

TUBEAXIAL PAINT SPRAY BOOTH EXHAUST FANS

Model BTABD



Belt Driven Tubeaxial Fans

The Aerovent model BTABD is a belt driven tubeaxial fan that is designed specifically for reliable and cost effective air movement in paint spray booth applications. Model BTABD exhaust fans are designed for applications requiring either a horizontal or a vertical airflow direction.

Sizes and Performance

- Arrangement 9 – belt driven
- Available in sizes from 12" to 42" diameter
- Capacity from 1,295 to 36,131 CFM
- Static pressures to 1.25" w.g.

Construction Features

- Aluminum non-sparking propeller dynamically balanced for quiet, vibration-free operation
- Continuously welded, heavy-gauge, corrosion resistant, enamel coated steel housing with pre-punched inlet and outlet flanges
- OSHA belt guards are standard
- Non-relubricable "sealed for life" ball bearings in mono-block housing to ensure reliable bearing performance
- Designed for continuous duty

Housing

Housings are heavy-gauge, hot-rolled steel construction, continuously welded and ground smooth to assure efficient airflow through the housing. Inlet and outlet flanges are integrally rolled and punched to allow attachment to ductwork or accessories as necessary. When an inlet bell is required, the housing is formed with a bell shaped inlet instead of the inlet flange, eliminating the need for and the expense of a separate inlet bell.

Drive Isolated from Airstream

The shaft and bearing assembly is mounted within an inner cylinder isolated from the airstream. The v-belt drive assembly is enclosed in an aerodynamically designed belt tube which maximizes fan efficiency, minimizes air blockage and reduces noise generation. An access door on the belt tube is standard.

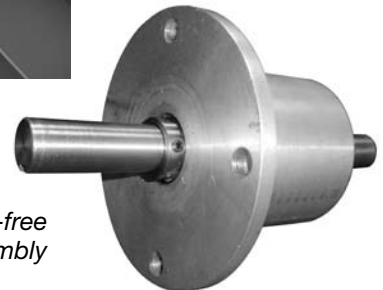
Propeller

- Die cast aluminum construction
- Unique BackSwept profile with airfoil cross section
- Adjustable pitch blades with factory set blade angles
- Uses split taper lock bushing for superior holding power on shaft
- Generates low wake turbulence for low noise emission

Model BTABD



Aerodynamic belt tube with standard access door



Maintenance-free bearing assembly



6-Bladed BSA Propeller

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Bulletin illustrations cover the general appearance of products at the time of publication, and we reserve the right to make changes in design and construction at any time without notice.

Accessories / Options

Inlet and Outlet Guards

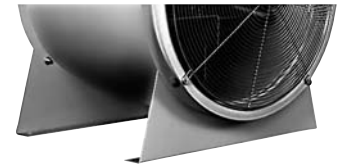
Inlet and outlet guards are offered to protect personnel from the moving parts. Recommended for use when no ductwork is attached to the inlet and/or outlet. Guards are removable for routine inspection and cleaning of the propeller.



Inlet/Outlet Guard with Inlet Bell

Support Legs

Support legs are available for standard platform or floor mounting. The support legs are bolted to the inlet and outlet flange.



Support Legs

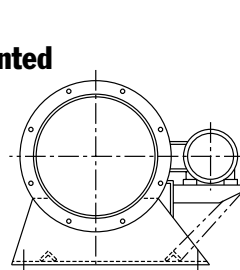
Inlet Bell Option

An inlet bell is recommended on the inlet side of the fan to minimize entrance losses for installations where the fan inlet is not attached to a duct system. Inlet bells are an integral part of the fan housing and replace the inlet flange when ordered.

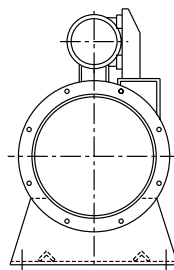
Optional Mounting Arrangements

Following are optional mounting arrangements for the model BTABD fans.

