

Twin City Fan & Blower

FIBERGLASS VENTILATORS

CENTRIFUGAL ROOF & WALL

Type FA/FAB, WA/WAB, SA, HA/HAB

INTAKE & RELIEF

Type FR, MA



Fiber-Aire® FA/FAB Fiberglass Roof Ventilators

Application

The Fiber-Aire® FA/FAB fiberglass centrifugal roof ventilator fans are available with direct drive or belt drive for general ventilation requirements where a low noise level exhaust is desired. The fiberglass housing of this fan is virtually dent, crack, and break proof and is highly resistant to a wide array of chemicals. The motor is completely separated from the airstream, as are the belts and drive components of the belt driven model.



The fiberglass housing actually absorbs noise and vibration, and the specially molded throat and outlet designs minimize loss from friction and turbulence.

Belt driven fans offer the versatility of changing air capacities by changing the sheaves during or after installation. Both direct drive and belt drive features have easy to remove motor covers for simple inspection and maintenance. Extra low contour makes them inconspicuous from street level.

The Fiber-Aire® series fiberglass centrifugal power roof ventilators are designed for the exhaust of moisture-laden, corrosive, or chemically contaminated air frequently associated with aquariums, indoor swimming pools, laboratories, waste water treatment plants, etc.

Sizes and Capacities

- Direct drive sizes 7" to 18"
- Belt driven size 12" to 40"
- Capacities from 150 CFM to 19,500 CFM
- Static pressures to 1³/₄" w.g.

Construction Features

- Molded fiberglass housings are virtually impossible to dent, crack, or break and resist weather, salt spray, and most chemicals. Fiberglass housings also absorb noise and vibration.
- Designed for applications requiring the exhaust of chemical fumes or hazardous matter suspended in the air.
- Fan wheel sizes 7, 9, 10, 12 and 40 are polypropylene, backward inclined, as standard.
- Fan wheel sizes 14 through 36 are of an extruded aluminum airfoil, non-overloading type design, epoxy coated, as standard. A polypropylene wheel is optional.
- Fan wheel and structural metal components in contact with airstream are standardly epoxy coated.
- A 1/2" x 1/2" PVC coated bird screen is standard on all units to prevent entry of birds and debris.
- Factory mounted and wired disconnect switch is standard on all units, except with EXP motors.
- Easy-to-remove motor covers for easy inspection and maintenance.
- A conduit chase extending through the curb cap and into the motor compartment is provided as standard on all units for field supply conductors.
- 304 SS shafts on belt drive unit.

Accessories

- Gravity (PVC) and motor operated (Aluminum) backdraft dampers
- Fiberglass roof curbs
- Special coatings and materials
- Curb hinge

Maximum Fan RPM

MODEL NO.	MOTOR HP	MAX. FAN RPM
12FA*B	1/4	1675
	1/3	1845
	1/2	2115
14FA*B	1/4	1470
	1/3	1615
	1/2	1850
18FA*B	1/4	905
	1/3	995
	1/2	1140
24FA*B	1/4	570
	1/3	625
	1/2	720
	3/4	820
	1	905
30FA*B	1/3	440
	1/2	500
	3/4	575
	1	630
	1 1/2	725
2	795	

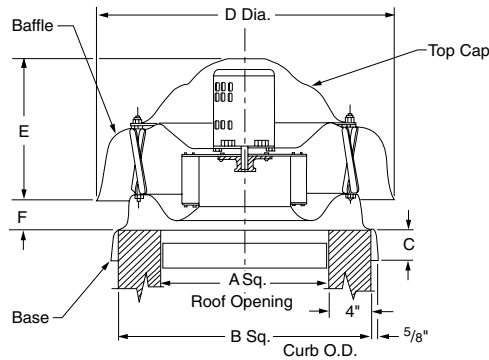
MODEL NO.	MOTOR HP	MAX. FAN RPM
36FA*B	1/2	370
	3/4	425
	1	465
	1 1/2	535
	2	585
40FA*B	3	670
	1/2	320
	3/4	370
	1	405
	1 1/2	460
2	510	
3	580	
5	690	

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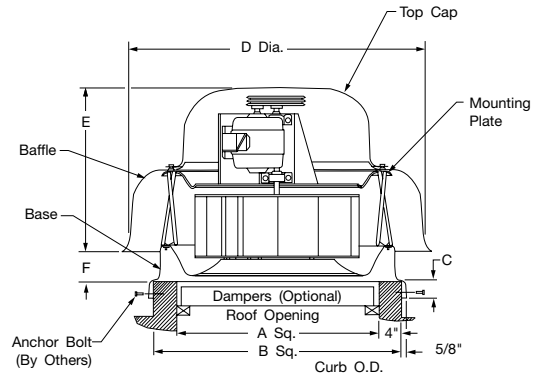
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FA/FAB Dimensional Data

Model FA - Direct Drive



Model FAB - Belt Drive



Model FA - Direct Drive

MODEL NO.	HP	RPM	WEIGHT (LBS)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
				A	B	C	D	E	F	
7FA1	1/15	1550	23	12	20	2	20 ⁵ / ₈	10	3 ¹ / ₂	10 x 10
7FA2	1/15	1550	20	12	20	2	20 ⁵ / ₈	10	2 ³ / ₄	10 x 10
9FA1	1/15	1550	24	12	20	2	20 ⁵ / ₈	10	2 ¹ / ₂	10 x 10
10FA1	1/8	1140	43	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	3 ¹ / ₄	14 x 14
10FA2	1/6	1725	39	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	3 ¹ / ₄	14 x 14
12FA1	1/12	860	43	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	2 ¹ / ₈	14 x 14
12FA2	1/8	1140	45	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	2 ¹ / ₈	14 x 14
12FA3	1/4	1725	49	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	2 ¹ / ₈	14 x 14
14FA1	1/12	860	51	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	4 ⁵ / ₈	14 x 14
14FA2	1/8	1140	50	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	4 ⁵ / ₈	14 x 14
14FA3	1/2	1725	49	16	24	2 ³ / ₄	27 ¹ / ₂	15 ¹ / ₂	4 ⁵ / ₈	14 x 14
18FA1	1/4	860	78	20	28	3	34 ³ / ₈	21 ³ / ₄	4 ³ / ₄	18 x 18
18FA2	1/2	1140	83	20	28	3	34 ³ / ₈	21 ³ / ₄	4 ³ / ₄	18 x 18

