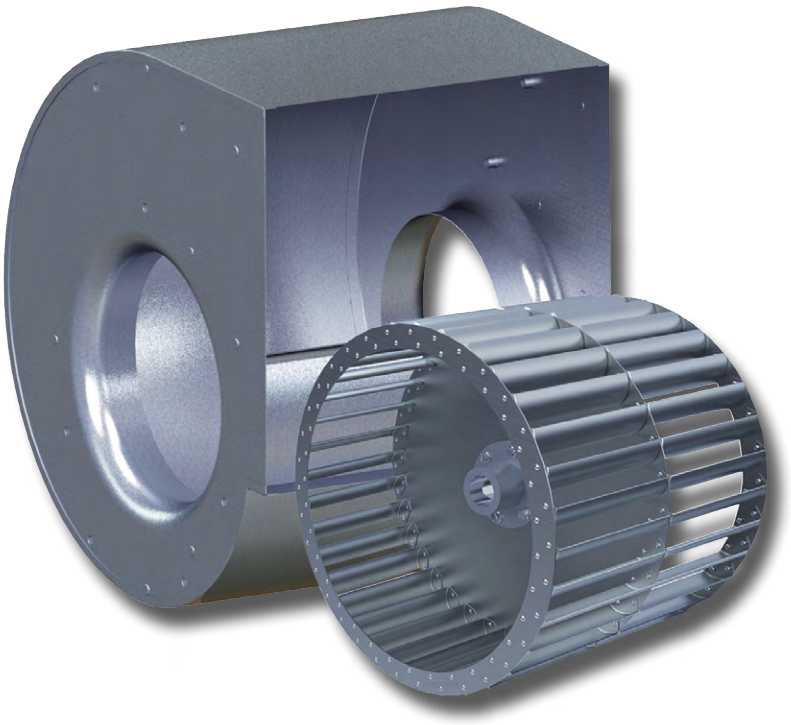
TCF

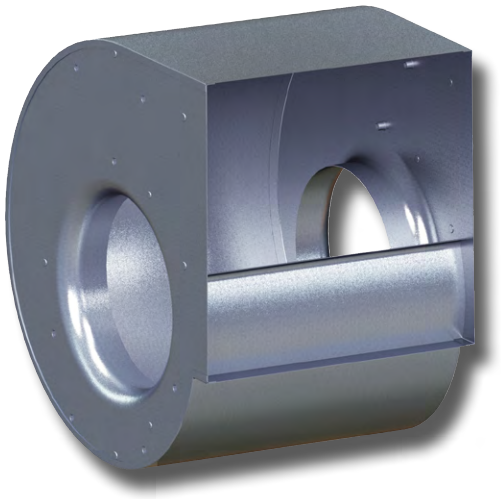
TWIN CITY FAN

INDUSTRIAL PROCESS AND
COMMERCIAL VENTILATION SYSTEMS

AIR KITS

MODEL FC





Overview

FC

Twin City Fan & Blower air kits are provided with the forward curve design in the double-width, double-inlet arrangement. This design allows for a low operating speed and economically sized shafting. These air kits provide reliable and quiet operation in ovens and plenums where it is not desirable to have the fan bearings in the airstream. The air kit design is commonly used to economically provide large volumes of air (up to 100,000 CFM) at static pressures up to 6" w.g. in a compact design.

Air kits may be supplied in two standard configurations:

1. The single fan kit has one fan wheel centered in the plenum.
2. The twin fan has two wheels spaced on a common shaft in such a way that the restriction is the same on all four inlets.

General Construction

Typically, air kits are sold as sets of components such as wheels, housings, shafts, bearings, and other accessories (shaft coolers, cooler guards, shaft seals, recess cones, and straightening vanes).

Construction may be a standard size oven with minimum recommended clearances between the fan inlets and the oven walls. It is assumed that a standard oven would have a 4" thick wall. Example 1 on page 3 and the charts on pages 9 through 12 are used for shaft selection and sizing of these standard units. Drawings on pages 19 and 20 illustrate the dimensions for single and twin fan designs.

Custom ovens are required at times, necessitating a larger or smaller clearance between the fan inlets and the oven walls. In these cases, the shafts may be longer than our standard design, and Example 2 on page 4, along with the charts on pages 9 through 12, should be used to properly select and size the shaft. Bearings sizing and selection is shown on page 6.

Fan housing cut-off plates are bolted in to allow for installation and removal of the fan wheel.

Wheel Construction

Air kit wheels are designed for speeds up to 7,000 ft/min. at 70°F. The blades are die-formed from high strength, low alloy steel and are riveted and welded to the end rings and centerplate.

Balancing of Air Kit Wheels

Air kit parts manufactured by Twin City Fan & Blower carry our standard warranty against defects in workmanship and materials.

Air kit wheels are carefully balanced at the factory to the following limits:

Wheel Diameter	Maximum Grams of Unbalance at Wheel Outside
12"	2 grams
15"	3 grams
18 – 48"	6 grams

Air kit components are sold as parts to be installed by customers in their units. Therefore, the OEM customer is responsible for the final balance. Factors such as stiffness and mass of the supporting structures, fit between shaft and bearings, fit between shaft and wheel, shaft straightness, unbalance and numerous other factors may affect the overall balance and are beyond Twin City Fan & Blower's control. TCF recommends that the OEM customer check and correct (if required) the final balance of the running assembly. TCF will not accept any back charges associated with final balancing.

If a customer suspects a wheel to be out of balance, it should be returned to the factory, freight prepaid. TCF will then recheck the balance and make corrections, if necessary. If the unbalance is found to be beyond the tolerances listed above, TCF will pay freight charges (by common carrier) both ways. TCF does not assume any other liabilities.

Customers with recurring problems are advised to discuss their applications with TCF engineering personnel.

Housing Construction

All air kit housings are seam-welded to insure a tight seam under elevated temperatures. Housings are usually furnished without side bracing (frame angles), and it is the customer's responsibility to rigidly support housings so that sides do not distort with pressure and temperature in their equipment. Housings are supplied with inlet funnels and removable cut-offs.

Overview

FC

Standard Unit Selection

Example 1

An air kit is required for an oven which needs 24,200 CFM at 2.5" static pressure at 70°F. The design temperature is 600°F. The oven wall will have 4" of insulation and the outside oven width is approximately 103".

1. Refer to the performance tables and select the best size and number of fans to be used for the specified performance. In this instance, the best selection appears to be a Size 24 twin fan assembly. (Refer to the Size 24 performance table on page 11.) These fans will deliver 12,100 CFM per fan against 2.5" static pressure when operating at 707 RPM. The BHP is 9.05 per fan and the outlet velocity will be 2,200 ft/min.

2. Next, determine the proximity factors for the inlet/wall clearance and the point of operation. Standard single fan and twin fan air kit assembly drawings are shown on pages 19 and 20. These should be used whenever they fit the application. The Size 24 twin fan assembly shown on page 18 matches the outside oven width required (103.25") and can be used. The clearance between the oven wall and fan housing is calculated. This is found to be 8". The inlet/wall clearance in percent of wheel diameter is equal to:

   8" (clearance) ÷ 24" (wheel dia.) x 100 = 33⅓%

   All of the standard assembly drawings are based on an inlet/wall clearance of 33⅓% wheel diameter.

   The operating point in percent of Wide Open Volume (WOV) is found by first determining WOV. This is determined by multiplying the WOV factors from the table on page 8 by the RPM determined in Step 1. The WOV factor for a Size 24 fan is 41.1:

   WOV = 707 x 41.1 = 29,058 CFM

   The operating percent of WOV is then equal to the design CFM per fan (12,100) divided by the WOV value (29,058).

   12,100 ÷ 29,058 = 41.6%

   The proximity factors for 33⅓% wheel clearance and 41.6% WOV operating point are shown on page 8. By extrapolation we find them to be 1.02 for RPM and 1.11 for BHP. The operating RPM and BHP for the specified capacity are then:

   707 RPM x 1.02 = 721 RPM
   9.05 BHP x 1.11 = 10.0 BHP

3. The safe wheel speed must now be checked for the design operating temperature. Safe wheel speeds at 70°F are shown on page 8. The 70°F safe wheel speed of a Size 24 wheel is 1,114 RPM. The wheel temperature derating factor from the table on page 8 for a steel wheel is 0.904 for 600°F. The safe operating speed for a Size 24 wheel at 600°F is therefore:

   1,114 RPM x 0.904 = 1,007 RPM

   This is well above the 721 RPM required.

   The shaft's temperature derating factor is taken from the table on page 8. It is 0.94 for 600°F.

   Examining the constructions available for a Size 24 twin fan assembly, from drawing AC12892 on page 20 we find that the allowable speeds at 600°F for the various constructions are:

   Shaft Design A = 641 RPM x 0.94 = 602 RPM
   Shaft Design B = 768 RPM x 0.94 = 722 RPM
   Shaft Design C = 953 RPM x 0.94 = 896 RPM

   Shaft Design B can therefore be used for an operating speed of 721 RPM.

   Should a standard air kit assembly from either page 19 or 20 not be used, the shaft size and safe shaft speed must be selected from the shaft selection tables shown on pages 9 through 12. (See Example 2 on page 4.)

