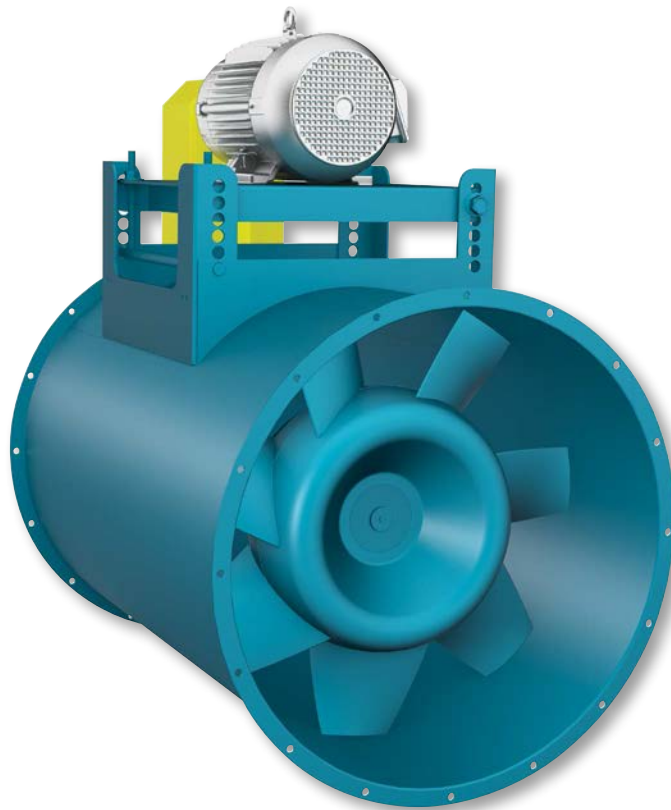


Fans & Blowers

Twin City

Turning Air Into Solutions.



AXIFAN® VANEAXIAL & TUBEAXIAL FANS

TCVS/TCTS | TCVSSH/TCTSSH

Vaneaxial&TubeaxialFans

Models

TCVS | TCTS | TCVSSH | TCTSSH



TCVS

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



Models TCVSSH and TCTSSH are UL/cUL listed for Smoke Control Systems as standard, File No. MH-29313, 500°F for 4 hours and 1000°F for 15 minutes.

Guide Vanes

TCVS 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.

AXIFAN® Steel Wheel

AXIFAN® steel wheels 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.

For applications requiring extensive corrosion resistance or operation at higher temperatures than standard, the Arrangement 9 TCVS/TCTS AXIFAN® 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.

TCVSSH/TCTSSH (Smoke & Heat Removal)

Specifically designed for smoke control applications. UL/cUL listed for smoke control systems for 500°F for 4 hours or 1000°F for 15 minutes.

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.

Hub-to-Tip Ratio

AXIFAN® 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 Twin City Fan & Blower Fan Selector Program.

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.

Accessories

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.

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.

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.

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 13 for a description of how to identify the location of the legs.

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 AXIFAN® 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.



Inlet Bell



Inlet/Outlet Cone



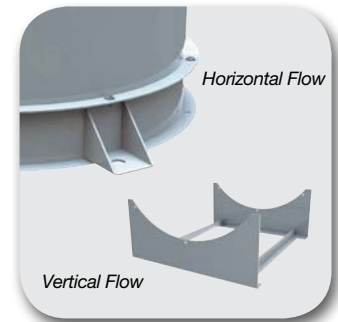
Companion Flanges



Variable Inlet Vane



Sound Attenuation



Support Legs



Suspension Clips



Vibration Isolation

Accessories



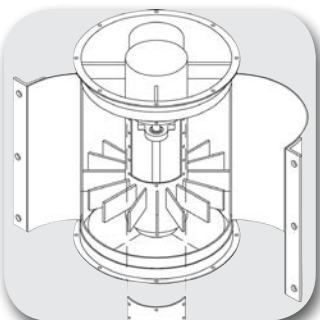
Belt Guard



Weather Cover



Screening



Clamshell Construction



Housing Door



Shaft Seal



Discharge Cap



Curb Cap

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 AXIFAN® 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.

Wheel 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.

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

AXIFAN® units can be customized to handle up to 300°F continuous in the airstream.

Discharge Cap

AXIFAN® units can be provided with a discharge 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 6 for minimum flow (CFM) requirements.

Curb Cap

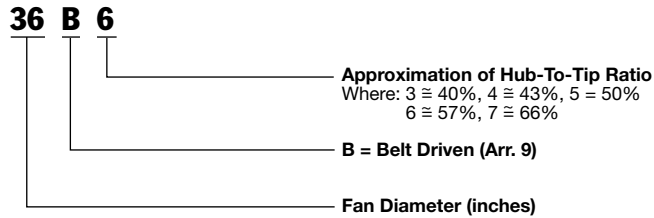
AXIFAN® units can be supplied with a base (curb cap), attached to the fan's flange for curb mounting. The combination of a curb cap and discharge cap creates an upblast-style power roof ventilator.

UL/cUL 705 Listing

Models TCVS and TCTS are available with the UL/cUL 705 listing for electrical when supplied with specific motors. The models TCVSSH and TCTSSH are provided standard with the UL/cUL listing for Smoke Control Systems.

Model Nomenclature

TCVS/TCTS AXIFAN® Arrangement 9 model numbers are represented as follows. Refer to the "Hub-To-Tip Ratio" section on page 2 for an explanation of hub-to-tip ratios.



Useful Formulas

Total Pressure (TP) =

Static Pressure (SP) + Velocity Pressure (VP)

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

Velocity Pressure (VP) =

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

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 TCVS/TCTS AXIFAN® fans. For additional performance corrections refer to the Twin City Fan & Blower Fan Selector Program.

Example 1: Make the most efficient selection for an Arrangement 9 TCVS AXIFAN® at 10,000 CFM and 1.5" SP at standard conditions (0.075 lb/ft³ density). By looking through the TCVS 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 TCTS AXIFAN® 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 6, 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 TCTS 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 x 5.98 = 4.22 BHP.