Model FAB - Belt Driven

MODEL NO.	HP	WEIGHT (LBS)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
			A	B	C	D	E	F	
12FA1B	1/4	42	16	24	2 ³ / ₄	27 ¹ / ₂	23 ³ / ₈	2 ¹ / ₈	14 x 14
12FA2B	1/4	42							
12FA3B	1/4	42							
12FA4B	1/3	44							
12FA5B	1/2	49							
14FA1B	1/4	44	16	24	2 ³ / ₄	34 ³ / ₈	23 ³ / ₈	4 ⁵ / ₈	14 x 14
14FA2B	1/4	44							
14FA3B	1/4	47							
14FA4B	1/3	46							
14FA5B	1/2	51							
18FA1B	1/4	69	20	28	3	34 ³ / ₈	25 ³ / ₄	4 ³ / ₄	18 x 18
18FA2B	1/4	70							
18FA3B	1/3	70							
18FA4B	1/2	76							
24FA1B	1/4	142	28	36	3	42	26	5 ¹ / ₄	24 x 24
24FA2B	1/4	144							
24FA3B	1/3	143							
24FA4B	1/2	148							
24FA5B	3/4	154							
24FA6B	1	176							
30FA1B	1/3	188	36	44	3	52 ¹ / ₄	31 ¹ / ₂	6	30 x 30
30FA2B	1/2	193							
30FA3B	3/4	202							
30FA4B	1	210							
30FA5B	1 ¹ / ₂	235							
30FA6B	2	236							
36FA1B	1/2	258	44	52	3	62	34 ³ / ₄	8 ¹ / ₂	36 x 36
36FA2B	3/4	261							
36FA3B	1	285							
36FA4B	1 ¹ / ₂	296							
36FA5B	2	297							
36FA6B	3	329							
40FA1B	1/2	353	44	52	3	62	34 ³ / ₄	8 ¹ / ₂	36 x 36
40FA2B	3/4	356							
40FA3B	1	370							
40FA4B	1 ¹ / ₂	379							
40FA5B	2	380							
40FA6B	3	405							
40FA7B	5	454							

Whirlout® WA/WAB Fiberglass Roof Exhausters

Application

The Whirlout® Series WA/WAB fiberglass up-blast centrifugal roof exhausters are especially designed for applications requiring the exhaust of chemical fumes or cooking grease where the removal of exhaust away from the roof line is required.



Fiberglass roof exhausters are available as direct or adjustable capacity belt drive. Each configuration features an isolated motor and drive chamber with a neoprene shaft seal to protect motor and drive components from fumes or hazardous matter suspended in the air. The upblast design makes it ideal for use with ducts, hoods or canopies over interior work areas. Basket type supports eliminate internal air shocks, reduce vibration and increase efficiency.

The fiberglass housing of the unit has excellent resistance to a wide range of chemicals and fumes and can withstand temperatures as high as 150°F when high temperature motors are used (special order). The powerful corrosion resistant, airfoil design wheel provides quiet and efficient operation. Fan wheels are constructed of extruded aluminum, epoxy coated blades as standard on sizes 14 through 36. A polypropylene option provides additional corrosion resistance, and is standard on sizes 7, 10, 12 and 40.

Whirlout® Series fiberglass upblast centrifugal roof exhausters are also used in natatoriums, aquariums, indoor swimming pools, laboratories, waste water treatment plants, and any other area, where corrosive fumes present a problem.

Sizes and Capacities

- Direct drive sizes 7" to 18"
- Belt driven sizes 14" to 40"
- Capacities from 370 CFM to 21,500 CFM
- Static pressures to 2" w.g.

Construction Features

- Molded fiberglass housings are virtually impossible to dent, crack, or break, and resist weather, salt spray, and most chemicals. Fiberglass housings also absorb noise and vibration.
- Designed for applications requiring the exhaust of chemical fumes or contaminated air up and away from the roof.
- A neoprene shaft seal is standard on all belt drive units to protect motor and drives from fumes or hazardous matter suspended in the air.
- Ideal for use with ducts, hoods, or canopies over interior work areas.
- Fiberglass housing withstands temperatures up to 150°F.
- Factory mounted and wired disconnect switch is standard on all units, except with EXP motors.
- Fan wheels, sizes 7, 10, 12 and 40 feature a polypropylene, non-overloading backward inclined design.
- Fan wheels, sizes 14 through 36, feature an extruded aluminum, non-overloading, airfoil design, epoxy coated as standard. A polypropylene wheel is optional.
- Aluminum fan wheels and structural metal components in contact with airstream are epoxy coated for additional corrosion resistance.
- A conduit chase extending through the curb cap and into the motor compartment is provided as standard on all units for field wiring.
- 304 SS shaft on belt drive unit.

Accessories

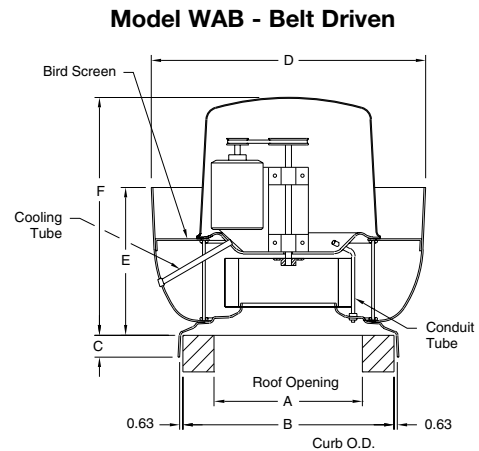
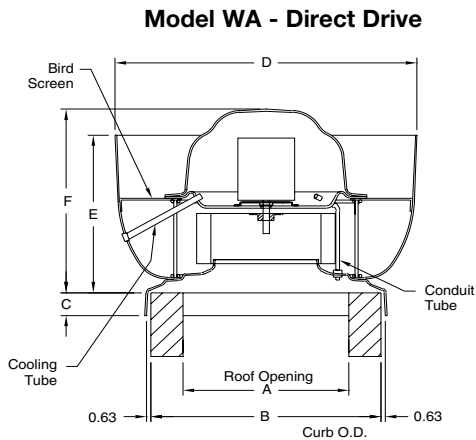
- Gravity (PVC) and motorized (Aluminum) backdraft dampers
- Fiberglass roof curbs
- Bird screen
- Curb hinge

Maximum Fan RPM

MODEL NO.	MOTOR HP	MAX. RPM
14WA*B	1/4	1475
	1/3	1635
	1/2	1870
18WA*B	1/4	900
	1/3	990
	1/2	1130
24WA*B	1/4	560
	1/3	615
	1/2	705
	3/4	805
30WA*B	1	890
	1/3	435
	1/2	500
	3/4	570
	1	630
36WA*B	1 1/2	720
	2	790

MODEL NO.	MOTOR HP	MAX. RPM
36WA*B	1/2	365
	3/4	415
	1	460
	1 1/2	525
	2	580
40WA*B	3	660
	5	785
	1/2	315
	3/4	360
	1	395
40WA*B	1 1/2	450
	2	495
	3	565
	5	675
	7 1/2	765

WA/WAB Dimensional Data



Model WA - Direct Drive

MODEL NO.	HP	RPM	WEIGHT (LB)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
				A	B	C	D	E	F	
7WA2	1/15	1550	18	8	16	2	17¼	8	10½	6 x 6
10WA1	1/12	860	50	12	20	3	25¼	12⅝	18¼	10 x 10
10WA2	1/8	1140	43							
10WA3	1/6	1725	44							
12WA1	1/12	860	50	12	20	3	25¼	12⅝	18¼	10 x 10
12WA2	1/8	1140	43							
12WA3	1/4	1725	46							
14WA1	1/12	860	67	16	24	3	28⅞	17½	19¼	14 x 14
14WA2	1/8	1140	67							
14WA3	1/2	1725	73							
18WA1	1/4	860	118	20	28	3	36¾	25	26¾	18 x 18
18WA2	1/2	1140	130							

