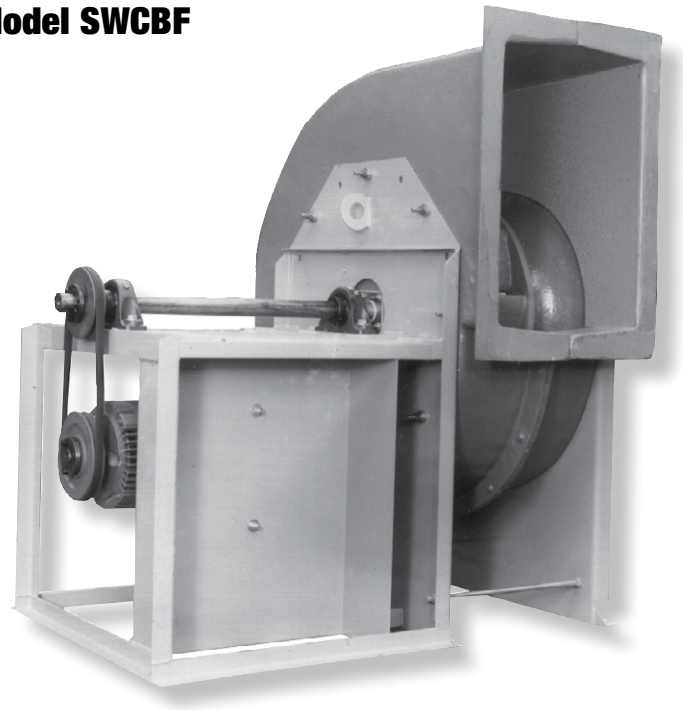
AEROVENT

INDUSTRIAL VENTILATION SYSTEMS

Model SWCBF



FIBERGLASS CENTRIFUGAL FANS CORROSION RESISTANT

Airfoil Blade Design

Model SWCBF (Class I, II, III)

CATALOG 743
MAY 2000

Fiberglass Centrifugal Fans

Advantages of Fiberglass Fans

- Superior corrosion resistance to gases, fumes and vapors
- Lower maintenance costs
- More economical than stainless steel construction
- Lighter weight than steel

Wheel Design

The fiberglass "FA" wheel design features a backward inclined airfoil blade. This wheel offers a power limiting characteristic with the added advantages of high operating efficiency and low noise level.

Construction Features

Corrosion Resistant — All airstream parts of fiberglass reinforced polyester with resistance to most chemicals. The wheel is constructed of vinyl ester fiberglass resin as standard. Housing construction of vinyl ester is available as an option. See "Optional Construction" on page 3 and the "Corrosion Resistance Guide" on page 4.

Non-Overloading Power Characteristic — Prevents motor overload under variable operating conditions.

Aluminum Hub and carbon steel shaft assembly bolted to a fiberglass wheel and completely coated with fiberglass laminate for maximum corrosion protection.

All-Welded Steel Base — Arrangements 9 and 10 are provided with a slide rail motor base for ease in adjusting belt tension. All steel parts are finished with an air dry epoxy paint.

Inlet Connection — Slip-type connection is standard.

Flanged Outlet — Integral flanged outlet is furnished as standard; drilling is optional.

Shaft Hole Closure — Thin Teflon membrane secured with a 316 SS steel plate to minimize housing leakage.

Rotation — Clockwise rotation is standard, counter-clockwise rotation is available as an option.

Arrangements & Sizes — Six fan sizes, 12" through 39", are available in arrangements 1, 9 and 10.

Product Finish — All fiberglass parts are coated inside and outside with resin (with UV inhibitor), approximately 10 mils in thickness, to seal and provide protection from ultraviolet light. This results in a smooth, high gloss finish. All steel parts are finished with an air dry epoxy paint.

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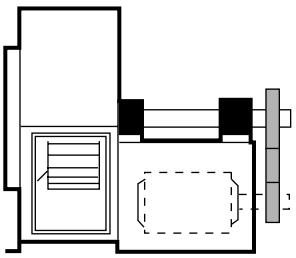
Contents

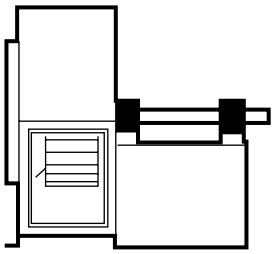
Aerovent certifies that the Fiberglass Centrifugal Fans shown on pages 4 through 6 have been tested and rated in accordance with industry accepted test codes, and are guaranteed by the manufacturer to deliver rated performance.

Drive Arrangements



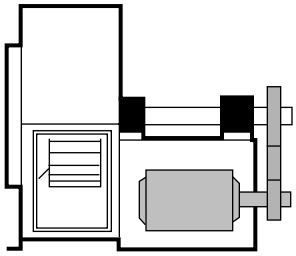
Arrangement 10

Belt driven with the motor mounted directly under the fan shaft on a slide rail base. This provides for easy adjustment of the belt tension. Maximum temperature is 200°F.



Arrangement 1

Belt driven with the shaft and bearing assembly designed for the motor to be mounted in one of the four AMCA standard motor positions (W, X, Y or Z). Maximum temperature is 200°F.



Arrangement 9

Belt driven with the motor mounted on the bearing base support. A slide rail base under the motor ad-justs for belt tension. The motor is located on the right side as standard (when viewed from the drive end of shaft). Maximum temperature is 200°F.

