

AEROVENT >>
INDUSTRIAL VENTILATION SYSTEMS

**Model TSBD
Belt Driven**



VANEAXIAL & TUBEAXIAL FANS

**Type "S" Belt Driven
Featuring Welded Steel Propellers
Model VSBD / TSBD**

Vaneaxial & Tubeaxial Fans

Model VSBD / TSBD Type S



Model TSBD,
Belt Driven



Models VSBD and TSBD are available with the UL/cUL 705 listing for electrical, File No. E158680.

For applications requiring extensive corrosion resistance or operation at higher temperatures than standard, the Arrangement 9 VSBD/TSBD is the perfect choice. Standard construction is good for operation to 200°F; fans can be customized to handle up to 300°F. Steel construction is standard, all stainless steel construction is available. Driven by either a fixed or adjustable V-belt drive system, the exact point of rating can be achieved. A future change in rating can be accomplished through a simple sheave change.

Sizes

12" to 54" wheel diameters

Performance

Airflow to 80,000 CFM
Static pressure to 4 inches w.g.

Drive Configurations

Available in belt driven configurations.

Temperature Ratings

Standard construction can accommodate operation to 200°F (93°C) and can be customized to handle up to 300°F (148°C).

AEROVENT 
INDUSTRIAL VENTILATION SYSTEMS

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Construction Features

Steel Propellers

Steel propellers are manufactured with a spun steel hub. Steel blades are welded to the hub and can be attached at precise angles ranging from 30° to 50°. This ability to customize blade angles provides the highest efficiency for a given performance.

Housing

Fan housings are constructed of continuously welded, heavy gauge steel for strength and rigidity. Flanges on both the inlet and outlet are integrally rolled and punched for attachment to ductwork or accessories.

Shafts

Fan shafts are ground and polished 1045 steel sized to allow the rotating assembly to operate a minimum of 43% below the first critical speed.

Bearings

Cast iron, re-greasable flange mounted ball or roller type bearings have a minimum L-10 life of 40,000 hours. This is equivalent to an average life of 200,000 hours. Extended lubrication lines terminate at the housing exterior.

Drive Isolated from Airstream

The shaft and bearing assembly is mounted within the inner cylinder to isolate these components from the high velocity airstream. The V-belt drive assembly is extended through a two-piece belt fairing. The belt fairing is an aerodynamically designed tube, designed to maximize fan efficiency, minimize air blockage and reduce noise generation.

Motors

A variety of single- and three-phase motors is available in open drip-proof (ODP), explosion-proof (EXP), and totally enclosed fan cooled (TEFC) enclosures. An adjustable mounting platform pivots to allow infinite belt tension adjustment.

Hub-to-Tip Ratio

Wheels are manufactured from one of four hub sizes. Hubs are machined and cut to the specified diameter for a job. Blades are die-formed stamped steel and custom cut to their specified size. Fabricating wheels from custom sized blades and hubs allows the creation of wheels with an infinite range of hub-to-tip ratios. Since each hub-to-tip ratio has a slightly different pressure/efficiency characteristic, the freedom of having several wheels with different hub-to-tip ratios for a set diameter allows maximum efficiency at the required point of rating. For additional hub-to-tip ratios refer to the Aerovent Fan Selector Program.

Guide Vanes

VSBD vaneaxial fans are fitted with straightening guide vanes. The vanes are aerodynamically placed within the housing on the discharge side of the wheel. Vanes are stationary and welded to both the inner and outer cylinders. The straightening effect of the vanes aids in minimizing turbulence downstream from the fan thereby recovering rotative energy imparted to the air by the wheel.

Accessories



Inlet Bell



Inlet / Outlet Cone



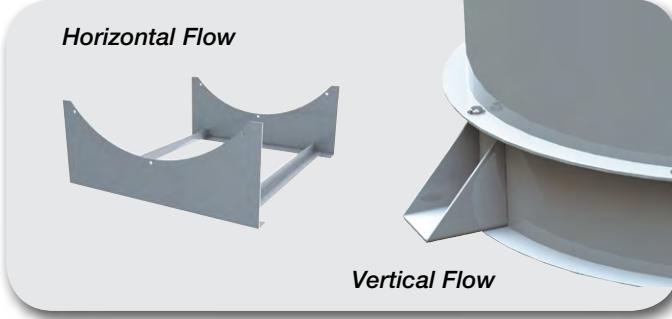
Companion Flanges



Sound Attenuation



Variable Inlet Vane



Horizontal Flow



Vertical Flow



Support Legs

Inlet Bell

For systems with no ductwork on the fan inlet, it is required to install an inlet bell to avoid inlet losses. The inlet bell is a torosoidal shape to provide a smooth entrance to the fan. Inlet bells are flanged and drilled to mate with the fan's flanged inlet.

Inlet/Outlet Cone

A round-to-round transition bolted to the inlet or discharge flange of the fan housing provides a smooth connection of the fan to larger or smaller ductwork. Cones are flanged on both ends and drilled to mate with the fan's flange. Cones are available with an access door if required. Outlet cones can be utilized to affect performance and transform velocity pressure into static pressure.

Companion Flanges

For ease of installation of adjacent ductwork, companion flanges can be provided. Flanges are rolled angle rings, drilled to match the fan's inlet or outlet flange.

Sound Attenuation

For applications requiring quiet operation, custom-built attenuation packages can be provided on the fan inlet or outlet. Attenuators are aerodynamically and acoustically matched to the specific system requirements and are designed to significantly reduce noise while adding only minor resistance to airflow.

Variable Inlet Vane

For frequent or continuous volume control a variable inlet vane can be provided. The vane action during dampering works to spin the air in the direction of the wheel rotation, thus resulting in lower power consumption.

Variable inlet vanes are available for each specific fan size and are bolted to the fan's flanged inlet. The variable inlet vane's inlet is flanged and drilled to accept ductwork or an inlet bell as the system requires. The vane mechanism is outside of the airstream and is controlled by a single vane lever. Variable inlet vanes can be set up for manual or automatic operation.

Support Legs

Horizontal Flow

For horizontal flow with floor mounting, support legs are welded to the fan flange with bolt holes aligned for connection of ductwork.

Vertical Flow

For vertical flow with either floor or ceiling mounting, support legs are welded to the fan housing for four-point support. See page 15 for a description of how to identify the location of the legs.

Accessories

Suspension Clips

For horizontal flow with ceiling mounting, four clips of formed angle are welded to the fan housing for suspension via ties to the ceiling support structure.

Vibration Isolation

All fans can be provided with spring or rubber-in-shear isolators as an option. Spring isolators are standard 1" in deflection and can be provided for floor mount or ceiling (hung) orientation. Use of isolators requires flexible duct connectors on attached ductwork. Avoid flexible connectors, which can collapse on the inlet side of the fan.

Belt Guard

For Arrangement 9 belt driven fans, the belt guard encloses the motor sheave and V-belts. The guard is easily removable for inspection and maintenance.

Weather Cover

For outdoor installations, the weather cover completely encloses the motor and V-belt drive from the elements. Provided with slots for ventilation, the cover is easily removable for inspection and maintenance. Weather covers are available for either horizontal or vertical flow fans.

Screening

Safety screening can be provided for installation in the fan inlet, fan outlet, cone, or bell.

Clamshell Construction

Clamshell construction provides complete accessibility to the internal components of the fan.

Housing Doors

General Observation Door

For inspection and maintenance of the internal section (V-belt drive area) of units, a general observation access door can be provided. Doors are 5" x 5" for fans sizes 12" to 18" and 8" x 8" for all others. Doors are gasketed, single-skinned, and bolted in place to the housing exterior. As standard, doors are located adjacent to the motor base.

Propeller Area Door

Similar in size and attachment to the general observation access door, a wheel area access door is also available. Wheel area doors differ from general observation doors in that they are double-skinned to maintain a flush surface to the housing interior, thus eliminating the pressure losses resulting from a single-skinned door in this critical pressure developing area.



Suspension Clips



Vibration Isolation



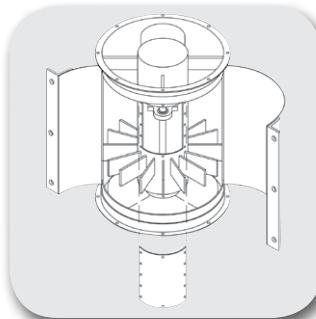
Belt Guard



Weather Cover



Screening



Clamshell Construction

Accessories



Shaft Seal



Discharge Cap

Shaft Seal

To limit air entering the inner cylinder and avoid contact of airstream contaminants with the bearings and V-belt drive, a shaft seal can be provided. The shaft seal consists of a non-asbestos rubbing ring at the wheel end of the inner cylinder held in place by a cover plate. Please note that a shaft seal does not make the inner cylinder gas tight.

High Temperature Construction

Units can be customized to handle up to 300°F continuous in the airstream.

Discharge Cap

Units can be provided with a Stack cap for rooftop mounting. Discharge caps are designed for vertical discharge with two backdraft dampers to seal out the weather when the fan is shut off. See page 8 for minimum flow (CFM) requirements.

Curb Cap

Units can be supplied with a base (curb cap), attached to the fan's flange for curb mounting. The combination of a curb cap and discharge cap creates an upblast-style power roof ventilator.

UL/cUL 705 Listing

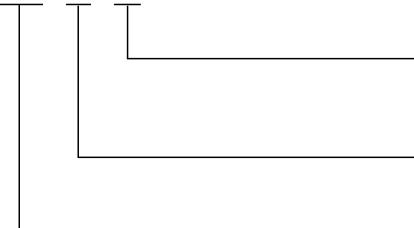
Models VSBD and TSBD are available with the UL/cUL 705 listing for electrical when supplied with specific motors.



Curb Cap

Model Nomenclature

36 B 6



Approximation of Hub-To-Tip Ratio

Where: 3 ≈ 40%, 4 ≈ 43%, 5 ≈ 50%
6 ≈ 57%, 7 ≈ 66%

B = Belt Driven (Arr. 9)

Fan Diameter (inches)

Fan Selection

Useful Formulas

Total Pressure (TP) =

$$\text{Static Pressure (SP)} + \text{Velocity Pressure (VP)}$$

$$\text{Velocity (Vel.)} = \frac{\text{CFM}}{\text{Area in ft}^2}$$

Velocity Pressure (VP) =

$$\left(\frac{\text{Vel.}^2}{1096.7} \right) \times \text{Density in lbs/ft}^3$$

$$\text{Efficiency} = \frac{\text{CFM} \times \text{Pressure (in. w.g.)}}{6356 \times \text{Brake Horsepower}}$$

Where total (or mechanical) efficiency is calculated using total pressure and static efficiency is calculated using static pressure.

Sample Selections

The following examples illustrate conditions that may be encountered with Arrangement 9 VSBD/TSBD fans. For additional performance corrections refer to the Aerovent Fan Selector Program.

Example 1: Make the most efficient selection for an Arrangement 9 VSBD at 10,000 CFM and 1.5" SP at standard conditions (0.075 lb/ft³ density). By looking through the VSBD tables for fans that meet this performance we find:

Fan Size	RPM	BHP	Blade Angle
21B6	2024	5.94	48°
24B5	1684	4.36	41°
28B6	1210	3.90	39°
30B4	1494	3.66	33°

Comparing these fans, we find that the 30B4 is the most efficient (lowest horsepower) selection.

