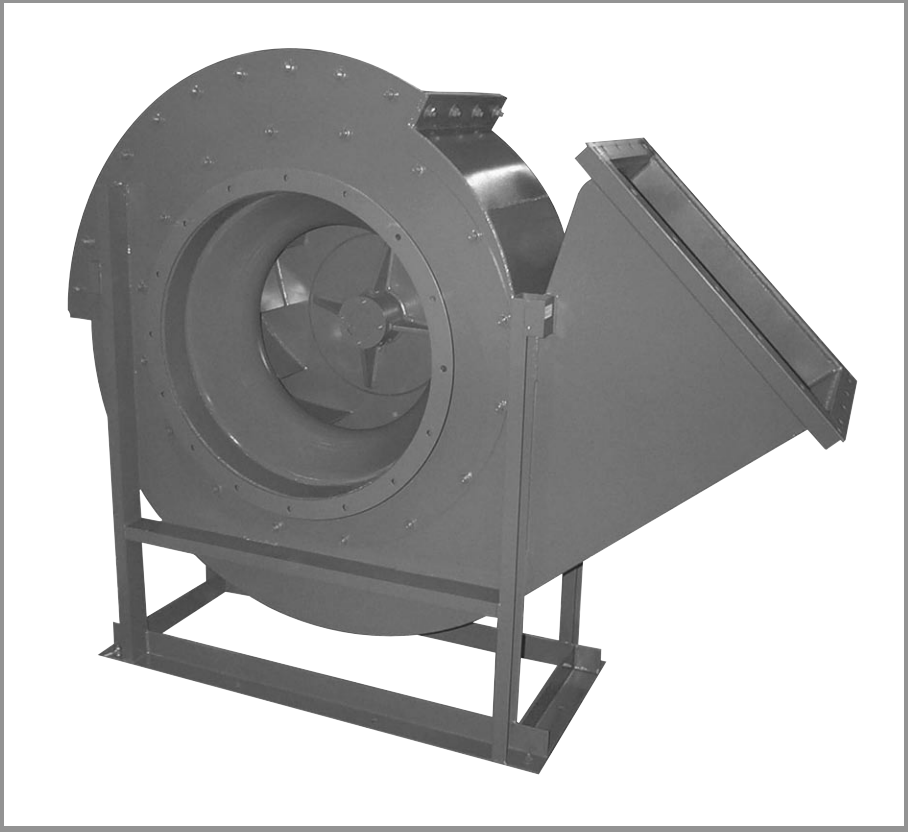
BULLETIN 950-E
August 2005

Twin City Fan & Blower

RADIAL TIP FANS

TYPE RTF



Type RTF Radial Tip Fans

Type RTF radial tip fans are of a heavy duty, rugged design, suitable for applications involving large volumes of gas streams at moderate to high pressure. Designed to handle clean or dirty airstreams, they are widely used to exhaust gases from bag-type collectors, precipitators, scrubbers, cyclones, and other industrial applications. This type of fan is also used for induced draft on boilers, incinerators, and kiln exhaust. Steel, air pollution, dryer, petrochemical, cement, furnaces and ovens, solvent recovery, sewage sludge and solid waste incineration industries have found the Type RTF radial tip design particularly suitable for their applications.

Capabilities

- Heavy-duty construction with choice of speed range:

  RTF 18 — Suitable to 18,000 FPM tip speed
  Pressures to 24" w.g.

  RTF 23 — Suitable to 23,000 FPM tip speed
  Pressures to 36" w.g.

  RTF 23 wheels are equipped with wear pads on the blades. Consult factory for higher tip speed designs.

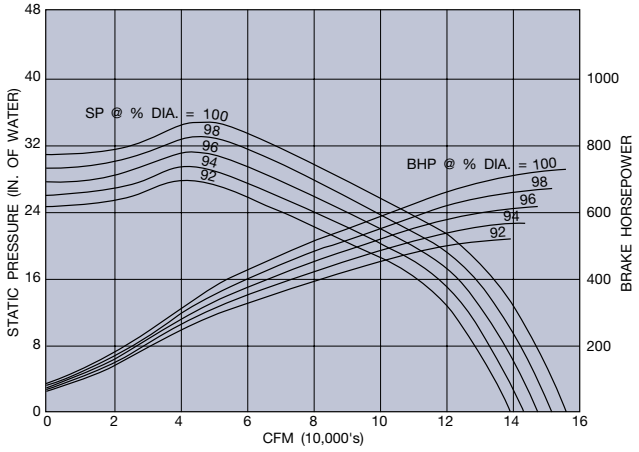
- Volume from 2,300 CFM to 193,000 CFM.
- Standard fan suitable to 300°F.

Features

- High efficiency, lower first and operating costs.
- AMCA licensed air performance on sizes 270 through 800, pages 8 to 12.
- Self-cleaning wheel design.
- Statically and dynamically balanced rotor assembly.
- Heavy duty, self-aligning, grease lubricated, anti-friction, pillow block bearings.
- Heavy-gauge reinforced housing and bearings pedestal for vibration-free service.

Typical Performance Curve with Various Diameter Fan Wheels

Size: 600 RPM: 1175 Density: 0.075 lb/ft^3



amca CERTIFIED RATINGS
AIR PERFORMANCE
® AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

Twin City Fan & Blower certifies that the RTF Radial Tip Fans Sizes 270 through 800 shown on pages 8 to 12 are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Accessories

Inlet Boxes

Integral or detached type, generously designed to minimize pressure drop. Specify inlet box position to AMCA Standard 2405-66 shown on page 4. Detached inlet boxes include support legs and flanges on both inlet and outlet. Free-standing designs are also available to allow a flex connector between box and fan. Standard detached inlet box will not support stack weight. All inlet box designs include drain and access door.

Inlet Box Dampers

Pre-spin design, heavy duty construction. The damper will spin the air in the direction of wheel rotation resulting in a savings in horsepower at reduced loads.

Outlet Dampers

Double surface airfoil blades are available in either parallel or opposed blade design.

Evasé

Usually fabricated by customer as a part of the ductwork. Fan outlet must be expanded to equal evasé area shown in the catalog to obtain rated performance. Construction is of the same gauge as fan housing when purchased from the factory.

Temperature and Vibration Detectors

Thermocouples or RTDs can be installed on the bearings. Various types of vibration switches are available.

Abrasion and Corrosion Resistant Alloys and Coatings

Optional construction includes an abrasion resistant steel blade, backplate, scroll and side or cheek liners. Construction materials include Corten, stainless steel, Monel, aluminum, Hastelloy, and other alloys. Construction from heavier than standard gauges is available. Special corrosion resistant coatings of various types are available.

High Temperature Construction

301 to 500°F: Requires addition of shaft cooler and high temperature grease bearings.

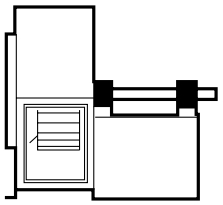
501 to 600°F: Above modifications plus high temperature aluminum paint.

601 to 800°F: Above modifications plus modified pedestal design.

Arrangements

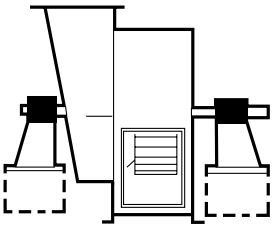
Arrangement 1

The usual choice for many V-belt drive applications. Wheel is overhung. Steel bearing pedestal to size 730. Size 800 requires concrete pedestal. Consult factory for V-belt drive applications larger than 250 HP.



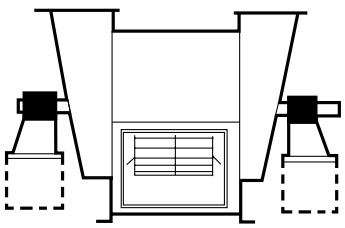
Arrangement 3SI

SWSI fan with integral inlet box and independent bearing pedestals. The wheel is supported between two bearings.



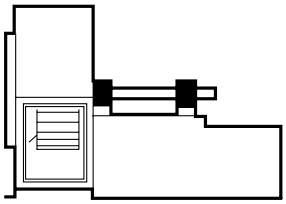
Arrangement 3DI

DWDI fan with inlet boxes on both sides and independent bearing pedestals.



Arrangement 8

Direct coupled with a flexible coupling. The motor pedestal can be custom fabricated out of steel for up to 300 HP. On larger HP units, use of standard Arr. 1 fan with a concrete pedestal for the motor is advisable.



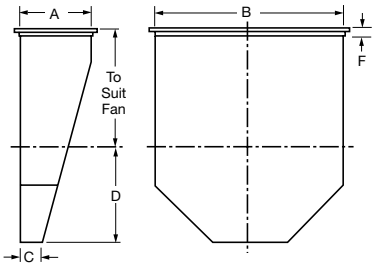
Variations in wheel diameters and wheel widths are available to match designed performance at motor speeds. Characteristic curves are available from the factory or from the Twin City Fan Selector Program.

Arrangement 9F

Floor mount. Similar to Arrangement #1 with the fan base extended to mount motor in a horizontal position.

Inlet Boxes

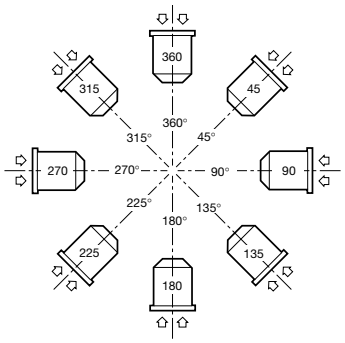
Typical Inlet Box Dimensions



SIZE	A	B	C	D	INLET AREA (FT^2)	F
180	9.75	28.75	3.19	10.00	1.85	1.5 x 1.5
200	10.63	31.50	3.19	11.00	2.22	1.5 x 1.5
220	11.75	35.00	3.19	12.00	2.81	1.5 x 1.5
240	13.00	38.50	3.19	12.50	3.34	1.5 x 1.5
270	14.38	42.50	3.19	14.00	4.10	1.5 x 1.5
300	15.88	46.88	3.19	15.00	5.00	1.5 x 1.5
330	17.88	52.13	3.19	16.50	6.11	2.0 x 2.0
360	19.38	57.38	3.19	20.06	7.52	2.0 x 2.0
400	21.38	63.38	3.19	21.88	9.20	2.5 x 2.5
450	23.38	69.38	4.19	24.50	11.00	2.5 x 2.5
490	25.88	76.88	4.19	26.69	13.60	2.5 x 2.5
540	28.50	84.50	5.25	28.75	16.30	2.5 x 2.5
600	31.50	93.50	5.25	30.88	20.00	3.0 x 3.0
660	34.88	103.50	5.25	33.44	24.60	3.0 x 3.0
730	38.50	114.50	6.25	37.00	30.00	3.5 x 3.5
800	42.50	126.50	6.25	40.38	36.00	3.5 x 3.5

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

Inlet Box Positions for Centrifugal Fans



INLET BOX POSITIONS AND DESCRIPTIONS
45 — Angular Down Intake
90 — Horizontal Right Intake
135 — Angular Up Intake
180 — Bottom Up Intake
225 — Angular Up Intake
270 — Horizontal Left Intake
315 — Angular Down Intake
360 — Top Down Intake

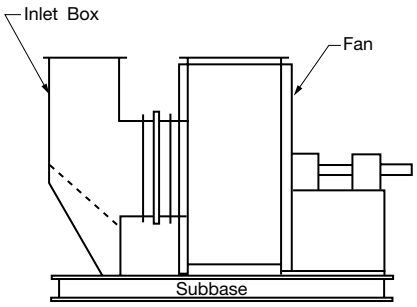
Reference line is the Top Vertical Axis through center of fan shaft.

