

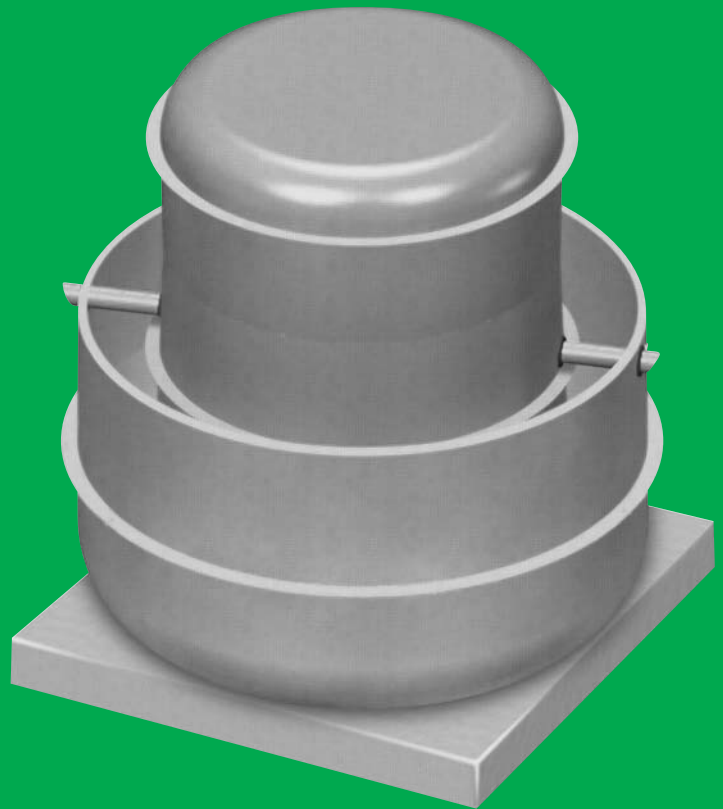
# Fiberglass Centrifugal Exhausters

Series 82

Series 83

Series 87

Series 88



# HARTZELL®

Hartzell Fan, Inc., Piqua, Ohio 45356  
[www.hartzellfan.com](http://www.hartzellfan.com)

# Index

**Hartzell Model Code Explanation** ..... Page 2  
**Corrosion Resistance Guide**..... Page 3  
**Fiberglass Exhauster Construction Features** ..... Page 4  
**Series 82, 83, 87, and 88 Exhausters** ..... Page 5

**Performance Data** ..... Pages 6-10  
**Options and Accessories** ..... Page 11



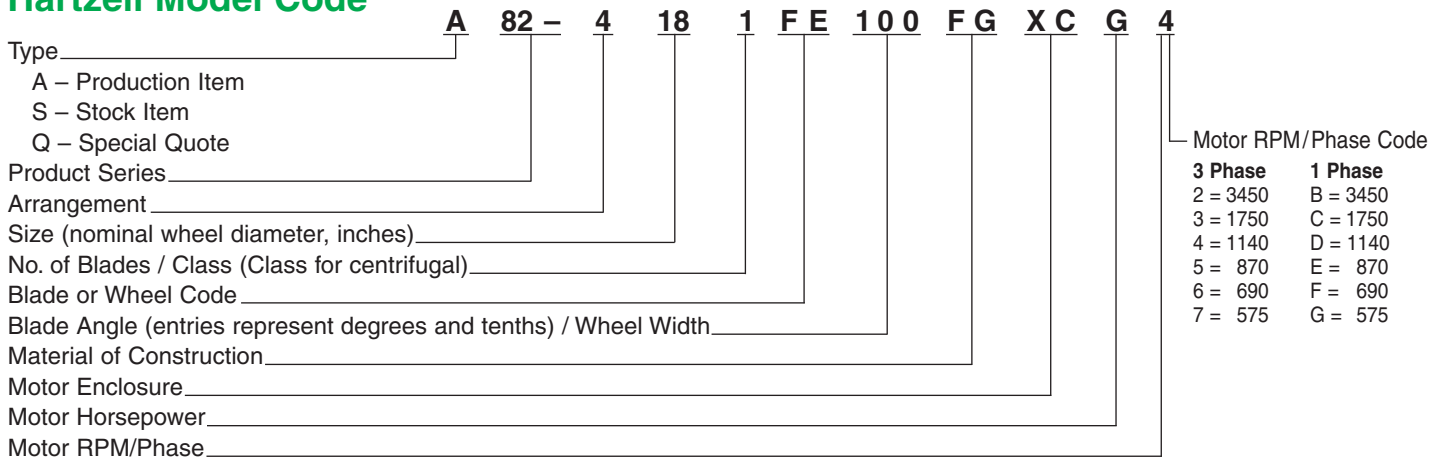
## Ratings for Air & Sound Performance

Hartzell Fan, Inc. certifies that the Series 82 and 83 Fiberglass Downblast Exhausters and Series 87 and 88 Fiberglass Upblast Exhausters, Air and Sound Performance Ratings shown herein are reliable and accurate and in accordance with industry standards. The ratings shown are based on tests and procedures performed in accordance with AMCA Standard 210, Standard 300, and Standard 301.

Sound Performance data is available upon request. Please contact the factory and ask for Engineering Publication #SD-161.

# Hartzell Model Code Explanation

## Hartzell Model Code



## Motor Horsepower

Horsepower	¼	⅓	½	¾	1	1½	2	3	5	7½	10	15	20	25	30	40	50	60	75	100	125	150	200
Code Letter	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

## Example:

Assume a needed performance of 3237 CFM at ¼" SP, standard air on a downblast direct drive unit. Reading the rating table on page 6 we find a Series 82, Size 18, operating at 1160 rpm. Review of the selection in Hartzell Fan's Electronic Support Package (ESP) shows 0.54 brake horsepower (BHP). Required motor horsepower is ¾. The model code can be constructed as follows: Type will be a production item (code A), product series for the FRP Downblast Roof Exhauster Fan is 82-, the arrangement

is 4, size is 18, wheel class is 1, wheel type is FE with 100 for the width, material for construction is fiberglass (code FG), motor enclosure will be Totally Enclosed, Fan Cooled Extended Shaft C-face Motor (code XC), motor horsepower is ¾ (code G) with RPM/phase of 1160 (code 4).

Note: All other informational fields must be filled with hyphens/dashes (-) if they are not applicable to the fan being considered.

This bulletin lists Hartzell's line of Fiberglass Upblast and Downblast Exhausters, Type FE and accessories. More than 70 Hartzell offices can provide specific performance and installation data to meet your requirements. Call your Hartzell representative for assistance. Visit our website ([www.hartzellfan.com](http://www.hartzellfan.com)) or call toll-free (1-800-336-3267) for the name of your Hartzell representative.

Refer to Bulletin A-108 for technical fan selection data and formulas.



# Corrosion Resistance Guide

Temperature values shown are for immersion or condensate contact applications. Where temperature values are shown, resin is suitable for hood and duct type applications for the full operating temperature range of the product. See product specifications for materials of construction and maximum operating temperature limits.