D-3300-1A

Model WAB - Belt Driven

MODEL NO.	HP	WEIGHT (LB)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
			A	B	C	D	E	F	
14WA1B	1/4	72	16	24	3	28⅞	17½	27½	14 x 14
14WA2B	1/4	73							
14WA3B	1/4	75							
14WA4B	1/3	74							
14WA5B	1/2	76							
18WA1B	1/4	123	20	28	3	36¾	25	31¼	18 x 18
18WA2B	1/4	125							
18WA3B	1/3	129							
18WA4B	1/2	133							
24WA1B	1/4	185	28	36	3	45¾	31	32½	24 x 24
24WA2B	1/4	187							
24WA3B	1/3	192							
24WA4B	1/2	195							
24WA5B	3/4	202							
24WA6B	1	205							
30WA1B	1/3	265	36	44	3	59	34½	37	30 x 30
30WA2B	1/2	269							
30WA3B	3/4	287							
30WA4B	1	291							
30WA5B	1½	295							
30WA6B	2	307							
36WA1B	1/2	572	44	52	3	69½	45	43½	36 x 36
36WA2B	3/4	591							
36WA3B	1	595							
36WA4B	1½	599							
36WA5B	2	611							
36WA6B	3	615							
36WA7B	5	625							
40WA1B	1/2	632	44	52	3	69½	45	43½	36 x 36
40WA2B	3/4	658							
40WA3B	1	675							
40WA4B	1½	671							
40WA5B	2	677							
40WA6B	3	681							
40WA7B	5	730							
40WA8B	7½	750							

D-3300-2A

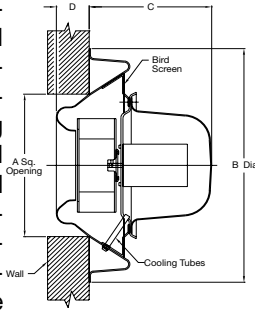
Fiber-Aire® SA Fiberglass Wall Exhausters

Application

The Fiber-Aire® Series SA fiberglass wall ventilators are ideal for applications where exhausting from the roof is impractical or impossible. Featuring the same high-volume, extruded aluminum, epoxy coated airfoil wheel as the standard Fiber-Aire®, the wall Fiber-Aire® effectively and efficiently pulls hazardous fumes, dust, or corrosive gases from the building interior and exhausts them away from the building and the exterior wall.

The wall Fiber-Aire® Series features the same virtually indestructible fiberglass housing, which is completely weatherproof and isolates the motor from the airstream. Its quiet operation allows the wall Fiber-Aire® to be placed in close proximity to work areas for maximum exhaust benefits and worker comfort. The exterior design and molded-in beige color blend in with most brick and exterior wall colors without detracting from overall building appearance. Wall shutters are available as accessories.

These fiberglass centrifugal ventilators are used in natatoriums, aquariums, indoor swimming pools, laboratories, and waste water treatment plants.



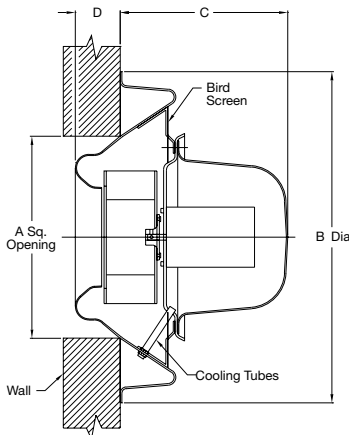
Sizes and Capacities

- Direct drive sizes 7" to 14"
- Capacities from 235 CFM to 2,230 CFM
- Static pressures to 1" w.g.

Construction Features

- Molded fiberglass housings are virtually impossible to dent, crack or break and resist weather, salt spray, and most chemicals. Fiberglass housings also absorb noise and vibration.
- Designed for applications requiring the exhaust of chemical fumes or hazardous matter suspended in the air.
- Fan wheel sizes 7 and 12 are polypropylene as standard.
- Fan wheel size 14 is of an extruded aluminum airfoil epoxy coated, backwardly inclined, non-overloading type design.
- A PVC coated bird screen is standard on all units.
- Factory mounted and wired disconnect switch is standard on all units, except with EXP motors.
- Designed for applications where exhausting from the roof is impractical or impossible.
- A conduit chase is provided as standard to allow field electrical wiring from inside the building, through the fiberglass inlet venturi, and to the

SA Dimensional Data



Model SA - Direct Drive

MODEL NO.	HP	FAN RPM	DIMENSIONS (INCHES)				NET WT. (LBS.)	BACKDRAFT DAMPER*
			A	B	C	D		
7SA1	1/15	1550	10	19½	9¾	1½	15	12 x 12
7SA2	1/15	1550	10	19½	9¾	1½		
12SA1	1/12	860	17	28	15	3½	45	19 x 19
12SA2	1/8	1140	17	28	15	3½		
12SA3	1/4	1725	17	28	15	3½		
14SA1	1/12	860	24	36½	18½	5	78	26 x 26
14SA2	1/8	1140	24	36½	18½	5		
14SA3	1/2	1725	24	36½	18½	5		

* Nominal Size. Inside dimension of backdraft damper is 2½" less (⅞" flanges).

SA Performance Data

Model SA – Direct Drive

MODEL NO.	HP	PEAK BHP	FAN RPM	CFM VERSUS STATIC PRESSURE								SOUND POWER REFERENCE 10 ⁻¹² WATTS								SONES @ 0"	
				0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	OCTAVE BAND CENTER FREQUENCIES									
				63	125	250	500	1000	2000	4000	6000										
7SA	1/15	0.02	1550	235	180	120														4.6	
7SA2	1/15	0.03	1550	360	290	190														6.1	
12SA1	1/12	0.03	860	652	502	296							71	60	59	59	56	56	45	48	5.7
12SA2	1/8	0.06	1140	864	756	634	497						78	71	65	65	65	62	56	52	8.9
12SA3	1/4	0.20	1725	1308	1238	1165	1090	1009	923	837	603		87	86	75	74	74	71	71	60	17.6
14SA1	1/12	0.06	860	1112	960	754	438						77	74	66	65	60	59	48	50	7.9
14SA2	1/8	0.15	1140	1474	1365	1241	1090	906	668	295			82	85	72	72	68	66	58	54	14.0
14SA3	1/2	0.51	1725	2230	2161	2087	2010	1929	1840	1742	1517		95	91	89	87	80	75	74	63	27.0

1. Performance shown is for installation Type A: free inlet, free outlet.
2. The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for Lwi sound power levels for installation Type A: free inlet, free outlet. Ratings do not include the effects of duct end correction for inlet and outlet ducts.
3. Performance ratings do not include the effects of appurtenances in the airstream.