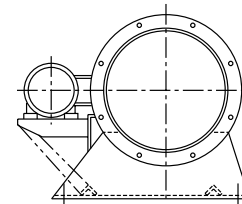
Horizontal Floor Mounted (view from outlet)



Standard (Std)

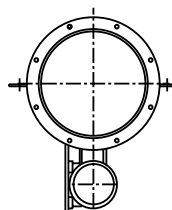


Top

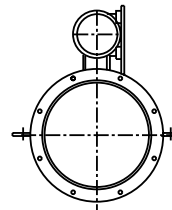


*Opposite Standard, (Optional Std)
Requires F-2 Motor*

Horizontal Ceiling Mounted (view from outlet)



*Bottom
(A11)*



*Top
(A12)*

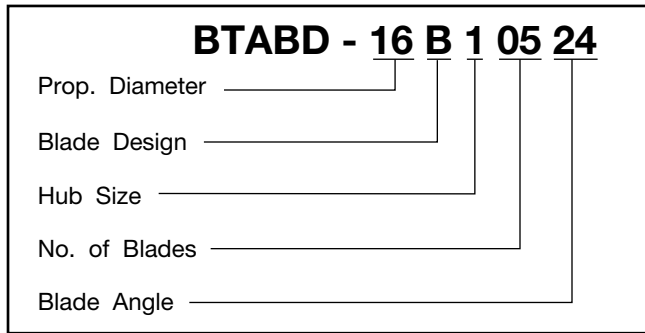
Performance Data

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

All capacities shown in the performance tables that follow are for standard air conditions: 70°F at sea level (0.075 lbs./cu.ft. air density).

The tables show a representative sample of the wide range of propellers available.

Catalog Number System



Size 12 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																							
FAN SIZE	RPM	HP	0" SP		1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1 1/8" SP		1 1/4" SP			
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
12B10521	2375	1/4	1295	.20	1240	.21	1171	.22	1102	.22	1010	.23	900	.24	730	.24										
12B10521	2745	1/2	1500	.31	1452	.32	1394	.33	1336	.34	1273	.35	1200	.36	1107	.37										
12B10521	3576	1	1953	.67	1923	.69	1879	.71	1835	.72	1788	.74	175	1745	1700	.76	1647	.77								

Size 14 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																							
FAN SIZE	RPM	HP	0" SP		1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1 1/8" SP		1 1/4" SP			
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
14B10532	2036	1/2	2478	.45	2375	.47	2255	.48	2130	.49	1930	.50	1691	.49												
14B10532	2258	3/4	2751	.62	2659	.64	2555	.65	2447	.67	2320	.68	2122	.69	1906	.68										
14B10532	2463	1	2991	.80	2916	.82	2819	.85	2723	.86	2619	.87	2489	.88	2300	.88	2104	.88								

Size 16 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																							
FAN SIZE	RPM	HP	0" SP		1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1 1/8" SP		1 1/4" SP			
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
16B10524	1890	1/2	2887	.47	2769	.42	2631	.44	2485	.46	2300	.48	2071	.48	1815	.48										
16B10524	2145	3/4	3272	.60	3173	.62	3059	.64	2934	.69	2800	.50	2637	.69	2440	.75	2237	.71								
16B10524	2429	1	3709	.86	3620	.88	3516	.91	3412	.94	3303	.95	3183	.97	3050	1.00	2887	1.01	2705	1.02	2523	1.02				