Example 2: Make the optimum selection for an Arrangement 9 TSBD at 11,000 CFM and 1.5" SP at 150°F and 10,000 feet elevation. Using the "Temperature and Altitude Density Ratios" table on page 8, we establish a factor of 0.598. Dividing the operating SP by this factor (1.5 ÷ 0.598) = 2.5" equivalent SP at standard air and density. By looking through the TSBD tables for fans that meet a performance of 11,000 CFM at 2.5" SP, we find:

Fan Size	RPM	BHP	Blade Angle
21B6	2771	11.38	40°
24B5	2303	8.53	35°
28B6	1733	8.43	32°
30B4	2010	7.06	30°

Comparing these fans, we find that the 30B4 is the most efficient (lowest horsepower) selection. The horsepower shown above (often referred to as "cold" or "starting" horsepower) is the horsepower required at standard air density (0.075 lb/ft³). However, the actual BHP at the operating conditions of 150°F and 10,000 feet elevation will be $7.06 \times 5.98 = 4.22$ BHP.

Example 3: Select a VSBD fan, without a cone, for 10,000 CFM at 1.5" SP and a maximum outlet velocity of 2400 FPM at standard conditions (0.075 lb/ft³). Start by calculating the area required for 2400 FPM.

$$\text{Area} = \text{CFM} \div \text{OV} = 10,000 \div 2400 = 4.17 \text{ ft}^2$$

Using the cone and outlet dimensions from the table on page 16, we see that the outlet area for a 28" fan matches 4.17 ft² the closest without going under. Turning to page 10 for the 28B6 fan size and looking up 10,000 CFM @ 1.5" SP yields the following interpolated selection:

28B6 VSBD @ 1210 RPM @ 3.90 BHP @ 39° blade angle

Example 4: Using the same criteria as Example 3, 10,000 CFM at 1.5" SP and a maximum outlet velocity of 2400 FPM at standard conditions (0.075 lb/ft³), select a fan with a coned outlet.

Taking the next smaller fan size, 24B5, from the table on page 14 find the outlet area to be 3.19 ft².

$$\text{Velocity @ fan} = 10,000 \div 3.192 = 3135 \text{ FPM}$$

$$\text{VP}_{\text{fan}} = (3135 \div 1096.7)^2 \times 0.075 = 0.61" \text{ w.g.}$$

$$\text{VP}_{\text{cone}} = (2400 \div 1096.7)^2 \times 0.075 = 0.36" \text{ w.g.}$$

$$\text{SP}_{\text{regain}}^* = \text{VP}_{\text{fan}} - \text{VP}_{\text{cone}} = 0.61 - 0.36 = 0.25" \text{ w.g.}$$

Turning to the table for a 24B5 VSBD on page 10 and looking up 10,000 CFM at 1.25" SP (1.5"-0.25"), through interpolation we find:

24B5 VSBD @ 1578 RPM @ 3.88 BHP @ 43° blade angle

We could continue in this method to the next smaller fan size, 21B6 (assuming the same cone to 2400 FPM). In this case, our static pressure including regain is 0.82" SP, which yields the following:

21B6 VSBD @ 1835 RPM @ 4.67 BHP @ 50° blade angle

An educated review would then determine the premium selection based on considerations of first cost vs. power consumption vs. space allotment, etc.

Please note that this explanation does not take into consideration any inherent ductwork or energy conversion losses. This exact SP regain amount should be factored by a predetermined percentage based on the actual cone geometry.

Temperature & Altitude Density Ratios

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL												
	BAROMETRIC PRESSURE IN INCHES OF MERCURY												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000	20000
29.92	28.86	27.82	26.82	25.84	24.90	23.98	23.09	22.22	21.39	20.58	16.89	13.75	
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.714	0.688	0.564	0.460
100	0.946	0.912	0.880	0.848	0.818	0.787	0.758	0.730	0.703	0.676	0.651	0.534	0.435
150	0.869	0.838	0.808	0.770	0.751	0.723	0.696	0.671	0.646	0.620	0.598	0.490	0.400
200	0.803	0.774	0.747	0.720	0.694	0.668	0.643	0.620	0.596	0.573	0.552	0.453	0.369
250	0.747	0.720	0.694	0.669	0.645	0.622	0.598	0.576	0.555	0.533	0.514	0.421	0.344
300	0.697	0.672	0.648	0.624	0.604	0.580	0.558	0.538	0.518	0.498	0.480	0.393	0.321

Bare Fan Weights (lb)

FAN SIZE	12B7	15B6	18B5	21B6	24B5	28B6	30B4	32B5	36B6	42B3	48B4	54B3
TSBD	76	95	109	170	215	251	318	409	692	655	1004	1089
VSBD	74	92	106	165	208	243	308	397	671	630	974	1054

Accessory Weights (lb)

FAN SIZE	BELT GUARD	WEATHER COVER	INLET/OUTLET SCREEN	INLET BELL	INLET/OUTLET CONE	COMPANION FLANGE	SUPPORT LEGS		VARIABLE INLET VANES	DISCHARGE CAP	CURB CAP
							HORIZ. FLOW	VERT. FLOW			
12	4	7	3	8	9	5	10	10	42	30	15
15	6	11	3	10	11	8	12	10	45	40	16
18	8	18	4	12	16	10	12	10	60	55	17
21	10	21	5	13	21	11	20	10	62	65	23
24	11	23	7	20	30	13	24	17	68	78	26
28	12	26	8	22	40	15	32	17	71	98	34
30	13	29	9	24	48	16	40	17	76	110	40
32	14	32	10	25	54	17	47	17	80	120	45
36	16	34	11	52	82	19	58	17	89	165	51
42	18	40	13	62	100	25	83	19	98	230	64
48	21	45	18	70	114	33	97	19	107	288	72
54	25	56	24	76	128	37	126	26	116	384	82

Motor Weights (lb)

FRAME	48	56	143T	145T	182T	184T	213T	215T	254T
ODP	7	11	33	44	71	82	124	144	185
TE	9	14	40	53	85	98	149	173	222

FRAME	256T	284T	286T	324T	326T	364T	365T
ODP	214	266	310	404	452	620	680
TE	257	319	372	485	542	744	816

Housing Gauges

FAN SIZE	HOUSING GAUGE
12	14
15	12
18	12
21	12
24	10
28	10
30	10
32	10
36	10
42	7
48	7
54	7

Minimum CFM to Open Discharge Cap

FAN SIZE	STAINLESS DAMPER	ALUMINUM DAMPER
12	1051	721
15	1707	1171
18	2532	1737
21	3527	3035
24	4693	4039
28	6574	5658
30	7506	6545
32	8712	7498
36	11158	9603
42	15891	13677
48	20904	17991
54	26613	22905

Performance Charts

The Arrangement 9 performance charts in this catalog are based on standard air density which is defined by AMCA as that of dry air of 70°F and sea level pressure (29.92 inches of mercury). This is equal to a density value of 0.075 lbs./cu.ft.

When required performance is at other than standard conditions, the values must be converted to equivalent standard values before entering the tables, and then reconverted back to the actual conditions after the specific selection is made. The chart of temperature and altitude corrections above should be used for this purpose with Example #2 on page 7 displaying this procedure.

VSBD - Vaneaxial

VSBD | 12B7

Wheel Dia.: 12"

Outlet Area: 0.807 ft²

Tip Speed: 3.14 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"				
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG		
600 744	1133	0.06	39	1534	0.11	30				2103	0.27	30				2497	0.46	30	2603	0.52	30											
800 992	1291	0.10	44	1590	0.15	37	1971	0.23	30	2192	0.36	34	2470	0.55	33	2706	0.65	33	3067	0.85	30	3244	0.98	30								
1000 1240	1410	0.16	50	1718	0.22	42	1944	0.29	38	2267	0.47	39	2470	0.55	33	2706	0.65	33														
1200 1488	1638	0.24	50	1856	0.32	46	2074	0.40	42	2412	0.62	42	2568	0.71	38	2731	0.79	38	3144	1.02	33	3511	1.27	30	3662	1.43	30	3815	1.59	30		
1400 1736	1873	0.37	50	1978	0.43	50	2223	0.53	45	2412	0.62	42	2568	0.71	38	2731	0.79	38	3144	1.02	33	3511	1.27	30	3662	1.43	30	3815	1.59	30		
1600 1984	2112	0.50	50	2204	0.60	50	2298	0.67	50	2583	0.81	44	2739	0.91	41	2856	1.00	41	3180	1.15	37	3490	1.45	34	4075	1.99	30	4207	2.17	30		
1800 2232	2355	0.73	50	2436	0.81	49	2518	0.89	50	2636	0.99	49	2862	1.14	43	3016	1.25	43	3283	1.47	40	3517	1.70	38	3809	1.95	35	4176	2.31	32		
2000 2480	2599	0.99	50	2672	1.07	50	2746	1.15	50	2820	1.25	50	2972	1.38	45	3168	1.54	45	3435	1.80	42	3656	2.04	40	3887	2.29	38	4123	2.55	36		
2200 2728	2845	1.29	50	2911	1.38	50	2978	1.47	50	3045	1.57	50	3113	1.68	49	3223	1.81	49	3578	2.16	44	3798	2.43	42	4016	2.70	40	4248	2.99	38		
2400 2976	3093	1.67	50	3153	1.76	50	3214	1.86	50	3275	1.96	50	3337	2.07	50	3399	2.18	50	3712	2.55	46	3984	2.89	43	4148	3.17	42	4366	3.47	40		
2600 3224	3341	2.10	50	3396	2.20	50	3452	2.30	50	3509	2.41	50	3565	2.52	50	3623	2.65	50	3738	2.90	50	4110	3.37	45	4330	3.71	43	4490	4.01	42		
2800 3472	3590	2.61	50	3641	2.71	50	3693	2.82	50	3745	2.94	50	3797	3.05	50	3850	3.18	50	3957	3.44	50	4171	3.82	48	4447	4.27	45					
3000 3720	3839	3.19	50	3887	3.30	50	3935	3.42	50	3984	3.54	50	4032	3.66	50	4082	3.79	50	4180	4.06	50	4281	4.36	50	4554	4.84	47					
3400 4216	4339	4.61	50	4381	4.73	50	4423	4.86	50	4466	4.99	50	4509	5.13	50	4552	5.27	50														

Class I, Max. RPM 4455

Class II, Max. RPM 5729

VSBD | 15B6

Wheel Dia.: 15"