Hid-N-Aire® HA/HAB Fiberglass Wall Ventilators

Application

The Hid-N-Aire®, Type HA/HAB, fiberglass wall mount ventilators provide high performance ventilation without distracting from the architectural lines of a building's exterior. Only the aluminum fixed louver, which fits flush with the building's wall, is visible from the outside of the building. From the interior, the unit presents a clean, molded fiberglass venturi. All fiberglass components come in the standard beige color.



The Hid-N-Aire® fiberglass centrifugal wall ventilators are designed to mount compactly within an exterior wall and satisfy general building exhaust requirements.

Sizes and Capacities

- Direct drive sizes 7" to 18"
- Belt driven sizes 12" to 30"
- Capacities from 180 CFM to 9,800 CFM
- Static pressures to 1" w.g.

Construction Features

- Extruded fixed aluminum louver fits flush with the building's wall and is visible only from the exterior.
- Fan wheel sizes 7, 10 and 12 are polypropylene as standard.
- Both belt and direct drive models (sizes 14 through 30) feature an extruded aluminum, epoxy-coated, non-overloading airfoil fan wheel, as standard. A polypropylene wheel is optional.
- Rugged molded fiberglass inlet venturi.
- Rubber isolator motor mounts absorb vibration for quietness.
- Built-in PVC bird screen and fabric backdraft dampers within aluminum louver.
- Simple to install and maintain.
- Motor is prewired with plug and cord assembly and provided with a plug-in electrical receptacle mounted inside the motor housing for ease of maintenance and service.
- 304 SS shaft on belt drive unit.

Accessories

- An attractive grille is available for attachment to fiberglass venturi when ductwork to HA/HAB is not present.
- Duct adapter kit for use when HA/HAB is used as an inline centrifugal unit.
- Disconnect switch.
- Companion angles.

Static Pressure Drop Calculation

Performances shown for fiberglass wall ventilators are the capacities without the exterior wall louver. The following tables give the gross louver areas and the static pressure drop. An example is also shown to help you determine the correct size unit for a specific application.

Example:

Required 825 CFM @ 1/8" S.P. (.125) quiet duty.

1. Select a direct drive unit from the performance data on page 3 with a slightly higher capacity such as 14HA-1 (863 CFM @ 1/8" S.P.)
2. Divide the CFM by the gross louver area (see Table 1) to obtain gross velocity:
 $863 \div 3.84 = 225 \text{ FPM}$
3. From Table 2, the static pressure drop is slightly more than .018 (approximately .023).
4. Add the specified static pressure to the static pressure drop through the louver:
 $.125 + .023 = .148 \text{ in. w.g. total static pressure}$
5. Checking the capacity table on page 3, we now see that because the static pressure has increased slightly, the capacity has decreased slightly. The 14HA-1 unit will deliver 825 CFM @ .148 static pressure through the exterior flush-mounted louver.

Table 1.

SIZE	GROSS AREA OF LOUVER
7	1.13 sq. ft.
10, 12	2.92 sq. ft.
14	3.84 sq. ft.
18	4.69 sq. ft.
24	9.52 sq. ft.
30	14.71 sq. ft.

Table 2. Static Pressure Drop For Various Velocities

GROSS VEL. (FPM)	100	200	300	400	500	600	700
S.P. DROP (IN. W.G.)	.005	.018	.041	.073	.114	.164	.224

HA/HAB Performance Data

Model HA – Direct Drive

MODEL NO.	HP	PEAK BHP	F A N ROM	CFM versus STATIC PRESSURE								OCTAVE BAND CENTER FREQUENCIES								SONES AT0" SP
				0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	63	125	250	500	1000	2000	4000	8000	
7HA1	1/15	0.02	1550	180	160	130	75	-	-	-	-	-	-	-	-	-	-	-	-	3.4
7HA2	1/15	0.03	1550	350	325	280	135	745	645	520	110	-	-	-	-	-	-	-	-	3.2
10HA1	1/8	0.05	1140	700	595	455	255	-	-	-	-	-	-	-	-	-	-	-	-	4.5
10HA2	1/6	0.18	1725	1060	990	910	830	-	-	-	-	-	-	-	-	-	-	-	-	9.0
12HA1	1/12	0.03	860	617	463	222	142	-	-	-	-	73	63	57	58	58	60	45	49	6.5
12HA2	1/8	0.07	1140	819	711	579	1018	930	834	728	456	79	69	63	64	64	66	51	55	9.5
12HA3	1/4	0.24	1725	1239	1170	1098	938	729	400	-	-	88	78	72	73	73	75	60	64	16.6
14HA1	1/12	0.05	860	1038	863	631	1828	1733	1633	1523	-	70	68	65	62	63	63	54	50	8.2
14HA2	1/8	0.11	1140	1376	1250	1108	1211	817	-	-	-	76	74	71	68	69	69	60	56	11.9
14HA3	1/2	0.40	1725	2062	2001	1916	2107	1898	1671	1416	1271	85	83	80	77	78	78	69	65	21.0
18HA1	1/4	0.18	860	1982	1763	1510	-	-	-	-	-	74	74	72	68	77	68	61	55	13.7
18HA2	1/2	0.43	1140	2627	2467	2295	-	-	-	-	-	80	80	78	74	83	74	67	61	19.7

1. Performance shown is for installation Type A: free inlet, free outlet.
2. The sound ratings shown are loudness values in fan sones at 5 ft. in a hemispherical free field calculated per AMCA Standard 301-90. Values shown are for installation Type A: free inlet fan sone levels.
3. Performance ratings do not include the effects of appurtenances in the airstream.

