

# FIBERGLASS CENTRIFUGAL FANS

6.5

60



MODEL: SWCBF



CATALOG 743 December 2022

# **Fiberglass Centrifugal Fans**

# Overview scwbf



The SWCBF fiberglass fan is a backward inclined industrial fan designed for handling corrosive or caustic air in high pressure applications where conventional steel and stainless steel fans would corrode. Typical industries that utilize this style of fan include pulp and paper, steel processing, petrochemical plants and wastewater treatment facilities. All of the parts that are exposed to the airstream are constructed of high-quality corrosion resistant materials to avoid material breakdown from most chemicals.

# **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

# **Impeller Design**

Arr. 9

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

# **Sizes and Performance**

12" to 25" impeller diameters Airflow to 17,000 CFM Static pressure to 13.5" w.g.



Backward Inclined Airfoil Fiberglass Impeller



For complete product performance, drawings and available accessories, download our Fan Selector program at aerovent.com.

# 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"...... 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.



# STANDARD CONFIGURATIONS

CLOCKWISE (CW) - ROTATION & DISCHARGE (ROTATION VIEW FROM DRIVE SIDE)



UBD Upblast CW 360



CW 45

ТН

**THD** Top Horizontal CW 90



TAD Top Angular Down CW 135



RHD

Bottom Horizontal

CW 270

**BAU** Bottom Angular Up CW 315

COUNTER CLOCKWISE (CCW) - ROTATION & DISCHARGE (ROTATION VIEW FROM DRIVE SIDE)



UBD Upblast CCW 360



TAU Top Angular Up CCW 45



**THD** Top Horizontal CCW 90



TAD Top Angular Down CCW 135



BHD Bottom Horizontal CCW 270



BAU Bottom Angular Up CCW 315

# **Corrosion Resistant**

All airstream parts of fiberglass reinforced polyester with resistance to most chemicals. The impeller is constructed of vinyl ester fiberglass resin as standard. Standard construction meets ASTM 84 flame spread rating of 25 or less. Housing construction of vinyl ester is available as an option. See "Optional Construction" below and the "Corrosion Resistance Guide" on page 7.

# **Non-Overloading Power Characteristic**

Prevents motor overload under variable operating conditions. The aluminum hub and carbon steel shaft assembly are bolted to a fiberglass impeller and completely coated with fiberglass laminate for maximum corrosion protection.

# **Aluminum Hub**

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

# **Shaft Hole Closure**

Thin Teflon membrane secured with a 316 SS steel plate to minimize housing leakage.

# **Inlet Connection**

Slip-type connection is standard.

# **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.

# **Flanged Outlet**

Integral flanged outlet is furnished as standard; drilling is optional.

### Rotation

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

#### **Arrangements & Sizes**

Four fan sizes, 12" through 25", 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.

# **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 impeller is constructed of vinyl ester fiberglass resin as standard. Housing construction of vinyl ester is available as an option.
- 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 by achieving 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.















### **Arrangement 1**

Arrangement 1 fans are available in either direct drive or belt driven installations. The belt driven configuration allows the motor to be mounted in any of the four standard motor positions shown below. The choice of a belt driven installation provides greater performance flexibility with the use of belts and sheaves of differing sizes. Maximum temperature is 200°F.

### **Arrangement 9**

Arrangement 9 fans include a motor slide base mounted on the side of the motor pedestal. The motor and drive can be installed at the factory or field installed. Maximum temperature is 200°F.

Unless otherwise specified, the motor will be installed on the left (L) side of the pedestal on CW fans and on the right (R) side on CCW fans.

#### **Arrangement 10**

Arrangement 10 fans are suitable for roof or outdoor installations. A weather cover, not shown, provides complete weather protection for motor, shaft, bearings and drives. Larger fan sizes in this arrangement, or larger motor sizes for smaller fans, may be available on special request from the factory. All usual accessories are available in this arrangement. Maximum temperature is 200°F.

# MOTOR POSITIONS



**Arrangements 1** 



**Arrangement 9** 



# Performance Correction for Temperature and Altitude

The performance tables in this catalog 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:

Temp. & Alt.SP at Std.Operating SP $\div$ Density Ratio=2.5" SP  $\div$ 0.838 = 3" SP at Standard Conditions

Turn to page 9 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:

BHP at Std.		Temp. & Alt.		BHP at Oper.
Conditions	х	Density Ratio	=	Conditions
5.21 x 0.838	3 =	4.36 BHP at Op	erat	ing 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 Impeller Speed at 70°F" (Table 2).

