

TUB

Tubular Inline Centrifugal Fans

PRODUCT GUIDE



PENNBARRY™

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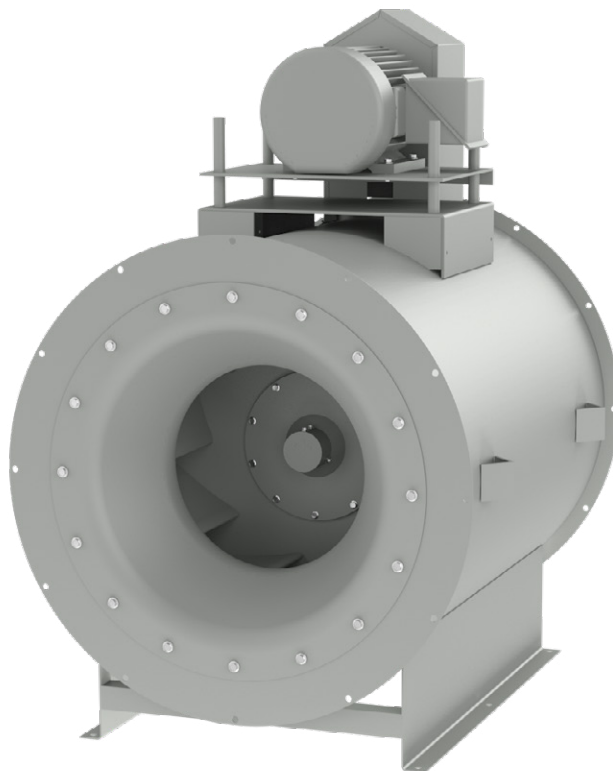
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INTRODUCTION

PennBarry inline centrifugals, or “tubular” fans, are the most practical fans for many applications. Straight-line airflow through the fan eliminates unnecessary duct elbows, and tubular fans are normally quieter than axial type inline fans. In addition, vertically mounted units and ceiling hung fans save valuable floor space. The PennBarry tubular centrifugal fans employ backward inclined (sizes 90-165) and airfoil (sizes 182-890) non-overloading wheels with a mated funnel and wheel cone. This design results in higher efficiencies and, consequently, lower sound levels.

This Tubular Centrifugal Fan has been designed for efficient operation throughout its wide performance range. Accomplishing this high performance goal is a result of a combination of properly designed, spun inlet cones, highly efficient Type BC and AF wheels with spun shrouds, and aerodynamic conversion vanes. All parts of the fan in the airstream have been designed and manufactured to produce the best possible results under rated operating conditions. Since most tubular centrifugal fans are supplied for low to medium pressure return air and exhaust air applications, our fans have been designed to maximize efficiency at these pressures. The TUB 365 illustrates this perfectly, boasting high efficiency in the range of 12,000 CFM to 21,000 CFM. This range is unusually wide compared to competitive models and is typical of our entire range of sizes from 90 thru 600. Higher efficiencies mean it will often be possible to select fans with lower installed motor horsepower, with lower installation costs for wiring and motor control equipment, as well as lower market costs for the motors. Even if similar sized motors are required, lower brake horsepower results in lower energy consumption and considerable savings in utility bills over the operating life of the building. Taking into account these long term savings, the TUB is an obvious choice.

Quality engineering and outstanding service have become PennBarry trademarks over the years. Our products are backed by extensive research and testing in an AMCA International Accredited Laboratory. Like other PennBarry products, rugged construction and accurate performance ratings of tubular centrifugal fans ensure a long life of trouble-free operation. PennBarry has a professional, experienced staff to serve its customers and independent sales representatives that work closely with the factory to provide the correct high performance air moving equipment for each application.



Tubular Centrifugal Fan

CERTIFICATIONS & LISTINGS



AMCA Certification

PennBarry certifies that the Tubular Centrifugal Fans sizes 182 and up 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.

FEATURES & BENEFITS

Housings

PennBarry tubular centrifugal fans are built to last longer than the systems in which they are installed. Housings are constructed of heavy gauge steel and are continuously welded so they will be strong and airtight. A completely enclosed fan mounting base is furnished on horizontal floor mount units. Welded suspension brackets are supplied on horizontal ceiling hung fans. Reinforced end brackets for floor mounting or ceiling mounting are furnished for vertical units. Lifting clips are welded to the housing of all PennBarry tubular fans for easy handling. Inlet cones are bolted to the inlet side in a way that facilitates removal and access to the wheel.

Tubular fans have a cylindrical chamber, called the inner shaft barrel, located in the middle of the airstream. The inner shaft barrel houses the fan sheave, shaft and bearings. The barrel is continuously welded except for a bolted access panel on the discharge end.

Straightening Vanes

The straightening vanes of the PennBarry tubular centrifugal fan serve a double purpose. They not only support the inner shaft barrel assembly, but also straighten the airflow exiting the fan wheel. This configuration contributes substantially to the overall operating efficiency of the PennBarry tubular fan.

Motor Supports

Motor pedestals on arrangement 1 fans are continuously welded steel plate and become a part of the fan mounting base. Motors are mounted on adjustable slide bases. The motor platform on arrangement 3 and 9 fans has four adjustment points to ensure optimum rigidity and accurate belt tensioning. Support legs for arrangement 3 and 9 motor platforms are heavy steel angle.

Wheels

PennBarry tubular centrifugal fans have energy efficient, non-overloading backward inclined and airfoil wheels. Wheel diameters are in accordance with the standard sizes adopted by AMCA. The wheels are specially designed for maximum efficiency and quiet operation. The blades are continuously welded to the backplate and wheel cone.

Bearings and Shafts

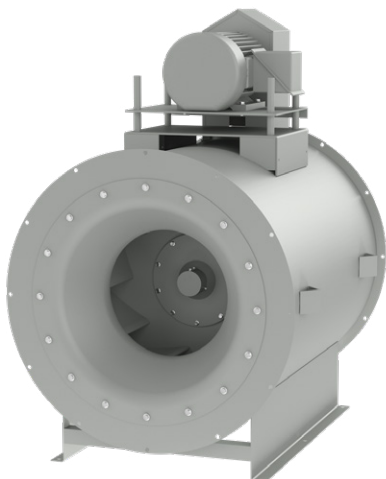
Bearings are ball or roller anti-friction type with a minimum L10 life of at least 40,000 hours. They are designed for maintenance-free operation under normal conditions. One piece cast iron pillow blocks are standard, but split pillow blocks are also available. All bearings have extended lubrication lines to the outside of the fan housing for ease of maintenance. To ensure smooth operation, first critical shaft speeds are at least 142% of the fan's maximum operating speed.

Lifting Lugs

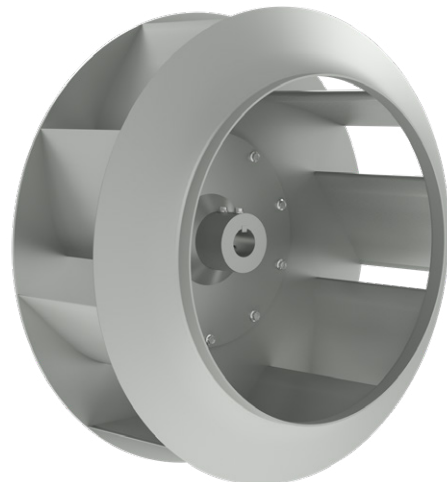
Provided for convenience and ease in handling during installation, lifting lugs are a standard accessory on all PennBarry tubular centrifugal fans.