Example 3: Select a TCVS 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 14, we see that the outlet area for a 28" fan matches 4.17 ft² the closest without going under. Turning to page 8 for the 28B6 fan size and looking up 10,000 CFM @ 1.5" SP yields the following interpolated selection:

28B6 TCVS @ 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 TCVS on page 8 and looking up 10,000 CFM at 1.25" SP (1.5"-0.25"), through interpolation we find:

24B5 TCVS @ 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 TCVS @ 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												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000	15000
	BAROMETRIC PRESSURE IN INCHES OF MERCURY												
	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
TCVS	76	95	109	170	215	251	318	409	692	655	1004	1089
TCTS	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	DIS- CHARGE 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	ALUMINUM
12	1051	721
15	1707	1171
18	2532	1737
21	3527	3035
24	4693	4039
28	6574	5658
30	7605	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 5 displaying this procedure.

TCVS 12B7

Wheel Dia.: 12"

Outlet Area: 0.807 ft²

Tip Speed: 3.14 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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																											
800	992	1291	0.10	44	1590	0.15	37																											
1000	1240	1410	0.16	50	1718	0.22	42																											
1200	1488	1638	0.24	50	1856	0.32	46																											
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	0.53	50	2204	0.60	50	2298	0.67	50	2583	0.81	44	2739	0.91	41	2856	1.00	41	3180	1.21	37	3490	1.45	34	3942	1.80	30	4075	1.99	30			
1800	2232	2355	0.73	50	2436	0.81	50	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	4482	2.65	30
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	4384	2.87	34
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	4419	3.26	37
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	4533	3.76	39
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															

Regular type face = Class I, max. RPM 4455

Bold type face = Class II, max. RPM 5729

TCVS 15B6

Wheel Dia.: 15"

Outlet Area: 1.254 ft²

Tip Speed: 3.93 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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																														
1400	1116	941	0.10	44	1231	0.18	37																											
1600	1276	995	0.13	46	1271	0.21	39			1485	0.30	36																						
2000	1595	1129	0.20	48	1323	0.30	45			1551	0.40	40	1726	0.51	38	1893	0.62	36																
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									
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	2969	2.39	36	3210	2.76	34			
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	38	3218	3.17	37	3394	3.56	36
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	3451	4.07	38
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	3551	4.61	39
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	4.23	44	3446	4.72	42	3608	5.22	41
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	3012	3.84	48	3166	4.34	47	3318	4.84	46	3509	5.35	44	3667	5.89	43
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	3432	5.53	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

Regular type face = Class I, max. RPM 3540

Bold type face = Class II, max. RPM 4552

TCVS 18B5

Wheel Dia.: 18"

Outlet Area: 1.799 ft²

Tip Speed: 4.71 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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	840	0.10	35																														
2000	1112	876	0.13	39	1175	0.24	33																											
2400	1334	928	0.18	42	1201	0.30	36	1428	0.44	33																								
2800	1556	979	0.24	45	1233	0.37	39	1462	0.52	35	1655	0.68	33	1894	0.86	30																		
3200	1779	1047	0.31	47	1285	0.46	41	1483	0.63	38	1681	0.80	35	1866	0.98	33	2020	1.17	32															
3600	2001	1113	0.40	49	1340	0.56	43	1523	0.74	40	1718	0.93	37	1884	1.12	35	2025	1.32	34															
4000	2223	1191	0.51	50	1393	0.69	45	1593	0.88	41	1752	1.08	39	1915	1.29	37	2077	1.50	35	2349	1.96	33												
4400	2446	1285	0.63	50	1469	0.83	46	1639	1.03	43	1789	1.24	41	1943	1.47	39	2102	1.70	37	2349	2.18	35	2611	2.68	33									
5200	2890	1480	0.95	50	1579	1.18	50	1755	1.42	46	1921	1.66	43	2036	1.91	42	2179	2.16	40	2454	2.70	37	2648	3.26	36	2889	3.85	34	3088	4.44	33	3294	5.07	32
6000	3335	1679	1.38	50	1765	1.64	50	1896	1.91	48	2026	2.18	46	2160	2.46	44	2300	2.74	42	2515	3.32	40	2742	3.95	38	2970	4.59	36	3148	5.23	35	3335	5.92	34
6800	3780	1881	1.93	50	1957	2.22	50	2033	2.52	50	2160	2.82	48	2286	3.13	46	2383	3.44	45	2626	4.08	42	2832	4.74	40	3007	5.44	39	3229	6.17	37	3400	6.89	36
7600	4225	2085	2.61	50	2153	2.93	50	2221	3.26	50	2289	3.60	50	2414	3.94	48	2540	4.29	46	2734	4.98	44	2935	5.70	42	3094	6.44	41	3304	7.20	39	3471	8.00	38
8400	4669	2291	3.46	50	2353	3.80	50	2414	4.16	50	2475	4.52	50	2537	4.90	50	2662	5.28	48	2845	6.05	46	3034	6.82	44	3233	7.61	42	3385	8.42	41	3537	9.24	40
9200	5114	2498	4.47	50	2554	4.84	50	2610	5.22	50	2666	5.62	50	2723	6.03	50	2779	6.44	50	2995	7.28	47	3175	8.12	45	3324	8.97	44	3472	9.84	43	3670	10.71	41

TCVS 24B5

Wheel Dia.: 24"

