

BULLETIN 4300

April 2010

# Twin City Fan & Blower

## *BELT DRIVEN CENTRIFUGAL FILTERED SUPPLY VENTILATORS*

**TYPE BCFS**



# Type BCFS Belt Driven Centrifugal Filtered Supply Ventilators

## General Information

Twin City Fan & Blower BCFS belt driven centrifugal filtered supply ventilators are designed specifically for roof mounted applications, supplying clean make-up air.

BCFS units feature high efficient, non-overloading, backward inclined centrifugal wheels precisely matched to a spun venturi. All wheels are statically and dynamically balanced.

Motors are heavy-duty ball bearing type, closely matched to the fan load, and feature Class B insulation.

All BCFS units are manufactured under strict quality assurance standards to insure cataloged performance and years of maintenance-free operation.



## Capabilities

BCFS belt driven centrifugal filtered supply ventilators are available in 3 sizes, 140A, 180A and 240A, with wheel diameters of 14<sup>3</sup>/<sub>4</sub>", 18<sup>5</sup>/<sub>8</sub>" and 24<sup>3</sup>/<sub>4</sub>", respectively. Performance capabilities include a broad capacity range from 150 to 8300 CFM and static pressure capabilities to 4" w.g.

- Unit pre-tested and shipped with motor and drive installed. Note: Units with 5 HP motors with larger than 184T frame size will be shipped separately.
- A 1/2" x 1/2" galvanized mesh bird screen is standard on all BCFS units.

## Stock Program

All BCFS models and most optional accessories are available on the Twin City Fan & Blower stock program. The stock program provides rapid delivery of standard products so that tight project deadlines can be met and downtime on replacement work can be held to a minimum. Delivery options include next day and 5-day shipments. See Bulletin 4900 for further information on the Twin City stock program.



Twin City Fan & Blower certifies that the Series BCFS shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the AMCA Certified Ratings Program.

## Construction Features

- All aluminum exterior construction.
- One-inch thick aluminum mesh washable filters.
- A factory mounted and wired disconnect switch is a standard part of each unit.
- Easy access (no tools required) to motor, drives and filters.
- Prelubricated pillow block ball bearings.
- Vibration isolators support and isolate the motor.
- Heavy-duty cast iron adjustable drive pulley to permit easy speed adjustment.
- Non-overloading aluminum wheel and hub dynamically balanced to assure long life.
- Motor prewired to disconnect switch.
- Knockout provided for field wiring from outside or through curb.
- Mounting holes in curb pre-punched.
- All fan shafts are precisely ground and polished and are sized so that the first critical shaft speed is at least 125% of the fan's maximum operating speed.



These powered roof ventilators are available as UL 705 listed, for electrical, File No. E158680.

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# Accessories

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## Bird Screen

An aluminum bird screen is available as an alternate material for all BCFS models. (A galvanized bird-screen is standard.)

## Curb Hinge

The curb hinge provides easy access to the exhaust fan, backdraft damper and duct for servicing and cleaning. The curb hinge is of the piano type design, running the entire length of the unit curb base.

## Retaining Chain

A retaining chain is available in conjunction with the curb hinge arrangement to stabilize the unit and to prevent damage from occurring to the unit during servicing and cleaning.

## Security Hasp

A security hasp is available in conjunction with the curb hinge arrangement to prevent removal of the unit from the unit curb cap and prevent entrance into the building through the roof's ductwork.

## Firestat

The firestat option is intended to shut down the unit in case of a fire in the building. If the firestat sensing element is exposed to an air temperature over its setpoint, it will open, de-energizing the motor of the unit. The standard firestat is set to open at 140°F and must be manually reset. The firestat cut-out point is field adjustable from 100°F to 170°F. Firestats are available for 1-phase units to 1.5 HP. Firestats ship loose for field mounting and wiring.

## Insect Screen

An aluminum 18 x 16 mesh insect screen, mounted in the unit's curb cap, is available on all BCFS models.

## Special Coatings

Powered roof exhausters often require special coating for protective and decorative purposes. Available coatings include anticondensate, air-dried enamel, air-dried epoxy, Carbocoat, and Heresite (air-dried phenolic). Contact your Twin City Fan & Blower sales representative for more information on available coatings and colors.

## Weatherproof Disconnect Switch

NEMA 4 weatherproof disconnect switches are available for applications where an external visible shut-off is required for the unit's primary power supply. Weatherproof disconnect switches are available for field installation.

## Prefabricated Curbs

Prefabricated roof curbs have been properly sized for use with the model BCFS. See dimensional data table on page 11 for sizes.

## Supply Damper

Supply dampers are available with automatic or motorized operation. Motorized dampers are recommended for low CFM applications to assure unrestricted airflow. See table on page 11 for preselected sizes.

## Duct Adapter

The duct adapter allows for an easy installation of the ductwork to the roof curb and unit.

## Inlet Extension and Equipment Supports

To separate the inlet from nearby exhaust, the inlet extension accessory can be used. Equipment supports are available to support the inlet extension.

## Metal Nameplate

Aluminum or stainless steel.