Accessories

Raised Bolted Cleanout Door — Door is fiberglass laminate, gasketed and positioned at three or nine o'clock opposite the fan discharge.

Weather Cover (Arr. 10) — Provides complete protection from the elements for the shaft, bearings, motor and drive.

OSHA Type Belt Guard (Arr. 1 & 9) — Provides complete coverage of belts and sheaves for maximum protection of personnel. Includes a tachometer opening for checking the fan speed.

Shaft & Bearing Guard (Arr. 1 & 9) — Solid sheet metal enclosure designed to cover the shaft and bearings. Grease lines are accessible for lubrication purposes.

Flanged Inlet — Heavy fiberglass flange; drilling optional.

Unitary Base (Arr. 1 & 9) — Unitary bases offered in all sizes. Bases are constructed of structural channel in the following sizes:

Size 12" – 20" . . . . . 3" channel
Size 25" – 39" . . . . . 5" channel

Vibration Isolation — Rubber-in-shear or spring isolators available for all sizes and arrangements.

Housing Drain — Provided with a 1" female pipe thread at low point of scroll.

Shaft Seal — Heavy Teflon element with 316 stainless steel back plate seals against 316 stainless shaft for maximum protection.

Optional Construction

Special Fiberglass Materials

Please contact the factory to ensure a suitable material is selected for the specific application.

- **Vinyl Ester —** Provides increased corrosion resistance to stronger acids, chlorine and oxidizing agents. For use in industrial applications such as chemical and water treatment plants, and commercial applications where urban or salt air corrosion exists. The wheel is constructed of vinyl ester fiberglass resin as standard. Housing construction of vinyl ester is available as an option.
- **Nexus Surface Veil —** Produces a smooth reinforced final surface with greater corrosion resistance and contains a UV inhibitor to provide protection from ultraviolet rays.
- **Fire Retardant Resin —** Reduces the resin's tendency to burn. Antimony trioxide is added to vinyl ester resin to attain a flame spread rating of 25 or less.

Spark Resistant Construction

Spark resistant construction for fiberglass fans is recommended when the fan is handling explosive fumes. Although fiberglass is a non-sparking material, it can build and retain a static charge that can be potentially hazardous. With spark resistant construction, the fan is statically grounded by graphite impregnation to reduce a static charge buildup.

Corrosion Resistance Guide

The following table lists gases, fumes, and vapors that are commonly exhausted from chemical processes. Using the "Legend of Symbols," the table indicates how Aerovent's standard fiberglass fans will withstand exhausting the particular gas, fume, or vapor.

This data is based on a maximum temperature of 200°F (93°C).

Legend of Symbols

S — Satisfactory Application
L — Limited Life or Life Tests Incomplete
U — Unsatisfactory

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APPLICATION	SATURATED VAPOR	DRY VAPOR	EXCESS DRY AIR
ACIDS			
Acetic	L	S	S
Aqua Regia	U	U	L
Boric	S	S	S
Butyric	S	S	S
Carbonic	S	S	S
Chromic	S	S	S
Citric	S	S	S
Formic	L	S	S
Hydrochloric	S	S	S
Hydrocyanic	L	S	S
*Hydrofluoric	L	S	S
Hypochlorous	L	S	S
Lactic	S	S	S
Maleic	S	S	S
Nitric	L	S	S
Oleic	S	S	S
Oxalic	S	S	S
Perchloric	U	U	U
Phosphoric	S	S	S
Picric	L	S	S
Stearic	S	S	S
Sulfuric	S	S	S
Sulfurous	S	S	S
Tannic	S	S	S
Tartaric	S	S	S
SALTS, ACID & NEUTRAL			
Alum	S	S	S
Aluminum Chloride	S	S	S
Aluminum Sulphate	S	S	S
Ammonium Chloride	S	S	S
Ammonium Nitrate	S	S	S
Ammonium Sulphate	S	S	S
Calcium Chloride	S	S	S
Calcium Sulphate	S	S	S
Copper Chloride	S	S	S
Copper Sulphate	S	S	S
Ferric Chloride	S	S	S
Ferric Nitrate	S	S	S
Ferric Sulphate	S	S	S
Magnesium Salts	S	S	S
Nickel Salts	S	S	S
Potassium Chloride	S	S	S
Potassium Nitrate	S	S	S
Potassium Sulphate	S	S	S
Sodium Chloride	S	S	S
Sodium Sulphate	S	S	S
Sodium Sulphite	S	S	S
Stannous Chloride	S	S	S
Zinc Chloride	S	S	S
Zinc Sulphate	S	S	S
ALCOHOLS	S	S	S