Table 2. Maximum Safe Impeller Speed at 70°F Table 3. Maximum Safe Speed Temperature Factors

SIZE	CLI	CL II	CL III
12	3080	4005	5083
16	2425	3153	4002
20	1941	2523	3046
25	1540	2002	2372

TEMPE	RATURE	FACTOR
°F	°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.

Max. RPM		Temp. Factor		Max. RPM
at 70°F (Tabla 2)	x	(Table 3)	=	at Operating
(Table Z)				Temp.

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

			CONVERSIO	ON FACTOR
DESCRIPTION	ENGLISH UNIT	METRIC UNIT	ENGLISH TO METRIC	METRIC TO ENGLISH
VOLUME	CFM	m³/s	0.000472	2118.90
PRESSURE	in. w.g.	kPa	0.24866	4.02156
POWER	BHP	kW	0.74570	1.3410
VELOCITY	fpm	m/s	0.00508	196.85
SPEED	RPM	rps	0.01667	60.00
AREA	ft²	m²	0.09290	10.7640
CIRCUMFERENCE	ft	m	0.30480	3.2808
DIAMETER	in.	mm	25.400	0.03937

#### Table 1. Temperature and Altitude Density Ratios

AID					ALTITU	DE IN FEET	ABOVE SEA	LEVEL				
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000
				BA	ROMETRIC	PRESSURE	IN INCHES	OF MERCU	RY			
	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

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

APPLICATION	SATURATED VAPOR	DRY VAPOR	EXCESS DRY AIR	APPLICATION	SATURATED VAPOR	DRY VAPOR	EXCESS DRY AIR
ACIDS				ALKALINE SALTS			
Acetic	L	S	S	Sodium Bicarbonate	L	S	S
Aqua Regia	U	U	L	Sodium Carbonate	L	S	S
Boric	S	S	S	Sodium Chloride	L	S	S
Butyric	S	S	S	Sodium Cyanide	L	S	S
Carbonic	S	S	S	Trisodium, Phosphate	L	L	S
Chromic	S	S	S	ALKALIS			
Citric	S	S	S	Ammonium Hydroxide	U	L	S
Formic	L	S	S	Calcium Hydroxide	U	L	S
Hydrochloric	S	S	S	Potassium Hydroxide	U	L	S
Hydrocyanic	L	S	S	Sodium Hydroxide	U	L	S
*Hydrofluoric	L	S	S	Sodium Hypochlorite	U	L	S
Hypochlorous	L	S	S	KETONES			
Lactic	S	S	S	Acetone	U	L	S
Maleic	S	S	S	Methyl Ethyl Ketone	U	U	L
Nitric	L	S	S	Methyl Isobutyl Ketone	U	U	L
Oleic	s	S	S	ESTERS			
Oxalic	S	S	S	Butyl Acetate	U	L	S
Perchloric	U	U	U	Ethyl Acetate	U	U	S
Phosphoric	S	S	S	Zinc Acetate	S	S	S
Picric	L	S	S	GASES	-	-	-
Stearic	s	S	S	Ammonia	L	S	S
Sulfuric	s	S	S	Bromine		U	U
Sulfurous	s	S	S	Carbon Dioxide	S	S	S
Tannic	s	S	S	Carbon Disulfide		1	S
Tartaric	s	S	S	Chlorine		S	S
SALTS, ACID & NEUTE	T <u> </u>			*Fluorine		S	S
Alum	s s	S	S	*Hydrogen Fluoride		S	S
Aluminum Chloride	s	S	S	Hydrogen Sulfide	S	S	S
Aluminum Sulphate	s	S	S	Sulfur Dioxide	S	S	S
Ammonium Chloride	S	S	S	HYDROCABBONS			0
Ammonium Nitrate	s	S	S	Benzene	U	U	U
Ammonium Sulphate	s	S	S	Euel Oil	S	S	S
Calcium Chloride	s	S	S	Gasoline	S	S	S
Calcium Sulphate	s	S	s	Kerosene	S	S	S
Conner Chloride	s	S	S		s	S	S
Copper Sulphate	s	S	S	Mineral Oil	s	S	<u>s</u>
Eerric Chloride	<u> </u>	S	5	Toluene	<u> </u>	U U	<u> </u>
Ferric Nitrate	<u> </u>	S	5	Vegetable Oil	S	S	<u> </u>
Ferric Sulphate	<u> </u>	5	5	Naphtha	S	S	5
Magnesium Salts	<u> </u>	5	<u> </u>	Methane	S	S	5
Nickel Salts	5 S	5	<u> </u>	Butane	S	S	5
Potassium Chloride	S	S	<u> </u>	Propage	S	S	S
Potassium Nitrato	6	5	5	Yulol	6	5	6
Potassium Sulphata	 	5	5			3	5
Sodium Chlorido	 	5	5	Carbon Totrachlorido		s	6
Sodium Culohoto		5	5	Chlorobonzono		<u> </u>	
Sodium Sulphate	S	S	<u> </u>	Chloroform	0	0	U
Stannous Chlorida			S	Porchlorothylono			
Zino Chlorido		5 6	S	Trichlorothylono			
		5	<u> </u>	Inchlorethylene	0	0	L
		<u> </u>	<u> </u>		<u> </u>		
ALCOHOLS	5	5	5	GLYCOLS	5	5	5