Outlet Area: 1.254 ft²

Tip Speed: 3.93 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"					
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
1200 957	902	0.08	41	1231	0.18	37				1726	0.51	38	1893	0.62	36																		
1400 1116	941	0.10	44	1271	0.21	39	1485	0.30	36	1551	0.40	40																					
1600 1276	995	0.13	46	1271	0.21	39																											
2000 1595	1129	0.20	48	1323	0.30	45																											
2400 1914	1280	0.30	49	1444	0.41	47	1622	0.53	44	1804	0.65	41	1964	0.78	39	2123	0.91	37															
2800 2233	1433	0.43	50	1586	0.56	48	1716	0.69	47	1883	0.83	44	2035	0.97	42	2184	1.12	40	2462	1.42	37	2702	1.72	35	2969	2.39	36	3210	2.76	34			
3200 2552	1606	0.61	50	1730	0.75	49	1851	0.89	48	1989	1.04	46	2106	1.20	45	2251	1.36	43	2543	1.70	39	2742	2.04	38	2968	2.79	42	3103	3.20	40			
3600 2871	1783	0.83	50	1874	0.98	50	2012	1.14	48	2123	1.30	47	2210	1.48	47	2319	1.65	46	2595	2.01	42	2814	2.39	40	3038	2.78	39	3218	3.17	37			
4000 3190	1962	1.10	50	2043	1.26	50	2152	1.43	49	2259	1.62	48	2364	1.80	47	2442	1.99	47	2647	2.38	45	2892	2.79	42	3103	3.20	40	3280	3.63	39			
4400 3509	2143	1.43	50	2217	1.60	50	2291	1.78	50	2394	1.98	49	2496	2.18	48	2597	2.39	47	2766	2.80	46	2968	3.24	44	3175	3.69	42	3380	4.14	40			
4800 3828	2325	1.82	50	2392	2.01	50	2460	2.20	50	2561	2.41	49	2660	2.63	48	2726	2.84	48	2889	3.29	47	3048	3.75	46	3244	4.22	44	3446	4.72	42			
5200 4147	2508	2.28	50	2570	2.48	50	2633	2.69	50	2696	2.90	50	2793	3.14	49	2890	3.37	48	3102	3.84	48	3166	4.34	47	3318	4.84	46	3509	5.35	44			
5600 4466	2691	2.82	50	2749	3.03	50	2807	3.25	50	2866	3.48	50	2924	3.71	50	3019	3.96	49	3171	4.47	48	3320	4.99	47	3578	6.07	46	3766	6.62	44			
6000 4785	2875	3.43	50	2930	3.66	50	2984	3.89	50	3038	4.13	50	3092	4.37	50	3147	4.63	50	3335	5.18	48	3441	5.72	48	3585	6.29	47	3726	6.85	46	3829	7.44	46

Class I, Max. RPM 2949

Class II, Max. RPM 3792

VSBD | 21B6

Wheel Dia.: 21"

Outlet Area: 2.449 ft²

Tip Speed: 5.5 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"				
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG		
2500 1021	676	0.17	40	897	0.30	34				1092	0.55	34				1265	0.85	34														
3000 1225	700	0.22	45	912	0.38	38				1202	1.10	44	1353	1.35	40</																	

VSBD | 24B5

Wheel Dia.: 24"

Outlet Area: 3.192 ft²

Tip Speed: 6.28 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"														
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG												
3500 1096	652	0.23	39	876	0.43	33	1069	0.73	32	1243	1.22	33	1422	1.53	30	1511	2.19	33	1752	3.42	33	2006	4.30	30	2139	5.85	32	2153	9.40	33												
4000 1253	679	0.29	41	889	0.50	35	1099	0.94	35	1271	1.52	36	1402	1.85	34	1511	2.19	33	1778	3.98	35	2153	9.30	33	2143	6.61	34	2294	7.65	33	2342	8.63	34	2486	9.77	33						
5000 1566	736	0.43	45	927	0.67	39	1099	0.94	35	1247	1.91	43	1417	2.81	43	1525	3.24	41	1611	3.68	40	1817	4.63	37	1994	5.61	35	2026	6.43	37	2198	7.50	35	2486	9.77	33						
6000 1880	806	0.62	48	980	0.89	42	1141	1.20	38	1271	1.52	36	1402	1.85	34	1511	2.19	33	1752	3.42	33	2006	4.30	30	2139	5.85	32	2143	6.61	34	2294	7.65	33	2342	8.63	34	2486	9.77	33			
7000 2193	882	0.87	50	1034	1.18	45	1184	1.52	41	1304	1.87	39	1426	2.24	37	1547	2.62	35	1752	3.42	33	2006	4.30	30	2139	5.85	32	2143	6.61	34	2294	7.65	33	2342	8.63	34	2486	9.77	33			
8000 2506	982	1.18	50	1106	1.55	47	1247	1.91	43	1359	2.30	41	1474	2.70	39	1593	3.12	37	1778	3.98	35	1975	4.90	33	2143	6.61	34	2294	7.65	33	2342	8.63	34	2486	9.77	33						
9000 2820	1084	1.58	50	1175	1.98	49	1308	2.39	45	1417	2.81	43	1525	3.24	41	1611	3.68	40	1817	4.63	37	1994	5.61	35	2026	6.43	37	2198	7.50	35	2486	9.77	33	2342	8.63	34	2486	9.77	33			
10000 3133	1189	2.07	50	1257	2.50	50	1374	2.96	47	1472	3.41	45	1578	3.88	43	1684	4.36	41	1853	5.36	39	2026	6.43	37	2198	7.50	35	2486	9.77	33	2342	8.63	34	2486	9.77	33						
11000 3446	1294	2.66	50	1357	3.13	50	1437	4.13	46	1552	5.14	44	1653	6.43	44	1733	5.14	43	1892	6.20	41	2055	7.32	39	2224	8.50	37	2356	9.68	36	2485	10.86	35	2486	9.77	33						
12000 3759	1401	3.36	50	1459	3.87	50	1516	4.40	50	1611	4.94	48	1706	5.49	46	1805	6.03	44	1961	7.17	42	2116	8.33	40	2283	9.58	38	2413	10.85	37	2541	12.13	36	2541	12.13	36	2541	12.13	36	2541	12.13	36
13000 4073	1509	4.18	50	1562	4.72	50	1615	5.29	50	1688	5.87	49	1783	6.47	47	1854	7.05	46	2030	8.25	43	2183	9.49	41	2304	10.76	40	2430	12.10	39	2596	13.49	37	2596	13.49	37	2596	13.49	37	2596	13.49	37
14000 4386	1617	5.13	50	1666	5.71	50	1715	6.31	50	1764	6.93	50	1836	7.57	49	1929	8.20	47	2068	9.47	45	2218	10.80	43	2368	12.13	41	2485	13.50	40	2608	14.96	39	2608	14.96	39	2608	14.96	39	2608	14.96	39
15000 4699	1726	6.23	50	1772	6.84	50	1817	7.47	50	1863	8.12	50	1909	8.80	50	2003	9.48	48	2140	10.84	46	2282	12.22	44	2431	13.63	42	2545	15.07	41	2659	16.54	40	2659	16.54	40	2659	16.54	40	2659	16.54	40
16000 5013	1835	7.47	50	1878	8.12	50	1921	8.79	50	1964	9.48	50	2007	10.19	50	2050	10.91	50	2211	12.35	47	2346	13.81	45	2494	15.30	43	2606	16.81	42	2718	18.36	41	2718	18.36	41	2718	18.36	41	2718	18.36	41

Class I, Max. RPM 2220

Class II, Max. RPM 2855

VSBD | 28B6

Wheel Dia.: 28"

Outlet Area: 4.353 ft²

Tip Speed: 7.33 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"														
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG												
4500 1034	504	0.30	41	676	0.55	34	830	1.12	36	963	1.74	36	1063	2.13	34	1161	2.93	35	1222	3.20	34	1352	4.40	34	1420	5.14	34	1508	6.10	34	1655	8.06	34	1794	10.28	34						
5000 1149	514	0.36	44	674	0.62	37	830	1.12	36	962	1.36	39	1063	2.13	34	1161	2.93	35	1222	3.20	34	1348	4.98	37	1420	5.90	39	1508	6.10	34	1655	8.06	34	1794	10.28	34						
6000 1378	557	0.49	46	702	0.79	40	830	1.12	36	962	1.36	39	1063	2.13	34	1161	2.93	35	1222	3.20	34	1352	4.40	34	1420	5.14	34	1508	6.10	34	1655	8.06	34	1794	10.28	34						
7000 1608	611	0.67	47	731	1.00	43	852	1.36	39	963	1.74	36	1063	2.13	34	1161	2.93	35	1222	3.20	34	1348	4.98	37	1420	5.90	39	1508	6.10	34	1655	8.06	34	1794	10.28	34						
8000 1838	658	0.89	49	768	1.25	45	885	1.65	41	979	2.07	39	1071	2.50	37	1162	2.93	35	1222	3.20	34	1352	4.40	34	1420	5.14	34	1508	6.10	34	1655	8.06	34	1794	10.28	34						
9000 2068	711	1.15	50	819	1.56	46	908	1.99	44	1009	2.44	41	1098	2.92	39	1187	3.40	37	1207	2.88	44	1314	3.38	39	1403	4.33	37	1508	6.10	34	1655	8.06	34	1794	10.28	34						
10000 2297	775	1.48	50	870	1.92	47	953	2.38	45	1027	2.88	44	1124	3.38	41	1210	3.90	39	1324	4.47	41	1403	5.11	43	1508	6.10	34	1655	8.06	34	1794	10.28	34									
11000 2527	840	1.88	50	922	2.36	48	1001	2.85	46	1069	3.37	45	1151	3.92	43	1243	4.47	41	1324	5.64	38	1403	6.33	43	1508	6.10	34	1655	8.06	34	1794	10.28	34									
12000 2757	905	2.34	50	973	2.85	49	1051	3.39	47	1115	3.94	46	1178	4.51	45	1259	5.11	43	1352	5.63	38	1460	6.90	40	1533	7.63	38	1660	8.92	36	1794	10.28	34	1803	12.40	38	1925	13.91	36			
13000 3016	1083	3.32	50	1087	4.09	50	1148	4.70	49	1222	5.33	47	1281	5.97	43	1359	6.62	45	1462	8.01	43	1601	9.40	40	1704	10.90	39	1803	12.40	38	1925	13.91	36	1925	13.91	36	1925	13.91	36	1925	13.91	36
14000 3216	1159	4.00	50	1469	4.74	39	1596	5.43	37	1651	6.14	37	1706	6.89	37	1800	7.66	36	1860	8.51	36	2016	10.22	33	2172	12.01	34	2266	13.73	34	2266	13.73	34	2266	13.73	34	2266	13.73	34	2266	13.73	34
16000 3622	1207	4.39	50	1270	5.22	50	1459	6.15	44	1702	6.91	38	1792	7.68	37	1841	8.48	37	1900	9.30	37	1981	10.36	37	2086	12.00	36	2235	13.91	35	2287	15.99	36	2287	15.99	36	2287	15.99	36	2287	15.99	36
20000 4024	1328	5.82	50	1384	6																																					

VSBD | 36B6

Wheel Dia.: 36"