Size 18 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																						
FAN SIZE	RPM	HP	0" SP		1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1 1/8" SP		1 1/4" SP		
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM
18B10525	1496	1/2	3309	.33	3142	.35	2918	.37	2656	.38	2320	.39													
18B10525	1877	3/4	4125	.66	4031	.68	3867	.71	3694	.73	3500	.75	3263	.77	2980	.77	2698	.77							
18B10525	2064	1	4572	.88	4463	.90	4307	.93	4166	.95	4000	.98	3815	.99	3597	1.01	3355	1.03	3090	1.03	2754	1.01			
18B10525	2237	1 1/2	4939	1.12	4861	1.14	4728	1.17	4588	1.20	4440	1.22	4283	1.25	4104	1.28	3909	1.30	3683	1.31	3456	1.31	3200	1.25	
18B10525	2566	2	5684	1.69	5618	1.71	5501	1.75	5385	1.78	5260	1.82	5135	1.85	5000	1.87	4852	1.90	4686	1.93	4519	1.95	4319	1.97	

Size 24 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																						
FAN SIZE	RPM	HP	0" SP		1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1 1/8" SP		1 1/4" SP		
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM
24B30618	1427	3/4	6393	.61	6163	.69	5878	.77	5574	.85															
24B30618	1565	1	7012	.80	6804	.89	6551	.99	6505	1.05	6000	1.15	5701	1.20											
24B30618	1719	1 1/2	7701	1.06	7514	1.16	7291	1.27	7046	1.37	6800	1.46	6542	1.53	6261	1.59	5969	1.63	5653	1.66					
24B30618	1856	2	8321	1.34	8146	1.44	7935	1.56	7724	1.67	7500	1.77	7256	1.86	7010	1.94	6753	2.00	6472	2.05	6203	2.08	5910	2.10	
24B30618	2119	3	9488	2.00	9363	2.10	9176	2.24	8988	2.38	8785	2.51	8598	2.62	8400	2.72	8193	2.81	7958	2.90	7740	2.97	7521	3.03	

Performance shown is for installation type D: Ducted inlet, ducted outlet.
 Power ratings (BHP) do not include drive losses.
 Performance ratings do not include the effects of appurtenances in the airstream.

Performance Data

Size 30 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																					
FAN SIZE	RPM	HP	0" SP	1/8" SP	1/4" SP	3/8" SP	1/2" SP	5/8" SP	3/4" SP	7/8" SP	1" SP	1 1/8" SP	1 1/4" SP											
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP								
30B30618	1060	1	9224	.68	8737	.79	8220	.89	7639	.97	7000	1.01	6290	1.03	5537	1.02								
30B30618	1218	1 1/2	10588	1.03	10180	1.16	9741	1.29	9271	1.39	8750	1.47	8204	1.53	7608	1.56	6965	1.56	6337	1.55				
30B30618	1337	2	11610	1.37	11256	1.51	10861	1.65	10445	1.78	10000	1.88	9508	1.97	9009	2.02	8468	2.05	7886	2.06	7324	2.05	6741	2.04
30B30618	1538	3	13316	2.11	13066	2.24	12713	2.42	12359	2.57	12000	2.71	11600	2.83	11194	2.94	10778	3.02	10341	3.08	9862	3.12	9384	3.14
30B30618	1852	5	16104	3.63	15870	3.82	15589	4.03	15308	4.23	15000	4.42	14700	4.60	14372	4.77	14068	4.91	13740	5.04	13389	5.16	13038	5.26

Size 34 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																					
FAN SIZE	RPM	HP	0" SP	1/8" SP	1/4" SP	3/8" SP	1/2" SP	5/8" SP	3/4" SP	7/8" SP	1" SP	1 1/8" SP	1 1/4" SP											
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP								
34B30420	1190	2	15106	1.63	14447	1.75	13671	1.85	12824	1.92	12000	1.96	11035	1.97	10094	1.96	9176	1.94						
34B30420	1382	3	17540	2.55	17009	2.68	16322	2.83	15698	2.92	15000	3.00	14231	3.06	13420	3.08	12640	3.08	11797	3.06	10986	3.04		
34B30420	1621	5	20567	4.12	20130	4.27	19599	4.44	19069	4.58	18500	4.70	17883	4.81	17259	4.89	16635	4.94	15948	4.97	15230	4.98	14512	4.97