Position of inlet box and air entry to inlet box is determined from drive side of fan.

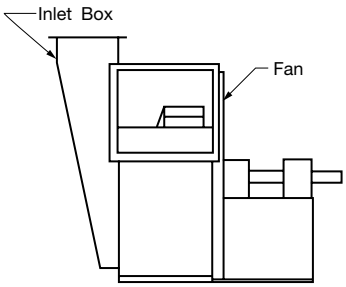
Position of inlet box is designated in degrees clockwise from Top Vertical Axis as shown.

Positions 135° to 225° in some cases interfere seriously with floor structure.

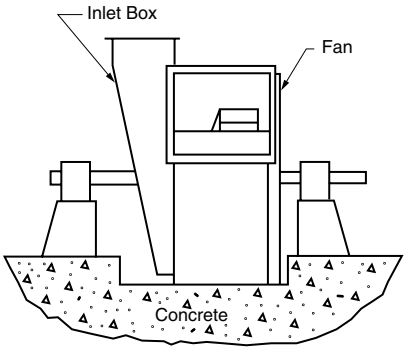
Arrangement 1 fan with detached inlet box. Can be supplied in Arrangement 8.



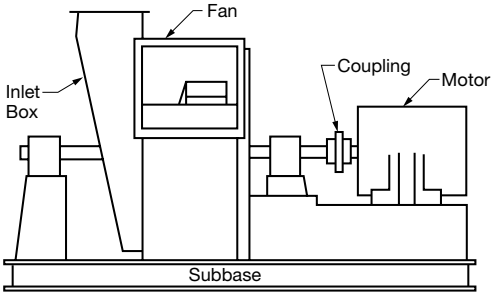
Arrangement 1 fan with attached or integral inlet box. Can be supplied in Arrangement 8.



Arrangement 3 SI fan with integral inlet box, centrally supported wheel, independent bearings pedestals to be installed on concrete pedestals.



Arrangement 7 SI — Similar to Arrangement 3 SI except bearings pedestals and motor installed on a steel common base.



Engineering Data

Table 1. Material and Mechanical Specifications

FAN SIZE	DESIGN RTF	SHAFT DIA.	MAX. HP V-BELT DRIVE	MIN. SHEAVE DIA. ①	MAX. HP DIRECT DRIVE	MAX. RPM ②	WHEEL WT. (LB)	WHEEL			WR² (LB-FT²)	HOUSING	ARR. 1 FAN WT. (LB)
								BACK PLATE	BLADES	SHROUD			
180	18	2.188	30	5.7	40	3342	59	0.25	10 GA.	10 GA.	21	7 GA.	745
	23	2.188	60	5.4	75	3971	70	0.31	10 GA.	10 GA.	22	7 GA.	760
200	18	2.188	40	6.6	75	3026	71	0.25	10 GA.	10 GA.	31	7 GA.	825
	23	2.438	75	5.9	100	3800	84	0.31	10 GA.	10 GA.	36	7 GA.	850
220	18	2.188	50	7.5	60	2723	87	0.25	10 GA.	10 GA.	46	7 GA.	875
	23	2.438	100	6.6	125	3484	103	0.31	10 GA.	10 GA.	55	7 GA.	930
240	18	2.188	60	8.4	75	2476	105	0.25	10 GA.	10 GA.	68	7 GA.	920
	23	2.688	125	7.2	150	3167	125	0.31	10 GA.	10 GA.	81	7 GA.	1000
270	18	2.438	75	9.5	100	2264	128	0.31	10 GA.	10 GA.	90	7 GA.	1100
	23	2.688	150	7.9	150	2892	153	0.31	10 GA.	10 GA.	112	7 GA.	1160
300	18	2.688	100	11.1	150	2052	149	0.31	10 GA.	10 GA.	131	7 GA.	1300
	23	2.938	200	8.7	200	2622	178	0.31	10 GA.	10 GA.	164	7 GA.	1350
330	18	2.688	100	11.4	150	1858	196	0.31	10 GA.	10 GA.	196	7 GA.	1530
	23	2.938	200	9.7	250	2374	231	0.31	10 GA.	10 GA.	243	7 GA.	1580
360	18	2.938	150	12.6	150	1676	248	0.31	10 GA.	10 GA.	326	7 GA.	1950
	23	3.438	250	11.4	300	2143	270	0.31	10 GA.	10 GA.	364	0.25	2330
400	18	3.438	200	12.1	200	1519	352	0.31	10 GA.	7 GA.	532	7 GA.	2450
	23	3.938	250	13.5	400	1942	405	0.38	10 GA.	7 GA.	639	0.25	2870
450	18	3.438	200	14.7	250	1375	408	0.31	10 GA.	7 GA.	781	7 GA.	2980
	23	3.938	250	11.5	500	1757	510	0.38	10 GA.	7 GA.	1042	0.25	3540
490	18	3.938	250	14.2	300	1247	537	0.38	7 GA.	7 GA.	1343	7 GA.	3790
	23	4.438	400	14.1	600	1573	667	0.50	7 GA.	7 GA.	1741	0.25	4370
540	18	3.938	250	17.2	400	1127	756	0.38	7 GA.	0.25	2140	7 GA.	4660
	23	4.438	400	17.4	700	1440	890	0.50	7 GA.	0.25	2694	0.25	5480
600	18	4.438	300	17.7	400	1019	1041	0.50	0.25	0.25	3942	0.25	6360
	23	4.938	400	15.6	800	1302	1108	0.50	0.25	0.25	4276	0.25	6520
660	18	4.438	300	21.0	500	926	1222	0.50	0.25	0.25	5717	0.25	7280
	23	4.938	400	18.6	1000	1183	1522	0.63	0.25	0.25	7333	0.25	7710
730	18	4.438	300	24.6	600	838	1484	0.50	0.25	0.25	8483	0.25	8840
	23	4.938	400	21.6	1200	1071	1847	0.63	0.25	0.25	11020	0.25	9350
800 ③	18	4.938	400	25.7	700	758	1769	0.50	0.25	0.25	12645	0.25	8660
	23	5.438	400	19.6	1400	968	2216	0.63	0.25	0.25	16426	0.25	9370

① Minimum fan diameter when using maximum HP motor. Check with the factory on applications over 300 HP.
② Maximum RPM shown are for 70°F. For higher temperatures use Table 2 on page 6 to derate RPM.
③ Size 800 RTF is not supplied with conventional bearings pedestal. Instead we supply channel subbases. The subbase is to be mounted on concrete pedestal with steel sole plate in the field. Fan weights include weight of channel subbase.

Dimensions are in inches unless otherwise noted.

Engineering Data

Derating Factors For High Temperature

When elevated temperatures are encountered, the maximum RPM allowable as shown in Table 1 on page 7 must be derated according to the derating factors from Table 2. Standard steel construction is suitable for use in gas temperatures to 800°F. Aluminum wheels are suitable for temperatures to 250°F only.

Table 2. Temperature Derating Factors

TEMP. (°F)	DERATING FACTOR	
	STANDARD STEEL	STAINLESS STEEL
70	1.000	1.000
200	0.990	0.950
300	0.975	0.916
400	0.955	0.877
500	0.930	0.841
600	0.904	0.809
700	0.880	0.777
800	0.837	0.754

Performance Correction for Temperature and Altitude

The performance tables in this catalog are based on fans handling standard air at a density of 0.075 pounds per cubic foot. This is equivalent to 70°F at sea level (29.92 Hg barometric pressure). When specified performance is at a density different than standard, it must be converted to the equivalent standard conditions before entering the performance tables. The equivalent conditions can be calculated by using the "Temperature and Altitude Density Ratios" table below.

Table 3. Temperature and Altitude Density Ratios

AIR TEMP. (°F)	ALTITUDE IN FEET ABOVE SEA LEVEL												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000	20000
	BAROMETRIC PRESSURE IN INCHES OF MERCURY												
	29.92	28.86	27.82	26.82	25.84	24.90	23.98	23.09	22.22	21.39	20.58	16.89	13.75
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.714	0.688	0.564	0.460
100	0.946	0.912	0.880	0.848	0.818	0.787	0.758	0.730	0.703	0.676	0.651	0.534	0.435
150	0.869	0.838	0.808	0.770	0.751	0.723	0.696	0.671	0.646	0.620	0.598	0.490	0.400
200	0.803	0.774	0.747	0.720	0.694	0.668	0.643	0.620	0.596	0.573	0.552	0.453	0.360
250	0.747	0.720	0.694	0.669	0.645	0.622	0.598	0.576	0.555	0.533	0.514	0.421	0.344
300	0.697	0.672	0.648	0.624	0.604	0.580	0.558	0.538	0.518	0.498	0.480	0.393	0.321
350	0.654	0.631	0.608	0.586	0.565	0.544	0.524	0.505	0.486	0.467	0.450	0.369	0.301
400	0.616	0.594	0.573	0.552	0.532	0.513	0.493	0.476	0.458	0.440	0.424	0.347	0.283
450	0.582	0.561	0.542	0.522	0.503	0.484	0.466	0.449	0.433	0.416	0.401	0.328	0.268
500	0.552	0.532	0.513	0.495	0.477	0.459	0.442	0.426	0.410	0.394	0.380	0.311	0.254
550	0.525	0.506	0.488	0.470	0.454	0.437	0.421	0.405	0.390	0.375	0.361	0.296	0.242
600	0.500	0.482	0.469	0.448	0.432	0.416	0.400	0.386	0.372	0.352	0.344	0.282	0.230
650	0.477	0.460	0.444	0.427	0.412	0.397	0.382	0.368	0.354	0.341	0.328	0.269	0.219
700	0.457	0.441	0.425	0.410	0.395	0.380	0.366	0.353	0.340	0.326	0.315	0.258	0.210
800	0.420	0.404	0.389	0.375	0.362	0.350	0.336	0.323	0.311	0.300	0.290	0.237	0.193

Performance Data

RTF 180

Not licensed to bear the AMCA Seal.