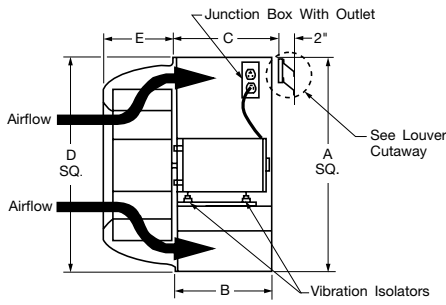
Model HAB – Belt Driven

MODEL NO.	HP	PEAK BHP	F A N ROM	CFM versus STATIC PRESSURE								OCTAVE BAND CENTER FREQUENCIES								SONES @ 0" SP
				0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	63	125	250	500	1000	2000	4000	8000	
12HA1B	1/4	0.12	1380	991	904	806	692	559	390	-	-	84	74	68	69	69	71	56	60	12.9
12HA2B	1/4	0.16	1518	1090	1012	926	829	720	594	439	480	86	76	70	71	71	73	58	62	14.7
12HA3B	1/4	0.25	1738	1248	1180	1108	1030	943	848	743	-	89	79	73	74	74	76	61	65	17.6
14HA1B	1/4	0.12	1165	1406	1283	1145	982	784	508	-	-	77	75	72	69	70	70	61	57	12.6
14HA2B	1/4	0.16	1283	1549	1438	1317	1180	1021	832	581	-	79	77	74	71	72	72	63	59	14.2
14HA3B	1/4	0.25	1468	1772	1676	1573	1463	1342	1203	1048	620	82	80	77	74	75	75	66	62	17.1
14HA4B	1/3	0.33	1615	1950	1863	1771	1675	1571	1457	1331	1036	84	82	79	76	77	77	68	64	19.3
14HA5B	1/2	0.50	1849	2232	2157	2078	1997	1911	1821	1725	1508	87	85	82	79	80	80	71	67	23.0
18HA1B	1/4	0.16	826	1903	1675	1405	1081	595	-	-	-	73	73	71	67	76	67	60	54	12.9
18HA2B	1/4	0.25	945	2178	1981	1761	1507	1213	817	-	-	76	76	74	70	79	70	63	57	15.5
18HA3B	1/3	0.33	1040	2397	2220	2027	1810	1565	1288	921	-	78	78	76	72	81	72	65	59	17.5
18HA4B	1/2	0.50	1191	2745	2592	2429	2252	2058	1848	1617	1003	81	81	79	75	84	75	68	62	21.0
18HA5B	3/4	0.75	1363	3141	3009	2869	2722	2567	2397	2218	1821	84	84	82	78	87	78	71	65	25.0
24HA1B	1/4	0.25	575	3418	2953	2398	1656	-	-	-	-	75	77	74	71	68	67	62	57	11.9
24HA2B	1/3	0.33	633	3763	3345	2871	2287	1505	-	-	-	77	79	76	73	70	69	64	59	13.5
24HA3B	1/2	0.	725	4310	3949	3557	3111	2579	1926	700	-	80	82	79	76	73	72	67	62	16.3
24HA4B	3/4	0.75	830	4934	4621	4291	3934	3535	3076	2544	-	83	85	82	79	76	75	70	65	19.6
24HA5B	1	1.00	913	5427	5143	4849	4537	4198	3825	3409	2375	85	87	84	81	78	77	72	67	22.0
30HA1B	1/3	0.33	436	5399	4594	3611	2177	-	-	-	-	80	78	74	70	65	59	54	50	10.1
30HA2B	1/2	0.50	500	6192	5503	4724	3744	2399	-	-	-	83	78	77	73	68	62	57	53	12.2
30HA3B	3/4	0.75	572	7084	6487	5841	5113	4206	3077	-	-	86	81	80	76	71	65	60	56	14.7
30HA4B	1	1.00	630	7802	7264	6689	6068	5358	4498	3462	-	88	83	82	78	73	67	62	58	16.7
30HA5B	11/2	1.50	721	8929	8461	7973	7457	6906	6292	5587	3823	91	86	85	81	76	70	65	61	20.0
30HA6B	2	2.00	793	9820	9395	8959	8501	8021	7511	6951	5601	93	88	87	83	78	72	67	63	23.0

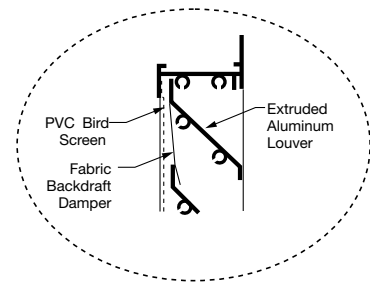
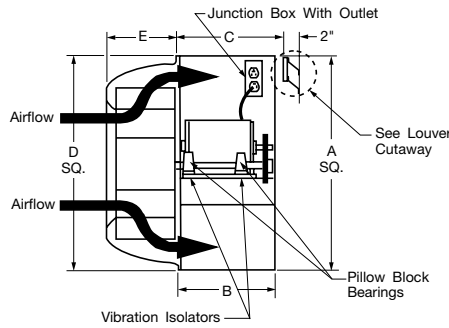
1. Performance shown is for installation Type A: free inlet, free outlet.
2. The sound ratings shown are loudness values in fan sones at 5 ft. in a hemispherical free field calculated per AMCA Standard 301-90. Values shown are for installation Type A: free inlet fan sone levels.
3. Power rating (BHP) does not include drive losses.
4. Performance ratings do not include the effects of appurtenances in the airstream.

HA/HAB Dimensional Data

Model HA - Direct Drive



Model HAB - Belt Drive



Louver Cutaway

Model HA - Direct Drive

MODEL NO.	HP	RPM	WEIGHT (LBS)	DIMENSIONS (INCHES)					
				A SQ.	B	C MAX.		D SQ.	E
						STD. MOTOR	SPECIAL MOTOR		
7HA1	1/15	1550	30	12 ³ / ₄	6 ¹ / ₈	6 ¹ / ₂	NA	13	3 ⁷ / ₈
7HA2	1/15	1550	30			6 ¹ / ₂	NA		
10HA1	1/8	1140	70	20 ¹ / ₂	11 ³ / ₄	12 ¹ / ₈	13 ³ / ₄	20 ³ / ₄	6
10HA2	1/6	1725	75			12 ¹ / ₈	13 ³ / ₄		
12HA1	1/12	860	75	20 ¹ / ₂	11 ³ / ₄	12 ¹ / ₈	13 ³ / ₄	20 ³ / ₄	6
12HA2	1/8	1140	80						
12HA3	1/4	1725	75						
14HA1	1/12	860	90						
14HA2	1/8	1140	90	23 ¹ / ₂	13	13 ³ / ₈	14 ¹ / ₄	23 ³ / ₄	7 ⁷ / ₈
14HA3	1/2	1725	105						
18HA1	1/4	860	115						
18HA2	1/2	1140	115	26	14	14 ³ / ₈	14 ³ / ₄	26 ¹ / ₄	8 ³ / ₄

Dimension 'A' is the outside of the housing and the louver. Dimension 'D' is the outside of the trim angle.

Model HAB - Belt Driven

MODEL NO.	HP	WEIGHT (LBS)	DIMENSIONS (INCHES)					
			A SQ.	B	C MAX.		D SQ.	E
					STD. MOTOR	SPECIAL MOTOR		
12HA1B	1/4	75	20 ¹ / ₂	11 ³ / ₄	12 ¹ / ₈	16 ¹ / ₈	20 ³ / ₄	6
12HA2B	1/4	80				16 ¹ / ₈		
12HA3B	1/4	80				16 ¹ / ₈		
14HA1B	1/4	90	23 ¹ / ₂	13	13 ³ / ₈	18 ³ / ₈	23 ³ / ₄	7 ⁷ / ₈
14HA2B	1/4	90						
14HA3B	1/4	90						
14HA4B	1/3	90						
14HA5B	1/2	105						
18HA1B	1/4	105	26	14	14 ³ / ₈	17 ⁷ / ₈	26 ¹ / ₄	8 ³ / ₄
18HA2B	1/4	115						
18HA3B	1/3	115						
18HA4B	1/2	115						
18HA5B	3/4	120						
24HA1B	1/4	155	37	14 ¹ / ₂	14 ⁷ / ₈	17 ³ / ₈	37 ¹ / ₄	11 ¹¹ / ₁₆
24HA2B	1/3	160						
24HA3B	1/2	160						
24HA4B	3/4	180						
24HA5B	1	180						
30HA1B	1/3	250	46	16 ¹ / ₄	16 ⁵ / ₈	20 ³ / ₈	46 ¹ / ₄	15 ⁵ / ₈
30HA2B	1/2	255						
30HA3B	3/4	255						
30HA4B	1	260						
30HA5B	1 ¹ / ₂	260						
30HA6B	2	300						

Dimension 'A' is the outside of the housing and the louver. Dimension 'D' is the outside of the trim angle.