Environment	Hetron 693 Ashland F.	Hetron FR992 Ashland F.	510A Ashland F.	Environment	Hetron 693 Ashland F.	Hetron FR992 Ashland F.	510A Ashland F.	Environment	Hetron 693 Ashland F.	Hetron FR992 Ashland F.	510A Ashland F.
<b>ACIDS</b>				<b>ALKALIES (Synthetic Veil)</b>				<b>SALTS (cont'd.)</b>			
Acetic to 10%	180	200	210	Ammonium Bicarbonate to 50%	140.00	\$170	160.00	Sodium Ferricyanide	220.00	220.00	210.00
Acetic to 50%	90	160	180	Ammonium Carbonate	120.00	\$140	150.00	Sodium Fluoride	-	\$180	\$180
Acetic to 100%	-	NR	NR	Ammonium Hydroxide to 5%	\$90	\$180	\$180	Sodium Nitrate	220.00	220.00	210.00
Acrylic to 25%	-	100	100	Ammonium Hydroxide to 10%	\$90	\$170	\$150	Sodium Nitrite	-	220.00	NR
Benzene Sulfonic to 25%	180	210	150	Ammonium Hydroxide to 29%	NR	\$100	\$100	Sodium Silicate PH less than 1	160.00	210.00	NR
Benzene Sulfonic 25% up	90	210	NR	Barium Carbonate	180.00	\$240	210.00	Sodium Sulfate	180.00	240.00	210.00
Benzoinc	250	220	210	Barium Hydroxide to 10%	-	\$170	150.00	Sodium Sulfite	-	220.00	210.00
Boric	180	220	210	Calcium Hydroxide to 15%	160.00	\$210	\$180	Stannic Chloride	*180	*220	*210
Butyric to 50%	150	150	210	Magnesium Carbonate	160.00	\$210	180.00	Stannous Chloride	*200	*220	*210
Butyric 50% up	-	100	80	Potassium Bicarbonate to 10%	90.00	\$170	\$150	Zinc Chloride	200.00	*220	*210
Carbonic	160	220	NR	Potassium Carbonate to 10%	90.00	\$180	\$150	Zinc Nitrate	180.00	220.00	210.00
Chloroacetic to 25%	NR	*180	*150	Potassium Hydroxide to 25%	NR	\$120	\$150	Zinc Sulfite	150.00	220.00	NR
Chloroacetic 25% to 50%	NR	*150	*120	Sodium Bicarbonate to 10%	140.00	\$210	\$180				
Chromic to 5%	100	110	150	Sodium Carbonate to 35%	90.00	\$180	\$180	<b>SOLVENTS</b>			
Chromic to 10% to 20%	-	NR	150	Sodium Hydroxide to 10%	NR	\$160	\$180	Acetone to 10%	NR	180.00	180.00
Citic	*200	*220	*210	Sodium Hydroxide to 25%	NR	\$160	\$180	Benzene	90.00	80.00	NR
Fluoboric	*\$90	*\$220	*\$210	Sodium Sulfide	90.00	\$220	\$210	Carbon Disulfide	NR	NR	NR
Glucosilic up to 10%	\$100	\$150	\$180	Sodium Phosphate to 50%	-	\$175	210.00	Carbon Tetrachloride	90 VAPOR	110.00	150.00
Formic up to 10%	200	150	180					Chlorobenzene	NR	NR	NR
Gluconic to 50%	120	180	180	<b>SALTS</b>				Ethyl Acetate	NR	NR	NR
Hydrobromic to 25%	*160	*170	*180	Aluminum Chloride	*120	*240	*210	Ethyl Chloride	90 VAPOR	NR	NR
Hydrochloric to 15%	*230	*210	*180	Aluminum Potassium Sulfate	160.00	240.00	210.00	Ethylene Dibromide	NR	NR	NR
Hydrochloric to 10%	200	170	210	Aluminum Sulfate	250.00	240.00	210.00	Ethylene Glycol	250.00	220.00	210.00
Hydrofluoric to 10%	***\$100	***\$150	***\$150	Ammonium Chloride	*200	*220	*210	n-Heptane	120.00	210.00	210.00
Hydrofluorosilicic up to 10%	*\$100	*\$150	*\$180	Ammonium Nitrate	200.00	220.00	220.00	Hexane	-	150.00	160.00
Hypochlorous to 20%	90	110	NR	Ammonium Persulfate	150.00	200.00	180.00	Methyl Ethyl Ketone to 10%	NR	80.00	NR
Lactic	*200	*220	*210	Ammonium Persulfate, saturate	150.00	NR	NR	Naphtha	200.00	210.00	180.00
Maleic	170	210	210	Ammonium Sulfate	200.00	220.00	220.00	Naphthalene	130.00	220.00	210.00
Nitric to 5%	200	170	150	Aniline Sulfate to 25%	150.00	220.00	210.00	Tetrachloroethylene	NR	100.00	80.00
Nitric 5% to 20%	-	140	120	Aniline Sulfate, saturated	150.00	220.00	NR	Toluene	90.00	NR	80.00
Oleic	200	220	210	Barium Chloride	200.00	240.00	210.00	Xylene	90.00	80.00	80.00
Oxalic	*220	*220	*210	Barium Sulfide	NR	\$210	180.00				
Perchloric to 10%	H&D	**150	**150	Calcium Chlorate	180.00	220.00	220.00	<b>BLEACHES</b>			
Phosphoric	*220	*\$210	*\$210	Calcium Chloride	250.00	240.00	220.00	Calcium Chlorate	180.00	220.00	220.00
Phosphoric, super	-	*\$210	*\$210	Calcium Sulfate	*200	*240	*210	Calcium Hypochlorite	100.00	NR	\$160
Phthalic Anhydride	*150	*210	*210	Copper Chloride	*250	*220	*220	Chlorine Dioxide up to 15%	-	160.00	*200
Picric to 10%	100	170	NR	Copper Cyanide	90.00	\$220	210.00	Chlorine Water	*125	*210	*200
Silicic	-	220	NR	Copper Fluoride	NR	\$170	NR	Hydrogen Peroxide to 30%	120.00	100.00	150.00
Stearic	200	220	210	Copper Sulfate	250.00	240.00	210.00	Sodium Chlorate	90.00	210.00	210.00
Sulfamic to 25%	160	150	NR	Ferric Chloride	*250	*220	*210	Sodium Hypochlorite to 15%	NR	125.00	\$180
Sulfuric to 25%	*200	*220	*210	Ferric Nitrate	170.00	220.00	210.00				
Sulfuric to 50%	*200	*200	*180	Ferric Sulfate	200.00	220.00	210.00	<b>OTHERS</b>			
Sulfuric to 70%	*150	*180	*100	Ferrous Chloride	*220	*220	*210	Alum. Chlorohydroxide to 50%	-	220.00	210.00
Sulfuric to 80%	NR	80	NR	Ferrous Nitrate	160.00	220.00	210.00	Ammonium Phosphate	150.00	210.00	210.00
Sulfurous to 10%	90	110	120	Ferrous Sulfate	220.00	220.00	210.00	Aqua Rega	NR	*80	NR
Tannic	200	220	210	Lead Acetate	160.00	220.00	210.00	Detergents	120.00	170.00	150.00
Tartaric	220	220	210	Magnesium Chloride	220.00	240.00	210.00	Glycerine	200.00	220.00	210.00
Trichloroacetic to 50%	*90	*220	*200	Magnesium Hydroxide	-	\$210	210.00	Kerosene	120.00	210.00	180.00
				Magnesium Sulfate	200.00	210.00	210.00	Photographic Solutions	-	80.00	NR
<b>ALCOHOLS</b>				Mercuric Chloride	*210	*220	*210	Perchlorethylene	NR	100.00	80.00
Amyl	200	210	120	Mercurous Chloride	210.00	220.00	210.00	Sodium Tetraborate	180.00	\$210	180.00
Benzyl	NR	100	NR	Nickel Chloride	220.00	220.00	210.00	Sodium Tripolyphosphate	125.00	210.00	210.00
Butyl	190	150	120	Nickel Nitrate	220.00	220.00	210.00	Sodium Xylene Sulfonate	-	170.00	160.00
Ethyl	90	120	80	Nickel Sulfate	220.00	220.00	210.00	Sorbitol Solutions	180.00	220.00	160.00
Methyl	90	80	NR	Potassium Chloride	200.00	240.00	210.00	Urea	90.00	170.00	150.00
				Potassium Dichromate	200.00	220.00	210.00	Urea-Ammonium-Nitrate	-	120.00	120.00
<b>GASES AND VAPORS</b>				Potassium Ferricyanide	200.00	220.00	210.00	Fertilizer Fumes	100.00	120.00	150.00
Ammonia, Dry	90	170	100	Potassium Nitrate	200.00	220.00	210.00	Shell-D-D	NR	100.00	NR
Ammonia, Wet	90	NR	NR	Potassium Permanganate	150.00	210.00	210.00	Steam Vapor	180.00	210.00	180.00
Bromine, Wet	90	*100	NR	Potassium Persulfate	90.00	220.00	210.00				
Carbon Dioxide	250	250	250	Potassium Sulfate	200.00	240.00	210.00				
Carbon Monoxide	200	250	250	Silver Nitrate	200.00	220.00	210.00				
Chlorine, Dry	*200	*210	NR	Sodium Acetate	150.00	220.00	210.00				
Florine	-	NR	80	Sodium Bisulfate	200.00	220.00	210.00				
Hydrogen Fluoride, Vapor	*90	*\$180	*\$180	Sodium Chloride	200.00	240.00	180.00				
Hydrogen Sulfide to 5%	250	240	180	Sodium Chlorite to 10%	175.00	170.00	150.00				
Sulfur Dioxide, Dry	200	250	210	Sodium Cyanide	100.00	220.00	210.00				
Sulfur Dioxide, Wet	200	250	210	Sodium Dichromate	160.00	220.00	210.00				
Sulfur Trioxide, Wet	-	220	210								