# Performance Data

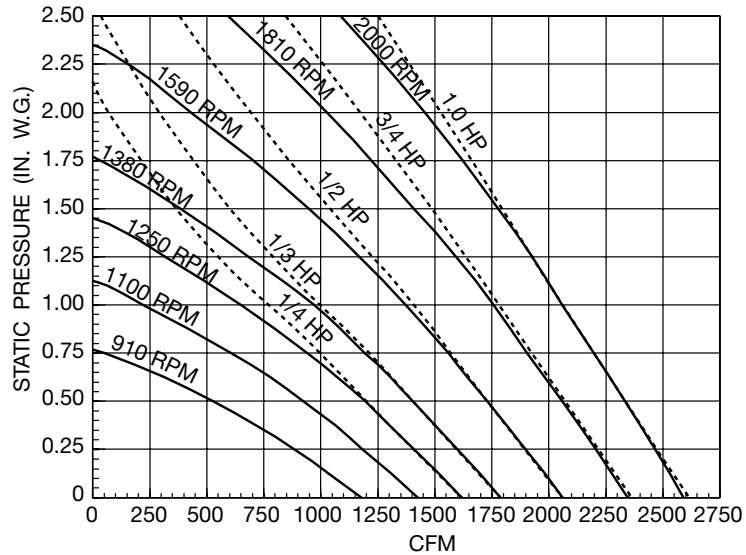
## BCFS 140A Performance Data

MOTOR HP	RPM	CFM BHP													
		STATIC PRESSURE (IN. W.G.)													
		0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
1/4 HP	820	1062 0.08	902 0.08	731 0.07	531 0.07	291 0.06									
	860	1114 0.09	962 0.09	802 0.09	617 0.08	402 0.08	148 0.07								
	910	1179 0.10	1036 0.10	887 0.10	718 0.10	528 0.10	305 0.08	46 0.08							
	960	1244 0.12	1109 0.12	967 0.12	814 0.12	642 0.11	445 0.10	221 0.09							
	1000	1296 0.14	1167 0.14	1030 0.14	888 0.13	727 0.13	548 0.12	344 0.11							
	1050	1360 0.16	1239 0.16	1108 0.16	977 0.15	828 0.15	667 0.15	483 0.14	50 0.12						
	1100	1425 0.18	1309 0.19	1185 0.18	1062 0.18	924 0.18	775 0.17	611 0.17	228 0.14						
	1150	1490 0.21	1380 0.21	1261 0.21	1144 0.21	1017 0.20	878 0.20	730 0.20	383 0.16						
	1200	1555 0.24	1449 0.24	1336 0.24	1223 0.23	1106 0.23	977 0.23	839 0.22	525 0.20	153 0.18					
	1250	1619 0.27	1518 0.27	1411 0.27	1301 0.27	1192 0.26	1071 0.26	942 0.25	656 0.24	320 0.20					
1/3 HP	1300	1684 0.30	1587 0.31	1484 0.30	1378 0.30	1276 0.30	1162 0.29	1042 0.29	778 0.28	470 0.24	115 0.22				
	1340	1736 0.33	1642 0.34	1543 0.33	1440 0.33	1340 0.32	1234 0.32	1118 0.32	870 0.31	582 0.28	255 0.25				
	1380	1788 0.36	1697 0.37	1601 0.37	1501 0.36	1403 0.36	1303 0.35	1193 0.35	957 0.34	688 0.32	383 0.28				
1/2 HP	1440	1866 0.41	1779 0.42	1687 0.42	1592 0.41	1497 0.41	1404 0.40	1302 0.40	1081 0.39	838 0.38	560 0.33				
	1490	1930 0.45	1846 0.46	1759 0.46	1667 0.46	1574 0.45	1485 0.45	1390 0.44	1181 0.43	954 0.42	697 0.39	91 0.34			
	1540	1995 0.50	1914 0.51	1830 0.51	1741 0.50	1652 0.50	1564 0.49	1476 0.49	1277 0.48	1063 0.47	826 0.45	270 0.37			
	1590	2060 0.55	1981 0.56	1900 0.56	1815 0.56	1728 0.55	1642 0.55	1559 0.54	1371 0.53	1168 0.52	948 0.51	432 0.42			
3/4 HP	1650	2138 0.62	2062 0.62	1984 0.63	1903 0.62	1819 0.62	1736 0.61	1655 0.61	1480 0.60	1289 0.59	1085 0.58	611 0.50			
	1700	2203 0.67	2129 0.68	2054 0.68	1975 0.68	1894 0.68	1813 0.67	1734 0.67	1569 0.65	1387 0.64	1192 0.63	750 0.57	227 0.50		
	1750	2267 0.73	2196 0.74	2123 0.75	2047 0.75	1969 0.74	1890 0.73	1812 0.73	1656 0.72	1481 0.71	1296 0.69	882 0.65	395 0.55		
	1810	2345 0.81	2276 0.82	2206 0.83	2133 0.83	2057 0.82	1981 0.81	1905 0.81	1757 0.80	1592 0.78	1417 0.77	1032 0.75	581 0.63		
1 HP	1850	2397 0.87	2330 0.88	2261 0.88	2190 0.88	2116 0.88	2041 0.87	1967 0.86	1823 0.85	1664 0.84	1495 0.83	1128 0.81	698 0.70		
	1900	2462 0.94	2396 0.95	2329 0.95	2260 0.96	2189 0.95	2116 0.94	2044 0.94	1903 0.93	1753 0.91	1591 0.90	1241 0.88	837 0.80		
	1950	2526 1.01	2463 1.02	2397 1.03	2331 1.03	2262 1.03	2191 1.02	2120 1.01	1981 1.00	1840 0.99	1684 0.98	1349 0.96	969 0.89		
	2000	2591 1.09	2529 1.10	2466 1.11	2401 1.11	2334 1.11	2265 1.11	2196 1.10	2059 1.08	1925 1.07	1775 1.06	1454 1.03	1096 0.99		

**NOTES:**

1. Performance certified is for installation Type B: Free inlet, ducted outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings include the effects of an inlet filter.