4. The shaft expansion can be calculated from the formula:

   Expansion = 0.0000067 x temp. rise (600–70°F)
   x bearing span (106.75")
   Expansion = 0.379"

   CAUTION: Should customers wish to supply their own expansion type bearings, the expansion capability of the bearing selected must exceed 0.379". Various bearing types and manufacturers have different expansion capabilities.

   Twin City Fan & Blower recommends that the high temperature shaft expansion modification explained on page 4 be used for all high temperature applications.

   Referring to the bearing selection table on page 6, we find that for a construction B shaft, 3 7/16" turned down to 2 7/16", the standard duty 2 7/16" ball bearing is good up through a 30 HP motor. This application would not have a motor greater than 25 HP. Since the design temperature is greater than 300°F, shaft coolers will be required.

Summary

The air kit selected for this application will be:

1. A standard Size 24 twin fan assembly, with shaft design B per drawing AC12892 (page 20).
2. High temperature shaft expansion modification.
3. Shaft coolers.
4. Standard 2 7/16" ball bearings.

Selection of Custom Size Units

Example 2

If in the previous example the outside oven width had been 129" instead of 103", the standard Size 24 twin fan assembly could not have been selected. The procedure for selecting an air kit in this situation would be:

1. Step 1 would be the same. A Size 24 twin fan assembly would be the best selection operating at 707 RPM, 2,200 ft/min. outlet velocity and requiring 9.05 BHP per fan.
2. The proximity factors for the inlet/wall clearance would change because the clearance would now increase. The clearance calculates to be 14.438" using the 129" oven width, 4" of insulation width and the 31.625" housing width for a Size 24 fan (drawing AC12892, page 20). The wall clearance/wheel diameter ratio is now:

   (14.438 ÷ 24) x 100 = 60%

   The percent of WOV would remain the same as in the previous example (41.6% WOV). The proximity factors for a 60% wheel diameter clearance and a 41.6% WOV operating point are shown in the chart on page 8. These factors are 1.01 for RPM and 1.03 for BHP. The operating RPM and BHP will then be:

   707 RPM x 1.01 = 714 RPM
   9.05 BHP x 1.03 = 9.32 BHP/fan
3. The safe wheel speed is checked for the design operating temperature in the same way as in the previous example and is found to be 1007 RPM, which is well above the 714 RPM required.
4. The shaft is selected as follows. The shaft's temperature derating factor is taken from the table on page 8. This is 0.94 for 600°F (the same as in the previous example). The shaft diameter must be selected for a speed equal to 714 RPM (operating speed) ÷ 0.94 (shaft derating factor) = 760 RPM.

   The bearing span is equal to the outside oven width plus approximately 3". (Use drawing AC12892 as a guide.) The designed bearing span is then 132". Referring to the Size 24 twin fan shaft selection table on page 11 for a 132" bearing span and a required 760 RPM, we find by interpolation that a $4\frac{7}{16}$" shaft is good up to 753 RPM and a $4\frac{15}{16}$" shaft is good up to 863 RPM. A $4\frac{15}{16}$" shaft is therefore required for 760 RPM.
5. Referring to the shaft turndown and bearing selection chart on page 6, we find that a $4\frac{15}{16}$" shaft, turned down to $2\frac{15}{16}$", and with standard duty $2\frac{15}{16}$" ball bearings will be adequate for a 20 or 25 HP motor application. The shaft expansion will be:

   Expansion = 0.0000067 x temp. rise (600 – 70°F)
   x bearing span (132")
   Expansion = 0.469"

   The high temperature shaft expansion modification as explained below must be used and shaft coolers will also be necessary.

Summary

The air kit selected for this non-standard assembly will be:

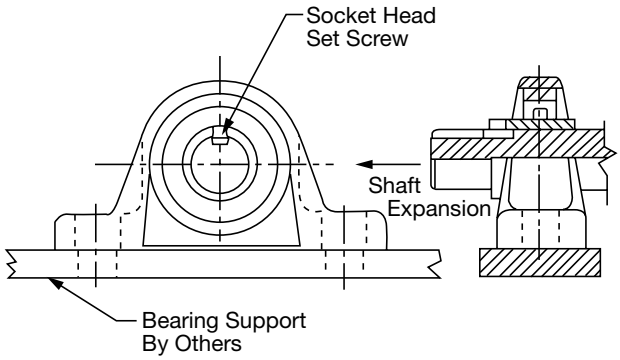
1. Two standard Size 24 air kit wheels with $4\frac{15}{16}$" bores.
2. A $4\frac{15}{16}$" shaft, turned down to $2\frac{15}{16}$" for drive and bearings.
3. High temperature shaft expansion modification.
4. Shaft coolers.
5. Standard duty $2\frac{7}{16}$" ball bearings.

HIGH TEMPERATURE SHAFT EXPANSION MODIFICATION

For high temperature applications the "floating end" of the shaft (side opposite the drive) should use the following modification.

Standard setscrews are to be removed and then a socket head setscrew must be inserted from inside of bearing bore. Use anaerobic adhesive on the threads to prevent the screw from loosening.

Machine a keyway to fit the head screw size in the floating end of the shaft. The setscrew will slide in the keyway allowing a shaft expansion up to 1 inch.



Bearing Selection Chart

MOTOR HP	BEARING SIZE												
	1"	1 3/16"	1 7/16"	1 11/16"	1 15/16"	2 3/16"	2 7/16"	2 11/16"	2 15/16"	3 7/16"	3 15/16"	4 7/16"	4 15/16"
THRU 7½	SDB	SDB	SDB	SDB	SDB	SDB	SDB	SDB	SDB 1 15/16	SDB 2 3/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
10	→	SDB	SDB	SDB	SDB	SDB	SDB	SDB	SDB 1 15/16	SDB 2 3/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
15	→	→	SDB	SDB	SDB	SDB	SDB	SDB	SDB 1 15/16	SDB 2 3/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
20	→	→	→	SDB	SDB	SDB	SDB	SDB	SDB 1 15/16	SDB 2 3/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
25	→	→	→	HDB	HDB	SDB	SDB	SDB	SDB 2 3/16	SDB 2 3/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
30	→	→	→	→	HDB	HDB	SDB	SDB	SDB 2 7/16	SDB 2 7/16	SDB 2 7/16	SDB 2 11/16	SDB 2 15/16
40	→	→	→	→	R	R	HDB	HDB	HDB 2 7/16	HDB 2 7/16	HDB 2 7/16	HDB 2 11/16	SDB 2 15/16
50	→	→	→	→	→	R	R	HDB	R 2 3/16	R 2 3/16	R 2 7/16	R 2 11/16	HDB 2 15/16
60	→	→	→	→	→	→	R	R	R 2 7/16	R 2 7/16	R 2 7/16	R 2 11/16	HDB 2 15/16
75	→	→	→	→	→	→	→	R	R	R 2 11/16	R 2 11/16	R 2 11/16	R 2 15/16
100	→	→	→	→	→	→	→	→	R	R 2 15/16	R 2 15/16	R 2 15/16	R 2 15/16

KEY:
SDB = Standard duty ball bearings such as SKF type SY or equivalent
HDB = Heavy duty ball bearings such as SealMaster type MP or equivalent
R = Roller bearings such as SKF type SYR or Link Belt PB 22400 or equivalent

The bearing size is the same as the shaft size except minimum turndown diameters for bearings are shown for shafts 2 15/16" diameter and larger. For example, a 3 15/16" diameter shaft at the wheel may be turned down to 2 7/16" diameter at the bearings ends for under 60 HP application.

OPTIONS / ACCESSORIES

1. **Shafts** are solid steel, type AISI 1040 or 1045, turned, ground and polished. Larger shafts are normally turned down at the ends for bearings and shaft coolers.

2. **Shaft Coolers** Split cast aluminum shaft coolers are recommended for temperatures over 300°F. Shaft coolers help disperse heat being conducted down the shaft and provide air over the bearings for a cooling effect.

3. **Shaft Cooler Guard** A split type guard with expanded metal can be used with shaft coolers and is designed to be used with recess cone only.

4. **Recess Cone** To minimize bearing spans, the shaft cooler (and/or shaft seal) can be recessed inside the oven wall with a spun recess cone only.

5. **Shaft Seals** A gasket type seal with close clearance aluminum cover plate provides for low leakage of air into the system.

6. **Straightening Vanes** In some cases, plenums may have an air spin induced at the inlet of the fan, thus reducing the fan performance. Straightening vanes alleviate the spin by producing uniform airflow in the inlet of the fan and allowing full performance potential of these units.

7. **Bearings** Ball and unit roller bearings are available. Refer to chart above for proper bearing selection.

Proximity Factors

% WOV	WALL CLEARANCE IN PERCENT OF WHEEL DIAMETER							
	33⅓%		40%		50%		80% & ABOVE	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
40	1.02	1.10	1.02	1.07	1.01	1.03	1.00	1.00
50	1.03	1.14	1.03	1.10	1.02	1.05	1.00	1.00
60	1.05	1.18	1.05	1.13	1.02	1.07	1.00	1.00
70	1.07	1.23	1.06	1.18	1.03	1.08	1.00	1.00
80	1.11	1.29	1.07	1.22	1.03	1.09	1.00	1.00
90	1.14	1.36	1.07	1.24	1.04	1.11	1.00	1.00
95	1.16	1.43	1.08	1.25	1.04	1.12	1.00	1.00

WOV Factors

FAN SIZE	WOV FACTOR
12	5.1
15	9.9
18	17.2
21	27.5
24	41.1
27	59.4
30	81.5
33	108.5
36	145.3
39	184.7
42	230.7
48	344.4

Air Density Factors For Various Temperatures & Altitudes

Unit Basis = Standard Air Density of 0.075 lb/ft^3
At sea level (29.92 in. Hg barometric pressure), this is equivalent to dry air at 70°F.