APPLICATION	SATURATED VAPOR	DRY VAPOR	EXCESS DRY AIR
ALKALINE SALTS			
Sodium Bicarbonate	L	S	S
Sodium Carbonate	L	S	S
Sodium Chloride	L	S	S
Sodium Cyanide	L	S	S
Trisodium, Phosphate	L	L	S
ALKALIS			
Ammonium Hydroxide	U	L	S
Calcium Hydroxide	U	L	S
Potassium Hydroxide	U	L	S
Sodium Hydroxide	U	L	S
Sodium Hypochlorite	U	L	S
KETONES			
Acetone	U	L	S
Methyl Ethyl Ketone	U	U	L
Methyl Isobutyl Ketone	U	U	L
ESTERS			
Butyl Acetate	U	L	S
Ethyl Acetate	U	U	S
Zinc Acetate	S	S	S
GASES			
Ammonia	L	S	S
Bromine	U	U	U
Carbon Dioxide	S	S	S
Carbon Disulfide	L	L	S
Chlorine	L	S	S
*Fluorine	L	S	S
*Hydrogen Fluoride	L	S	S
Hydrogen Sulfide	S	S	S
Sulfur Dioxide	S	S	S
HYDROCARBONS			
Benzene	U	U	U
Fuel Oil	S	S	S
Gasoline	S	S	S
Kerosene	S	S	S
Lubricating Oil	S	S	S
Mineral Oil	S	S	S
Toluene	U	U	U
Vegetable Oil	S	S	S
Naphtha	S	S	S
Methane	S	S	S
Butane	S	S	S
Propane	S	S	S
Xylol	S	S	S
CHLORINATED SOLVENTS			
Carbon Tetrachloride	L	S	S
Chlorobenzene	U	U	U
Chloroform	U	U	U
Perchlorethylene	U	U	L
Trichlorethylene	U	U	L
GLYCOLS	S	S	S

* Surface finished with Synthetic Surfacing Veil Required.

Performance Correction for Temperature & Altitude

The performance tables in this bulletin are based on standard air conditions of 70°F at sea level (0.075 lbs./cu.ft. density). If the performance of the fan is based on standard conditions, the fan can be selected directly from the performance tables in this catalog.

When a fan operates at temperatures other than 70°F or altitudes other than sea level, a "temperature and altitude density ratio" (Table 1) is used to convert these conditions to standard air conditions. This conversion must be done before the fan can be selected from the performance tables in this catalog. After the fan is selected at standard conditions, the temperature correction ratio must be used to convert the brake horsepower at standard air conditions to the brake horsepower at operating conditions. This is shown in the example below.

Example: A Size 25 SWCBF is to provide 7,060 CFM at 2.5" SP, at 150°F at 1,000 ft. elevation (0.0628 lbs./cu. ft. density).

For 150°F and 1,000 ft. elevation, the temperature and altitude density ratio table shows a density ratio of 0.838. Using the temperature and altitude density ratio, the static pressure at standard conditions is determined as follows:

$$\text{Operating SP} \div \frac{\text{Temp. \& Alt.}}{\text{Density Ratio}} = \frac{\text{SP at Std.}}{\text{Conditions}}$$

2.5" SP ÷ 0.838 = 3" SP at Standard Conditions

Turn to page 7 for the Size 25 SWCBF fan performance table. Using 7,060 CFM at 3" SP at standard conditions, find the RPM and brake horsepower to be 1,463 RPM and 5.21 BHP. **Note:** 5.21 BHP is the brake horsepower required at standard conditions and is also referred to as the "cold brake horsepower" or "starting brake horsepower."

The actual brake horsepower at the operating condition of 150°F and 1,000 ft. elevation is determined by the following equation:

$$\frac{\text{BHP at Std.}}{\text{Conditions}} \times \frac{\text{Temp. \& Alt.}}{\text{Density Ratio}} = \frac{\text{BHP at Oper.}}{\text{Conditions}}$$

5.21 x 0.838 = 4.36 BHP at Operating Conditions

Therefore, the Size 25 SWCBF fan providing 7,060 CFM at 2.5" SP, at 150°F and 1,000 ft. elevation will run at 1,463 RPM and will require 4.36 BHP at operating conditions and 5.21 BHP at starting.

Maximum Safe Speeds

When operating at temperatures other than 70°F, the maximum speed of the fan is affected. To determine the maximum speed at the operating temperature, a "Maximum Safe Speed Temperature Factor" (Table 3) is applied to the "Maximum Safe Wheel Speed at 70°F" (Table 2).

Table 2. Maximum Safe Wheel Speed at 70°F

SIZE	CL I	CL II	CL III
12	3080	4005	5083
16	2425	3153	4002
20	1941	2523	3046
25	1540	2002	2372
32	1213	1576	1837
39	970	1261	1455

Table 3. Maximum Safe Speed Temperature Factors

TEMPERATURE °F	TEMPERATURE °C	FACTOR
70	21	1.00
100	38	1.00
150	66	0.85
200	93	0.55

Example: The maximum safe speed for a Class I Size 25 SWCBF operating at 150°F is 1,309 RPM. The calculation is shown below.

$$\underset{\text{(Table 2)}}{\text{Max. RPM at 70°F}} \times \underset{\text{(Table 3)}}{\text{Temp. Factor}} = \underset{\text{Temp.}}{\text{Max. RPM at Operating}}$$

1,540 x 0.85 = 1,309 Class I Max. RPM at 150°F

Since the Class I Max. RPM at 150°F is 1,309, the fan in our previous example running at 1,463 RPM and 150°F would require Class II construction.

