60HZ
 D=120V/1PH/60HZ*
 F = 208V/1PH/60HZ
 G = 208V/3PH/60HZ
 H = 220V/1PH/50HZ*^D
 J = 220V/3PH/50HZ*^D
 K = 230V/1PH/60HZ
 L = 230V/3PH/60HZ

Q = 380V/3PH/50HZ*^D
 R = 380V/3PH/60HZ*^D
 T = 415V/3PH/50HZ*^D
 U = 440V/3PH/50HZ*^D
 V = 460V/3PH/60HZ
 W = 480V/3PH/60HZ*
 X = Special
 Y = 575V/3PH/60HZ

* Non-standard offering subject to longer lead times and price adjustment

Electrical Accessories

Controllers

0 = None
 7 = Provided by others
 V = VFD

Service Switches and ITW*

0 = None
 1 = NEMA 1 ITW only
 3 = NEMA 3R/4 ITW only
 A = NEMA 1 - loose
 C = NEMA 1 - mounted and wired
 D = NEMA 3R - loose

F = NEMA 3R - mounted and wired
 K = NEMA 4X - loose
 M = NEMA 4X - mounted and wired
 N = NEMA 7 - loose
 Q = NEMA 9 - loose
 X = Special

Options and Accessories

Bearings

0 = None^{MB}
 A = 40K^{MB}
 B = 80K^{MB}
 C = 200K^{MB}
 H = 120K^{MB}
 X = Special^{MB}

Construction Accessories

0 = None
 B = Shutter boot
 R = Wall box housing w/ access door
 W = Wall box housing
 X = Special

Damper

0 = None
 D = Damper

Filters

0 = None
 K = Filter housing w/ 2" Washable
 L = Filter housing w/ 2" disposable

Guard/Screen

0 = None
 F = Front guard
 G = Front and propeller rear guard
 H = Propeller Rear guard
 L = Full Rear Guard
 M = Front Guard w/ Full Rear Guard
 X = Special

Paint/Coating

0 = None
 A = Standard Enamel*
 B = Airdry Epoxy
 E = Airdry Phenolic
 M = Airdry Phenolic Epoxy
 X = Special
 * Colors only available in Standard Enamel

Paint Color*

0 = None
 01 = Standard color (gray)

50 = Chrome green
 55 = Pale green
 56 = Dove gray (PPC standard)
 61 = White
 63 = Oxford beige
 65 = Dover white
 66 = Desert tan
 70 = Black
 73 = Smoke gray
 77 = Brick red
 79 = Peppercorn
 81 = Pale brown
 83 = Chocolate brown
 85 = Timeless bronze
 94 = Charcoal
 X = Special
 * Colors only available for polyester powder coat

Spare Belt(s)

0 = None^{MB}
 1 = 1 spare set^{MB}
 2 = 2 spare set^{MB}

FAN SELECTIONS

Options and Accessories

Stainless Steel

- 0 = None^{MB}
- S = 304SS Shaft^{MB}
- U = 316SS Shaft^{MB}
- X = Special^{MB}

Weather Hood

- 0 = None
- A = Weather Hood with guard 45°
- B = Weather Hood with guard 60°

Notes:

D: Applies to PND

B: Applies to PNB

M : Applies to MBP

An absence of superscripts indicates option is applicable to all models

PENNBARRY PRODUCT SOLUTIONS



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

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PennBarry reserves the right to make changes at any time, without notice, to models, construction, specifications, options and availability. This document illustrates the appearance of PennBarry products at the time of publication. View the latest updates on the PennBarry website.

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