

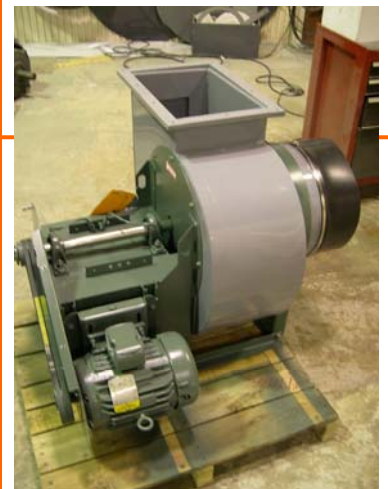
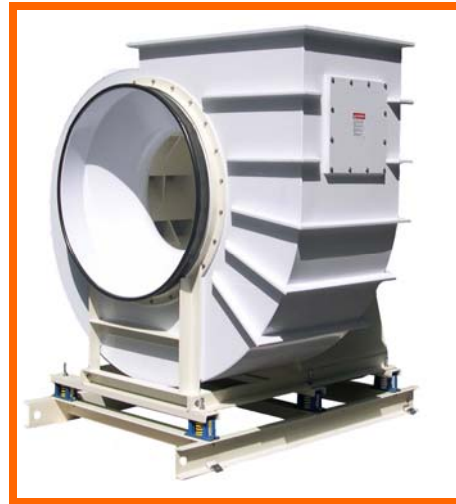
Capacities to 70,000 CFM
Corrosion Resistant Construction

EXHAUST FANS

Built to Last



- wet scrubbers
- chrome (CMP) scrubbers
- mist eliminators (CMP)
- exhaust fans
- exhaust hoods
- canopy hoods
- ductwork
- installation
- maintenance programs
- custom fabrications
- design services



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Traverse City, MI 49686

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SINGLE WIDTH BI FANS

Since 1979, Midwest Air Products Co., Inc. has been producing quality corrosion resistant fans to move air in America's Metal Finishing Industries. We have practiced a policy of continuous product development and offer an unmatched combination of technology and manufacturing skill. Our fan designs provide the highest aerodynamic efficiencies, compatible with specific requirements. Mapco fan structures are designed for long service life in the most severe environments.

All BI fans are equipped with a rugged steel fan wheel which has been sand blasted and coated with Mapco-Guard corrosion resistant coating. Inlet cones are heat formed (not vacuum formed) to provide the smoothest air flow into the fan wheel insuring minimum inlet turbulence. The end result of this manufacturing process is the most efficient fan money can buy.

Mapco fans are fabricated from heavy gauge high impact Type II Grade I PVC, conforming to ASTM D1784-78 and containing no plasticizers or polypropylene, conforming to ASTM P2146-78.

PP, SS & FRP construction is also available.

ACCESSORIES

- Spring Isolators
- Rubber and Shear Isolators
- VFD (variable frequency drive)
- Silencers
- Back Draft Dampers
- Automatic Dampers

CONSTRUCTION FEATURES

- Heavy-gauge welded PVC, Poly Pro , FRP or Stainless Steel construction with steel base.
- Continuous welded housings provide the strongest possible construction.
- Lifting eyes are standard on all BI fans.
- Fan wheels are statically and dynamically balanced at the specified running speed after final assembly.
- Heavy duty bearings are selected for long service life through the entire operating range of the fan.
- Corrosion resistant steel fan wheels Class II construction.

DESIGN FEATURES

- Complete Class I, II, III performance.
- Capacities to 70,000 CFM.
- Pressures to 10" WG
- Efficiencies beyond 85%
- Temperatures to:
 - 210⁰ F. FRP Fan
 - 140⁰ F. PVC Fans
 - 180⁰ F. Poly Pro
- 10 sizes: 12" through 60" wheel diameters.
- Available in clockwise and counterclockwise rotations in any six standard discharge positions.
- Unique heat formed inlet cone with airflow diverter improves fan efficiency.

ACCESSORIES / WHEEL DESIGN

1. FLANGES

Outlet flange is welded flush with fan outlet and provided without holes. Optional **inlet flange** welded to inlet collar or flexible connection provided without holes. Optional **Companion flange** can be provided with matching hole pattern.

2. DRAIN

All fans are equipped with a threaded drain coupling except bottom horizontal discharges.

3. SHAFT SEAL

Rubber shaft seal and moisture diverter is supplied on housing interior to prevent leakage through the fan housing.

4. UNITARY BASE

Structural steel base provides common support for fan, motor, and drive components...also available with **spring-type** or **rubber-in-shear isolators** (flexible duct connections are recommended for use with isolation bases).

5. CLEANOUT DOOR

Bolt on cleanout doors are provided as standard equipment. Optional sliding door also available.

6. SAFETY EQUIPMENT

Shaft/bearing guard and belt guard are standard equipment on all fans. Motor covers also available. Fans can also be ordered less motor, drive and guard.

7. INLET BOXES

PVC inlet box minimizes entry losses normally associated with 90° turns at or near fan inlet.

8. OUTLET DAMPERS

Parallel-blade or opposed-blade outlet dampers are available for volume-control applications. Outlet dampers are supplied in coated steel only.

The BI wheel's single-thickness blades handle airstreams not suited to hollow airfoil shapes.

EFFICIENCY

Area of peak mechanical efficiency is on the steeply rising portion of the static pressure curve, the best selection range.

SOUND

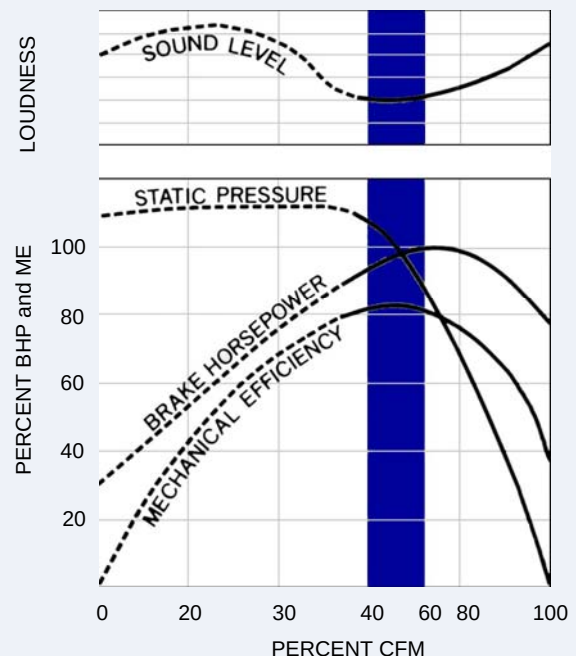
Sound levels are lowest with the most efficient fan selections.

CONSTRUCTION

Sizes 12 to 60 are all-welded steel with Mapco-Guard corrosion resistant coating.

TYPICAL PERFORMANCE

Shaded regions across curves and capacity tables highlight performance within 3% of peak mechanical efficiency.



BELT DRIVE ARRANGEMENTS

Class I, II and III Single-Width BI Fans are available in Arrangements 1 and 9 for belt-drive applications. The use of standard V-belt drives provides flexibility in fan performance by changing sheaves and belts.

In lower horsepower ranges, V-belt drive selection is relatively simple, but as horsepower requirements increase, V-belt drive selection becomes more complicated and requires more consideration of the drive's effect on fan and motor bearings.

A few recommendations to remember are:

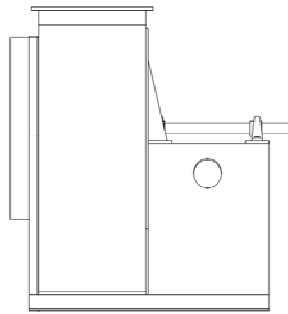
1. 3600 RPM motors are not generally recommended for belt drive above 20 HP.
2. 1800 RPM motors are not generally recommended for belt drive above 300 HP.
3. When motors 200 HP and larger are to be used with belt-drive fans, Mapco requires that the motor manufacturer:
 - a Recommend the minimum diameter motor sheave that may be used.
 - b Recommend the maximum motor-sheave width that may be used.

With the above information from the motor manufacturer, the drive may be selected.

ARRANGEMENT

1

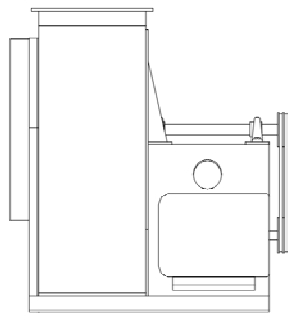
Overhung wheel keeps bearing out of air-stream



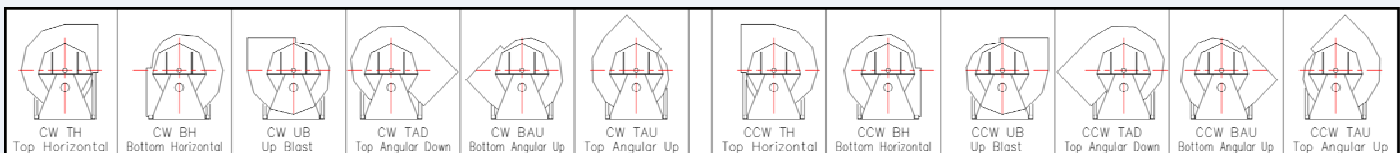
ARRANGEMENT

9

Essentially the same as arrangement 1, but with motor mounted on side of fan pedestal. Motor size capability shown on page 9.

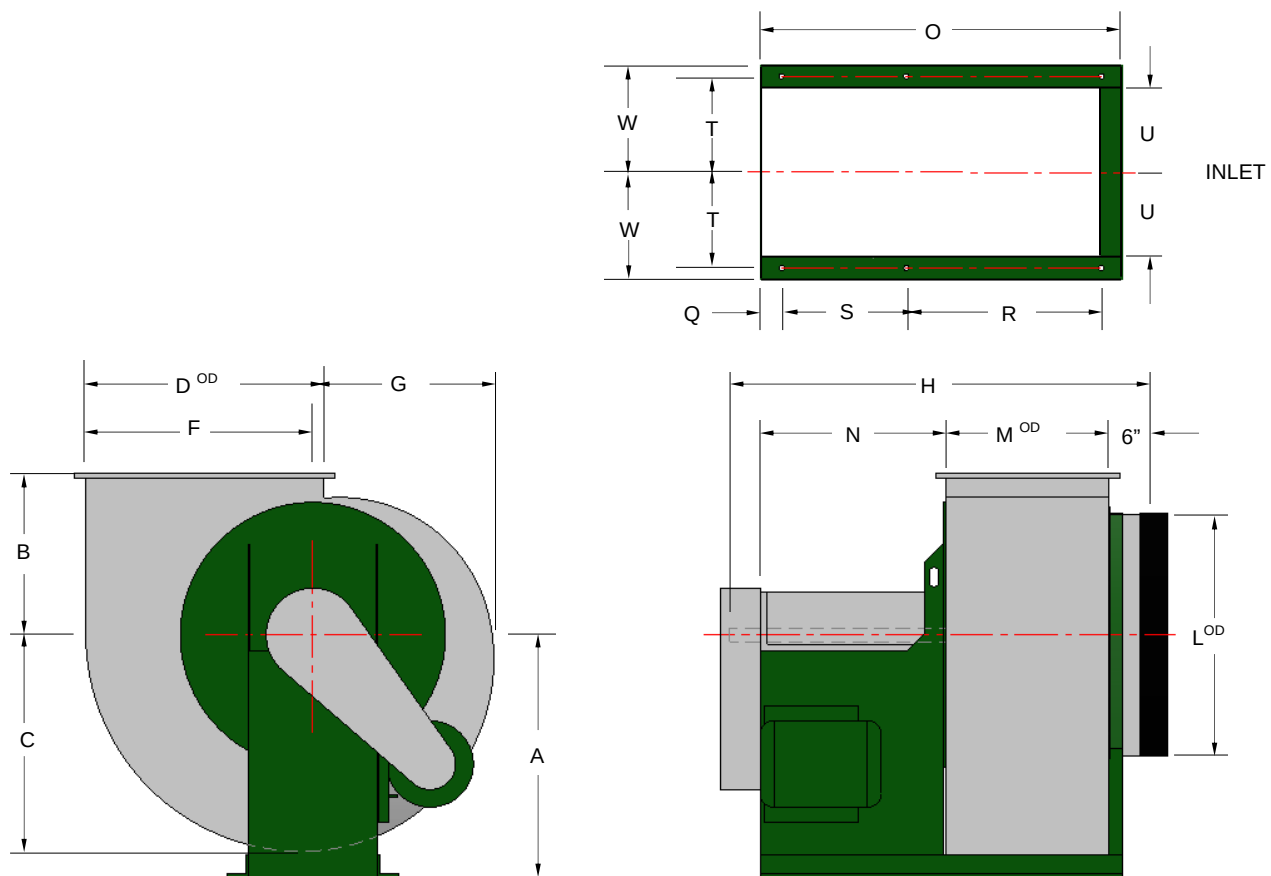


FAN DISCHARGES



Clockwise and counterclockwise angular discharges @ 45°. TAD discharge configuration requires extension on fan outlet. Consult factory for dimensions. Midwest Air Products Co., Inc. has a policy of continuous product development and reserves the right to change designs and specifications without notice.