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL											
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	15000
	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
–50	1.293	1.247	1.201	1.159	1.116	1.076	1.036	.997	.960	.924	.889	.729
0	1.152	1.111	1.071	1.032	.995	.959	.923	.889	.856	.824	.792	.650
50	1.039	1.003	.967	.932	.897	.864	.833	.801	.772	.743	.715	.586
70	1.000	.964	.930	.896	.864	.832	.801	.772	.743	.714	.688	.564
100	.946	.912	.880	.848	.818	.787	.758	.730	.703	.676	.651	.534
150	.869	.838	.808	.770	.751	.723	.696	.671	.646	.620	.598	.490
200	.803	.774	.747	.720	.694	.668	.643	.620	.596	.573	.552	.453
250	.747	.720	.694	.669	.645	.622	.598	.576	.555	.533	.514	.421
300	.697	.672	.648	.624	.604	.580	.558	.538	.518	.498	.480	.393
350	.654	.631	.608	.586	.565	.544	.524	.505	.486	.467	.450	.369
400	.616	.594	.573	.552	.532	.513	.493	.476	.458	.440	.424	.347
450	.582	.561	.542	.522	.503	.484	.466	.449	.433	.416	.401	.328
500	.552	.532	.513	.495	.477	.459	.442	.426	.410	.394	.380	.311
550	.525	.506	.488	.470	.454	.437	.421	.405	.390	.375	.361	.296
600	.500	.482	.465	.448	.432	.416	.400	.386	.372	.352	.344	.282
650	.477	.460	.444	.427	.412	.397	.382	.368	.354	.341	.328	.269
700	.457	.441	.425	.410	.395	.380	.366	.353	.340	.326	.315	.258
750	.439	.423	.407	.393	.379	.365	.351	.338	.326	.313	.303	.248
800	.420	.404	.389	.375	.362	.350	.336	.323	.311	.300	.290	.237
850	.404	.391	.376	.363	.349	.336	.324	.312	.300	.289	.279	.228
900	.389	.376	.363	.349	.336	.324	.312	.300	.289	.279	.268	.220
950	.376	.363	.350	.337	.325	.313	.301	.290	.279	.269	.259	.212
1000	.363	.350	.338	.325	.314	.302	.291	.280	.270	.259	.250	.205

NOTE: The fan performance tables on pages 13 through 18 are based on standard air density which is 0.075 lb/ft^3. When desired performance is at other than standard conditions, it must be converted to equivalent standard conditions before selecting fans from the performance tables.

Derating Factors For High Temperature

TEMP. (°F)	WHEEL DERATING (RPM)		SHAFT
	STEEL	STAINLESS	STANDARD STEEL
70	1.000	0.94	1.00
200	0.990	0.89	0.99
300	0.975	0.86	0.98
400	0.955	0.83	0.97
500	0.930	0.79	0.96
600	0.904	0.76	0.94
700	0.880	0.73	0.93
800	0.837	0.71	0.92
900	—	0.69	—
1000	—	0.66	—

When elevated temperatures are encountered, maximum RPM shown in the table at right must be derated according to this table. Standard steel construction is not suitable for use in gas temperature over 800°F. Aluminum wheels are suitable for use up to 250°F only.

Max. Safe Wheel Speed at 70°F

SIZE	MAX. WHEEL RPM @ 70°F
12	2228
15	1783
18	1485
21	1273
24	1114
27	990
30	891
33	810
36	743
39	686
42	637
48	557

Single Fan Assembly

Size 12

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM												
	1" SHAFT	1 3/16" SHAFT	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
20	2967	4107	—	—	—	—	—	—	—	—	—	—	—
30	1579	2170	2970	—	—	—	—	—	—	—	—	—	—
40	1002	1368	1858	2279	2884	—	—	—	—	—	—	—	—
50	702	951	1283	1569	1971	2389	2435	NA	NA	—	—	—	—
60	522	704	944	1151	1436	1731	1779	2074	NA	—	—	—	—
70	—	544	726	883	1095	1313	1359	1578	1800	2250	2702	—	—
80	—	—	576	700	864	1031	1073	1241	1412	1755	2099	2365	2636
90	—	—	—	570	700	832	870	1003	1137	1407	1677	1890	2108
100	—	—	—	—	578	685	720	828	936	1154	1370	1545	1723
110	—	—	—	—	—	575	606	695	784	963	1141	1286	1434
120	—	—	—	—	—	—	517	592	666	816	964	1087	1213

Size 15

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM												
	1" SHAFT	1 3/16" SHAFT	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
30	1362	1884	2620	—	—	—	—	—	—	—	—	—	—
40	870	1197	1653	2072	—	—	—	—	—	—	—	—	—
50	612	837	1149	1436	1817	2219	2313	—	—	—	—	—	—
60	—	624	851	1060	1333	1618	1697	1985	2281	—	—	—	—
70	—	—	658	817	1022	1234	1300	1515	1735	2181	—	—	—
80	—	—	526	651	810	974	1030	1196	1365	1706	2049	—	—
90	—	—	—	531	659	789	837	969	1102	1371	1641	1858	2078
100	—	—	—	—	546	652	694	801	909	1126	1343	1521	1701
110	—	—	—	—	—	549	585	674	763	942	1120	1268	1418
120	—	—	—	—	—	—	500	575	650	799	943	1073	1199

Size 18

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM										
	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
30	2232	—	—	—	—	—	—	—	—	—	—
40	1419	1821	—	—	—	—	—	—	—	—	—
50	995	1271	1622	1997	—	—	—	—	—	—	—
60	741	944	1199	1468	1580	1857	—	—	—	—	—
70	577	732	925	1128	1216	1425	1638	1823	—	—	—
80	463	586	737	895	967	1129	1294	1446	1782	—	—
90	—	481	602	729	789	918	1049	1176	1443	1646	—
100	—	—	502	605	656	762	868	976	1193	1360	1549
110	—	—	—	511	555	642	731	823	1003	1143	1300
120	—	—	—	—	476	549	624	704	855	974	1106
130	—	—	—	—	—	475	539	609	737	840	953

Size 21

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM										
	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
40	1328	1718	—	—	—	—	—	—	—	—	—
50	933	1203	1539	—	—	—	—	—	—	—	—
60	697	895	1141	1402	1525	—	—	—	—	—	—
70	543	696	883	1080	1177	1382	1592	—	—	—	—
80	437	558	705	859	938	1097	1260	1420	—	—	—
90	—	459	577	701	766	893	1024	1156	1422	—	—
100	—	—	482	584	638	742	848	960	1176	1345	—
110	—	—	—	494	540	627	715	811	990	1131	1288
120	—	—	—	—	464	537	611	694	844	964	1097
130	—	—	—	—	—	465	528	601	729	832	945

Single Fan Assembly

Size 24

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM									
	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
50	1030	1329	—	—	—	—	—	—	—	—
60	771	992	1157	1401	—	—	—	—	—	—
70	602	772	900	1086	1281	—	—	—	—	—
80	486	620	722	869	1022	1179	1356	—	—	—
90	401	511	594	712	835	961	1107	1368	—	—
100	—	428	498	595	696	800	922	1134	1305	—
110	—	—	424	505	590	676	780	956	1100	1258
120	—	—	—	435	506	579	669	817	939	1073
130	—	—	—	—	440	502	580	707	811	926
140	—	—	—	—	—	439	508	617	708	807

Size 27

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM									
	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
50	1382	1795	—	—	—	—	—	—	—	—
60	732	943	1109	—	—	—	—	—	—	—
70	572	736	864	1045	1235	—	—	—	—	—
80	462	592	695	837	987	1142	—	—	—	—
90	—	488	572	687	808	932	1083	—	—	—
100	—	410	480	575	675	777	903	1114	—	—
110	—	—	409	489	572	657	764	940	1084	—
120	—	—	—	422	492	564	656	804	926	1060
130	—	—	—	—	428	489	569	696	801	916
140	—	—	—	—	—	429	499	608	699	799

Size 30

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM								
	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
60	763	938	—	—	—	—	—	—	—
70	598	734	895	1026	—	—	—	—	—
80	484	593	721	826	966	—	—	—	—
90	401	491	595	681	795	993	—	—	—
100	—	414	500	572	666	830	—	—	—
110	—	354	428	489	568	706	876	—	—
120	—	—	370	422	490	608	752	876	—
130	—	—	—	369	427	529	652	759	874
140	—	—	—	—	376	465	572	665	764

Size 33

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM							
	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
70	692	844	975	—	—	—	—	—
80	559	682	786	920	—	—	—	—
90	463	563	649	759	955	—	—	—
100	391	475	576	737	800	999	—	—
110	—	428	489	568	706	876	—	—
120	—	352	404	470	587	729	853	—
130	—	—	353	410	512	633	740	855
140	—	—	—	362	450	556	649	748