## BCFS 140A Performance Curves



## BCFS 140A Sound Data

RPM	SP	CFM	OCTAVE BAND								LwA
			1	2	3	4	5	6	7	8	
1150	0.000	1490	91	86	83	77	73	71	64	58	80
	0.125	1380	91	86	83	77	73	70	64	57	80
	0.250	1261	89	83	80	74	69	67	59	53	77
	0.375	1144	89	83	79	74	70	67	59	53	77
	0.500	1017	90	84	80	75	70	68	59	54	78
	0.625	878	90	84	80	74	70	67	59	53	77
	0.750	730	89	82	78	72	67	64	56	51	75
1290	0.000	1671	94	89	87	81	76	73	67	61	84
	0.125	1574	94	89	87	81	76	73	67	61	84
	0.250	1470	92	87	84	78	74	71	64	58	81
	0.375	1363	91	86	82	77	72	69	62	56	80
	0.500	1259	92	87	83	78	73	70	62	57	81
	0.625	1144	93	88	84	78	73	71	63	57	81
	0.750	1022	93	87	83	78	73	70	63	57	81
1.000	754	91	86	81	75	70	67	60	54	78	
1460	0.000	1892	97	93	90	85	79	76	71	65	87
	0.125	1806	97	93	90	85	79	76	71	65	87
	0.250	1716	96	92	89	83	78	75	70	63	86
	0.375	1622	94	90	87	81	76	73	67	61	84
	0.500	1528	94	90	86	80	75	72	66	60	83
	0.625	1437	94	91	87	81	76	73	67	60	84
	0.750	1337	95	91	87	82	77	74	67	61	85
1.000	1122	95	91	87	81	76	73	66	60	84	
1.250	886	94	90	85	79	74	70	64	58	82	
1570	0.000	2034	98	95	92	87	81	78	74	67	89
	0.125	1954	98	95	92	87	81	78	74	67	89
	0.250	1872	98	95	91	86	81	78	73	66	89
	0.375	1785	96	93	89	84	79	76	70	64	87
	0.500	1698	95	92	88	83	78	75	69	62	86
	0.625	1611	95	92	88	83	77	74	69	62	85
	0.750	1526	96	93	89	83	78	75	69	63	86
1.000	1334	97	94	89	84	79	75	70	63	87	
1.250	1127	96	93	88	82	77	74	68	62	85	
1.500	900	96	92	87	81	76	72	66	60	84	
1900	0.000	2462	103	101	97	93	87	83	80	73	95
	0.125	2396	103	101	97	93	87	83	80	73	95
	0.250	2329	103	101	97	93	87	83	80	73	95
	0.375	2260	102	100	96	92	86	82	79	72	94
	0.500	2189	101	99	95	90	85	81	77	70	92
	0.625	2116	100	98	94	89	83	80	76	69	91
	0.750	2044	100	98	93	89	83	79	75	68	91
1.000	1903	100	98	93	89	83	79	75	68	91	
1.250	1753	101	99	94	90	84	80	76	69	92	
1.500	1591	101	100	94	90	84	80	76	69	92	
2.000	1241	100	98	92	87	81	77	73	66	90	

- NOTES:**
- The sound power level ratings shown are in decibels, referred to  $10^{-12}$  watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.
  - Values certified are for outlet Lwo sound power levels for Type B: Free inlet, ducted outlet. Ratings do not include the effects of duct end correction.

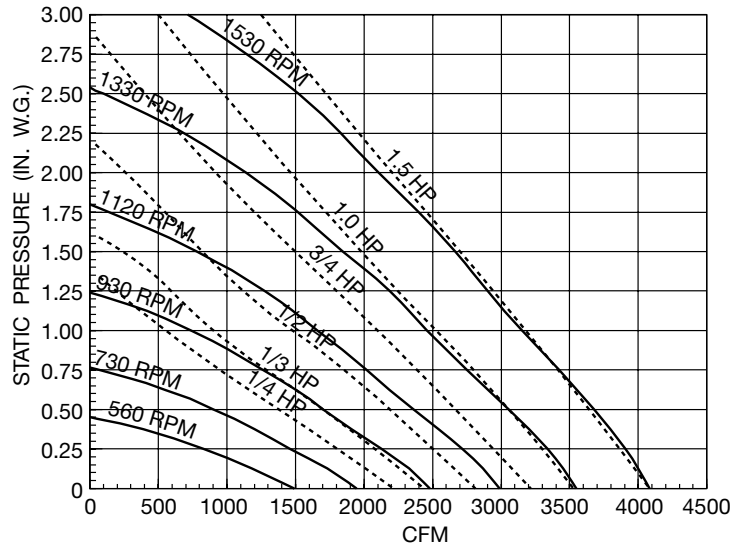
# BCFS 180A Performance Data

MOTOR HP	RPM	CFM BHP													
		STATIC PRESSURE (IN. W.G.)													
		0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
1/4 HP	560	1494 0.08	1181 0.08	830 0.08	391 0.07										
	610	1627 0.11	1349 0.11	1035 0.10	670 0.10	167 0.07									
	660	1761 0.14	1512 0.13	1212 0.13	900 0.12	538 0.11									
	700	1867 0.16	1639 0.16	1353 0.16	1080 0.15	753 0.14	334 0.12								
	730	1947 0.19	1733 0.18	1458 0.18	1203 0.17	894 0.17	552 0.15	67 0.12							
	750	2001 0.20	1795 0.20	1527 0.19	1278 0.19	984 0.18	673 0.17	229 0.14							
	780	2081 0.23	1886 0.23	1629 0.22	1385 0.21	1120 0.21	829 0.20	467 0.18							
	810	2161 0.25	1977 0.25	1731 0.24	1491 0.24	1254 0.24	971 0.23	670 0.21							
	840	2241 0.28	2066 0.28	1833 0.27	1597 0.27	1378 0.26	1107 0.26	836 0.24	54 0.18						
1/3 HP	870	2321 0.31	2155 0.31	1933 0.31	1702 0.30	1491 0.30	1243 0.29	983 0.28	297 0.22						
	900	2401 0.35	2242 0.35	2031 0.34	1806 0.33	1597 0.33	1378 0.32	1122 0.31	535 0.27						
	930	2481 0.38	2329 0.38	2128 0.38	1909 0.37	1703 0.36	1504 0.36	1257 0.35	740 0.32						
1/2 HP	970	2588 0.43	2443 0.44	2255 0.43	2045 0.42	1844 0.41	1657 0.41	1438 0.40	965 0.38	310 0.30					
	1000	2668 0.48	2529 0.48	2349 0.47	2147 0.46	1949 0.45	1764 0.45	1570 0.44	1113 0.42	551 0.36					
	1030	2748 0.52	2614 0.52	2443 0.52	2249 0.50	2053 0.50	1869 0.49	1692 0.49	1253 0.46	765 0.42	76 0.33				
	1060	2828 0.57	2698 0.57	2536 0.56	2349 0.55	2157 0.54	1975 0.54	1806 0.53	1389 0.51	948 0.48	318 0.39				
3/4 HP	1090	2908 0.62	2783 0.62	2628 0.61	2447 0.60	2259 0.59	2081 0.59	1913 0.58	1525 0.56	1107 0.53	561 0.46				
	1120	2988 0.67	2867 0.67	2719 0.67	2545 0.66	2362 0.64	2186 0.64	2018 0.63	1661 0.62	1254 0.59	782 0.54				
	1150	3068 0.72	2950 0.73	2809 0.72	2641 0.71	2464 0.70	2290 0.69	2124 0.69	1793 0.67	1394 0.65	974 0.61				
	1180	3148 0.78	3034 0.78	2899 0.78	2736 0.77	2565 0.76	2394 0.75	2230 0.74	1917 0.73	1530 0.70	1141 0.67				
	1220	3255 0.86	3145 0.87	3017 0.86	2862 0.85	2699 0.84	2530 0.83	2370 0.82	2070 0.81	1711 0.79	1340 0.76	334 0.58			
1 HP	1240	3308 0.91	3200 0.91	3075 0.91	2925 0.90	2765 0.88	2599 0.87	2440 0.86	2143 0.86	1802 0.83	1435 0.80	499 0.65			
	1270	3388 0.98	3283 0.98	3163 0.97	3018 0.97	2863 0.95	2701 0.94	2544 0.93	2249 0.92	1936 0.90	1573 0.87	735 0.75			
1 1/2 HP	1300	3468 1.05	3366 1.05	3250 1.05	3111 1.04	2960 1.02	2803 1.01	2647 1.00	2354 0.99	2065 0.98	1710 0.94	948 0.85			
	1330	3548 1.12	3448 1.12	3336 1.12	3203 1.11	3056 1.10	2904 1.08	2750 1.07	2460 1.10	2186 1.05	1845 1.02	1137 0.94	100 0.70		
	1360	3628 1.20	3531 1.20	3422 1.20	3295 1.19	3151 1.18	3004 1.16	2852 1.15	2566 1.13	2300 1.13	1981 1.10	1304 1.03	341 0.80		
	1390	3708 1.28	3613 1.28	3508 1.28	3385 1.27	3246 1.26	3103 1.25	2955 1.23	2671 1.21	2409 1.20	2115 1.18	1457 1.11	587 0.92		
	1420	3788 1.36	3695 1.37	3593 1.36	3475 1.36	3340 1.35	3201 1.33	3056 1.31	2776 1.29	2515 1.29	2245 1.27	1602 1.20	823 1.05		
	1450	3868 1.45	3778 1.45	3678 1.45	3564 1.45	3434 1.44	3298 1.42	3158 1.40	2881 1.38	2620 1.37	2367 1.36	1741 1.29	1037 1.17	56 0.90	
	1490	3975 1.57	3887 1.58	3791 1.58	3682 1.57	3558 1.56	3426 1.55	3291 1.53	3019 1.50	2761 1.49	2520 1.48	1924 1.42	1289 1.32	375 1.05	
	1530	4082 1.71	3996 1.71	3903 1.71	3800 1.70	3681 1.69	3553 1.68	3423 1.66	3156 1.63	2902 1.62	2665 1.61	2104 1.55	1507 1.47	702 1.24	