End Bracket

End brackets are provided for vertical airflow only, floor or ceiling mounted. See dimension pages for specific type of end brackets according to fan size.



Tubular Centrifugal Fan



Tubular Airfoil Wheel

OPTIONS & ACCESSORIES

Fan Arrangement 3

Arrangement 3 tubular fans are different from other tubular fans in that the wheel is suspended on the shaft between the bearings, like on Arrangement 3 scroll fans. One of the bearings is mounted inside the inner shaft barrel; the other is mounted on sturdy structural supports at the fan inlet. Because there is a bearing in the airstream, the maximum operating temperature for Arrangement 3 is 180°F. The suspended wheel configuration allows the fan to be 30% shorter than other tubulars.

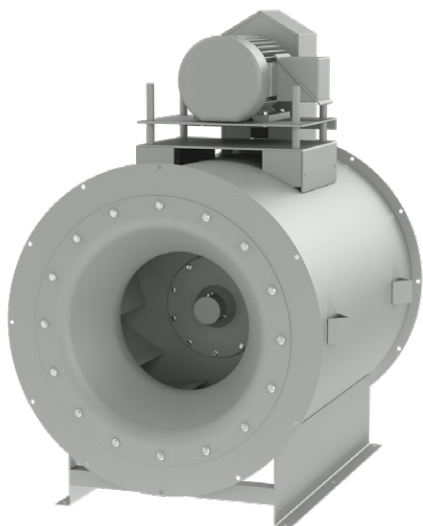
On Arrangement 3 fans, the motor is mounted directly on the fan housing in any of eight standard locations. It should be noted, however, that several of those motor positions interfere with standard floor mounts, and several may not work well with ceiling hung units.

Arrangement 3 fans are for horizontal airflow. All units are available in sizes 182 through 542.

Fan Arrangement 9

Arrangement 9 fans are the most versatile type of tubular fan. They can be horizontal base mounted, horizontal ceiling hung, or vertically mounted. The wheel, shaft and bearing configuration is the same as Arrangement 1, but the motor is mounted on the fan housing, as with Arrangement 3 fans. Vertical units are constructed with reinforcing end brackets for either floor or ceiling mounts.

Base mounted Arrangement 9 fans are available in sizes 90 through 890. Ceiling hung fans are available from size 90 through 542 on a standard basis. Vertical mounted fans are available from size 90 through 542 on a standard basis. Vertical fans larger than 542 are custom engineered.



Arrangement 9 Floor Mounted



Arrangement 9 Vertical Roof Mount

OPTIONS & ACCESSORIES

Max Access Fans

In some air moving applications, there are problems with foreign materials building up inside the fan. Spray paint exhaust systems and systems exhausting greasy air often experience this condition. Fans in such systems should be inspected and cleaned frequently. PennBarry MaxAccess fans provide superior accessibility for applications where quick inspection and clean-out are important. These special vertically mounted, Arrangement 9 tubular fans keep down-time to a minimum and help maintain tight production schedules. Servicing can be completed in minutes rather than hours. MaxAccess fans are available in Class I and II in sizes from 222 through 490. Fans larger than 490 are custom engineered.

On MaxAccess fans, the rotating assembly is permanently mounted within the fan, but two large doors allow immediate inspection of the fan interior. The reinforced doors are opened quickly, without tools. They have heavy duty hinges and are gasketed with neoprene for airtight seals. Removable inner plates on the drive compartment provide easy access to the drive and bearings. Extended lube fittings help to make servicing fast.



MaxAccess

Available Fan Configurations

Arrangement	Airflow	Available Fan Sizes		
		Base Mounted	Ceiling Hung	Vertical Mounted
1	Horizontal	90 – 890	–	–
3	Horizontal	90 – 890	90 – 542	–
9	Horizontal	90 – 890	90 – 542	–
9	Vertical	–	–	90 – 542
MaxAccess	Vertical	–	–	222 – 490

OPTIONS & ACCESSORIES

Shaft Seals

A heat resistant ceramic fiber material is used for the seal on the standard shaft seal.

Vibration Isolators, Hangers, and Rails

These items are available in both rubber-in-shear and spring type to mitigate residual vibration transmission. All isolators are properly sized to the unit.

Drains

Drains are available on all fans except those with bottom horizontal or bottom angular down discharges. Drains are located at the lowest point of the scroll. Standard type is 3/4" NPT external threads. All drains come standard with plugs.

Inlet and Outlet Guards

Guards are recommended whenever there is an unducted inlet or outlet. They protect personnel from injury and guard against foreign objects entering the fan. Inlet guards are heavy gauge zinc plated steel wire. Outlet guards are heavy gauge wire.

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.

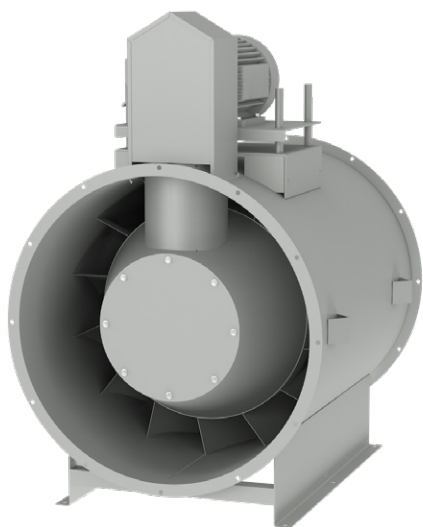
Companion Flanges

Companion Flanges are provided as an accessory to accommodate slip connections at the inlet or discharge when required.

Weather Cover

Provided with ventilation slots, a weather cover affords complete weatherproof protection of motor and drive for outdoor installation.

NOTE: Weather cover OR belt guard may be provided, not both. Weather covers are not available on horizontal ceiling hung fans.



Arrangement 9 Ceiling Suspended with Totally Enclosed Belt Guard



Arrangement 9 Vertical with /Discharge Cap, Weather Cover, Access Door and End Brackets

OPTIONS & ACCESSORIES

Ceiling Brackets

Structural angles welded to the fan casing are provided to accommodate rod hangers where the fan is intended to be ceiling suspended.

Discharge Cap

Often called a wind band, it is used with vertical upblast units. It consists of a butterfly type gravity damper surrounded by a wind break. Damper blades and wind break are uncoated, constructed of galvanized steel, stainless steel or aluminum to match unit material. It provides weather protection during both operating and shutdown conditions.

Access Doors

Located over the wheel, position is determined by installation requirements. Doors are available in either the bolted type or the quick-opening hinged type. All hardware is stainless steel or cadmium plated to resist corrosion.

Curb Cap

Curb caps are provided as a base for the unit to be installed over the roof curb which would be provided by others.