Outlet Area: 7.167 ft²

Tip Speed: 9.42 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"					
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
7000 977	384	0.47	40	492	1.94	31	594	3.67	32	693	5.84	32	769	7.36	31	841	8.88	30	918	13.58	32	985	15.53	31									
8000 1116	396	0.57	43	522	1.00	36	636	1.88	37	738	2.44	33	819	3.68	35																		
10000 1395	436	0.84	46	546	1.34	40	662	2.39	40	746	3.03	37																					
12000 1674	482	1.21	48	565	1.78	45																											
14000 1953	535	1.70	49	612	2.33	46	682	3.02	44	768	3.73	40	839	4.49	38	908	5.24	36	1044	7.97	36	1153	9.77	34									
16000 2232	588	2.32	50	662	3.04	47	726	3.78	45	792	4.56	43	868	5.38	40	924	6.24	39	1068	9.26	38	1170	11.21	36	1253	13.15	35						
18000 2512	649	3.10	50	712	3.88	48	774	4.71	46	825	5.55	43	889	6.45	43	952	7.36	41	970	8.69	44	1092	10.71	40	1191	12.84	38						
20000 2791	712	4.07	50	763	4.92	49	822	5.81	47	871	6.72	46	919	7.67	45																		
22000 3070	775	5.23	50	813	6.14	50	871	7.11	48	918	8.11	47	964	9.12	46	1009	10.15	45	1118	12.38	42	1211	14.46	40	1307	16.96	38	1384	19.34	37	1459	21.72	36
24000 3349	839	6.61	50	873	7.56	50	919	8.61	49	965	9.70	48	1009	10.77	47	1053	11.89	46	1129	14.22	45	1234	16.64	42	1324	19.08	40	1418	21.66	38	1493	24.29	37
26000 3628	903	8.22	50	935	9.26	50	967	10.34	50	1023	11.5	48	1067	12.69	47	1097	13.85	47	1181	16.27	45	1256	18.88	44	1345	21.54	42	1432	24.15	40	1525	26.95	38
28000 3907	968	11.22	50	998	11.22	50	1027	12.34	50	1070	13.58	49	1113	14.85	48	1155	16.11	47	1224	18.67	46	1292	21.31	45	1364	24.17	42	1451	27.04	42	1536	29.8	40
32000 4465	1099	14.74	50	1124	15.94	50	1150	17.22	50	1176	18.54	50	1217	19.95	49	1258	21.39	48	1324	24.29	47	1388	27.20	46	1451	30.17	45	1500	33.35	45	1585	36.58	43
36000 5023	1230	20.62	50	1253	21.99	50	1275	23.35	50	1298	24.79	50	1321	26.28	50	1344	27.80	48	1424	31.07	48	1486	34.32	47	1547	37.62	46	1590	40.96	46	1650	44.39	45

Class I, Max. RPM 1474

Class II, Max. RPM 1895

VSBD | 42B3

Wheel Dia.: 42"

Outlet Area: 9.794 ft²

Tip Speed: 11.00 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			2.5"					
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
10000 1021	483	0.63	35	645	1.21	32	803	2.15	31	911	3.39	32	1024	4.83	32																		
12000 1225	515	0.81	36	668	1.44	33																											
14000 1429	552	1.05	37	681	1.76	35	803	2.52	33																								
16000 1634	606	1.36	37	707	2.11	36	828	2.95	34	924	3.84	33																					
18000 1838	632	1.75	39	736	2.53	37	852	3.44	35	944	4.39	34	1035	5.40	33	1130	6.48	32	1219	7.53	31												
20000 2042	644	2.21	42	786	3.03	37	875	3.99	36	967	5.04	35	1053	6.11	34	1140	7.21	33	1231	8.37	32	1291	9.67	31	1375	10.81	31						
22000 2246	607	2.73	50	840	3.63	37	901	4.64	37	987	5.74	36	1073	6.89	35	1155	8.05	34	1240	9.26	33	1329	10.51	32	1383	11.88	32	1468	13.13	31			
24000 2450	648	3.30	50	875	4.35	38	950	5.37	37	1030	6.50	36	1115	7.70	35	1173	9.01	35	1254	10.28	34	1337	11.58	33	1386	12.97	33	1473	14.34	32			
28000 2859	735	4.76	50	904	6.13	42	1058	7.20	37	1105	8.43	37	1178	9.68	36	1231	11.31	36	1312	12.55	35	1361	14.05	35	1442	15.56	34	1606	20.17	33			
32000 3267	823	6.64	50	876	8.19	50	1116	9.58	39	1213	10.87	37	1253	12.24	37	1295	13.72	36	1368	15.21	36	1414	16.87	36	1492	18.45	35	1537	20.20	35	1612	23.63	35
36000 3676	914	9.05	50	961	10.71	50	1087	12.67	45	1263	13.94	39	1362	15.37	37	1398	16.92	37	1435	18.55	37	1473	20.27	37	1544	21.89	36	1586	23.80	36	1634	28.06	37
40000 4084	1005	11.98	50	1048	13.80	50	1090	15.75	50	1288	17.70	42	1406	19.25	39	1472	20.84	38	1540	22.49	37	1573	24.27	37	1606	26.09	37	1607	28.24	38	1614	33.14	40
44000 4493	1098	15.58	50	1136	17.49	50	1175	19.58	50	1213	21.80	50	1422	23.87	42	1545	25.52	39	1612	27.29	38	1605	29.26	39	1636	31.27	39	1633	33.55	40	1625	39.49	43
48000 4901	1191	19.84	50	1226	21.90	50	1261	24.08	50	1297	26.45	50	1372	28.94	48	1583	31.00	41	1612	33.06	41	1612	35.36	42	1615	37.89	43	1621	40.70	44	1628	47.63	47

Class I, Max. RPM 1114

Class II, Max. RPM 1431

VSBD | 54B3

Wheel Dia.: 54"

Outlet Area: 16.12 ft²

Tip Speed: 14.14 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			2.5"			
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	
16000 993	369	1.01	34	492	1.94	31	594	3.67	32	693	5.84	32	769	7.36	31	841	8.88	30	918	13.58	32	985	15.53	31							
20000 1241	392	1.38	36	506	2.45	33	615	4.40																							

TSBD - Tubeaxial

TSBD | 12B7

Wheel Dia.: 12"

Outlet Area: 0.807 ft²

Tip Speed: 3.14 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			2.5"			2.75"					
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG						
600	744	1370	0.06	35	1911	0.14	30	2254	0.23	30	2718	0.41	30	2864	0.47	30	3291	0.73	30	3412	0.80	30	3262	0.87	35	3716	1.05	30	3822	1.14	30	3926	1.23	30	4030	1.32	30
700	868	1482	0.08	36	1872	0.20	36	2110	0.24	36	2320	0.31	35	2718	0.41	30	3142	0.77	35	3476	1.09	36	3641	1.21	35	3745	1.31	35	4233	1.55	30	4327	1.65	30	4418	1.75	30
800	992	1593	0.11	37	1911	0.14	30	2110	0.24	36	2320	0.31	35	2718	0.41	30	3176	0.65	30	3476	1.09	36	3685	1.34	37	3951	1.60	36	4110	1.73	35	4201	1.85	35	4291	1.97	35
1000	1240	1777	0.17	40	2207	0.37	44	2494	0.46	40	2708	0.57	37	2965	0.67	36	3142	0.77	35	3476	1.09	36	3641	1.21	35	3745	1.31	35	4233	1.55	30	4327	1.65	30	4418	1.75	30
1200	1488	1998	0.25	42	2307	0.34	38	2551	0.43	36	2740	0.51	35	3167	0.65	30	3476	1.09	36	3685	1.34	37	3951	1.60	36	4110	1.73	35	4201	1.85	35	4291	1.97	35			
1400	1736	2207	0.37	44	2733	0.63	41	2953	0.74	39	3187	0.86	37	3362	0.98	36	3579	1.22	37	3822	1.14	30	3926	1.23	30	4030	1.32	30	4148	1.42	30	4241	1.52	30			
1600	1984	2441	0.52	45	2968	0.83	42	3173	0.95	40	3407	1.09	38	3685	1.34	37	3951	1.60	36	4110	1.73	35	4201	1.85	35	4291	1.97	35	4382	2.07	30	4478	2.17	30			
1800	2232	2714	0.71	45	3148	1.07	44	3403	1.21	41	3555	1.34	40	3792	1.51	38	3890	1.64	38	4056	1.79	37	4220	1.94	36	4312	2.08	36	4401	2.21	36	4557	2.36	35			
2000	2480	2990	0.94	45	3422	1.37	44	3629	1.52	42	3777	1.66	41	4000	1.83	39	4166	2.00	38	4255	2.14	38	4420	2.31	37	4507	2.46	37	4682	2.56	35	4868	2.66	35			
2200	2728	3262	1.23	45	3639	1.71	45	3848	1.88	43	3995	2.04	42	4204	2.21	40	4368	2.39	39	4450	2.54	39	4644	2.74	39	4821	2.84	39	5002	2.94	39	5183	3.04	39			
2400	2976	3547	1.56	45	3913	2.12	45	4061	2.29	44	4207	2.46	43	4419	2.65	41	4564	2.83	40	4772	3.02	40	4938	3.12	40	5100	3.22	40	5268	3.32	40	5430	3.42	40			
2600	3224	3828	1.96	45	4189	2.59	45	4267	2.76	45	4413	2.95	44	4564	3.11	45	4772	3.30	45	4938	3.49	45	5100	3.59	45	5268	3.69	45	5430	3.79	45	5602	3.89	45			
2800	3472	4111	2.43	45	4486	2.59	45	4539	3.31	45	4683	3.50	45	4836	3.69	45	4938	3.88	45	5100	4.07	45	5268	4.26	45	5430	4.45	45	5602	4.64	45	5774	4.84	45			
3000	3720	4297	2.96	47	4644	3.13	45	4539	3.31	45	4683	3.50	45	4836	3.69	45	4938	3.88	45	5100	4.07	45	5268	4.26	45	5430	4.45	45	5602	4.64	45	5774	4.84	45			

Class I, Max. RPM 4455

Class II, Max. RPM 5729

TSBD | 15B6

Wheel Dia : 15"

Outlet Area: 1.253 ft²

Tip Speed: 3.93 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"			4"					
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
1200	958	1060	0.10	35																																	
1400	1117	1119	0.13	37	1397	0.23	34																														
1600	1277	1176	0.17	39	1478	0.27	34																														
2000	1596	1309	0.25	42	1592	0.38	37	1801	0.51	35	1983	0.65	34																								
2400	1915	1456	0.38	44	1700	0.52	40	1926	0.67	37	2119	0.83	35	2282	0.99	34	2442	1.16	33																		
2800	2235	1625	0.54	45	1838	0.70	42	2050	0.88	39	2238	1.06	37	2422	1.23	35	2535	1.42	35	2795	1.81	34															
3200	2554	1800	0.75	46	1971	0.93	44	2174	1.12	41	2352	1.32	39	2534	1.53	37	2676	1.73	36	2956	2.15	34	3150	2.59	34												
3600	2873	1994	1.01	46	2128	1.21	45	2299	1.43	43	2499	1.64	40	2640	1.87	39	2778	2.10	38	3047	2.56	36	3267	3.03	35	3487	3.53	34					3706	4.03	33		
4000	3192	2192	1.33	46	2183	1.55	45	2451	1.79	44	2618	2.03	42	2782	2.27	40	2918	2.52	39	3183	3.03	37	3444	3.55	35	3603	4.07	35	3811	4.61	34	3967	5.18	34			
4400	3512	2362	1.72	47	2485	1.97	46	2602	2.21	45	2730	2.48	44	2894	2.74	42	3056	3.01	40	3269	3.56	39	3526	4.13	37	3727	4.69	36	3925	5.26	35	4127	5.86	34			
4800	3831	2529	2.18	48	2678	2.45	46	2791	2.72	45	2915	3.00	44	3039	3.29	43	3161	3.58	42	3400	4.16	40	3656	4.78	38	3853	5.39	37	4047	6.00	36	4239	6.63	35			
5200	4150	2691	2.72	49	2874	3.02	46	2953	3.31	46	3061	3.60	45	3182	3.91	44	3302	4.22	43	3539	4.85	41	3784	5.50	39	3978	6.16	38	4169	6.82	37	4357	7.49	36			
5600	4469	2856	3.36	46	3072	3.67	46	3145	3.98	46	3250	4.29	45	3322	4.61	45	3441	4.95	44	3676	5.62	42	3908	6.29	40	4100	7.00	39	4289	7.72	38	4475	8.44	37			
6000	4789	3042	4.08	50	3271	4.41	46	3339	4.74	46	3407	5.08	46	3510	5.42	45	3577	5.77	45	3811	6.49	43	4043	7.21	41	4219	7.93	40	4406	8.68	39	4524	9.45	39			