Wheel Dia.: 20.5" Inlet Area: 1.29 ft² Outlet Area: 1.23 ft² Outlet Evasé: 1.97 ft² Tip Speed: 5.37 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2758	1400	1501	2.53																
3546	1800	1611	3.52	2072	6.37	2425	9.32												
4334	2200	1741	4.78	2177	8.15	2532	11.64	2824	15.18										
5122	2600	1901	6.48	2289	10.21	2635	14.24	2933	18.34	3189	22.46	3424	26.70						
5910	3000	2078	8.66	2416	12.67	2745	17.20	3037	21.84	3297	26.51	3530	31.25	3739	35.97	3939	40.82		
6698	3400	2269	11.41	2568	15.75	2862	20.54	3146	25.74	3401	30.95	3634	36.19	3849	41.50	4043	46.78	4224	52.09
7486	3800	2466	14.75	2735	19.47	2999	24.53	3260	30.04	3510	35.82	3738	41.59	3951	47.41	4149	53.24		
8274	4200	2669	18.80	2914	23.90	3153	29.28	3388	34.98	3623	41.14	3848	47.49	4055	53.79	4251	60.16		
8668	4400	2771	21.08	3007	26.40	3235	31.96	3460	37.80	3683	44.03	3904	50.62	4110	57.22				
9062	4600	2874	23.56	3102	29.10	3319	34.81	3535	40.82	3747	47.12	3960	53.85	4166	60.78				
9456	4800	2977	26.23	3199	32.02	3406	37.89	3613	44.05	3817	50.49	4020	57.30	4221	64.41				
9850	5000	3082	29.14	3297	35.15	3496	41.22	3694	47.53	3890	54.10	4084	60.99						
10244	5200	3187	32.26	3397	38.54	3587	44.73	3777	51.22	3966	57.95	4152	64.92						
10638	5400	3292	35.59	3497	42.13	3681	48.53	3863	55.17	4045	62.06	4224	69.14						
11032	5600	3398	39.17	3598	45.98	3777	52.60	3951	59.38	4125	66.37								
11426	5800	3505	43.03	3699	50.04	3873	56.87	4040	63.79	4209	71.01								

Unshaded Area = Class 18 (Max. RPM 3350) Shaded Area = Class 23 (Max. RPM 4263) Underlined numbers = maximum static efficiency.

RTF 200

Not licensed to bear the AMCA Seal.

Wheel Dia.: 22.5" Inlet Area: 1.60 ft² Outlet Area: 1.48 ft² Outlet Evasé: 2.38 ft² Tip Speed: 5.89 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3332	1400	1368	3.06																
4284	1800	1469	4.26	1889	7.70	2211	11.27												
5236	2200	1588	5.78	1985	9.86	2308	14.06	2575	18.35										
6188	2600	1735	7.86	2087	12.34	2403	17.23	2674	22.16	2908	27.17	3121	32.26						
7140	3000	1897	10.50	2204	15.33	2504	20.82	2769	26.41	3006	32.05	3218	37.75	3409	43.48	3591	49.34		
8092	3400	2071	13.82	2343	19.07	2610	24.84	2869	31.13	3101	37.42	3313	43.73	3509	50.15	3686	56.53	3851	62.95
9044	3800	2252	17.90	2496	23.59	2736	29.69	2973	36.34	3201	43.33	3409	50.31	3602	57.29	3783	64.36		
9996	4200	2437	22.79	2660	28.97	2877	35.45	3091	42.35	3304	49.76	3509	57.43	3698	65.07	3876	72.73		
10472	4400	2530	25.56	2745	31.99	2952	38.70	3157	45.77	3359	53.26	3560	61.22	3748	69.20				
10948	4600	2625	28.60	2832	35.27	3030	42.21	3226	49.45	3418	57.02	3612	65.16	3799	73.50				
11424	4800	2719	31.83	2921	38.83	3109	45.92	3297	53.36	3482	61.11	3667	69.35	3850	77.94				
11900	5000	2815	35.37	3011	42.65	3191	49.94	3371	57.57	3549	65.48	3725	73.78						
12376	5200	2911	39.16	3102	46.75	3275	54.24	3447	62.04	3619	70.18	3788	78.59						
12852	5400	3007	43.20	3193	51.09	3361	58.85	3526	66.86	3691	75.15	3854	83.72						
13328	5600	3104	47.56	3285	55.74	3448	63.75	3606	71.93	3765	80.42								
13804	5800	3201	52.20	3378	60.71	3536	68.94	3688	77.32	3841	86.00								

Unshaded Area = Class 18 (Max. RPM 3045) Shaded Area = Class 23 (Max. RPM 3884) Underlined numbers = maximum static efficiency.

RTF 220

Not licensed to bear the AMCA Seal.

Wheel Dia.: 25" Inlet Area: 1.94 ft² Outlet Area: 1.81 ft² Outlet Evasé: 2.93 ft² Tip Speed: 6.54 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4102	1400	1231	3.77																
5274	1800	1321	5.23	1699	9.47	1989	13.87												
6446	2200	1428	7.12	1785	12.12	2076	17.31	2316	22.58										
7618	2600	1559	9.65	1877	15.19	2161	21.19	2405	27.27	2615	33.41	2808	39.73						
8790	3000	1704	12.88	1982	18.86	2251	25.58	2490	32.48	2704	39.45	2894	46.44	3066	53.50	3230	60.71		
9962	3400	1860	16.95	2106	23.43	2347	30.56	2580	38.29	2789	46.04	2980	53.83	3156	61.71	3315	69.56	3463	77.42
11134	3800	2023	21.97	2243	28.97	2459	36.48	2673	44.67	2878	53.26	3065	61.84	3240	70.52	3402	79.16		
12306	4200	2188	27.93	2389	35.52	2586	43.58	2778	52.02	2971	61.20	3156	70.68	3326	80.07	3486	89.48		
12892	4400	2272	31.34	2466	39.27	2653	47.54	2837	56.20	3020	65.48	3201	75.27	3371	85.16				
13478	4600	2357	35.06	2544	43.29	2722	51.79	2899	60.72	3073	70.10	3248	80.14	3416	90.39				
14064	4800	2442	39.05	2623	47.61	2793	56.36	2963	65.54	3130	75.10	3296	85.19	3462	95.86				
14650	5000	2527	43.33	2704	52.30	2867	61.32	3029	70.68	3190	80.47	3349	90.72						
15236	5200	2613	47.96	2785	57.29	2942	66.57	3098	76.24	3252	86.17	3405	96.59						
15822	5400	2700	52.96	2867	62.63	3019	72.22	3168	82.08	3317	92.31	3464	102.86						
16408	5600	2787	58.30	2950	68.35	3097	78.21	3240	88.32	3383	98.75								
16994	5800	2874	63.98	3033	74.41	3176	84.58	3313	94.88	3451	105.58								

Unshaded Area = Class 18 (Max. RPM 2740) Shaded Area = Class 23 (Max. RPM 3501) Underlined numbers = maximum static efficiency.

Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

Performance Data

RTF 240

Not licensed to bear the AMCA Seal.

Wheel Dia.: 27.5" Inlet Area: 2.41 ft² Outlet Area: 2.19 ft² Outlet Evasé: 3.55 ft² Tip Speed: 7.20 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4970	1400	1119	4.56																
6390	1800	1201	6.34	1545	11.48	1808	16.79												
7810	2200	1299	8.63	1623	14.68	1888	20.98	2106	27.36										
9230	2600	1418	11.69	1707	18.41	1965	25.67	2187	33.05	2378	40.49	2553	48.12						
10650	3000	1551	15.64	1802	22.84	2048	31.05	2265	39.39	2459	47.82	2632	56.30	2788	64.82	2937	73.56		
12070	3400	1693	20.59	1916	28.43	2134	37.02	2346	46.39	2536	55.78	2710	65.24	2870	74.79	3015	84.33	3149	93.81
13490	3800	1841	26.66	2041	35.16	2237	44.25	2431	54.15	2618	64.60	2788	75.01	2946	85.43	3094	95.97		
14910	4200	1992	33.95	2174	43.12	2352	52.82	2527	63.09	2702	74.18	2870	85.65	3024	96.98	3170	108.44		
15620	4400	2068	38.07	2244	47.66	2413	57.62	2581	68.18	2747	79.40	2911	91.23	3065	103.15				
16330	4600	2145	42.56	2315	52.54	2477	62.87	2637	73.63	2795	84.99	2954	97.15	3107	109.59				
17040	4800	2222	47.38	2387	57.79	2541	68.36	2696	79.54	2847	91.06	2998	103.30	3148	116.14				
17750	5000	2300	52.61	2461	63.51	2608	74.35	2756	85.77	2902	97.61	3046	109.97						
18460	5200	2378	58.22	2535	69.58	2677	80.78	2818	92.43	2959	104.58	3097	117.09						
19170	5400	2457	64.28	2609	76.01	2747	87.63	2882	99.55	3017	111.90	3151	124.74						
19880	5600	2536	70.74	2685	83.00	2818	94.90	2948	107.17	3078	119.81								
20590	5800	2616	77.71	2761	90.40	2890	102.65	3015	115.19	3140	128.12								

Unshaded Area = Class 18 (Max. RPM 2497) Shaded Area = Class 23 (Max. RPM 3182) Underlined numbers = maximum static efficiency.