\* Surface finished with Synthetic Surfacing Veil Required.

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:  $70^{\circ}F$  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 6.

# **Catalog Numbering System**



swc	BF	Size	12 F/	<b>A9</b>				ln In	npeller npeller	Diame Circun	ter: 12. nferen	.4" ce: 3.2	5 ft.		Outle Max.	et Area BHP: (	: 0.88 : ).052 (	sq. ft. RPM ÷	1000) <sup>3</sup>
CEM	ov	1/2'	' SP	1"	SP	1 <sup>1</sup> /2	"SP	2"	SP	2 <sup>1</sup> /2	" SP	3"	SP	<b>3</b> <sup>1</sup> /2	" 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	0.59	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	1.130	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																
	1	6"	SD	7"	SD	Q"	SD	٥"	SD	10"	SD	11"	SP	12"	SP	13"	SP	1/1"	SD
CFM	ov	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																		

Class I

Class III

Class II

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

SWC	BF	Size	16 F	A9				ln In	npeller npeller	Diame Circun	ter: 15	.75" ce: 4.12	2 ft.		Outle Max.	et Area BHP: (	: 1.42 s 0.17 (RI	q. ft. PM ÷ 10	00) <sup>3</sup>
OFM		1/2'	' SP	1"	SP	1 <sup>1</sup> /2	"SP	2"	SP	2 1/2	" SP	3"	SP	3 <sup>1</sup> /2	" SP	4"	SP	5"	SP
CFIM	00	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														
0514		6"	SP	7"	SP	8"	SP	9"	SP	10"	SP	11"	SP	12"	SP	13"	SP	14"	SP
CFM	ov	6" RPM	SP BHP	7" RPM	SP BHP	8" RPM	SP BHP	9" RPM	SP BHP	10" RPM	SP BHP	11" RPM	SP BHP	12" RPM	SP BHP	13" RPM	SP BHP	14" RPM	SP BHP
<b>CFM</b> 1420	<b>OV</b> 1000	6" RPM	SP BHP	7" RPM	SP BHP	8" RPM	SP BHP	9" RPM	SP BHP	10" RPM	SP BHP	11" RPM	SP BHP	12" RPM	SP BHP	13" RPM	SP BHP	14" RPM	SP BHP
<b>CFM</b> 1420 2130	<b>OV</b> 1000 1500	6" RPM 2712	SP BHP 3.09	7" RPM 2906	SP BHP 3.70	8" RPM 3091	SP BHP 4.34	9" RPM 3269	SP BHP 5.00	10" RPM 3440	<b>SP</b> <b>BHP</b> 5.70	11" RPM	SP BHP	12" RPM	SP BHP	13" RPM	SP BHP	14" RPM	SP BHP
CFM 1420 2130 2840	<b>OV</b> 1000 1500 2000	6" RPM 2712 2864	SP BHP 3.09 3.95	7" RPM 2906 3037	<b>SP</b> <b>BHP</b> 3.70 4.62	8" RPM 3091 3202	<b>SP</b> <b>BHP</b> 4.34 5.32	9" RPM 3269 3362	SP BHP 5.00 6.05	10" RPM 3440 3516	<b>SP</b> <b>BHP</b> 5.70 6.81	11" RPM 3665	<b>SP</b> <b>BHP</b> 7.59	12" RPM 3811	SP BHP 8.41	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP
CFM 1420 2130 2840 3550	<b>OV</b> 1000 1500 2000 2500	6" <b>RPM</b> 2712 2864 3083	SP BHP 3.09 3.95 5.08	7" RPM 2906 3037 3235	SP BHP 3.70 4.62 5.85	8" RPM 3091 3202 3383	SP BHP 4.34 5.32 6.62	9" RPM 3269 3362 3528	SP BHP 5.00 6.05 7.42	10" RPM 3440 3516 3668	SP BHP 5.70 6.81 8.23	11" RPM 3665 3804	SP BHP 7.59 9.06	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	SP BHP 9.23	14" RPM	SP BHP