Class I. Max. RPM 3540

Class II. Max. RPM 4552

TSBD | 18B5

Wheel Dia : 18"

Outlet Area: 1,700 ft²

Tip Speed: 4.71 x RPM

CFM OV			0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"				
RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG		
1600	889	963	0.12	30																														
2000	1112	982	0.16	35	1293	0.28	30																											
2400	1334	1034	0.21	38	1328	0.35	33	1573	0.51	30																								
2800	1556	1087	0.27	41	1381	0.44	35	1676	0.61	30	1822	0.79	30																					
3200	1779	1157	0.36	43	1437	0.53	37	1664	0.73	34	1926	0.93	30	2053	1.13	30	2191	1.35	30															
3600	2001	1224	0.46	45	1491	0.65	39	1735	0.86	35	1930	1.08	33	2159	1.30	30	2272	1.53	30															
4000	2223	1312	0.58	46	1548	0.79	41	1781	1.02	37	1964	1.25	35	2151	1.50	33	2299	1.75	32	2586	2.25	30												
4400	2446	1399	0.72	47	1605	0.95	43	1824	1.19	39	2034	1.45	36	2177	1.71	35	2361	1.98	33	2688	2.52	30	2876	3.09	30									
5200	2890	1608	1.08	47	1760	1.35	45	1945	1.63	42	2138	1.91	39	2309	2.21	37	2441	2.51	36	2710	3.15	34	2977	3.8	32	3242	4.43	30	3401	5.11	30			
6000	3335	1798	1.56	48	1945	1.87	46	2092	2.18	44	2245	2.50	42	2398	2.82	40	2566	3.17	38	2818	3.87	36	3076	4.6	34	3283	5.38	33	3607	6.08	30			
6800	3780	1894	2.16	49	2128	2.52	47	2240	2.87	46	2383	3.23	44	2534	3.59	42	2647	3.96	41	2929	4.72	38	3174	5.52	36	3369	6.33	35	3627	7.18	33			
7600	4225	2166	2.92	50	2340	3.32	47	2417	3.72	47	2522	4.11	46	2664	4.51	44	2774	4.92	43	3035	5.73	40	3274	6.6	38	3517	7.48	36	3703	8.38	35			
8400	4669	2377	3.84	50	2520	4.28	48	2625	4.72	47	2728	5.16	46	2828	5.59	45	2937	6.04	44	3153	6.94	42	3368	7.83	40	3606	8.81	38	3784	9.78	37	3789	10.85	39
9200	5114	2550	4.96	50	2696	5.44	49	2823	5.92	47	2901	6.40	47	3000	6.87	45	3097	7.35	43	3213	8.32	43	3528	9.32	41	3690	10.3	40	3798	11.33	40	3781	12.71	43

Class I Max RPM 2949

Class II Max RPM 3792

TSBD | 21B6

Wheel Dia : 21"

Outlet Area: 2,449 ft²

Tip Speed: 5.50 x RPM

CFM OV			0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"					
RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
2500	1021		770	0.21	36																														
3000	1225		838	0.28	37	1068	0.47	32																											
3500	1429		880	0.36	40	1098	0.58	35	1281	0.81	32																								
4000	1633		938	0.47	42	1145	0.71	37	1302	0.97	35	1474	1.23	32																					
4500	1837		993	0.60	44	1209	0.87	38	1359	1.15	36	1507	1.44	34	1652	1.73	32	1755	2.06	32															
5000	2042		1061	0.76	45	1253	1.05	40	1419	1.36	37	1539	1.67	36	1680	2.00	34	1820	2.32	32															
5500	2246		1132	0.95	46	1319	1.27	41	1479	1.59	38	1618	1.93	36	1731	2.28	35	1844	2.64	34	2062	3.37	32												
6000	2450		1216	1.17	46	1364	1.51	43	1514	1.86	40	1676	2.23	37	1785	2.60	36	1892	2.97	35	2136	3.75	32	2286	4.58	32									
7000	2858		1388	1.73	46	1489	2.11	45	1636	2.51	42	1760	2.92	40	1893	3.35	38	1995	3.78	37	2196	4.65	35	2399	5.56	33	2563	6.48	32	2693	7.47	32			
8000	3267		1564	2.45	46	1638	2.88	46	1754	3.32	44	1876	3.79	42	1996	4.24	40	2095	4.73	39	2290	5.72	37	2448	6.72	36	2604	7.76	35	2836	8.79	32			
9000	3675		1696	3.35	48	1808	3.84	46	1975	4.34	46	1987	4.84	44	2106	5.35	42	2197	5.88	41	2418	6.96	38	2569	8.07	37	2718	9.19	36	2866	10.34	35			
10000	4083		1822	4.47	50	1981	5.01	46	2041	5.56	46	2122	6.10	45	2211	6.67	44	2331	7.25	42	2505	8.40	40	2693	9.63	38	2837	10.85	37	2980	12.09	36			
11000	4492		1991	5.81	50	2156	6.43	46	2210	7.01	46	2265	7.62	46	2343	8.22	45	2429	8.84	44	2637	10.12	40	2772	11.40	40	2958	12.75	38	3098	14.10	37	3236	15.45	32
12000	4900		2161	7.42	50	2303	8.09	47	2383	8.74	46	2423	9.39	46	2518	10.06	44	2558	10.7	45	2729	12.09	43	2899	13.47	41	3028	14.86	40	3164	16.31	39	3251	17.78	32

Class I, Max. RPM 2526

Class II. Max. RPM 3274

Performance is for TSBD units with inlet and outlet ducts. BHP shown is a fan shaft brake horsepower and does not include belt drive losses.

TSBD | 24B5

Wheel Dia.: 24"

Outlet Area: 3.192 ft²

Tip Speed: 6.28 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"					
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
3500	1096	730	0.27	35	965	0.49	30																											
4000	1253	759	0.33	37	1019	0.58	30																											
5000	1566	818	0.49	41	1038	0.78	35	1260	1.09	30	1369	1.40	30	1573	2.13	30	1666	2.53	30															
6000	1880	889	0.71	44	1093	1.04	38	1281	1.40	34	1428	1.76	32																					
7000	2193	972	0.99	46	1149	1.36	41	1323	1.76	37	1461	2.18	35	1601	2.61	33	1773	3.04	30	1929	3.93	30												
8000	2506	1068	1.35	47	1223	1.77	43	1388	2.21	39	1519	2.66	37	1652	3.14	35	1760	3.64	34	2037	4.61	30	2173	5.62	30									
9000	2820	1179	1.80	47	1293	2.26	45	1454	2.75	41	1576	3.24	37	1704	3.76	37	1835	4.29	35	2041	5.40	33	2284	6.50	30	2405	7.62	30	2531	8.83	30	2738	11.24	30
10000	3133	1292	2.35	47	1386	2.87	46	1520	3.39	43	1635	3.92	41	1755	4.48	39	1883	5.06	37	2077	6.25	35	2275	7.48	33	2519	8.71	30	2628	9.94	30	2738	11.24	30
11000	3446	1386	3.00	48	1477	3.57	47	1581	4.14	45	1721	4.73	42	1835	5.31	40	1928	5.93	39	2150	7.21	36	2303	8.53	35	2497	9.89	33	2648	11.26	32	2844	12.58	30
12000	3759	1478	3.77	49	1586	4.39	47	1670	5.02	46	1778	5.66	48	1891	6.29	42	2005	6.93	40	2187	8.30	38	2371	9.70	36	2562	11.16	34	2710	12.62	33	2857	14.12	32
13000	4073	1586	4.68	48	1698	5.36	47	1779	6.03	45	1972	7.40	43	2055	8.70	42	2259	9.51	39	2441	11.02	37	2582	12.54	36	2771	14.12	34	2823	15.79	35	2863	17.53	37
14000	4386	1679	5.72	50	1810	6.45	47	1866	7.18	47	1944	7.91	46	2020	8.64	45	2133	9.38	43	2297	10.89	41	2467	12.45	39	2647	14.08	37	2784	15.72	36	2836	17.53	37
15000	4699	1791	6.93	50	1898	7.71	48	1976	8.48	47	2053	9.26	47	2128	10.04	45	2210	10.84	44	2372	12.44	42	2534	14.05	40	2712	15.78	38	2845	17.5	37	2848	19.41	39
16000	5013	1903	8.29	50	2010	9.12	48	2088	9.96	47	2131	10.87	46	2284	12.44	45	2445	14.15	43	2606	15.86	41	2776	17.64	39	2858	19.43	39	2835	21.69	42			

Class I, Max. RPM 2220

Class II, Max. RPM 2855

TSBD | 28B6

Wheel Dia.: 28"

Outlet Area: 4.353 ft²

Tip Speed: 7.33 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"			4"				
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG					
4500	1034	581	0.38	36																																
5000	1149	605	0.44	37	780	0.77	32																													
6000	1378	655	0.61	39	809	0.98	35	948	1.38	32																										
7000	1608	696	0.82	42	851	1.24	37	983	1.68	34	1098	2.14	32																							
8000	1838	745	1.08	44	907	1.55	38	1019	2.04	36	1130	2.56	34	1239	3.08	32	1316	3.66	32																	
9000	2068	803	1.39	45	947	1.91	40	1072	2.46	37	1162	3.03	36	1267	3.61	34	1372	4.19	32																	
10000	2297	865	1.79	46	991	2.35	42	1107	2.94	39	1210	3.55	37	1295	4.19	36	1397	4.84	34	1559	6.14	32														
11000	2527	936	2.25	46	1047	2.87	43	1159	3.50	40	1260	4.16	38	1341	4.84	37	1421	5.54	36	1625	6.96	32	1733	8.43	32											
12000	2757	1009	2.80	46	1101	3.45	44	1213	4.15	41	1310	4.86	39	1389	5.59	38	1466	6.33	37	1619	7.86	35	1796	9.40	32	1895	11.01	32								
14000	3216	1156	4.17	46	1213	4.93	46	1300	5.71	44	1392	6.53	42	1482	7.33	40	1556	8.17	39	1702	9.90	37	1822	11.68	36	1966	13.48	34	2112	15.29	32	2197	17.17	32		
16000	3672	1272	5.95	48	1365	6.82	46	1406	7.71	46	1490	8.60	44	1580	9.53	42	1648	10.46	41	1814	12.39	38	1927	14.34	37	2039	16.35	36	2149	18.37	35	2260	20.48	34		
18000	4135	1383	8.23	50	1502	9.20	46	1546	10.17	46	1607	11.16	45	1674	12.19	44	1764	13.23	42	1895	15.31	40	2004	17.47	39	2143	19.68	37	2250	21.91	36	2323	24.20	36		
20000	4595	1525	11.00	50	1650	12.12	46	1690	13.19	46	1730	14.29	46	1788	15.37	45	1853	16.52	44	1982	18.82	42	2110	21.14	40	2214	23.53	39	2355	26.05	37	2421	28.47	37		
22000	5054	1669	14.39	50	1754	15.62	48	1836	16.81	46	1872	17.98	46	1909	19.22	46	1965	20.4	45	2093	22.92	43	2191	25.46	42	2317	27.98	40	2419	30.64	39					