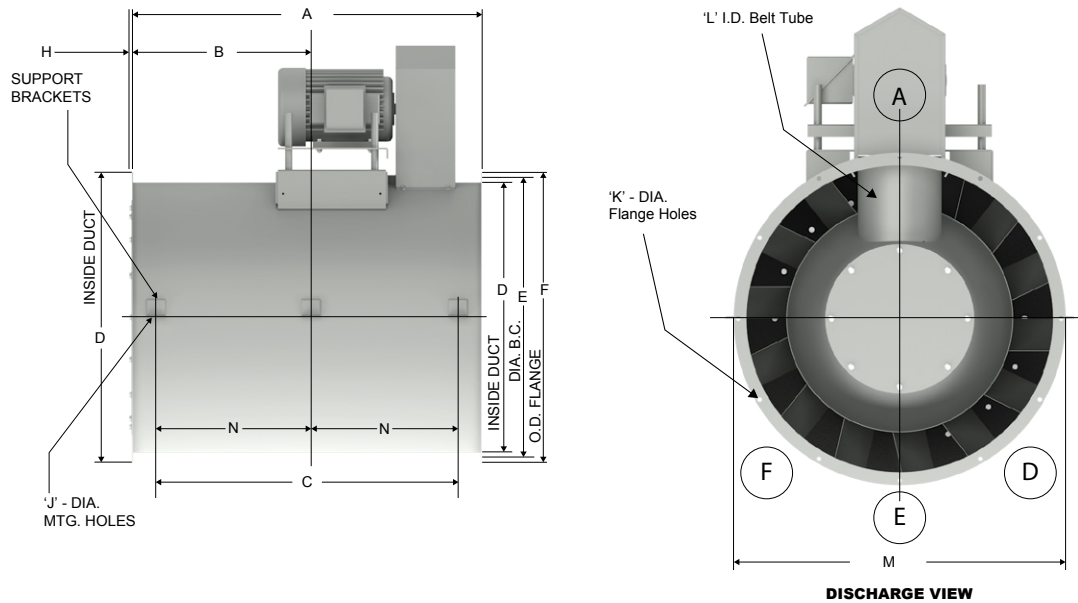
Totally Enclosed Belt Guard

Belt guards are protective covers surrounding the moving parts, provided for personnel safety.

Spark Resistant Construction

Type B and C are both available in accordance with AMCA specifications. Type B includes an aluminum wheel and non-ferrous rub ring. Type C fans have steel wheels, but are constructed with aluminum inlet cones and rub rings so that a shift in the wheel will not allow two ferrous parts to strike.

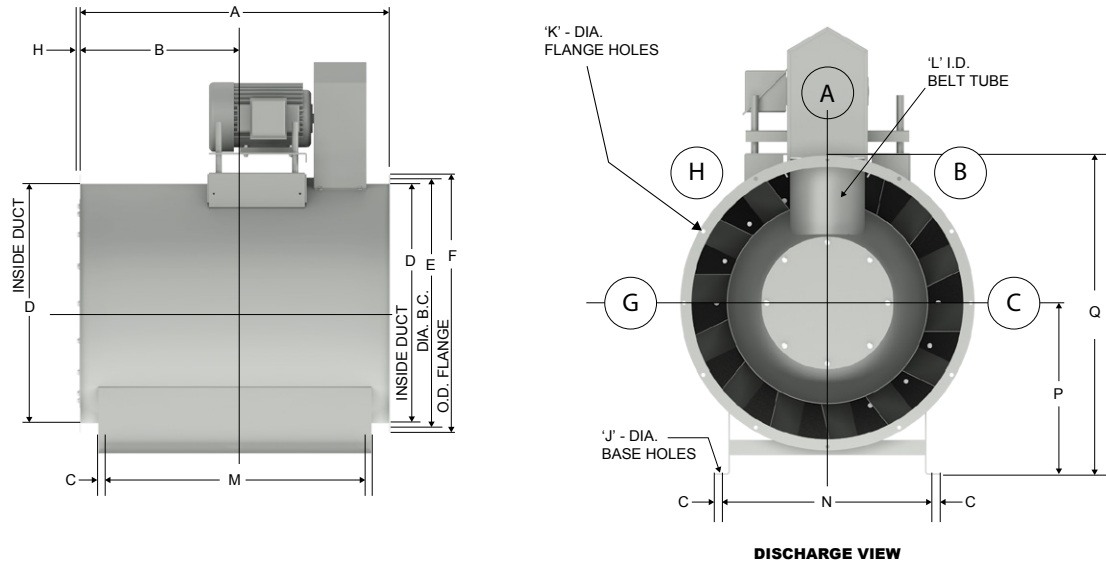
DIMENSIONAL DATA | HORIZONTAL CEILING HUNG - ARRANGEMENT 9, CLASS I & II



Size	Dimensions - Inches														N	Max. Mtr. Frame	Wheel Size
	A	B	C	D	E	F	G - Dia. SFT.			H	J	K	L	M			
							Class I	Class II	Class III								
90	20.38	10.19	14.38	12.75	14	14.81	0.75	NA	NA	1	0.5	0.38	4.5	14	NA	145T	09.19
105	24	12	17.5	14.75	16	16.81	0.75	NA	NA	1	0.5	0.38	5.5	16	NA	145T	10.63
122	24.75	12.38	19.75	16.56	18.25	19.25	1.188	1.188	NA	1.25	0.56	0.56	5.75	18.94	NA	184T	12.25
135	27.38	13.69	22.38	18.25	20	21	1.188	1.438	NA	1.25	0.56	0.56	6.31	20.63	NA	184T	13.50
150	30.38	15.19	25.38	20.25	22	23	1.188	1.438	NA	1.25	0.56	0.56	7.06	22.63	NA	215T	15.00
165	33.38	16.69	28.38	22.31	24	25	1.438	1.438	NA	1.25	0.56	0.56	7.75	24.69	NA	256T	16.50
182	32.25	16.12	27.25	24.69	26.75	28	1.438	1.438	1.688	1.5	0.56	0.56	6.63	27.12	NA	286T	18.25
200	35.38	17.69	28.88	27.06	29.12	30.31	1.438	1.438	1.688	1.5	0.56	0.56	7.31	30	NA	286T	20.00
222	39.25	19.62	32.75	30.06	32.12	33.38	1.438	1.688	2.188	1.5	0.56	0.56	8.13	33	NA	326T	22.25
245	43.25	21.62	36.75	33.12	35.12	36.38	1.688	1.688	2.188	1.5	0.81	0.56	8.94	36.06	NA	326T	24.50
270	47.62	23.81	41.12	36.5	38.5	39.75	1.688	1.937	2.438	1.5	0.81	0.56	9.88	39.44	NA	326T	27.00
300	52.88	26.44	46.38	40.56	43.12	44.88	1.688	2.188	2.438	2	0.81	0.56	11	43.56	NA	365T	30.00
330	58.12	29.06	51.62	44.62	47.25	49	1.688	2.188	2.688	2	0.81	0.56	12.13	47.62	NA	365T	33.00
365	64.38	32.19	57.88	49.38	52	53.75	1.937	2.438	2.938	2	0.81	0.56	13.38	52.38	NA	365T	36.50
402	70.88	35.44	62.88	54.38	57.5	59.75	2.188	2.688	3.438	2.5	0.81	0.81	14.81	57.88	31.44	365T	40.25
445	78.62	39.31	70.62	60.19	63.25	65.5	2.438	2.688	3.438	2.5	0.81	0.81	16.38	63.69	35.31	365T	44.50
490	86.38	43.19	78.38	66.25	69.38	71.62	2.938	3.438	3.938	2.5	0.81	0.81	17.94	69.75	39.19	365T	49.00
542	95.62	47.81	86.63	73.38	77	79.75	2.938	3.938	4.438	3	1.06	0.81	19.88	76.88	NA	405T	54.25

All units equipped with adjustable motor base. Motor available in A, D, E, or F locations only. "M" dimension is distance between mounting holes in support brackets Fan duct mounting holes: 90 - 165 = (8) 9/16" diameter holes equally spaced about a "B" diameter bolt circle. Tolerance +/- 1/8".