Reference  
C.R.G.13

NOTES: NR = Not Recommended S = Synthetic surfacing veil or mat required. Contact factory. "-" = No test data available

\* Special shaft and hardware required, contact factory.

\*\* Special design considerations required (explosive environment), contact factory.

\*\*\* Do not use HartKoate. Special shaft and hardware required, contact factory.

For environments not shown, or when temperatures exceed the maximum listed, contact factory.

Hydrocarbon fuel environments may require static grounding, contact factory.

Do not use HartKoate (Alum. Oxide) with Hydrofluoric acid.



# Fiberglass Exhauster Construction Features

A variety of corrosion problems plague industry today. Fans and blowers made of coated steel or metals such as stainless and monel can handle some problem areas. Please refer to the corrosion resistance table on page 3 of this bulletin. Fiberglass centrifugal blowers can be used in most applications where corrosive elements exist in fume and vapor form. The resistance to corrosive elements is a major advantage, but the physical properties of fiberglass equipment offer these additional advantages:

- Fiberglass equipment is corrosion resistant.
- Fiberglass equipment weighs 25% less than comparable equipment made of carbon steel.
- Fiberglass has an extremely high strength-to-weight ratio, stronger than steel on a per-pound basis.
- Dimensional stability of fiberglass is excellent.
- Fiberglass air moving equipment will not become brittle at low temperatures and at 0°F the laminated fiberglass will be stronger than at room temperature.

Hartzell Fan, Inc. conforms to ASTM D4167-97, Standard Specification for fiber-reinforced plastic fans and blowers, when optional surfacing veil, electrical grounding, and dynamic balancing to ASTM D4167-97 levels, are added to the fan.

The following are standard Hartzell fiberglass construction features:

- Corrosion resistant polyester resin, having a Class I flame spread rate of 25 or less is used for all housings. Vinylester resin having a Class I flame spread rate of 25 or less is used for all wheels.
- Structural parts in the airstream are either fiberglass resin or epoxy coated stainless steel. All fiberglass surfaces are protected with a minimum 10-mil thickness of chemicals, flame, and ultraviolet resistant resin.
- Shafts are turned, ground, polished, keyed at both ends, and fiberglass enclosed in the airstream on belt drive units. Direct drive units have extended shaft motors with mild steel shafts. Shafts are sized to operate well below critical speed. 304 or 316 stainless steel or monel shafting is available as an option on belt or direct drive units at an extra cost.
- Internal hardware (airstream) is Type 304 stainless steel. All internal hardware (out of airstream) is zinc plated as standard.
- A fiberglass and neoprene shaft seal is placed where the shaft leaves the housing.



**Type FE Wheel**

## Type FE Wheel Features

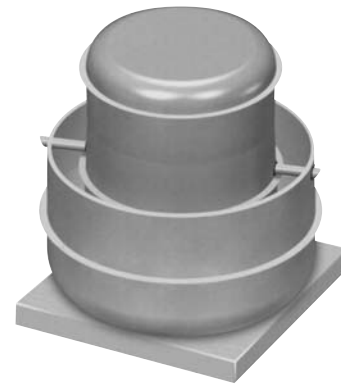
The Type FE wheel offers a slight enhancement to the Type FA wheel which is unique in the fan and blower industry. It is available in diameters from 12" to 60" in both clockwise and counter-clockwise rotations. The wheel is airfoil design and solid fiberglass die formed and coated with Dow Derakane 510-A corrosion resistant vinylester resin. The manufactured wheel is a single piece, removed from the pattern whole. This ensures each wheel is aerodynamically identical and provides reliable repeatable performance without the variability of hand made and taped components. The design is the result of a substantial investment in research, development, tooling, and manufacturing methods by Hartzell Fan, Inc.

The type FE wheel is highly efficient, with tapered inlet side and airfoil blades. It has non-overloading horsepower characteristic curve. When used in conjunction with a precision inlet cone it **efficiently moves large volumes of air at high pressures with low noise characteristics at low RPM.**

The fiberglass resin has a Class I flame spread rate of 25 or less. The wheel is electronically statically and dynamically balanced to the requirements of Fan Application Category BV-3 of AMCA ANSI Std. 204-96 and receives an Operational Test and Inspection before shipment. Special constructions are available for abrasive environments or extremely corrosive environments.