RTF 270

Wheel Dia.: 30.375" Inlet Area: 2.92 ft² Outlet Area: 2.56 ft² Outlet Evasé: 4.33 ft² Tip Speed: 7.95 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6062	1400	969	5.20	1287	10.18	1549	15.57												
7794	1800	1036	7.18	1340	13.13	1583	19.54	1798	26.26	1993	33.19								
9526	2200	1111	9.66	1404	16.70	1638	24.01	1839	31.67	2023	39.64	2194	47.85	2354	56.20	2508	64.81		
11258	2600	1198	12.76	1472	20.87	1700	29.20	1897	37.81	2071	46.66	2233	55.87	2386	65.27	2530	74.79	2667	84.44
12990	3000	1303	16.83	1546	25.72	1768	35.21	1959	44.77	2130	54.53	2287	64.62	2432	74.94	2569	85.43	2701	96.11
14722	3400	1417	21.92	1627	31.37	1837	41.90	2026	52.64	2194	63.47	2346	74.30	2489	85.52	2621	96.83	2747	108.47
16454	3800	1540	28.33	1721	38.21	1914	49.57	2095	61.38	2261	73.33	2411	85.27	2549	97.20	2680	109.45	2803	121.84
18186	4200	1668	36.15	1827	46.46	1997	58.31	2169	71.11	2329	84.08	2478	97.17	2614	110.17	2742	123.32	2863	136.60
19052	4400	1733	40.60	1882	51.07	2042	63.18	2208	76.37	2364	89.82	2511	103.40	2648	117.13	2774	130.67		
19918	4600	1799	45.46	1939	56.09	2090	68.45	2248	81.93	2401	95.91	2546	110.10	2681	124.19	2808	138.51		
20784	4800	1866	50.78	1998	61.59	2141	74.18	2290	87.86	2440	102.35	2581	116.96	2715	131.65	2841	146.41		
21650	5000	1933	56.48	2058	67.49	2193	80.24	2334	94.17	2479	109.01	2617	124.10	2749	139.33	2875	154.74		
22516	5200	2001	62.69	2119	73.84	2248	86.88	2380	100.86	2520	116.15	2656	131.77	2784	147.34				
23382	5400	2069	69.33	2182	80.78	2303	93.82	2430	108.22	2561	123.45	2695	139.66	2821	155.81				
24248	5600	2137	76.43	2245	88.12	2360	101.32	2481	115.93	2605	131.33	2735	147.96	2859	164.58				
25114	5800	2206	84.10	2309	96.00	2419	109.43	2534	124.18	2652	139.83	2775	156.45						

Unshaded Area = Class 18 (Max. RPM 2264) Shaded Area = Class 23 (Max. RPM 2892) Underlined numbers = maximum static efficiency.

RTF 300

Wheel Dia.: 33.5" Inlet Area: 3.51 ft² Outlet Area: 3.11 ft² Outlet Evasé: 5.27 ft² Tip Speed: 8.77 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7378	1400	879	6.33	1167	12.39	1405	18.97												
9486	1800	940	8.76	1216	16.01	1435	23.76	1630	31.94	1807	40.38								
11594	2200	1008	11.77	1273	20.32	1485	29.20	1668	38.58	1835	48.29	1989	58.20	2135	68.45	2274	78.86		
13702	2600	1087	15.56	1335	25.40	1542	35.57	1720	46.01	1878	56.78	2025	68.02	2163	79.38	2294	91.01	2418	102.73
15810	3000	1182	20.51	1402	31.31	1603	42.84	1777	54.55	1932	66.42	2074	78.67	2205	91.17	2329	103.90	2449	116.94
17918	3400	1286	26.74	1476	38.22	1666	51.01	1838	64.15	1989	77.19	2128	90.51	2257	104.08	2377	117.89	2491	132.01
20026	3800	1397	34.51	1561	46.53	1736	60.36	1900	74.73	2050	89.20	2186	103.74	2312	118.39	2430	133.17	2542	148.33
22134	4200	1513	44.02	1657	56.56	1811	70.97	1967	86.56	2112	102.34	2247	118.26	2371	134.18	2487	150.19	2596	166.22
23188	4400	1572	49.44	1707	62.18	1852	76.92	2003	93.05	2144	109.36	2278	126.02	2401	142.52	2516	159.13		
24242	4600	1632	55.38	1759	68.34	1895	83.26	2039	99.78	2178	116.84	2309	134.04	2432	151.30	2546	168.51		
25296	4800	1693	61.88	1812	74.96	1942	90.34	2077	106.99	2213	124.63	2340	142.26	2462	160.23	2576	178.14		
26350	5000	1754	68.86	1867	82.23	1989	97.69	2117	114.69	2249	132.85	2374	151.20	2493	169.61	2607	188.32		
27404	5200	1815	76.34	1923	90.05	2039	105.80	2159	122.87	2285	141.32	2409	160.47	2525	179.41				
28458	5400	1877	84.47	1979	98.34	2089	114.26	2204	131.77	2323	150.36	2444	170.00	2558	189.60				
29512	5600	1939	93.16	2037	107.41	2141	123.44	2251	141.29	2363	159.98	2480	180.03	2593	200.39				
30566	5800	2001	102.41	2095	117.01	2194	133.23	2299	151.34	2405	170.19	2517	190.53						

Unshaded Area = Class 18 (Max. RPM 2052) Shaded Area = Class 23 (Max. RPM 2622) Underlined numbers = maximum static efficiency.

Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

Performance Data

RTF 330

Wheel Dia.: 37" **Inlet Area: 4.31 ft²** **Outlet Area: 3.79 ft²** **Outlet Evasé: 6.42 ft²** **Tip Speed: 9.69 x RPM**

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8988	1400	795	7.69	1057	15.12	1272	23.11												
11556	1800	851	10.67	1100	19.46	1299	28.94	1476	38.94	1636	49.21								
14124	2200	912	14.32	1152	24.73	1344	35.55	1510	47.01	1661	58.82	1801	70.95	1933	83.41	2059	96.12		
16692	2600	983	18.91	1208	30.92	1396	43.35	1557	56.05	1700	69.18	1833	82.85	1958	96.69	2077	110.92	2189	125.16
19260	3000	1069	24.93	1269	38.14	1451	52.18	1608	66.38	1749	80.93	1877	95.78	1996	111.06	2109	126.70	2217	142.47
21828	3400	1163	32.50	1336	46.57	1508	62.14	1663	78.04	1800	93.96	1926	110.22	2043	126.78	2152	143.69	2255	160.85
24396	3800	1264	42.01	1412	56.58	1571	73.49	1719	90.91	1855	108.56	1979	126.42	2093	144.25	2200	162.31	2301	180.69
26964	4200	1369	53.59	1499	68.81	1639	86.43	1780	105.38	1911	124.53	2034	144.07	2146	163.41	2251	182.91	2350	202.51
28248	4400	1422	60.15	1544	75.62	1675	93.49	1812	113.16	1940	133.09	2061	153.29	2173	173.53	2277	193.73		
29532	4600	1476	67.34	1591	83.10	1715	101.41	1845	121.43	1971	142.25	2089	163.04	2201	184.21	2304	205.11		
30816	4800	1531	75.21	1639	91.17	1757	109.93	1879	130.14	2003	151.80	2118	173.28	2228	195.04	2332	217.08		
32100	5000	1586	83.67	1689	100.05	1800	118.98	1915	139.47	2035	161.68	2148	183.97	2256	206.45	2359	229.17		
33384	5200	1641	92.73	1739	109.45	1844	128.59	1953	149.43	2068	172.10	2180	195.35	2285	218.40				
34668	5400	1697	102.60	1790	119.59	1890	139.06	1994	160.33	2102	183.02	2212	207.04	2315	230.85				
35952	5600	1753	113.14	1842	130.53	1937	150.22	2036	171.80	2138	194.68	2244	219.10	2347	244.10				
37236	5800	1810	124.57	1895	142.32	1985	162.15	2079	183.90	2176	207.11	2278	232.04						

Unshaded Area = Class 18 (Max. RPM 1858) Shaded Area = Class 23 (Max. RPM 2374) Underlined numbers = maximum static efficiency.

RTF 360

Wheel Dia.: 41" **Inlet Area: 5.33 ft²** **Outlet Area: 4.65 ft²** **Outlet Evasé: 7.89 ft²** **Tip Speed: 10.73 x RPM**

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
11046	1400	724	9.65	963	18.86	1153	28.68												
14202	1800	769	13.01	1002	24.44	1184	36.15	1341	48.38	1484	61.21								
17358	2200	819	17.22	1046	30.66	1225	44.71	1376	58.76	1513	73.36	1637	88.26	1754	103.69				
20514	2600	875	22.43	1092	37.72	1268	53.86	1418	70.35	1550	86.81	1671	103.56	1784	120.69	1889	138.09	1988	155.64
23670	3000	950	29.56	1141	45.93	1314	64.05	1462	82.72	1593	101.61	1711	120.35	1820	139.22	1922	158.20	2020	177.77
26826	3400	1034	38.72	1193	55.49	1360	75.32	1507	96.00	1636	116.92	1754	138.29	1862	159.43	1962	180.47	2056	201.53
29982	3800	1124	50.24	1257	67.24	1411	88.39	1553	110.72	1681	133.53	1797	156.76	1904	180.28	2004	203.83	2097	227.06
33138	4200	1218	64.38	1332	81.56	1462	102.73	1602	127.19	1727	151.81	1842	176.86	1948	202.31	2047	228.13	2139	253.63
34716	4400	1266	72.49	1372	89.73	1492	111.01	1627	136.01	1750	161.41	1865	187.64	1970	213.78	2068	240.37		
36294	4600	1315	81.43	1414	98.77	1526	120.27	1652	145.28	1775	171.86	1888	198.81	1993	226.02	2090	253.26		
37872	4800	1364	91.06	1457	108.56	1562	130.23	1678	155.07	1800	182.59	1911	210.29	2015	238.34	2113	266.94		
39450	5000	1413	101.40	1501	119.17	1600	141.06	1707	165.79	1825	193.85	1935	222.41	2038	251.40	2135	280.72		
41028	5200	1463	112.72	1546	130.67	1639	152.59	1739	177.46	1850	205.54	1961	235.52	2062	265.18				
42606	5400	1513	124.84	1592	143.13	1679	164.90	1774	190.20	1877	218.13	1986	248.79	2086	279.31				
44184	5600	1563	137.79	1639	156.61	1721	178.39	1810	203.58	1906	231.53	2010	262.24	2111	294.15				
45762	5800	1614	151.87	1686	170.88	1764	192.84	1848	218.07	1937	245.71	2036	276.81	2136	309.48				

Unshaded Area = Class 18 (Max. RPM 1676) Shaded Area = Class 23 (Max. RPM 2143) Underlined numbers = maximum static efficiency.