**NOTES:**

1. Performance certified is for installation Type B: Free inlet, ducted outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings include the effects of an inlet filter.

# BCFS 180A Performance Curves



**NOTES:**

1. The sound power level ratings shown are in decibels, referred to  $10^{-12}$  watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.
2. Values certified are for outlet Lwo sound power levels for Type B: Free inlet, ducted outlet. Ratings do not include the effects of duct end correction.

## BCFS 180A Sound Data

RPM	SP	CFM	OCTAVE BAND								LwA
			1	2	3	4	5	6	7	8	
750	0.000	2001	83	83	78	74	71	66	60	54	77
	0.125	1795	82	83	77	73	69	64	57	51	75
	0.250	1527	82	83	76	72	68	62	56	50	75
	0.375	1278	83	84	76	72	68	62	56	50	75
	0.500	984	82	82	73	69	65	60	54	47	72
	0.625	673	82	82	73	69	65	60	54	48	72
840	0.000	2241	85	86	81	77	74	70	63	57	80
	0.125	2066	84	86	81	76	73	68	62	56	79
	0.250	1833	84	85	79	74	71	65	59	53	77
	0.375	1597	85	86	80	75	72	66	60	54	78
	0.500	1378	85	86	79	75	71	66	59	53	78
	0.625	1107	84	84	77	72	68	63	57	51	75
0.750	836	84	85	77	72	69	63	57	51	76	
960	0.000	2561	87	89	86	81	78	74	68	62	84
	0.125	2415	87	89	85	81	77	73	67	61	83
	0.250	2223	86	88	84	79	75	70	64	58	82
	0.375	2011	86	88	84	78	75	69	63	57	81
	0.500	1809	87	89	84	79	75	70	64	58	82
	0.625	1620	88	89	84	79	75	70	64	58	82
0.750	1393	87	88	83	77	73	69	62	56	80	
1.000	913	87	87	82	76	72	68	61	55	79	
1090	0.000	2908	89	92	89	84	81	77	71	65	87
	0.125	2783	89	92	89	84	81	77	71	65	87
	0.250	2628	89	91	88	83	79	75	69	63	86
	0.375	2447	88	91	88	82	78	74	67	61	85
	0.500	2259	89	91	88	82	78	74	67	61	85
	0.625	2081	89	92	89	82	79	74	68	62	86
0.750	1913	90	92	89	83	79	74	68	62	86	
1.000	1525	89	90	87	80	76	72	65	59	83	
1.250	1107	89	90	86	79	76	72	65	59	83	
1.500	561	88	89	85	78	74	70	63	57	82	
1120	0.000	2988	90	92	90	85	82	78	72	66	88
	0.125	2867	90	92	90	85	82	78	72	66	88
	0.250	2719	89	92	89	84	80	77	70	64	87
	0.375	2545	89	91	89	83	79	75	68	62	86
	0.500	2362	89	91	89	82	79	74	68	62	85
	0.625	2186	90	92	89	83	79	75	68	62	86
0.750	2018	90	93	90	83	80	75	69	63	87	
1.000	1661	90	92	88	82	78	74	67	61	85	
1.250	1254	90	91	87	80	76	73	66	60	84	
1.500	782	89	90	87	80	76	72	65	59	83	
1250	0.000	3335	92	95	94	88	85	81	76	70	91
	0.250	3105	92	94	93	88	84	80	75	69	90
	0.500	2798	91	94	92	85	82	78	71	65	89
	0.750	2475	92	95	93	86	82	78	71	65	89
	1.000	2178	93	95	94	86	83	78	72	66	90
	1.500	1482	92	93	91	83	79	76	69	63	87
2.000	580	90	91	90	81	77	74	67	61	85	
1370	0.000	3655	94	96	96	91	87	84	78	72	93
	0.125	3558	94	96	96	91	87	84	78	72	93
	0.250	3451	94	96	96	91	87	83	78	72	93
	0.375	3325	93	96	96	89	86	82	76	70	92
	0.500	3183	93	95	95	88	85	81	75	69	91
	0.625	3037	93	95	95	88	84	80	74	68	91
0.750	2886	93	95	95	88	84	80	74	68	91	
1.000	2601	94	96	96	89	85	81	75	69	92	
1.250	2337	95	97	97	89	85	81	75	69	93	
1.500	2026	95	96	96	87	83	79	73	67	91	
2.000	1356	94	95	95	86	82	78	72	66	90	