**Series 82 & 83 Downblast**



**Series 87 & 88 Upblast**

## Fiberglass Exhausters

- Bearings on belt drive units are heavy duty, deep row radial ball or double row spherical roller type self-aligning and shielded in cast iron housings. Long inner races ensure even load distribution, providing a high radial and thrust load capacity. Bearings are relubricable.
- V-Belt Drives are oversized for long life and continuous duty as standard. Fixed pitch or variable pitch drives are available upon request. Belts are oil, heat, and static resistant type.
- Conduit tube between the motor enclosure and the curb panel provides wiring access without an additional roof penetration.



# Fiberglass Exhausters

The Hartzell Fiberglass Exhausters provide a lower profile roof or wall exhaust solution in a corrosive environment in an upblast or downblast configuration.

**Applications** – Paint and chemical storage facilities, gas transmission pump houses, battery charging facilities, and wastewater/odor control pumping stations

**Sizes** – Available in sizes 12, 15, 18, 24, 30, 36, and 40”.

**FRP Materials** – The dome ventilators consist of a fiberglass housing, fiberglass curb cap, and fiberglass motor cover all constructed of Ashland 693 resin. The solid fiberglass wheel is molded with Dow Derakane 510-A corrosion resistant vinylester resin. Unit has a formed fiberglass venturi inlet and outlet. All airstream hardware is 304 SS.

**Wheel** – These exhausters utilize the FE wheel, the FA wheel slight modified to improve performance in an exhauster application. The manufactured wheel is a single piece and

removed from the pattern whole. This ensures that each wheel is aerodynamically identical and provides reliable, repeatable performance without the variability of hand made and taped components. It is highly efficient with tapered inlet side and airfoil blades.

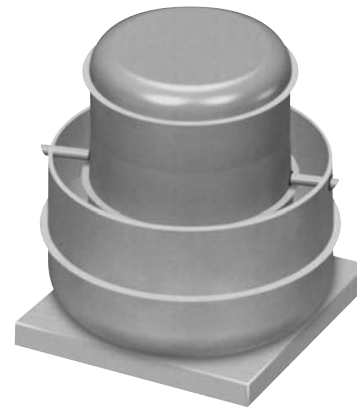
**Temperature Limitations** – Suitable for temperatures up to 200°F.

**Motor** – Direct drive motors standard with extended shaft; belt drive motors are standard t-frame. Motor and drive components are protected from the airstream and internal isolation to minimize vibration. They are available in single or three phase, with two-speed and explosion proof motors available on some models.

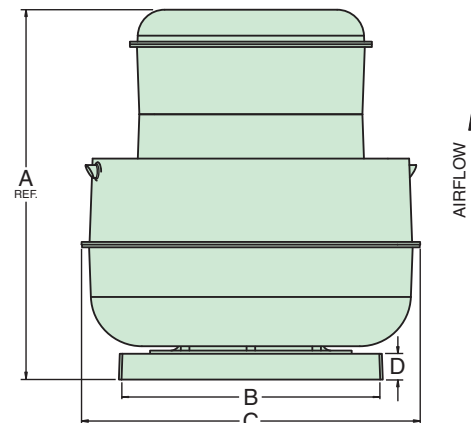
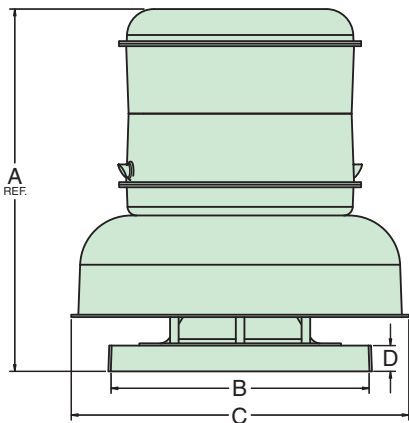
**Options and Accessories** – See Page 11.



**Series 82 & 83 Downblast**



**Series 87 & 88 Upblast**



## Principal Dimensions

Size	Series 82 & 83	Series 87 & 88	B	C	D	Series 82 & 87		Series 83 & 88	
	Downblast	Upblast				Frame Size		Frame Size	
	A (Ref)	A (Ref)				Min	Max	Min	Max
12"	32 <sup>7</sup> / <sub>16</sub>	32 <sup>15</sup> / <sub>16</sub>	20	30	2	56	182T	48	143T
15"	33 <sup>3</sup> / <sub>16</sub>	33 <sup>7</sup> / <sub>16</sub>	24	34 <sup>7</sup> / <sub>16</sub>	2	56	143T	48	145T
18"	42 <sup>7</sup> / <sub>16</sub>	42 <sup>5</sup> / <sub>16</sub>	30	39 <sup>1</sup> / <sub>4</sub>	3	56	143T	48	145T
24"	46	46 <sup>1</sup> / <sub>2</sub>	30	49 <sup>3</sup> / <sub>16</sub>	3	--	--	48	182T
30"	55 <sup>5</sup> / <sub>16</sub>	56 <sup>3</sup> / <sub>16</sub>	36	54 <sup>3</sup> / <sub>16</sub>	3	--	--	56	184T
36"	60 <sup>1</sup> / <sub>2</sub>	61 <sup>1</sup> / <sub>16</sub>	42	64 <sup>5</sup> / <sub>16</sub>	3	--	--	56	213T
40"	63 <sup>3</sup> / <sub>4</sub>	64 <sup>5</sup> / <sub>16</sub>	48	64 <sup>5</sup> / <sub>16</sub>	3	--	--	56	213T



# Series 82 DD Downblast Performance Data

## Full Width (100%) Direct Drive Downblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Cubic Feet Per Minute vs. Static Pressure													Outlet Area Sq. Ft.	Wheel Dia. Inches			
		HP	RPM		0"	¼"	½"	¾"	1"	1½"	2"	2½"	3"	1"	1½"	2"	2½"			3"		
12	A82-4-121FE100FGXCK2	3	3450	2.29	3050	3009	2969	2931	2893	2857	2821	2754	2692	2632	2572	2513	2384	2244	1.603	12.250		
	A82-4-121FE100FGXCE3	½	1750	0.32	1547	1470	1400	1340	1281	1219	1150	1014	857									
	A82-4-121FE100FGXCD4	¼	1160	0.09	1026	917	828	724	619	452												
15	A82-4-151FE100FGXCH3	1	1750	0.93	2968	2892	2816	2742	2669	2597	2526	2381	2226	2070	1916	1736			2.100	15.375		
	A82-4-151FE100FGXCE4	½	1160	0.27	1968	1853	1743	1635	1522	1403	1288	928										
	A82-4-151FE100FGXCD5	¼	870	0.11	1476	1325	1180	1024	853													
18	A82-4-181FE100FGXCG4	¾	1160	0.64	3478	3361	3237	3104	2960	2812	2673	2377	1997						3.230	18.500		
	A82-4-181FE100FGXCE5	½	870	0.27	2609	2449	2269	2074	1886	1668	1373											
	A82-4-181FE100FGXCD6	¼	690	0.13	2069	1861	1618	1366	977													

