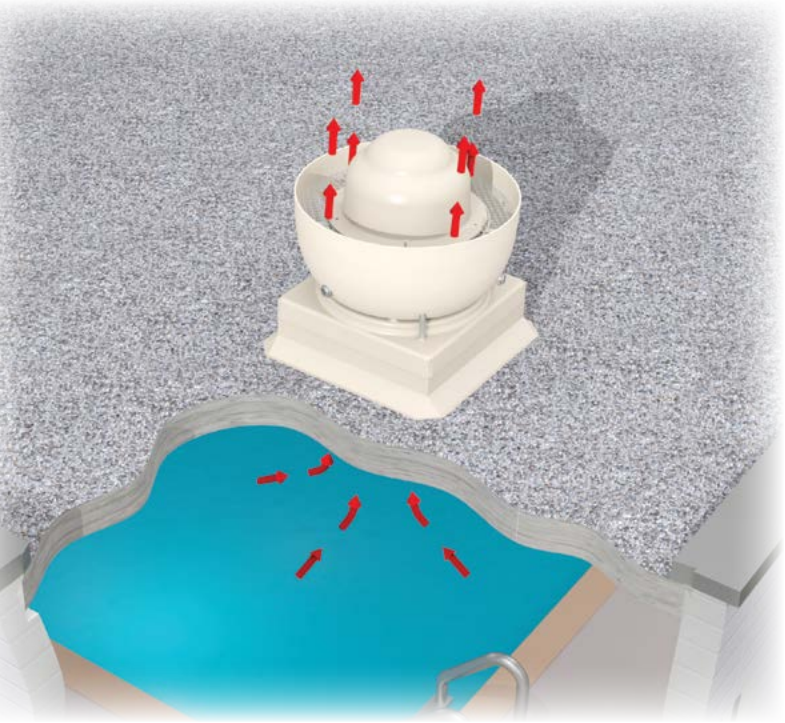
TCF

TWIN CITY FAN

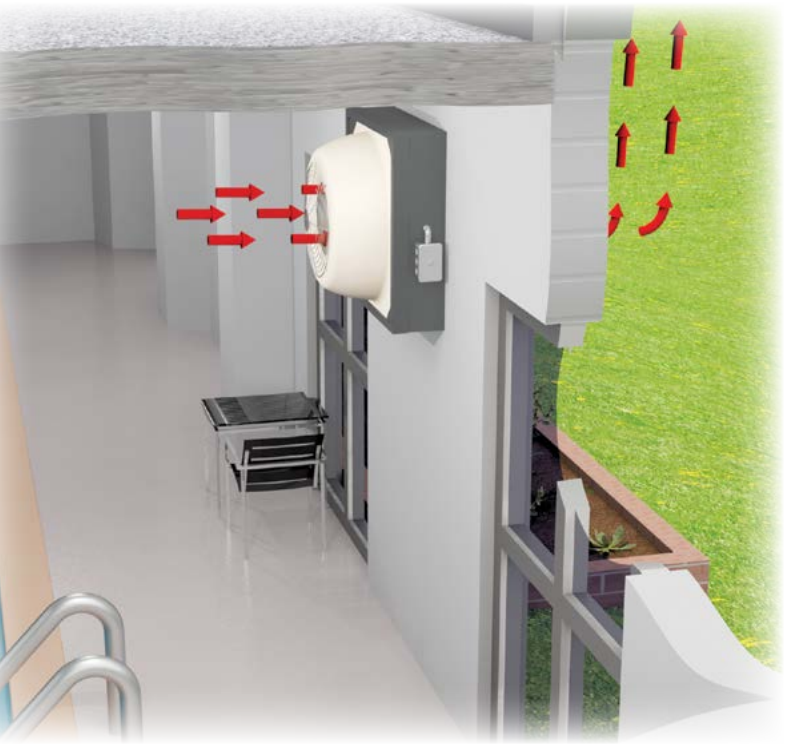
INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

FIBERGLASS VENTILATORS

WA/WAB | HA/HAB



Model WA Installation



Model HA Installation

Overview

WA/WAB I HA/HAB

The Twin City Fan & Blower Fibre-Aire® line of fiberglass fans is ideal for spaces that require a little more chemical resistance than what a typical light commercial fan offers. Both roof and wall fans are available in direct drive or belt driven options with a variety of configurations. In addition, a fiberglass gravity ventilator completes the Fibre-Aire® product offering for low flow, corrosive atmospheres.

The Fibre-Aire® products have a clean, architecturally-pleasing design and are virtually dent, crack and break proof. The fiberglass housing absorbs sound and the molded throat and outlet designs also optimize airflow.