BI FANS



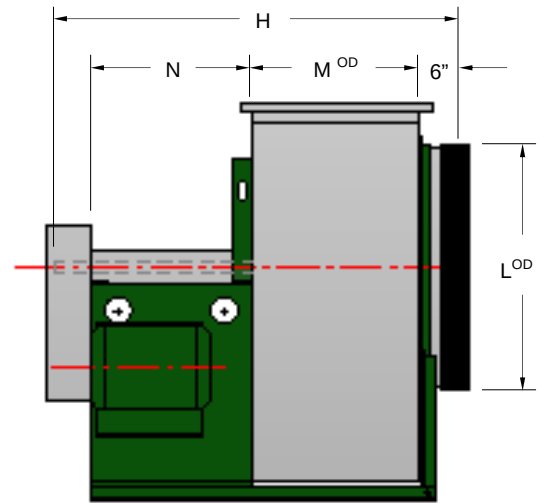
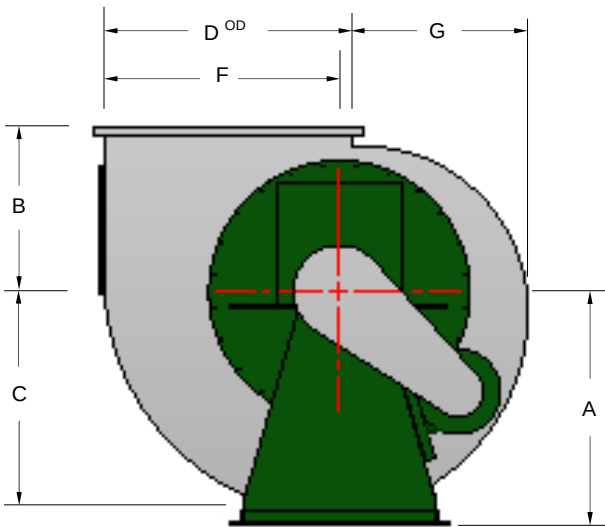
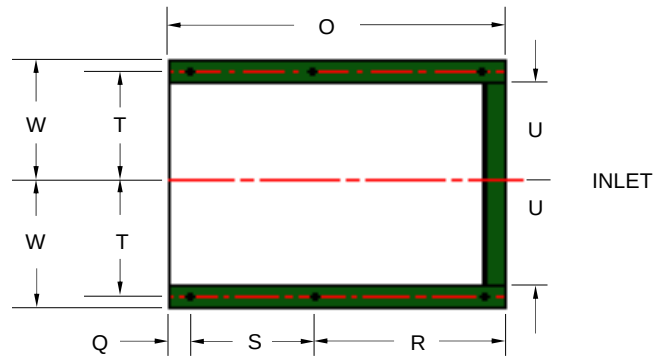
Inlet/Outlet Flange Size - Size 12 to 24....1 1/2" X 3/4" Size 27 to 60....2" X 3/4"

CLASS I,II,ARRANGEMENT 1 AND 9 DIMENSIONS [INCHES]

Size	A	B	C	D OD	F	G	H	K	L OD	M OD	N
12	15 1/2	12	12 3/8	13 3/4	13	10 3/8	32 11/16	2 1/2	13	9 5/8	14 9/16
15	17 1/2	14	15 1/8	16 7/8	15 7/8	12 3/4	37 1/16	3	15 7/8	11 5/8	16 7/16
18	21 1/4	16	18 1/2	20 1/2	19 3/8	15 1/2	41 9/16	3 1/2	19 1/2	14 1/8	17 15/16
22	25 1/2	18	22 1/2	24 7/8	23 5/8	18 7/8	48 3/4	4	23 7/8	17 1/4	21 1/2
24	28	20	24 3/4	27 3/8	26	20 3/4	52 1/2	4 1/2	26 3/8	18 3/4	23 1/4
27	30 1/2	21	27 1/4	30 3/8	28 5/8	22 7/8	55 5/8	5	29	20 5/8	24
30	33 3/4	23	30 3/8	33 9/16	31 13/16	25 3/8	59 7/8	5 1/2	32 3/8	22 7/8	25 1/2
33	37	25	33 3/8	37	35	28	65 7/8	6	35 5/8	25 1/8	28 3/4
36	42	29	36 7/8	40 7/8	38 3/4	30 7/8	69 1/8	6 1/2	39 5/8	27 3/4	28 7/8

Size	O	Q	R	S	T	U	W	BASE HOLE	SHAFT SIZE	DLAH BEARING CENTERLINE	SCROLL MAT'L. THICKNESS	SIDE MAT'L. THICKNESS	WEIGHT LESS MOTOR
12	26 1/8	5/8	12 3/4	11 7/8	7 3/8	6 1/2	8	9/16	1 3/16	1 11/16	1/8	3/16	221
15	30 1/16	3/4	14 3/4	13 5/8	8 7/8	8	9 1/2	9/16	1 7/16	1 7/8	1/8	3/16	244
18	34 9/16	1	18	14 3/8	9 3/8	8 1/4	10 1/4	9/16	1 11/16	2 1/8	1/8	3/16	388
22	41 5/16	1	21 1/2	17 5/8	10 7/8	9 3/4	11 3/4	9/16	1 11/16	2 1/8	3/16	1/4	506
24	44 9/16	1	23 7/8	19 1/8	12 1/4	11	13	3/4	1 11/16	2 1/8	3/16	1/4	568
27	48 3/16	1	25 3/4	19 7/8	13 5/8	11 3/4	14 3/4	3/4	1 15/16	2 1/4	3/16	1/4	664
30	51 15/16	1	28	21 3/8	13 5/8	11 3/4	14 3/4	3/4	1 15/16	2 1/4	3/16	1/4	762
33	57 7/16	1	30 1/4	24 5/8	16	14	17	3/4	2 3/16	2 1/2	3/16	1/4	968
36	60 1/8	1	33	24 5/8	16	14	17	3/4	2 3/16	2 1/2	3/16	1/4	1250

BI FANS



Inlet/Outlet Flange Size - Size 12 to 24....1 1/2" X 3/4" Size 27 to 60....2" X 3/4"

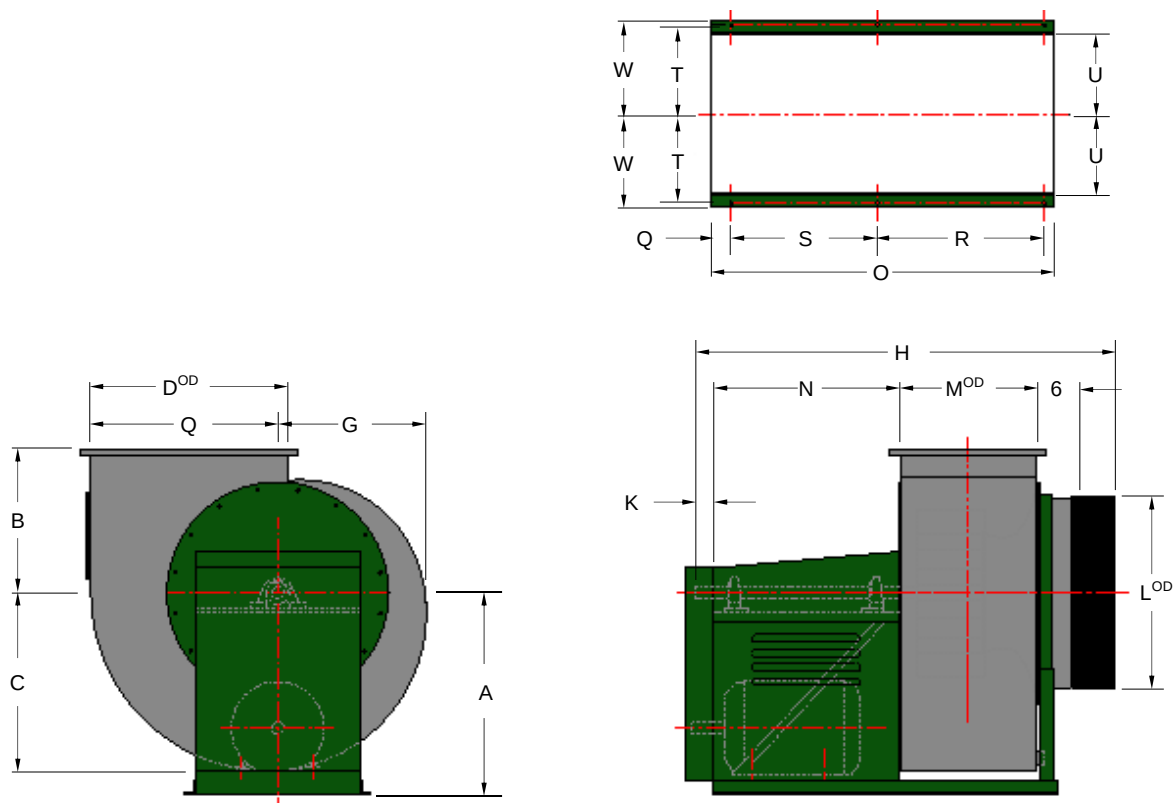
CLASS I,II ARRANGEMENT 1 AND 9 DIMENSIONS [INCHES]

Size	A	B	C	D OD	F	G	H	K	L OD	M OD	N
40	43	31	40 3/4	45	42 3/4	34 1/8	75 7/8	7	43 3/8	30 5/8	32 1/4
44	47	34	45	49 7/8	47 1/8	37 3/4	83	7 1/2	48 3/8	33 3/4	35 3/4
49	51 1/2	36	49 1/2	54 7/8	52	41 1/2	86 7/8	8	53 3/8	37 1/8	35 3/4
54	57	40	53 7/8	60 5/8	57 1/2	45 7/8	97 1/4	8 1/2	58 7/8	41	41 3/4
60	62 1/2	43	60 3/4	67	63 3/4	50 7/8	101 7/8	9	65 5/8	45 1/8	41 3/4

Size	O	Q	R	S	T	U	W	BASE HOLE	SHAFT SIZE	BEARING CENTERLINE	SCROLL MAT'L. THICKNESS	SIDE MAT'L. THICKNESS	WEIGHT LESS MOTOR
40	69 1/4	1 1/2	33 1/2	32 1/4	19	17 1/2	20 1/2	7/8	2 7/16	2 3/4	3/16	1/4	1420
44	75 7/8	1 1/2	36 1/2	35 3/4	21	19 1/2	22 1/2	7/8	2 11/16	3	1/4	1/4	1660
49	79 1/4	1 9/16	40	35 3/4	23	21 1/2	24 1/2	7/8	2 15/16	3 1/2	1/4	1/4	2064
54	91 1/8	2 1/8	44 3/4	41 3/4	25	23	27	1	3 7/16	4	1/4	1/4	2210
60	95 1/4	2 1/16	49	41 3/4	26 1/2	24 1/2	28 1/2	1	3 7/16	4	1/4	1/4	2748

Dimensions shown for PVC fans only. Dimensions not to be used for construction unless certified. Tolerance + or - 1/8"

GP FANS



Inlet/Outlet Flange Size - Size 12 to 24....1 1/2"X 3/4" Size 27 to 36....2"X 3/4"

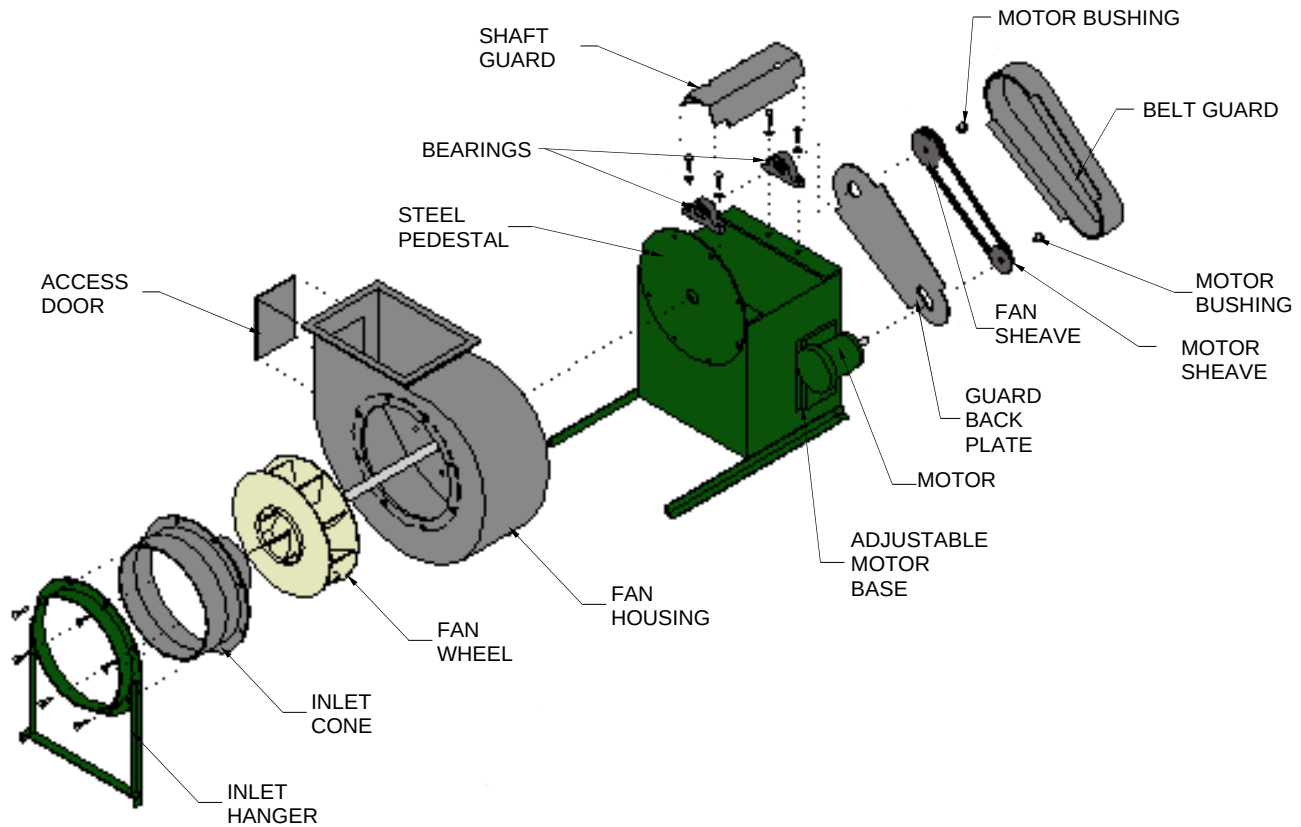
CLASS I,II,III ARRANGEMENT 1 AND 9 DIMENSIONS [INCHES]

Size	A	B	C	D OD	F	G	H	K	L OD	M OD	N
12	15 1/2	12	12 3/8	13 3/4	13	10 3/8	41 1/4	2 1/2	13	9 5/8	20
15	17 1/2	14	15 1/8	16 7/8	15 7/8	12 3/4	45 3/4	3	15 7/8	11 5/8	22
18	21 1/4	16	18 1/2	20 1/2	19 3/8	15 1/2	48 3/4	3 1/2	19 1/2	14 1/8	22
22	25 1/2	18	22 1/2	24 7/8	23 5/8	18 7/8	56 3/8	4	23 7/8	17 1/4	26
24	28	20	24 3/4	27 3/8	26	20 3/4	58 3/8	4 1/2	26 3/8	18 3/4	26
27	32 1/2	21	27 1/4	30 3/8	28 5/8	22 7/8	61 5/8	5	29	20 5/8	26 7/8
30	32 1/2	23	30 3/8	33 9/16	31 13/16	25 3/8	64 3/8	5 1/2	32 3/8	22 7/8	26 7/8
33	39 1/2	25	33 3/8	37	35	28	70 1/8	6	35 5/8	25 1/8	29 7/8
36	39 1/2	29	36 7/8	40 7/8	38 3/4	30 7/8	72 7/8	6	39 5/8	27 3/4	30

Size	O	Q	R	S	T	U	W	BASE HOLE	SHAFT SIZE	BEARING CENTERLINE	SCROLL MAT'L. THICKNESS	SIDE MAT'L. THICKNESS	WEIGHT LESS MOTOR
12	31 1/2	1 11/16	12 3/4	16 3/8	7 3/8	6 1/2	8	9/16	1 7/16	2 1/8	1/8	3/16	170
15	35 5/8	1 11/16	14 3/4	18 3/8	8 7/8	8	9 1/2	9/16	1 7/16	2 1/8	1/8	3/16	230
18	38 5/8	1 11/16	18	18 3/8	9 5/8	8 3/4	10 1/4	9/16	1 11/16	2 1/4	1/8	3/16	347
22	45 5/8	2 7/8	21 1/2	20 3/8	11 1/8	10 1/4	11 3/4	9/16	1 15/16	2 1/2	3/16	1/4	500
24	47 3/4	2 7/8	23 1/8	20 3/8	12 3/8	11 1/2	13	3/4	1 15/16	2 1/2	3/16	1/4	630
27	50 1/2	3 1/16	25 3/4	20 3/4	14 1/8	13 1/4	14 3/4	3/4	1 15/16	2 1/2	3/16	1/4	745
30	52 3/4	3 1/16	28	20 3/4	14 1/8	13 1/4	14 3/4	3/4	1 15/16	2 1/2	3/16	1/4	834
33	58	3 1/16	30 1/4	23 3/4	16 3/8	15 1/2	17	3/4	2 3/16	2 3/4	3/16	1/4	1098
36	60 3/4	3 1/16	32 7/8	23 7/8	16 3/8	15 1/2	17	3/4	2 3/16	2 3/4	3/16	1/4	1320