RTF 400

Wheel Dia.: 45.25" **Inlet Area: 6.49 ft²** **Outlet Area: 5.66 ft²** **Outlet Evasé: 9.61 ft²** **Tip Speed: 11.85 x RPM**

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
13454	1400	656	11.76	872	22.93	1045	34.96												
17298	1800	697	15.86	908	29.78	1073	44.06	1215	58.92	1345	74.62								
21142	2200	742	20.97	948	37.38	1110	54.47	1247	71.61	1371	89.38	1483	107.45	1589	126.24				
24986	2600	793	27.34	990	46.03	1149	65.61	1285	85.73	1404	105.64	1514	126.12	1616	146.89	1711	168.02	1802	189.80
28830	3000	861	36.04	1034	55.97	1190	77.90	1324	100.60	1443	123.66	1550	146.50	1649	169.56	1742	192.86	1830	216.43
32674	3400	937	47.18	1081	67.60	1233	91.90	1365	116.81	1482	142.31	1589	168.36	1687	194.15	1777	219.55	1863	245.52
36518	3800	1018	61.12	1139	81.91	1278	107.54	1407	134.83	1523	162.61	1628	190.87	1725	219.51	1816	248.36	1900	276.54
40362	4200	1104	78.51	1207	99.37	1325	125.22	1451	154.75	1565	184.98	1669	215.42	1765	246.40	1854	277.53	1939	309.36
42284	4400	1147	88.28	1243	109.26	1352	135.26	1474	165.60	1586	196.74	1690	228.62	1785	260.41	1874	292.89		
44206	4600	1191	99.06	1281	120.26	1383	146.60	1497	177.02	1608	209.22	1710	241.86	1806	275.39	1894	308.62		
46128	4800	1236	110.94	1320	132.19	1415	158.53	1520	188.74	1631	222.42	1732	256.36	1826	290.43	1914	324.86		
48050	5000	1280	123.43	1360	145.15	1450	171.91	1547	202.07	1654	236.28	1754	271.25	1847	306.41	1935	342.20		
49972	5200	1326	137.42	1401	159.23	1485	185.84	1576	216.29	1676	250.24	1776	286.48	1868	322.82				
51894	5400	1371	152.09	1443	174.53	1522	201.13	1607	231.51	1700	265.36	1799	302.79	1890	340.16				
53816	5600	1416	167.76	1485	190.73	1559	217.14	1640	247.97	1726	281.53	1821	319.30	1913	358.43				
55738	5800	1462	184.84	1528	208.28	1598	234.75	1675	265.89	1755	299.25	1844	336.75	1936	377.32				

Unshaded Area = Class 18 (Max. RPM 1519) Shaded Area = Class 23 (Max. RPM 1942) Underlined numbers = maximum static efficiency.

Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

Performance Data

RTF 450

Wheel Dia.: 50" Inlet Area: 7.92 ft² Outlet Area: 6.92 ft² Outlet Evasé: 11.70 ft² Tip Speed: 13.09 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16380	1400	593	14.29	789	27.93	946	42.64												
21060	1800	630	19.27	822	36.34	971	53.69	1100	71.90	1217	90.88								
25740	2200	671	25.51	857	45.43	1004	66.30	1128	87.17	1240	108.74	1342	130.94	1438	153.83				
30420	2600	717	33.26	895	55.94	1039	79.81	1162	104.27	1270	128.60	1369	153.34	1462	178.87	1548	204.63	1630	230.98
35100	3000	778	43.78	935	68.09	1076	94.73	1198	122.59	1305	150.45	1402	178.31	1491	206.13	1576	234.86	1656	263.74
39780	3400	846	57.19	977	82.11	1115	111.80	1234	141.98	1341	173.45	1437	204.82	1526	236.36	1608	267.56	1685	298.75
44460	3800	920	74.30	1029	99.42	1156	130.93	1272	163.88	1377	197.71	1473	232.57	1560	267.07	1642	301.98	1719	336.85
49140	4200	997	95.23	1090	120.50	1198	152.29	1312	188.21	1415	224.92	1509	261.91	1596	299.70	1677	337.88	1753	376.03
51480	4400	1036	107.14	1123	132.68	1222	164.36	1333	201.49	1434	239.24	1528	277.97	1614	316.69	1695	356.52		
53820	4600	1076	120.31	1157	145.91	1249	177.75	1353	215.00	1454	254.47	1547	294.59	1633	334.91	1713	375.62		
56160	4800	1116	134.50	1192	160.30	1279	192.74	1374	229.37	1475	270.65	1566	311.72	1651	353.14	1731	395.31		
58500	5000	1156	149.75	1228	175.97	1310	208.72	1398	245.40	1495	287.04	1586	329.90	1670	372.59	1750	416.41		
60840	5200	1197	166.50	1265	193.04	1341	225.33	1424	262.61	1516	304.69	1606	348.52	1689	392.57				
63180	5400	1237	184.00	1303	211.62	1374	243.67	1452	281.12	1537	322.68	1627	368.47	1709	413.74				
65520	5600	1279	203.62	1341	231.31	1408	263.40	1482	301.25	1560	342.06	1647	388.64	1729	435.38				
67860	5800	1320	224.07	1379	252.14	1443	284.64	1513	322.64	1586	363.51	1667	409.31	1750	458.45				

Unshaded Area = Class 18 (Max. RPM 1375) Shaded Area = Class 23 (Max. RPM 1757) Underlined numbers = maximum static efficiency.

RTF 490

Wheel Dia.: 55.125" Inlet Area: 9.68 ft² Outlet Area: 8.41 ft² Outlet Evasé: 14.25 ft² Tip Speed: 14.43 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
19950	1400	538	17.40	716	34.04	858	51.89												
25650	1800	572	23.52	745	44.12	881	65.40	998	87.57	1104	110.66								
31350	2200	609	31.10	778	55.41	911	80.76	1023	106.04	1125	132.43	1217	159.26	1304	187.09				
37050	2600	651	40.58	812	68.12	943	97.29	1055	127.24	1153	156.92	1242	186.73	1326	217.64	1405	249.51	1479	281.42
42750	3000	706	53.30	849	83.10	977	115.62	1087	149.31	1184	183.21	1272	217.15	1353	251.18	1429	285.52	1502	320.92
48450	3400	768	69.70	887	100.17	1012	136.29	1120	173.07	1217	211.37	1304	249.56	1384	287.51	1459	325.91	1529	364.01
54150	3800	835	90.50	934	121.16	1049	159.51	1155	200.04	1250	241.14	1336	282.92	1416	325.66	1490	367.92	1560	410.52
59850	4200	905	116.03	990	147.11	1087	185.45	1191	229.53	1284	274.00	1370	319.56	1448	364.91	1522	411.83		
62700	4400	941	130.79	1020	161.98	1110	200.79	1210	245.70	1302	291.95	1387	338.97	1465	386.12	1538	434.24		
65550	4600	977	146.72	1051	178.19	1135	217.38	1228	262.08	1320	310.42	1404	359.05	1482	408.14	1554	457.21		
68400	4800	1014	164.36	1083	195.87	1161	234.92	1248	280.20	1339	330.10	1421	379.72	1499	430.94	1571	481.82		
71250	5000	1050	182.80	1116	215.19	1189	254.30	1269	299.18	1357	349.98	1439	401.74	1516	454.44				
74100	5200	1087	203.12	1149	235.67	1218	275.10	1293	320.42	1376	371.44	1458	425.14	1533	478.56				
76950	5400	1124	224.87	1183	258.01	1248	297.50	1319	343.41	1395	393.29	1476	448.53	1551	504.22				
79800	5600	1162	248.75	1218	282.36	1279	321.67	1346	367.78	1417	417.86	1495	473.89	1570	531.44				
82650	5800	1199	273.55	1253	308.15	1311	347.78	1374	393.74	1440	443.44	1514	499.90						

Unshaded Area = Class 18 (Max. RPM 1247) Shaded Area = Class 23 (Max. RPM 1573) Underlined numbers = maximum static efficiency.

RTF 540

Wheel Dia.: 61" Inlet Area: 11.86 ft² Outlet Area: 10.35 ft² Outlet Evasé: 17.50 ft² Tip Speed: 15.97 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
24500	1400	487	21.44	647	41.75	775	63.57												
31500	1800	517	28.85	674	54.28	796	80.18	902	107.45	997	135.50								
38500	2200	551	38.27	704	68.21	824	99.31	925	130.28	1017	162.61	1101	195.99	1179	229.88				
45500	2600	589	49.91	735	83.93	853	119.64	954	156.34	1042	192.48	1123	229.42	1199	267.43	1270	306.28	1337	345.57
52500	3000	639	65.60	768	102.20	883	141.82	983	183.47	1071	225.33	1150	266.67	1223	308.31	1292	350.72	1358	394.21
59500	3400	696	86.10	802	123.00	915	167.36	1013	212.76	1100	259.33	1179	306.48	1252	353.69	1319	400.17	1382	446.70
66500	3800	757	111.91	846	149.50	949	196.22	1044	245.45	1130	295.98	1208	347.48	1280	399.67	1348	452.71	1410	503.72
73500	4200	820	143.24	896	181.04	984	228.52	1077	281.97	1161	336.55	1239	392.74	1310	448.94	1376	505.62	1439	563.52
77000	4400	853	161.67	924	199.87	1004	246.76	1094	301.70	1177	358.34	1254	416.23	1325	474.63	1391	533.75		
80500	4600	885	180.97	952	219.80	1027	267.40	1111	322.44	1194	381.68	1269	440.50	1340	501.28	1406	562.62		
84000	4800	918	202.38	981	241.62	1051	289.33	1129	344.61	1211	405.69	1285	466.53	1355	528.84	1421	592.42		
87500	5000	952	226.09	1011	265.52	1077	313.74	1148	367.89	1228	430.91	1302	494.39	1371	558.45	1436	623.26		
91000	5200	985	250.80	1041	290.87	1103	339.13	1170	394.22	1244	455.99	1319	522.93	1387	588.89				
94500	5400	1019	278.04	1072	318.62	1130	366.57	1194	422.96	1262	483.70	1336	552.63	1403	620.05				
98000	5600	1053	307.16	1103	348.01	1158	396.26	1218	452.43	1282	513.96	1352	582.32	1420	653.24				
101500	5800	1087	338.23	1135	380.08	1187	428.43	1244	485.09	1303	545.57	1369	614.00	1437	687.57				

Unshaded Area = Class 18 (Max. RPM 1127) Shaded Area = Class 23 (Max. RPM 1440) Underlined numbers = maximum static efficiency.

Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

Performance Data

RTF 600

Wheel Dia.: 67.5" Inlet Area: 14.47 ft² Outlet Area: 12.58 ft² Outlet Evasé: 21.30 ft² Tip Speed: 17.67 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
29820	1400	439	25.98	584	50.76	700	77.40												
38340	1800	467	35.18	608	65.91	719	97.69	814	130.55	901	165.24								
46860	2200	497	46.47	635	82.82	744	120.91	835	158.46	918	197.72	994	238.42	1065	280.00				
55380	2600	531	60.57	663	101.92	770	145.59	861	190.09	941	234.42	1014	279.22	1083	325.82	1147	373.02	1207	420.24
63900	3000	576	79.65	692	123.71	797	172.53	887	223.01	967	274.33	1038	324.30	1104	374.99	1167	427.31	1226	479.56
72420	3400	626	103.88	723	149.15	825	202.97	914	258.55	993	315.63	1064	372.62	1130	430.09	1191	487.20	1248	543.95
80940	3800	681	135.11	762	180.99	856	238.25	942	298.31	1020	360.15	1091	423.52	1156	487.05	1216	549.65	1273	613.08
89460	4200	738	173.18	807	219.24	887	277.05	972	343.00	1048	409.53	1118	477.37	1182	545.63	1242	615.13	1298	684.11
93720	4400	767	194.94	831	241.03	905	299.26	987	366.57	1062	435.52	1131	505.20	1195	576.07	1255	648.57		
97980	4600	796	218.40	857	265.85	925	323.67	1002	391.39	1077	463.50	1145	535.33	1209	609.10	1268	682.79		
102240	4800	826	244.53	883	292.15	947	350.73	1018	418.11	1092	492.21	1159	566.35	1223	643.33	1282	719.73		
106500	5000	855	271.67	909	320.01	969	378.71	1035	446.35	1107	522.29	1174	599.70	1237	678.63	1296	758.00		
110760	5200	886	302.76	936	350.61	993	410.17	1054	477.35	1122	553.59	1189	633.87	1251	714.90				
115020	5400	916	335.01	964	384.22	1017	443.00	1075	511.42	1138	587.01	1205	670.90	1265	752.02				
119280	5600	946	369.44	992	419.84	1042	478.65	1097	547.75	1155	622.26	1219	706.20	1281	793.59				
123540	5800	977	407.38	1021	458.85	1068	517.41	1120	586.74	1174	660.91	1235	745.95	1296	834.56				

Unshaded Area = Class 18 (Max. RPM 1019) Shaded Area = Class 23 (Max. RPM 1302) Underlined numbers = maximum static efficiency.

RTF 660

Wheel Dia.: 74.25" Inlet Area: 17.57 ft² Outlet Area: 15.28 ft² Outlet Evasé: 25.80 ft² Tip Speed: 19.44 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
36120	1400	400	31.67	531	61.49	637	94.01												
46440	1800	424	42.42	553	79.91	654	118.47	740	158.07	819	200.02								
56760	2200	452	56.32	577	100.12	676	146.14	760	192.53	835	239.78	904	289.03	968	338.85				
67080	2600	483	73.43	603	123.55	700	176.26	783	230.38	855	283.36	922	338.27	985	395.03	1043	451.98	1098	509.85
77400	3000	524	96.59	630	150.41	725	209.26	807	270.61	879	332.01	944	393.08	1004	454.50	1061	517.49	1115	581.34
87720	3400	570	126.31	658	181.14	751	246.69	831	313.11	903	382.45	968	452.13	1027	520.28	1083	590.29	1135	659.34
98040	3800	619	163.42	693	219.31	778	288.22	857	361.94	927	435.60	992	512.99	1051	589.78	1106	666.41	1157	741.70
108360	4200	671	209.64	734	265.72	807	336.16	884	415.73	953	496.21	1016	577.28	1075	661.37	1129	744.52	1181	830.31
113520	4400	697	235.61	756	292.32	823	362.59	898	444.84	966	528.12	1029	613.06	1087	698.60	1141	785.33		
118680	4600	724	264.68	779	321.60	841	391.87	911	473.95	979	560.94	1041	648.23	1100	739.20	1153	827.17		
123840	4800	751	296.00	803	353.90	861	424.61	926	507.03	993	596.35	1054	686.32	1112	779.19	1166	872.50		
129000	5000	778	329.65	827	388.15	882	460.03	941	540.44	1007	633.48	1068	727.47	1125	822.54	1178	917.20		
134160	5200	806	367.09	852	425.92	903	496.84	959	579.25	1021	672.13	1082	769.65	1138	867.10				
139320	5400	833	405.77	877	465.96	926	538.65	978	620.35	1035	711.53	1095	811.16	1151	912.74				
144480	5600	861	448.60	903	510.04	948	580.58	998	664.37	1051	755.36	1109	856.81	1165	961.80				
149640	5800	889	494.31	929	556.71	972	628.26	1019	711.79	1068	801.58	1123	903.65	1179	1012.38				

Unshaded Area = Class 18 (Max. RPM 926) Shaded Area = Class 23 (Max. RPM 1183) Underlined numbers = maximum static efficiency.

RTF 730

Wheel Dia.: 82" Inlet Area: 21.48 ft² Outlet Area: 18.63 ft² Outlet Evasé: 31.50 ft² Tip Speed: 21.47 x RPM

CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
44100	1400	362	38.58	481	75.13	577	114.86												
56700	1800	384	51.80	501	97.67	592	144.44	671	193.72	742	244.53								
69300	2200	409	68.58	523	122.54	612	178.25	688	234.79	756	292.53	818	352.00	877	414.25				
81900	2600	437	89.37	546	150.76	634	215.24	709	281.14	775	346.88	835	413.02	892	482.25	944	550.86	994	621.81
94500	3000	474	117.47	570	183.09	657	255.96	730	329.23	796	405.27	855	480.06	909	554.46	961	632.09	1010	710.28
107100	3400	516	153.95	596	221.24	680	301.00	753	382.89	818	467.26	876	550.75	930	635.05	980	718.93	1027	802.93
119700	3800	561	199.87	628	268.18	705	352.49	776	441.65	840	532.71	898	625.46	952	720.43	1002	814.52	1048	906.03
132300	4200	608	256.24	665	324.68	731	410.63	800	506.43	863	605.65	921	706.79	973	806.04	1023	910.36	1069	1012.15
138600	4400	632	288.58	685	357.28	746	443.78	813	542.55	875	645.10	932	748.71	985	854.37	1034	960.62		
144900	4600	656	323.46	706	393.33	762	478.98	825	578.54	887	685.68	943	791.98	996	901.92	1045	1012.16		
151200	4800	681	362.59	728	433.28	780	518.74	838	617.59	900	729.74	955	839.10	1007	951.08	1056	1065.27		
157500	5000	705	402.99	750	475.66	799	561.93	853	661.57	912	773.44	967	887.51	1019	1004.67	1067	1120.28		
163800	5200	730	448.07	772	520.57	818	606.83	869	708.24	924	818.80	980	939.90	1030	1056.70				
170100	5400	755	496.35	795	570.27	839	658.27	886	757.90	938	870.47	992	991.27	1042	1113.07				
176400	5600	780	547.94	818	622.90	859	709.67	904	811.33	952	922.59	1005	1048.05	1055	1173.98				
182700	5800	806	605.20	842	680.99	881	768.59	923	869.16	968	980.80	1017	1103.10	1068	1236.83				

Unshaded Area = Class 18 (Max. RPM 838) Shaded Area = Class 23 (Max. RPM 1071) Underlined numbers = maximum static efficiency.

Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

Performance Data

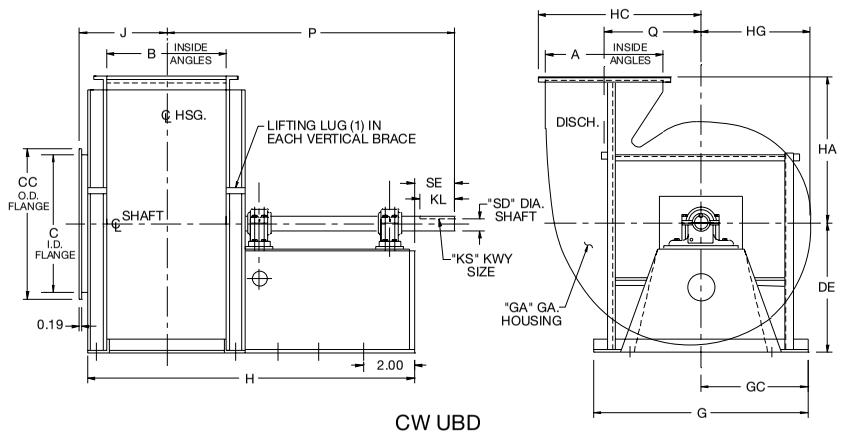
RTF 800

Wheel Dia.: 90.75" Inlet Area: 26.35 ft² Outlet Area: 22.84 ft² Outlet Evasé: 38.60 ft² Tip Speed: 23.76 x RPM

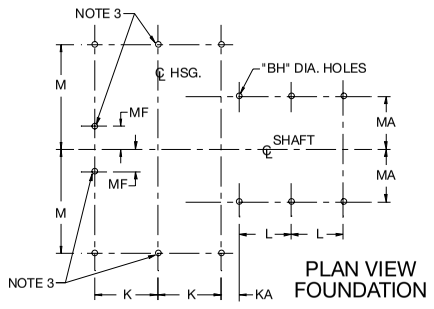
CFM	OV	4" SP		8" SP		12" SP		16" SP		20" SP		24" SP		28" SP		32" SP		36" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
54040	1400	327	47.22	435	92.28	521	140.43												
69480	1800	347	63.47	453	119.90	535	177.05	606	236.98	670	298.98								
84920	2200	370	84.32	473	150.53	553	218.38	622	288.12	683	358.23	739	431.03	792	506.69				
100360	2600	395	109.59	493	184.29	573	263.86	641	345.00	700	424.47	755	507.05	806	590.83	853	674.93	898	761.44
115800	3000	429	144.60	515	224.24	593	312.54	660	404.03	719	495.99	773	589.13	822	680.89	868	773.50	912	868.44
131240	3400	467	189.49	538	270.22	614	367.96	680	468.26	739	572.13	792	675.91	841	779.85	886	882.25	929	986.95
146680	3800	507	244.94	567	327.73	637	431.78	701	540.64	759	652.59	812	767.89	860	881.96	905	996.60	947	1110.15
162120	4200	550	314.92	601	397.93	660	501.84	723	620.74	780	742.56	832	865.26	880	990.19	924	1113.97	966	1240.27
169840	4400	571	353.34	619	437.73	674	543.46	735	665.72	790	788.39	842	916.76	890	1046.60	934	1175.71		
177560	4600	593	396.69	638	481.95	689	587.93	746	710.30	802	841.65	853	973.40	900	1105.03	944	1239.00		
185280	4800	615	443.38	658	531.17	705	635.97	758	758.97	813	893.24	863	1028.27	910	1165.54	954	1304.33		
193000	5000	638	495.86	678	583.42	722	688.43	771	811.18	824	947.27	874	1088.14	921	1231.80	964	1371.90		
200720	5200	660	549.77	698	638.82	740	745.94	785	866.87	835	1003.42	885	1149.44	931	1295.84				
208440	5400	683	610.07	719	700.40	758	805.96	801	929.86	847	1064.25	897	1217.02	942	1365.59				
216160	5600	705	671.72	740	765.66	777	872.02	817	994.42	860	1129.33	908	1283.49	953	1436.91				
223880	5800	728	740.39	761	834.71	796	941.23	834	1064.62	875	1202.82	919	1351.60	965	1515.12				

Unshaded Area = Class 18 (Max. RPM 758) Shaded Area = Class 23 (Max. RPM 968) Underlined numbers = maximum static efficiency.