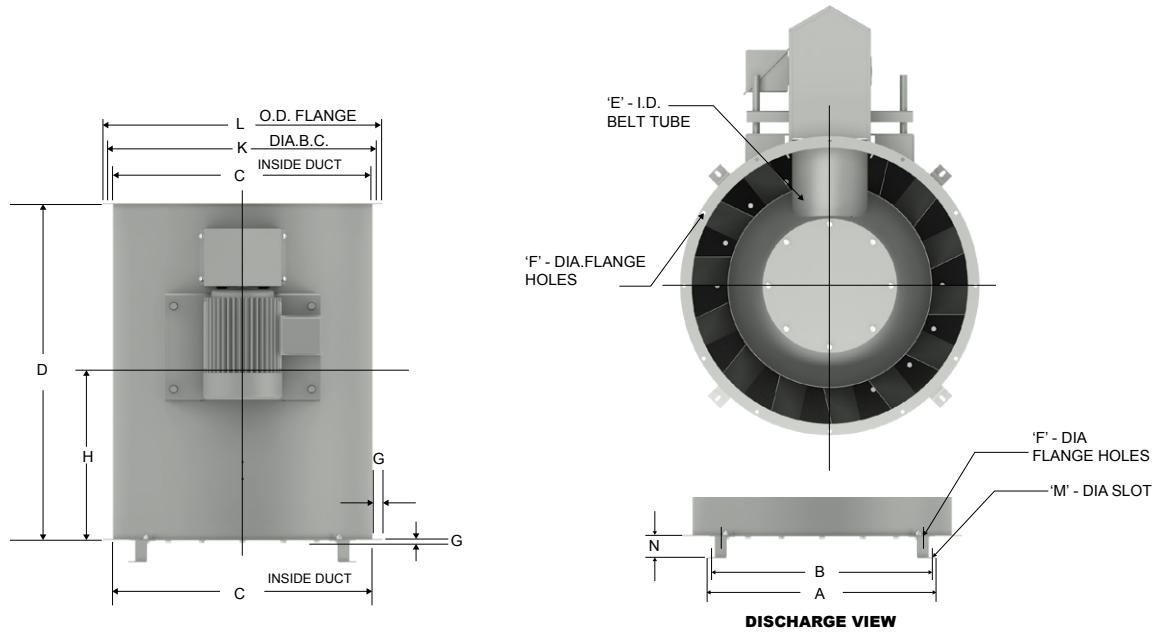
DIMENSIONAL DATA | HORIZONTAL BASE MOUNTED - ARRANGEMENT 9, CLASS I & II



Size	Dimensions - Inches																	R	Max. Mtr. Frame	Wheel Size
	A	B	C	D	E	F	G - DIA. SFT.		Class III	H	J	K	L	M	N	P	Q			
							Class I	Class II												
90	20.38	10.19	1.31	12.75	14	14.81	0.75	NA	NA	1	0.5	0.38	4.5	16.75	12.5	8.88	16.5	1.31	145T	09.19
105	24	12	1.31	14.75	16	16.81	0.75	NA	NA	1	0.5	0.38	5.5	20.38	15	9.88	18.5	1.31	145T	10.63
122	24.75	12.38	0.63	16.56	18.25	19.25	1.188	1.188	NA	1.25	0.44	0.56	5.75	14.75	14.75	12	21.63	0.63	184T	12.25
135	27.38	13.69	0.63	18.25	20	21	1.188	1.438	NA	1.25	0.44	0.56	6.31	16.75	16.75	13	23.5	0.63	184T	13.50
150	30.38	15.19	0.63	20.25	22	23	1.188	1.438	NA	1.25	0.44	0.56	7.06	19.75	18.75	14	25.5	0.63	215T	15.00
165	33.38	16.69	0.63	22.31	24	25	1.438	1.438	NA	1.25	0.44	0.56	7.75	22.75	20.75	15	27.5	0.63	256T	16.50
182	32.25	16.12	0.63	24.69	26.75	28	1.438	1.438	1.688	1.5	0.44	0.56	6.63	25.75	21.25	16	30	0.63	286T	18.25
200	35.38	17.69	0.88	27.06	29.12	30.31	1.438	1.438	1.688	1.5	0.56	0.56	7.31	28.25	23.75	18	33.12	0.88	286T	20.00
222	39.25	19.62	0.88	30.06	32.12	33.38	1.438	1.688	2.188	1.5	0.56	0.56	8.13	32.25	26.25	20	36.69	0.88	326T	22.25
245	43.25	21.62	0.88	33.12	35.12	36.38	1.688	1.688	2.188	1.5	0.56	0.56	8.94	36.25	28.75	21	39.19	0.88	326T	24.50
270	47.62	23.81	0.88	36.5	23.81	39.75	1.688	1.937	2.438	1.5	0.56	0.56	9.88	40.25	30.25	23	42.88	0.88	326T	27.00
300	52.88	26.44	0.88	40.56	43.12	44.88	1.688	2.188	2.438	2	0.56	0.56	11	45.75	35.12	25	47.44	0.88	365T	30.00
330	58.12	29.06	0.88	44.62	47.25	49	1.688	2.188	2.688	2	0.56	0.56	12.13	51.25	38.88	27	51.5	0.88	365T	33.00
365	64.38	32.19	0.88	49.38	52	53.75	1.937	2.438	2.938	2	0.56	0.56	13.38	57.25	42.62	29	55.88	0.88	365T	36.50
402	70.88	35.44	1.13	54.38	57.5	59.75	2.188	2.688	3.438	2.5	0.81	0.81	14.81	63.75	47.5	33	62.88	1	365T	40.25
445	78.62	39.31	1.13	60.19	63.25	65.5	2.438	2.688	3.438	2.5	0.81	0.81	16.38	70.75	52	36	68.75	1.13	365T	44.50
490	86.38	43.19	1.13	66.25	69.38	71.62	2.938	3.438	3.938	2.5	0.81	0.81	17.94	78.75	58	39	74.81	1.13	365T	49.00
542	95.62	47.81	1.38	73.38	77	79.75	2.938	3.938	4.438	3	0.81	0.81	19.88	79	67	43	82.88	4.5	405T	54.25
600	105.62	52.81	1.38	81.19	84.75	87.5	3.438	4.438	4.938	3	0.81	0.81	22.06	89	72	47	90.75	4.5	405T	60.00
660	116.38	58.19	1.88	89.31	92.88	95.62	3.438	4.438	5.438	3	0.81	0.81	24.25	100	81	52	99.81	4.5	405T	66.00
730	128.5	64.25	1.88	98.75	104.38	107.12	3.938	4.938	5.938	3	0.81	0.81	26.88	112	88	57	110.56	4.5	405T	73.00
807	142.12	71.06	1.88	109.25	114.88	117.62	4.438	4.938	6.438	3	0.81	0.81	29.75	126	98	62	120.81	5.5	405T	80.75
890	156.25	78.12	1.88	120.31	126.06	128.75	4.938	5.938	6.938	3	0.81	0.81	39.56	137.5	106	68.5	132.88	5.5	405T	89.00

All units equipped with adjustable motor base. Motor available in A, B, C, G, or H locations only. Fan duct mounting holes: 90 - 165 = (8) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. Dimensions should not be used for construction. Certified drawings are available upon request. Tolerance +/- 1/8".