Table 4. Metric Conversion Factors

DESCRIPTION	ENGLISH UNIT	METRIC UNIT	CONVERSION FACTOR	
			ENGLISH TO METRIC	METRIC TO ENGLISH
VOLUME	CFM	m^3/s	.000472	2118.90
PRESSURE	In. w.g.	kPa	.24866	4.02156
POWER	BHP	kW	.74570	1.3410
VELOCITY	fpm	m/s	.00508	196.85
SPEED	RPM	rps	.01667	60.00
AREA	ft^2	m^2	.09290	10.7640
CIRCUMFERENCE	ft	m	.30480	3.2808
DIAMETER	in.	mm	25.400	0.03937

Table 1. Temperature and Altitude Density Ratios

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL											
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	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
–50	1.293	1.247	1.201	1.159	1.116	1.076	1.036	0.997	0.960	0.924	0.889	0.729
0	1.152	1.111	1.071	1.032	0.995	0.959	0.923	0.889	0.856	0.824	0.792	0.650
50	1.039	1.003	0.967	0.932	0.897	0.864	0.833	0.801	0.772	0.743	0.715	0.586
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
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
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
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

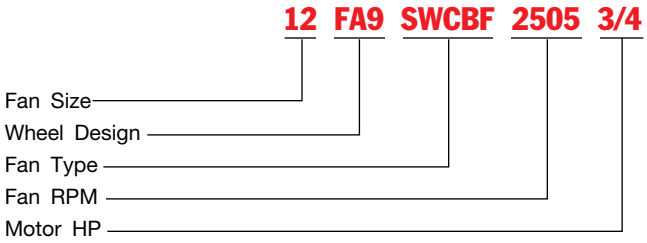
Performance Data

To identify a specific fan for ordering or engineering specification, it is necessary to show the complete catalog number as shown to the right. All performance data is available in curve form upon request.

All capacities shown in the performance tables that follow are for standard air conditions: 70°F at sea level (.075 lbs./cu.ft. air density).

The performance tables shown are given in English units. To use the performance tables for metric values, refer to "Metric Conversion Factors" (Table 4) on page 5.

Catalog Numbering System



SIZE 12 FA9 SWCBF

Wheel Diameter: 12.4"
Wheel Circumference: 3.25 ft.

Outlet Area: 0.88 sq. ft.
Max. BHP: 0.052 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
880	1000	1325	0.117	1586	0.209	1819	0.306	2034	0.412	2233	0.528	2420	0.651	2598	0.782	2768	0.919		
1320	1500	1729	0.233	1940	0.362	2126	0.497	2297	0.634	2459	0.777	2615	0.922	2766	1.07	2910	1.23	3186	1.56
1760	2000	2165	0.424	2344	0.590	2504	0.761	2651	0.937	2789	1.12	2922	1.30	3048	1.48	3171	1.67	3410	2.06
2200	2500	2618	0.713	2771	0.917	2913	1.13	3045	1.34	3168	1.55	3285	1.77	3397	2.00	3507	2.22	3716	2.68
2640	3000	3081	1.13	3215	1.37	3340	1.61	3459	1.87	3571	2.12	3679	2.37	3782	2.63	3881	2.90	*4069*	*3.43*
3080	3500	3551	1.69	3669	1.97	3781	2.25	3888	2.54	3991	2.83	*4089*	*3.12*	*4185*	*3.42*	*4277*	*3.72*	*4453*	*4.33*
3520	4000	*4026*	*2.42*	*4131*	*2.74*	*4232*	*3.06*	*4329*	*3.39*	*4423*	*3.72*	*4514*	*4.05*	*4602*	*4.38*	*4687*	*4.72*	*4852*	*5.40*
3960	4500	*4504*	*3.35*	*4598*	*3.71*	*4690*	*4.07*	*4779*	*4.43*	*4865*	*4.80*	*4949*	*5.17*						
4400	5000	*4984*	*4.50*																

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
880	1000																		
1320	1500	3445	1.92	3691	2.29	3926	2.69	*4153*	*3.10*	*4370*	*3.53*								
1760	2000	3638	2.45	3857	2.86	*4067*	*3.29*	*4270*	*3.75*	*4466*	*4.22*	*4655*	*4.71*	*4840*	*5.21*				
2200	2500	*3916*	*3.15*	*4109*	*3.62*	*4297*	*4.11*	*4480*	*4.60*	*4658*	*5.10*	*4832*	*5.62*						
2640	3000	*4251*	*3.97*	*4425*	*4.52*	*4593*	*5.07*	*4757*	*5.64*	*4918*	*6.21*								
3080	3500	*4619*	*4.94*	*4778*	*5.56*	*4934*	*6.20*												
3520	4000																		
3960	4500																		
4400	5000																		

Medium Typeface = Class I ducts.
Bold Typeface = Class II
Italics Typeface = Class III

Performance shown is with inlet and outlet

BHP shown does not include drive losses.

SIZE 16 FA9 SWCBF

Wheel Diameter: 15.75"
Wheel Circumference: 4.12 ft.

Outlet Area: 1.42 sq. ft.
Max. BHP: 0.17 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1420	1000	1044	0.189	1249	0.337	1432	0.494	1601	0.664	1758	0.851	1905	1.05	2046	1.26	2180	1.48		
2130	1500	1362	0.376	1528	0.584	1674	0.801	1808	1.02	1936	1.25	2059	1.49	2177	1.73	2292	1.98	2508	2.52
2840	2000	1704	0.683	1845	0.951	1972	1.23	2087	1.51	2196	1.80	2300	2.09	2400	2.39	2497	2.70	2685	3.32
3550	2500	2061	1.15	2182	1.48	2294	1.82	2397	2.16	2495	2.51	2587	2.86	2675	3.22	2761	3.58	2926	4.32
4260	3000	2426	1.82	2531	2.21	2630	2.61	2723	3.01	2812	3.42	2897	3.83	2978	4.25	3056	4.68	*3204*	*5.53*
4970	3500	2796	2.72	2889	3.17	2977	3.63	3062	4.10	3142	4.57	*3220*	*5.04*	*3295*	*5.52*	*3368*	*6.01*	*3506*	*6.98*
5680	4000	*3170*	*3.90*	*3253*	*4.42*	*3332*	*4.94*	*3409*	*5.47*	*3483*	*6.00*	*3554*	*6.53*	*3624*	*7.08*	*3691*	*7.62*	*3821*	*8.72*
6390	4500	*3547*	*5.41*	*3621*	*5.99*	*3693*	*6.57*	*3763*	*7.16*	*3831*	*7.75*	*3897*	*8.35*	*3961*	*8.94*				
7100	5000	*3925*	*7.27*	*3992*	*7.91*														