Dimensions shown for PVC fans only. Dimensions not to be used for construction unless certified. Tolerance + or - 1/8"

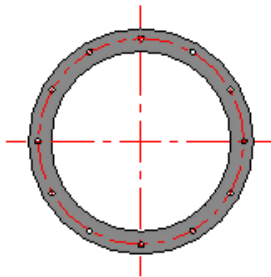
BI PARTS LIST



INLET/OUTLET FLANGE DIMENSIONS [INCHES]

FLANGED INLET OPTION

Holes furnished on vertical centerline
Size 12 - 15



NOTE: Inlet flange:

Sizes 12 - 24....1 1/2" x 3/4"

Sizes 27 - 60....2" x 3/4"

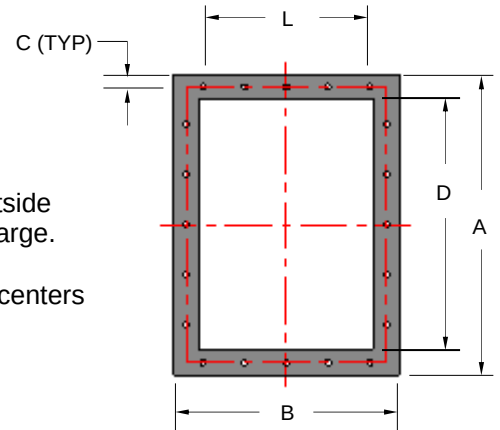
FLANGED OUTLET

1. Mounted flush with outside edge of housing discharge.
2. Holes furnished on 4" centers from centerlines.

NOTE: Outlet flange:

Size 12 - 24....1 1/2" x 3/4"

Size 27 - 60....2" x 3/4"



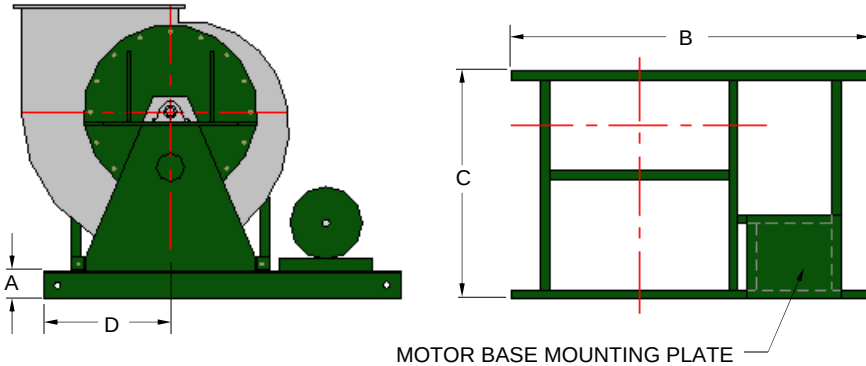
Size	ID	BC	OD	No. Holes	Hole Dia.
12	13	15 3/16	16 1/2	12	5/16
15	15 7/8	18 3/16	19 1/2	16	5/16
18	19 1/2	21 11/16	23	16	7/16
22	23 7/8	26 3/16	27 1/2	20	7/16
24	26 3/8	28 3/16	30	24	7/16
27	29	32 3/16	34	24	7/16
30	32 3/8	35 3/16	37	24	7/16
33	35 5/8	38 11/16	40 1/2	32	7/16
36	39 5/8	42 3/16	44	32	7/16
40	43 3/8	46 15/16	48 3/4	36	7/16
44	48 3/8	51 15/16	53 3/4	40	7/16
49	53 3/8	56 15/16	58 3/4	46	7/16
54	58 7/8	62 7/16	64 1/4	50	7/16
60	65 5/8	69 3/16	71	56	7/16

Size	A	B	C	D	L	Side Holes	Top/Bottom	Hole Dia.
12	16 3/4	12 5/8	3/4	13 3/4	9 5/8	3	3	5/16
15	19 7/8	14 5/8	3/4	16 7/8	11 5/8	5	3	5/16
18	23 1/2	17 1/8	3/4	20 1/2	14 1/8	5	3	7/16
22	28	20 1/4	3/4	25	17 1/4	7	5	7/16
24	30 1/2	21 3/4	3/4	27 1/2	18 3/4	7	5	7/16
27	34 3/8	24 5/8	1	30 3/8	20 5/8	9	5	7/16
30	37 5/8	26 7/8	1	33 5/8	22 7/8	9	7	7/16
33	41	29 1/8	1	37	25 1/8	9	7	7/16
36	44 7/8	31 3/4	1	40 7/8	27 3/4	11	7	7/16
40	49	34 5/8	1	45	30 5/8	11	9	7/16
44	53 7/8	37 3/4	1	49 7/8	33 3/4	13	9	7/16
49	58 7/8	41 1/8	1	54 7/8	37 1/8	15	9	7/16
54	64 5/8	45	1	60 5/8	41	15	11	7/16
60	71	49 1/8	1	67	45 1/8	17	11	7/16

UNITARY BASE DIMENSIONS

Factory designed, unitary structural-steel channel base provides a package of Arrangement 1 fan, motor, drive and guard. Available with rubber-in-shear or spring isolators.

Built-in adjustable motor base provides adjustment of belt tension when required. Arrangement 1 motor positions are independent of fan rotation and discharge.



"B" dimension based on motor HP as shown in capacity tables at 10" WG. If larger motor is required, "B" dimension will vary.

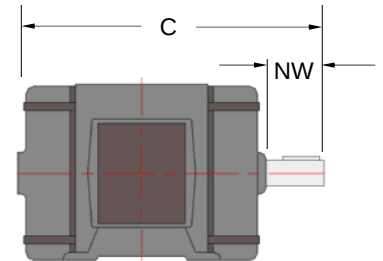
NOTE: Dimensions as shown are approximate. Exact dimensions furnished after order is placed.

DIMENSIONS [INCHES]

Size	A	B	C	D
12	3	63	24 1/8	18
15	3	65 1/2	28	19 3/16
18	3	71	32	20 5/8
22	3	80	38 3/4	22 5/8
24	3	82 1/2	42	23 13/16
27	4	86 1/2	44 5/8	25 3/4
30	4	89 1/2	48 3/8	27 1/4
33	4	95 1/2	53 7/8	29
36	6	99	56 5/8	30 3/4
40	6	109	62 7/8	34 1/8
44	6	114	69 1/2	36 5/8
49	6	121 1/2	72 7/8	39 1/8
54	6	127	82 3/4	41 7/8
60	6	133 1/2	86 7/8	45

ARRANGEMENT 9 PEDESTALS-MOTOR SIZE CAPABILITY

Arrangement 9 configuration allows the motor to be mounted on either side of the fan pedestal as space permits. This space-efficient package consists of fan, motor, V-belt drive, and accessories. C-NW is not a NEMA standard dimension and varies by manufacturer. As a result C-NW must be checked in every instance. To determine if arrangement 9 configuration will work, compare the desired motor's frame size with the frame size shown for the appropriate fan below. If the frame size and the C-NW dimension are no greater than that shown, the combination is satisfactory. If the C-NW dimension is greater than that shown, a different motor, fan, or arrangement must be selected. In all cases, C-NW is the final determining factor.



MOTOR WEIGHTS

Size	TEFC Motor Frame Size	Maximum C-NW
12	145T	13 1/2
15	184T	15 5/16
18	213T	16 13/16
22	215T	20 7/16
24	256T	22 3/16
27	256T	22 15/16
30	324T	24 1/2
33	326T	27 3/4
36	364T	27 13/16
40	365T	29 1/4
44	405T	32 3/4
49	405T	32 3/4
54	405T	37 3/4
60	405T	37 3/4

Motor HP	TEFC Motor Frame Size	Motor Weight
1	143T	40
1 1/2	145T	45
2	145T	45
3	182T	82
5	184T	90
7 1/2	213T	145
10	215T	160
15	254T	230
20	256T	250
25	284T	355
30	286T	390
40	324T	550
50	326T	610
60	364T	835
75	365T	920
100	405T	1260
125	444T	1515
150	445T	1785

TYPICAL MOTOR CURRENT AND STARTER SIZE

Amperes as indicated in chart are nominal and were used for sizing starters only. **DO NOT** use these values for sizing heaters or other overload protection. Refer to motor nameplate for actual motor current and refer to the heater size chart for actual starters used.

Actual conditions under which the starters will operate must be considered when sizing overload heaters. It may be necessary to increase heater size when starters are enclosed or exposed to radiant heat.

HP	Three Phase						Single Phase			
	230 Volts		460 Volts		575 volts		115 volts		230 volts	
	Amps	Starter	Amps	Starter	Amps	Starter	Amps	Starter	Amps	Starter
1/2	2	00	1	00	.8	00	9.8	0	4.9	00
3/4	2.8	00	1.4	00	1.1	00	13.8	0	6.9	00
1	3.6	00	1.8	00	1.4	00	16	0	8	00
1 1/2	5.2	00	2.6	00	2.1	00	20	1	10	0
2	6.8	0	3.4	00	2.7	00	24	1	12	0
3	9.6	0	4.8	0	3.9	0	34	2	17	1
5	15.2	1	7.6	0	6.1	0	56	3	28	2
7 1/2	22	1	11	1	9	1	80	3	40	2
10	28	2	14	1	11	1			50	3
15	42	2	21	2	17	2				
20	54	3	27	2	22	2				
25	68	3	34	2	27	2				
30	80	3	40	3	32	3				
40	104	4	52	3	41	3				
50	130	4	65	3	52	3				
60	154	5	77	4	62	4				
75	192	5	96	4	77	4				
100	249	5	124	4	99	4				
125	312	6	156	5	125	5				
150	360	6	180	5	144	5				
200	480	6	240	5	192	5				

The above values of full-load current are for motors running at speeds usual for belted motors and motors with normal torque characteristics. Motors built for especially low speeds or high torques may have higher full-load currents, and multi-speed motors will have full-load current varying with speed, in which case the nameplate current rating shall be used.

To obtain full-load currents of 208 volt and 200 volt motors, increase corresponding 230 volt motor full-load currents by 10 and 15 percent , respectively.

The voltages listed are rated motor voltages. Corresponding nominal system voltages are 110 to 120, 220 to 240, 440 to 480, and 550 to 600 volts.

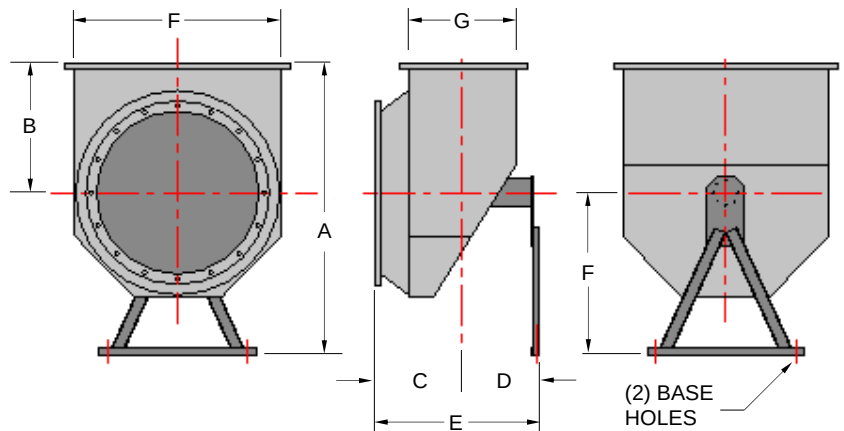
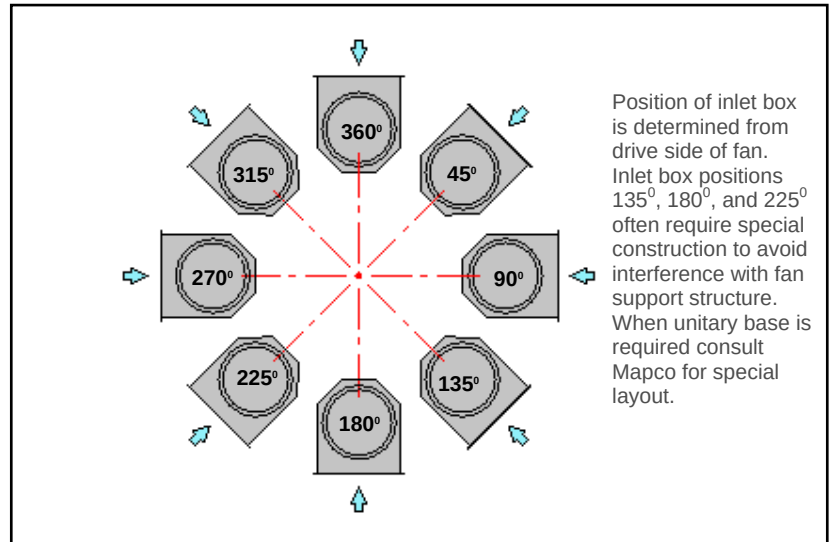
INLET BOXES - BI FANS

Inlet boxes are provided as an alternative to a sharp 90° turn prior to the fan inlet. A properly designed inlet box provides predictable minimum entry losses normally associated with a sharp 90° turn....see the following page for correction factors.

The inlet box is designed to bolt up to the fan inlet flange. It is necessary to isolate the fan from the inlet box with a flexible connection. A support leg with mounting plate is supplied with all inlet boxes. When a unitary base or isolation base is required, the base must be extended to carry the support leg of the inlet box. The support leg assembly is not intended to support additional weight from ductwork or any other system components.

Inlet boxes can also be equipped with drains and bolt on cleanout doors.

Round flange dimensions match fan inlet flange. Base bar dimensions match fan dimension (P). Dimensions not to be used for construction unless certified.



INLET BOX DIMENSIONS [INCHES]

Size	Fan Inlet Area ft ²	A	B	C	D	E	F	G	Material Thickness	Weight
18	2.18	27 1/2	15	10 1/8	10 3/4	21 1/2	25	12 1/2	3/16	76
22	3.34	33 1/2	18 1/4	12 1/4	11 5/8	24 1/2	30 1/2	15 1/4	3/16	107
24	3.93	37	20 1/8	13 9/16	12 3/16	26 3/8	33 3/4	16 7/8	3/16	126
27	4.74	40 1/2	22	14 7/8	12 7/8	28 3/8	37	18 1/2	3/16	142
30	5.89	45 1/8	24 1/2	16 9/16	13 11/16	30 7/8	41 1/4	20 5/8	1/4	240
33	7.11	49 5/8	27	18 3/16	16 9/16	35 5/8	45 1/4	22 5/8	1/4	276
36	8.78	55 1/8	30	20 1/16	17 7/16	38 3/8	50 1/4	25 1/8	1/4	357
40	10.49	60 1/4	32 3/4	22	18 3/8	41 1/4	55	27 1/2	1/4	394
44	13.02	67 1/8	36 1/2	24 7/16	19 5/16	44 5/8	61 1/4	30 5/8	1/4	480
49	15.83	74	40 1/4	27	20 3/8	48 1/4	67 1/2	33 3/4	1/4	580
54	19.22	81 5/8	44 3/8	29 3/4	24 3/4	55 7/8	74 1/2	37 1/4	1/4	710
60	23.84	90 3/4	49 3/8	32 15/16	26 3/16	60 1/2	82 3/4	41 3/8	1/4	949

Dimensions not to be used for construction unless certified. Tolerance + or - 1/8"

INLET BOX CORRECTION FACTORS

When equipped with an inlet box, the fan must be selected at a pressure that compensates for losses occurring as a result of the inlet configuration. The procedure outlined below does not consider the slight change in efficiency.