Class I, Max. RPM 1895

Class II, Max. RPM 2436

TSBD | 30B4

Wheel Dia.: 30"

Outlet Area: 4.97 ft²

Tip Speed: 7.85 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.5"			3"		
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG
5000 1006	646	0.34	35	903	0.64	30																								
6000 1207	679	0.44	37	873	0.78	34	1100	1.16	30	1274	1.80	30	1387	2.30	30															
7000 1408	712	0.56	39	910	0.94	35	1077	1.36	33	1240	2.07	33	1433	2.56	30	1533	3.12	30												
8000 1610	761	0.71	40	950	1.14	36	1106	1.58	34																					
9000 1811	797	0.90	42	993	1.37	37	1140	1.85	35	1263	2.36	34	1388	2.91	33	1584	3.46	30	1672	4.06	30	1760	4.70	30						
10000 2012	846	1.12	43	1014	1.62	39	1176	2.15	36	1292	2.70	35	1408	3.27	34	1496	3.89	34	1727	4.48	30	1807	5.13	30	1965	6.54	30			
11000 2213	894	1.38	44	1056	1.92	40	1214	2.50	37	1325	3.09	36	1434	3.69	35	1545	4.32	34	1623	4.99	34	1743	5.72	33	2010	7.05	30	2155	8.63	30
12000 2414	940	1.69	45	1101	2.27	41	1252	2.88	38	1358	3.52	37	1463	4.16	36	1568	4.82	35	1676	5.52	34	1746	6.23	34	2067	7.68	30	2199	9.24	30
14000 2817	1068	2.43	45	1187	3.11	43	1327	3.78	40	1425	4.51	39	1555	5.26	37	1655	6.00	36	1719	6.75	36	1819	7.53	35	1983	9.14	34	2153	10.85	33
16000 3219	1199	3.40	45	1292	4.17	44	1407	4.94	42	1522	5.72	40	1615	6.54	39	1709	7.39	38	1804	8.24	37	1900	9.06	36	2055	10.84	35	2212	12.67	34
18000 3622	1310	4.62	46	1395	5.48	46	1509	6.34	43	1594	7.21	42	1709	8.08	40	1799	9.01	39	1892	9.97	38	1985	10.92	37	2132	12.84	36	2279	14.78	35
20000 4024	1419	6.12	47	1523	7.05	45	1608	8.01	44	1692	8.98	43	1774	9.94	42	1856	10.92	41	1938	11.91	40	2027	12.96	39	2211	15.10	37	2256	17.16	38
22000 4427	1524	7.92	48	1654	8.95	45	1705	10.00	45	1787	11.06	44	1868	12.11	43	1949	13.18	42	2030	14.25	41	2111	15.32	40	2244	17.62	39	2282	19.84	40
24000 4829	1601	11.10	50	1787	11.21	45	1834	12.34	45	1830	13.49	45	1960	14.63	44	2040	15.78	43	2121	16.96	42	2201	18.11	41	2282	20.51	41	2291	23.36	43

Class I. Max. RPM 1783

Class II. Max. RPM 2292

TSBD | 32B5

Wheel Dia : 32"

Outlet Area: 5.673 ft²

Tip Speed: 8.38 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"				
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG		
6000 1058	547	0.46	34	716	0.84	30																										
7000 1234	574	0.58	36	758	1.00	30																										
8000 1410	591	0.72	39	765	1.20	33	902	1.69	30																							
9000 1586	618	0.89	41	784	1.41	35	917	1.97	32	1031	2.53	30																				
10000 1763	646	1.10	43	803	1.66	37	931	2.27	34	1078	2.88	30	1150	3.51	30																	
12000 2115	709	1.62	46	853	2.26	40	989	2.96	36	1095	3.68	34	1182	4.44	33	1307	5.15	30	1432	6.73	30											
14000 2468	791	2.31	47	907	3.05	43	1031	3.82	39	1148	4.62	36	1229	5.46	35	1332	6.32	33	1517	8.04	30	1621	9.82	30								
16000 2820	884	3.19	47	970	4.03	45	1090	4.88	41	1182	5.76	39	1278	6.68	37	1376	7.62	35	1531	9.61	33	1713	11.56	30	1804	13.56	30	1898	15.70	30		
18000 3173	979	4.30	47	1049	5.23	46	1133	6.18	44	1237	7.15	41	1327	8.14	39	1423	9.19	37	1567	11.29	35	1717	13.54	33	1834	15.77	32	1981	17.94	30		
20000 3525	1061	5.66	48	1128	6.70	47	1206	7.72	45	1292	8.80	43	1377	9.87	41	1467	10.98	39	1606	13.28	37	1747	15.65	35	1862	18.16	34	1974	20.67	33		
22000 3878	1125	7.29	50	1283	8.43	47	1364	10.73	44	1428	11.90	43	1513	13.08	41	1672	15.56	38	1809	18.08	36	1918	20.71	35	2028	23.43	34	2137	26.18	33		
24000 4231	1218	9.22	50	1315	10.46	47	1359	11.73	47	1418	12.99	46	1497	14.22	44	1559	15.50	43	1707	18.09	40	1841	20.84	38	1977	23.61	36	2082	26.46	35		
26000 4583	1312	11.49	50	1411	12.84	47	1451	14.18	47	1509	15.54	46	1627	18.27	44	1774	21.03	41	1902	23.91	39	2003	26.87	38	2138	29.88	36					
28000 4936	1406	14.11	50	187	15.58	47	1545	17.02	47	1582	18.49	47	1638	19.94	46	1693	21.39	45	1814	24.39	43	1934	27.37	41	2061	30.48	39	2124	33.66	39		

Class I Max RPM 1659

Class II Max RPM 2132

Performance is for TSBD units with inlet and outlet ducts. BHP shown is a fan shaft brake horsepower and does not include belt drive losses.

TSBD | 36B6

Wheel Dia.: 36"

Outlet Area: 7.167 ft²

Tip Speed: 9.42 x RPM

CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			2"			2.5"			3"			3.5"				
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG		
7000 977	444	0.58	35																													
8000 1116	469	0.71	36	597	1.24	32																										
10000 1395	505	1.04	40	631	1.67	35	728	2.35	33	853	3.78	33	929	4.63	32																	
12000 1674	557	1.50	42	676	2.22	37	765	2.98	35																							
14000 1953	607	2.08	44	721	2.91	39	818	3.78	36	888	4.66	35	971	5.59	33	1026	6.57	33														
16000 2232	658	2.82	46	766	3.75	41	858	4.71	38	939	5.72	36	1004	6.73	35	1069	7.79	34	1195	9.93	32											
18000 2512	725	3.75	46	811	4.78	43	897	5.83	40	975	6.93	38	1053	8.06	36	1099	9.21	36	1237	11.56	33	1323	14.08	33								
20000 2791	794	4.89	46	853	6.00	45	938	7.16	42	1010	8.35	40	1086	9.58	38	1145	10.82	37	1262	13.37	35	1379	16.01	33	1456	18.78	33	1554	21.67	32		
22000 3070	864	6.27	46	910	7.48	46	991	8.73	43	1062	10.02	41	1135	11.34	39	1193	12.69	38	1307	15.45	36	1400	18.26	35	1514	21.19	33	1583	24.16	33		
24000 3349	923	7.89	47	977	9.21	46	1043	10.54	44	1114	11.96	42	1168	13.36	41	1240	14.8	39	1352	17.76	37	1442	20.77	36	1531	23.88	35	1642	27.03	33		
26000 3628	980	9.76	48	1044	11.17	46	1094	12.61	45	1164	14.12	43	1217	15.63	42	1270	17.18	41	1397	20.34	38	1485	23.59	37	1571	26.87	36	1656	30.22	35		
28000 3907	1036	11.95	49	1113	13.48	46	1149	15.02	46	1214	16.60	44	1266	18.22	43	1336	19.89	41	1442	23.25	39	1551	26.70	37	1635	30.15	36	1694	33.69	36		
32000 4465	1159	17.33	50	1253	19.08	46	1285	20.82	46	1316	22.59	46	1431	24.36	45	1531	29.96	41	1609	33.71	40	1717	37.75	38	1797	41.66	37	1877	45.66	36		
36000 5023	1295	24.11	50	1377	26.12	47	1423	28.08	46	1451	30.04	46	1479	32.05	46	1522	34.00	45	1621	38.21	43	1720	42.46	41	1794	46.63	40	1873	51.07	39		

Class I, Max. RPM 1474

Class II, Max. RPM 1895

TSBD | 42B3

Wheel Dia.: 42"

Outlet Area: 9.794 ft²

Tip Speed: 11.00 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			2.5"			3"		
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
10000	1021	487	0.64	35	689	1.21	30																											
12000	1225	513	0.86	37	658	1.47	34	838	2.18	30																								
14000	1429	538	1.11	39	686	1.80	35	793	2.56	34	971	3.39	30																					
16000	1634	575	1.42	40	718	2.21	36	813	3.00	35	914	3.91	34	1094	4.84	30	1161	5.85	30															
18000	1838	601	1.79	42	733	2.67	38	841	3.56	36	954	4.49	34	1023	5.48	34	1210	6.53	30	1272	7.65	30												
20000	2042	638	2.22	43	766	3.21	39	868	4.18	37	975	5.17	35	1063	6.20	34	1125	7.31	34	1321	8.48	30	1378	9.68	30	1432	10.95	30						
22000	2246	674	2.77	44	797	3.79	40	897	4.89	38	1000	5.98	36	1081	7.05	35	1167	8.21	34	1221	9.37	34	1314	10.74	33	1481	11.97	30	1532	13.33	30			
24000	2450	708	3.38	45	831	4.50	41	926	5.68	39	1025	6.86	37	1103	8.03	36	1182	9.22	35	1266	10.48	34	1315	11.72	34	1371	13.18	34	1582	14.56	30	1635	17.63	31
28000	2859	806	4.91	45	896	6.22	43	984	7.55	41	1076	8.90	39	1175	10.30	37	1250	11.67	36	1296	13.03	36	1372	14.41	35	1415	15.81	35	1497	17.32	34	1586	20.45	34
32000	3267	905	6.88	45	974	8.34	44	1062	9.85	42	1149	11.32	40	1220	12.93	39	1291	14.53	38	1362	16.10	37	1436	17.70	36	1475	19.20	36	1550	20.79	35	1626	23.98	35
36000	3676	989	9.37	46	1051	11.00	45	1117	12.71	44	1203	14.37	42	1266	16.05	41	1360	17.84	39	1430	19.64	38	1467	21.38	38	1538	23.19	37	1611	24.99	36	1609	28.44	38
40000	4084	1053	12.47	48	1149	14.22	45	1213	16.08	44	1276	17.94	43	1339	19.83	42	1401	21.70	41	1463	23.58	40	1531	25.60	39	1601	27.64	38	1634	29.57	38	1626	33.36	40
44000	4493	1169	16.10	47	1248	18.08	45	1286	20.15	43	1348	22.19	44	1409	24.20	43	1471	26.28	42	1532	28.30	41	1594	30.36	40	1626	32.52	40	1628	34.79	41	1634	39.53	43
48000	4901	1207	20.69	50	1326	22.68	46	1383	24.85	45	1417	27.11	45	1478	29.33	44	1539	31.55	43	1600	33.76	42	1631	36.12	42	1631	38.57	43	1634	41.21	44	1635	47.77	47