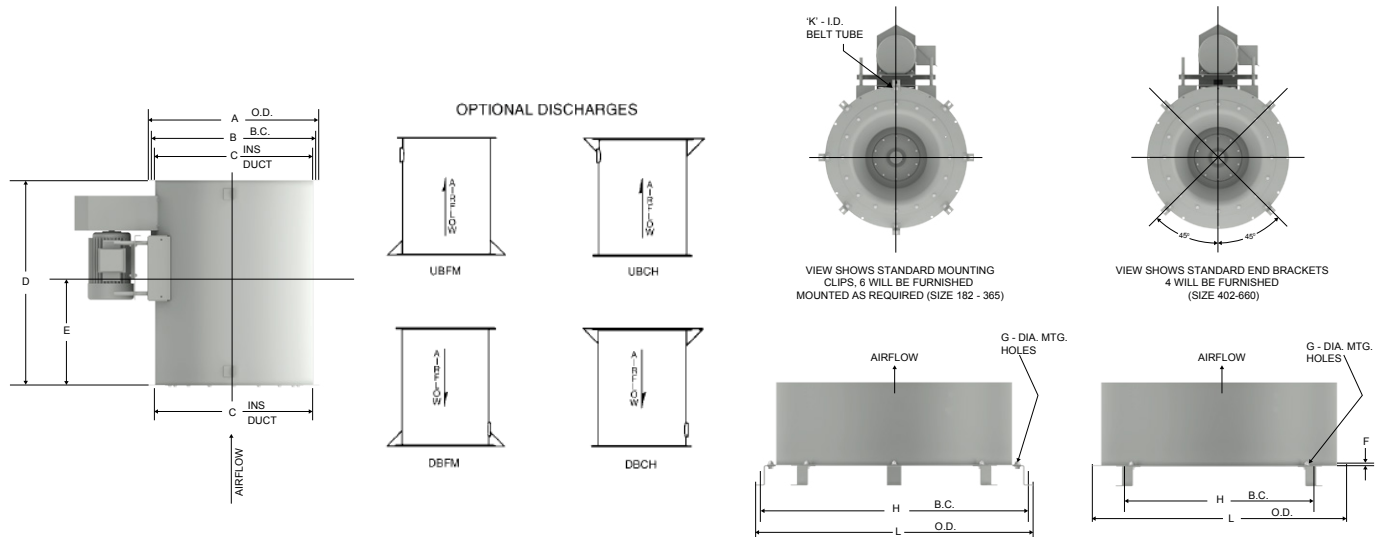
DIMENSIONAL DATA | VERTICAL DISCHARGE - ARRANGEMENT 9, CLASS I & II



Size	Dimensions - Inches														Max Mtr. Frame	Wheel Size
	A	B	C	D	E	F	G	H	J - Dia Shaft		K	L	M	N		
									Class 1	Class 2						
90	16.88	14.88	12.75	20.38	4.5	0.38	1	10.19	0.75	N/A	14	14.81	0.5	2.25	145T	09.19
105	18.88	16.63	14.75	24	5.5	0.38	1	12	0.75	N/A	16	16.81	0.5	2.25	145T	10.63
122	22.75	21.5	16.56	24.75	5.75	0.56	1.25	12.38	1.19	1.19	18.25	19.25	0.5	3.19	184T	12.25
135	24.5	23.25	18.25	27.38	6.31	0.56	1.25	13.69	1.19	1.44	20	21	0.5	3.19	184T	13.50
150	26.5	25.25	20.25	30.38	7.06	0.56	1.25	15.19	1.19	1.44	22	23	0.5	3.19	215T	15.00
165	28.69	27.19	22.31	33.38	7.75	0.56	1.25	16.69	1.19	1.44	24	25	0.5	3.19	256T	16.50

View shows optional mounting clips, 4 will be furnished mounted as required. All units equipped with adjustable motor base. Motor available in A, B, C, G, or H locations only. Fan duct mounting holes: 90 - 165 = (8) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. Tolerance +/- 1/8".