STEPS

1. Determine air velocity at fan inlet. CFM divided by fan inlet area = V [air velocity].
2. Determine velocity pressure at fan inlet. $VP = [V \text{ divided by } 4005]^2 \times [\text{density divided by } .075]$
3. Determine VP/SP ratio at conditions.
4. Determine VP factor from appropriate chart.
5. Determine inlet-box loss by multiplying the VP factor times the velocity pressure from step 2.
6. Add the loss from step 5 to the required system SP at conditions and select fan accordingly.

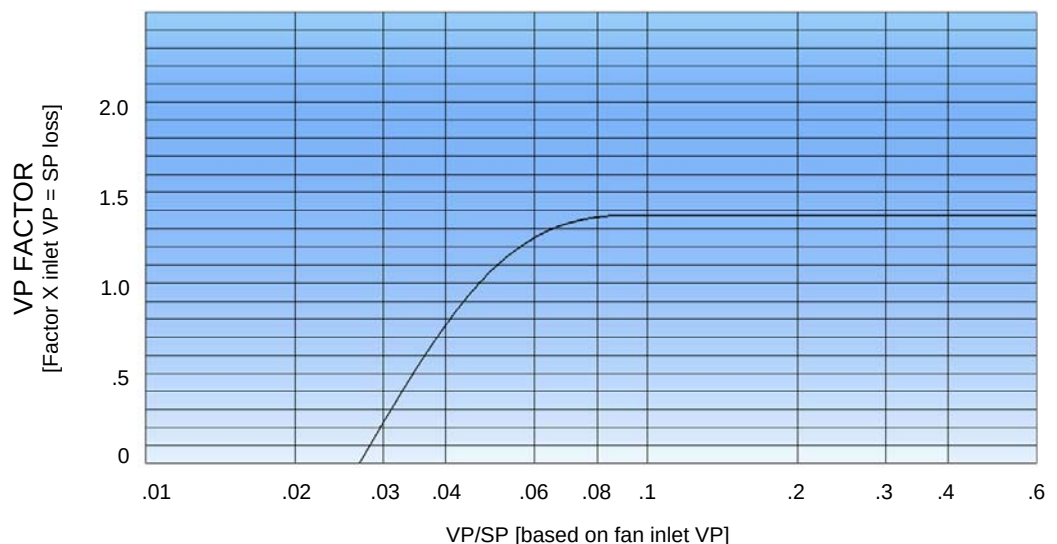
Actual operation will require slightly lower horsepower than that indicated. Performance curves illustrating precise fan capacity and horsepower data are available per job.

EXAMPLE

Required: A size 40 Series BI Fan, BI wheel, for 40,964 CFM at 12" SP at 70° F. at sea level.

1. 40,964 CFM divided by 10.49 [fan inlet area, see page 9] = 3905 FPM.
2. $[3905 \text{ divided by } 4005]^2 = .95 \text{ VP}$.
3. 0.95 VP divided by 12" SP = 0.08 VP/SP.
4. VP factor at 0.08 VP/SP = 1.35 [from Chart I].
5. $1.35 \times 0.95" \text{ VP} = 1.28" \text{ loss}$.
6. $1.28" + 12" = 13.28" \text{ SP}$. Select fan, motor, and drive for 40,964 CFM at 13.28" SP at 70° F. at sea level.

CHART I
BI BACKWARDLY
INCLINED FANS



HOW TO USE CAPACITY TABLES

For a given fan size, wheel design, CFM, and static pressure, capacity tables can be used to obtain outlet velocity, fan RPM, and BHP. If capacities are at conditions other than 70° F., sea level, or standard density [.075 lb./cu. ft.], correction factors must be applied to static pressure and BHP

PROCEDURES	STEPS	EXAMPLE: A fan is required for 2580 CFM at 3" WG at 140° F. and sea level.
If conditions other than standard are involved, correct static pressure for actual altitude and temperature using Charts II and III.	1	Chart II gives a 1.13 factor for 140° F. Corrected SP is 3" WG x 1.13 = 3.39" WG at 70° F. Select fan from capacity tables for 2580 CFM at 3.39" WG. (use 3.5" WG).
Select size, wheel type, RPM, and BHP of fan from capacity table.	2	A size 15 with BI wheel is selected for 2580 CFM at 3.50" WG at 2244 RPM and 2.16 BHP.
Check minimum safe speed of fan at operating temperature as shown in Charts I and IV.	3	From Charts I and IV, the maximum safe speed of a Size 15 fan with Class II BI wheel at 140° F. is 3259 RPM [3360 x .97]. Fan is satisfactory for operation at 140° F.
Determine actual performance at operating conditions by correcting SP and BHP.	4	Actual performance: 2580 CFM at 3" WG [3.39" divided by 1.13] at 2244 RPM at 1.91 BHP [2.16 divided by 1.13] at 140° F.

All ratings shown within the tinted areas on capacity tables are within 3% of peak mechanical efficiency.

MAXIMUM SAFE SPEED INFORMATION

Chart I details maximum safe speed of standard wheel at 70° F. When temperatures are involved, multiply the approximate safe operating speed shown in Chart I by the factor shown in Chart II.

Size	Class I	Class II	Class III
12	3280	4270	NA
15	2580	3360	NA
18	2100	2735	3525
22	1770	2305	2900
24	1605	2090	2635
27	1420	1850	2323
30	1280	1665	2095
33	1175	1515	1905
36	1045	1360	1715
40	950	1235	1555
44	880	1120	1410
49	780	1020	1280
54	710	920	1175
60	640	830	1045

Temp. °F.	Factor	Temp. °F.	Factor
-50	.77	225	1.29
-25	.82	250	1.34
0	.87	275	1.39
20	.91	300	1.43
40	.94	325	1.48
60	.98	350	1.53
70	1.00	375	1.58
80	1.02	400	1.62
100	1.06	450	1.72
120	1.09	500	1.81
140	1.13	550	1.91
160	1.17	600	2.00
180	1.21	650	2.10
200	1.25		

Altitude	Factor
0	1.00
500	1.02
1000	1.04
1500	1.06
2000	1.08
2500	1.10
3000	1.12
3500	1.14
4000	1.16
4500	1.18
5000	1.20
5500	1.22
6000	1.25
7000	1.30
8000	1.35
9000	1.40
10000	1.45

Temp. °F	Steel
-50	1.00
70	1.00
200	.97
300	.95
400	.94
500	.93
600	.92
650	.89

* Maximum safe speeds apply only to wheels operated at or below stated temperature and free of material build-up corrosion, or wear.
Note: When more than one correction is made, the factors are combined by multiplying the factors.

SIZE 12 BI		Wheel diameter: 12 1/4"						Fan outlet area: 0.86 ft ²						Class I = light face to left of Class II					
		Wheel circumference: 3.207'						Maximum BHP = .070 $\left(\frac{\text{RPM}}{1000}\right)^3$						Class II = bold face					
		1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP	
CFM	OV	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
688	800	1060	0.08	1219	0.12	1366	0.16												
860	1000	1173	0.11	1309	0.16	1439	0.20	1679	0.31	1898	0.42								
1032	1200	1303	0.15	1422	0.20	1535	0.25	1750	0.37	1954	0.49	2143	0.62						
1204	1400	1441	.020	1549	0.26	1651	0.32	1845	0.44	2028	0.57	2202	0.71	2371	0.86	2532	1.02	2682	1.18
1376	1600	1590	0.26	1684	0.32	1777	0.39	1953	0.52	2121	0.67	2281	0.82	2436	0.97	2587	1.14	2732	1.32
1548	1800	1740	0.34	1828	0.41	1914	0.48	2075	0.62	2229	0.78	2377	0.94	2522	1.11	2660	1.28	2795	1.46
1720	2000	1895	0.43	1975	0.50	2055	0.58	2202	0.74	2347	0.90	2484	1.08	2618	1.25	2748	1.44	2876	1.63
1892	2200	2052	0.54	2128	0.62	2202	0.70	2341	0.88	2472	1.05	2603	1.24	2727	1.42	2850	1.62	2968	1.82
2064	2400	2209	0.67	2280	0.75	2347	0.84	2479	1.02	2604	1.21	2728	1.41	2847	1.62	2959	1.82	3073	2.03
2236	2600	2371	0.82	2439	0.91	2501	1.00	2626	1.20	2741	1.40	2858	1.61	2969	1.82	3077	2.04	3182	2.26
2408	2800	2534	0.99	2597	1.09	2655	1.19	2773	1.40	2883	1.61	2994	1.83	3097	2.05	3203	2.29	3304	2.53
2580	3000	2699	1.19	2756	1.29	2811	1.40	2921	1.61	3031	1.85	3131	2.07	3233	2.31	3330	2.56	3428	2.81
		4 1/2" SP		5" SP		5 1/2" SP		6" SP		6 1/2" SP		7" SP		7 1/2" SP		8" SP		8 1/2" SP	
CFM	OV	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1376	1600	2868	1.49	3001	1.68														
1548	1800	2928	1.65	3055	1.85	3184	2.05	3303	2.26	3426	2.47								
1720	2000	3002	1.83	3122	2.03	3239	2.24	3355	2.46	3470	2.68	3582	2.91	3695	3.15				
1892	2200	3085	2.03	3200	2.24	3312	2.46	3423	2.68	3532	2.91	3639	3.15	3741	3.39	3797	3.37		
																3844	3.63	3947	3.89
2064	2400	3184	2.25	3292	2.47	3396	2.70	3504	2.94	3605	3.17	3707	3.42	3806	3.66				
2236	2600	3288	2.49	3392	2.73	3490	2.96	3591	3.21	3689	3.46	3785	3.70	3881	3.96	3905	3.92	4004	4.18
2408	2800	3400	2.76	3501	3.01	3595	3.25	3686	3.50	3781	3.76	3874	4.02	3964	4.29	3977	4.23	4068	4.49
2580	3000	3521	3.05	3612	3.30	3708	3.58	3795	3.83	3887	4.11	3975	4.38	4060	4.65	4054	4.56	4143	4.84
																4149	4.94	4231	5.22
2752	3200	3645	3.37	3733	3.64	3819	3.9	3909	4.19	3996	4.48	4080	4.76	4161	5.04				
2924	3400	3778	3.73	3863	4.01	3946	4.29	4026	4.57	4110	4.87	4190	5.16	4266	5.45	4244	5.33		
3096	3600	3908	4.10	3990	4.39	4070	4.69	4147	4.98	4227	5.29								
3268	3800	4046	4.52	4126	4.83	4203	5.13												

SIZE 15 BI		Wheel diameter: 15"						Fan outlet area: 1.29 ft ²						Class I = light face to left of Class II					
		Wheel circumference: 3.927'						Maximum BHP = .220 $\left(\frac{\text{RPM}}{1000}\right)^3$						Class II = bold face					
		1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP	
CFM	OV	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1032	800	866	0.12	996	0.18	1116	0.25												
1290	1000	958	0.17	1070	0.24	1174	0.31	1370	0.46	1551	0.63								
1548	1200	1064	0.23	1162	0.30	1254	0.38	1429	0.55	1593	0.73	1750	0.94						
1806	1400	1177	0.30	1266	0.39	1348	0.47	1507	0.66	1657	0.86	1799	1.07	1937	1.30	2065	1.53	2191	1.78
2064	1600	1299	0.40	1376	0.49	1452	0.58	1596	0.79	1733	1.00	1863	1.22	1990	1.46	2113	1.71	2232	1.98
2322	1800	1422	0.51	1493	0.61	1563	0.72	1695	0.94	1821	1.17	1942	1.41	2060	1.66	2173	1.92	2283	2.19
2580	2000	1548	0.65	1613	0.76	1679	0.87	1799	1.11	1917	1.36	2030	1.62	2139	1.88	2244	2.16	2349	2.45
2838	2200	1676	0.81	1738	0.93	1796	1.05	1913	1.31	2020	1.57	2126	1.85	2228	2.14	2328	2.43	2425	2.73
3096	2400	1805	1.00	1862	1.13	1918	1.26	2026	1.54	2128	1.82	2228	2.12	2321	2.41	2417	2.73	2510	3.05
3354	2600	1937	1.23	1993	1.37	2043	1.51	2145	1.80	2239	2.10	2335	2.42	2425	2.74	2514	3.06	2599	3.39
3612	2800	2070	1.49	2121	1.64	2169	1.78	2265	2.10	2356	2.41	2446	2.75	2530	3.08	2616	3.44	2699	3.79
3870	3000	2205	1.79	2251	1.94	2297	2.10	2387	2.42	2476	2.78	2558	3.11	2641	3.47	2721	3.84	2801	4.21
		4 1/2" SP		5" SP		5 1/2" SP		6" SP		6 1/2" SP		7" SP		7 1/2" SP		8" SP		8 1/2" SP	
CFM	OV	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2064	1600	2318	2.32	2435	2.63	2551	2.97												
2322	1800	2392	2.48	2496	2.77	2601	3.08	2698	3.38	2798	3.71								
2580	2000	2452	2.75	2550	3.05	2646	3.36	2741	3.68	2834	4.02	2926	4.36	3013	4.70	3102	5.06		
2838	2200	2520	3.04	2614	3.36	2706	3.69	2796	4.03	2885	4.37	2972	4.73	3056	5.08	3140	5.45	3224	5.83
3096	2400	2598	3.37	2686	3.70	2775	4.05	2859	4.39	2945	4.76	3028	5.13	3109	5.50	3190	5.88	3266	6.25
3354	2600	2686	3.74	2768	4.08	2851	4.44	2933	4.81	3014	5.19	3092	5.56	3170	5.95	3245	6.33	3323	6.74
3612	2800	2777	4.14	2860	4.52	2936	4.88	3011	5.25	3088	5.64	3165	6.04	3238	6.43	3311	6.84		
3870	3000	2876	4.58	2951	4.96	3024	5.34	3100	5.75	3175	6.17	3247	6.58	3317	6.98				
4128	3200	2978	5.06	3049	5.46	3119	5.86	3193	6.29	3264	6.72	3333	7.14						
4386	3400	3086	5.60	3151	5.99	3223	6.44	3289	6.86	3357	7.30								
4644	3600	3192	6.15	3259	6.59	3325	7.03												
4902	3800	3306	6.78																