Outlet Area: 3.192 ft²

Tip Speed: 6.28 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP																													
		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	2294	7.65	33	2486	9.77	33																											
4000	1253	679	0.29	41	889	0.50	35																												1099	0.94	35	1271	1.52	36	1402	1.85	34	1611	3.68	40	1817	4.98	35	1994	5.61	35	2143	6.61	34	2342	8.63	34	2541	12.13	36
5000	1566	736	0.43	45	927	0.67	39																												1099	0.94	35	1271	1.52	36	1402	1.85	34	1611	3.68	40	1817	4.98	35	1994	5.61	35	2143	6.61	34	2342	8.63	34	2541	12.13	36
6000	1880	806	0.62	48	980	0.89	42																												1099	0.94	35	1271	1.52	36	1402	1.85	34	1611	3.68	40	1817	4.98	35	1994	5.61	35	2143	6.61	34	2342	8.63	34	2541	12.13	36
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	2294	7.65	33	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	2139	5.85	32							2294	7.65	33	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	2143	6.61	34													2294	7.65	33	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																			2294	7.65	33	2486	9.77	33									
11000	3446	1294	2.66	50	1357	3.13	50	1437	3.63	49	1552	4.13	46	1653	4.63	44	1733	5.14	43	1892	6.20	41	2055	7.32	39	2224	8.50	37	2294	7.65	33	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							2294	7.65	33	2486	9.77	33																					
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													2294	7.65	33	2486	9.77	33															
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																			2294	7.65	33	2486	9.77	33									
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	2294	7.65	33	2486	9.77	33																											
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							2294	7.65	33	2486	9.77	33																					
17000	5326	1940	8.23	50	1980	8.95	50	2023	9.47	50	2066	10.16	50	2109	10.87	50	2152	11.58	49	2313	12.70	46	2437	14.99	44	2586	16.81	42													2294	7.65	33	2486	9.77	33															
18000	5640	2047	9.00	50	2087	9.70	50	2130	10.28	50	2173	10.86	50	2216	11.46	50	2259	12.17	49	2379	13.40	45	2500	15.59	43	2629	18.00	41																			2294	7.65	33	2486	9.77	33									
19000	5954	2154	9.75	50	2194	10.45	50	2237	10.86	50	2280	11.46	50	2323	12.06	50	2366	12.66	49	2429	14.00	44	2550	16.29	42	2679	19.38	40	2294	7.65	33	2486	9.77	33																											
20000	6268	2261	10.50	50	2251	11.15	50	2294	11.46	50	2337	12.06	50	2380	12.66	49	2423	13.25	47	2486	14.96	43	2600	17.57	41	2720	20.76	39							2294	7.65	33	2486	9.77	33																					
21000	6582	2368	11.25	50	2308	11.85	50	2351	12.06	50	2394	12.66	49	2437	13.25	47	2480	13.85	45	2543	15.57	40	2660	18.76	40	2780	21.76	38													2294	7.65	33	2486	9.77	33															
22000	6896	2475	12.00	50	2365	12.55	50	2408	12.66	49	2451	13.25	47	2494	13.85	45	2537	14.44	43	2590	16.29	41	2700	19.76	39	2840	22.76	37																			2294	7.65	33	2486	9.77	33									
23000	7210	2582	12.75	50	2422	13.25	50	2465	13.25	47	2508	13.85	45	2551	14.44	43	2594	15.03	41	2643	17.57	39	2760	20.76	38	2860	23.76	36	2294	7.65	33	2486	9.77	33																											
24000	7524	2689	13.50	50	2479	13.95	50	2522	13.25	47	2565	13.85	45	2608	14.44	43	2651	15.63	40	2706	18.76	38	2820	21.76	37	2900	24.76	35							2294	7.65	33	2486	9.77	33																					
25000	7838	2796	14.25	50	2536	14.65	50	2579	13.25	47	2622	14.44	43	2665	15.03	41	2708	16.29	39	2761	19.76	37	2880	22.76	36	2940	25.76	34													2294	7.65	33	2486	9.77	33															
26000	8152	2903	15.00	50	2593	15.35	50	2636	13.25	47	2679	15.03	41	2722	15.63	40	2751	16.81	37	2814	20.76	36	2920	23.76	35	2980	26.76	33																			2294	7.65	33	2486	9.77	33									
27000	8466	3010	15.75	50	2650	16.05	50	2693	13.25	47	2736	15.63	40	2765	16.29	39	2794	17.57	36	2847	21.76	35	2960	24.76	34	3000	27.76	32	2294	7.65	33	2486	9.77	33																											
28000	8780	3117	16.50	50	2707	16.75	50	2750	13.25	47	2790	16.29	39	2809	17.57	36	2838	18.76	34	2891	22.76	34	2980	25.76	33	3020	28.76	31							2294	7.65	33	2486	9.77	33																					
29000	9094	3224	17.25	50	2764	17.45	50	2807	13.25	47	2844	17.57	36	2887	18.76	34	2917	19.76	33	2960	23.76	33	3000	26.76	32	3060	29.76	30													2294	7.65	33	2486	9.77	33															
30000	9408	3331	18.00	50	2821	18.15	50	2864	13.25	47	2899	18.76	34	2942	19.76	33	2985	20.76	32	3020	24.76	32	3060	27.76	31	3100	30.76	29																			2294	7.65	33	2486	9.77	33									
31000	9722	3438	18.75	50	2878	18.85	50	2921	13.25	47	2956	19.76	33	3001	20.76	32	3044	21.76	31	3080	25.76	31	3120	28.76	30	3160	31.76	28	2294	7.65	33	2486	9.77	33																											
32000	10036	3545	19.50	50	2935	19.55	50	2978	13.25	47	3010	20.76	32	3044	21.76	31	3087	22.76	30	3120	26.76	30	3160	29.76	29	3200	32.76	27							2294	7.65	33	2486	9.77	33																					
33000	10350	3652	20.25	50	2992	20.25	50	3035	13.25	47	3065	21.76	31	3088	22.76	30	3131	23.76	29	3160	27.76	29	3200	30.76	28	3240	33.76	26													2294	7.65	33	2486	9.77	33															
34000	10664	3759	21.00	50	3049	20.95	50	3092	13.25	47	3100	22.76	30	3131	23.76	29	3172	24.76	28	3200	28.76	28	3240	31.76	27	3280	34.76	25																			2294	7.65	33	2486	9.77	33									
35000	10978	3866	21.75	50	3106	21.65	50	3149	13.25	47	3155	23.76	29	3172	24.76	28	3201	25.76	27	3240	29.76	27	3280	32.76	26	3320	35.76	24	2294	7.65	33	2486	9.77	33																											
36000	11292	3973	22.50	50	3163	22.35	50	3196	13.25	47	3210	24.76	28	3216	25.76	27	3242	26.76	26	3280	30.76	26	3320	33.76	25	3360	36.76	23							2294	7.65	33	2486	9.77	33																					
37000	11606	4080	23.25	50	3220	23.05	50	3253	13.25	47	3265	25.76	27	3265	26.76	26	3287	27.76	25	3320	31.76	25	3360	34.76	24	3400	37.76	22													2294	7.65	33	2486	9.77	33															
38000	11920	4187	24.00	50	3277	23.75	50	3310	13.25	47	3320	26.76	26	3320	27.76	25	3342	28.76	24	3360	32.76	24	3400	35.76	23	3440	38.76	21																			2294	7.65	33	2486	9.77	33									
39000	12234	4294	24.75	50	3334	24.45	50	3367	13.25	47	3375	27.76	25	3375	28.76	24	3403	29.76	23	3400	33.76	23	3440	36.76	22	3480	39.76	20	2294	7.65	33	2486	9.77	33																											
40000	12548	4401	25.50	50	3391	25.15	50	3424	13.25	47	3430	28.76	24																																																