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1420	1000																		
2130	1500	2712	3.09	2906	3.70	3091	4.34	*3269*	*5.00*	*3440*	*5.70*								
2840	2000	2864	3.95	3037	4.62	*3202*	*5.32*	*3362*	*6.05*	*3516*	*6.81*	*3665*	*7.59*	*3811*	*8.41*	*3952*	*9.23*		
3550	2500	3083	5.08	*3235*	*5.85*	*3383*	*6.62*	*3528*	*7.42*	*3668*	*8.23*	*3804*	*9.06*	*3937*	*9.93*				
4260	3000	*3347*	*6.41*	*3484*	*7.29*	*3617*	*8.19*	*3746*	*9.10*	*3872*	*10.03*	*3997*	*10.97*						
4970	3500	*3637*	*7.98*	*3762*	*8.98*	*3885*	*10.00*												
5680	4000	*3944*	*9.83*																
6390	4500																		
7100	5000																		

Medium Typeface = Class I
Bold Typeface = Class II
Italics Typeface = Class III

Performance shown is with inlet and outleducts.
BHP shown does not include drive losses.

SIZE 20 FA9 SWCBF

Wheel Diameter: 19.68"
Wheel Circumference: 5.15 ft.

Outlet Area: 2.22 sq. ft.
Max. BHP: 0.53 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2220	1000	836	0.296	1000	0.527	1147	0.773	1282	1.04	1407	1.33	1525	1.64	1637	1.97	1744	2.32		
3330	1500	1091	0.589	1224	0.915	1340	1.25	1448	1.60	1550	1.96	1649	2.33	1743	2.70	1834	3.09	2008	3.93
4440	2000	1366	1.07	1478	1.49	1580	1.92	1672	2.37	1759	2.82	1842	3.27	1922	3.74	1999	4.21	2150	5.19
5550	2500	1651	1.80	1748	2.32	1837	2.84	1920	3.38	1998	3.92	2072	4.48	2142	5.04	2211	5.61	2343	6.76
6660	3000	1944	2.85	2028	3.46	2107	4.08	2182	4.71	2253	5.35	2320	5.99	2385	6.65	2447	7.31	*2566*	*8.65*
7770	3500	2241	4.27	2315	4.97	2385	5.69	2453	6.42	2517	7.15	*2580*	*7.90*	*2640*	*8.65*	*2698*	*9.40*	*2808*	*10.92*
8880	4000	*2540*	*6.12*	*2606*	*6.92*	*2670*	*7.74*	*2731*	*8.56*	*2790*	*9.39*	*2847*	*10.22*	*2903*	*11.07*	*2957*	*11.93*	*3060*	*13.63*
9990	4500	*2842*	*8.47*	*2901*	*9.37*	*2959*	*10.29*	*3015*	*11.21*	*3069*	*12.13*	*3122*	*13.07*	*3173*	*14.00*				
11100	5000	*3145*	*11.39*	*3199*	*12.39*														

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2220	1000																		
3330	1500	2171	4.83	2326	5.79	2474	6.78	*2617*	*7.83*	*2753*	*8.90*								
4440	2000	2293	6.18	2431	7.21	*2563*	*8.31*	*2691*	*9.45*	*2814*	*10.64*	*2934*	*11.87*	*3050*	*13.13*	*3164*	*14.44*		
5550	2500	*2469*	*7.94*	*2590*	*9.14*	*2709*	*10.36*	*2824*	*11.60*	*2936*	*12.86*	*3045*	*14.17*	*3152*	*15.53*				
6660	3000	*2681*	*10.03*	*2790*	*11.40*	*2896*	*12.80*	*2999*	*14.23*	*3100*	*15.67*	*3200*	*17.15*						
7770	3500	*2913*	*12.48*	*3013*	*14.05*	*3111*	*15.64*												
8880	4000	*3159*	*15.38*																
9990	4500																		
11100	5000																		

Medium Typeface = Class I ducts.
Bold Typeface = Class II
Italics Typeface = Class III

Performance shown is with inlet and outlet

BHP shown does not include drive losses.

SIZE 25 FA9 SWCBF

Wheel Diameter: 24.8"
Wheel Circumference: 6.49 ft.

Outlet Area: 3.53 sq. ft.
Max. BHP: 1.68 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3530	1000	664	.471	794	.839	910	1.23	1017	1.65	1117	2.12	1210	2.61	1299	3.13	1384	3.68		
5295	1500	866	.936	972	1.46	1064	1.99	1150	2.55	1231	3.12	1309	3.70	1384	4.30	1456	4.92	1594	6.26
7060	2000	1085	1.71	1174	2.37	1254	3.06	1328	3.77	1397	4.48	1463	5.21	1526	5.95	1587	6.70	1706	8.24
8825	2500	1312	2.87	1389	3.69	1459	4.52	1525	5.38	1587	6.25	1645	7.12	1701	8.01	1756	8.92	1860	10.75
10590	3000	1545	4.54	1611	5.51	1674	6.50	1733	7.50	1789	8.51	1843	9.55	1894	10.58	1944	11.64		
12355	3500	1780	6.79	1839	7.92	1895	9.06	1948	10.21	2000	11.39								

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3530	1000																		
5295	1500	1723	7.68	1846	9.20	1963	10.77												
7060	2000	1820	9.82	1930	11.48														
8825	2500	1960	12.62																

Medium Typeface = Class I ducts.
Bold Typeface = Class II
Note: Consult factory for performance and selection of special Class III fiberglass construction or alternate stainless steel wheel in sizes 25 – 39.