Performance shown is for BI fans with outlet ducts.
Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 18 BI		Wheel diameter: 18 1/4”						Fan outlet area: 1.92 ft ²						Class I = light face to left of Class II Class II = bold face Class III = light face to right of Class II									
		Wheel circumference: 4.77’						Maximum BHP = .540 $\left(\frac{\text{RPM}}{1000}\right)^3$															
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP			
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
1536	800	680	0.16	797	0.25																		
1920	1000	739	0.22	838	0.31	932	0.41	1112	0.63														
2304	1200	812	0.29	896	0.38	978	0.49	1137	0.73	1287	1.00												
2688	1400	895	0.38	968	0.48	1041	0.60	1181	0.86	1316	1.14	1448	1.45										
3072	1600	983	0.49	1048	0.61	1112	0.73	1237	1.01	1359	1.30	1478	1.62	1594	1.97	1705	2.33						
3456	1800	1073	0.62	1133	0.75	1191	0.89	1303	1.18	1413	1.49	1522	1.83	1629	2.19	1733	2.57	1835	2.97	1933	3.39		
3840	2000	1167	0.78	1223	0.93	1275	1.08	1378	1.40	1478	1.72	1576	2.07	1676	2.45	1772	2.84	1867	3.25	1959	3.68		
4224	2200	1263	0.97	1314	1.13	1363	1.30	1457	1.64	1549	1.99	1640	2.36	1730	2.74	1819	3.15	1908	3.57	1994	4.01		
4608	2400	1358	1.19	1406	1.37	1452	1.55	1540	1.91	1625	2.28	1710	2.67	1793	3.07	1877	3.50	1957	3.93	2038	4.39		
4992	2600	1454	1.43	1501	1.64	1543	1.83	1627	2.23	1706	2.62	1785	3.03	1862	3.45	1940	3.90	2015	4.35	2091	4.82		
5376	2800	1554	1.73	1597	1.95	1637	2.15	1717	2.58	1791	3.00	1864	3.43	1937	3.88	2009	4.34	2080	4.81	2151	5.29		
5760	3000	1652	2.06	1694	2.29	1732	2.52	1805	2.96	1876	3.41	1946	3.87	2016	4.35	2084	4.83	2149	5.31	2216	5.82		
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP			
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
4224	2200	2079	4.47	2246	5.44	2404	6.46																
4608	2400	2118	4.86	2277	5.86	2430	6.92	2575	8.01														
4992	2600	2167	5.31	2314	6.32	2461	7.41	2603	8.55	2740	9.74	2872	11.0										
5376	2800	2222	5.80	2363	6.85	2499	7.94	2632	9.09	2768	10.3	2895	11.6	3020	12.9								
5760	3000	2283	6.33	2416	7.42	2546	8.55	2672	9.72	2800	11.0	2924	12.3	3045	13.6	3161	14.9	3281	16.4				
6144	3200	2351	6.94	2475	8.05	2597	9.20	2718	10.4	2840	11.7	2957	13.0	3075	14.4	3189	15.8	3301	17.2	3411	18.7		
6528	3400	2422	7.59	2538	8.72	2656	9.94	2770	11.2	2887	12.5	2999	13.8	3111	15.2	3223	16.6	3329	18.1	3437	19.6		
6912	3600	2496	8.30	2607	9.47	2717	10.7	2827	12.0	2936	13.3	3047	14.7	3154	16.1	3257	17.5	3362	19.0	3469	20.6		
7296	3800	2574	9.09	2680	10.3	2787	11.6	2891	12.9	2996	14.3	3102	15.7	3203	17.1	3304	18.7	3404	20.1	3502	21.6		
7680	4000	2652	9.87	2753	11.1	2857	12.5	2955	13.8	3055	15.2	3156	16.6	3252	18.1	3350	19.6	3446	21.1				
8448	4400	2820	11.7	2915	13.1	3006	14.5	3096	15.9	3193	17.4	3282	18.9	3371	20.4	3460	21.9						
9216	4800	2992	13.8	3081	15.3	3165	16.7	3254	18.3	3335	19.8	3421	21.4	3505	23.0								
SIZE 22 BI		Wheel diameter: 22 1/4”						Fan outlet area: 2.85 ft ²						Class I = light face to left of Class II Class II = bold face Class III = light face to right of Class II									
		Wheel circumference: 5.82’						Maximum BHP = 1.35 $\left(\frac{\text{RPM}}{1000}\right)^3$															
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP			
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
2280	800	573	0.25	663	0.38																		
2850	1000	630	0.33	707	0.47	781	.062																
3420	1200	698	0.45	764	0.59	828	0.75	951	1.12														
3990	1400	772	0.59	830	0.75	887	0.93	996	1.31	1101	1.74												
4560	1600	850	0.77	903	0.95	953	1.14	1051	1.55	1146	2.00	1238	2.48	1328	3.01								
5130	1800	930	0.99	978	1.19	1025	1.40	1114	1.83	1200	2.30	1284	2.81	1367	3.35	1447	3.92	1525	4.53				
5700	2000	1012	1.25	1057	1.48	1099	1.70	1182	2.17	1260	2.66	1339	3.20	1415	3.75	1489	4.34	1562	4.97	1632	5.61		
6270	2200	1095	1.56	1137	1.81	1177	2.05	1254	2.56	1326	3.08	1397	3.63	1468	4.21	1537	4.82	1607	5.48	1673	6.14		
6840	2400	1180	1.93	1220	2.20	1255	2.46	1328	3.01	1397	3.57	1464	4.15	1529	4.76	1593	5.39	1657	6.04	1718	6.72		
7410	2600	1263	2.34	1303	2.65	1337	2.93	1406	3.52	1469	4.11	1532	4.73	1593	5.35	1654	6.02	1714	6.70	1771	7.40		
7980	2800	1350	2.83	1386	3.15	1419	3.46	1484	4.09	1543	4.71	1603	5.36	1662	6.04	1719	6.73	1774	7.42	1830	8.17		
8550	3000	1435	3.37	1470	3.72	1502	4.05	1563	4.73	1620	5.39	1678	6.10	1733	6.79	1786	7.50	1839	8.23	1892	9.01		
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP			
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
6270	2200	1738	6.82	1868	8.32																		
6840	2400	1782	7.45	1903	8.94	2021	10.6																
7410	2600	1831	8.14	1943	9.65	2056	11.3	2166	13.0														
7980	2800	1884	8.90	1992	10.5	2098	12.1	2202	13.9	2303	15.7	2403	17.6										
8550	3000	1943	9.76	2047	11.4	2146	13.1	2246	14.9	2343	16.8	2438	18.7	2533	20.8								
9120	3200	2006	10.7	2103	12.4	2200	14.2	2294	16.0	2384	17.8	2478	19.9	2565	21.9	2655	24.0	2743	26.2				
9690	3400	2071	11.7	2164	13.5	2254	15.2	2346	17.2	2433	19.1	2520	21.1	2607	23.2	2693	25.4	2777	27.6	2858	29.9		
10260	3600	2140	12.9	2228	14.7	2314	16.5	2401	18.4	2486	20.4	2568	22.4	2652	24.6	2734	26.8	2815	29.0	2896	31.4		
10830	3800	2212	14.2	2296	16.0	2379	17.9	2462	19.9	2543	21.9	2623	24.0	2703	26.2	2781	28.4	2860	30.7				
11400	4000	2283	15.5	2363	17.3	2443	19.3	2523	21.3	2599	23.4	2677	25.5	2753	27.7	2827	30.0						
12540	4400	2434	18.5	2506	20.4	2582	22.6	2652	24.6	2726	26.9	2797	29.1	2867	31.4								
13680	4800	2585	21.8	2657	24.1	2727	26.3	2792	28.5	2859	30.8												

Performance shown for BI fans with outlet ducts.
Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 24 BI		Wheel diameter: 24 1/2"				Fan outlet area: 3.45 ft ²				Class I = light face to left of Class II				Class II = bold face				Class III = light face to right of Class II			
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2760	800	520	0.30	602	0.45																
3450	1000	572	0.41	642	0.57	709	0.75														
4140	1200	634	0.54	694	0.72	752	0.92	864	1.36												
4830	1400	701	0.71	753	0.91	806	1.13	905	1.60	1000	2.11	1092	2.67								
5520	1600	771	0.93	819	1.15	865	1.39	955	1.88	1041	2.42	1125	3.01	1206	3.64						
6210	1800	844	1.19	887	1.44	929	1.69	1011	2.23	1090	2.80	1167	3.42	1241	4.06	1315	4.76	1386	5.49		
6900	2000	918	1.51	959	1.78	997	2.05	1073	2.64	1145	3.24	1215	3.88	1285	4.57	1353	5.28	1418	6.01	1485	6.82
7590	2200	994	1.89	1031	2.18	1068	2.48	1137	3.10	1205	3.75	1270	4.43	1333	5.12	1397	5.88	1459	6.65	1520	7.46
8280	2400	1069	2.32	1105	2.65	1140	2.98	1205	3.63	1268	4.33	1329	5.04	1388	5.77	1446	6.55	1505	7.35	1561	8.18
8970	2600	1146	2.83	1180	3.18	1212	3.52	1274	4.25	1333	4.97	1390	5.72	1447	6.51	1502	7.31	1557	8.16	1610	9.01
9660	2800	1225	3.42	1256	3.79	1286	4.16	1346	4.94	1401	5.71	1456	6.51	1508	7.32	1561	8.17	1611	9.04	1662	9.92
10350	3000	1303	4.08	1333	4.48	1361	4.88	1418	5.70	1471	6.52	1522	7.36	1573	8.24	1622	9.12	1671	10.0	1718	11.0
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7590	2200	1579	8.29	1697	10.1																
8280	2400	1618	9.04	1729	10.9	1835	12.8														
8970	2600	1662	9.90	1766	11.7	1867	13.7	1969	15.8	2064	17.9										
9660	2800	1711	10.8	1809	12.7	1906	14.7	2002	16.9	2093	19.1	2185	21.4								
10350	3000	1765	11.9	1859	13.9	1950	15.9	2040	18.1	2130	20.4	2214	22.6	2302	25.1	2386	27.7				
11040	3200	1822	13.1	1910	15.1	1997	17.2	2082	19.4	2168	21.7	2249	24.0	2333	26.6	2412	29.1	2494	31.8		
11730	3400	1882	14.3	1964	16.4	2047	18.5	2129	20.8	2210	23.2	2291	25.7	2369	28.2	2445	30.7	2523	33.4	2598	36.2
12420	3600	1943	15.7	2023	17.8	2102	20.1	2180	22.4	2256	24.8	2332	27.3	2410	29.9	2483	32.5	2558	35.3	2630	38.1
13110	3800	2007	17.2	2085	19.5	2160	21.8	2235	24.2	2308	26.6	2382	29.2	2456	31.8	2527	34.5	2598	37.3		
13800	4000	2071	18.7	2147	21.1	2218	23.4	2289	25.9	2360	28.4	2432	31.1	2501	33.7	2570	36.5				
15180	4400	2205	22.2	2276	24.8	2342	27.3	2407	29.9	2475	32.6	2540	35.4	2603	38.1						
16560	4800	2346	26.4	2409	29.0	2475	31.09	2535	34.6	2599	37.5										
SIZE 27 BI		Wheel diameter: 27"				Fan outlet area: 4.19 ft ²				Class I = light face to left of Class II				Class II = bold face				Class III = light face to right of Class II			
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3352	800	457	0.36	536	0.54																
4190	1000	494	0.48	562	0.68	627	0.89														
5028	1200	542	0.64	600	0.86	656	1.09	765	1.61												
5866	1400	595	0.84	646	1.09	696	1.35	793	1.90	886	2.51	974	3.18								
6704	1600	653	1.09	697	1.36	743	1.65	828	2.24	913	2.89	995	3.58	1072	4.32						
7542	1800	712	1.38	753	1.69	794	2.00	872	2.65	948	3.34	1022	4.06	1095	4.83	1165	5.64	1234	6.5		
8380	2000	773	1.74	811	2.07	848	2.42	919	3.12	990	3.86	1057	4.62	1124	5.42	1190	6.27	1255	7.17	1317	8.08
9218	2200	836	2.17	871	2.53	904	2.90	971	3.66	1035	4.45	1098	5.26	1160	6.11	1221	6.98	1281	7.89	1340	8.85
10056	2400	899	2.66	931	3.05	964	3.47	1024	4.27	1084	5.11	1143	5.98	1200	6.87	1258	7.80	1313	8.74	1370	9.75
10894	2600	963	3.23	994	3.67	1024	4.10	1081	4.97	1136	5.87	1191	6.79	1245	7.74	1298	8.70	1352	9.72	1403	10.7
11732	2800	1029	3.90	1058	4.36	1084	4.80	1139	5.77	1191	6.71	1242	7.68	1293	8.69	1342	9.69	1392	10.7	1442	11.8
12570	3000	1094	4.65	1122	5.15	1147	5.63	1199	6.65	1247	7.64	1296	8.69	1343	9.72	1390	10.8	1438	11.9	1483	13.0
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9218	2200	1399	9.86	1512	12.0																
10056	2400	1423	10.7	1531	12.9	1634	15.2														
10894	2600	1454	11.8	1557	14.0	1653	16.3	1751	18.8												
11732	2800	1491	12.9	1585	15.2	1680	17.6	1772	20.1	1859	22.6	1949	25.4								
12570	3000	1530	14.1	1621	16.5	1709	18.9	1797	21.5	1883	24.2	1965	26.9	2047	29.8						
13408	3200	1572	15.5	1659	18.0	1742	20.4	1827	23.1	1909	25.8	1989	28.7	2068	31.5	2145	34.6	2221	37.7		
14246	3400	1617	17.0	1699	19.5	1780	22.1	1860	24.8	1939	27.6	2016	30.5	2091	33.4	2164	36.5	2240	39.7	2313	43.0
15084	3600	1666	18.6	1743	21.2	1821	23.9	1896	26.7	1970	29.5	2045	32.5	2120	35.6	2190	38.6	2262	41.9		
15922	3800	1717	20.4	1791	23.1	1865	25.9	1938	28.8	2009	31.7	2081	34.8	2152	37.9	2220	41.0	2289	44.4		
16760	4000	1767	22.1	1839	25.0	1909	27.9	1979	30.9	2047	33.9	2116	37.0	2183	40.2	2249	43.4	2316	46.8		
18436	4400	1875	26.2	1942	29.4	2007	32.5	2070	35.6	2134	38.8	2197	42.1	2259	45.5	2321	48.9				
20112	4800	1990	31.0	2051	34.3	2108	37.5	2168	40.9	2227	44.3	2286	47.9								