Regular type face = Class I, max. RPM 2220

Bold type face = Class II, max. RPM 2855

TCVS 28B6

Wheel Dia.: 28"

Outlet Area: 4.353 ft²

Tip Speed: 7.33 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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																											
5000	1149	514	0.36	44	674	0.62	37																											
6000	1378	557	0.49	46	702	0.79	40	830	1.12	36																								
7000	1608	611	0.67	47	731	1.00	43	852	1.36	39	963	1.74	36	1063	2.13	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															
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	1352	4.40	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	1348	4.98	37	1508	6.10	34									
11000	2527	840	1.88	50	922	2.36	48	1001	2.85	46	1069	3.37	45	1152	3.92	43	1234	4.47	41	1386	5.64	38	1518	6.82	36	1655	8.06	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	1403	6.33	40	1533	7.63	38	1660	8.92	36	1794	10.28	34			
14000	3216	1039	3.52	50	1087	4.09	50	1148	4.70	49	1222	5.33	47	1281	5.97	46	1339	6.62	45	1462	8.01	43	1601	9.40	40	1704	10.90	39	1803	12.40	38	1925	13.91	36
16000	3676	1175	5.06	50	1216	5.69	50	1258	6.37	50	1315	7.07	49	1372	7.80	48	1443	8.52	46	1537	10.01	45	1634	11.60	44	1770	13.19	41	1863	14.82	40	1958	16.53	39
18000	4135	1312	7.02	50	1349	7.72	50	1386	8.46	50	1423	9.23	50	1477	10.01	49	1531	10.82	48	1638	12.47	46	1724	14.12	45	1815	15.90	44	1906	17.74	43	2017	19.52	41
20000	4595	1450	9.45	50	1483	10.22	50	1516	11.01	50	1549	11.83	50	1583	12.70	50	1636	13.60	49	1740	15.38	47	1823	17.20	46	1905	19.05	45	1967	21.00	45	2054	23.03	44
22000	5054	1589	12.41	50	1619	13.25	50	1649	14.11	50	1679	15.00	50	1709	15.91	50	1739	16.84	50	1843	18.82	48	1924	20.82	47	2003	22.81	46	2081	24.81	45	2137	26.92	45

Regular type face = Class I, max. RPM 1895

Bold type face = Class II, max. RPM 2436

TCVS 30B4

Wheel Dia.: 30"

Outlet Area: 4.97 ft²

Tip Speed: 7.85 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.50" SP			3" SP			3.50" SP		
		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	634	0.32	35	864	0.61	31																											
6000	1207	677	0.41	36	876	0.74	33	1053	1.10	31	1205	1.51	30																					
7000	1408	728	0.53	37	893	0.89	35	1053	1.28	33	1219	1.71	31																					
8000	1610	798	0.68	37	930	1.06	36	1086	1.50	34	1211	1.95	33	1343	2.46	32	1473	2.99	31	1596	3.51	30												
9000	1811	851	0.86	38	990	1.27	36	1117	1.74	35	1239	2.24	34	1357	2.75	33	1480	3.30	32	1601	3.88	31	1698	4.54	31									
10000	2012	848	1.08	42	1036	1.52	37	1150	2.01	36	1268	2.55	35	1381	3.10	34	1494	3.66	33	1612	4.27	32	1729	4.89	31	1898	6.32	31						
11000	2213	814	1.33	49	1106	1.82	37	1211	2.32	36	1324	2.88	35	1442	3.50	34	1516	4.09	34	1625	4.71	33	1739	5.36	32	1924	6.74	31	2080	8.33	31			
12000	2414	857	1.61	50	1151	2.16	38	1252	2.70	37	1355	3.27	36	1463	3.89	35	1577	4.58	34	1645	5.23	34	1751	5.89	33	1929	7.32	32	2105	8.82	31			
14000	2817	971	2.32	50	1213	3.00	41	1393	3.60	37	1455	4.22	37	1551	4.88	36	1619	5.61	36	1721	6.34	35	1785	7.11	35	1944	8.65	34	2105	10.25	33			
16000	3219	1088	3.23	50	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	35	2172	12.01	34			
18000	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	1890	9.30	37	1981	10.14	36	2086	12.00	36	2235	13.91	35			
20000	4204	1328	5.82	50	1384	6.71	50	1441	7.68	50	1696	8.66	42	1894	9.53	38	1984	10.39	37	2028	11.27	37	2071	12.15	37	2206	14.02	36	2256	16.17	37			
22000	4427	1449	7.53	50	1501	8.50	50	1553	9.54	50	1627	10.63	49	1908	11.67	41	2081	12.64	38	2122	13.58	38	2212	14.54	37	2243	16.54	38	2288	18.79	39			
24000	4829	1572	9.58	50	1620	10.64	50	1667	11.73	50	1715	12.90	50	1867	14.18	46	2084	15.21	41	2123	16.25	39	2250	17.26	39	2278	19.44	40	2282	22.07	42			