Performance shown is with inlet and outlet

BHP shown does not include drive losses.

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SIZE 32 FA911 SWCBF

Wheel Diameter: 31.5"
Wheel Circumference: 8.25 ft.

Outlet Area: 5.70 sq. ft.
Max. BHP: 5.54 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5700	1000	523	0.760	625	1.35	717	1.99	801	2.67	879	3.41	953	4.21	1023	5.06	1090	5.95		
8550	1500	683	1.52	765	2.34	838	3.22	906	4.12	969	5.03	1031	5.98	1090	6.94	1147	7.95	1255	10.10
11400	2000	855	2.76	925	3.83	988	4.94	1046	6.08	1100	7.24	1152	8.41	1202	9.61	1250	10.82	1344	13.33
14250	2500	1034	4.64	1094	5.96	1150	7.32	1201	8.68	1250	10.09	1296	11.51	1340	12.95	1383	14.41	1465	17.36
17100	3000	1217	7.33	1269	8.89	1319	10.51	1365	12.11	1409	13.75	1452	15.43	1492	17.09	1531	18.80		
19950	3500	1403	10.99	1449	12.81	1493	14.65	1535	16.51	1575	18.39								

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5700	1000																		
8550	1500	1357	12.41	1453	14.83	1546	17.40												
11400	2000	1434	15.88	1520	18.54														
14250	2500	1544	20.40																

Medium Typeface = Class I ducts. Bold Typeface = Class II

Performance shown is with inlet and outlet

Note: Consult factory for performance and selection of special Class III fiberglass construction or alternate stainless steel wheel in sizes 25 – 39.

BHP shown does not include drive losses.

SIZE 39 FA10 SWCBF

Wheel Diameter: 39.37"
Wheel Circumference: 10.31 ft.

Outlet Area: 8.90 sq. ft.
Max. BHP: 16.9 (RPM ÷ 1000)^3

CFM	OV	1/2" SP		1" SP		1½" SP		2" SP		2½" SP		3" SP		3½" SP		4" SP		5" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8900	1000	418	1.18	500	2.11	573	3.09	641	4.16	704	5.34	762	6.57	818	7.88	872	9.28		
13350	1500	546	2.36	612	3.66	671	5.03	724	6.41	775	7.85	825	9.34	872	10.84	917	12.39	1004	15.77
17800	2000	684	4.31	740	5.99	790	7.70	836	9.47	880	11.30	922	13.16	961	14.98	1000	16.90	1075	20.80
22250	2500	827	7.25	875	9.30	920	11.44	961	13.57	1000	15.76	1037	17.99	1072	20.22	1106	22.48	1172	27.10
26700	3000	973	11.43	1015	13.88	1055	16.40	1092	18.92	1127	21.46	1161	24.06	1194	26.72	1225	29.37		
31150	3500	1122	17.15	1159	19.99	1194	22.86	1228	25.79	1260	28.72								

CFM	OV	6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP		14" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8900	1000																		
13350	1500	1085	19.34	1163	23.19	1237	27.17												
17800	2000	1147	24.78	1216	28.94														
22250	2500	1235	31.84																

Medium Typeface = Class I ducts. Bold Typeface = Class II

Performance shown is with inlet and outlet

Note: Consult factory for performance and selection of special Class III fiberglass construction or alternate stainless steel wheel in sizes 25 – 39.

BHP shown does not include drive losses.

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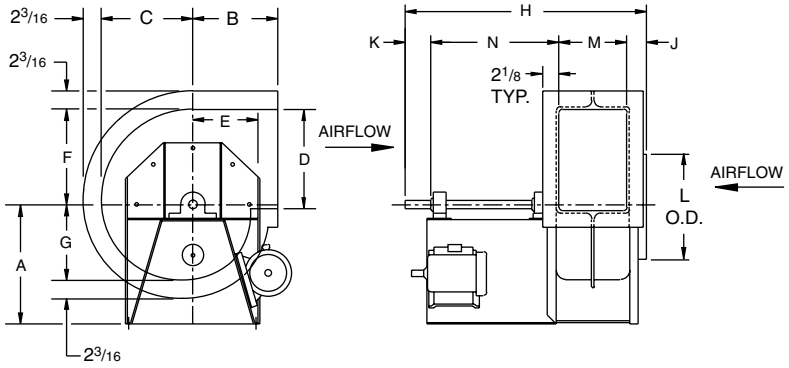
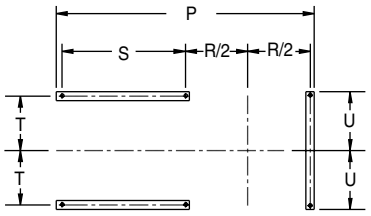
Dimensional Data

Model SWCBF
Arrangements 1 & 9

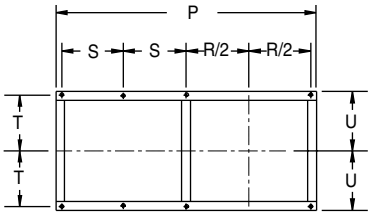


D & M are inside dimensions.
Arr. 1 without motor. Arr. 9 with motor.