Fiber-Aire® FR & MA Fiberglass Relief Ventilator

Application

Fiber-Aire® Series FR (round) and MA (square) relief ventilators are molded of tough, chemical resistant polyester resins and heavy-weave glass cloth. All products are designed for simple installation and maintenance. The resulting products deliver superior performance, with minimal downtime and maintenance and the best full life value of any ventilation product available.



Series FR



Series MA

This unit can be used for three different ventilation applications:

- To provide relief for positive pressure.
- To provide gravity exhaust of heat and smoke.
- To provide air intake supply.

The Relief Fiber-Aire® Series FR and MA ventilators are often used in conjunction with air make-up units and unit ventilators, as well as duct weather caps to match other Fiber-Aire® powered units on the roof.

The simple, two-piece fiberglass housing is strong and efficient, never needs painting and remains unaffected by weather and most chemicals. The molded-in beige color and low silhouette make it inconspicuous from the street.

Sizes and Capacities

- Square throat sizes 6" to 60"
- Capacities from 250 CFM to 40,000 CFM
- Static pressures to 1" w.g.

Construction Features

- Molded fiberglass housings are virtually impossible to dent, crack or break and resist weather, salt spray, and most chemicals
- Simple, two-piece, low-silhouette fiberglass housing for strength and efficiency.
- Housing shock-resistant and sound-absorbing
- Series FR outlet is molded venturi type with epoxy coated airflow guides.
- 1/2" x 1/2" PVC coated bird screen is standard on all units.

Accessories

- Gravity and motor operated backdraft dampers
- Fiberglass roof curbs
- Curb hinge

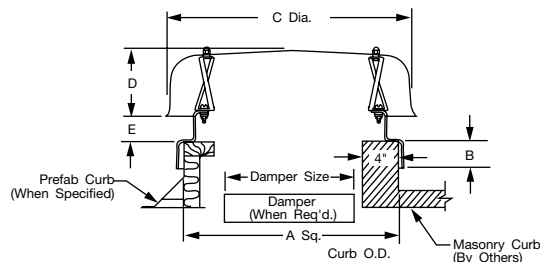
Pressure Drop Through Damper & Bird Screen

VELOCITY	STATIC PRESSURE DROP THROUGH	
	DAMPER	BIRD SCREEN
300	0.036	0.011
400	0.042	0.014
500	0.048	0.016
600	0.051	0.021
700	0.063	0.025
800	0.072	0.028
900	0.080	0.032
1000	0.089	0.035

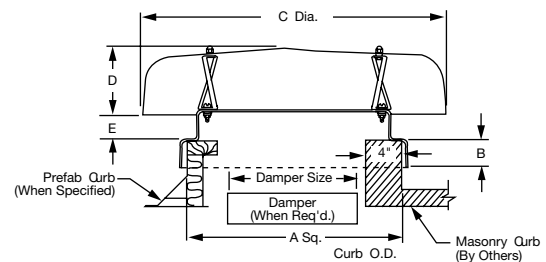
VELOCITY	STATIC PRESSURE DROP THROUGH	
	DAMPER	BIRD SCREEN
1250	0.111	0.045
1500	0.133	0.052
1750	0.156	0.622
2000	0.178	0.070
2500	0.222	0.089
3000	0.267	0.106
3400	0.302	0.122

Model FR - Round - Dimensional Data

Type A



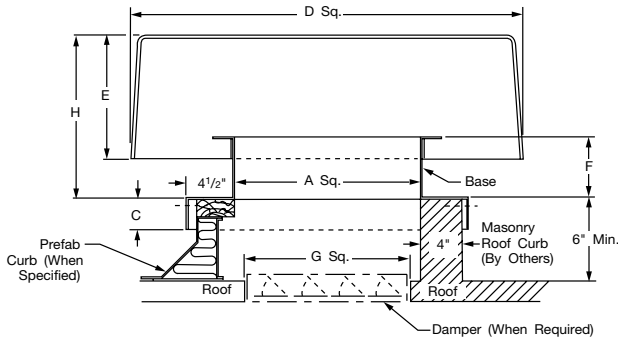
Type B



SIZE	DIMENSIONS (INCHES)					AREAS (SQ. FT.)		NET WEIGHT	DAMPER (IN. x IN.)
	A	B	C	D	E	THROAT	OUTLET		
FR1A	20	2	20 ⁵ / ₈	5 ⁵ / ₈	2 ¹ / ₄	1.07	0.55	15	10 x 10
FR1B	20	2	27 ¹ / ₂	5 ⁵ / ₈	2 ¹ / ₄	1.07	2.60	21	10 x 10
FR2A	24	3	27 ¹ / ₂	7 ⁵ / ₈	2 ⁷ / ₈	1.97	1.62	25	14 x 14
FR2B	24	3	34 ³ / ₈	7 ⁵ / ₈	2 ⁷ / ₈	1.97	4.02	47	14 x 14
FR3A	28	3	34 ³ / ₈	9 ⁵ / ₈	3 ⁵ / ₈	3.01	2.89	52	18 x 18
FR3B	28	3	42	9 ⁵ / ₈	3 ⁵ / ₈	3.01	6.27	63	18 x 18
FR4A	36	3	42	12 ³ / ₈	4	4.75	4.34	67	24 x 24
FR4B	36	3	52 ¹ / ₄	12 ³ / ₈	4	4.75	9.27	120	24 x 24
FR5A	44	3	52 ¹ / ₄	17 ¹ / ₈	5 ¹ / ₄	7.67	6.65	137	30 x 30
FR5B	44	3	62 ¹ / ₂	17 ¹ / ₈	5 ¹ / ₄	7.67	13.85	181	30 x 30
FR6A	52	3	62 ¹ / ₂	19	6 ¹ / ₂	11.29	9.60	190	36 x 36

MA Dimensional Data

Model MA - Square



MODEL NO.	DIMENSIONS (IN.)						DAMPER (IN. x IN.)	CURB SQ. O.D.
	A	C	D	E	F	H		
MA 6	6	2	12 1/2	5	3	4 1/4 x 4 1/4	4 x 4	14
MA 8	8	2	12 1/2	5	3	6 1/4 x 6 1/4	6 x 6	16
MA10	10	2	17 1/2	8	4	8 1/4 x 8 1/4	8 x 8	18
MA12	12	2	22	8	4	10 1/4 x 10 1/4	10 x 10	20
MA15	15	3	24	8	4	14 1/4 x 14 1/4	14 x 14	24
MA18	18	3	30	8	4	16 1/4 x 16 1/4	16 x 16	26
MA20	20	3	31 1/2	12	6	18 1/4 x 18 1/4	18 x 18	28
MA24	24	3	38	12	6	22 1/4 x 22 1/4	22 x 22	32
MA30	30	3	47 1/2	14 11/16	6	28 1/4 x 28 1/4	28 x 28	38
MA34	34	3	54	14 11/16	6	32 1/4 x 32 1/4	32 x 32	42
MA36	36	3	57	15	7	34 1/4 x 34 1/4	34 x 34	44
MA38	38	3	64 1/2	15	7	36 1/4 x 36 1/4	36 x 36	46
MA42	42	3	66	15	7	40 1/4 x 40 1/4	40 x 40	50
MA48	48	3	75	18	8	46 1/4 x 46 1/4	46 x 46	56
MA54	54	3	85	20	13	52 1/4 x 52 1/4	52 x 52	62
MA60	60	3	85	20	13	58 1/4 x 58 1/4	58 x 58	68