CFM 1420 2130 2840 3550 4260	OV 1000 1500 2000 2500 3000	6" RPM 2712 2864 3083 3347	SP BHP 3.09 3.95 5.08 6.41	7" RPM 2906 3037 3235 3484	SP BHP 3.70 4.62 5.85 7.29	8" RPM 3091 3202 3383 3617	SP BHP 4.34 5.32 6.62 8.19	9" RPM 3269 3362 3528 3746	SP BHP 5.00 6.05 7.42 9.10	10" RPM 3440 3516 3668 3872	<b>SP</b> <b>BHP</b> 5.70 6.81 8.23 10.03	11" RPM 3665 3804 3997	SP BHP 7.59 9.06 10.97	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP
CFM 1420 2130 2840 3550 4260 4970	OV 1000 1500 2000 2500 3000 3500	6" RPM 2712 2864 3083 3347 3637	SP BHP 3.09 3.95 5.08 6.41 7.98	7" RPM 2906 3037 3235 3484 3762	SP BHP 3.70 4.62 5.85 7.29 8.98	8" RPM 3091 3202 3383 3617 3885	SP BHP 4.34 5.32 6.62 8.19 10.00	9" RPM 3269 3362 3528 3746	SP BHP 5.00 6.05 7.42 9.10	10" RPM 3440 3516 3668 3872	SP BHP 5.70 6.81 8.23 10.03	11" RPM 3665 3804 3997	SP BHP 7.59 9.06 10.97	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP
CFM 1420 2130 2840 3550 4260 4970 5680	<b>OV</b> 1000 1500 2000 2500 3000 3500 4000	6" RPM 2712 2864 3083 3347 3637 3944	SP BHP 3.09 3.95 5.08 6.41 7.98 9.83	7" RPM 2906 3037 3235 3484 3762	SP BHP 3.70 4.62 5.85 7.29 8.98	8" RPM 3091 3202 3383 3617 3885	SP BHP 4.34 5.32 6.62 8.19 10.00	9" RPM 3269 3362 3528 3746	SP BHP 5.00 6.05 7.42 9.10	10" RPM 3440 3516 3668 3872	SP BHP 5.70 6.81 8.23 10.03	11" RPM 3665 3804 3997	SP BHP 7.59 9.06 10.97	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP
CFM 1420 2130 2840 3550 4260 4970 5680 6390	OV 1000 2000 2500 3000 3500 4000 4500	6" RPM 2712 2864 3083 3347 3637 3944	SP BHP 3.09 3.95 5.08 6.41 7.98 9.83	7" <b>RPM</b> 2906 3037 3235 3484 3762	SP BHP 3.70 4.62 5.85 7.29 8.98	8" RPM 3091 3202 3383 3617 3885	SP BHP 4.34 5.32 6.62 8.19 10.00	9" RPM 3269 3362 3528 3746	SP BHP 5.00 6.05 7.42 9.10	10" RPM 3440 3516 3668 3872	SP BHP 5.70 6.81 8.23 10.03	11" RPM 3665 3804 3997	SP BHP 7.59 9.06 10.97	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP
CEM 1420 2130 2840 3550 4260 4970 5680 6390 7100	OV 1000 1500 2000 2500 3000 3500 4000 4500 5000	6" RPM 2712 2864 3083 3347 3637 3944	SP BHP 3.09 3.95 5.08 6.41 7.98 9.83	7" RPM 2906 3037 3235 3484 3762	SP BHP 3.70 4.62 5.85 7.29 8.98	8" RPM 3091 3202 3383 3617 3885	SP BHP 4.34 5.32 6.62 8.19 10.00	9" RPM 3269 3362 3528 3746	SP BHP 5.00 6.05 7.42 9.10	10" RPM 3440 3516 3668 3872	SP BHP 5.70 6.81 8.23 10.03	11" RPM 3665 3804 3997	SP BHP 7.59 9.06 10.97	12" RPM 3811 3937	SP BHP 8.41 9.93	13" RPM 3952	<b>SP</b> <b>BHP</b> 9.23	14" RPM	SP BHP