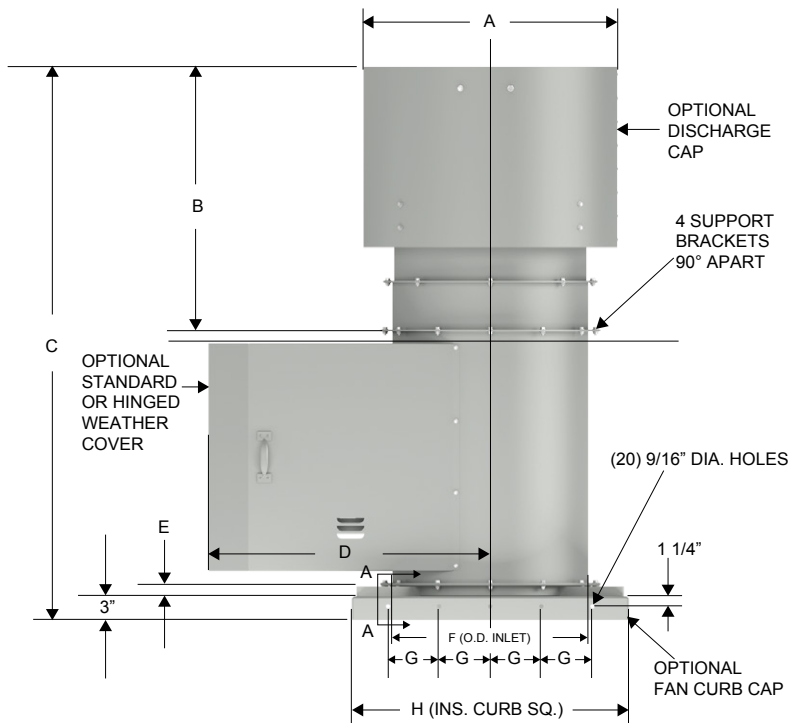
DIMENSIONAL DATA | VERTICAL - ARRANGEMENT 9, CLASS I & II



Size	A	B	C	D	E	F	G	H	J - DR. EXT.		K	L	Wheel Size
									Class I	Class II			
182	28	26 3/4	24 11/16	32 1/4	16 1/8	1 1/2	7/16	29 3/4	1 3/16	1 7/16	6 5/8	31	18.25
200	30 5/16	29 1/8	27 1/16	35 3/8	17 11/16	1 1/2	7/16	33 11/16	1 7/16	1 7/16	7 5/16	35 7/16	20.00
222	33 3/8	32 1/8	30 1/16	39 1/4	19 5/8	1 1/2	3/4	36 11/16	1 7/16	1 11/16	8 1/8	38 7/16	22.25
245	36 3/8	35 1/8	33 1/8	43 1/4	21 5/8	1 1/2	3/4	39 5/8	1 11/16	1 11/16	8 15/16	41 3/8	24.50
270	39 3/4	38 1/2	36 1/2	47 5/8	23 13/16	1 1/2	3/4	43 1/8	1 11/16	1 15/16	9 7/8	44 7/8	27.00
300	44 7/8	43 1/8	40 9/16	52 7/8	26 7/16	2	3/4	47 3/8	1 11/16	2 3/16	11	49 1/8	30.00
330	49	47 1/4	44 5/8	58 1/8	29 1/16	2	3/4	51 7/16	1 11/16	2 3/16	12 1/8	53 3/16	33.00
365	53 3/4	52	49 3/8	64 3/8	32 3/16	2	3/4	56 3/16	1 15/16	2 7/16	13 3/8	57 15/16	36.50
402	59 3/4	57 1/2	54 3/8	70 7/8	35 7/16	2 1/2	9/16	65 3/4	2 3/16	2 11/16	14 13/16	67 3/4	40.25
445	65 1/2	63 1/4	60 3/16	78 5/8	39 5/16	2 1/2	9/16	71 1/2	2 7/16	2 11/16	16 3/8	73 1/2	44.50
490	71 5/8	69 3/8	66 1/4	86 3/8	43 3/16	2 1/2	9/16	77 5/8	2 15/16	3 7/16	17 15/16	79 5/8	49.00
542	79 3/4	77	73 3/8	95 5/8	47 13/16	3	13/16	84 5/8	2 15/16	3 15/16	19 7/8	86 5/8	54.25

All units equipped with "J" diameter drive extensions. All units equipped with adjustable motor base. Maximum Motor Size - 50 HP @ 1800 RPM (Fr 326T). Refer others to factory. Fan duct mounting holes: 182 - 270 = (12) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. 300 - 365 = (16) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. 402 - 445 = (16) 13/16" dia. holes equally spaced about a "B" dia. bolt circle. 490 - 660 = (24) 13/16" dia. holes equally spaced about a "B" dia. bolt circle. Dimensions should not be used for construction. Certified drawings are available upon request. Tolerance +/- 1/8".

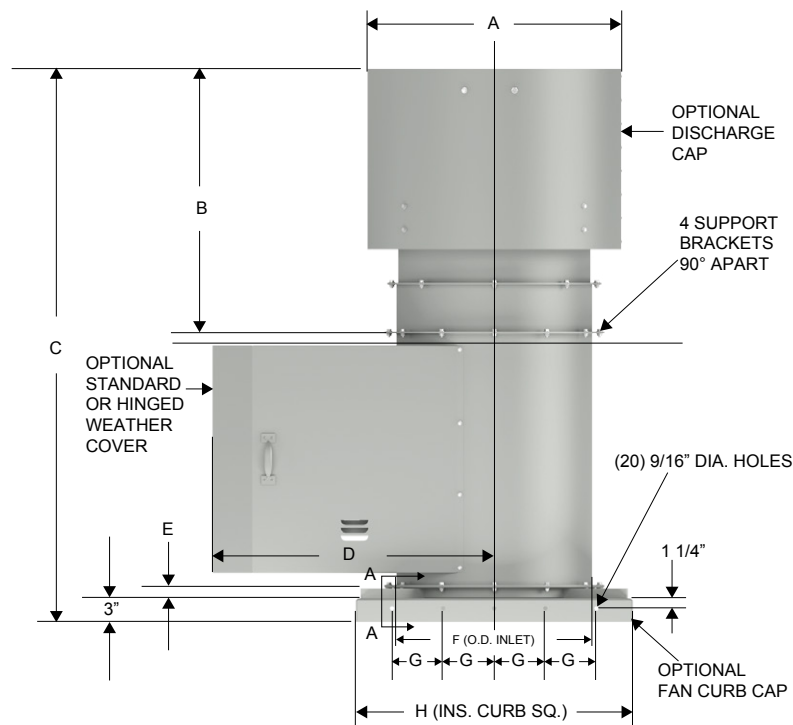
DIMENSIONAL DATA | ROOF MOUNTED - ARRANGEMENT 9, CLASS I & II



Size	Dimensions - Inches												Max. Mtr. Frame	Wheel Size
	A	B	C	D	E	F	G	H	J - Dia. SFT.		L	K		
									Class I	Class II				
122	24.88	17.5	46.5	19.37	1.25	17	5	26.63	1.188	1.188	1.25	0.56	184T	12.25
135	26.63	18.5	50.13	23.75	1.25	18.75	5	28.38	1.188	1.438	1.25	0.56	184T	13.50
150	28.63	20.5	55.13	30	1.25	20.75	5	30.38	1.188	1.438	1.25	0.56	215T	15.00
165	30.63	21.5	59.13	31.5	1.25	22.75	5	32.38	1.188	1.438	1.25	0.56	256T	16.50

All units equipped with adjustable motor base. Guy wire bracing must be provided by the customer when necessary. Dimensions should not be used for construction. Certified drawings are available upon request. Tolerance +/- 1/8".

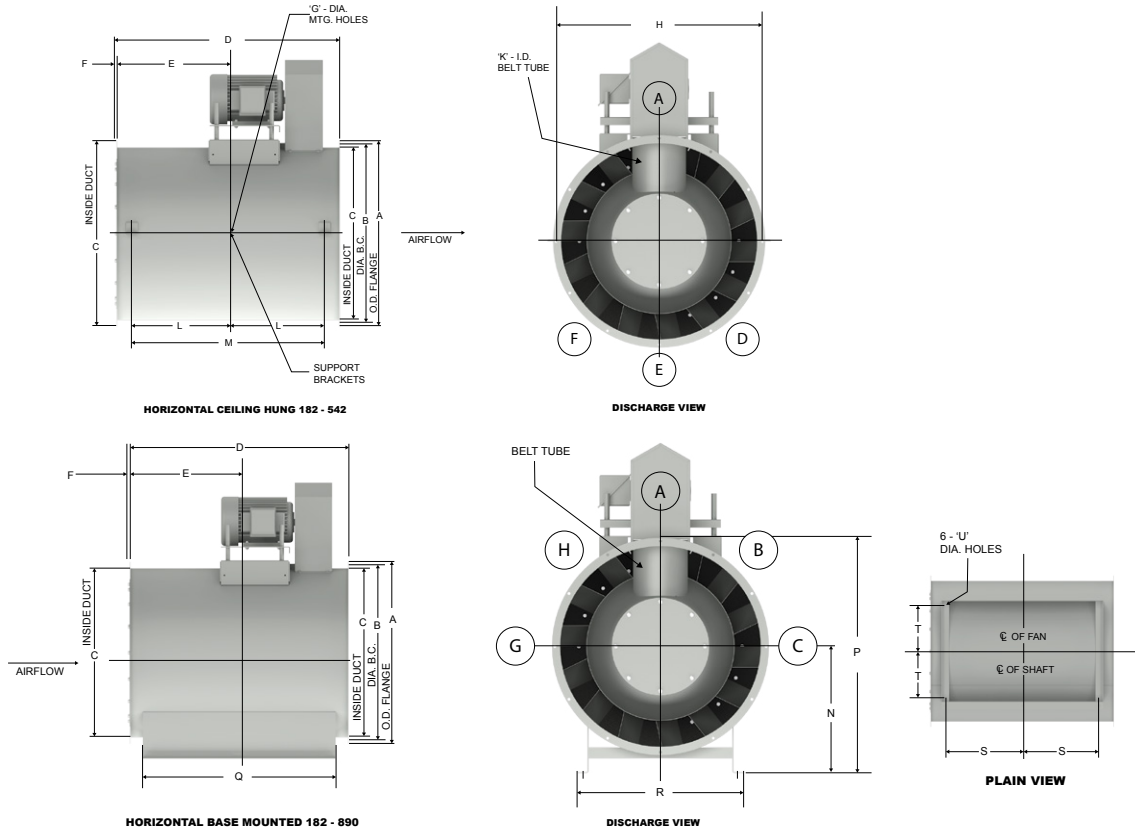
DIMENSIONAL DATA | ROOF MOUNTED - CLASS I & II