TCVS 36B6

Wheel Dia.: 36"

Outlet Area: 7.167 ft²

Tip Speed: 9.42 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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																														
8000	1116	396	0.57	43	522	1.00	36																											
10000	1395	436	0.84	46	546	1.34	40	636	1.88	37	738	2.44	33																					
12000	1674	482	1.21	48	565	1.78	45	662	2.39	40	746	3.03	37	819	3.68	35																		
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															
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	1044	7.97	36	1153	9.77	34									
18000	2512	649	3.10	50	712	3.88	48	774	4.71	46	825	5.55	45	889	6.45	43	952	7.36	41	1068	9.26	38	1170	11.21	36	1253	13.15	35						
20000	2791	712	4.07	50	763	4.92	49	822	5.81	47	871	6.72	46	919	7.67	45	970	8.69	44	1092	10.71	40	1211	12.84	38	1272	15.01	37	1368	17.17	35	1477	19.59	33
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	14.60	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	11.50	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	10.11	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	44	1451	27.04	42	1526	29.80	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	50	1424	31.07	48	1486	34.32	47	1547	37.62	46	1590	40.96	46	1650	44.39	45

Regular type face = Class I, max. RPM 1474

Bold type face = Class II, max. RPM 1895**TCVS 42B3**

Wheel Dia.: 42"

Outlet Area: 9.794 ft²

Tip Speed: 11.00 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.25" SP			2.50" SP			3" SP		
		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																											
12000	1225	515	0.81	36	668	1.44	33	803	2.15	31																								
14000	1429	552	1.05	37	681	1.76	35	803	2.52	33	911	3.39	32																					
16000	1634	606	1.36	37	707	2.11	36	828	2.95	34	924	3.84	33	1024	4.83	32																		
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	32	1375	10.81	31						
22000	2246	607	2.73	40	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	11.13	36	1312	12.55	35	1361	14.05	35	1442	15.56	34	1482	17.05	34			
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	37	1368	15.21	36	1414	16.87	36	1492	18.45	35	1537	20.20	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			
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			
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			
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			

Regular type face = Class I, max. RPM 1272

Bold type face = Class II, max. RPM 1635**TCVS 48B4**

Wheel Dia.: 48"

Outlet Area: 12.77 ft²

Tip Speed: 12.57 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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	365	0.93	37	493	1.72	32																											
16000	1253	385	1.13	38	497	2.00	34																											
18000	1410	406	1.38	39	503	2.31	36	601	3.33	33																								
20000	1566	427	1.68	40	519	2.66	37	614	3.77	34	700	4.93	32																					
22000	1723	449	2.03	41	536	3.06	38	616	4.25	36	694	5.45	34	778	6.77	32																		
26000	2036	474	2.88	45	582	4.06	39	644	5.34	38	718	6.72	36	795	8.18	34	857	9.66	33															
30000	2349	493	3.92	50	618	5.32	41	686	6.70	39	743	8.20	38	815	9.79	36	872	11.43	35	990	14.88	33	1089	18.50	32									
34000	2662	545	5.24	50	654	6.88	43	730	8.41	40	783	9.99	39	837	11.70	38	891	13.49	37	999	17.21	35	1113	21.15	33									
38000	2976	599	6.91	50	678	8.74	46	776	10.48	41	824	12.14	40	876	13.99	39	927	15.86	38	1032	19.88	36	1116	23.99	35	1201	28.25	34	1317	32.88	32	1378	37.48	32
42000	3289	654	8.94	50	692	10.84	50	806	12.86	43	868	14.75	41	915	16.65	40	964	18.62	39	1046	22.90	38	1147	27.33	36	1228	31.94	35	1311	36.73	34	1394	41.55	33
46000	3602	709	11.33	50	744	13.39	50	823	15.65	46	911	17.75	42	973	19.78	40	1002	21.86	40	1100	26.33	38	1178	31.01	37	1257	35.97	36	1334	40.91	35	1416	46.24	34
52000	4072	793	15.76	50	824	18.03	50	855	20.43	50	948	23.03	45	1027	25.39	42	1071	27.66	41	1164	32.46	39	1238	37.48	38	1288	42.70	38	1362	48.16	37	1412	53.95	37
58000	4542	877	21.22	50	905	23.72	50	933	26.34	50	961	29.08	50	1058	32.02	45	1120	34.61	43	1229	39.88	40	1299	45.13	39	1344	50.61	39	1415	56.41	38	1413	62.89	40
64000	5012	962	27.91	50	988	30.69	50	1013	33.49	50	1038	36.39	50	1063	39.39	50	1166	42.83	45	1273	48.52	42	1361	54.26	40	1430	60.15	39	1422	66.35	41	1427	73.92	43

TCTS

TCTS 12B7

Wheel Dia.: 12"

Outlet Area: 0.807 ft²

Tip Speed: 3.14 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.25" SP			2.50" SP			2.75" SP		
		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																														
700	868	1482	0.08	36	1911	0.14	30																											
800	992	1593	0.11	37	1872	0.20	36	2254	0.23	30																								
1000	1240	1777	0.17	40	2110	0.24	36	2320	0.31	35	2718	0.41	30	2864	0.47	30																		
1200	1488	1998	0.25	42	2307	0.34	38	2551	0.43	36	2740	0.51	35	3167	0.65	30	3291	0.73	30	3412	0.80	30												
1400	1736	2207	0.37	44	2494	0.46	40	2780	0.57	37	2965	0.67	36	3142	0.77	35	3262	0.87	35	3716	1.05	30	3822	1.14	30	3926	1.23	30	4030	1.32	30			
1600	1984	2441	0.52	45	2733	0.63	41	2953	0.74	39	3187	0.86	37	3362	0.98	36	3476	1.09	36	3641	1.21	35	3745	1.31	35	4233	1.55	30	4327	1.65	30	4418	1.75	30
1800	2232	2714	0.71	45	2968	0.83	42	3173	0.95	40	3407	1.09	38	3579	1.22	37	3685	1.34	37	3851	1.48	36	3951	1.60	36	4110	1.73	35	4201	1.85	35	4291	1.97	35
2000	2480	2990	0.94	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
2200	2728	3268	1.23	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						
2400	2976	3547	1.56	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												
2600	3224	3828	1.96	45	3913	2.12	45	4061	2.29	44	4207	2.46	43	4419	2.65	41	4564	2.83	40															
2800	3472	4111	2.43	45	4189	2.59	45	4267	2.76	45	4413	2.95	44																					
3000	3720	4297	2.96	47	4466	3.13	45	4539	3.31	45																								