## Narrow Width (66%) Direct Drive Downblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Cubic Feet Per Minute vs. Static Pressure													Outlet Area Sq. Ft.	Wheel Dia. Inches			
		HP	RPM		0"	¼"	½"	¾"	1"	1½"	2"	2½"	3"	1"	1½"	2"	2½"			3"		
12	A82-4-121FE-66FGXCJ2	2	3450	1.60	2294	2263	2234	2205	2176	2148	2121	2068	2021	1974	1926	1878	1764	1629	1.603	12.250		
	A82-4-121FE-66FGXCD3	¼	1750	0.22	1164	1105	1052	1005	958	904	838	713	578									
	A82-4-121FE-66FGXCD4	¼	1160	0.07	771	689	617	520	424	315												
15	A82-4-151FE-66FGXCG3	¾	1750	0.72	2384	2317	2250	2183	2117	2050	1983	1835	1675	1516	1353				2.100	15.375		
	A82-4-151FE-66FGXCD4	¼	1160	0.21	1580	1479	1379	1276	1158	1038	916											
	A82-4-151FE-66FGXCD5	¼	870	0.09	1185	1051	909	748														
18	A82-4-181FE-66FGXCF4	½	1160	0.44	2570	2469	2367	2263	2158	2049	1935	1667	1364						3.230	18.500		
	A82-4-181FE-66FGXCD5	¼	870	0.19	1927	1792	1654	1509	1347	1149	949											
	A82-4-181FE-66FGXCD6	¼	690	0.09	1529	1357	1175	948	695													

Performance shown is for installation Type A: free inlet/free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).  
Performance data is based on standard air conditions (0.075 lb/cu. ft.).

# Series 87 DD Upblast Performance Data

## Full Width (100%) Direct Drive Upblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Cubic Feet Per Minute vs. Static Pressure													Outlet Area Sq. Ft.	Wheel Dia. Inches			
		HP	RPM		0"	¼"	½"	¾"	1"	1½"	2"	2½"	3"	1"	1½"	2"	2½"			3"		
12	A87-4-121FA100FGXCK2	3	3450	2.23	3017	2988	2959	2930	2901	2871	2841	2781	2720	2657	2594	2529	2398	2265	1.603	12.250		
	A87-4-121FA100FGXCE3	½	1750	0.30	1530	1473	1414	1353	1290	1226	1160	1028	886									
	A87-4-121FA100FGXCD4	¼	1160	0.09	1014	926	832	733	632													
	A87-4-121FA100FGXCD5	¼	870	0.04	761	640	508															
15	A87-4-151FE100FGXCH3	1	1750	0.91	3043	2973	2902	2831	2760	2688	2616	2472	2332	2191	2044	1881			2.100	15.375		
	A87-4-151FE100FGXCE4	½	1160	0.27	2017	1911	1803	1694	1587	1482	1372											
	A87-4-151FE100FGXCD5	¼	870	0.11	1513	1370	1225	1084	927													
	A87-4-151FE100FGXCD6	¼	690	0.05	1200	1019	839															
18	A87-4-181FE100FGXCG4	¾	1160	0.67	3668	3518	3375	3240	3111	2983	2852	2567	2181						3.230	18.500		
	A87-4-181FE100FGXCE5	½	870	0.28	2751	2554	2376	2205	2025	1803	1541											
	A87-4-181FE100FGXCD6	¼	690	0.14	2182	1941	1724	1476	1140													

## Narrow Width (66%) Direct Drive Upblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Cubic Feet Per Minute vs. Static Pressure													Outlet Area Sq. Ft.	Wheel Dia. Inches			
		HP	RPM		0"	¼"	½"	¾"	1"	1½"	2"	2½"	3"	1"	1½"	2"	2½"			3"		
12	A87-4-121FA-66FGXCJ2	2	3450	1.57	2307	2277	2247	2218	2189	2160	2132	2076	2023	1970	1917	1863	1740	1610	1.603	12.250		
	A87-4-121FA-66FGXCD3	¼	1750	0.22	1170	1112	1056	1004	951	892	828	705	586									
	A87-4-121FA-66FGXCD4	¼	1160	0.06	776	690	609	515	425	321												
	A87-4-121FA-66FGXCD5	¼	870	0.03	582	472	348															
15	A87-4-151FE-66FGXCG3	¾	1750	0.69	2371	2319	2266	2209	2149	2082	2011	1868	1730	1572	1394	1204			2.100	15.375		
	A87-4-151FE-66FGXCD4	¼	1160	0.20	1571	1492	1400	1292	1188	1077	944	587										
	A87-4-151FE-66FGXCD5	¼	870	0.08	1179	1067	925	776	588													
	A87-4-151FE-66FGXCD6	¼	690	0.04	935	780	590															
18	A87-4-181FE-66FGXCF4	½	1160	0.43	2643	2532	2419	2302	2182	2061	1938	1626	1334						3.230	18.500		
	A87-4-181FE-66FGXCD5	¼	870	0.18	1982	1833	1677	1516	1333	1120	919											
	A87-4-181FE-66FGXCD6	¼	690	0.09	1572	1381	1179	923	656													

Performance shown is for installation Type A: free inlet/free outlet.  
Performance ratings do not include the effects of appurtenances (accessories).  
Performance data is based on standard air conditions (0.075 lb/cu. ft.).