Performance shown is for BI fans with outlet ducts.
Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 30 BI		Wheel diameter: 30"				Fan outlet area: 5.17 ft ²				Class I = light face to left of Class II Class II = bold face Class III = light face to right of Class II											
																		Wheel circumference: 7.85'			
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4136	800	411	0.45	482	0.67																
5170	1000	445	0.60	506	0.84	564	1.10														
6204	1200	488	0.79	540	1.06	591	1.35	689	1.99												
7238	1400	535	1.03	581	1.34	626	1.66	713	2.34	797	3.09	876	3.91								
8272	1600	587	1.34	628	1.68	668	2.03	746	2.77	821	3.56	895	4.42	966	5.34						
9306	1800	640	1.71	677	2.08	714	2.47	784	3.27	853	4.11	920	5.01	985	5.96	1048	6.96	1110	8.02		
10340	2000	695	2.15	730	2.57	763	2.98	827	3.85	890	4.76	952	5.71	1011	6.69	1072	7.75	1129	8.83	1185	9.95
11374	2200	752	2.68	783	3.12	813	3.58	873	4.52	931	5.48	988	6.49	1043	7.53	1100	8.64	1154	9.77	1206	10.9
12408	2400	809	3.28	838	3.76	867	4.27	922	5.29	976	6.33	1028	7.37	1080	8.47	1131	9.61	1183	10.8	1232	12.0
13442	2600	868	4.01	894	4.52	921	5.05	972	6.13	1022	7.23	1071	8.37	1120	9.54	1169	10.8	1216	12.0	1262	13.2
14476	2800	925	4.81	951	5.38	977	5.96	1025	7.11	1071	8.27	1118	9.5	1163	10.7	1209	12.0	1254	13.3	1297	14.6
15510	3000	984	5.73	1009	6.35	1032	6.94	1078	8.19	1122	9.42	1166	10.7	1209	12.0	1251	13.3	1293	14.7	1334	16.0

CFM		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
11374	2200	1259	12.1	1360	14.7																
12408	2400	1282	13.3	1377	15.9	1470	18.7														
13442	2600	1310	14.6	1400	17.2	1490	20.1	1575	23.1												
14476	2800	1341	15.9	1428	18.8	1511	21.6	1594	24.7	1675	28.0	1753	31.3								
15510	3000	1376	17.4	1458	20.4	1538	23.4	1617	26.5	1694	29.8	1770	33.3	1844	36.8						
16544	3200	1415	19.2	1492	22.1	1569	25.3	1643	28.5	1717	31.8	1790	35.3	1860	38.9	1930	42.6	1998	46.4		
17578	3400	1455	20.9	1528	24.0	1601	27.3	1673	30.6	1744	34.1	1814	37.6	1881	41.2	1950	45.1	2015	49.0	2081	53.0
18612	3600	1499	22.9	1568	26.1	1638	29.5	1706	32.9	1775	36.5	1840	40.0	1907	43.9	1970	47.6	2035	51.7		
19646	3800	1545	25.1	1611	28.5	1678	31.9	1743	35.5	1809	39.2	1872	42.8	1936	46.7	1998	50.7	2059	54.7		
20680	4000	1591	27.3	1654	30.8	1717	34.3	1780	38.1	1842	41.8	1903	45.6	1964	49.5	2026	53.7	2083	57.6		
22748	4400	1687	32.3	1747	36.2	1805	40.0	1862	43.8	1919	47.9	1976	51.9	2032	56.0	2088	60.3				
24816	4800	1790	38.2	1845	42.3	1900	46.5	1952	50.6	2005	54.8	2056	59.0								

SIZE 33 BI		Wheel diameter: 33" Wheel circumference: 8.63'						Fan outlet area: 6.26 ft ² Maximum BHP = 10.9 $\left(\frac{\text{RPM}}{1000}\right)^3$						Class I = light face to left of Class II							
														Class II = bold face							
		Class III = light face to right of Class II																			
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5008	800	373	0.54	438	0.81																
6260	1000	404	0.72	460	1.02	513	1.34														
7512	1200	443	0.96	491	1.29	537	1.63	626	2.41												
8764	1400	487	1.25	529	1.62	570	2.01	649	2.83	725	3.75	797	4.75								
10016	1600	534	1.62	571	2.03	608	2.46	678	3.35	747	4.31	814	5.36	877	6.45						
11268	1800	582	2.07	616	2.52	649	3.00	713	3.96	776	4.99	836	6.07	896	7.22	953	8.43	1010	9.72		
12520	2000	633	2.6	663	3.10	694	3.62	752	4.67	809	5.75	865	6.90	920	8.11	973	9.36	1027	10.7	1078	12.1
13772	2200	684	3.25	712	3.78	740	4.34	794	5.48	847	6.65	898	7.87	949	9.13	999	10.4	1048	11.8	1097	13.2
15024	2400	736	3.98	762	4.56	789	5.18	838	6.39	887	7.64	935	8.94	982	10.3	1029	11.7	1074	13.1	1121	14.6
16276	2600	788	4.82	813	5.48	837	6.12	884	7.43	930	8.77	974	10.1	1019	11.6	1062	13.0	1105	14.5	1148	16.0
17528	2800	842	5.83	865	6.52	887	7.18	932	8.62	974	10.0	1016	11.5	1058	13.0	1098	14.5	1139	16.0	1180	17.7
18780	3000	895	6.94	918	7.70	939	8.41	981	9.93	1020	11.4	1060	13.0	1099	14.5	1138	16.1	1176	17.8	1214	19.4

CFM		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
13772	2200	1145	14.7	1237	17.9																
15024	2400	1165	16.1	1253	19.3	1337	22.7														
16276	2600	1190	17.6	1274	20.9	1353	24.3	1433	28.0												
17528	2800	1220	19.3	1297	22.6	1374	26.2	1450	30.0	1521	33.8	1592	37.8								
18780	3000	1252	21.1	1326	24.7	1399	28.3	1471	32.2	1541	36.1	1608	40.2	1675	44.5						
20032	3200	1286	23.1	1357	26.8	1425	30.5	1495	34.5	1562	38.6	1628	42.8	1692	47.1	1755	51.6	1817	56.3		
21284	3400	1323	25.3	1390	29.1	1457	33.1	1522	37.1	1586	41.3	1650	45.6	1711	50.0	1771	54.5	1833	59.3	1893	64.3
22536	3600	1364	27.8	1426	31.7	1490	35.8	1552	39.9	1612	44.1	1673	48.5	1734	53.2	1792	57.7	1851	62.6		
23788	3800	1405	30.4	1466	34.5	1526	38.7	1586	43.0	1644	47.4	1702	51.9	1760	56.6	1816	61.3	1873	66.3		
25040	4000	1446	33.0	1505	37.3	1562	41.6	1619	46.1	1675	50.6	1731	55.3	1786	60.0	1840	64.8	1895	69.9		
27544	4400	1534	39.2	1588	43.7	1641	48.4	1693	53.2	1746	58.0	1798	63.0	1848	67.9	1899	73.1				
30048	4800	1629	46.4	1678	51.3	1725	56.0	1774	61.2	1822	66.3	1870	71.5								

Performance shown is for BI fans with outlet ducts.
 Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 36 BI		Wheel diameter: 36 1/2"								Fan outlet area: 7.66 ft ²								Class I = light face to left of Class II							
		Wheel circumference: 9.55'								Maximum BHP = 17.71 $\left(\frac{\text{RPM}}{1000}\right)^3$								Class II = bold face							
																		Class III = light face to right of Class II							
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP					
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP				
6128	800	336	0.63																						
7660	1000	365	0.83	414	1.18	462	1.56																		
9191	1200	401	1.10	443	1.48	484	1.90	564	2.81																
10724	1400	442	1.43	478	1.87	514	2.32	584	3.29	653	4.36														
12256	1600	486	1.84	518	2.33	549	2.83	612	3.89	673	5.01	732	6.22												
13788	1800	531	2.34	559	2.87	588	3.43	644	4.58	699	5.78	754	7.06	807	8.40	859	9.84								
15320	2000	578	2.93	604	3.52	630	4.12	680	5.36	730	6.66	781	8.03	830	9.44	878	10.9	925	12.5	972	14.1				
16852	2200	627	3.66	650	4.28	673	4.92	719	6.25	765	7.66	810	9.09	856	10.6	900	12.1	945	13.8	989	15.4				
18384	2400	675	4.50	697	5.17	718	5.84	760	7.28	803	8.77	845	10.3	887	11.9	928	13.5	969	15.2	1011	17.0				
19916	2600	724	5.46	744	6.17	765	6.94	804	8.45	843	10.1	882	11.7	921	13.3	959	15.0	997	16.8	1036	18.6				
21448	2800	774	6.57	793	7.36	812	8.15	848	9.74	884	11.4	920	13.2	956	14.9	993	16.7	1028	18.5	1065	20.5				
22980	3000	825	7.86	842	8.65	859	9.51	893	11.2	928	13.0	961	14.8	995	16.7	1029	18.6	1062	20.5	1096	22.5				

CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16852	2200	1030	17.1																		
18384	2400	1050	18.7	1128	22.4																
19916	2600	1073	20.5	1147	24.3	1220	28.4														
21448	2800	1100	22.4	1169	26.3	1238	30.5	1306	34.9	1370	39.4										
22980	3000	1129	24.5	1196	28.7	1261	33.0	1324	37.4	1387	42.0	1450	46.9								
24512	3200	1161	26.8	1225	31.1	1286	35.6	1347	40.1	1408	45.0	1465	49.8	1525	55.0						
26044	3400	1197	29.3	1256	33.8	1313	38.3	1372	43.1	1429	48.0	1486	53.1	1542	58.2	1596	63.5	1649	69.0	1711	77.0
27576	3600	1233	31.9	1289	36.6	1344	41.3	1400	46.3	1455	51.4	1509	56.5	1562	61.8	1614	67.2	1668	72.9		
29108	3800	1272	34.9	1325	39.8	1378	44.7	1431	49.8	1483	55.0	1536	60.4	1586	65.8	1637	71.4	1688	77.1		
30640	4000	1310	37.8	1361	42.9	1412	48.1	1461	53.3	1511	58.6	1562	64.2	1610	69.7	1659	75.5	1707	81.2		
33704	4400	1393	44.7	1438	50.1	1486	55.7	1532	61.3	1577	67.0	1622	72.8	1667	78.6	1712	84.6				
36768	4800	1480	52.7	1521	58.3	1563	64.2	1606	70.2	1648	76.4	1690	82.5								

SIZE 40 BI		Wheel diameter: 40 1/4" Wheel circumference: 10.53' Fan outlet area: 9.31 ft² Maximum BHP = 27.9 $\left(\frac{\text{RPM}}{1000}\right)^3$								Class I = light face to left of Class II											
										Class II = bold face											
										Class III = light face to right of Class II											
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7448	800	305	0.76																		
9310	1000	331	1.01	376	1.43	419	1.89														
11172	1200	364	1.33	402	1.81	439	2.31	511	3.41												
13034	1400	400	1.74	433	2.27	466	2.82	530	4.01	591	5.30										
14896	1600	440	2.24	469	2.82	498	3.44	554	4.72	610	6.09	655	7.58								
16758	1800	482	2.84	507	3.48	533	4.16	584	5.56	635	7.04	684	8.58	731	10.2	779	11.9				
18620	2000	524	3.56	547	4.28	571	5.01	617	6.53	662	8.09	707	9.74	752	11.5	795	13.2	838	15.1	881	17.1
20482	2200	568	4.44	589	5.20	610	5.98	652	7.62	693	9.30	735	11.1	777	12.9	817	14.8	857	16.7	896	18.7
22344	2400	612	5.46	631	6.27	651	7.12	690	8.87	728	10.7	766	12.5	804	14.5	841	16.4	879	18.5	916	20.6
24206	2600	657	6.63	674	7.49	693	8.43	728	10.3	764	12.2	799	14.2	834	16.2	870	18.3	905	20.5	939	22.6
26068	2800	702	7.98	719	8.94	736	9.90	768	11.8	802	13.9	834	16.0	868	18.2	900	20.3	933	22.6	965	24.9
27930	3000	747	9.55	763	10.5	779	11.5	810	13.6	841	15.8	871	18.0	902	20.3	933	22.6	964	25.0	993	27.3

CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
20782	2200	935	20.9																		
22344	2400	953	22.8	1023	27.3																
24206	2600	973	24.9	1040	29.5	1105	34.4														
26068	2800	997	27.2	1061	32.1	1122	37.1	1184	42.4	1244	48.0										
27930	3000	1024	29.8	1084	34.8	1143	40.0	1200	45.4	1258	51.1	1314	57.0								
29792	3200	1053	32.5	1110	37.8	1166	43.2	1221	48.7	1276	54.6	1330	60.6	1382	66.8						
31654	3400	1085	35.6	1138	41.0	1192	46.6	1244	52.4	1295	58.2	1347	64.4	1397	70.7	1447	77.1	1497	84.1	1553	93.9
33516	3600	1117	38.8	1168	44.4	1219	50.3	1269	56.2	1319	62.4	1367	68.6	1416	75.0	1465	81.9	1511	88.6		
35378	3800	1153	42.5	1201	48.3	1250	54.4	1297	60.5	1345	66.9	1392	73.3	1438	79.8	1485	86.8	1530	93.8		
37240	4000	1188	46.1	1233	52.1	1280	58.4	1324	64.7	1371	71.4	1416	78.0	1459	84.6	1504	91.6	1549	99.0		
40964	4400	1263	54.3	1305	61.0	1347	67.7	1388	74.5	1429	81.3	1470	88.4	1513	95.8	1554	103				
44688	4800	1342	64.0	1379	70.8	1417	77.9	1455	85.2	1494	92.7	1532	100								

Performance shown is for BI fans with outlet ducts.
 Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 44 BI		Wheel diameter: 44 1/2"						Fan outlet area: 11.39 ft ²						Class I = light face to left of Class II											
		Wheel circumference: 11.64'						Maximum BHP = 46.2 $\left(\frac{\text{RPM}}{1000}\right)^3$						Class II = bold face											
																		Class III = light face to right of Class II							
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP					
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP				
9112	800	276	0.93																						
11390	1000	300	1.24	340	1.175	379	2.32																		
13668	1200	329	1.64	363	2.21	397	2.82	463	4.18																
15946	1400	363	2.13	392	2.78	422	3.45	479	4.90	535	6.49														
18224	1600	398	2.74	425	3.46	451	4.21	502	5.78	552	7.46	601	9.25												
20502	1800	436	3.48	459	4.27	482	5.10	528	6.79	574	8.59	619	10.5	662	12.5	705	14.6								
22780	2000	474	4.36	496	5.24	516	6.11	558	7.97	599	9.91	640	11.9	680	14.0	720	16.2	759	18.6	796	20.9				
25058	2200	514	5.45	533	6.37	552	7.33	590	9.31	628	11.4	665	13.5	702	15.7	739	18.0	776	20.5	810	22.9				
27336	2400	554	6.69	572	7.69	589	8.70	624	10.8	658	13.1	693	15.3	727	17.7	761	20.1	795	22.6	828	25.1				
29614	2600	594	8.13	610	9.18	627	10.3	659	12.6	691	14.9	723	17.4	755	19.9	786	22.4	818	25.0	850	27.7				
31892	2800	635	9.78	651	11.0	666	12.1	695	14.5	726	17.0	755	19.6	785	22.2	814	24.9	843	27.6	874	30.5				
34170	3000	677	11.7	690	12.9	705	14.1	733	16.7	760	19.3	789	22.1	817	24.8	844	27.6	871	30.5	899	33.4				