SIZE	A	B	C	D	E	F	G	H	J - DR. EXT.		Max. Mtr. Frame	Wheel Size
									Class I	Class II		
182	33 5/8	22 1/2	59 1/4	33 3/4	1 1/2	25 3/16	6 1/2	34 7/8	1 3/16	1 7/16	213T	18.25
200	39 5/8	25 1/2	65 3/8	35 1/4	1 1/2	27 11/16	7 1/2	37 3/8	1 7/16	1 7/16	215T	20.00
222	39 5/8	25 1/2	69 1/4	38 3/4	1 1/2	30 11/16	8 1/2	40 3/8	1 7/16	1 11/16	254T	22.25
245	45 5/8	28 1/2	76 1/4	40 1/2	1 1/2	33 3/4	9	43 3/8	1 11/16	1 11/16	254T	24.50
270	45 5/8	28 1/2	80 5/8	42 1/4	1 1/2	37 1/8	10	46 3/4	1 11/16	1 15/16	256T	27.00
300	51 5/8	31	88 7/8	44 1/2	2	41 3/8	11	51	1 11/16	2 3/16	256T	30.00
330	57 5/8	34	97 1/8	47 1/2	2	45 7/16	12	55 1/8	1 11/16	2 3/16	284T	33.00
365	63 5/8	37	106 3/8	50	2	50 3/16	13	59 7/8	1 15/16	2 7/16	286T	36.50
402	69 5/8	40 1/2	116 7/8	55 1/2	2 1/2	55 3/16	14	64 7/8	2 3/16	2 11/16	324T	40.25
445	75 5/8	42 1/2	126 5/8	58 3/4	2 1/2	61	15 1/2	69 5/8	2 7/16	2 11/16	324T	44.50
490	84 5/8	49 1/2	141 3/8	61 3/4	2 1/2	67 1/16	17	76 3/8	2 15/16	3 7/16	324T	49.00
542	94 5/8	57	159 5/8	71	6	74 1/4	15	86 3/4	2 15/16	3 15/16	405T	54.25

All dimensions are in inches. All units equipped with adjustable motor base. Guy wire bracing must be provided by the customer when necessary. Maximum Motor Size - 50 HP @ 1800 RPM (Fr 326T). Refer others to factory. Tolerance +/- 1/8".

DIMENSIONAL DATA | HORIZONTAL - ARRANGEMENT 3, CLASS I & II



Size	Dimensions - Inches																				Max. Mtr. Frame		Wheel Size
	A	B	C	D	E	F	G	H	J -Dia. Shaft		K	L	M	N	P	Q	R	S	T	U	ODP		
									CL1	CL2											TEFC		
182	28	26 3/4	24 11/16	23 1/2	11	1 1/2	9/16	27 1/8	1 3/16	1 7/16	6 5/8	-	15 3/4	16	30	16 3/4	21 1/4	10	7 3/4	7/16	286T	286T	18.25
200	30 5/16	29 1/8	27 1/16	25 5/8	12 1/16	1 1/2	9/16	30	1 3/16	1 7/16	7 5/16	-	17 3/8	18	33 1/8	18 3/4	23 3/4	11	8 1/2	9/16	286T	286T	20.00
222	33 3/8	32 1/8	30 1/16	28 3/8	13 7/16	1 1/2	9/16	33	1 7/16	1 7/16	8 1/8	-	20 1/8	20	36 11/16	21 5/8	26 1/4	12 1/4	9 15/16	9/16	326T	326T	22.25
245	36 3/8	35 1/8	33 1/8	31	14 3/4	1 1/2	13/16	36 1/6	1 11/16	1 11/16	8 15/16	-	22 3/4	21	39 3/16	24 1/4	28 3/4	13 1/2	11 1/4	9/16	326T	326T	24.50
270	39 3/4	38 1/2	36 1/2	33	15 3/4	1 1/2	13/16	39 7/16	1 11/16	1 11/16	9 7/8	-	24 3/4	23	42 7/8	25 7/8	30 1/4	14 1/4	12 1/16	9/16	326T	326T	27.00
300	44 7/8	43 1/8	40 9/16	37	17 1/2	2	13/16	43 9/16	1 11/16	1 11/16	11	-	28 1/4	25	47 7/16	29 5/8	35 1/8	16 11/16	13 15/16	9/16	365T	365T	30.00
330	49	47 1/4	44 5/8	40 1/2	19 1/4	2	13/16	47 5/8	1 15/16	1 15/16	12 1/4	-	31 3/4	27	51 1/2	33 3/8	38 7/8	18 9/16	15 13/16	9/16	365T	365T	33.00
365	53 3/4	52	49 3/8	44 1/8	21 1/16	2	13/16	52 3/8	1 15/16	2 3/16	13 3/8	-	35 3/8	29	55 7/8	37	42 5/8	20 7/16	17 5/8	9/16	365T	365T	36.50
402	59 3/4	57 1/2	54 3/8	51 1/2	24 1/2	2 1/2	13/16	57 7/8	2 3/16	2 7/16	14 13/16	-	37 1/2	33	62 7/8	43 1/2	47 1/2	22 5/8	20 5/8	13/16	365T	365T	40.25
445	65 1/2	63 1/4	60 3/16	56 3/8	26 15/16	2 1/2	13/16	63 11/16	2 3/16	2 11/16	16 3/8	-	42 3/8	36	68 3/4	48 3/4	52	24 7/8	23 1/4	13/16	365T	365T	44.50
490	71 5/8	69 3/8	66 1/4	61 1/2	29 1/2	2 1/2	13/16	69 3/4	2 7/16	2 15/16	17 15/16	-	47 1/2	39	74 13/16	53 5/8	58	27 7/8	25 11/16	13/16	365T	365T	49.00
542	79 3/4	77	73 3/8	68 5/8	32 13/16	3	1 1/16	76 1/8	2 11/16	3 7/16	19 7/8	26 5/16	52 5/8	43	82 7/8	58	67	32 1/8	24 1/2	13/16	405T	405T	54.25

All units equipped with "J" dia. shaft and bearings. All units equipped with adjustable motor base. Mounting hole distance in support brackets. Motor available in A, D, E or F location only on ceiling hung units. Motor available in A, B, C, G or H location only on base mounted units. Fan duct mounting holes: 182 - 270 = (12) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. 300 - 365 = (16) 9/16" dia. holes equally spaced about a "B" dia. bolt circle. 402 - 445 = (16) 13/16" dia. holes equally spaced about a "B" dia. bolt circle. 490 - 890 = (24) 13/16" dia. holes equally spaced about a "B" dia. bolt circle. Dimensions should not be used for construction. Certified drawings are available upon request. Tolerance +/- 1/8".