Size 36

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM							
	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
70	589	723	867	—	—	—	—	—
80	478	586	701	825	—	—	—	—
90		486	581	682	881	—	—	—
100		411	490	575	740	904	—	—
110	—		420	492	632	770	—	—
120	—		365	426	546	665	805	—
130	—	—	320	373	477	580	701	815
140	—	—	—	330	421	510	615	715

Twin Fan Assembly

Size 12

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM											
	1 3/16" SHAFT	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
50	802	1096	1349	1721	2118	2120	2511	2922	—	—	—	—
60	608	826	1014	1284	1569	1584	1868	2162	2774	—	—	—
70	—	647	792	996	1210	1232	1445	1665	2118	2581	—	—
80	—	521	637	796	962	986	1152	1322	1669	2021	2277	3174
90	—	—	524	651	783	808	940	1075	1348	1624	1831	2043
100	—	—	—	543	650	674	782	891	1112	1333	1504	1678
110	—	—	—	—	548	571	660	750	932	1114	1256	1402
120	—	—	—	—	—	—	565	641	793	944	1065	1188
130	—	—	—	—	—	—	—	554	682	811	914	1020

Size 15

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM											
	1 3/16" SHAFT	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
50	697	969	1220	1565	1936	1994	2368	—	—	—	—	—
60	532	735	922	1175	1446	1498	1772	2057	—	—	—	—
70	—	579	724	918	1122	1170	1377	1591	2035	—	—	—
80	—	—	585	738	897	940	1101	1268	1610	1959	—	—
90	—	—	—	606	734	772	901	1034	1305	1580	1791	2005
100	—	—	—	508	612	646	752	860	1079	1300	1474	1650
110	—	—	—	—	518	549	637	726	907	1089	1233	1381
120	—	—	—	—	—	—	546	621	773	925	1047	1172
130	—	—	—	—	—	—	—	538	666	795	900	1007

Size 18

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM										
	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
60	631	810	1040	1289	1379	1637	—	—	—	—	—
70	500	640	818	1009	1082	1279	1485	1635	—	—	—
80	—	520	662	812	873	1029	1189	1316	1644	—	—
90	—	—	547	668	720	846	974	1083	1346	1538	1759
100	—	—	460	560	605	708	813	907	1122	1281	1466
110	—	—	—	477	516	601	689	771	949	1081	1238
120	—	—	—	—	—	517	591	663	814	929	1060
130	—	—	—	—	—	450	513	577	705	805	917
140	—	—	—	—	—	—	450	506	617	704	801

Size 21

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM										
	1 7/16" SHAFT	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
70	469	605	776	960	1042	1234	1435	—	—	—	—
80	—	493	629	775	843	995	1152	1289	—	—	—
90	—	410	521	639	697	819	946	1062	1273	1514	—
100	—	—	440	537	586	687	791	890	1103	1264	1449
110	—	—	—	458	500	585	671	757	935	1070	1225
120	—	—	—	395	432	504	577	652	802	918	1049
130	—	—	—	—	—	439	501	568	696	796	908
140	—	—	—	—	—	386	440	499	609	696	794

Size 24

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM									
	1 11/16" SHAFT	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
80	424	546	637	773	916	1066	1221	—	—	—
90	354	455	530	641	758	879	1009	1262	—	—
100	—	385	449	541	638	738	849	1057	1220	—
110	—	331	386	464	545	629	724	897	1035	1190
120	—	—	335	402	471	542	625	772	889	1021
130	—	—	—	—	411	473	545	671	772	885
140	—	—	—	—	362	416	480	589	677	775

Twin Fan Assembly

Size 27

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM								
	1 15/16" SHAFT	2 3/16" SHAFT	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
100	367	431	521	616	714	828	1034	—	—
110	—	371	447	526	609	707	879	1017	—
120	—	323	388	456	526	611	757	875	1007
130	—	—	340	399	459	534	659	761	874
140	—	—	301	352	404	470	578	667	765

Size 30

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM						
	2 7/16" SHAFT	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
120	336	385	449	560	700	819	891
130	—	338	394	491	611	714	827
140	—	300	349	434	538	628	726

Size 33

BRG. SPAN (IN.)	MAXIMUM SHAFT RPM					
	2 11/16" SHAFT	2 15/16" SHAFT	3 7/16" SHAFT	3 15/16" SHAFT	4 7/16" SHAFT	4 15/16" SHAFT
130	323	376	473	591	694	806
140	—	334	418	521	611	709

TCF
TWIN CITY FAN

Size 12

Outlet Area: 1.40 ft² **Wheel Dia.: 12.25"** **Tip Speed: 3.14 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	857	461	0.10										
1400	1000	472	0.12										
1600	1143	487	0.15	650	0.25								
1800	1286	507	0.18	657	0.29	795	0.43						
2000	1429	528	0.22	668	0.34	797	0.48						
2200	1571	552	0.27	684	0.39	804	0.54	918	0.69				
2400	1714	577	0.33	702	0.46	815	0.60	923	0.77				
2600	1857	601	0.39	722	0.53	830	0.68	932	0.85	1124	1.23		
2800	2000	630	0.47	744	0.62	847	0.77	943	0.94	1126	1.33		
3000	2143	662	0.56	767	0.71	866	0.87	958	1.05	1133	1.45	1298	1.89
3200	2286	696	0.66	792	0.82	886	0.98	975	1.17	1142	1.57	1300	2.03
3400	2429	731	0.78	816	0.93	908	1.11	993	1.30	1154	1.72	1305	2.17
3600	2571	766	0.91	841	1.06	931	1.25	1013	1.44	1167	1.87	1314	2.34
3800	2714	803	1.06	867	1.20	955	1.40	1034	1.60	1183	2.03	1324	2.52
4000	2857	839	1.22	897	1.36	980	1.57	1056	1.77	1201	2.22	1337	2.71
4200	3000	876	1.40	929	1.54	1004	1.75	1080	1.97	1220	2.42	1351	2.92
4400	3143	914	1.60	962	1.74	1028	1.94	1104	2.17	1240	2.64	1367	3.15
4800	3429	989	2.04	1032	2.20	1084	2.38	1153	2.63	1283	3.13	1404	3.66
5200	3714	1065	2.57	1103	2.73	1147	2.92	1203	3.15	1329	3.69	1444	4.25
5600	4000	1141	3.18	1176	3.35	1215	3.54	1260	3.76	1378	4.33	1488	4.92
6000	4286	1218	3.88	1250	4.06	1285	4.26	1324	4.48	1427	5.05	1534	5.67
6400	4571	1295	4.69	1325	4.88	1357	5.08	1392	5.31	1477	5.84	1583	6.52

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3600	2571	1454	2.85	1590	3.41								
3800	2714	1459	3.04	1591	3.60	1718	4.20						
4000	2857	1468	3.24	1594	3.81	1717	4.41						
4200	3000	1478	3.46	1600	4.04	1719	4.65	1836	5.30				
4400	3143	1490	3.70	1608	4.28	1724	4.91	1837	5.56				
4800	3429	1519	4.23	1631	4.83	1740	5.47	1846	6.14	2053	7.57		
5200	3714	1554	4.84	1659	5.46	1763	6.12	1863	6.80	2059	8.27		
5600	4000	1593	5.53	1693	6.17	1791	6.85	1887	7.56	2073	9.05		
6000	4286	1634	6.31	1731	6.97	1825	7.68	1916	8.40	2093	9.92		
6400	4571	1679	7.19	1772	7.88	1862	8.59	1949	9.33	2119	10.91		

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

Size 15

Outlet Area: 2.23 ft² **Wheel Dia.: 15.25"** **Tip Speed: 3.93 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2000	895	372	0.16										
2200	984	378	0.19										
2400	1074	385	0.21	519	0.38								
2800	1253	405	0.28	525	0.45	636	0.66						
3200	1432	427	0.36	537	0.55	639	0.77	735	1.01				
3600	1611	452	0.47	554	0.66	648	0.89	736	1.14				
4000	1790	477	0.59	574	0.80	661	1.04	744	1.30	899	1.89		
4400	1969	506	0.75	596	0.97	678	1.22	756	1.49	901	2.09		
4800	2148	539	0.93	621	1.17	698	1.42	771	1.70	908	2.32	1039	3.03
5200	2327	574	1.15	646	1.39	720	1.66	789	1.95	919	2.59	1042	3.31
5600	2506	611	1.41	671	1.64	743	1.93	809	2.23	933	2.90	1050	3.63
6000	2685	648	1.70	699	1.93	768	2.24	831	2.55	949	3.23	1061	3.99
6400	2864	686	2.04	730	2.26	793	2.58	854	2.91	968	3.62	1075	4.39
6800	3043	724	2.42	763	2.64	818	2.95	878	3.31	988	4.04	1091	4.84
7200	3221	762	2.84	799	3.08	845	3.37	904	3.75	1009	4.50	1109	5.33
7600	3400	801	3.31	835	3.56	875	3.85	929	4.23	1032	5.02	1128	5.85
8000	3579	840	3.84	871	4.09	907	4.38	954	4.74	1056	5.59	1149	6.45
8400	3758	879	4.42	908	4.67	941	4.96	982	5.33	1080	6.19	1170	7.07
8800	3937	918	5.05	946	5.32	976	5.61	1012	5.96	1106	6.86	1193	7.77
9200	4116	957	5.74	984	6.03	1012	6.32	1044	6.66	1131	7.57	1217	8.53
9600	4295	997	6.51	1022	6.80	1049	7.11	1078	7.44	1156	8.33	1241	9.32
10000	4474	1036	7.32	1060	7.62	1086	7.95	1113	8.29	1182	9.14	1267	10.20