FR & MA Performance Data

Model FR - Round

MODEL	CFM VERSUS STATIC PRESSURE							MAXIMUM INTAKE CFM
	0.025"	0.050"	0.075"	0.10"	0.15"	0.20"	0.25"	
FR1A	232	328	400	462	565	655	730	302
FR1B	454	642	787	910	1120	1284	1432	1430
FR2A	680	966	1180	1370	1680	1940	2160	882
FR2B	837	1182	1448	1675	2048	2363	2642	2220
FR3A	1230	1735	2120	2460	3000	3470	3870	1590
FR3B	1280	1808	2214	2560	3130	3610	4040	3450
FR4A	1845	2600	3190	3690	4500	5200	5810	2390
FR4B	2020	2850	3490	4040	4940	5700	6375	5100
FR5A	2830	3980	4880	5660	6920	8000	8910	3660
FR5B	3260	4600	5640	6520	7970	9200	10280	7620
FR6A	4080	5750	7060	8160	10000	11500	12850	5280

Model MA - Square

MODEL	SIZE (IN.)	AREA (FT²)	STATIC PRESSURE LOSS (IN. H₂O)																											
			500 CFM		1000 CFM		1500 CFM		2000 CFM		3000 CFM		4000 CFM		5000 CFM		6000 CFM		7000 CFM		8000 CFM		9000 CFM		10000 CFM		12000 CFM		15000 CFM	
			VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP
MA6	6 x 6	0.250	2000	0.435																										
MA8	8 x 8	0.444	1125	0.137	2250	0.550																								
MA10	10 x 10	0.694	720	0.056	1440	0.225	2160	0.5070																						
MA12	12 x 12	1.000	500	0.027	1000	0.109	1500	0.2450	2000	0.435																				
MA15	15 x 15	1.560	320	0.011	640	0.045	960	0.1000	1280	0.178	1920	0.401	2560	0.712																
MA18	18 x 18	2.250			445	0.021	667	0.0480	890	0.086	1333	0.193	1780	0.342	2220	0.536	2666	0.772												
MA20	20 x 20	2.780			360	0.014	540	0.0317	720	0.056	1080	0.127	1440	0.225	1800	0.352	2160	0.507	2520	0.690	2880	0.901								
MA24	24 x 24	4.000					375	0.0150	500	0.027	750	0.061	1000	0.109	1250	0.170	1500	0.245	1750	0.333	2000	0.435	2250	0.550	2500	0.680	3000	0.980	3750	0.153

MODEL	SIZE (IN.)	AREA (FT²)	STATIC PRESSURE LOSS (IN. H₂O)																											
			2000 CFM		3000 CFM		4000 CFM		5000 CFM		6000 CFM		8000 CFM		10000 CFM		12000 CFM		15000 CFM		20000 CFM		25000 CFM		30000 CFM		35000 CFM		40000 CFM	
			VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP	VEL	SP
MA30	30 x 30	6.250	320	0.011	480	0.025	640	0.045	800	0.070	960	0.100	1280	0.178	1600	0.278	1920	0.400												
MA34	34 x 34	8.027			372	0.015	498	0.027	622	0.042	748	0.061	996	0.108	1245	0.170	1495	0.243												
MA36	36 x 36	9.000			333	0.012	444	0.021	555	0.033	666	0.048	888	0.086	1111	0.135	1333	0.193	1666	0.302	2222	0.536	2777	0.837						
MA38	38 x 38	10.050			300	0.010	400	0.017	500	0.027	600	0.039	800	0.070	1000	0.109	1200	0.157	1500	0.245	2000	0.435	2500	0.680	3000	0.980				
MA42	42 x 42	12.250					326	0.011	412	0.018	490	0.026	652	0.046	815	0.072	980	0.104	1225	0.163	1633	0.290	2040	0.452	2450	0.652	2855	0.886		
MA48	48 x 48	16.000							375	0.015	500	0.027	625	0.042	750	0.061	940	0.096	1250	0.170	1562	0.265	1875	0.382	2190	0.522	2500	0.680		
MA54	54 x 54	20.250							296	0.009	395	0.017	494	0.026	593	0.038	742	0.060	980	0.104	1235	0.166	1482	0.239	1730	0.325	1975	0.424		
MA60	60 x 60	25.000											320	0.011	400	0.017	480	0.025	600	0.039	800	0.070	1000	0.109	1200	0.157	1400	0.213	1600	0.278

Typical Specifications

Fiberglass centrifugal roof and wall ventilators shall be Fiber-Aire® downblast Type FA direct drive / FAB belt driven, Whirlout® upblast Type WA direct drive / WAB belt driven, Hid-N-Aire® wall flush mounted Type HA direct drive / HAB belt driven, Fiber-Aire® wall Type SA direct drive or Fiberglass relief and gravity roof ventilators shall be Module-Aire® Type MA (square) or Fiber-Aire® Type FR (round) as manufactured by Twin City Fan & Blower, Minneapolis, MN. Ventilators shall be specifically designed for the exhaust of moisture-laden, corrosive, or chemically contaminated air where process temperatures will not exceed 150°F. Fiberglass, non-powered roof ventilators shall be molded with aerodynamically shaped venturi to provide minimum system resistance within gravity or positive pressure systems.

PERFORMANCE — Fans shall be tested in accordance with AMCA test codes for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels.

CONSTRUCTION — (All Types Except MA/FR) - Fan housings including aerodynamically shaped inlet venturi, windband skirt, and motor cover (FA, FAB, WA, WAB, SA) shall be molded of high quality, beige-colored, fiberglass reinforced plastic resulting in assemblies that are virtually impossible to dent, crack, or break and are highly resistant to the effects of weather, salt spray, and most chemicals. Polyester resin with properties equal or similar to Koppers Dion 6693 shall be used to provide high strength with ultra-violet light and chemical resistance. The resin shall have antimony trioxide added to provide fire retardancy with a flame spread rating of 25 or less when tested per ASTM-E84. Further, all component plastic surfaces are to be gel coated to provide the utmost in added corrosion protection. All fan housings shall have PVC encapsulated ½" x ½" mesh screens or guards fitted to the ventilator (FA, FAB, SA) or airflow guides and basket supports (WA, WAB) to keep out birds, leaves, or other debris and maintain a high level of corrosion resistance.

After fabrication, the assembled fan impeller and all structural metal components in contact with the exhaust airstream (including the wall box on HA/HAB) shall be black epoxy coated (2 mils DFT minimum) for additional chemical resistance.