Size 36 BTABD Belt Driven Tubeaxial

CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																					
FAN SIZE	RPM	HP	0" SP	1/8" SP	1/4" SP	3/8" SP	1/2" SP	5/8" SP	3/4" SP	7/8" SP	1" SP	1 1/8" SP	1 1/4" SP											
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP								
36B30420	1118	2	16736	1.72	15964	1.84	15051	1.94	14068	2.01	13000	2.04	11891	2.03	10767	2.02								
36B30420	1277	3	19137	2.56	18478	2.70	17694	2.83	16878	2.93	16000	3.00	15059	3.03	14086	3.04	13114	3.02	12110	3.00				
36B30420	1511	5	22684	4.23	22101	4.41	21446	4.58	20791	4.72	20100	4.93	19371	4.93	18606	4.99	17841	5.03	17004	5.04	16166	5.02	15293	5.00

Size 42 BTABD Belt Driven Tubeaxial

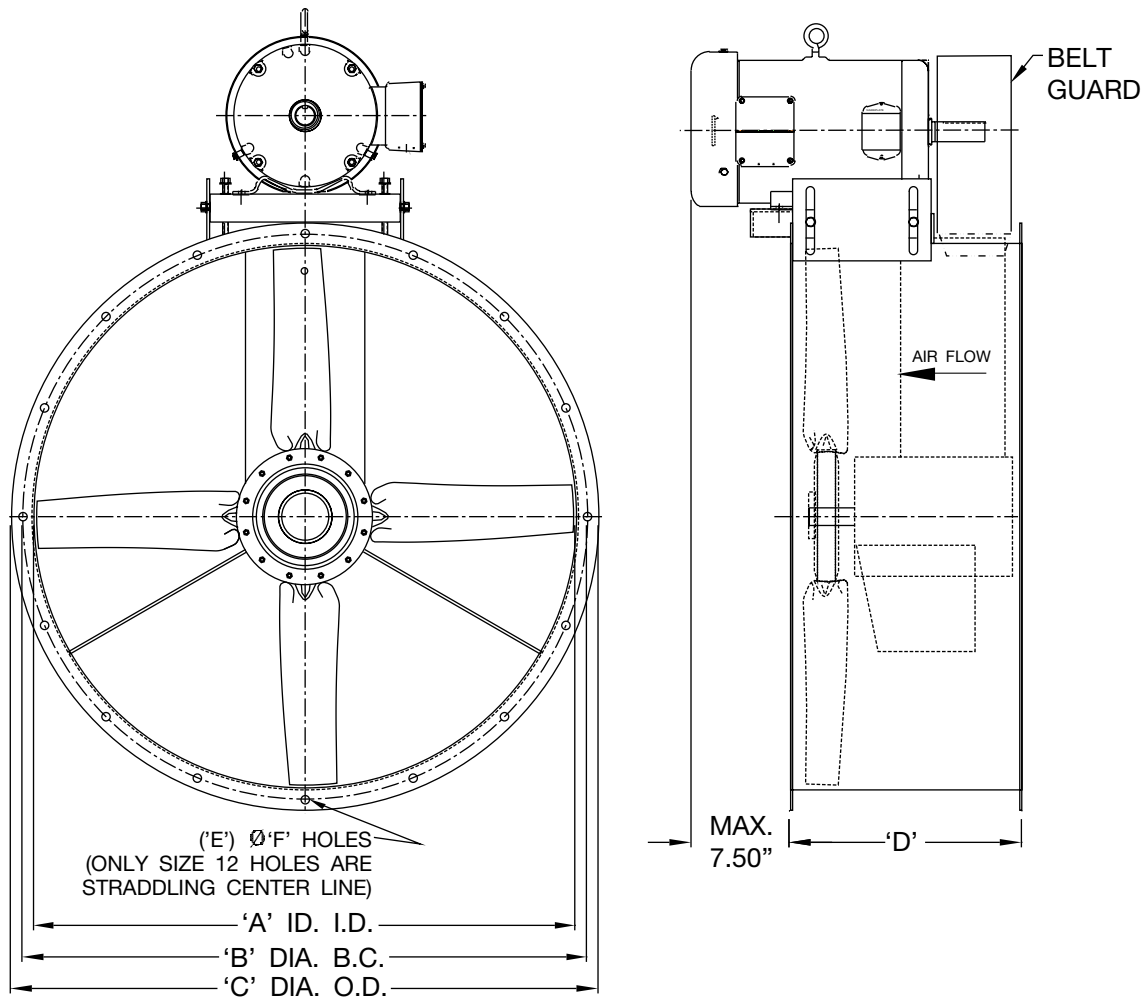
CATALOG NUMBER			CUBIC FEET PER MINUTE & HORSEPOWER AT STATIC PRESSURE																					
FAN SIZE	RPM	HP	0" SP	1/8" SP	1/4" SP	3/8" SP	1/2" SP	5/8" SP	3/4" SP	7/8" SP	1" SP	1 1/8" SP	1 1/4" SP											
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP								
42B30420	1032	3	23376	2.43	22190	2.59	20817	2.71	19506	2.77	18000	2.79	16447	2.78	14918	2.75								
42B30420	1246	5	28213	4.29	27256	4.48	26216	4.65	25134	4.77	24000	4.86	22804	4.91	21514	4.92	20224	4.90	18934	4.87	17727	4.84		
42B30420	1359	7 1/2	30793	5.56	29909	5.77	28973	5.96	27984	6.12	27000	6.24	25904	6.33	24811	6.37	23667	6.39	22419	6.37	21274	6.34	20078	6.30
42B30420	1636	10	36131	9.01	35399	9.26	34614	9.49	33830	9.70	33000	9.88	32105	10.04	31216	10.16	30327	10.25	29386	10.30	28392	10.33	27399	10.34