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4800	2148												
5200	2327	1161	4.10										
5600	2506	1163	4.43	1272	5.30								
6000	2685	1169	4.81	1273	5.69	1374	6.62						
6400	2864	1178	5.23	1277	6.12	1374	7.07	1469	8.08				
6800	3043	1190	5.70	1285	6.60	1378	7.56	1469	8.58				
7200	3221	1203	6.19	1295	7.12	1385	8.11	1472	9.14	1642	11.35		
7600	3400	1219	6.75	1308	7.70	1394	8.69	1478	9.74	1642	11.98		
8000	3579	1237	7.35	1322	8.32	1406	9.35	1487	10.40	1645	12.67		
8400	3758	1256	8.01	1339	9.01	1419	10.04	1498	11.12	1651	13.43		
8800	3937	1277	8.74	1357	9.74	1435	10.81	1511	11.90	1659	14.23		
9200	4116	1298	9.50	1376	10.53	1452	11.62	1526	12.75	1670	15.12		
9600	4295	1320	10.33	1396	11.38	1470	12.48	1542	13.64	1682	16.06		
10000	4474	1343	11.23	1418	12.32	1490	13.44	1559	14.58	1695	17.04		

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

Size 18

Outlet Area: 3.00 ft² **Wheel Dia.: 18.25"** **Tip Speed: 4.71 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2500	833	292	0.18										
3000	1000	303	0.23	405	0.40								
3500	1166	318	0.30	412	0.49	495	0.70						
4000	1333	337	0.39	422	0.59	500	0.82						
4500	1500	357	0.50	435	0.71	508	0.96	575	1.21				
5000	1666	378	0.63	452	0.86	519	1.12	583	1.40	700	1.99		
5500	1833	401	0.79	470	1.03	533	1.31	593	1.60	705	2.23		
6000	1999	424	0.97	490	1.24	549	1.52	605	1.83	712	2.50	810	3.20
6500	2166	449	1.18	511	1.47	567	1.77	620	2.09	722	2.80	816	3.54
7000	2333	473	1.42	532	1.74	586	2.05	637	2.39	733	3.12	824	3.91
7500	2499	499	1.71	554	2.03	606	2.37	655	2.73	746	3.48	833	4.30
8000	2666	524	2.02	577	2.37	627	2.73	674	3.10	761	3.88	844	4.72
8500	2832	550	2.38	601	2.75	648	3.12	693	3.50	777	4.32	857	5.19
9000	2999	577	2.80	625	3.17	671	3.57	714	3.97	795	4.81	871	5.70
9500	3166	603	3.24	650	3.64	693	4.05	735	4.47	814	5.35	887	6.27
10000	3332	630	3.74	675	4.15	717	4.59	757	5.03	833	5.93	904	6.89
10500	3499	657	4.30	700	4.70	740	5.16	779	5.62	853	6.57	922	7.56
11000	3665	684	4.90	725	5.31	765	5.80	802	6.28	873	7.25	941	8.28
11500	3832	711	5.55	751	5.98	789	6.47	825	6.98	895	8.02	960	9.06
12000	3999	739	6.29	777	6.71	814	7.22	849	7.75	916	8.81	980	9.90
13000	4332	794	7.91	830	8.38	864	8.88	897	9.44	961	10.61	1021	11.76
14000	4665	849	9.78	883	10.28	916	10.83	947	11.41	1007	12.66	1064	13.88

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7000	2333	908	4.70	990	5.57								
7500	2499	916	5.16	993	6.02	1069	6.96						
8000	2666	924	5.63	1000	6.55	1072	7.48						
8500	2832	934	6.13	1008	7.10	1078	8.07	1145	9.06				
9000	2999	945	6.66	1017	7.68	1085	8.69	1151	9.73	1278	11.93		
9500	3166	958	7.25	1027	8.29	1094	9.37	1158	10.44	1281	12.68		
10000	3332	972	7.89	1039	8.96	1104	10.07	1167	11.21	1286	13.49	1400	15.91
10500	3499	987	8.57	1052	9.67	1115	10.82	1176	11.98	1293	14.38	1404	16.84
11000	3665	1004	9.33	1066	10.44	1127	11.61	1187	12.83	1301	15.30	1409	17.82
11500	3832	1022	10.15	1082	11.29	1140	12.45	1198	13.69	1310	16.27	1416	18.88
12000	3999	1040	11.00	1098	12.17	1155	13.38	1211	14.64	1320	17.27	1425	20.03
13000	4332	1079	12.95	1134	14.16	1188	15.44	1240	16.73	1343	19.46	1443	22.35
14000	4665	1119	15.13	1173	16.46	1224	17.77	1273	19.10	1370	21.92	1465	24.91

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

Size 21

Outlet Area: 4.28 ft² **Wheel Dia.: 21.25"** **Tip Speed: 5.50 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3500	819	257	0.26										
4000	936	262	0.31	361	0.60								
4500	1053	269	0.36	362	0.67	442	1.03						
5000	1170	278	0.43	364	0.74	443	1.13						
5500	1287	288	0.52	369	0.83	443	1.22	511	1.66				
6000	1404	299	0.61	375	0.94	445	1.33	511	1.79				
6500	1520	312	0.73	383	1.06	449	1.46	512	1.92	626	2.97		
7000	1637	325	0.87	391	1.20	455	1.61	515	2.08	626	3.16		
7500	1754	339	1.02	401	1.36	461	1.77	519	2.25	626	3.34	722	4.55
8000	1871	353	1.19	412	1.54	469	1.96	524	2.44	628	3.56	723	4.82
9000	2105	382	1.58	436	1.98	488	2.41	538	2.90	634	4.04	724	5.34
10000	2339	413	2.07	462	2.50	509	2.95	555	3.45	644	4.61	729	5.95
11000	2573	445	2.67	490	3.14	533	3.61	576	4.13	658	5.30	738	6.68
12000	2807	478	3.37	519	3.88	559	4.39	599	4.93	676	6.14	750	7.51
13000	3041	511	4.19	549	4.74	587	5.30	623	5.85	695	7.08	765	8.49
14000	3275	545	5.14	580	5.73	615	6.31	650	6.94	717	8.18	783	9.62
15000	3509	578	6.20	612	6.87	645	7.50	677	8.13	741	9.47	802	10.87
16000	3743	613	7.46	644	8.14	675	8.82	706	9.51	766	10.90	824	12.33
17000	3977	647	8.83	677	9.58	706	10.30	735	11.02	792	12.49	847	13.96
18000	4211	682	10.40	710	11.18	737	11.92	765	12.71	819	14.24	872	15.82
19000	4444	717	12.15	743	12.94	769	13.75	796	14.60	847	16.18	898	17.86
20000	4678	752	14.08	777	14.93	802	15.79	827	16.65	876	18.33	924	20.04

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9000	2105	808	6.76	885	8.23								
10000	2339	809	7.41	885	8.99	956	10.63						
11000	2573	813	8.14	887	9.80	956	11.51	1022	13.30				
12000	2807	822	9.04	891	10.68	958	12.45	1023	14.34	1142	18.17		
13000	3041	833	10.04	899	11.72	962	13.48	1025	15.42	1143	19.49	1251	23.67
14000	3275	847	11.19	909	12.87	970	14.69	1029	16.59	1144	20.78	1252	25.25
15000	3509	863	12.48	923	14.23	981	16.07	1038	18.03	1147	22.18	1253	26.81
16000	3743	882	13.97	938	15.70	994	17.60	1048	19.55	1153	23.77	1255	28.42
17000	3977	902	15.61	956	17.40	1009	19.30	1061	21.30	1162	25.58	1260	30.25
18000	4211	924	17.47	975	19.24	1026	21.19	1076	23.23	1173	27.55	1267	32.25
19000	4444	947	19.51	996	21.32	1045	23.30	1092	25.31	1186	29.74		
20000	4678	972	21.82	1018	23.59	1065	25.59	1111	27.68	1201	32.15		