# **Performance Data**

Outlet Area: 2.22 sq. ft.

SWC	BF	Size	20 F	A9				Im	peller	Circun	nferen	.00 ce: 5.15	5 ft.	Max. BHP: 0.53 (RPM ÷ 1000) <sup>3</sup>					
OFM	~	1/2'	' SP	1"	SP	1 <sup>1</sup> /2	"SP	2"	SP	2 <sup>1</sup> / <sub>2</sub>	"SP	3"	SP	3 <sup>1</sup> /2	" SP	4"	SP	5"	SP
CFIM	00	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														
		6"	e D	7"	<b>SD</b>	0"	e D	0"	SD.	10"	<b>SD</b>	11"	e D	10"	<b>CD</b>	12"	SD	1/1	e D
CFM	ov	6" BPM	SP BHP	7" BPM	SP BHP	8" BPM	SP BHP	9" BPM	SP BHP	10" BPM	SP BHP	11" BPM	SP BHP	12" BPM	SP BHP	13" BPM	SP BHP	14" BPM	SP BHP
<b>CFM</b> 2220	<b>OV</b> 1000	6" RPM	SP BHP	7" RPM	SP BHP	8" RPM	SP BHP	9" RPM	SP BHP	10" RPM	SP BHP	11" RPM	SP BHP	12" RPM	SP BHP	13" RPM	SP BHP	14" RPM	SP BHP
CFM 2220 3330	<b>OV</b> 1000 1500	6" RPM 2171	SP BHP 4.83	7" RPM 2326	<b>SP</b> <b>BHP</b> 5.79	8" RPM 2474	SP BHP 6.78	9" RPM 2617	SP BHP 7.83	10" RPM	<b>SP</b> <b>BHP</b> 8.90	11" RPM	SP BHP	12" RPM	SP BHP	13" RPM	SP BHP	14" RPM	SP BHP
CEM 2220 3330 4440	<b>OV</b> 1000 1500 2000	6" RPM 2171 2293	SP BHP 4.83 6.18	7" RPM 2326 2431	SP BHP 5.79 7.21	8" RPM 2474 2563	SP BHP 6.78 8.31	9" RPM 2617 2691	<b>SP</b> <b>BHP</b> 7.83 9.45	10" RPM 2753 2814	SP BHP 8.90 10.64	11" RPM	SP BHP 11.87	12" RPM 3050	SP BHP 13.13	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CFM 2220 3330 4440 5550	OV 1000 1500 2000 2500	6" RPM 2171 2293 2469	SP BHP 4.83 6.18 7.94	7" RPM 2326 2431 2590	SP BHP 5.79 7.21 9.14	8" RPM 2474 2563 2709	SP BHP 6.78 8.31 10.36	9" RPM 2617 2691 2824	SP BHP 7.83 9.45 11.60	10" RPM 2753 2814 2936	SP BHP 8.90 10.64 12.86	11" RPM 2934 3045	SP BHP 11.87 14.17	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CFM 2220 3330 4440 5550 6660	OV 1000 1500 2000 2500 3000	6" RPM 2171 2293 2469 2681	SP BHP 4.83 6.18 7.94 10.03	7" RPM 2326 2431 2590 2790	SP BHP 5.79 7.21 9.14 11.40	8" RPM 2474 2563 2709 2896	SP BHP 6.78 8.31 10.36 12.80	9" RPM 2617 2691 2824 2999	SP BHP 7.83 9.45 11.60 14.23	10" RPM 2753 2814 2936 3100	SP BHP 8.90 10.64 12.86 15.67	11" RPM 2934 3045 3200	SP BHP 11.87 14.17 17.15	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CFM 2220 3330 