Typical Applications Include
Natatoriums, Aquariums, Swimming Pool Exhaust, Laboratories Wastewater Treatment Plants, General Exhaust

Configurations
Direct Drive and Belt Driven, Wall Mount, Upblast and Downblast

Impeller Type
Polypropylene, Backward Inclined

Optional Construction
Corrosion Resistance

Energy Regulations

Twin City Fan & Blower supports energy efficiency regulations enacted by the U.S. Department of Energy (DOE) and specific states. The selection and application of fan products is a significant part of these regulations. Engineers and specifiers must understand how to apply TCF products to their specific applications to meet applicable DOE and state regulatory requirements. Twin City Fan & Blower has made significant investments in product testing and development to provide efficient products. Developments in Twin City Fan & Blower's Fan Selector software are in place to aid your decision in product selection to assist with meeting the efficiency requirements as stipulated in the applicable regulations.

For complete product performance, drawings and available accessories, download our Fan Selector software at *tcf.com*.

Overview

Whirlout® WA I WAB

The Whirlout® Series WA/WAB fiberglass upblast 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. The corrosion resistant, backward inclined impeller provides quiet and efficient operation.

Whirlout® Series fiberglass upblast centrifugal roof exhausters are also used in natatoriums, aquariums, indoor swimming pools, laboratories, wastewater 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"
- Airflow 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.
- Ideal for use with ducts, hoods or canopies over interior work areas.
- Fan impellers are polypropylene, backward inclined, as standard.
- All structural mild steel components in contact with airstream are epoxy coated for additional corrosion resistance.
- 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.
- A 1/2" x 1/2" PVC coated bird screen is standard on all units to prevent entry of birds and debris.

Construction Features (cont'd.)

- Factory mounted and wired disconnect switch is standard on all units, except with EXP motors.
- 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 fan shaft on belt driven unit.

Accessories

- Gravity (PVC) and motorized (aluminum) backdraft dampers
- Fiberglass roof curbs
- Stainless steel bird screen

Overview

Hid-N-Aire® HA I HAB

The Hid-N-Aire® Model 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"
- Airflow to 9,800 CFM
- Static pressures to 1" w.g.

Construction Features

- Rugged molded fiberglass inlet venturi.
- Rubber isolator motor mounts absorb vibration for quietness.
- Fan impellers are polypropylene, backward inclined, as standard.
- All structural mild steel components in contact with airstream are epoxy coated for additional corrosion resistance.
- Extruded fixed aluminum louver fits flush with the building's wall and is visible only from the exterior.
- 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 (disconnect switch) and provided with a plug-in electrical receptacle mounted inside the motor housing for ease of maintenance and service. (Not included with explosion proof or 2-speed motors.)
- 304 SS fan shaft on belt driven 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.
- Companion angles.

Static Pressure Drop Calculation

The following tables give the gross louver areas and the static pressure drop.

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

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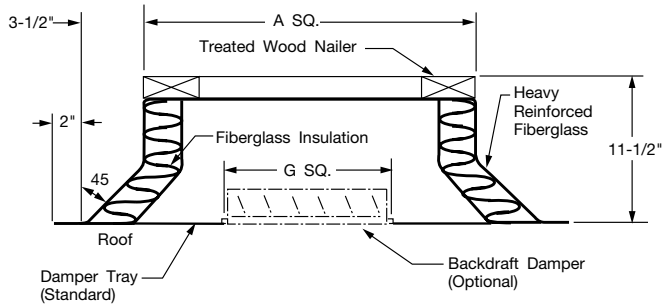
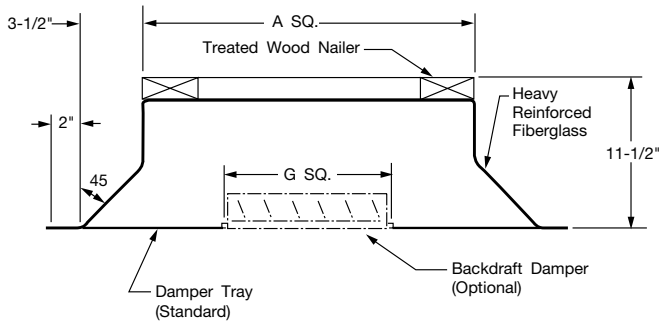
Series EF (w/insulation)



E12F — A 12" high, beige color, molded fiberglass, reinforced polyester resin, double shell, prefabricated roof curb with a 3 1/2" cant, corner gussets, 2" thick fiberglass insulation and incorporating a treated 1 1/2" x 3 1/2" treated wood nailer and damper tray.