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

Size 24

Outlet Area: 5.50 ft² **Wheel Dia.: 24.25"** **Tip Speed: 6.28 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5000	909	228	0.38	316	0.76								
5500	1000	232	0.43	316	0.82								
6000	1091	237	0.49	317	0.89	387	1.37						
7000	1273	249	0.64	321	1.05	388	1.57	447	2.12				
8000	1455	265	0.84	330	1.27	390	1.78	448	2.39				
9000	1636	282	1.09	341	1.53	397	2.06	450	2.67	548	4.07		
10000	1818	300	1.39	354	1.85	406	2.40	455	3.01	548	4.45	632	6.05
11000	2000	320	1.77	369	2.24	417	2.80	463	3.43	551	4.89	633	6.58
12000	2182	340	2.19	386	2.71	430	3.27	473	3.91	556	5.40	634	7.11
13000	2364	360	2.67	403	3.23	445	3.83	485	4.47	563	5.99	637	7.71
14000	2545	382	3.27	422	3.86	461	4.48	498	5.11	572	6.66	643	8.43
15000	2727	403	3.90	441	4.55	478	5.21	513	5.86	583	7.43	650	9.21
16000	2909	425	4.64	461	5.34	495	6.01	529	6.72	595	8.29	659	10.10
17000	3091	448	5.50	481	6.21	514	6.94	546	7.68	608	9.24	670	11.13
18000	3273	470	6.41	502	7.20	533	7.96	563	8.71	623	10.35	681	12.20
19000	3455	493	7.47	523	8.28	552	9.05	582	9.91	638	11.54	694	13.43
20000	3636	515	8.57	544	9.46	572	10.29	600	11.14	655	12.92	708	14.79
21000	3818	538	9.83	566	10.78	593	11.68	619	12.52	672	14.39	723	16.30
22000	4000	562	11.27	588	12.22	613	13.11	639	14.06	689	15.95	738	17.90
23000	4182	585	12.77	610	13.77	634	14.70	659	15.71	707	17.66	754	19.66
24000	4364	608	14.40	632	15.44	656	16.49	679	17.46	726	19.54	771	21.60
25000	4545	631	16.16	654	17.23	677	18.32	700	19.41	745	21.54	789	23.72

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	2182	707	8.99	774	10.92								
13000	2364	708	9.65	775	11.73	836	13.80						
14000	2545	710	10.35	775	12.48	837	14.74	894	16.98				
15000	2727	715	11.19	777	13.32	837	15.61	894	17.99	999	22.85		
16000	2909	721	12.10	781	14.27	839	16.59	895	19.05	1000	24.21		
17000	3091	729	13.13	786	15.29	842	17.64	897	20.17	1000	25.47	1095	30.97
18000	3273	738	14.25	794	16.51	847	18.82	900	21.37	1001	26.79	1095	32.51
19000	3455	749	15.54	802	17.76	854	20.16	904	22.64	1002	28.11	1096	34.10
20000	3636	760	16.87	812	19.20	862	21.61	911	24.17	1005	29.60	1097	35.68
21000	3818	773	18.40	822	20.68	871	23.17	918	25.72	1010	31.28	1098	37.26
22000	4000	786	20.01	834	22.37	881	24.87	926	27.40	1016	33.08	1102	39.15
23000	4182	801	21.85	846	24.12	892	26.71	936	29.31	1023	35.01	1106	41.07
24000	4364	816	23.79	860	26.13	904	28.70	947	31.37	1031	37.09	1112	43.23
25000	4545	832	25.93	874	28.23	916	30.76	958	33.50	1040	39.32		

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

Size 27

Outlet Area: 6.95 ft² **Wheel Dia.: 27.00"** **Tip Speed: 7.07 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	863	193	0.43										
7000	1007	198	0.54	267	0.96								
8000	1151	207	0.69	270	1.13								
9000	1295	216	0.86	275	1.33	328	1.86						
10000	1439	227	1.08	281	1.56	332	2.13	378	2.75				
11000	1583	239	1.34	289	1.84	337	2.44	381	3.08				
12000	1727	251	1.63	299	2.19	343	2.78	385	3.45	463	4.96		
13000	1871	265	2.00	309	2.56	350	3.17	390	3.86	465	5.41		
14000	2014	278	2.39	320	3.00	359	3.64	397	4.35	469	5.96	535	7.72
15000	2158	293	2.88	331	3.48	369	4.18	405	4.91	473	6.52	537	8.33
16000	2302	307	3.40	343	4.02	379	4.75	413	5.49	479	7.18	541	9.05
17000	2446	322	4.01	356	4.66	390	5.40	423	6.20	485	7.87	545	9.80
18000	2590	337	4.68	369	5.35	401	6.10	433	7.74	501	9.56	556	11.52
19000	2734	352	5.42	383	6.14	413	6.90	443	7.74	501	9.56	556	11.52
20000	2878	367	6.22	397	7.00	425	7.75	454	8.63	510	10.52	563	12.52
21000	3022	383	7.16	411	7.93	438	8.72	466	9.64	519	11.53	570	13.56
22000	3165	398	8.12	425	8.93	452	9.82	478	10.71	529	12.65	579	14.79
24000	3453	430	10.42	455	11.30	479	12.18	503	13.13	551	15.22	597	17.40
26000	3741	461	13.01	484	13.95	507	14.95	529	15.92	574	18.14	617	20.42
28000	4029	493	16.10	515	17.15	536	18.17	557	19.24	598	21.46	639	23.90
30000	4317	526	19.73	546	20.79	566	21.90	585	22.96	624	25.34	662	27.81
32000	4604	558	23.73	577	24.88	596	26.08	614	27.21	650	29.61	686	32.20

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
17000	2446	601	11.83	655	14.05								
18000	2590	605	12.74	657	14.97	707	17.34						
19000	2734	609	13.67	660	15.97	708	18.33	755	20.85				
20000	2878	614	14.69	664	17.07	711	19.48	757	22.08				
21000	3022	620	15.81	668	18.19	715	20.74	759	23.31				
22000	3165	627	17.04	673	19.41	719	22.04	762	24.64	845	30.24		
24000	3453	642	19.74	686	22.24	729	24.90	770	27.59	850	33.41	926	39.64
26000	3741	660	22.93	701	25.46	741	28.10	781	30.99	858	37.06	931	43.45
28000	4029	679	26.46	718	29.11	756	31.85	794	34.80	867	40.97	938	47.65
30000	4317	700	30.51	737	33.27	774	36.23	809	39.10	879	45.45	946	52.14
32000	4604	722	35.00	758	38.00	792	40.88	826	43.95	893	50.48	957	57.27

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

Size 30

Outlet Area: 8.50 ft² **Wheel Dia.: 30.25"** **Tip Speed: 7.85 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	941	176	0.60										
9000	1059	181	0.72	241	1.24								
10000	1176	187	0.87	244	1.42								
11000	1294	194	1.05	247	1.61	295	2.27						
12000	1412	202	1.26	252	1.85	298	2.54	340	3.30				
13000	1529	210	1.50	257	2.11	301	2.83	342	3.62				
14000	1647	219	1.78	263	2.41	305	3.15	344	3.95				
15000	1765	228	2.08	270	2.75	310	3.51	347	4.33	417	6.20		
16000	1882	238	2.45	277	3.12	315	3.90	351	4.75	419	6.69		
17000	2000	248	2.86	285	3.55	321	4.35	356	5.23	421	7.18	481	9.35
18000	2118	258	3.30	294	4.05	328	4.86	361	5.74	424	7.74	482	9.94
20000	2353	279	4.34	311	5.12	343	6.02	374	6.98	432	9.02	487	11.32
22000	2588	301	5.63	330	6.44	359	7.37	388	8.40	442	10.52	494	12.91
24000	2824	323	7.13	350	8.02	377	9.01	403	10.03	454	12.28	503	14.74
26000	3059	345	8.87	370	9.81	395	10.84	420	11.97	468	14.35	514	16.88
28000	3294	368	10.94	392	12.00	415	13.06	437	14.11	483	16.68	526	19.26
30000	3529	391	13.29	413	14.37	435	15.54	456	16.68	499	19.31	540	22.02
32000	3765	414	15.95	435	17.13	455	18.27	475	19.49	515	22.14	555	25.11
34000	4000	437	18.94	457	20.21	476	21.42	495	22.70	533	25.48	571	28.56
36000	4235	461	22.41	479	23.61	498	25.03	516	26.37	552	29.25	587	32.24
38000	4471	484	26.11	502	27.52	520	29.00	537	30.38	571	33.33	604	36.35
40000	4706	508	30.36	525	31.82	542	33.34	558	34.74	590	37.73	622	40.94
CFM	**OV**	**2.5" SP**		**3" SP**		**3.5" SP**		**4" SP**		**5" SP**		**6" SP**	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
20000	2353	539	13.81										
22000	2588	544	15.53	591	18.28	636	21.17						
24000	2824	550	17.42	595	20.24	639	23.32	680	26.38				
26000	3059	558	19.56	602	22.60	643	25.62	683	28.84				
28000	3294	568	22.04	610	25.17	650	28.37	688	31.60	762	38.66		
30000	3529	580	24.91	619	27.98	657	31.22	695	34.76	766	41.90	834	49.63
32000	3765	593	28.09	630	31.21	667	34.62	702	38.00	772	45.59	837	53.32
34000	4000	607	31.61	643	34.93	677	38.18	712	41.87	778	49.37	842	57.46
36000	4235	622	35.51	656	38.85	690	42.45	722	45.93	786	53.64	848	61.95
38000	4471	638	39.83	671	43.37	703	46.94	734	50.56	796	58.49	855	66.75
40000	4706	654	44.41	686	48.13	717	51.87	747	55.62	806	63.55	864	72.17