# BCFS 240A Performance Data

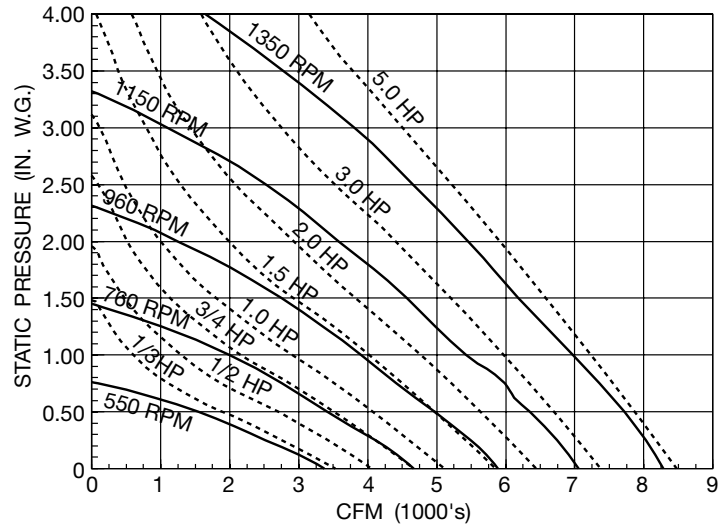
MOTOR HP	RPM	CFM BHP													
		STATIC PRESSURE (IN. W.G.)													
		0"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
1/3 HP	465	2853 0.19	2409 0.19	1825 0.18	1208 0.17	372 0.12									
	500	3067 0.24	2661 0.23	2119 0.23	1571 0.22	939 0.20	37 0.10								
	550	3374 0.32	3003 0.31	2514 0.30	2059 0.30	1533 0.29	916 0.25	88 0.14							
	580	3558 0.37	3208 0.37	2754 0.36	2327 0.35	1841 0.34	1328 0.33	636 0.26							
1/2 HP	600	3681 0.41	3345 0.41	2925 0.40	2495 0.39	2041 0.38	1556 0.37	964 0.33							
	630	3865 0.48	3551 0.47	3186 0.46	2735 0.45	2330 0.44	1870 0.43	1388 0.41							
	660	4049 0.55	3756 0.55	3425 0.54	2972 0.52	2603 0.51	2174 0.50	1734 0.49	568 0.35						
3/4 HP	700	4294 0.65	4026 0.65	3714 0.64	3289 0.63	2939 0.62	2564 0.61	2149 0.59	1223 0.53						
	730	4478 0.74	4226 0.74	3921 0.73	3541 0.71	3179 0.70	2839 0.69	2452 0.68	1635 0.65	495 0.44					
	760	4662 0.83	4424 0.83	4126 0.83	3803 0.81	3415 0.80	3100 0.79	2744 0.78	1980 0.75	1010 0.62					
1 HP	780	4785 0.90	4555 0.90	4262 0.89	3972 0.88	3573 0.86	3265 0.85	2932 0.84	2191 0.81	1328 0.73	168 0.42				
	810	4969 1.01	4750 1.01	4466 1.00	4207 0.99	3812 0.97	3505 0.96	3202 0.95	2499 0.92	1750 0.88	725 0.66				
	840	5153 1.13	4944 1.13	4672 1.12	4427 1.11	4063 1.09	3742 1.07	3458 1.06	2802 1.03	2107 1.01	1228 0.86				
1 1/2 HP	870	5337 1.25	5137 1.25	4878 1.25	4637 1.23	4326 1.21	3978 1.20	3702 1.19	3096 1.16	2429 1.13	1683 1.05				
	900	5521 1.39	5329 1.39	5084 1.38	4843 1.37	4581 1.35	4217 1.33	3940 1.32	3379 1.29	2737 1.26	2075 1.22	181 0.63			
	930	5705 1.53	5520 1.53	5289 1.52	5048 1.51	4818 1.50	4464 1.47	4176 1.46	3651 1.44	3041 1.40	2416 1.37	744 0.96			
	960	5889 1.68	5711 1.68	5492 1.68	5252 1.67	5040 1.65	4725 1.63	4413 1.61	3910 1.59	3338 1.55	2733 1.52	1255 1.24			
2 HP	1000	6135 1.90	5965 1.90	5761 1.90	5525 1.89	5322 1.87	5070 1.85	4733 1.83	4238 1.80	3720 1.77	3142 1.73	1878 1.58	75 0.79		
	1040	6380 2.14	6218 2.14	6027 2.14	5799 2.13	5598 2.11	5388 2.09	5074 2.07	4556 2.04	4084 2.01	3543 1.97	2405 1.89	836 1.34		
	1060	6503 2.26	6344 2.26	6160 2.26	5936 2.25	5734 2.24	5538 2.22	5250 2.19	4713 2.16	4258 2.13	3738 2.10	2637 2.02	1179 1.58		
3 HP	1090	6687 2.46	6533 2.46	6357 2.46	6142 2.45	5938 2.44	5754 2.42	5508 2.40	4949 2.35	4510 2.33	4024 2.29	2962 2.21	1675 1.92		
	1120	6871 2.67	6721 2.67	6552 2.67	6348 2.66	6142 2.65	5964 2.63	5753 2.61	5186 2.56	4754 2.53	4301 2.50	3274 2.41	2128 2.23	566 1.47	
	1150	7055 2.89	6910 2.89	6747 2.89	6552 2.88	6347 2.87	6171 2.85	5984 2.83	5427 2.78	4992 2.75	4568 2.72	3580 2.63	2532 2.52	1102 1.92	
5 HP	1180	7239 3.12	7098 3.12	6941 3.12	6755 3.12	6553 3.10	6376 3.09	6203 3.06	5677 3.01	5229 2.98	4824 2.95	3883 2.86	2890 2.78	1607 2.34	
	1210	7423 3.37	7286 3.37	7134 3.37	6957 3.36	6759 3.35	6580 3.33	6416 3.31	5939 3.26	5465 3.22	5071 3.19	4181 3.11	3220 3.02	2082 2.73	
	1240	7607 3.62	7473 3.63	7326 3.62	7158 3.62	6965 3.61	6784 3.59	6624 3.57	6201 3.52	5702 3.47	5312 3.44	4471 3.36	3534 3.27	2514 3.09	
	1270	7791 3.89	7661 3.89	7518 3.89	7357 3.89	7171 3.88	6989 3.86	6830 3.84	6455 3.79	5941 3.74	5550 3.71	4753 3.63	3842 3.53	2901 3.42	199 1.73
	1300	7975 4.17	7848 4.18	7710 4.18	7556 4.17	7376 4.16	7194 4.15	7035 4.13	6696 4.08	6185 4.02	5786 3.98	5027 3.91	4147 3.81	3249 3.73	779 2.40
	1350	8282 4.68	8160 4.68	8028 4.68	7883 4.67	7716 4.67	7537 4.65	7375 4.63	7073 4.59	6615 4.53	6180 4.48	5465 4.41	4646 4.31	3785 4.22	1647 3.37