Series E



E12 — A 12" high, beige color, molded fiberglass, reinforced polyester resin, single shell, prefabricated roof curb with a 3 1/2" cant, corner gussets and incorporating a treated 1 1/2" x 3 1/2" treated wood nailer and damper tray.

FAN / HOOD			ROOF CURB DIM. A (SQ)	12" HIGH CURB WITH INSULATION		12" HIGH CURB NON-INSULATED		G (SQ)	DAMPER SIZE WHEN REQ'D
MODEL	SIZE	BASE I.D.		PART NUMBER	APPROX. SHIP WT. (LB)	PART NUMBER	APPROX. SHIP WT. (LB)		
WA	7	17 x 17	16 x 16	15025102	31	15025002	26	6.63	6 x 6
	10, 12	21 x 21	20 x 20	15025104	38	15025004	31	10.63	10 x 10
	14	24.8 x 24.8	24 x 24	15025105	46	15025005	38	14.63	14 x 14
	18	29 x 29	28 x 28	15025107	53	15025007	44	18.63	18 x 18
WAB	14	24.8 x 24.8	24 x 24	15025105	46	15025005	38	14.63	14 x 14
	18	29 x 29	28 x 28	15025107	53	15025007	44	18.63	18 x 18
	24	37.5 x 37.5	36 x 36	15025109	68	15025009	56	24.63	24 x 24
	30	45.5 x 45.5	44 x 44	15025112	82	15025012	67	30.63	30 x 30
	36, 40	53 x 53	52 x 52	15025115	99	15025015	80	36.63	36 x 36

NOTE: Damper to be flanged. Dimensions are not to be used for construction.

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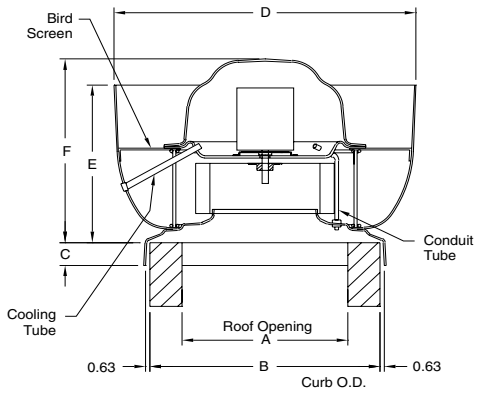
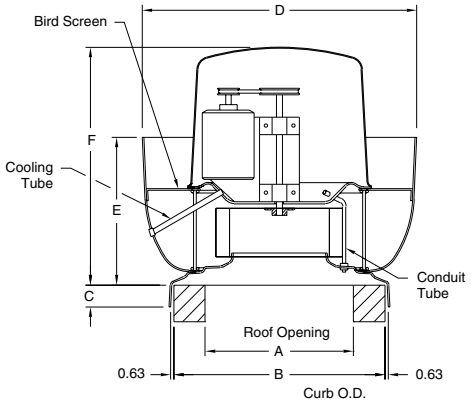
Model WA - Direct Drive



Model WAB - Belt Driven



Model WA - Direct Drive

MODEL NO.	HP	RPM	WEIGHT (LBS.)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
				A	B	C	D	E	F	
7WA2	1/15	1550	18	8	16	2	17 1/4	8	11 11/16	6 x 6
10WA1	1/12	860	50							
10WA2	1/8	1160	43	12	20	3	25 1/4	12 1/8	18 5/8	10 x 10
10WA3	1/6	1750	44							
12WA1	1/12	860	50							
12WA2	1/8	1160	43	12	20	3	25 1/4	12 1/8	19 3/8	10 x 10
12WA3	1/4	1750	46							
14WA1	1/12	860	67							
14WA2	1/8	1160	67	16	24	3	28 7/8	17 1/2	28 1/16	14 x 14
14WA3	1/2	1750	73							
18WA1	1/4	860	118	20	28	3	36 3/4	25	32 3/8	18 x 18
18WA2	1/2	1160	130							