CFM		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
25058	2200	845	25.5																		
27336	2400	861	27.8	926	33.4																
29614	2600	881	30.5	941	36.1	1001	42.2														
31892	2800	902	33.3	959	39.2	1016	45.4	1072	52.0	1124	58.6										
34170	3000	926	36.4	980	42.5	1033	48.9	1086	55.6	1138	62.6	1188	69.6								
36448	3200	953	39.8	1005	46.3	1055	52.9	1105	59.7	1153	66.6	1202	74.0	1249	81.5						
38726	3400	982	43.6	1029	50.1	1077	57.0	1126	64.2	1172	71.3	1219	79.0	1265	86.6	1309	94.5	1353	103	1404	115
41004	3600	1012	47.5	1057	54.5	1102	61.5	1148	68.9	1192	76.2	1238	84.0	1281	91.9	1324	99.9	1368	109	1409	117
43282	3800	1043	51.9	1087	59.2	1130	66.6	1174	74.1	1216	81.7	1259	89.6	1301	98.0	1343	106	1385	115		
45560	4000	1074	56.3	1117	63.9	1158	71.6	1199	79.3	1240	87.2	1280	95.2	1321	104	1361	112	1401	121		
50116	4400	1143	66.6	1180	74.5	1218	82.7	1257	91.3	1293	99.6	1331	108	1368	117	1405	126				
54672	4800	1212	77.8	1248	86.7	1283	95.5	1317	104	1352	114	1387	123								

SIZE 49 BI		Wheel diameter: 49"						Fan outlet area: 13.80 ft ²						Class I = light face to left of Class II							
		Wheel circumference: 12.82'						Maximum BHP = 74.0 $\left(\frac{\text{RPM}}{1000}\right)^3$						Class II = bold face							
														Class III = light face to right of Class II							
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
11040	800	250	1.13																		
13800	1000	272	1.50	308	2.12	344	2.81														
16560	1200	299	1.98	330	2.68	361	3.43	420	5.05												
19320	1400	329	2.57	356	3.36	383	4.18	435	5.93	486	7.85										
22080	1600	362	3.31	385	4.19	409	5.10	455	7.00	501	9.03	545	11.2								
24840	1800	396	4.21	416	5.16	438	6.17	480	8.24	521	10.4	561	12.7	601	15.1	640	17.7				
27600	2000	430	5.28	450	6.34	469	7.42	506	9.64	544	12.0	581	14.4	618	17.0	653	19.6	689	22.4	723	25.4
30360	2200	466	6.59	484	7.70	501	8.86	536	11.3	570	13.8	604	16.4	637	19.1	671	21.9	704	24.8	736	27.8
33120	2400	503	8.10	519	9.30	534	10.5	566	13.1	597	15.8	629	18.6	661	21.5	691	24.3	721	27.3	752	30.5
35880	2600	539	9.83	554	11.1	569	12.5	598	15.2	628	18.1	656	21.0	685	24.0	715	27.2	743	30.3	771	33.5
38640	2800	576	11.8	591	13.3	604	14.7	631	17.5	658	20.6	685	23.7	713	26.9	739	30.1	766	33.5	793	36.9
41400	3000	614	14.2	627	15.6	640	17.1	665	20.2	691	23.4	716	26.7	741	30.0	766	33.5	791	36.9	816	40.5

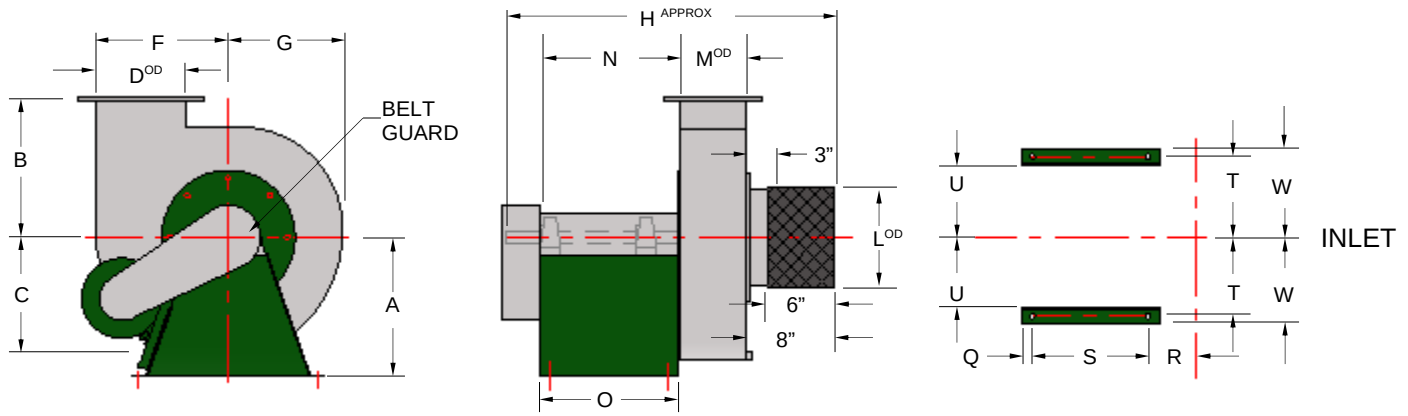
CFM		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
30360	2200	768	30.9																		
33120	2400	781	33.6	840	40.4																
35880	2600	799	36.9	854	43.7	908	51.1														
38640	2800	819	40.3	872	47.6	922	55.0	972	62.9	1022	71.2										
41400	3000	841	44.2	891	51.6	939	59.4	986	67.3	1033	75.7	1080	84.5								
44160	3200	865	48.2	912	56.0	958	64.0	1003	72.3	1048	80.9	1091	89.6	1136	99.1						
46920	3400	891	52.7	935	60.8	979	69.2	1022	77.6	1064	86.3	1107	95.5	1148	105	1188	114	1230	125	1276	139
49680	3600	918	57.5	960	65.9	1002	74.6	1042	83.3	1083	92.5	1123	102	1163	111	1202	121	1242	131		
52440	3800	947	62.9	987	71.6	1027	80.6	1065	89.6	1105	99.3	1143	109	1181	118	1219	129	1257	139		
55200	4000	976	68.3	1013	77.3	1051	86.6	1088	95.9	1126	106	1163	116	1199	125	1236	136	1271	146		
60720	4400	1037	80.6	1072	90.4	1106	100	1140	110	1174	121	1208	131	1243	142	1276	153				
66240	4800	1102	94.9	1133	105	1164	116	1196	126	1227	137	1258	148								

Performance shown is for BI fans with outlet ducts.
 Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

SIZE 54 BI				Wheel diameter: 54 1/4"				Fan outlet area: 16.92 ft ²				Class I = light face to left of Class II Class II = bold face Class III = light face to right of Class II									
Wheel circumference: 14.19'				Maximum BHP = 123 $\left(\frac{\text{RPM}}{1000}\right)^3$																	
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
13536	800	226	1.39																		
16920	1000	245	1.84	279	2.61	311	3.45														
20304	1200	270	2.42	298	3.29	326	4.20	379	6.21												
23688	1400	297	3.16	321	4.12	346	5.14	393	7.29	439	9.65										
27072	1600	327	4.06	348	5.13	369	6.25	412	8.60	453	11.1	493	13.8								
30456	1800	357	5.17	376	6.33	395	7.56	433	10.1	470	12.8	507	15.6	543	18.6	578	21.8				
33840	2000	389	6.53	406	7.78	423	9.10	458	11.9	492	14.7	525	17.7	558	20.9	590	24.1	622	27.6	654	31.2
37224	2200	421	8.09	437	9.45	452	10.9	484	13.9	514	16.9	545	20.1	576	23.4	606	26.8	636	30.4	665	34.2
40608	2400	454	9.94	469	11.4	483	13.0	511	16.1	540	19.4	568	22.8	596	26.3	625	29.9	652	33.6	680	37.5
43992	2600	487	12.1	500	13.6	514	15.3	540	18.7	567	22.2	593	25.8	619	29.5	645	33.3	671	37.2	696	41.1
47376	2800	522	14.7	534	16.3	546	18.0	570	21.5	595	25.3	619	29.0	644	33.0	667	36.9	692	41.1	716	45.2
50760	3000	555	17.4	566	19.1	578	21.0	601	24.8	624	28.7	647	32.7	669	36.8	692	41.1	715	45.4	738	49.7
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
37224	2200	694	38.0																		
40608	2400	706	41.3	759	49.6																
43992	2600	722	45.3	772	53.7	821	62.7														
47376	2800	740	49.6	787	58.3	833	67.6	879	77.3	923	87.5										
50760	3000	760	54.1	804	63.2	848	72.7	891	82.7	934	93.0	975	104								
54144	3200	782	59.3	823	68.6	865	78.4	907	88.8	947	99.5	986	110	1026	122						
57528	3400	805	64.6	844	74.5	884	84.7	924	95.4	962	106	1000	117	1037	129	1074	141	1111	153	1152	171
60912	3600	829	70.5	867	80.8	904	91.4	941	102	978	113	1015	125	1051	137	1086	149	1122	161	1157	174
64296	3800	856	77.2	891	87.8	927	98.7	963	110	998	122	1033	134	1068	146	1102	158	1136	171	1167	183
67680	4000	882	83.8	915	94.7	949	106	984	118	1017	130	1050	142	1084	154	1117	167	1149	180		
74448	4400	937	98.8	967	111	999	123	1030	135	1060	148	1091	161	1122	174	1152	187				
81216	4800	996	116	1023	129	1052	142	1080	155	1109	169	1136	182	1166	196						
SIZE 60 BI				Wheel diameter: 60"				Fan outlet area: 20.70 ft ²				Class I = light face to left of Class II Class II = bold face Class III = light face to right of Class II									
Wheel circumference: 15.70'				Maximum BHP = 203 $\left(\frac{\text{RPM}}{1000}\right)^3$																	
CFM	OV	1/2" SP		3/4" SP		1" SP		1 1/2" SP		2" SP		2 1/2" SP		3" SP		3 1/2" SP		4" SP		4 1/2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16560	800	204	1.69																		
20700	1000	222	2.25	252	3.19	281	4.21														
24840	1200	244	2.97	269	4.01	294	5.13	343	7.59												
28980	1400	269	3.86	291	5.04	313	6.27	355	8.9	397	11.8										
33120	1600	295	4.97	315	6.29	334	7.65	372	10.5	409	13.6	445	16.8								
37260	1800	323	6.33	340	7.75	358	9.26	392	12.4	425	15.6	459	19.1	491	22.7	523	26.6				
41400	2000	351	7.92	367	9.52	383	11.1	413	14.5	444	18.0	475	21.7	505	25.5	534	29.5	563	33.7	591	38.1
45540	2200	381	9.89	395	11.6	409	13.3	437	16.9	465	20.7	493	24.6	520	28.6	547	32.8	575	37.2	601	41.7
49680	2400	411	12.2	424	14.0	436	15.8	462	19.7	488	23.7	514	27.9	540	32.2	564	36.5	589	41.0	615	45.8
53820	2600	441	14.8	452	16.7	465	18.8	489	22.8	512	27.1	536	31.5	560	36.1	583	40.6	606	45.4	630	50.4
57960	2800	471	17.8	482	19.9	494	22.0	515	26.3	538	30.9	560	35.6	582	40.3	604	45.2	625	50.1	648	55.4
62100	3000	502	21.3	512	23.4	523	25.7	543	30.3	564	35.2	585	40.1	605	45.1	626	50.3	646	55.4	666	60.7
CFM	OV	5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
45540	2200	627	46.2																		
49680	2400	638	50.5	686	60.7																
53820	2600	653	55.3	698	65.6	742	76.7														
57960	2800	669	60.5	711	71.2	753	82.5	794	94.4	833	106										
62100	3000	686	66.1	727	77.5	767	89.1	805	101	844	114	882	127								
66240	3200	706	72.3	745	84.1	782	96.1	819	108	856	122	891	134	926	148						
70380	3400	728	79.1	763	91.0	799	103	835	117	869	130	904	143	938	157	971	172	1003	186	1041	208
74520	3600	750	86.3	784	98.9	817	112	851	125	885	139	918	153	950	167	982	182	1014	197		
78660	3800	773	94.2	806	107	838	121	870	135	902	149	934	164	965	178	996	193	1026	209		
82800	4000	796	102	828	116	859	130	889	144	919	158	950	174	979	188	1009	204	1038	220		
91080	4400	847	121	875	135	904	151	932	166	959	181	987	197	1014	213	1041	229				
99360	4800	900	142	925	157	951	173	977	190	1003	206	1028	223								

Performance shown is for BI fans with outlet ducts.
Selection within tinted area renders most efficient operation. BHP shown includes drag, but not drive losses.

GI - FANS



Inlet Flange Width - 1 1/16" X 3/8" Outlet Flange Width 1 1/2" X 3/8"

ARRANGEMENT 9 DIMENSIONS [INCHES]

Size	A	B	C	D ^{OD}	F	G	H	K	L ^{OD}	M ^{OD}	N
125	12 1/2	10 1/2	10	7	11 1/4	8 3/4	27 1/2	3	7 3/8	3 7/8	12 5/8
146	12 1/2	12 1/2	11 1/8	8 1/4	12	10 1/4	29 1/2	3	8 5/8	5 7/8	12 5/8

Size	O	Q	R	S	T	U	W	BASE HOLE	SHAFT SIZE	BEARING CENTERLINE	SCROLL MAT'L THICKNESS	SIDE MAT'L THICKNESS	WEIGHT LESS MOTOR
125	17 5/8	15/16	3	10 1/2	8 1/8	7 7/8	8 5/8	1/2	1	1 7/16	1/8	1/8	60
146	17 5/8	15/16	4	10 1/2	8 1/8	7 7/8	8 5/8	1/2	1	1 7/16	1/8	1/8	80

Dimensions shown for PVC fans only. Dimensions not to be used for construction unless certified. Tolerance + or - 1/8". NOTE: On size 146 in Bottom Horizontal discharge with flange outlet, the flange extends below the arrangement 9 baseline.