**NOTES:**

1. Performance certified is for installation Type B: Free inlet, ducted outlet.
2. Power rating (BHP) does not include transmission losses.
3. Performance ratings include the effects of an inlet filter.



# BCFS 240A Performance Curves



**NOTES:**

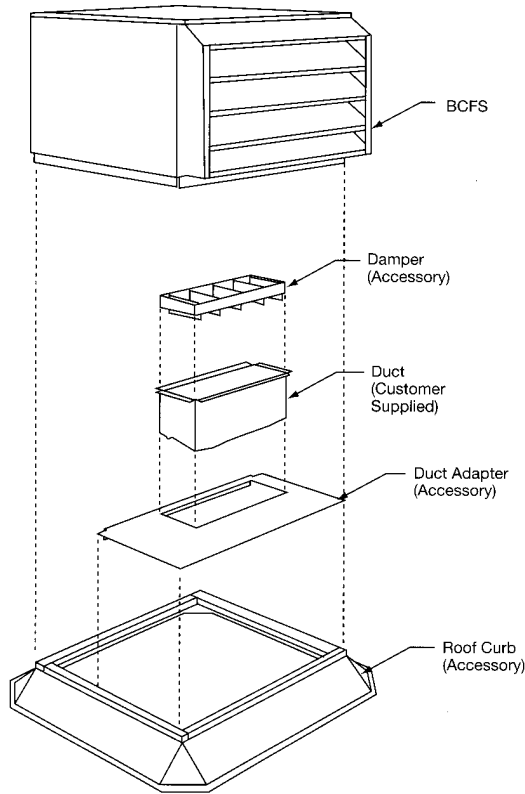
1. The sound power level ratings shown are in decibels, referred to 10<sup>-12</sup> watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA Standard 301.
2. Values certified are for outlet Lwo sound power levels for Type B: Free inlet, ducted outlet. Ratings do not include the effects of duct end correction.

## BCFS 240A Sound Data

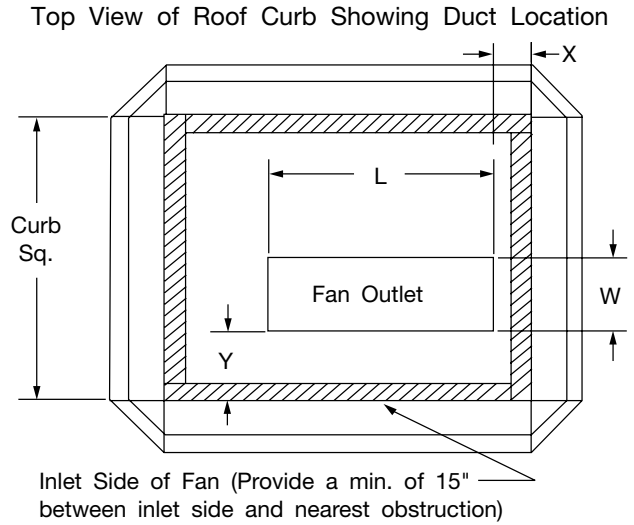
RPM	SP	CFM	OCTAVE BAND								LwA
			1	2	3	4	5	6	7	8	
550	0.000	3374	86	83	78	75	71	65	59	53	77
	0.125	3003	85	82	76	73	69	62	56	50	75
	0.250	2514	85	82	76	72	68	61	55	49	74
	0.375	2059	85	82	76	72	68	61	55	49	74
	0.500	1533	84	80	73	69	65	59	53	47	72
620	0.000	3804	88	87	82	78	75	69	63	57	81
	0.125	3482	88	86	80	77	73	67	61	55	79
	0.250	3101	87	86	79	75	71	64	58	52	78
	0.375	2656	88	87	80	76	72	65	59	53	79
	0.500	2235	88	86	79	75	71	64	58	52	78
	0.625	1767	86	85	76	73	69	62	56	50	76
	0.750	1257	86	84	76	72	69	62	56	50	75
750	0.000	4601	91	92	87	83	80	75	69	63	86
	0.125	4359	91	92	87	83	80	75	69	63	86
	0.250	4058	91	92	85	81	77	72	66	60	84
	0.375	3716	91	91	84	80	76	70	64	58	83
	0.500	3336	91	92	85	81	77	71	65	59	84
	0.625	3015	92	92	85	81	77	71	65	59	84
	0.750	2648	91	92	84	80	76	70	64	58	83
	1.000	1870	90	91	82	78	74	68	62	56	81
1.250	842	89	89	80	76	72	67	60	54	79	
830	0.000	5092	93	94	90	86	83	78	72	66	89
	0.125	4880	93	94	90	86	83	78	72	66	89
	0.250	4603	93	94	88	84	81	76	69	63	87
	0.375	4355	93	94	88	83	80	74	68	62	86
	0.500	3977	92	94	87	83	79	73	67	61	86
	0.625	3663	93	94	88	83	80	74	68	62	86
	0.750	3374	94	95	88	84	80	74	68	62	87
	1.000	2702	93	93	85	81	77	72	66	60	84
	1.250	1994	92	93	85	80	77	72	65	59	84
	1.500	1064	91	91	84	79	75	70	64	58	82
960	0.000	5889	96	98	94	90	86	82	76	70	92
	0.125	5711	96	98	94	90	86	82	76	70	92
	0.250	5492	96	97	94	89	86	81	75	69	92
	0.375	5252	95	97	93	88	84	80	73	67	91
	0.500	5040	95	97	93	87	84	79	73	66	90
	0.625	4725	95	97	92	87	83	78	72	66	90
	0.750	4413	95	97	93	87	84	79	72	66	90
	1.000	3910	96	98	93	88	84	79	72	66	91
	1.250	3338	96	97	92	86	82	78	71	65	89
	1.500	2733	95	96	90	84	81	76	70	64	88
2.000	1255	94	95	89	83	79	75	68	62	86	
1020	0.000	6257	97	99	96	91	88	84	78	72	94
	0.125	6091	97	99	96	91	88	84	78	72	94
	0.250	5895	97	99	96	91	88	84	78	72	94
	0.375	5662	96	98	95	90	86	82	76	70	93
	0.500	5460	96	98	95	89	86	81	75	69	92
	0.625	5233	96	98	94	89	85	81	74	68	92
	0.750	4900	96	98	94	88	85	80	73	67	91
	1.000	4397	97	99	95	89	86	81	74	68	92
	1.250	3904	97	99	95	89	85	81	74	68	92
	1.500	3344	97	98	93	87	83	79	72	66	90
2.000	2153	96	97	92	86	82	78	71	65	89	
1190	0.000	7300	100	102	101	96	92	89	83	77	98
	0.125	7161	100	102	101	96	92	89	83	77	98
	0.250	7005	100	102	101	96	92	89	83	77	98
	0.375	6823	100	102	101	95	91	88	82	76	98
	0.500	6621	99	102	100	94	90	87	81	75	97
	0.625	6444	99	102	100	94	90	86	80	74	97
	0.750	6275	99	102	100	93	90	86	79	73	97
	1.000	5764	99	101	99	93	89	85	78	72	96
	1.250	5308	100	102	100	93	90	85	79	73	96
	1.500	4907	100	103	100	94	90	86	79	73	97
2.000	3983	100	101	99	91	88	84	77	71	95	
2.500	3003	100	101	98	90	87	83	76	70	94	
3.000	1770	99	100	97	89	86	82	75	69	93	