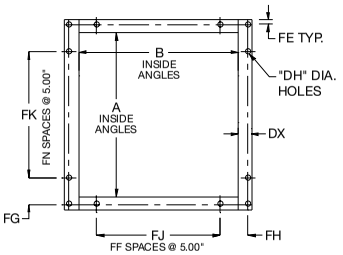
Performance certified is for installation Type B & D: Free or ducted inlet, ducted outlet.
Power rating (bhp) does not include transmission losses.
Performance ratings include the effects of an outlet evasé in the airstream.

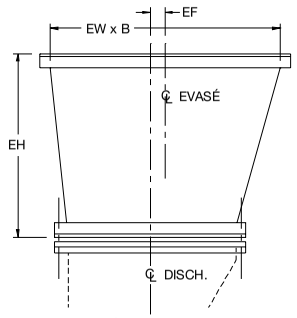


CW UBD

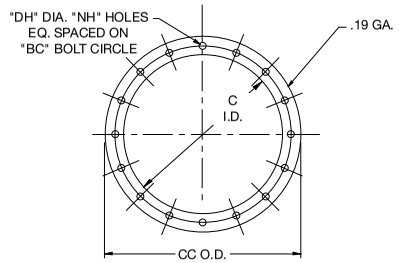


PLAN VIEW FOUNDATION





EVASÉ (OPTIONAL)



INLET FLANGE DETAIL

NOTES:
1. CW ROTATION SHOWN. CCW ROTATION IS SIMILAR BUT OPPOSITE.
2. STANDARD ACCESSORIES: BOLTED ACCESS DOOR, HOUSING DRAIN, SHAFT SEAL, PUNCHED INLET AND OUTLET FLANGES.
3. THESE HOLES ARE IN SIZE 270, 300 & 330 ONLY.

RTF & HIB ARRANGEMENT NO. 1 SWSI

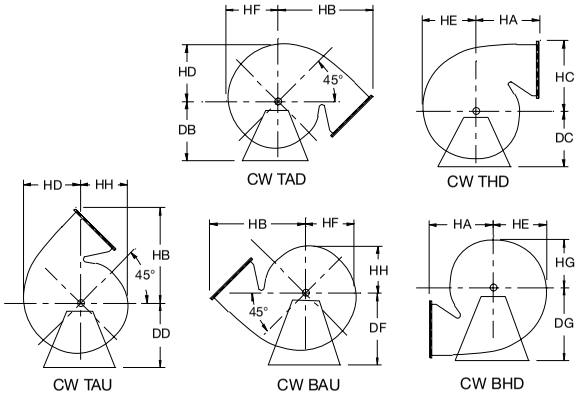
TWIN CITY FAN & BLOWER
MINNEAPOLIS, MINNESOTA 55442

DRAWN	4-18-83
REVISED	7-25-96
DWG. NO.	BC 9987D

JOB	CONT
LOC	ENG/ARCH
S.O. NO.	TAG

SIZE	CLASS	ROT.	DISCH.	MOTOR HP	TS

CFM	SP	RPM	BHP	OV

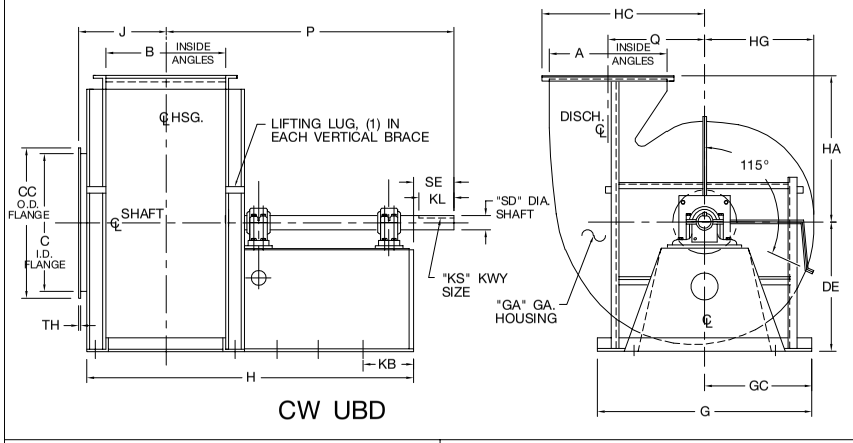


ACCESSORIES REQ'D.

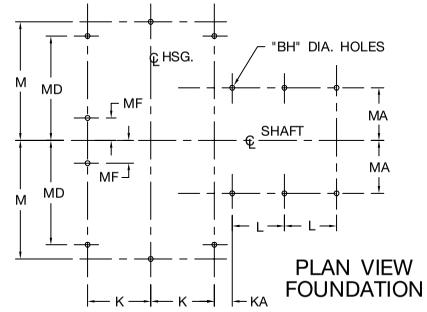
FAN SIZE	A	B	BC	BH	C	CC	DB DC	DD DE	DF DG	DH	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK	FN	G	GA	GC	H	HA	FAN SIZE
180	14.81	12.00	18.00	0.81	15.75	19.75	15.00	17.25	20.75	0.56	1.50	3.28	18.00	23.75	0.63	2	3.28	1.88	10.00	10.00	2	31.13	7	15.56	39.00	17.81	180
200	16.19	13.13	19.75	0.81	17.50	21.50	17.00	18.75	22.50	0.56	1.50	3.66	19.50	26.00	0.63	2	3.97	2.44	10.00	10.00	2	33.50	7	16.75	41.13	19.50	200
220	17.94	14.56	21.50	0.81	19.25	23.25	18.50	20.75	24.75	0.56	1.50	4.16	21.75	29.25	0.63	2	4.84	3.16	10.00	10.00	2	36.00	7	18.00	44.13	21.63	220
240	19.69	16.00	23.25	0.81	21.00	25.00	20.25	22.50	27.00	0.56	1.50	4.66	24.00	32.25	0.63	2	5.72	3.88	10.00	10.00	2	38.38	7	19.19	46.50	23.69	240
270	21.75	17.63	25.75	0.81	23.50	27.50	22.50	25.00	31.25	0.56	1.50	5.28	26.25	35.69	0.63	2	4.25	4.69	10.00	15.00	3	42.75	7	21.38	49.38	26.13	270
300	23.94	19.38	28.00	0.81	25.75	29.75	24.75	27.50	34.00	0.56	1.50	5.81	29.00	39.31	0.63	3	5.34	3.06	15.00	15.00	3	47.25	7	23.63	52.38	28.75	300
330	26.38	21.38	30.75	0.81	28.50	32.50	27.00	30.00	37.50	0.56	2.00	6.41	32.00	43.44	0.88	3	4.31	4.31	15.00	20.00	4	50.75	7	25.38	55.38	31.75	330

FAN SIZE	HB	HC	HD	HE	HF	HG	HH	J	K	KA	KL	KS RTF-18 HIB-20	KS RTF-23 HIB-24	L	M	MA	MF	NH	P	Q	SD RTF-18 HIB-20	SD RTF-23 HIB-24	SE	FAN SIZE
180	26.63	19.94	16.31	15.50	14.63	13.81	12.94	10.19	7.63	3.38	6.00	0.50x0.25	0.50x0.25	8.50	14.19	8.50	—	12	37.00	11.06	2.187	2.187	7.00	180
200	29.13	21.75	17.88	16.94	16.00	15.13	14.19	10.75	8.19	3.38	6.50	0.50x0.25	0.63x0.31	9.00	15.38	9.50	—	12	39.06	12.19	2.187	2.437	7.50	200
220	32.19	23.94	19.81	18.81	17.75	16.75	15.75	11.50	8.94	4.38	7.00	0.50x0.25	0.63x0.31	9.25	16.63	11.00	—	12	41.81	13.50	2.187	2.437	8.00	220
240	35.25	26.19	21.81	20.69	19.56	18.44	17.31	12.19	9.63	4.38	7.00	0.50x0.25	0.63x0.31	9.75	17.81	12.00	—	16	43.50	14.88	2.187	2.687	8.00	240
270	38.81	28.75	24.06	22.81	21.63	20.31	19.13	13.00	10.44	5.13	7.50	0.63x0.31	0.63x0.31	10.00	20.00	14.00	6.50	16	45.81	16.38	2.437	2.687	8.25	270
300	42.63	31.56	26.56	25.19	23.81	22.44	21.13	13.88	11.31	6.38	8.00	0.63x0.31	0.75x0.38	10.00	22.25	14.50	7.38	16	48.44	18.13	2.687	2.937	8.75	300
330	47.31	35.13	29.31	27.81	26.31	24.81	23.31	14.88	12.31	7.38	8.25	0.63x0.31	0.75x0.38	10.00	24.00	15.00	8.00	16	50.69	19.94	2.687	2.937	9.00	330

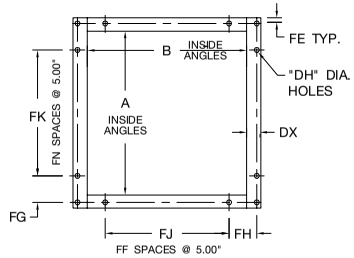
DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.