Performance shown is for installation type D: Ducted inlet, ducted outlet.

Power ratings (BHP) do not include drive losses.

Performance ratings do not include the effects of appurtenances in the airstream.

Dimensional Data



SIZE	A	B	C	D	E	F	MAX. MTR FRAME
12	12.25	13.88	14.88	12.00	8	.44	145T
14	14.25	15.88	16.88	12.00	8	.44	145T
16	16.25	17.88	19.00	12.00	8	.44	145T
18	18.25	19.88	21.00	12.00	8	.44	145T
24	24.25	25.88	27.13	15.50	8	.56	184T
30	30.38	31.88	33.25	15.50	8	.56	184T
34	34.38	35.75	37.38	15.50	8	.56	184T
36	36.38	37.88	39.38	15.50	16	.56	184T
42	42.50	43.75	45.50	15.50	16	.56	215T

Dimensions shown are in inches unless otherwise indicated.
Dimensions are not to be used for construction.

R33867

Typical Specifications

Model BTABD, Arrangement 9 – Belt Driven

Fans, where indicated on drawings and schedules, shall be Model BTABD, Arrangement 9, V-belt driven, axial flow type as manufactured by Aerovent, Minneapolis, Minnesota, and shall be of the size and capacity as indicated in the fan schedules. Model BTABD fans have been tested in an AMCA registered laboratory in accordance with AMCA 210 and AMCA 300 test codes for both air and sound. In addition each unit shall be factory run tested and final trim balanced prior to shipment.

CONSTRUCTION — Fan casings shall be welded of ASTM A-1011 low carbon, commercial quality 12-gauge hot rolled steel in sizes through 20" diameter, 10-gauge hot rolled steel from 24" diameter through 28" diameter, and 7-gauge hot rolled steel on sizes greater than 30" in diameter. Inlet and outlet flanges shall be integrally rolled mechanically from fan casing sheet steel to insure concentricity and alignment. Accuracy and uniformity of the fan casing shall be insured through the use of welding jigs and fixtures. The motor base plate shall be fabricated of minimum $\frac{3}{16}$ " steel plate and welded to the exterior of the fan casing.