# Series 83 BD Downblast Performance Data

## Full Width (100%) Belt Drive Downblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Fan RPM	Cubic Feet Per Minute vs. Static Pressure															Outlet Area Sq. Ft.	Wheel Dia. Inches			
		HP	RPM			0"	¼"	½"	¾"	1"	1¼"	1½"	1¾"	2"	2½"	3"									
12	A83-0-121FE100FGFCD3	¼	1750	0.25	1490	1247	1166	1080	993	912	823	722	522								1.603	12.250			
	A83-0-121FE100FGFCE3	½	1750	0.33	1640	1373	1299	1223	1142	1066	992	911	723												
	A83-0-121FE100FGFCF3	¾	1750	0.50	1880	1574	1510	1444	1376	1305	1238	1174	1035	873	717										
	A83-0-121FE100FGFCG3	1	1750	0.75	2152	1801	1746	1689	1631	1570	1509	1448	1336	1217	1080	932	802								
15	A83-0-121FE100FGFCH3	1	1750	1.00	2368	1982	1932	1881	1828	1775	1719	1663	1556	1454	1345	1223	1090	843				2.100	15.375		
	A83-0-151FE100FGFCD3	¼	1750	0.25	1020	1744	1618	1503	1384	1236	1083	893													
	A83-0-151FE100FGFCE3	½	1750	0.33	1125	1923	1808	1702	1599	1481	1345	1206													
	A83-0-151FE100FGFCF3	¾	1750	0.50	1290	2205	2104	2008	1918	1829	1728	1611	1369	1013											
	A83-0-151FE100FGFCG3	1	1750	0.75	1475	2521	2433	2347	2265	2187	2109	2026	1826	1616	1376										
	A83-0-151FE100FGFCJ3	1½	1750	1.00	1624	2776	2695	2617	2541	2468	2398	2327	2168	1981	1791	1581	1221								
18	A83-0-181FE100FGFCD3	¼	1750	0.25	802	2522	2307	2117	1909	1675	1422										3.230	18.500			
	A83-0-181FE100FGFCE3	½	1750	0.33	885	2783	2586	2410	2237	2034	1820	1591													
	A83-0-181FE100FGFCF3	¾	1750	0.50	1016	3195	3022	2861	2713	2560	2385	2200	1807												
	A83-0-181FE100FGFCG3	1	1750	0.75	1163	3657	3505	3360	3226	3096	2964	2817	2496	2155											
	A83-0-181FE100FGFCJ3	1½	1750	1.00	1280	4025	3886	3753	3626	3507	3389	3270	2996	2701	2390										
24	A83-0-241FE100FGFCD3	¼	1750	0.25	490	3660	3248	2863	2308												5.500	24.625			
	A83-0-241FE100FGFCE3	½	1750	0.32	535	3996	3611	3275	2828	2286															
	A83-0-241FE100FGFCF3	¾	1750	0.49	615	4594	4254	3954	3650	3234	2760														
	A83-0-241FE100FGFCG3	1	1750	0.74	705	5266	4966	4691	4438	4166	3809	3409													
	A83-0-241FE100FGFCJ3	1½	1750	1.00	890	6648	6407	6177	5959	5759	5558	5348	4799	4157											
	A83-0-241FE100FGFCJ3	2	1750	2.00	980	7320	7100	6889	6686	6496	6315	6132	5727	5199	4616	4005									
	A83-0-241FE100FGFCJ3	3	1750	2.46	1050	7843	7637	7439	7247	7061	6891	6722	6374	5947	5432	4881	4314								
30	A83-0-301FE100FGFCD3	¼	1750	0.25	352	4687	3972	3154													5.500	30.000			
	A83-0-301FE100FGFCE3	½	1750	0.33	385	5127	4481	3759	2879																
	A83-0-301FE100FGFCF3	¾	1750	0.50	443	5899	5347	4740	4087	3284															
	A83-0-301FE100FGFCG3	1	1750	0.75	508	6764	6288	5776	5233	4654	3981														
	A83-0-301FE100FGFCJ3	1½	1750	1.00	640	8522	8148	7759	7351	6924	6487	6029	4976												
	A83-0-301FE100FGFCJ3	2	1750	2.00	705	9388	9050	8700	8337	7960	7570	7173	6328	5308											
	A83-0-301FE100FGFCJ3	3	1750	3.00	807	10746	10452	10150	9840	9521	9192	8855	8162	7429	6614										
	A83-0-301FE100FGFCL3	5	1750	4.52	925	12317	12061	11800	11534	11263	10985	10701	10114	9512	8886	8225	7488								
36	A83-0-361FE100FGFCD3	¼	1750	0.25	249	5964	4816														8.800	36.000			
	A83-0-361FE100FGFCE3	½	1750	0.33	274	6563	5509	4354																	
	A83-0-361FE100FGFCF3	¾	1750	0.50	313	7497	6556	5666	4315																
	A83-0-361FE100FGFCG3	1	1750	0.75	359	8599	7759	7004	6171																
	A83-0-361FE100FGFCJ3	1½	1750	1.00	453	10851	10169	9545	8949	8326	7615	6613													
	A83-0-361FE100FGFCJ3	2	1750	2.00	498	11929	11304	10720	10177	9632	9053	8403													
	A83-0-361FE100FGFCJ3	3	1750	3.00	570	13653	13102	12581	12089	11616	11141	10647	9527												
	A83-0-361FE100FGFCL3	5	1750	5.00	676	16193	15722	15275	14841	14425	14025	13627	12814	11929	10854	9313									
	A83-0-361FE100FGFCM3	7½	1750	6.83	750	17965	17538	17132	16735	16347	15976	15616	14897	14158	13365	12459	11274								
40	A83-0-401FE100FGFCD3	¼	1750	0.25	211	7014	5487														7.450	40.250			
	A83-0-401FE100FGFCE3	½	1750	0.33	232	7712	6359	4657																	
	A83-0-401FE100FGFCF3	¾	1750	0.50	266	8842	7776	6383																	
	A83-0-401FE100FGFCG3	1	1750	0.75	304	10106	9246	7990	6797																
	A83-0-401FE100FGFCJ3	1½	1750	1.00	334	11103	10342	9247	8176	6943															
	A83-0-401FE100FGFCJ3	2	1750	2.00	421	13995	13416	12743	11832	10932	10110	9157													
	A83-0-401FE100FGFCJ3	3	1750	3.00	483	16056	15559	15009	14351	13530	12729	12021	10408												
	A83-0-401FE100FGFCL3	5	1750	5.00	572	19014	18599	18158	17678	17127	16462	15737	14485	13232	11641										
A83-0-401FE100FGFCM3	7½	1750	7.34	650	21607	21243	20865	20463	20032	19552	18985	17720	16634	15565	14344	12758									

Performance shown is for installation Type A: free inlet/free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).  
 Power rating (BHP) includes drive losses.  
 Performance data is based on standard air conditions (0.075 lb/cu. ft.).