BASE DETAIL – PLAN VIEW



SIZE 12, 16, 20 & 25



SIZE 32 & 39

SIZE	A	B	C	D	a	b	c	d	E	F	G	H
12	17 5/16	12 9/16	12 13/16	13 9/16	12	18 5/16	13 3/16	9 5/8	8 7/32	13 3/8	10 3/4	32 11/16
16	23 5/8	14 13/16	16 7/32	17 5/16	15 1/8	22 3/8	16 11/16	12 1/8	10 13/32	16 15/16	13 1/2	41 15/16
20	24 13/16	17 1/2	20 3/16	21 3/4	18 13/16	27 1/4	20 7/8	15 1/8	12 7/8	21 3/32	16 27/32	46 5/8
25	30 5/16	21 7/32	25 11/32	27 7/16	23 5/8	33 3/4	26 3/16	19	16 3/16	26 15/32	20 23/32	55 1/2
32	37 3/16	26 7/16	32 1/4	34 15/16	30	42 1/2	33 1/4	24	20 19/32	33 21/32	26 27/32	65 13/16
39	45 1/4	29 9/16	40 5/32	43 21/32	37 3/8	50 1/2	41 9/16	30	25 19/32	41 31/32	33 15/32	77 1/8

SIZE	J	K	L	M	N	P	R	S	T	U	BASE HOLE DIA.	MAX.* MOTOR FRAME
12	3 7/16	2 1/2	14 3/4	9 3/16	17 9/16	28 11/16	11 13/16	15 1/4	7 3/4	8 3/4	9/16	184T
16	3 7/16	3 3/4	18 1/2	11 5/8	23 1/8	36 11/16	14 1/4	20 13/16	9 3/4	10 25/32	9/16	254T
20	3 1/2	5 3/8	22 13/16	14 5/8	23 1/8	39 11/16	17 1/4	20 13/16	11 7/8	12 29/32	9/16	284T
25	5 1/2	6	29	18 1/2	25 1/2	46 7/16	21 5/8	22 11/16	15	16	11/16	324T
32	5 11/16	5 5/8	36 15/32	23 1/2	31	58 7/8	27	15 1/16	22 1/8	23	11/16	364T
39	5 11/16	7	45 3/16	29 7/16	35	68 13/16	32 15/16	17 1/16	27 1/8	28	11/16	405T

Dimensions are not to be used for construction.

*Arr. 9 only

Discharge Arrangements

Standard Discharge:
Clockwise top horizontal

Angular Discharge: 45°

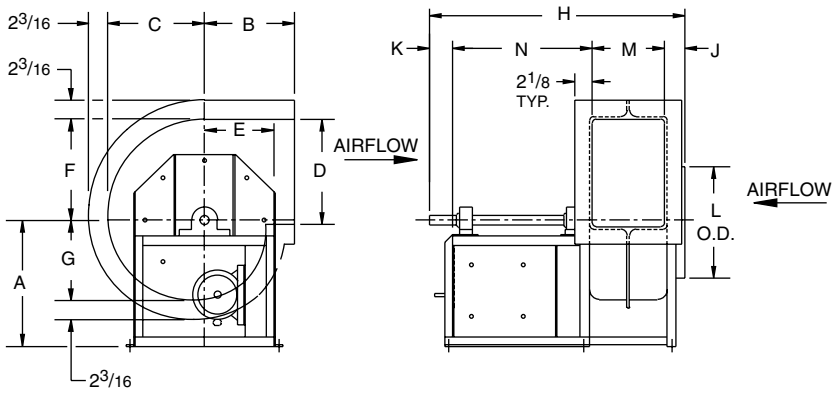
Consult Factory For:
Downblast, Bottom Angular Down, and Top Angular Down Discharges

DISCHARGE POSITION		TOP HORIZONTAL	BOTTOM HORIZONTAL	UPBLAST	BOTTOM 45 UP	TOP 45 UP
ROTATION	CLOCK-WISE →	*				
	COUNTER-CLOCK-WISE →					

*Standard position and rotation.

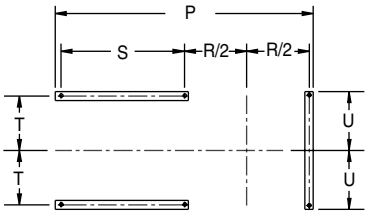
Dimensional Data

Model SWCBF
Arrangement 10

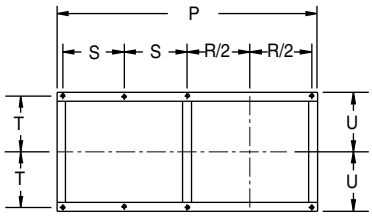


D & M are inside dimensions.