PROPELLERS — Propellers shall be constructed of non-sparking, die cast aluminum hubs and blades. Fan blade pitch angle shall be preset at the factory. Propellers shall be secured to the fan shaft with a taper lock bushing.

SHAFT & BEARINGS — All fans shall be supplied with a shaft of AISI C-1045 steel material that has been properly turned, ground, and polished for accuracy. The shaft shall be supported by a matched set of non-lubricable bearings that are housed in a cast aluminum monoblock. All fan bearings are to have an L-10 minimum life as defined by AFBMA of at least 60,000 hours.

DRIVES — Fan drives shall include cast iron sheaves and non-static conducting belts. Fans equipped with motors up to and including five horsepower will be furnished with a variable pitch type drive sheave to allow for minor speed adjustment of the fan propeller during system balance. Fans equipped with larger motors will be furnished with a fixed drive sheave. A belt guard is to be provided to afford personnel safety and general traffic protection.

MOTORS — Fan motors shall be manufactured in accordance with current applicable standards of IEEE and NEMA. They shall be foot-mounted, NEMA standard, TEFC or ODP, continuous duty, ball bearing with class "B" insulation.

BALANCING — The propeller assembly shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-05 "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, at the fan test speed:

Fan Application Category	Rigidly Mounted (In/Sec)	Flexibly Mounted (In/Sec)
BV-3	0.15	0.20

Final test room vibration levels in the axial, vertical, and horizontal planes shall be recorded and a written copy shall be available upon request.

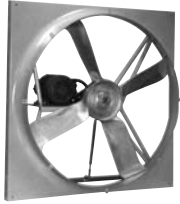
FINISH — The fan housing, after fabrication, shall be cleaned and chemically pretreated by a phosphatizing process and shall be painted inside and out with two coats of air dry enamel.

Quality Air Handling Equipment

AXIAL FLOW



Tubeaxial



Panel Fan



Mancooler



Ring Fan



Tubeaxial Adjustable Pitch

VANEAXIAL



Type VT



Type W Adjustable Pitch



Type VTF Fiberglass

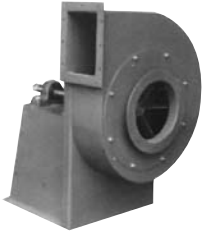


Type B Higher Pressure



Axico Anti-Stall

CENTRIFUGAL



Industrial Exhaust



CB / CBA



Series 14 High Pressure



Centaxial



Pressure Blower

ROOF VENTILATOR



Upblast Propeller



Upblast Axial



Tu-WAY™

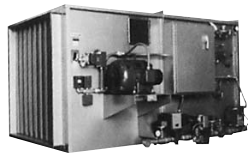


Fiberglass

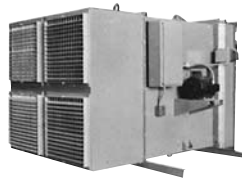


PRV Centrifugal

AIR HEATER



Gas-Fired Air Make-Up



Steam Air Make-Up



Door Air Heater

WARRANTY

Aerovent equipment is guaranteed to deliver its rated output, if properly installed and operated under normal conditions. Aerovent will correct by repair, replacement, or issuance of credit at our option, F.O.B. our plant, defects in material or workmanship which may develop under normal and proper use within eighteen (18) months after date of shipment from

our factory, if purchaser gives us notice within ten (10) days of discovering such defects. The correction of these defects by repair, replacement, or issuance of credit shall constitute fulfillment of all obligation to purchaser. (NOTE: We will not assume expense or liability for repairs made outside our factory without prior written consent.)



Aerovent

A Twin City Fan Company

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