# Series 88 BD Upblast Performance Data

## Full Width (100%) Belt Drive Upblast Exhauster

Size	Model Code	Motor		Peak Fan BHP	Fan RPM	Cubic Feet Per Minute vs. Static Pressure															Outlet Area Sq. Ft.	Wheel Dia. Inches						
		HP	RPM			0"	¼"	½"	¾"	1"	1¼"	1½"	1¾"	2"	2½"	3"												
12	A88-0-121FE100FGFCD3	¼	1750	0.25	1505	1307	1210	1125	1047	969	891	809	604								1.600	12.250						
	A88-0-121FE100FGFCE3	½	1750	0.33	1655	1437	1348	1268	1196	1125	1054	983	824	632														
	A88-0-121FE100FGFC3	¾	1750	0.50	1898	1649	1569	1497	1431	1368	1306	1245	1121	987	820													
	A88-0-121FE100FGFCH3	1	1750	0.75	2175	1889	1819	1754	1693	1636	1581	1527	1420	1312	1200	1070	923											
15	A88-0-151FE100FGFCD3	¼	1750	0.25	1038	1769	1670	1558	1431	1308	1174	1013									2.100	15.375						
	A88-0-151FE100FGFCE3	½	1750	0.33	1140	1943	1853	1755	1644	1530	1416	1293																
	A88-0-151FE100FGFC3	¾	1750	0.50	1310	2233	2156	2073	1983	1886	1785	1687	1477															
	A88-0-151FE100FGFCH3	1	1750	0.75	1500	2557	2490	2419	2345	2266	2180	2092	1921	1739	1529													
	A88-0-151FE100FGFC3	1 ½	1750	1.00	1653	2818	2757	2694	2628	2560	2486	2408	2249	2094	1929	1744												
	A88-0-151FE100FGFCH3	2	1750	1.50	1893	3227	3174	3120	3064	3006	2947	2883	2749	2609	2474	2336	2190	1843										
18	A88-0-181FE100FGFCD3	¼	1750	0.25	802	2557	2370	2183	1986	1770	1547										3.230	18.500						
	A88-0-181FE100FGFCE3	½	1750	0.33	885	2822	2652	2483	2312	2124	1929	1727																
	A88-0-181FE100FGFC3	¾	1750	0.50	1016	3239	3092	2944	2797	2647	2485	2313	1964															
	A88-0-181FE100FGFCH3	1	1750	0.75	1163	3708	3579	3450	3321	3193	3062	2924	2627	2328														
	A88-0-181FE100FGFC3	1 ½	1750	1.00	1279	4078	3961	3844	3726	3609	3492	3373	3118	2846	2574	2235												
24	A88-0-241FE100FGFCD3	¼	1750	0.25	490	3797	3358	2916	2403												5.500	24.625						
	A88-0-241FE100FGFCE3	½	1750	0.32	535	4146	3743	3339	2920	2361																		
	A88-0-241FE100FGFC3	¾	1750	0.49	615	4765	4415	4066	3713	3342	2873																	
	A88-0-241FE100FGFCH3	1	1750	0.74	705	5463	5157	4852	4547	4239	3919	3547																
	A88-0-241FE100FGFC3	1 ½	1750	0.98	775	6005	5728	5449	5172	4893	4613	4321	3595															
	A88-0-241FE100FGFCH3	2	1750	1.49	890	6896	6655	6412	6171	5929	5686	5443	4939	4329														
	A88-0-241FE100FGFC3	3	1750	1.99	980	7594	7374	7154	6934	6715	6496	6275	5832	5365	4806													
30	A88-0-301FE100FGFCD3	¼	1750	0.25	350	4927	4174	3386													5.500	30.000						
	A88-0-301FE100FGFCE3	½	1750	0.33	385	5420	4727	4042	3245																			
	A88-0-301FE100FGFC3	¾	1750	0.50	443	6237	5620	5059	4416	3707																		
	A88-0-301FE100FGFCH3	1	1750	0.75	507	7138	6592	6095	5586	5014	4420																	
	A88-0-301FE100FGFC3	1 ½	1750	1.00	558	7856	7357	6895	6450	5963	5440	4899																
	A88-0-301FE100FGFCH3	2	1750	1.50	639	8996	8557	8139	7750	7361	6938	6483	5539															
	A88-0-301FE100FGFC3	3	1750	2.00	703	9897	9496	9112	8748	8397	8041	7653	6828	5927														
	A88-0-301FE100FGFCH3	5	1750	4.46	925	13022	12715	12415	12122	11836	11563	11295	10759	10188	9568	8939	8293											
36	A88-0-361FE100FGFCD3	¼	1750	0.25	251	6410	5299	3847													8.800	36.000						
	A88-0-361FE100FGFCE3	½	1750	0.33	276	7049	6055	4914																				
	A88-0-361FE100FGFC3	¾	1750	0.50	317	8096	7248	6305	5169																			
	A88-0-361FE100FGFCH3	1	1750	0.75	363	9271	8541	7740	6896	5831																		
	A88-0-361FE100FGFC3	1 ½	1750	1.00	399	10190	9530	8820	8064	7267	6190																	
	A88-0-361FE100FGFCH3	2	1750	1.50	457	11671	11099	10498	9857	9194	8507	7683																
	A88-0-361FE100FGFC3	3	1750	2.00	503	12846	12328	11791	11223	10628	10027	9401	7744															
	A88-0-361FE100FGFCH3	5	1750	3.00	576	14711	14259	13797	13319	12819	12300	11772	10690	9312														
	A88-0-361FE100FGFC3	7 ½	1750	6.64	750	19155	18807	18460	18106	17744	17375	16995	16208	15396	14588	13722	12701											
40	A88-0-401FE100FGFCD3	¼	1750	0.25	214	7376	6005														7.450	40.250						
	A88-0-401FE100FGFCE3	½	1750	0.33	234	8066	6876	5076																				
	A88-0-401FE100FGFC3	¾	1750	0.50	268	9238	8266	6919																				
	A88-0-401FE100FGFCH3	1	1750	0.75	306	10547	9733	8642	7355																			
	A88-0-401FE100FGFC3	1 ½	1750	1.00	337	11616	10890	9980	8887	7557																		
	A88-0-401FE100FGFCH3	2	1750	1.50	386	13305	12684	11967	11079	10116	8992																	
	A88-0-401FE100FGFC3	3	1750	2.00	425	14649	14091	13471	12733	11877	11000	9973																
	A88-0-401FE100FGFCH3	5	1750	3.00	487	16786	16304	15786	15214	14548	13805	13049	11302															
	A88-0-401FE100FGFC3	7 ½	1750	7.15	650	22405	22046	21679	21295	20890	20462	19991	18942	17807	16637	15279	13588											

Performance shown is for installation Type A: free inlet/free outlet.  
 Performance ratings do not include the effects of appurtenances (accessories).  
 Power rating (BHP) includes drive losses.  
 Performance data is based on standard air conditions (0.075 lb/cu. ft.).





# Options and Accessories

## Optional Heavy-Duty Dampers

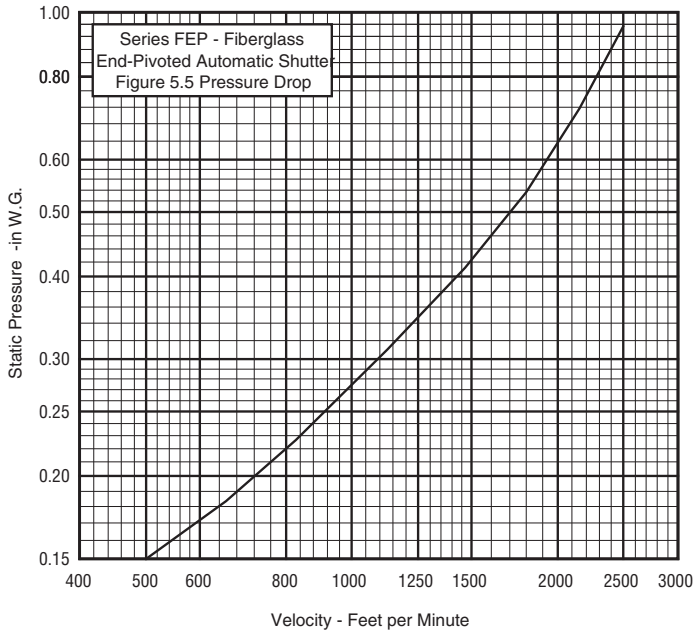


**Series FEP**  
Fiberglass End Pivoted  
Automatic Shutter

The Hartzell Series FEP are end-pivoted, gravity, backdraft shutters constructed entirely of fiberglass.

- Maximum temperature is 200°F.
- Maximum Face Velocity – 2,500 FPM.
- Maximum Differential Pressure – 1" W.G.
- Shipped loose for field mounting in roof curb.

## Performance Data



## ASTM D4167-97 Construction

(ASTM D4167-97, Standard Specification for Fiber-Reinforced Plastic Fans and Blowers.) For corrosive systems where ASTM construction is specified this construction option adds: Synthetic veil and electrostatically conductive surface coating applied to airstream housing and impeller surfaces, special nameplates, and special final dynamic balancing to fan.

## Disconnect Switch

Shipped loose for field mounting.