Regular type face = Class I, max. RPM 4455

Bold type face = Class II, max. RPM 5729

TCTS 15B6

Wheel Dia.: 15"

Outlet Area: 1.253 ft²

Tip Speed: 3.93 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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	1458	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	2318	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	2850	3.36	50	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	8.69	39	4524	9.45	39

Regular type face = Class I, max. RPM 3540

Bold type face = Class II, max. RPM 4552

TCTS 18B5

Wheel Dia.: 18"

Outlet Area: 1.799 ft²

Tip Speed: 4.71 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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	3.80	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	4.60	34	3283	5.35	33	3607	6.08	30	3742	6.81	30
6800	3780	1984	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	3760	8.04	33
7600	4225	2166	2.92	50	2340	3.32	47	2417	3.72	46	2522	4.11	46	2664	4.51	44	2774	4.92	43	3035	5.73	40	3274	6.60	38	3517	7.48	36	3703	8.38	35	3774	9.37	36
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	2590	4.96	50	2696	5.44	49	2837	5.92	47	2901	6.40	47	3000	6.87	46	3097	7.35	45	3313	8.33	43	3528	9.32	41	3690	10.30	40	3798	11.33	40	3781	12.71	40

TCTS 24B5

Wheel Dia.: 24"

Outlet Area: 3.192 ft²

Tip Speed: 6.28 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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																					
6000	1880	889	0.71	44	1093	1.04	38	1281	1.40	34	1428	1.76	32	1573	2.13	30	1666	2.53	30															
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												
9000	2820	1179	1.80	47	1293	2.26	45	1454	2.75	41	1576	3.24	39	1704	3.76	37	1835	4.29	35	2041	5.40	33	2284	6.50	30	2405	7.62	30	2531	8.83	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			
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			
12000	3759	1478	3.77	49	1586	4.39	47	1670	5.02	46	1778	5.66	44	1891	6.29	42	2005	6.93	40	2187	8.30	38	2371	9.70	36	2562	11.16	34	2710	12.63	33			
13000	4073	1568	4.68	50	1698	5.36	47	1779	6.03	46	1858	6.70	45	1972	7.40	43	2055	8.09	42	2259	9.51	39	2441	11.02	37	2582	12.54	36	2771	14.12	34			
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			
15000	4699	1791	6.93	50	1898	7.71	48	1976	8.48	47	2053	9.26	46	2128	10.04	45	2210	10.84	44	2372	12.44	42	2534	14.05	40	2712	15.78	38	2845	17.50	37			
16000	5013	1903	8.29	50	2010	9.12	48	2088	9.96	47	2137	10.80	47	2211	11.62	46	2284	12.44	45	2445	14.15	43	2606	15.86	41	2776	17.64	39	2858	19.43	39			

Regular type face = Class I, max. RPM 2220

Bold type face = Class II, max. RPM 2855**TCTS 28B6**

Wheel Dia.: 28"

Outlet Area: 4.353 ft²

Tip Speed: 7.33 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP		
		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	3676	1272	5.95	48	1356	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	20.40	45	2093	22.92	43	2191	25.46	42	2317	27.98	40	2419	30.64	39			

Regular type face = Class I, max. RPM 1895

Bold type face = Class II, max. RPM 2436**TCTS 30B4**

Wheel Dia.: 30"

Outlet Area: 4.97 ft²

Tip Speed: 7.85 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.50" SP			3" SP			3.50" SP		
		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																								
7000	1408	712	0.56	39	910	0.94	35	1077	1.36	33	1274	1.80	30	1387	2.30	30																		
8000	1610	761	0.71	40	950	1.14	36	1106	1.58	34	1240	2.07	33	1433	2.56	30	1533	3.12	30															
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										
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	1965 6.54	30	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			2269 13.20	34		
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 9.09	36	2055 10.84	35	2212 12.67	34	2275 14.78	35	2288 16.88	37			
18000	3622	1310	4.62	46	1325	5.48	45	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 17.16	38	2256 17.16	38	2265 19.48	40				
20000	4024	1419	6.12	47	1325	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	2282 20.51	41	2291 23.36	43			2275 22.81	43		
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	10.11	50	1787 11.21	45	1834 12.34	45	1880 13.49	45	1960 14.63	44	2040 15.78	43	2121 16.96	42	2201 18.11	41	2282 20.51	41														

TCTS 36B6

Wheel Dia.: 36"