BASE DETAIL – PLAN VIEW



SIZE 12, 16, 20 & 25



SIZE 32 & 39

SIZE	A	B	C	D	a	b	c	d	E	F	G	H
12	21 1/4	12 9/16	12 3/16	13 9/16	12	18 5/16	13 3/16	9 5/8	8 7/32	13 3/8	10 3/4	33 5/16
16	23 5/8	14 13/16	16 7/32	17 5/16	15 1/8	22 3/8	16 11/16	12 1/8	10 13/32	16 15/16	13 1/2	42
20	26 1/2	17 1/2	20 3/16	21 3/4	18 13/16	27 1/4	20 7/8	15 1/8	12 7/8	21 3/32	16 27/32	47 11/16
25	29	21 7/32	24 11/32	27 7/16	23 5/8	33 3/4	26 3/16	19	16 3/16	26 15/32	20 23/32	55 7/16
32	37 3/16	27 7/16	32 1/4	34 15/16	30	42 1/2	33 1/4	24	20 19/32	33 21/32	26 27/32	61 9/16
39	45 1/4	29 9/16	40 5/32	43 21/32	37 3/8	50 1/2	41 9/16	30	25 19/32	41 31/32	33 15/16	67 1/2

SIZE	J	K	L	M	N	P	R	S	T	U	BASE HOLE DIA.	MAX. MOTOR FRAME
12	3 7/16	2 1/2	14 3/4	9 3/16	18 3/16	30 13/16	11 13/16	17 3/8	9 1/2	10 1/8	9/16	184T
16	3 7/16	4	18 1/2	11 5/8	21 3/16	36 1/4	14 1/4	20 3/8	11 17/32	12 5/32	9/16	215T
20	3 1/2	3 3/4	22 13/16	14 5/8	25 3/16	43 5/16	17 3/8	24 1/4	13 19/32	14 7/32	9/16	256T
25	5 1/2	4 3/8	29	18 1/2	26 7/16	49 7/16	21 1/2	25 1/2	16 15/16	17 13/16	11/16	286T
32	5 11/16	4 3/8	36 15/16	23 1/2	28	56 1/8	27	13 11/16	22 1/8	23	11/16	286T
39	5 11/16	4 3/8	45 3/16	29 7/16	28	62 1/16	32 15/16	13 11/16	27 1/8	23	11/16	286T

Dimensions are not to be used for construction.

Discharge Arrangements

Standard Discharge:
Clockwise top horizontal

Angular Discharge: 45°

Consult Factory For:
Downblast, Bottom Angular Down, and Top Angular Down Discharges

DISCHARGE POSITION		TOP HORIZONTAL	BOTTOM HORIZONTAL	UPBLAST	BOTTOM 45 UP	TOP 45 UP
ROTATION	CLOCK-WISE →	*				
	COUNTER-CLOCK-WISE →					

*Standard position and rotation.

Typical Specifications

Fans shall be Model SWCBF SWSI Backward Inclined Airfoil Industrial Centrifugal type, as manufactured by Aerovent, Minneapolis, Minnesota, and shall be of the size and capacity as indicated in the fan schedule. Centrifugal fans shall be tested and rated in accordance with industry accepted test codes, and are guaranteed by the manufacturer to deliver rated performance. In addition, each unit shall be factory run tested prior to shipment.

HOUSING — The housing shall have all airstream parts of corrosion resistant fiberglass reinforced polyester resin mounted on an all welded, heavy-gauge steel base in Arrangement 1, 9 or 10. All airstream hardware shall be of stainless steel for maximum corrosion resistance.

WHEEL — The type FA9 BIA wheel shall be constructed using glass cloth impregnated with vinyl ester resin. The aluminum hub and carbon steel shaft (316 SS available) assembly shall be bolted to the fiberglass wheel and completely coated with fiberglass laminate for maximum corrosion protection. Wheels shall be statically and dynamically balanced.

BEARINGS — Bearings shall be of a regreasable pillow block type and shall have a minimum L-10 life as defined by AFBMA of at least 40,000 hours (200,000 hours average life).

DRIVES — The belts and sheaves furnished by the manufacturer shall be selected to provide a minimum 1.4 SF when measured against motor horsepower.

MOTOR — Fan motors shall be foot mounted NEMA Design B, heavy duty industrial, continuous duty, ball bearing, variable torque type suitable for operation on voltage, phase and hertz, as listed in the fan schedule. Motor bearings shall have a minimum L-10 life as defined by AFBMA of at least 40,000 hours (200,000 hours average life).

BALANCING —- The propeller assembly 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. In addition, belt driven fan propellers shall be balanced on the fan shaft after final assembly in the fan casing, in the manufacturing facility, to the following peak velocity values, filter-in, a the fan test speed:

Fan Application Category	Rigidly Mounted (in./s)	Flexibly Mounted (in./s)
BV-3	0.15	0.20

FINISH — All steel parts are finished with an air dry epoxy paint. All fiberglass parts are coated inside and outside with resin (with UV inhibitor), approximately 10 mils in thickness, to seal the surface and provide a smooth, shiny finish. Optional resins and finishes include:

- Vinyl Ester
- Nexus Surface Veil
- Fire-Retardant Resin
- Silica Sand - Airstream Only

ACCESSORIES — The fan(s) shall be furnished complete with:

- Raised Bolted Cleanout Door
- Weather Cover (Arr. 10)
- OSHA Type Belt Guard (Arr. 1 & 9)
- Shaft & Bearing Guard (Arr. 1 & 9)
- Flanged Inlet (Drilled/Undrilled)
- Flanged Outlet (Drilled)
- Unitary Base (Arr. 1 & 9)
- Vibration Isolation (RIS/Spring)
- Housing Drain
- Shaft Seal
- Spark Resistant Construction
- 316 SS Shaft with Shaft Seal

AEROVENT
INDUSTRIAL VENTILATION SYSTEMS

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

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