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

Size 33

Outlet Area: 10.44 ft² **Wheel Dia.: 33.25"** **Tip Speed: 8.64 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	957	161	0.76	219	1.38								
11000	1053	165	0.89	219	1.52								
12000	1148	169	1.03	221	1.69								
13000	1244	174	1.20	224	1.90	268	2.68						
14000	1340	180	1.40	227	2.11	270	2.94						
16000	1531	193	1.89	235	2.64	274	3.49	311	4.46				
18000	1722	206	2.46	245	3.29	281	4.18	315	5.17	379	7.44		
20000	1914	221	3.21	256	4.06	289	4.99	321	6.03	382	8.42	437	10.99
22000	2105	236	4.08	268	4.97	299	5.97	329	7.06	386	9.50	439	12.20
24000	2297	252	5.14	282	6.12	311	7.18	339	8.31	392	10.77	443	13.61
26000	2488	268	6.35	296	7.40	323	8.51	349	9.67	399	12.21	447	15.07
28000	2679	285	7.81	310	8.82	335	9.96	360	11.22	408	13.92	454	16.89
30000	2871	301	9.37	325	10.49	349	11.73	372	12.99	418	15.85	461	18.81
32000	3062	318	11.23	341	12.45	363	13.68	385	15.01	428	17.91	470	21.09
34000	3254	336	13.42	357	14.62	378	15.93	399	17.34	440	20.36	479	23.49
36000	3445	353	15.73	373	17.01	393	18.38	412	19.72	451	22.83	489	26.17
38000	3636	370	18.29	389	19.62	408	21.06	427	22.59	464	25.77	500	29.16
40000	3828	388	21.26	406	22.65	424	24.12	442	25.69	477	28.92	512	32.51
42000	4019	405	24.35	423	25.95	440	27.45	457	29.04	491	32.47	524	36.05
44000	4211	423	27.92	440	29.54	456	31.05	472	32.64	505	36.27	537	40.02
46000	4402	441	31.81	457	33.44	473	35.15	488	36.72	519	40.32	550	44.22
48000	4593	458	35.80	474	37.65	489	39.34	504	41.11	534	44.87	563	48.66
CFM	**OV**	**2.5" SP**		**3" SP**		**3.5" SP**		**4" SP**		**5" SP**		**6" SP**	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
26000	2488	493	18.21	536	21.48								
28000	2679	497	20.01	539	23.42	579	27.00						
30000	2871	503	22.10	543	25.55	582	29.26	619	33.06				
32000	3062	510	24.43	548	27.89	586	31.74	622	35.64	691	43.96		
34000	3254	517	26.86	555	30.63	591	34.46	626	38.47	693	46.99		
36000	3445	526	29.72	562	33.47	597	37.44	631	41.57	696	50.23	758	59.54
38000	3636	536	32.90	570	36.63	603	40.51	636	44.74	700	53.77	760	63.16
40000	3828	546	36.25	579	40.12	611	44.11	643	48.44	705	57.64	763	67.06
42000	4019	557	39.97	589	43.98	620	48.08	650	52.26	710	61.59	767	71.33
44000	4211	568	43.87	599	48.02	629	52.23	659	56.74	716	65.90	772	75.98
46000	4402	580	48.21	610	52.49	639	56.80	667	61.12	723	70.62	778	81.03
48000	4593	592	52.76	621	57.16	649	61.56	677	66.22	731	75.80	784	86.19

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

Size 36

Outlet Area: 12.69 ft² **Wheel Dia.: 36.25"** **Tip Speed: 9.42 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	945	147	0.81										
14000	1102	153	1.05	203	1.77								
16000	1260	160	1.35	206	2.10								
18000	1417	169	1.74	211	2.52	250	3.47						
20000	1575	178	2.17	217	3.03	253	3.97	288	5.11				
22000	1732	189	2.74	224	3.63	258	4.59	290	5.72				
24000	1890	200	3.40	232	4.32	264	5.34	294	6.46	352	9.14		
26000	2047	211	4.14	241	5.11	271	6.23	300	7.38	354	10.06		
28000	2205	222	4.98	251	6.05	278	7.16	306	8.40	357	11.06	407	14.27
30000	2362	234	5.98	261	7.07	287	8.30	312	9.50	362	12.28	409	15.50
32000	2520	246	7.10	272	8.29	296	9.50	320	10.83	367	13.57	412	16.84
34000	2677	259	8.44	282	9.53	306	10.90	328	12.22	373	15.09	416	18.32
36000	2835	271	9.82	294	11.10	316	12.41	337	13.79	380	16.84	422	20.15
38000	2992	284	11.45	305	12.69	326	14.04	347	15.58	387	18.67	427	21.95
40000	3150	296	13.11	317	14.55	337	15.94	357	17.50	395	20.71	434	24.20
42000	3307	309	15.07	329	16.56	348	17.99	367	19.55	404	22.98	440	26.39
44000	3465	322	17.20	341	18.74	359	20.19	377	21.75	413	25.34	448	29.03
46000	3622	335	19.52	353	21.09	371	22.73	388	24.28	422	27.82	455	31.55
48000	3780	348	22.03	365	23.61	382	25.25	399	26.98	432	30.63	464	34.55
52000	4094	374	27.66	390	29.42	406	31.25	422	33.14	452	36.75	482	40.90
56000	4409	401	34.40	416	36.32	430	38.05	445	40.09	473	43.85	501	48.08
60000	4724	427	41.85	441	43.89	455	45.99	469	48.16	495	52.03	522	56.58

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
34000	2677	458	22.05	498	25.92								
36000	2835	461	23.72	500	27.75	537	31.87						
38000	2992	466	25.74	502	29.60	539	33.99	574	38.43				
40000	3150	471	27.85	506	31.78	541	36.14	575	40.64				
42000	3307	476	30.08	511	34.22	544	38.48	577	43.09	642	53.15		
44000	3465	482	32.64	516	36.76	549	41.27	580	45.76	643	55.93		
46000	3622	489	35.55	522	39.66	553	43.92	584	48.68	645	58.97	703	69.77
48000	3780	496	38.56	528	42.74	559	47.17	589	51.91	647	62.06	704	73.10
52000	4094	511	45.08	541	49.54	571	54.21	599	58.75	654	69.06	708	80.45
56000	4409	529	52.75	556	57.29	584	62.15	611	66.89	664	77.31	715	88.85
60000	4724	548	61.31	573	66.02	599	71.17	625	76.34	675	86.60	724	98.22

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

Size 39

Outlet Area: 15.19 ft² **Wheel Dia.: 39.25"** **Tip Speed: 10.21 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
14000	921	136	0.95										
16000	1053	140	1.17	187	2.01								
18000	1184	145	1.45	189	2.33								
20000	1316	152	1.82	192	2.69	230	3.82						
22000	1447	159	2.22	197	3.18	232	4.30	265	5.57				
24000	1579	167	2.71	201	3.66	235	4.85	266	6.14				
26000	1711	175	3.26	207	4.30	239	5.49	268	6.78				
28000	1842	183	3.87	214	5.04	243	6.18	271	7.50	325	10.67		
30000	1974	192	4.62	221	5.82	248	7.01	275	8.35	326	11.52		
32000	2105	201	5.45	228	6.65	254	7.97	280	9.37	329	12.60	375	16.22
34000	2237	211	6.46	236	7.65	261	9.08	285	10.46	332	13.69	376	17.36
36000	2368	220	7.47	244	8.73	267	10.12	291	11.73	336	14.95	378	18.65
38000	2500	230	8.69	253	10.02	275	11.46	297	13.04	340	16.28	381	20.09
40000	2632	239	9.90	261	11.29	282	12.75	303	14.40	345	17.86	385	21.72
42000	2763	249	11.35	270	12.79	290	14.26	310	15.95	350	19.53	389	23.42
44000	2895	259	12.92	279	14.41	299	16.05	318	17.74	356	21.43	393	25.21
48000	3158	279	16.46	297	18.01	316	19.84	333	21.47	368	25.41	403	29.52
52000	3421	299	20.57	316	22.31	333	24.12	350	26.07	382	30.06	414	34.39
56000	3684	320	25.53	336	27.43	351	29.16	367	31.24	397	35.35	427	40.01
60000	3947	340	30.93	355	32.97	370	35.08	385	37.27	413	41.43	441	46.23
64000	4211	361	37.34	375	39.47	389	41.68	403	43.95	430	48.47	456	53.23
68000	4474	382	44.54	395	46.73	408	49.00	421	51.32	447	56.20	472	61.19

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
38000	2500	421	24.36	459	28.84								
40000	2632	422	25.80	460	30.56								
42000	2763	425	27.59	461	32.27	496	37.25						
44000	2895	429	29.60	463	34.21	497	39.24	530	44.53				
48000	3158	437	33.88	469	38.53	501	43.75	532	49.09				
52000	3421	446	38.85	477	43.61	507	48.81	536	54.25	594	66.24		
56000	3684	457	44.77	486	49.46	515	54.73	543	60.37	597	72.34	650	85.35
60000	3947	469	51.31	497	56.44	524	61.51	551	67.17	602	79.13	652	92.20
64000	4211	482	58.46	508	63.80	534	69.20	560	74.92	610	87.31	657	100.36
68000	4474	497	66.76	521	72.21	546	78.11	570	83.67	618	95.97	664	109.53