FAN SELECTIONS

Model

TUB = Tubular Centrifugal Fan

Construction

<p>Application</p> <p>E = Exhaust / Relief S = Supply / Intake</p> <p>Application Flow (CFM)</p> <p><enter value></p> <p>Application Static Pressure (inwg)</p> <p><enter value></p> <p>Altitude</p> <p><enter value></p> <p>Arrangement</p> <p>A = Arr. 1 Horizontal Base B = Arr. 3 Horizontal Base C = Arr. 3 Horizontal Ceiling Hung L = Arr. 9 Horizontal Base M = Arr. 9 Horizontal Ceiling Hung N = Arr. 9 Vertical Downblast</p>	<p>P = Arr. 9 Vertical Upblast X = Special</p> <p>Class</p> <p>A = Class 1 Backward Inclined B = Class 1 Airfoil D = Class 2 Backward Inclined E = Class 2 Airfoil G = Class 3 Backward Inclined H = Class 3 Airfoil</p> <p>Crating Option</p> <p>0 = Standard 1 = Premium 1 2 = Premium 2</p> <p>Drive Type</p> <p>B = Belt</p>	<p>Drive Kit Option</p> <p>0 = None A = Adjustable drive kit C = Constant drive kit L = Life Safety X = Special</p> <p>Fan RPM</p> <p><####></p> <p>Unit Material</p> <p>A = Aluminum H = Steel S = 304 stainless steel U = 316 stainless steel</p> <p>Unit Size</p> <p>090, 105, 122, 135, 150, 165, 182, 200, 222, 245, 270, 300, 330, 365, 402, 445, 490, 542, 600, 660, 730, 807, 890</p>
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Motor

<p>Efficiency</p> <p>P = Premium S = Standard</p> <p>Horsepower</p> <p>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 = 75 100.0 = 100 125.0 = 125 150.0 = 150 200.0 = 200 250.0 = 250 300.0 = 300</p>	<p>350.0 = 350 X = Special</p> <p>Motors and Drives</p> <p>F = Factory supplied L = Less motor, less drive N = Customer supplied motor, factory mounted* X = Special</p> <p>Motor Enclosure</p> <p>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</p> <p>FS = Factory Supplied 01 = 48 02 = 56 03 = 56H 04 = 56HZ 05 = 143T 06 = 145T 07 = 182T 08 = 184T 09 = 213T</p>	<p>10 = 215T 11 = 254T 12 = 256T 13 = 284T 14 = 286T 15 = 324T 16 = 326T 17 = 364T 18 = 365T 19 = 404T 20 = 405T 21 = 444T 22 = 445T 23 = 447T 24 = 449T 25 = 5010T X = Special</p> <p>Motor Pole</p> <p>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</p> <p>Motor Position</p> <p>A = 0 degrees B = 45 degrees</p>
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FAN SELECTIONS

Motor

C = 90 degrees
D = 135 degrees
E = 180 degrees
F = 225 degrees
G = 270 degrees
H = 315 degrees

Voltage/Phase/Cycle

B = 110V/1PH/50HZ
C = 115V/1PH/60HZ

D=120V/1PH/60HZ
F = 208V/1PH/60HZ
G = 208V/3PH/60HZ
H = 220V/1PH/50HZ
J = 220V/3PH/50HZ
K = 230V/1PH/60HZ
L = 230V/3PH/60HZ
M = 240V/1PH/50HZ
N = 240V/3PH/50HZ
P = 277V/1PH/60HZ
Q = 380V/3PH/50HZ

R = 380V/3PH/60HZ
S = 400V/3PH/50HZ
T = 415V/3PH/50HZ
U = 440V/3PH/50HZ
V = 460V/3PH/60HZ
W = 480V/3PH/60HZ
X = Special
Y = 575V/3PH/60HZ
Z=600V/3PH/60HZ

*277V applications require a transformer

Electrical Accessories

Controllers

0 = None
7 = Provided by others
V = VFD (belt drive only)

Service Switches and ITW*

0 = None
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

* ITW - Internal wiring not provided on explosion proof motors

Options and Accessories

Bearings

A = 40K
B = 80K
C = 200K
H = 120K
X = Special

Construction Accessories

0 = None
1 = Access door bolted
3 = Access door bolted plus drain w/ plug
9 = Drain 3/4" NPT w/ plug
D = Max access doors
E = Max access doors w/ drain and plug
X = Special

Curb and Caps

0 = None
A = Curb cap
B = Curb cap and curb
X = Special
Note: Curbs ordered separately on all PLOPs

Discharge Caps and Extensions

0 = None
D = Discharge cap
E = Discharge cap w/ fuse link
X = Special

Flange/Companion Flange Kit

0 = None
G = Punched companion inlet flange kit*
H = Punched companion outlet flange kit*
J = Punched companion inlet and outlet flange kit*

Guard/Screen

0 = None
N = Inlet guard
T = Inlet and outlet guard
U = Outlet guard

Paint/Coating

0 = None
A = Standard Enamel
B = Airdry Epoxy
E = Airdry Phenolic

M = Airdry Phenolic Epoxy
R = High Temp Black
X = Special

Paint Color

00 = None
01 = Standard color (gray)
70 = Black
X = Special

FAN SELECTIONS

Options and Accessories

Shaft Seal

- 0 = None
- C = Ceramic

Special Applications

- 0 = None
- 4 = UL heat & smoke
- 5 = Outdoor 300F (UL 762)
- 6 = Indoor 300F (UL 762)
- 7 = Outdoor 500F (UL 762)
- 8 = Indoor 500F (UL 762)

Special Construction

- 0 = None
- B = Spark resistance (AMCA B)
- C = Spark resistance (AMCA C)
- X = Special

Stainless Steel

- 0 = None
- S = 304SS Shaft
- U = 316SS Shaft
- X = Special

Vibration Isolators

- 0 = None
- 1 = Rubber in shear floor

- 2 = Rubber in shear hanger
- 4 = Unhoused spring floor
- 5 = Housed spring floor
- 6 = Spring hanger
- X = Special

Weather/Motor Cover

- B = Belt guard
- C = Weather/motor cover
- H = Hinged weather/motor cover

Weep Holes

- 0 = None
- W = Weep Holes

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Ceiling, wall, & inline centrifugal fans
Roof supply centrifugal fans
Square & round centrifugal fans
Wall mounted axial fans
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Gravity ventilators
Roof curbs



Industrial

Freestanding centrifugal fans
Industrial & material handling fans
Tubular centrifugal inline fans
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Plenum fans
Wall mounted propeller fans
Tube axial fans
Vane axial fans
Lab exhaust



Kitchen ventilation

Exhaust fans

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