SIZE 125						Wheel diameter: 12" Inlet: 6-5/8" Outlet area: .158 ft ²																					
CFM	OV	1/4" SP		1/2" SP		3/4" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
95	600	600	0.11	815	0.11	985	0.12	1131	0.13	1580	0.18	1933	0.24	2234	0.30	2501	0.37	2747	0.45	2976	0.54	3157	0.62	3341	0.71	3534	0.81
158	1000	678	0.11	871	0.12	1034	0.14	1169	0.15	1612	0.20	1948	0.27	2243	0.35	2497	0.43	2727	0.52	2951	0.61	3172	0.71	3361	0.81	3534	0.92
221	1400	783	0.12	957	0.14	1099	0.15	1230	0.17	1655	0.23	1990	0.31	2283	0.40	2525	0.48	2762	0.59	2974	0.69	3183	0.81	3376	0.92	3554	1.04
284	1800	904	0.14	1058	0.16	1194	0.17	1312	0.19	1712	0.27	2036	0.36	2318	0.45	2572	0.55	2801	0.66	3007	0.77	3207	0.89	3378	1.01	3555	1.16
348	2200	1035	0.16	1173	0.18	1294	0.20	1406	0.22	1780	0.31	2090	0.41	2367	0.52	2620	0.63	2836	0.74	3054	0.86	3246	0.99	3429	1.13	3596	1.28
411	2600	1172	0.19	1296	0.22	1408	0.24	1509	0.26	1868	0.37	2156	0.47	2421	0.59	2668	0.71	2888	0.84	3094	0.97	3279	1.11	3460	1.26	3640	1.43
474	3000	1312	0.23	1427	0.26	1530	0.29	1626	0.31	1963	0.43	2245	0.55	2491	0.67	2727	0.80	2941	0.94	3151	1.11	3333	1.26	3520	1.44	3685	1.60
537	3400	1455	0.29	1562	0.32	1657	0.35	1745	0.37	2065	0.50	2340	0.64	2580	0.77	2794	0.90	3004	1.06	3201	1.24	3386	1.42	3565	1.61	3731	1.79
600	3800	1601	0.35	1700	0.39	1790	0.42	1873	0.45	2169	0.58	2434	0.74	2671	0.89	2883	1.04	3075	1.20	3263	1.38	3451	1.58	3624	1.78	3786	1.98
664	4200	1748	0.43	1841	0.47	1924	0.51	2002	0.55	2286	0.69	2535	0.85	2764	1.02	2976	1.20	3162	1.38	3344	1.56	3515	1.76	3682	1.96	3853	2.19
727	4600	1897	0.53	1983	0.57	2064	0.61	2137	0.65	2406	0.81	2642	0.97	2865	1.18	3071	1.39	3253	1.58	3430	1.77	3598	1.97	3752	2.17	3907	2.39
790	5000	2046	0.64	2128	0.69	2203	0.74	2274	0.78	2530	0.95	2755	1.13	2968	1.35	3170	1.58	3356	1.80	3530	2.02	3687	2.22	3839	2.43	3993	2.66
853	5400	2196	0.77	2274	0.82	2345	0.88	2413	0.93	2655	1.12	2874	1.32	3074	1.53	3266	1.78	3454	2.03	3618	2.26	3781	2.49	3941	2.73		

SIZE 146						Wheel diameter: 14" Inlet: 8-5/8" Outlet area: .293 ft ²																					
CFM	OV	1/2" SP		1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		12" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
176	600	671	0.12	931	0.15	1317	0.22	1612	0.30	1863	0.39	2076	0.49	2279	0.60	2466	0.72	2627	0.85	2785	0.99	2934	1.15	3216	1.48	3475	1.85
293	1000	748	0.14	970	0.18	1326	0.27	1612	0.36	1870	0.48	2090	0.60	2280	0.72	2467	0.85	2638	0.99	2796	1.14	2944	1.31	3230	1.66	3484	2.04
410	1400	849	0.17	1057	0.22	1369	0.33	1636	0.44	1873	0.56	2095	0.70	2302	0.84	2490	1.00	2642	1.17	2799	1.36	2954	1.55	3235	1.94	3494	2.34
527	1800	958	0.22	1154	0.28	1453	0.41	1694	0.54	1913	0.68	2110	0.83	2299	0.99	2470	1.16	2660	1.35	2809	1.56	2958	1.75	3239	2.23	3495	2.70
645	2200	1073	0.27	1262	0.35	1546	0.51	1776	0.66	1979	0.82	2167	0.99	2338	1.18	2501	1.38	2666	1.59	2836	1.80	2991	2.02	3254	2.48	3511	2.99
762	2600	1194	0.35	1371	0.44	1648	0.63	1870	0.81	2066	1.00	2240	1.20	2408	1.42	2559	1.63	2706	1.86	2858	2.11	2992	2.34	3272	2.83	3545	3.33
879	3000	1322	0.45	1484	0.55	1752	0.77	1970	0.98	2157	1.21	2330	1.45	2490	1.69	2634	1.93	2774	2.17	2907	2.42	3041	2.69	3288	3.22	3527	3.78
996	3400	1456	0.58	1604	0.69	1860	0.93	2072	1.19	2259	1.46	2427	1.73	2581	2.01	2721	2.27	2858	2.54	2989	2.81	3109	3.08	3353	3.67	3579	4.27
1113	3800	1592	0.74	1729	0.87	1972	1.14	2181	1.45	2359	1.74	2523	2.04	2674	2.34	2819	2.65	2946	2.94	3075	3.25	3194	3.55	3428	4.17		
1231	4200	1730	0.93	1858	1.08	2089	1.40	2289	1.73	2470	2.07	2626	2.39	2775	2.72	2919	3.07	3045	3.39	3165	3.72	3285	4.05	3510	4.72		
1348	4600	1869	1.18	1990	1.35	2206	1.69	2401	2.05	2575	2.42	2735	2.79	2877	3.14	3013	3.50	3139	3.86	3267	4.25	3380	4.60	3599	5.33		
1465	5000	2010	1.47	2124	1.67	2326	2.04	2518	2.42	2687	2.82	2840	3.21	2981	3.60	3117	4.00	3243	4.39	3365	4.79	3478	5.19				
1582	5400	2153	1.82	2259	2.03	2455	2.44	2635	2.84	2799	3.26	2952	3.70	3088	4.11	3223	4.55	3343	4.96	3465	5.40	3580	5.83				

ISOLATORS

PLANNED ISOLATION:

The isolation of machinery to prevent the transmission of vibration has become one of the important phases of modern plant engineering. Because concrete, steel, and other building materials are all good conductors of vibration, all mechanical equipment should be isolated. Properly planned isolation acts not only as a shield to prevent vibration transmission to the foundation, floor, the building structure and surrounding equipment, but it also materially reduces dynamic bearing loads.

NOISE:

With passage of the Noise Control Act of 1972 and OSHA regulations which set limits to factory noise, it is important that all areas of noise reduction be considered.

The use of a resilient medium between the equipment and structure acts to break the path of structural borne noise as well as noise resulting from sound waves that are magnified by the "sounding board" effect associated with machinery mounted solidly to the structure.

Use of isolation does not reduce air borne noise which if found to be above allowable levels must be treated acoustically with acoustic enclosures or other sound absorbing devices.

SHEAR MOUNTS:

Elastomer-in-shear mounts provide up to 1/4" static deflection. When assembled in series double deflection to 1/2" is attained.

By varying the durometer (hardness) of the elastomer elements or by assembling them in parallel, unlimited load capacity is attainable.

Elastomer-in-shear isolators are available in unit, rail or integral base form and are commonly used to isolate a variety of machinery whose predominant disturbance is due to steady state uniform vibrations above 600 cpm.

METAL SPRINGS:

Metal springs become preferable when the required static deflections exceed 1/2". Springs are highly efficient mechanical vibration absorbers and their lack of inherent damping and sound absorbing qualities may be readily overcome by the application of properly designed damping and sound absorbing materials. The use of spring devices for large deflections dictates the incorporation of leveling bolts in order to facilitate installation and to compensate for variations in deflection.

Spring isolators are usually available either housed or free standing. Free standing springs are unrestrained devices which must be stable, i.e., where the ratio of the lateral to the axial spring constants is approximately equal; or where the outside spring diameter is at least 0.8 of the spring operating height.

Housed springs vary in design and can be furnished with vertical and/or lateral restraints depending on the application. They are usually preferred over unhoused springs for in-plant installation.

Springs are excellent isolators for both steady state vibrations and for impact. Typical equipment isolated for vibration are:

Blowers

Air Handling Units

Pumps

DONT'S for machine isolation

Don't make a bouncing ball out of your machine. It's important that isolation be just right, not too hard nor too soft. At one point in it's softness resonance develops and with plenty of trouble.

Don't ignore uneven weight distribution. If you do, the isolation will compress unevenly and the machine will tip. Excessive tipping or rocking may lead to serious trouble.

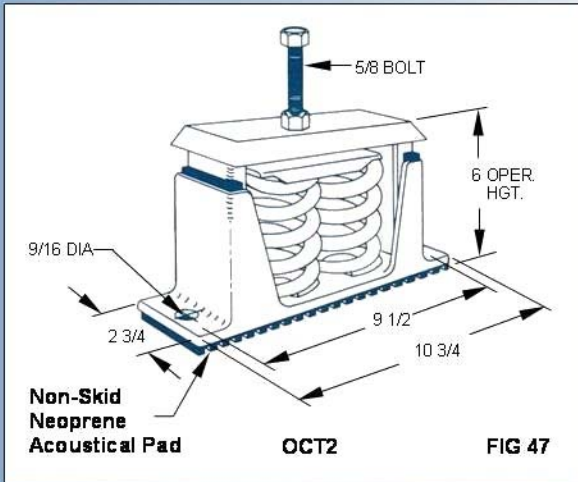
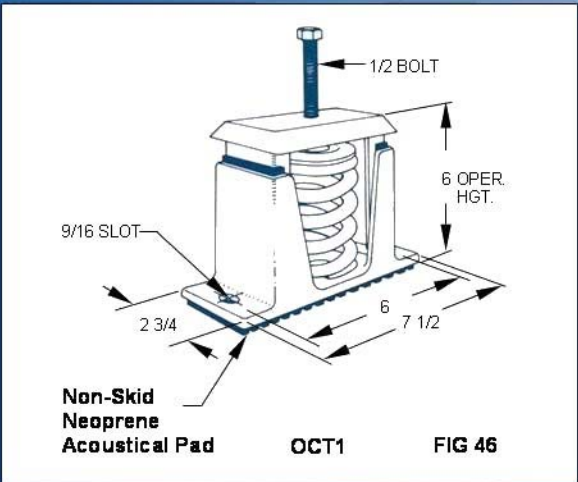
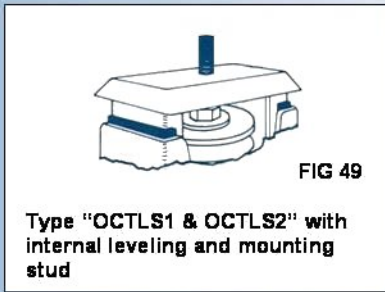
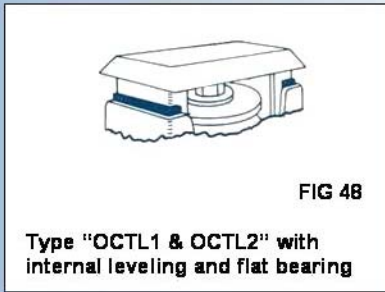


FIG. NO.	MODEL NUMBER	COLOR CODE	RATED LOAD	RATED DEFL.	SHIP WGT.
46 → 48 → 49 →	OCT1	1 Silver	100#	1.00"	7.0#
		2 Yellow	200	1.00"	
		3 Red	295	.80"	
		4 White	380	.80"	
		5 Green	530	.80"	
		6 Blue	750	.75"	
		7 Orange	1125	.75"	
		8 Gold	1500	.75"	
	OCTLS1	30 Silver	155	1.85"	8.0#
		31 Yellow	220	1.70"	
		32 Red	310	1.55"	
		33 White	420	1.40"	
		34 Green	540	1.25"	
		35 Blue	710	1.15"	
		36 Orange	900	1.05"	
		37 Gold	1030	1.00"	
47 → 48 → 49 →	OCT2	38 Red & Silver	1275	1.00"	13.0#
		39 Red & Yellow	1630	1.00"	
		40 Red & White	2100	1.00"	
		41 Red & Green	3000	1.00"	
47 → 48 → 49 →	OCTLS2	37 Gold	2060	1.00"	13.0#
		38 Red & Silver	2550	1.00"	
		39 Red & Yellow	3260	1.00"	
		40 Red & White	4200	1.00"	
		41 Red & Green	6000	1.00"	



ENGINEERING INFORMATION

TERMS and DEFINITIONS

AHP or Air Horsepower, is work done by the fan expressed as horsepower.

$$\text{AHP} = \frac{\text{CFM} \times \text{TP}}{6356}$$

BHP or Brake Horsepower, is the horsepower absorbed by the fan.

CFM or Cubic Feet Per Minute, is the volume of air moved per minute.

Free Delivery is the condition under which a fan operates when no static pressure is present.

HP or Horsepower, is the actual rated output of the fan motor used.

ME or Mechanical Efficiency, is the ratio of horsepower absorbed (BHP) to horsepower delivered by the fan (AHP).

$$\text{ME} = \frac{\text{AHP}}{\text{BHP}}$$

Standard Air is air which weighs .075 pounds per cubic foot, which is dry air at 70° F. dry bulb with a barometric pressure of 29.92 inches of mercury.

SE. or Static Efficiency, is expressed as:

$$\text{SE} = \frac{\text{CFM} \times \text{SP}}{6356 \times \text{BHP}}$$

SP or Static Pressure, is a measure of the force exerted by the fan in moving air through any ventilating system.

TS or Tip Speed, is the peripheral speed in feet per minute of a propeller tip at any specified RPM.

TE or Total Efficiency, may be expressed as:

$$\text{TE} = \frac{\text{CFM} \times \text{TP}}{6356 \times \text{BHP}}$$

VP or Velocity Pressure, is equal to the kinetic energy per unit of volume of the flowing air. It can be calculated from the formula

$$\text{VP} = \frac{\text{FPM}^2}{4005}$$

TP or Total Pressure, is the sum of the static pressure (SP), and the velocity pressure (VP) at any given point in a ventilating system.

FAN LAWS and FORMULAE used in Performance Calculations

Fan efficiencies remain constant for symmetrical design. When one or more conditions change, the other conditions vary accordingly to certain fan laws for an established fan size, system of ductwork and air density.

When fan speed is varied:

1. Fan's air-delivery will vary directly as the RPM ratio.

$$\text{CFM}_2 = \frac{\text{RPM}_2}{\text{RPM}_1} (\text{CFM}_1)$$

2. Developed fan pressures will vary as the RPM ratio squared.

$$\text{SP}_2 = \frac{\text{RPM}_2^2}{\text{RPM}_1^2} (\text{SP}_1)$$

3. Horsepower absorbed by fan will vary as the RPM ratio cubed.

$$\text{HP}_2 = \frac{\text{RPM}_2^3}{\text{RPM}_1^3} (\text{HP}_1)$$

When fan pressure varies:

1. Fan's air-delivery and RPM will vary as the square root of the pressure ratio.

2. Horsepower absorbed by fan will vary as the square root of the pressure ratio cubed.

When density of air varies:

1. For constant pressure fan speed, air delivery, and horsepower absorbed vary inversely as the square root of the density.
2. For constant air-delivery and fan speed-horsepower absorbed by fan and pressure developed vary directly as the air density.
3. For constant amount of air by weight-air-delivery, fan speed and developed pressure vary inversely as the density ratio.
4. For constant amount of air by weight-horsepower absorbed by fan varies inversely as the square of the density ratio.

MOTOR DATA

Unless otherwise specified, all motors furnished on Midwest Air Products fans are ball bearing and can be used in either horizontal or vertical positions.

Totally enclosed non-ventilated, totally enclosed fan cooled, or explosion proof motors are available for belt driven units used for special applications.

Many other special applications such as acid-proof, marine duty, outdoor weather-proof, chemical plant type, and vapor proof units are also available.

Premium Efficiency motors and two-speed motors are available upon request.

$$\text{Area of a circle} = 0.7854 \times (\text{Dia.})^2$$

$$\text{CFM} / \text{Area} = \text{FPM}$$

$$\text{FPM} \times \text{Area} = \text{CFM}$$

$$\text{CFM} / \text{FPM} = \text{Area}$$

**Highest Value
Exhaust and Pollution
Control Equipment**

**“OLD
SCHOOL
QUALITY
OLD
SCHOOL
SERVICE”**

**Corrosion Resistant PVC Duct
Corzan™ Duct
Fiberglass Overlaid Duct**



**Turnkey
Installations**

**Corzan™
Duct**



Motorized Dampers



**Terminator™
Composite Mesh Pad
Exhaust Hoods**