Class I, Max. RPM 1272

Class II, Max. RPM 1635

TSBD | 48B4

Wheel Dia : 48"

Outlet Area: 12.77 ft²

Tip Speed: 12.57 x RPM

CFM	OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			3"					
		RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG			
14000	1096	385	1.03	36	529	1.89	30																											
16000	1253	405	1.25	37	535	2.22	32	635	3.24	30																								
18000	1410	418	1.51	39	541	2.57	34	634	3.69	32																								
20000	1566	439	1.83	40	547	2.96	36	661	4.19	32	724	5.47	32																					
22000	1723	461	2.19	41	564	3.40	37	662	4.72	34	748	6.08	32	834	7.40	30																		
26000	2036	495	3.09	44	599	4.44	39	678	5.92	37	758	7.49	35	839	9.09	33	903	10.68	32	987	12.27	30	1035	14.01	30									
30000	2349	545	4.26	45	635	5.76	41	721	7.40	38	782	9.08	37	859	10.88	35	921	12.72	34	1001	14.55	32	1043	16.46	32	1167	20.18	30						
34000	2662	595	5.72	46	672	7.41	43	751	9.16	40	823	11.03	38	881	12.97	37	956	14.96	35	1016	17.03	34	1055	19.14	34	1172	23.37	32	1292	27.52	30			
38000	2976	654	7.52	46	718	9.38	44	797	11.33	41	865	13.32	39	920	15.41	38	975	17.55	37	1031	19.78	36	1087	22.04	35	1180	26.79	34	1293	31.39	32			
42000	3289	714	9.70	46	764	11.76	45	828	13.85	43	892	15.98	41	960	18.24	39	1013	20.55	38	1067	22.95	37	1121	25.35	36	1209	30.35	35	1297	35.56	34			
46000	3602	762	12.25	47	811	14.56	43	936	19.17	42	1000	21.48	40	1052	24.00	39	1103	26.47	38	1156	29.10	37	1240	34.38	36	1325	39.95	35	1410	45.65	34			
52000	4072	826	16.95	49	899	19.59	46	944	22.16	45	991	24.76	42	1055	27.42	40	1101	30.00	41	1148	32.72	40	1198	35.55	39	1276	41.28	38	1356	47.35	37	1411	53.6	37
58000	4542	900	22.85	50	988	25.75	46	1017	28.61	46	1060	31.49	45	1106	34.43	44	1151	37.32	43	1217	40.34	41	1263	43.3	40	1337	49.43	39	1413	55.94	38			
64000	5012	987	30.01	50	1062	33.19	45	1105	36.36	46	1131	39.53	46	1173	42.73	45	1218	45.95	44	1263	49.18	43	1308	52.42	42	1399	58.97	42	1422	65.82	41	1431	74.04	43

Class I, Max. RPM 1114

Class II, Max. RPM 1431

TSBD | 54B3

Wheel Dia : 54"

Outlet Area: 16.12 ft²

Tip Speed: 14.14 x RPM

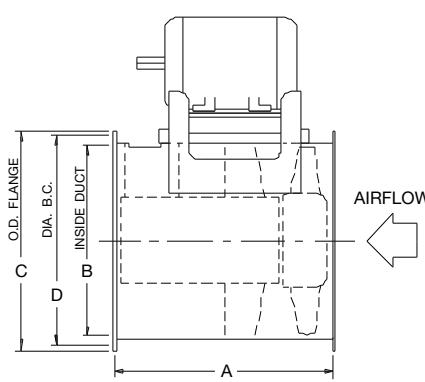
CFM OV	0.25"			0.50"			0.75"			1"			1.25"			1.5"			1.75"			2"			2.25"			2.5"			3"				
	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG	RPM	BHP	ANG					
16000 993	365	1.05	35	514	2.00	30																													
20000 1241	391	1.46	37	501	2.53	34	633	3.74	30	741	5.99	30	800	7.56	30																				
24000 1489	419	1.99	39	531	3.23	35	609	4.54	34	766	7.08	34	842	8.78	30	893	10.5	30	943	12.39	30														
28000 1737	447	2.66	41	550	4.07	37	635	5.53	35	706	7.08	34																							
32000 1985	474	3.49	43	583	5.09	38	664	6.74	36	729	8.38	35	796	10.16	34	866	12.09	33	983	13.98	30	1028	16.02	30	1071	18.15	30								
36000 2233	510	4.54	44	602	6.23	40	693	8.10	37	756	9.96	36	818	11.83	35	882	13.82	34	925	15.89	34	993	18.15	33	1112	20.24	30	1151	22.48	30					
40000 2481	544	5.78	45	636	7.65	41	708	9.67	39	783	11.73	37	842	13.76	35	902	15.86	35	965	18.10	34	1002	20.26	34	1043	22.71	34	1109	25.25	33					
44000 2730	589	7.27	45	669	9.31	42	737	11.44	40	810	13.69	38	867	15.95	37	925	18.24	36	983	20.53	35	1018	22.82	35	1079	25.31	34	1113	27.74	34	1267	30.00	30		
48000 2978	634	8.99	45	702	11.26	43	768	13.52	41	838	15.95	39	892	18.34	38	948	20.85	37	1004	23.32	36	1061	25.81	35	1094	28.31	35	1155	31.03	34	1218	36.30	34		
52000 3226	680	11.01	45	733	13.46	44	798	15.88	42	864	18.37	40	918	21.06	39	971	23.69	38	1025	26.35	37	1081	29.1	36	1112	31.72	36	1168	34.44	35	1259	40.20	34		
56000 3474	714	11.32	46	763	15.95	43	828	18.60	43	893	21.22	41	942	23.95	40	994	26.8	39	1047	29.71	38	1101	32.64	37	1156	35.56	36	1270	44.30	35	1387	48.37	36		
64000 3970	793	19.01	47	853	22.01	45	901	24.98	44	949	28.04	43	1015	31.06	41	1062	34.08	40	1114	37.41	39	1166	40.68	38	1193	43.91	38	1246	47.22	37	1270	53.60	38		
72000 4467	869	26.14	48	944	29.51	45	972	32.84	45	1019	36.25	44	1066	39.71	43	1112	43.09	42	1158	46.49	41	1205	50.00	40	1256	53.69	39	1253	57.12	40	1259	65.00	42		
80000 4963	929	35.52	45	1019	38.70	44	1063	42.51	45	1088	46.24	45	1134	50.00	44	1180	53.76	43	1226	57.51	42	1273	61.38	41	1272	65.40	42	1273	69.70	43	1266	80.00	44		

Class I, Max. RPM 990

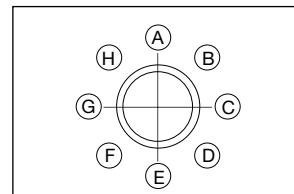
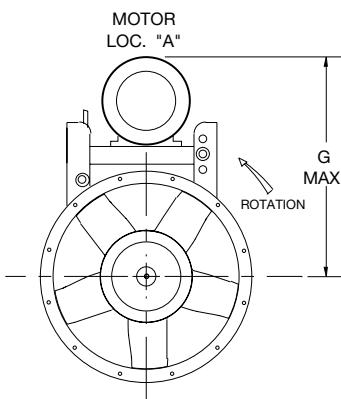
Class II, Max. RPM 1273

Performance is for TSBD units with inlet and outlet ducts. BHP shown is a fan shaft brake horsepower and does not include belt drive losses.

Tubeaxial & Vaneaxial

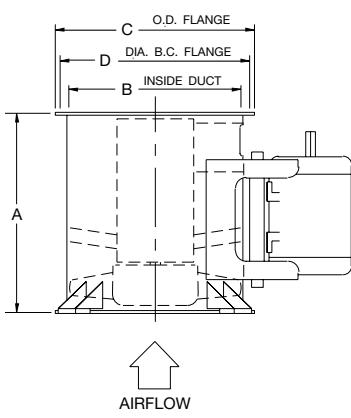


VSBD/TSBD ARR. 9 – HORIZONTAL

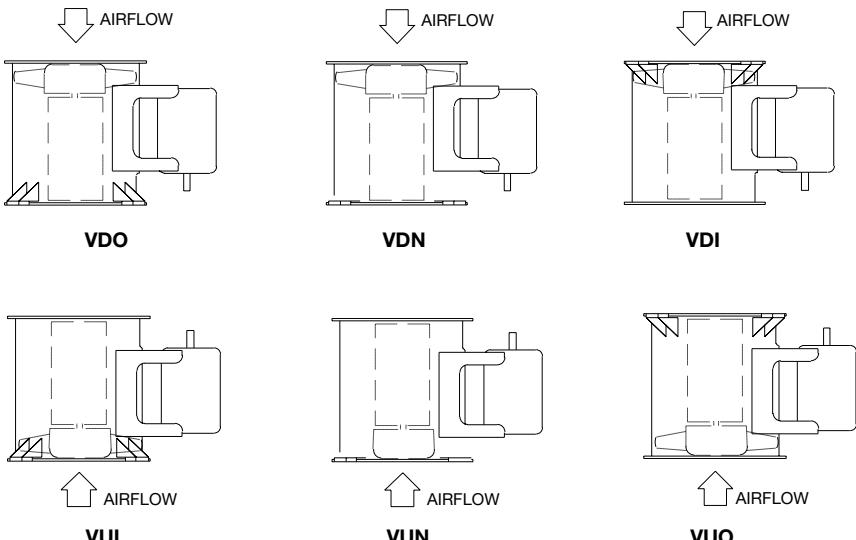


HORIZONTAL MOTOR LOCATIONS
(VIEWED FROM FAN OUTLET)

HOR = Horizontal – No Clips or Legs **HCH** = Horizontal Ceiling Hung with Suspension Clips **HBM** = Horizontal Base Mounted with Support Legs