(FR/MA) – Ventilators shall be a simple two-piece assembly that includes a curb cap base and top cap and ½" x ½" PVC birdscreen.

(HA/HAB) - The Hid-N-Aire® ventilator shall consist of a fiberglass inlet venturi panel bolted to a wall box that contains a belt driven impeller assembly prewired with a plug and cord, a plug-in electrical receptacle mounted to the inside of the wall box and an extruded aluminum exterior louver with integral PVC bird screen and automatic fabric backdraft damper. The entire power assembly including the motor, mounting plate on vibration isolation, fan shaft and bearings and impeller assembly shall be easily removable from the interior or exterior of the building by removing the exterior louver or the inlet fiberglass venturi panel. Only four bolts must be removed to easily slide out from the power assembly from the wall box.

WHEELS — (All Types Except MA/FR) - Fan impellers (sizes 14 through 36) shall be of the airfoil centrifugal type or (sizes 7, 9, 10, 12 and 40) of the flat bladed, backward inclined, non-overloading design to couple non-overloading power limiting characteristics with performance of the highest efficiency and lowest noise generation. Airfoil blades (sizes 14 through 36) shall be extruded from aluminum and welded to the front and backplate of the wheel using jigs and fixtures to insure exact location and thus insure optimum fan performance. Airfoil wheels shall be epoxy coated. Flat bladed, backward inclined wheels (sizes 7, 9, 10, 12 and 40) shall be of polypropylene construction, securely fixed to a cast aluminum hub. A polypropylene option (sizes 14 through 36) shall be available.

The fan impeller shall be secured to the motor or fan shaft with knurled cup point setscrews. All recommended lubrication and maintenance shall be accomplished without removal and disassembly of the fan impeller.

DRIVES & BEARINGS (FAB, WAB, HAB) — All motors and drives for belt driven fans shall be located outside of the exhaust airstream, covered and protected from the weather by the fiberglass fan top cap, and cooled by fresh air separate from the exhaust. Belt driven fan drives shall be sized for a minimum of 150% of driven horsepower. Belt driven fans shall be provided with machined, cast iron motor sheaves that shall be adjustable for final system balance. Fan shafts shall be precision ground and polished 304 SS. Shafts shall have a first critical speed of at least 125% of the fan's maximum operating speed. Bearings for belt driven fans shall be of the one-piece, cast iron, pillow block type with relubricable zerk fittings. Bearings shall be designed for service with a minimum L-10 life as defined by AFBMA in excess of 40,000 hours (200,000 hours L-50 average life) at the maximum cataloged operating speed.

MOTORS — (All Types Except MA/FR) - All fan motors shall be located outside of the exhaust airstream, covered and protected from the weather by the fiberglass fan motor cover, and cooled by fresh air separate from the exhaust. Fan motors shall be manufactured in accordance with current applicable standards of IEEE, NEC and NEMA. They shall be heavy duty ball bearing open drip-proof type with a 1.15 service factor and closely matched to the fan load. All motors shall be U.L. and/or C.S.A. listed.

(FA, FAB, WA, WAB, SA) - Electrical wire leads of the motor shall be extended by the factory through an airtight vinyl coated flexible metal conduit and be wired to a properly sized nonfused disconnect switch contained within a terminal junction box mounted under the fan motor cover. To simplify installation, a conduit chase constructed of airtight vinyl coated flexible metal conduit shall be provided through fiberglass curb cap (FA, FAB, WA, WAB) or fiberglass inlet venturi (SA) to the motor compartment for field supply conductors.

(HA/HAB) - Motors shall be prewired with a plug and cord for insertion into a properly sized terminal junction box mounted inside the wall box.

FACTORY RUN TEST — (All Types Except MA/FR) - All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. 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 fiberglass ventilators for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.

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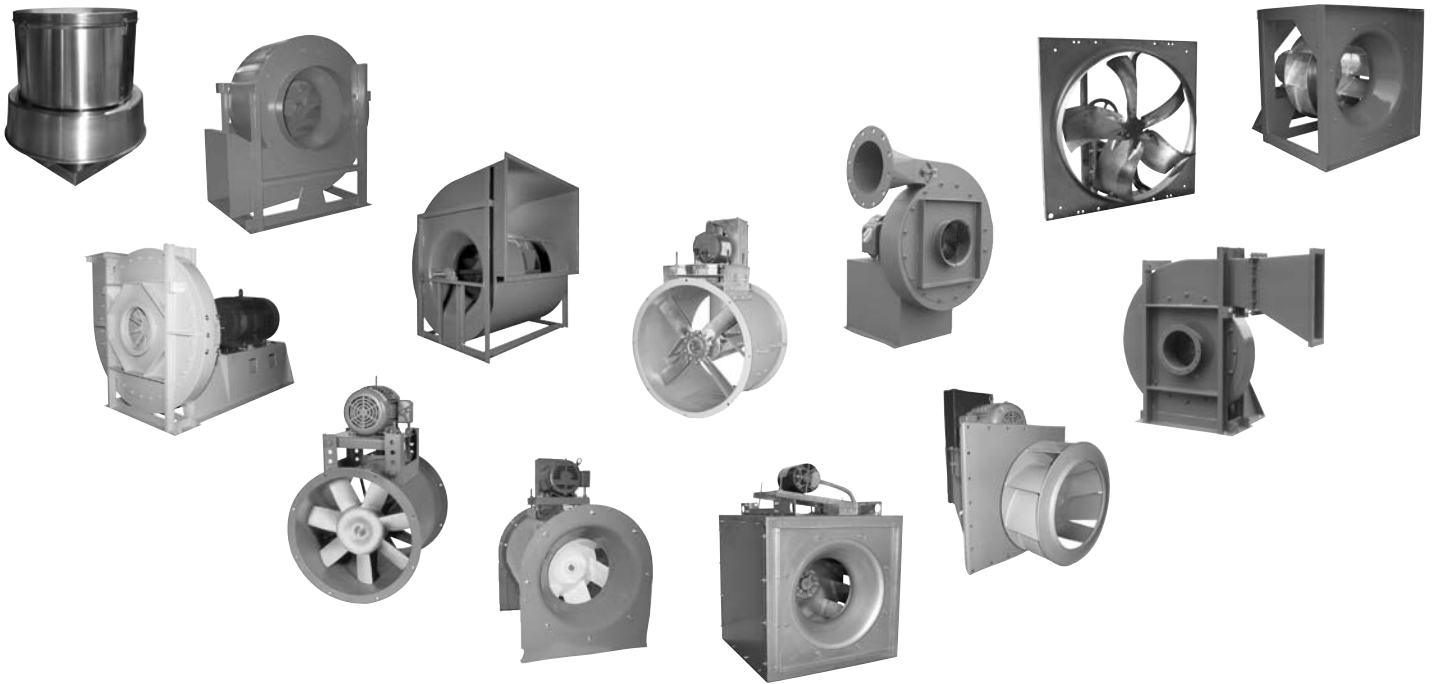
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