Outlet Area: 7.167 ft²

Tip Speed: 9.42 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			2" SP			2.50" SP			3" SP			3.50" SP			4" SP																																
		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	597	1.24	32	631	1.67	35	728	2.35	33	853	3.78	33	929	4.63	32	1026	6.57	33	1195	9.93	32	1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32																											
8000	1116	469	0.71	36																																		676	2.22	37	765	2.98	35	888	4.66	35	971	5.59	33	1069	7.79	34	1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32
10000	1395	505	1.04	40																																		676	2.22	37	765	2.98	35	888	4.66	35	971	5.59	33	1069	7.79	34	1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32
12000	1674	557	1.50	42																																		676	2.22	37	765	2.98	35	888	4.66	35	971	5.59	33	1069	7.79	34	1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32
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	1195	9.93	32	1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32																														
16000	2232	658	2.82	46	766	3.75	41	858	4.71	38	939	5.72	36	1004	6.76	35	1099	9.21	36																1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32																		
18000	2512	725	3.75	46	811	4.78	43	897	5.83	40	975	6.93	38	1053	8.03	36	1099	9.21	36																1237	11.56	33	1323	14.08	33	1456	18.78	33	1554	21.67	32																		
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	1674	27.21	32																														
24000	3349	923	7.89	47	977	9.21	46	1043	10.54	44	1114	11.96	42	1168	13.36	41	1240	14.80	39	1352	17.76	37	1442	20.77	36	1531	23.88	35	1642	27.03	33	1706	30.27	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	1767	33.68	33																														
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	1776	37.27	35																														
32000	4465	1159	17.33	50	1253	19.08	46	1285	20.83	46	1316	22.59	46	1361	24.36	45	1431	26.23	43	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	1894	55.40	40																														

Regular type face = Class I, max. RPM 1474

Bold type face = Class II, max. RPM 1895**TCTS 42B3**

Wheel Dia.: 42"

Outlet Area: 9.794 ft²

Tip Speed: 11.00 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.25" SP			2.50" SP			3" SP		
		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	2.24	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			
28000	2859	806	4.91	45	896	6.22	43	984	7.53	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			
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			
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			
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			
44000	4493	1169	16.10	47	1248	18.08	45	1286	20.15	45	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			
48000	4901	1262	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			

Regular type face = Class I, max. RPM 1272

Bold type face = Class II, max. RPM 1635**TCTS 48B4**

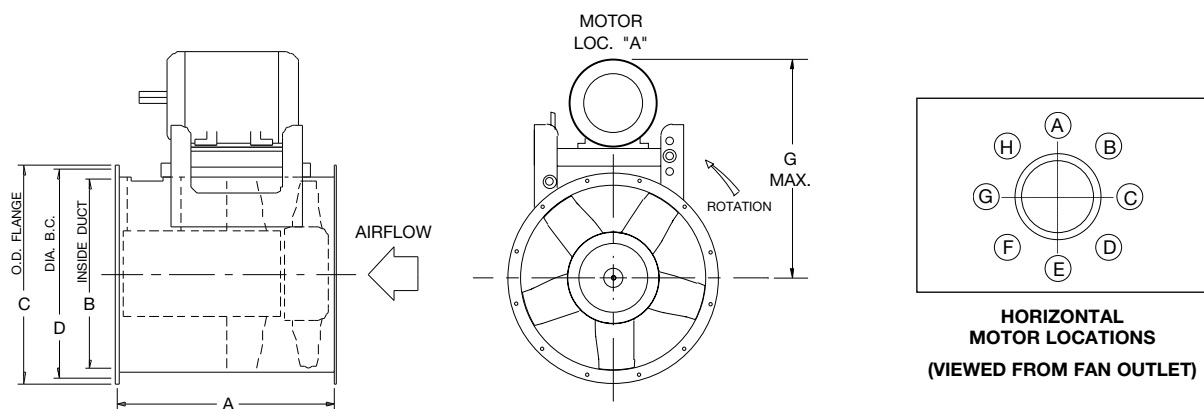
Wheel Dia.: 48"

Outlet Area: 12.77 ft²

Tip Speed: 12.57 x RPM

CFM	OV	0.25" SP			0.50" SP			0.75" SP			1" SP			1.25" SP			1.50" SP			1.75" SP			2" SP			2.50" SP			3" SP			3.50" SP		
		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	1360	36.37	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	1410	40.69	32
46000	3602	762	12.25	47	811	14.55	46	872	16.83	44	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	44	1055	27.40	42	1101	30.00	41	1148	32.72	40	1198	35.55	39	1276	41.28	38	1356	47.35	37	1411	53.60	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	43.30	40	1337	49.43	39	1413	55.94	38	1431	62.50	40
64000	5012	987	30.01	50	1062	33.19	47	1105	36.36	46	1131	39.53	46	1173	42.73	45	1218	45.45	44	1263	49.18	43	1308	52.42	42	1399	58.97	42	1422	65.82	41	1431	74.04	43

TCVS/TCTS



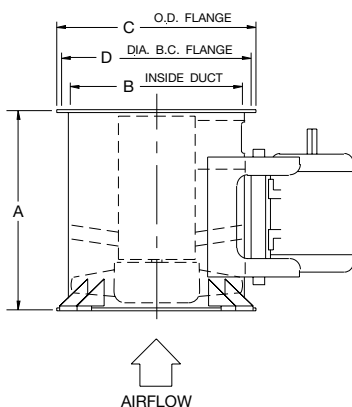
TCTS/TCVS ARR. 9 - HORIZONTAL

HORIZONTAL DISCHARGES

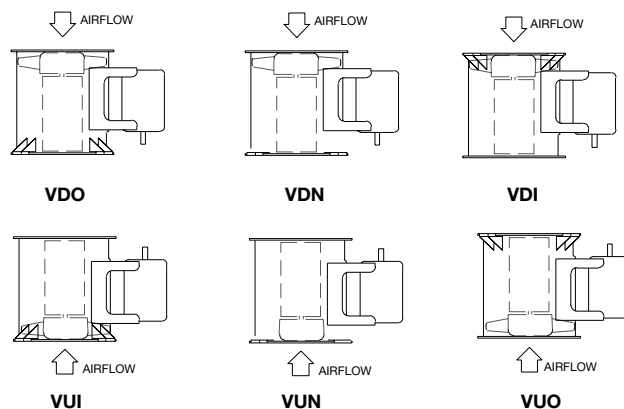
HOR = Horizontal - No Clips or Legs

HCH = Horizontal Ceiling Hung with Suspension Clips

HBM = Horizontal Base Mounted with Support Legs



TCVS/TCTS 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

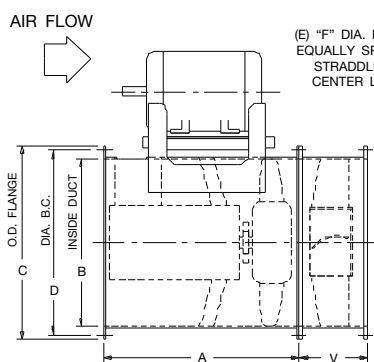
VUI = Vertical Up Floor Mounted With Legs
VUN = Vertical Up Discharge Without Legs
VUO = Vertical Up Ceiling Hung With Legs