VSBD/TSBD ARR. 9 – VERTICAL



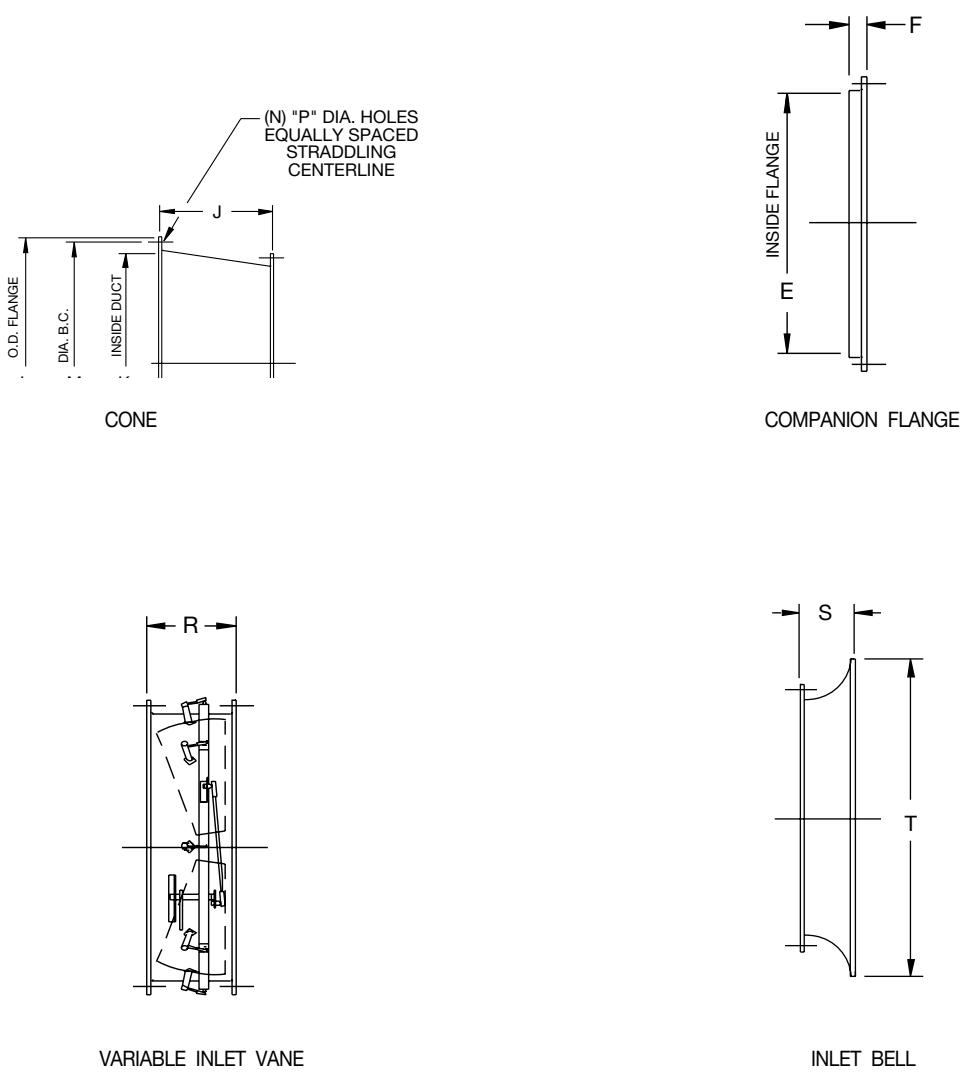
VERTICAL DISCHARGES

VDO = Vertical Down Floor Mounted With Legs
VDN = Vertical Down Discharge Without Legs
VDI = Vertical Down Ceiling Hung With Legs

VUI = Vertical Up Floor Mounted With Legs
VUN = Vertical Up Discharge Without Legs
VUO = Vertical Up Ceiling Hung With Legs

FAN SIZE	A		B	C	D	G (MAX.)	MAXIMUM MOTOR FRAME
	HUB RATIO	3-5					
12	NA	24.50	12.16	15.16	13.88	19.25	184T
15	NA	27.00	15.16	18.16	16.88	20.50	215T
18	24.5	28.00	18.16	21.16	19.88	27.50	215T
21	27.00	32.00	21.19	24.19	22.88	31.75	256T
24	28.00	36.25	24.19	27.19	25.88	34.5	256T
28	32.00	40.25	28.25	31.25	30.00	38.25	286T
30	36.25	NA	30.25	33.25	32.00	39.75	286T
32	36.25	47.00	32.25	35.25	34.00	41.00	286T
36	40.25	53.25	36.25	39.25	38.00	45.25	326T
42	47.00	NA	42.38	46.38	44.63	49.50	326T
48	53.25	NA	48.38	52.38	50.63	53.25	365T
54	53.25	NA	54.38	58.38	56.63	59.00	365T

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.



FAN SIZE	COMPANION FLANGE		CONE						VARIABLE INLET VANE	INLET BELL		FAN AREA (FT ²)	CONE AREA (FT ²)
	E	F	J	K	L	M	N	P		R	S	T	
12	12.16	1.50	8.50	15.16	18.44	16.88	8	0.44	5.50	2.52	15.19	0.81	1.25
15	15.16	1.50	8.50	18.16	21.44	19.88	8	0.44	6.50	3.12	19.77	1.25	1.80
18	18.16	1.50	8.50	21.19	24.50	22.88	8	0.44	7.50	3.71	23.72	1.80	2.45
21	21.19	1.50	8.50	24.19	27.50	25.88	12	0.44	8.75	4.31	27.67	2.45	3.19
24	24.19	1.50	11.50	28.25	31.56	30.00	12	0.44	10.00	4.96	31.63	3.19	4.35
28	28.25	1.50	11.50	32.25	35.56	34.00	12	0.44	11.50	5.75	36.90	4.35	5.67
30	30.25	1.50	17.00	36.25	39.56	34.00	12	0.44	13.00	NA	NA	4.99	7.17
32	32.25	1.50	11.50	36.25	39.56	38.00	12	0.44	13.00	6.54	42.17	5.67	7.17
36	36.25	1.50	17.00	42.38	46.81	44.63	16	0.56	10.00	7.39	47.44	7.17	9.80
42	42.38	2.00	17.00	48.38	52.81	50.63	16	0.56	11.75	8.59	55.34	9.80	12.77
48	48.38	2.00	17.00	54.38	58.69	56.63	16	0.56	13.25	9.76	63.25	12.77	16.13
54	54.38	2.00	17.00	60.38	64.94	63.38	20	0.56	14.75	10.98	71.16	16.13	19.88

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DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Model VSBD / TSBD | Arrangement 9 | Belt Driven

Fans shall be Model VSBD Vaneaxial or TSBD Tubeaxial, fixed pitch, steel wheel, as manufactured by Aerovent, Minneapolis, Minnesota. Fans shall be Arrangement 9, V-belt driven with the wheel mounted on a separate shaft and bearings supported completely within an enclosed tube isolated from the high velocity airstream.

PERFORMANCE — Fans shall be tested and rated in accordance with industry accepted test codes and shall be guaranteed by the manufacturer to deliver rated published performance levels. Models VSBD and TSBD shall be available UL/cUL 705 listed.

HOUSING — Housings shall be welded of 14 gauge ASTM A-569 hot rolled steel in size 12" diameter, 12 gauge hot rolled steel in sizes 15" through 21" diameter, 10 gauge hot rolled steel in sizes 24" through 36" diameter, and 7 gauge hot rolled steel in sizes 42" through 54" diameter. Inlet and outlet flanges shall be of welded angle ring construction in fan sizes 12" and 15" diameter. In sizes 18" through 54" diameter inlet and outlet flanges shall be integrally rolled mechanically from fan housing sheet steel to insure concentricity and alignment of flanges. Concentricity of housings shall be insured through the use of welding jigs and fixtures. A fabricated adjustable steel motor support platform of minimum $\frac{3}{16}$ " steel plate shall be provided to offer infinite adjustment of belt tension.

Housings shall be fitted with mounting legs, hanging clips, or flange mounted as shown on the drawings. Fan mounting legs and clips shall be fabricated from minimum 12 gauge steel plate suitably braced to insure stability and rigidity.

GUIDE VANES — On Model VSBD fans the housing shall be fitted with aerodynamically designed stationary straightening guide vanes on the air discharge side of the wheel. The guide vanes shall be welded to both the inner cylinder and the fan housing interior. Guide vanes function to aid in the elimination of swirl and turbulence downstream of the fan thereby recovering rotational energy losses, improving efficiency and static pressure capability, and reducing fan noise generation.

WHEEL — The wheel shall be a fabrication consisting of die-formed stamped steel blades of single-surface airfoil shape welded to a spun steel central hub. Precise blade attachment shall be insured through the use of welding jigs and fixtures. The ability to provide various factory-set blade angles ranging from 30° to 50° allows the highest possible latitude in selection and provides fan operation at the highest possible efficiency.

All wheels are statically and dynamically balanced prior to assembly. Fans with motors and drives mounted by Aerovent are test run as a complete assembly and rechecked for balance at the specified operating speed.

SHAFT — Shafts shall be AISI 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS — Bearings shall be heavy duty, grease lubricated, anti-friction flange ball or roller, self-aligning, pillow block type and selected for a minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM. All bearings shall be provided with pre-filled factory extended lubrication lines terminating at the housing exterior to facilitate bearing relubrication without gaining access inside the ductwork.

DRIVE — The fan shall be equipped with a (fixed/adjustable) pitch V-belt drive selected to operate the fan at the correct operational RPM. The V-belt drive shall consist of cast iron sheaves and anti-static conducting belts and shall be selected with a (1.2/1.5) service factor based upon the required brake horsepower of the fan.

The complete fan shaft and bearing assembly shall be mounted within a steel fabricated inner cylinder. The V-belt drive assembly shall be extended through a two-piece belt fairing. The belt fairing shall be an aerodynamically shaped tube designed to maximize fan efficiency, minimize air blockage and reduce noise generation. The belt fairing shall be welded continuously to both the inner cylinder that houses the fan shaft and bearings and the fan housing, thus protecting and completely isolating the V-belt components from the direct blast of the airstream.

MOTOR — Fan motors shall be manufactured in accordance with current applicable standards of IEEE and NEMA and, where applicable, shall meet current EPACT standards. They shall be foot-mounted, NEMA standard, (ODP, TEFC, Explosion-Proof), continuous duty, ball bearing type with class ("B", "F") insulation and of cast iron construction when commercially available.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

ACCESSORIES — When specified, accessories shall be provided by Aerovent to maintain one source responsibility.

FACTORY RUN TEST — All fans with motors and drives mounted by Aerovent shall be completely assembled and test run as a unit at the specified operating speed prior to shipment. Each wheel shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical, and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

GUARANTEE — The manufacturer shall guarantee the workmanship and materials for its VSBD Vaneaxial or TSBD Tubeaxial Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.



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INDUSTRIAL AIR HANDLERS | AIR MAKE-UP | FIBERGLASS FANS | CUSTOM FANS**



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WWW.AEROVENT.COM

5959 Trenton Lane N | Minneapolis, MN 55442 | Phone: 763-551-7500 | Fax: 763-551-7501