# Installation

## Typical Installation



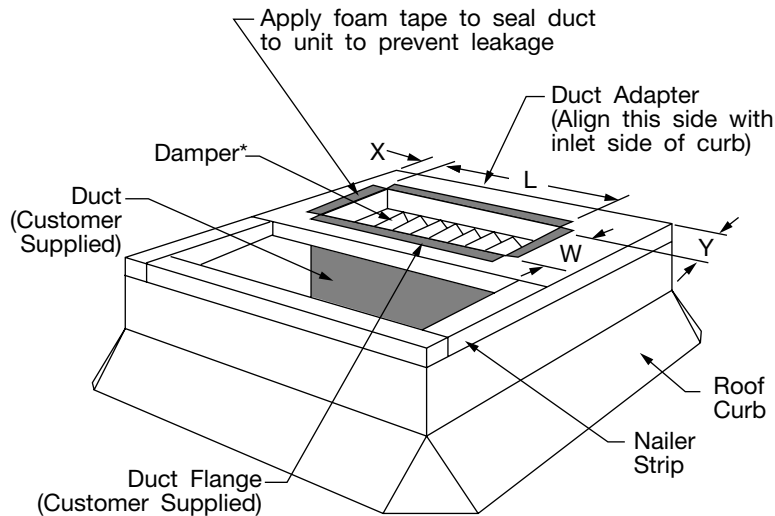
## Location of Fan Outlet (Duct Location)



MODEL BCFS	DIMENSION (IN.)				CURB SQ.	SUPPLY DAMPER
	W	L	X	Y		
140A	8½	19	2½	7¼	30 x 30	8 x 19
180A	10	22	2⅝	9¼	36 x 36	10 x 22
240A	13⅜	29	2	11¾	47 x 47	13 x 29

**NOTE:** Dimensions are not to be used for construction.

## Duct Adapter Installation



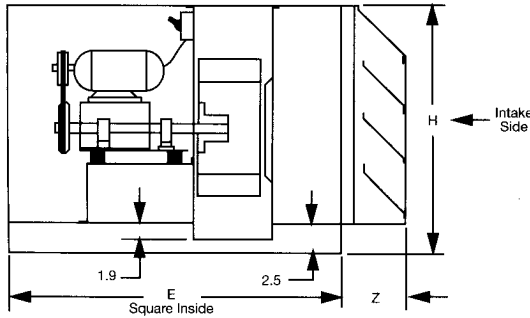
Position duct adapter as shown and secure to nailer strip with nails in holes provided in duct adapter.

MODEL BCFS	DIMENSION (IN.)			
	W	L	X	Y
140A	8½	19½	2¼	7
180A	10½	22½	1⅝	9
240A	13⅜	29½	1¾	11½

**NOTE:** Dimensions are not to be used for construction.

\*For a standard gravity (spring return) damper, recess the damper a minimum of 2" inside the duct in order to clear the fan outlet. For an optional motorized damper, the damper must be recessed 12" to allow for clearance between the actuator and fan outlet.