4440 5550 6660 7770	OV 1000 1500 2000 2500 3000 3500	6" RPM 2171 2293 2469 2681 2913	SP BHP 4.83 6.18 7.94 10.03 12.48	7" RPM 2326 2431 2590 2790 3013	SP BHP 5.79 7.21 9.14 11.40 14.05	8" RPM 2474 2563 2709 2896 3111	SP BHP 6.78 8.31 10.36 12.80 15.64	9" RPM 2617 2691 2824 2999	SP BHP 7.83 9.45 11.60 14.23	10" RPM 2753 2814 2936 3100	SP BHP 8.90 10.64 12.86 15.67	11" RPM 2934 3045 3200	SP BHP 11.87 14.17 17.15	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CFM 2220 3330 4440 5550 6660 7770 8880	OV 1000 1500 2000 2500 3000 3500 4000	6" RPM 2171 2293 2469 2681 2913 3159	SP BHP 4.83 6.18 7.94 10.03 12.48 15.38	7" RPM 2326 2431 2590 2790 3013	SP BHP 5.79 7.21 9.14 11.40 14.05	8" RPM 2474 2563 2709 2896 3111	SP BHP 6.78 8.31 10.36 12.80 15.64	9" RPM 2617 2691 2824 2999	SP BHP 7.83 9.45 11.60 14.23	10" RPM 2753 2814 2936 3100	SP BHP 8.90 10.64 12.86 15.67	11" RPM 2934 3045 3200	SP BHP 11.87 14.17 17.15	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CEM 2220 3330 4440 5550 6660 7770 8880 9990	OV 1000 1500 2000 2500 3000 3500 4000 4500	6" <b>RPM</b> 2171 2293 2469 2681 2913 3159	SP BHP 4.83 6.18 7.94 10.03 12.48 15.38	7" <b>RPM</b> 2326 2431 2590 2790 3013	SP BHP 5.79 7.21 9.14 11.40 14.05	8" RPM 2474 2563 2709 2896 3111	SP BHP 6.78 8.31 10.36 12.80 15.64	9" RPM 2617 2691 2824 2999	SP BHP 7.83 9.45 11.60 14.23	10" RPM 2753 2814 2936 3100	SP BHP 8.90 10.64 12.86 15.67	11" RPM 2934 3045 3200	SP BHP 11.87 14.17 17.15	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP
CFM 2220 3330 4440 5550 6660 7770 8880 9990 11100	OV 1000 2000 2500 3000 3500 4000 4500 5000	6" RPM 2171 2293 2469 2681 2913 3159	SP BHP 4.83 6.18 7.94 10.03 12.48 15.38	7" RPM 2326 2431 2590 2790 3013	SP BHP 5.79 7.21 9.14 11.40 14.05	8" RPM 2474 2563 2709 2896 3111	SP BHP 6.78 8.31 10.36 12.80 15.64	9" RPM 2617 2691 2824 2999	SP BHP 7.83 9.45 11.60 14.23	10" RPM 2753 2814 2936 3100	SP BHP 8.90 10.64 12.86 15.67	11" RPM 2934 3045 3200	SP BHP 11.87 14.17 17.15	12" RPM 3050 3152	SP BHP 13.13 15.53	13" RPM 3164	SP BHP 14.44	14" RPM	SP BHP

Impeller Diameter: 19.68"

BHP shown does not include drive losses.

Outlet Area: 3.53 sq. ft.