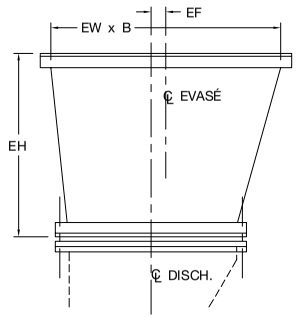
CW UBD



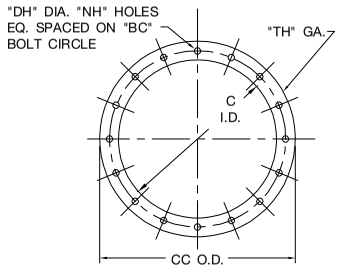
PLAN VIEW FOUNDATION



OUTLET FLANGE DETAIL



EVASÉ (OPTIONAL)



INLET FLANGE DETAIL

NOTES:
1. CW ROTATION SHOWN. CCW ROTATION IS SIMILAR BUT OPPOSITE.
2. SIZE 800 WILL BE SUPPLIED WITH CHANNEL SUBBASE TO BE MOUNTED ON CONCRETE PEDESTAL IN THE FIELD.
3. STANDARD ACCESSORIES: BOLTED ACCESS DOOR, HOUSING DRAIN, PIE-SPLIT HOUSING, SHAFT SEAL, PUNCHED INLET & OUTLET FLANGES.

RTF & HIB ARRANGEMENT NO. 1, SWSI

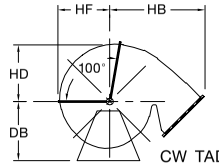
TWIN CITY FAN & BLOWER
MINNEAPOLIS, MINNESOTA 55442

DRAWN	4-18-83
REVISED	4-30-02
DWG. NO.	BC 9986E

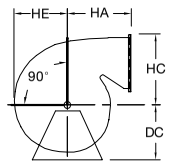
JOB	CONT
LOC	ENG/ARCH
S.O. NO.	TAG

SIZE	CLASS	ROT.	DISCH.	MOTOR HP	TS

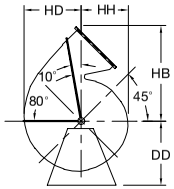
CFM	SP	RPM	BHP	OV



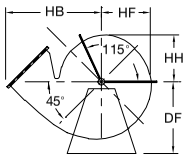
CW TAD



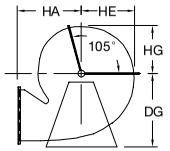
CW THD



CW TAU



CW BAU



CW BHD

ACCESSORIES REQ'D.

FAN SIZE	A	B	BC	BH	C	CC	DB DC	DD DE	DF DG	DH	DX	EF	EH	EW	FE	FF	FG	FH	FJ	FK	FN	G	GA RTF-18 HIB-20	GA RTF-23 HIB-24	GC	H	FAN SIZE
360	29.19	23.63	33.75	1.06	31.63	35.63	29.00	33.00	41.50	0.56	2.00	6.97	35.75	48.25	0.88	4	3.22	2.94	20.00	25.00	5	57.00	7	0.25	28.50	60.63	360
400	32.19	26.00	37.00	1.06	34.88	38.88	32.00	36.25	46.00	0.56	2.50	7.72	40.00	53.25	1.13	4	4.97	4.38	20.00	25.00	5	61.00	7	0.25	30.50	63.00	400
450	35.50	28.75	40.63	1.06	38.50	42.50	35.00	40.00	50.50	0.56	2.50	8.56	43.75	58.88	1.13	5	4.13	3.25	25.00	30.00	6	65.00	7	0.25	32.50	68.75	450
490	39.13	31.63	46.00	1.06	42.50	48.50	39.00	44.00	55.00	0.69	2.50	9.44	47.75	64.75	1.13	5	3.44	4.69	25.00	35.00	7	70.00	7	0.25	35.00	75.13	490
540	43.25	35.13	50.50	1.06	47.00	53.00	42.75	48.25	59.25	0.69	2.50	10.44	52.38	71.63	1.13	6	3.00	3.94	30.00	40.00	8	76.00	7	0.25	38.00	79.63	540
600	47.88	38.75	55.50	1.06	52.00	58.00	47.00	53.00	66.00	0.69	3.00	11.56	58.38	79.25	1.38	7	5.56	3.50	35.00	40.00	8	80.00	0.25	0.25	40.00	84.75	600
660	52.75	42.63	60.75	1.06	57.25	63.25	51.50	57.00	72.00	0.69	3.00	12.75	63.63	87.25	1.38	7	5.50	5.44	35.00	45.00	9	85.00	0.25	0.25	42.50	89.63	660
730	58.19	47.00	67.75	1.06	63.25	71.25	57.00	63.50	79.00	0.69	3.50	14.03	70.63	96.38	1.63	8	5.97	5.38	40.00	50.00	10	92.00	0.25	0.25	46.00	97.00	730
800	64.38	52.00	74.50	1.06	70.00	78.00	63.00	70.00	87.00	0.69	3.50	15.63	77.50	106.63	1.63	9	6.56	5.38	45.00	55.00	10	97.00	0.25	0.25	48.50	106.00	800

FAN SIZE	HA	HB	HC	HD	HE	HF	HG	HH	J	K	KA	KB	KL	KS RTF-23 HIB-20	KS RTF-18 HIB-24	L	M	MA	MD	MF	NH	P	Q	SD RTF-18 HIB-20	SD RTF-23 HIB-24	SE	TH	FAN SIZE
360	35.13	52.25	38.75	32.44	30.75	29.06	27.38	25.69	17.00	13.81	7.00	4.00	8.25	.88x.44	.75x.88	10.00	26.50	16.00	23.00	6.50	24	53.81	22.19	2.937	3.437	9.00	0.19	360
400	38.75	57.81	43.00	35.75	33.94	32.06	30.25	28.38	18.19	15.00	6.00	3.00	9.00	1.0x.50	.88x.44	11.00	28.50	18.00	25.00	7.50	32	56.00	24.44	3.437	3.937	10.00	0.19	400
450	42.75	63.63	47.25	39.50	37.50	35.44	33.44	31.38	19.56	16.38	6.88	3.88	9.00	1.0x.50	.88x.44	11.63	30.50	20.00	25.00	8.50	32	60.38	27.00	3.437	3.937	10.00	0.19	450
490	47.00	69.88	51.81	43.50	41.25	39.00	36.75	34.50	21.06	17.81	6.75	4.75	10.00	1.0x.50	1.0x.50	13.00	33.00	22.00	27.50	9.50	40	66.31	29.75	3.937	4.437	11.00	0.25	490
540	52.00	77.13	57.06	48.19	45.69	43.19	40.69	38.19	23.81	19.56	5.88	5.63	10.00	1.0x.50	1.0x.50	13.00	35.00	24.00	29.50	10.50	40	68.06	32.94	3.937	4.437	11.00	0.25	540
600	57.50	85.50	63.38	53.25	50.50	47.75	45.00	42.25	25.63	21.38	6.13	5.38	10.75	1.25x.63	1.0x.50	13.75	37.00	26.00	31.50	11.50	40	72.13	36.44	4.437	4.937	11.75	0.25	600
660	63.25	93.81	69.44	58.63	55.63	52.56	49.56	46.50	27.56	23.31	6.88	5.13	11.00	1.25x.63	1.0x.50	14.00	39.50	28.00	34.00	12.50	40	75.31	40.06	4.437	4.937	12.00	0.25	660
730	69.75	103.69	76.88	64.38	61.38	58.06	54.69	51.38	30.81	25.50	6.50	5.50	11.00	1.25x.63	1.0x.50	15.00	42.00	30.00	36.50	13.50	48	79.50	44.31	4.437	4.937	12.00	0.31	730
800	77.13	114.44	84.69	71.56	67.88	64.19	60.50	56.81	33.31	28.00	8.00	6.00	11.75	1.25x.63	1.25x.63	16.00	44.50	32.00	39.00	14.50	48	86.75	49.00	4.937	5.437	12.75	0.31	800

DIMENSIONS ARE NOT TO BE USED FOR CONSTRUCTION. CERTIFIED DRAWINGS AVAILABLE UPON REQUEST.

Typical Specifications

Fans shall be Type RTF Radial Tip Fans as manufactured by Twin City Fan & Blower, Minneapolis, Minnesota.

PERFORMANCE — Fans shall be tested in accordance with AMCA 210 test code for air moving devices and shall be guaranteed by the manufacturer to deliver rated published performance levels. Fans sizes 270 through 800 shall be licensed to bear the AMCA Certified Ratings Seal for air.

HOUSING — Housings shall be made of heavy-gauge steel with continuously welded construction and braced with structural shapes to eliminate any resonant vibration and to provide smooth operation. Size 360 and larger housings shall have a pie-shaped split for easy wheel and shaft removal without disturbing inlet and outlet ductwork. The housing split must be fully gasketed and bolted together to prevent any leaks. Flanged inlet and outlet, inspection door, shaft seal and drain shall be provided as standard equipment. Bearing support members shall be fabricated of heavy steel shapes or made of concrete to insure maximum rigidity.

WHEEL — Blade design shall be curved forward at the entering edge to meet air at the correct angle of entry for high efficiency and radial at the tip of the leaving edge to provide a self-cleaning characteristic. Blades shall be formed from high strength low alloy material for strength and accuracy of contour and continuously welded to the inlet shroud and backplate. A heavy fabricated steel hub shall be provided. Wheels shall be shrunk fit on the shafts and hubs must include puller holes for use in event of wheel removal. All wheels shall be statically and dynamically balanced on precision electronic machines, as well as trim balanced during the factory test run.

SHAFT — Shafts shall be AISI 1040 or 1045 hot rolled steel, accurately turned, ground, polished, and ring gauged for accuracy. Shafts shall be sized for the first critical speed of at least 1.43 times the maximum speed.

BEARINGS — Fans shall be supplied with heavy duty, self-aligning, grease lubricated, anti-friction, pillow block type bearings selected for a minimum average bearing life (AFBMA L-50) in excess of 200,000 hours at the maximum fan RPM. Sizes 180 through 240 are supplied with ball or roller bearings. Sizes 270 through 800 are supplied with split roller bearings. Where required, sleeve bearings may be used with appropriate cooling method for high carrying loads.

DRIVE — Motor sheaves shall be cast iron, variable pitch on applications 20 HP and smaller, and fixed pitch on 25 HP and larger. Drives and belts shall be located external to the fan casing and rated for 150% of the required motor HP.

FINISH AND COATING — The entire fan assembly, excluding the shaft, shall be thoroughly degreased and deburred before application of a rust-preventative primer. After the fan is completely assembled, a finish coat of paint shall be applied to the entire assembly. The fan shaft shall be coated with a petroleum-based rust protectant. Aluminum components shall be unpainted.

ACCESSORIES — When specified, accessories shall be provided by Twin City Fan & Blower to maintain one source responsibility.

FACTORY RUN TEST — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Each wheel shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical, and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

GUARANTEE — The manufacturer shall guarantee the workmanship and materials for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.