# Dimensional Data



**Dimensional Data**

MODEL BCFS	WHEEL DIA.	FILTER		DIMENSIONS (INCHES)					
		SIZE	QTY.	OUTLET SIZE	E	H	Z	ROOF CURB SIZE	SUPPLY DAMPER
140A	14 <sup>3</sup> / <sub>4</sub>	16x25	2	8 x 19 <sup>1</sup> / <sub>8</sub>	32	27 <sup>3</sup> / <sub>8</sub>	6	30 x 30	8 x 19
180A	18 <sup>3</sup> / <sub>4</sub>	16x25	1	10 x 22	38	33 <sup>3</sup> / <sub>16</sub>	6	36 x 36	10 x 22
		20x25	1						
240A	24 <sup>3</sup> / <sub>4</sub>	20x20	2	13 <sup>3</sup> / <sub>16</sub> x 29 <sup>1</sup> / <sub>4</sub>	48 <sup>1</sup> / <sub>2</sub>	42 <sup>1</sup> / <sub>8</sub>	6	47 x 47	13 x 29
		20x25	2						

**NOTE:** Dimensions are not to be used for construction.

## Typical Specifications

Filtered Supply Ventilators shall be of the belt driven centrifugal type, Model BCFS, as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

**CONSTRUCTION** — Unit exterior shall be constructed of aluminum for durability and appearance.

**WHEEL** — Fan wheels shall be of the centrifugal backward inclined type, constructed of aluminum and containing a matching inlet venturi for optimum unit performance. Wheels shall be statically and dynamically balanced.

**SHAFT** — Fan shafts shall be precision ground and polished. Shafts shall have a first critical speed of at least 125% of the fan's maximum operating speed.

**BEARINGS** — Bearings 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 in excess of 40,000 hours at the maximum catalogued speed.

**DRIVE** — Drive assembly shall be constructed of heavy-gauge galvanized steel and contain no welding. Drives shall be sized for a minimum of 150% of driven horsepower. Machined, cast iron motor sheaves shall be adjustable for final system balancing.

**MOTOR** — Motors shall be of the heavy duty ball bearing type, closely matched to the fan load. All motors shall be listed by UL and/or CSA. A disconnect switch shall be factory installed and wired to the fan motor and mounted in a junction box within the motor compartment. Electrical knockouts shall be provided in various locations for the unit supply wires for ease of electrical installation.

Motor and drive assembly shall be mounted on vibration isolators to eliminate vibration and noise transmission into the ductwork. Motor and drive assembly shall be removable from the unit as a complete module for service and maintenance without complete disassembly of the unit.

One inch thick aluminum washable filters shall be provided. A galvanized bird screen shall be provided to prevent birds and other foreign objects from entering the unit.

Fans shall bear the AMCA Ratings Seal for Air and Sound performance. Fans and motors shall carry the UL listing mark. Fans shall bear a permanently attached nameplate displaying model and serial number of the unit for future identification.

# Unlimited Options...

## Commercial Fans

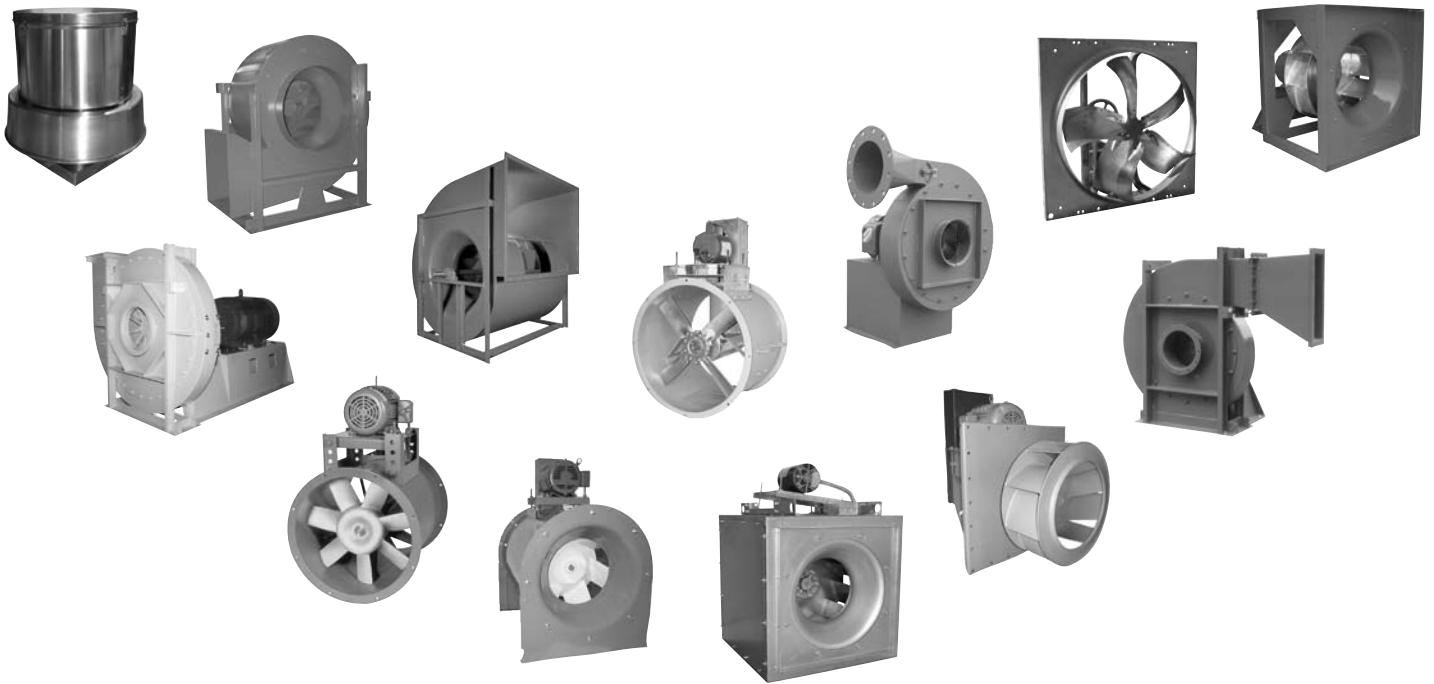
Centrifugal Fans • Utility Sets • Inline Centrifugal Fans • Plenum Fans  
Radial Bladed Fans • Centrifugal Roof & Wall Exhausters • Filtered Supply Fans  
Gravity Relief Ventilators • Ceiling & Cabinet Ventilators • Propeller Wall Fans  
Tubeaxial Fans • Vaneaxial Fans • Propeller Roof Ventilators  
Fume Hood/Smoke & Heat Exhaust Fans • Mancoolers • Fiberglass Fans

## Industrial Fans

Centrifugal Fans • Forward Curved & Air Kit Components • Inline Centrifugal Fans  
Plug Fans • Radial Bladed Fans • Radial Tip & High Efficiency Fans  
Pressure Blowers • Tubeaxial Fans • Vaneaxial Fans

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