SWC	BF I	Size	25 F	A9				Im	peller	Circur	nferen	ce: 6.4	9 ft.		Max.	BHP:	1.68 (R	PM ÷ 10	000) <sup>3</sup>
CEM		1/2	" SP	1"	SP	1 <sup>1</sup> /2	"SP	2"	SP	2 <sup>1</sup> /:	" SP	3"	SP	3 <sup>1</sup> /2	" SP	4"	SP	5"	SP
CFIN	00	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3530	1000	664	0.471	794	0.839	910	1.23	1017	1.65	1117	2.12	1210	2.61	1299	3.13	1384	3.68		
5295	1500	866	0.936	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								
0514		6"	SP	7"	SP	8"	SP	9"	SP	10'	SP	11"	SP	12"	SP	13"	SP	14"	SP
CFM	00	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																

Impeller Diameter: 24.8"

Class I Class II

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Class III

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



# **Dimensional Data**

# **Arrangements 1 & 9**

2<sup>3</sup>/16 -

2<sup>3</sup>/16

G

A



Arr. 1 without motor. Arr. 9 with motor.





SIZE 12, 16, 20 & 25

SIZE	А	в	с	D	а	b	с	d	E	F	G	н
12	17.31	12.56	12.81	13.56	12.00	18.31	13.19	9.63	8.22	13.38	10.75	32.69
16	23.63	14.81	16.22	17.31	15.13	22.38	16.69	12.13	10.41	16.94	13.50	41.94
20	24.81	17.50	20.19	21.75	18.81	27.25	20.88	15.13	12.88	21.09	16.84	46.63
25	30.31	21.22	25.34	27.44	23.63	33.75	26.19	19.00	16.19	26.94	20.72	55.50

SIZE	L	к	SD	L	м	N	Р	R	s	т	U	BASE HOLE DIA.	MAX.* MOTOR FRAME
12	3.44	2.50	1.00	14.75	9.19	17.56	28.69	11.81	15.25	7.75	8.75	0.56	184T
16	3.44	3.75	1.19	18.50	11.63	23.13	36.69	14.25	20.81	9.75	10.78	0.56	254T
20	3.50	5.38	1.50	22.81	14.63	23.13	39.69	17.25	20.81	11.88	12.91	0.56	284T
25	5.50	6.00	1.69	29.00	18.50	25.50	46.44	21.63	22.69	15.00	16.00	0.69	324T

Dimensions are not to be used for construction.

\*Arr. 9 only

# **Arrangement 10**

D & M are inside dimensions.







SIZE 12, 16, 20 & 25

SIZE	А	В	с	D	а	b	с	d	E	F	G	н
12	21.25	12.56	12.19	13.56	12.00	18.31	13.19	9.63	8.22	13.38	10.75	33.31
16	23.63	14.81	16.22	17.31	15.13	22.38	16.69	12.13	10.41	16.94	13.50	42.00
20	26.50	17.50	20.19	21.75	18.81	27.25	20.88	15.13	12.88	21.09	16.84	47.69
25	29.00	21.22	24.34	27.44	23.63	33.75	26.19	19.00	16.19	26.47	20.72	55.44

SIZE	L	к	SD	L	м	N	Р	R	s	т	U	BASE HOLE DIA.	MAX.* MOTOR FRAME
12	3.44	2.50	1.00	14.75	9.19	18.19	30.81	11.81	17.38	9.50	10.13	0.56	184T
16	3.44	4.00	1.19	18.50	11.63	21.19	36.25	14.25	20.38	11.53	12.16	0.56	215T
20	3.50	3.75	1.50	22.81	14.63	25.19	43.31	17.38	24.25	13.59	14.22	0.56	256T
25	5.50	4.38	1.69	29.00	18.50	26.44	49.44	21.50	25.50	16.94	17.81	0.69	286T

Dimensions are not to be used for construction.

# Model **SWCBF**



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.

**IMPELLER** — The type FA9 BIA impeller 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 impeller and completely coated with fiberglass laminate for maximum corrosion protection. Impellers 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	<b>Rigidly Mounted</b>	Flexibly Mounted
Category	(in./s)	(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 Surface Veil Silica Sand - Airstream Only Fire-Retardant Resin

Housing Drain

Shaft Seal

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

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

316 SS Shaft with Shaft Seal

WALL MOUNTED FANS | TUBEAXIAL & VANEAXIAL FANS | CENTRIFUGAL FANS & BLOWERS | ROOF VENTILATORS AIR HEATERS & COOLERS | AIR MAKE-UP | FIBERGLASS FANS | CUSTOM FANS

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