FAN SIZE	A HUB RATIO		B	C	D	G (MAX.)	MAXIMUM MOTOR FRAME
	3-5	6-7					
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	24.50	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	34.50	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

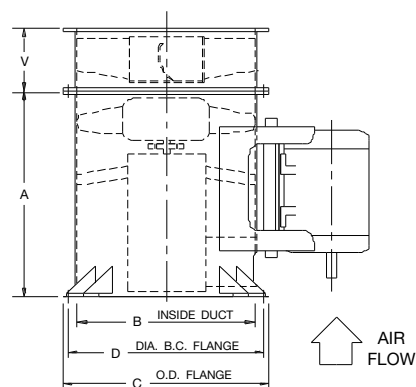
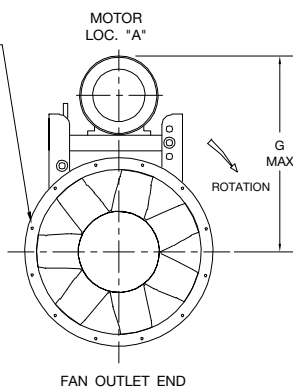
14685A
14688A

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

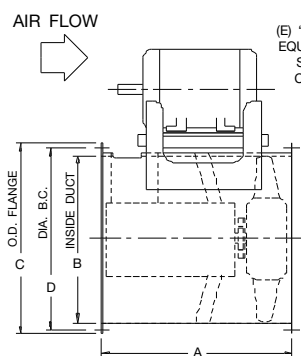
TCVSSH/TCTSSH



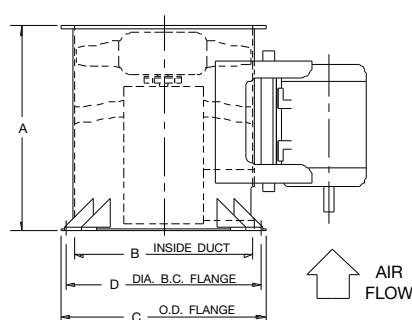
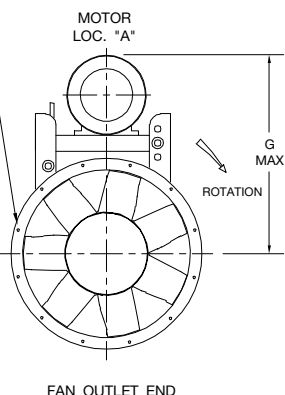
HORIZONTAL TCVSSH



VERTICAL TCVSSH



HORIZONTAL TCTSSH



VERTICAL TCTSSH

FAN SIZE	A		B	C	D	F	G (MAX.)	V		MAXIMUM MOTOR FRAME
	HUB RATIO							HUB RATIO		
	3-5	6-7						3-5	6-7	
12	NA	28.75	12.16	15.38	13.88	0.56	19.25	NA	10.50	184T
15	NA	28.75	15.16	18.38	16.88	0.56	20.50	NA	10.50	215T
18	28.75	33.75	18.16	21.16	19.88	0.56	27.50	10.50	10.50	215T
21	28.75	33.75	21.19	24.19	22.88	0.56	31.75	10.50	10.50	256T
24	33.75	42.00	24.19	27.19	25.88	0.56	34.50	10.50	10.50	256T
28	33.75	42.00	28.25	31.25	30.00	0.56	38.25	10.50	10.50	286T
30	42.00	NA	30.25	33.25	32.00	0.56	39.75	10.50	NA	286T
32	42.00	56.25	32.25	35.25	34.00	0.56	41.00	10.50	10.50	286T
36	42.00	56.25	36.25	39.25	38.00	0.56	45.25	10.50	10.50	326T
42	56.25	NA	42.38	46.38	44.63	0.69	49.50	10.50	NA	326T
48	56.25	NA	48.38	52.38	50.63	0.69	53.25	10.50	NA	365T
54	56.25	NA	54.38	58.38	56.63	0.69	59.00	10.50	NA	365T

1003106 1003108
1003107 1003109



Fans shall be Model TCVS Vaneaxial or TCTS Tubeaxial, fixed pitch, steel wheel AXIFANS®, as manufactured by Twin City Fan & Blower, 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 TCVS and TCTS shall be available UL/cUL 705 listed. Models TCVSSH and TCTSSH shall be UL listed for Smoke Control Systems (500°F for 4 hours and 1000°F for 15 minutes).

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.

Models TCVSSH and TCTSSH shall include a belt tube for the protection of belts and drive components from the airstream and a bolted access door.

GUIDE VANES — On Model TCVS 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 Twin City Fan & Blower 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. Models TCVSSH and TCTSSH shall be equipped with a two-groove drive minimum.

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 Twin City Fan & Blower to maintain one source responsibility.

FACTORY RUN TEST — All fans with motors and drives mounted by Twin City Fan & Blower 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 TCVS and TCVSSH Vaneaxial or TCTS and TCTSSH Tubeaxial AXIFAN® Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

INDUSTRIAL & COMMERCIAL FANS

Centrifugal Fans | Utility Sets | Plenum & Plug Fans | Inline Centrifugal Fans

Mixed Flow Fans | Tubeaxial & Vaneaxial Fans | Propeller Wall Fans | Propeller Roof Ventilators

Centrifugal Roof & Wall Exhausters | Ceiling Ventilators | Gravity Ventilators | Duct Blowers

Radial Bladed Fans | Radial Tip Fans | High Efficiency Industrial Fans | Pressure Blowers

Laboratory Exhaust Fans | Filtered Supply Fans | Mancoolers | Fiberglass Fans | Custom Fans



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