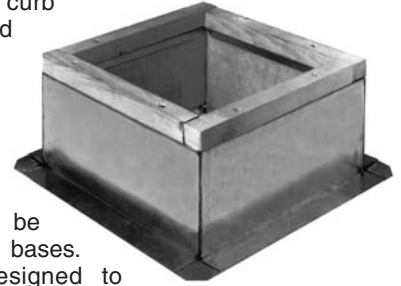
## Bird Screen

304 stainless steel birdscreen available on all exhausters.

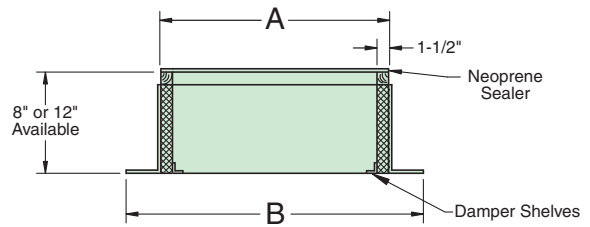
## Prefabricated Curbs

The CT-1 fiberglass prefabricated curb shown is for flat roof installation of Hartzell roof ventilators. The curb is designed for metal, concrete or wood roof decks that are not surface insulated. The curb is available either 8" or 12" high.

Model IRC-1 prefabricated curb constructed of galvanized steel is also available with identical features as Model CT-1. Galvanized models can be furnished with epoxy coating. Aluminum construction also available.



All prefabricated curbs can be furnished for slope or peak bases. Prefabricated curbs are designed to support the weight of the fans cataloged herein, and attachments not exceeding over 100 additional pounds in a 40 mph wind. Nonstandard curb construction is available.



## Series 82, 83, 87 & 88

Fan Size	12	15	18	24	30	36	40
A	19 3/4	23 3/4	29 3/4	29 3/4	35 3/4	41 3/4	47 3/4
B	27 3/4	31 3/4	37 3/4	37 3/4	43 3/4	49 3/4	55 3/4

## SAFETY ACCESSORIES, APPLICATION AND USE WARNING

The safe application and use of equipment supplied by Hartzell Fan, Inc. is the responsibility of the installer, the user, the owner, and the employer. Since the application and use of its equipment can vary greatly, Hartzell Fan, Inc. offers various product types, optional safety accessories, and sound performance data per laboratory tests. Hartzell Fan, Inc. sells its equipment with and without safety accessories, and accordingly, it can supply such safety accessories only upon receipt of an order. The need for safety accessories will frequently depend upon the type of system, fan location and operating procedures being employed. The proper protective safety accessories to meet company standards, local codes, and the requirements of the Occupational Safety and Health Act must be determined by the user since safety requirements vary depending on the location and use of the equipment. If applicable local conditions, standards, codes or OSHA rules require the addition of the safety accessories, the user should specify and obtain the required safety accessories from Hartzell Fan, Inc. and should not allow the operation of the equipment without them.

Owners, employers, users and installers should read "RECOMMENDED SAFETY PRACTICES FOR USERS AND INSTALLERS OF INDUSTRIAL AND COMMERCIAL FANS" published by the Air Movement and Control Association International, Inc., 30 West University Drive, Arlington Heights, Illinois 60004. A copy of this publication is enclosed with each fan shipped from Hartzell Fan, Inc., and is available upon request at Hartzell's office in Piqua, Ohio 45356.

Please contact Hartzell Fan, Inc. or your local Hartzell representative for more information on product types, safety accessories, and sound performance estimates.

Remember, the selection of safety accessories and the safe application and use of equipment supplied by Hartzell Fan, Inc. is **your** responsibility.



# Hartzell Warranty

## LIMITED WARRANTIES

Hartzell represents to Buyer that any goods to be delivered hereunder will be produced in compliance with the requirements of the Fair Labor Standards Act of 1938 as amended.

Hartzell also warrants to Buyer its goods to be free from defects in workmanship and material under normal use and service for one (1) year after tender of delivery by Hartzell, plus six months allowance for shipment to approved stocking dealers and distributors. No warranty extends to future performance of goods and any claims for breach of warranty or otherwise accrues upon tender of delivery. The foregoing constitute Hartzell's sole and exclusive warranties and are in lieu of all other warranties, whether written, oral, express, implied or statutory.

## LIMITATION OF LIABILITY FOR BREACH OF WARRANTY

Hartzell's obligation for any breach of warranty is limited to repairing or replacing, at its option, without cost to Buyer at its factory any goods which shall, within such a warranty period, be returned to it with transportation charges prepaid, and which its examination shall disclose to its satisfaction to have been defective. Any request for repair or replacement should be directed to Hartzell Fan, Inc., P.O. Box 919, Piqua, Ohio 45356. Hartzell will not pay for any repairs made outside its factory without its prior written consent. This does not apply to any such Hartzell goods which have failed as a result of faulty installation or abuse, or incorrect electrical connections or alterations, made by others, or use under abnormal operating conditions or misapplication of the goods.

### LIMITATION OF LIABILITY

To the extent the above limitation of liability for breach of warranty is not applicable, the liability of Hartzell on any claim of any kind, including negligence, for any loss or damage arising out of or connected with, or resulting from the sale and purchase of the goods or services covered by these Terms and Conditions of Sale or from the performance or breach of any contract pertaining to such sale or purchase or from the design manufacture, sale, delivery, resale, installation, technical direction installation, inspection repair, operation or use of any goods or services covered by these Terms and Conditions shall, in no case exceed the price allocable to the goods or services which gave rise to the claim and shall terminate one year after tender of delivery of said goods or services, plus six months allowance for shipment to approved stocking dealers and distributors.

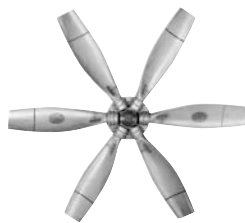
In no event whether as a result of breach of contract, or warranty or alleged negligence, defects, incorrect advice or other causes, shall Hartzell be liable for special or consequential damages, including, but not limited to, loss of profits or revenue, loss of use of the equipment or any associated equipment, cost of substitute equipment, facilities or services, down time costs, or claims of customers of the Buyer for such damages. Hartzell neither assumes nor authorizes any person to assume for it any other liability in connection with the sale of its goods or services.

### NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS

HARTZELL DOES NOT WARRANT THAT SAID GOODS ARE OF MERCHANTABILITY QUALITY OR THAT THEY ARE FIT FOR ANY PARTICULAR PURPOSE. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY AND THERE IS NO IMPLIED WARRANTY OF FITNESS.



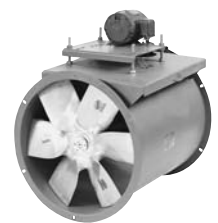
Propeller Fans



Cooling Tower &  
Heat Exchanger Fans



Duct Fans



Duct Axial Fans



Vaneaxial Blowers



Cool Blast & Utility Fans



Steel Centrifugal Blowers



Roof Ventilators -  
Steel & Fiberglass



Heating Equipment -  
Gas & Steam



Fiberglass  
Axial Flow Fans



Fiberglass Centrifugal Blowers



Marine -  
Mine Duty Blowers