D-3300-1C

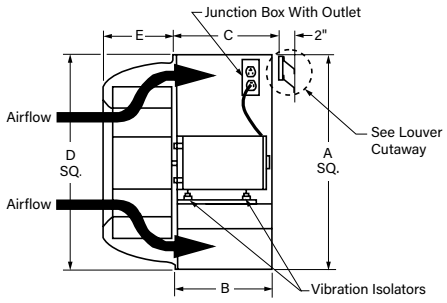
Model WAB - Belt Driven

MODE NO.	HP	WEIGHT (LBS.)	DIMENSIONS (INCHES)						BACKDRAFT DAMPER
			A	B	C	D	E	F	
14WA1B	1/4	72							
14WA2B	1/4	73							
14WA3B	1/4	75	16	24	3	28 7/8	17 1/2	28 1/16	14 x 14
14WA4B	1/3	74							
14WA5B	1/2	76							
18WA1B	1/4	123							
18WA2B	1/4	125	20	28	3	36 3/4	25	32 3/8	18 x 18
18WA3B	1/3	129							
18WA4B	1/2	133							
24WA1B	1/4	185							
24WA2B	1/4	187							
24WA3B	1/3	192	28	36	3	45 3/4	31	34 1/16	24 x 24
24WA4B	1/2	195							
24WA5B	3/4	202							
24WA6B	1	205							
30WA1B	1/3	265							
30WA2B	1/2	269							
30WA3B	3/4	287	36	44	3	59	34 1/2	39 3/8	30 x 30
30WA4B	1	291							
30WA5B	1 1/2	295							
30WA6B	2	307							
36WA1B	1/2	572							
36WA2B	3/4	591							
36WA3B	1	595							
36WA4B	1 1/2	599	44	52	3	69 1/2	45	46 1/16	36 x 36
36WA5B	2	611							
36WA6B	3	615							
36WA7B	5	625							
40WA1B	1/2	632							
40WA2B	3/4	658							
40WA3B	1	675							
40WA4B	1 1/2	671	44	52	3	69 1/2	45	46 1/16	36 x 36
40WA5B	2	677							
40WA6B	3	681							
40WA7B	5	730							
40WA8B	7 1/2	750							

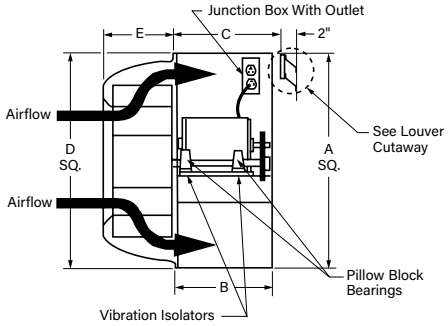
D-3300-2C

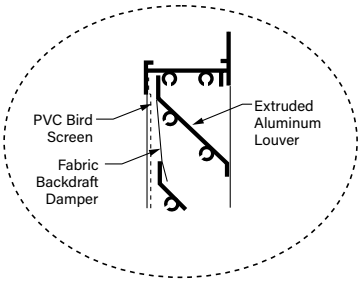
HA / HAB

Model HA - Direct Drive



Model HAB - Belt Driven





Louver Cutaway

Model HA - Direct Drive

MODEL NO.	HP	RPM	WEIGHT (LBS.)	DIMENSIONS (INCHES)					
				A SQ.	B	C MAX. STD. MOTOR	C MAX. SPECIAL MOTOR	D SQ.	E
7HA1	1/15	1550	30	12 3/4	6 1/8	6 1/2	NA	13	3 7/8
7HA2	1/15	1550	30						
10HA1	1/8	1160	70	20 1/2	11 3/4	12 1/8	13 3/4	20 3/4	6
10HA2	1/6	1750	75						
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	1750	75						
14HA1	1/12	860	90	23 1/2	13	13 3/8	14 1/4	23 3/4	7 7/8
14HA2	1/8	1160	90						
14HA3	1/2	1750	105						
18HA1	1/4	860	115	26	14	14 3/8	14 3/4	26 1/4	8 3/4
18HA2	1/2	1160	115						

D-3100-1B

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. STD. MOTOR	C MAX. SPECIAL MOTOR	D SQ.	E
12HA1B	1/4	75	20 1/2	11 3/4	12 1/8	16 1/8	20 3/4	6
12HA2B	1/4	80						
12HA3B	1/4	80						
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 1/8
30HA2B	1/2	255						
30HA3B	3/4	255						
30HA4B	1	260						
30HA5B	1 1/2	260						
30HA6B	2	300						

D-3100-2B

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

Model
WA

Fiberglass centrifugal roof ventilators shall be Whirlout® upblast Model WA direct drive 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 — Fan housings including aerodynamically shaped inlet venturi, windband skirt and motor cover 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 ultraviolet 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 $^{1}/_{2}$" x $^{1}/_{2}$" mesh screens or guards fitted to the airflow guides and basket supports 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 shall be black epoxy coated (2 mils DFT minimum) for additional chemical resistance.

IMPELLERS — Fan impellers shall be of the airfoil centrifugal type (sizes 14 and 18) or the flat bladed, backward inclined type (sizes 07, 10 and 12), non-overloading design to couple non-overloading power limiting characteristics with performance of the highest efficiency and lowest noise generation. Airfoil blades on sizes 14 and 18 shall be extruded from aluminum and welded to the front and back plate of the impeller using jigs and fixtures to insure exact location and thus insure optimum fan performance. Airfoil impellers shall be epoxy coated. Flat bladed, backward inclined impellers on sizes 07, 10 and 12 shall be of polypropylene construction, securely fixed to a cast aluminum hub. A polypropylene option for sizes 14 through 18 shall be available.

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

MOTORS — 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 UL and/or CSA listed.

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 non-fused 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 to the motor compartment for field supply conductors.

FACTORY RUN TEST — 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 impeller 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.

Model

WAB

Fiberglass centrifugal roof ventilators shall be Whirlout® upblast Model WAB belt driven 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 — Fan housings including aerodynamically shaped inlet venturi, windband skirt and motor cover 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 ultraviolet 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 $^1/_2$" x $^1/_2$" mesh screens or guards fitted to the airflow guides and basket supports 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 shall be black epoxy coated (2 mils DFT minimum) for additional chemical resistance.

IMPELLERS — Fan impellers shall be of the airfoil centrifugal type (sizes 14 through 36) or the flat bladed, backward inclined type (sizes 07, 10 and 12), non-overloading design to couple non-overloading power limiting characteristics with performance of the highest efficiency and lowest noise generation. Airfoil blades on sizes 14 through 36 shall be extruded from aluminum and welded to the front and back plate of the impeller using jigs and fixtures to insure exact location and thus insure optimum fan performance. Airfoil impellers shall be epoxy coated. Flat bladed, backward inclined impellers on sizes 07, 10 and 12 shall be of polypropylene construction, securely fixed to a cast aluminum hub. A polypropylene option for sizes 14 through 36 shall be available.

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

DRIVES & BEARINGS — 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 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 UL and/or CSA listed.

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 non-fused 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 to the motor compartment for field supply conductors.

FACTORY RUN TEST — 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 impeller 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.

Model
HA

Fiberglass centrifugal wall ventilators shall be Hid-N-Aire® wall flush mounted Model HA direct drive 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 — Fan housings including aerodynamically shaped inlet venturi, and windband skirt 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.

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

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.

IMPELLERS — Fan impellers shall be of the airfoil centrifugal type (sizes 14 and 18) or the flat bladed, backward inclined type (sizes 07, 072, 10 and 12), non-overloading design to couple non-overloading power limiting characteristics with performance of the highest efficiency and lowest noise generation. Airfoil blades on sizes 14 and 18 shall be extruded from aluminum and welded to the front and back plate of the impeller using jigs and fixtures to insure exact location and thus insure optimum fan performance. Airfoil impellers shall be epoxy coated. Flat bladed, backward inclined impellers on sizes 07, 072, 10 and 12 shall be of polypropylene construction, securely fixed to a cast aluminum hub. A polypropylene option for sizes 14 and 18 shall be available.

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

MOTORS — 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 UL and/or CSA listed.

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 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 impeller 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.

Model
HAB

Fiberglass centrifugal roof and wall ventilators shall be Hid-N-Aire® wall flush mounted Model HAB belt driven 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 — Fan housings including aerodynamically shaped inlet venturi, and windband skirt 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.

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

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.

IMPELLERS — Fan impellers shall be of the airfoil centrifugal type (sizes 14 through 30) or the flat bladed, backward inclined type (sizes 07, 072, 10 and 12), non-overloading design to couple non-overloading power limiting characteristics with performance of the highest efficiency and lowest noise generation. Airfoil blades on sizes 14 through 30 shall be extruded from aluminum and welded to the front and back plate of the impeller using jigs and fixtures to insure exact location and thus insure optimum fan performance. Airfoil impellers shall be epoxy coated. Flat bladed, backward inclined impellers on sizes 07, 072, 10 and 12 shall be of polypropylene construction, securely fixed to a cast aluminum hub. A polypropylene option for sizes 14 through 30 shall be available.

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

DRIVES & BEARINGS — 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 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 UL and/or CSA listed.

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 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 impeller 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.

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CENTRIFUGAL ROOF & WALL EXHAUSTERS | CEILING VENTILATORS | GRAVITY VENTILATORS | DUCT BLOWERS
RADIAL BLADED FANS | RADIAL TIP FANS | HIGH EFFICIENCY INDUSTRIAL FANS | PRESSURE BLOWERS
LABORATORY EXHAUST FANS | FILTERED SUPPLY FANS | MANCOOLERS | FIBERGLASS FANS | CUSTOM FANS

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