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

Size 42

Outlet Area: 18.31 ft² **Wheel Dia.: 42.25"** **Tip Speed: 11.00 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16000	873	126	1.08										
18000	983	129	1.29	174	2.28								
20000	1092	133	1.56	175	2.57								
22000	1201	138	1.89	177	2.91	213	4.17						
24000	1310	143	2.25	180	3.32	214	4.61						
26000	1419	149	2.67	183	3.75	215	5.05	246	6.57				
28000	1528	155	3.15	187	4.30	218	5.64	247	7.16				
30000	1638	162	3.73	192	4.95	221	6.25	249	7.84				
32000	1747	169	4.39	197	5.63	225	7.01	251	8.52	302	12.22		
36000	1965	183	5.89	208	7.18	233	8.69	258	10.31	304	13.99	348	18.22
40000	2183	198	7.77	221	9.17	243	10.73	266	12.48	309	16.20	350	20.57
44000	2402	213	9.99	234	11.47	255	13.22	275	14.98	316	18.91	354	23.30
48000	2620	228	12.57	248	14.26	267	15.99	286	17.97	324	22.13	360	26.53
52000	2838	244	15.71	263	17.63	281	19.49	298	21.40	333	25.83	367	30.28
56000	3057	260	19.32	277	21.21	294	23.21	311	25.42	343	29.94	375	34.65
60000	3275	276	23.42	293	25.71	308	27.58	324	29.87	354	34.54	384	39.58
64000	3493	293	28.32	308	30.48	323	32.72	337	34.77	366	39.77	394	45.03
68000	3712	309	33.53	324	36.09	338	38.41	351	40.47	379	45.77	405	51.08
72000	3930	326	39.68	339	41.93	353	44.66	366	47.08	392	52.31	417	57.87
76000	4148	342	46.11	355	48.76	368	51.50	380	53.89	405	59.40	429	65.13
80000	4367	359	53.64	371	56.25	383	58.95	395	61.73	419	67.52	442	73.39
84000	4585	376	61.93	388	64.94	399	67.54	410	70.22	433	76.28	455	82.27

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
44000	2402	390	28.01	426	33.35								
48000	2620	394	31.41	428	36.87	460	42.41						
52000	2838	400	35.36	431	40.69	462	46.50	492	52.58				
56000	3057	406	39.57	436	45.09	465	50.95	494	57.27				
60000	3275	414	44.79	443	50.36	470	56.07	498	62.72	551	76.20		
64000	3493	422	50.39	450	56.08	477	62.15	503	68.59	553	82.09	603	97.28
68000	3712	431	56.61	458	62.62	484	68.69	509	75.10	557	88.88	605	104.31
72000	3930	442	63.87	467	69.93	492	76.18	516	82.49	563	96.72	608	111.96
76000	4148	453	71.46	476	77.52	500	84.08	524	90.94	569	104.87	612	120.10
80000	4367	464	79.41	487	86.33	509	92.79	532	99.86	576	114.07	618	129.58
84000	4585	477	88.91	498	95.51	519	102.31	541	109.71	583	123.88	625	140.12

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

Size 48

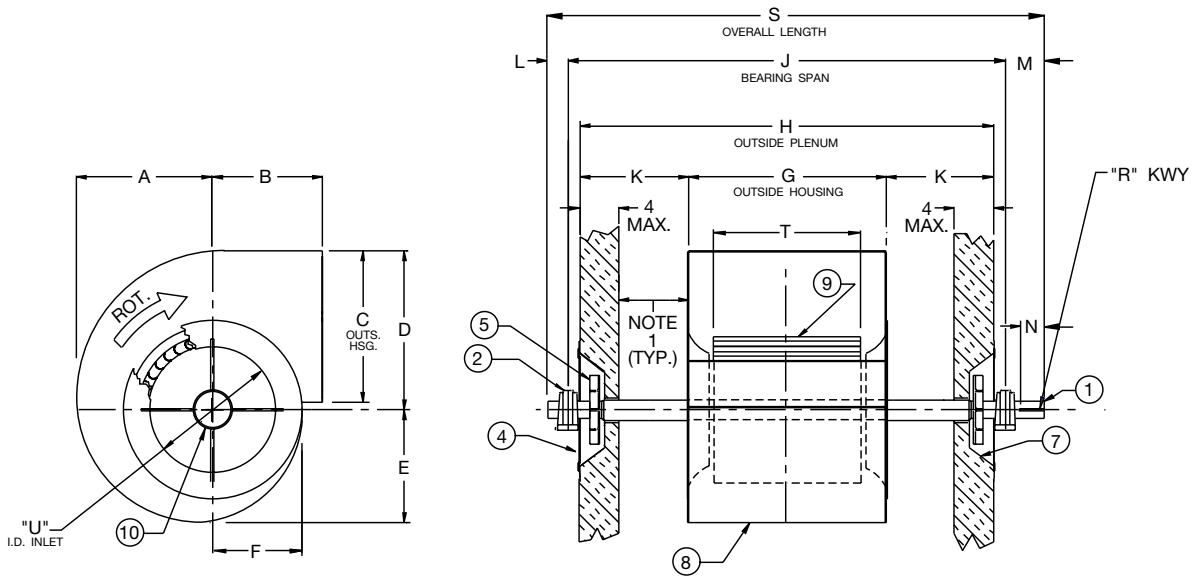
Outlet Area: 22.45 ft² **Wheel Dia.: 48.25"** **Tip Speed: 12.57 x RPM**

CFM	OV	0.25" SP		0.50" SP		0.75" SP		1" SP		1.5" SP		2" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
20000	891	109	1.31										
24000	1069	113	1.72	152	3.02								
28000	1247	119	2.32	154	3.65								
32000	1425	126	3.04	158	4.46	187	6.12						
36000	1604	135	4.02	163	5.47	190	7.17	216	9.19				
40000	1782	143	5.06	169	6.69	195	8.54	218	10.46				
44000	1960	153	6.51	176	8.12	200	10.08	222	12.05	264	16.74		
48000	2138	162	8.03	184	9.82	206	11.91	227	13.96	267	18.85	305	24.41
52000	2316	172	9.92	193	11.88	213	14.03	232	16.08	270	20.98	306	26.68
56000	2494	183	12.26	202	14.19	220	16.27	238	18.54	275	23.72	308	29.22
60000	2673	193	14.68	211	16.77	228	18.91	245	21.35	279	26.43	312	32.35
64000	2851	203	17.39	220	19.60	237	22.06	253	24.58	285	29.94	316	35.65
68000	3029	214	20.68	230	23.00	246	25.52	261	28.05	291	33.64	321	39.55
72000	3207	225	24.33	240	26.73	255	29.29	269	31.78	298	37.83	326	43.73
76000	3385	235	28.02	250	30.82	264	33.38	278	36.17	305	42.18	332	48.55
80000	3563	246	32.45	260	35.27	274	38.22	287	40.93	313	47.17	339	54.02
84000	3742	257	37.30	271	40.53	283	43.00	296	46.05	321	52.46	345	59.16
88000	3920	268	42.59	281	45.78	293	48.61	306	52.05	329	58.06	353	65.52
92000	4098	279	48.35	292	51.97	303	54.65	315	57.96	338	64.58	361	72.19
96000	4276	291	55.16	302	58.08	314	61.71	325	64.84	347	71.55	369	79.19
100000	4454	302	61.96	313	65.26	324	68.68	335	72.20	356	78.96	377	86.55
104000	4633	313	69.27	324	72.98	334	76.12	345	80.05	365	86.82	386	95.04

CFM	OV	2.5" SP		3" SP		3.5" SP		4" SP		5" SP		6" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
60000	2673	343	38.75	373	45.56								
64000	2851	346	42.27	375	49.34	403	56.76						
68000	3029	350	46.23	377	53.15	404	60.70	431	69.00				
72000	3207	354	50.40	381	57.83	406	65.15	432	73.52				
76000	3385	359	55.30	385	62.67	409	70.05	434	78.61	482	96.48		
80000	3563	364	60.52	389	67.76	413	75.57	437	84.23	483	102.12		
84000	3742	370	66.51	394	73.73	418	81.91	440	89.90	484	107.82	528	127.95
88000	3920	376	72.71	399	80.03	422	88.00	444	96.36	487	114.83	529	134.72
92000	4098	383	79.68	405	87.21	427	95.10	449	103.81	490	121.86	531	142.35
96000	4276	390	86.85	411	94.62	433	103.24	454	111.70	494	129.79	533	149.95
100000	4454	398	94.95	418	102.95	439	111.70	459	120.00	499	138.84	536	158.37
104000	4633	405	102.65	425	111.49	445	120.41	465	129.45	503	147.46	540	167.83

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

Single Fan Assembly



BILL OF MATERIALS				
ITEM	DESCRIPTION	DWG.	FURN. BY	
			TCF	OTHER
1	SHAFT "P" DIAMETER WITH "Q" DIAMETER TURNDOWN			
2	BEARING "Q" DIAMETER			
3	HIGH-EXPANSION BEARING MODIFICATION	BC12895		
4	COOLER GUARD	BS12895		
5	SHAFT COOLER "Q" BORE	BS12895		
6	SHAFT SEAL (NOT SHOWN)	BS12895		
7	RECESS CONE	BS12895		
8	HOUSING	SHOWN		
9	WHEEL	SHOWN		
10	STRAIGHTENING VANES	BS12895		
11	MOTOR			
12	V-BELT DRIVE			

NOTES:
1. CLEARANCE = "K" MINUS INSULATION THICKNESS.
2. MAX. RPM = 100 HP

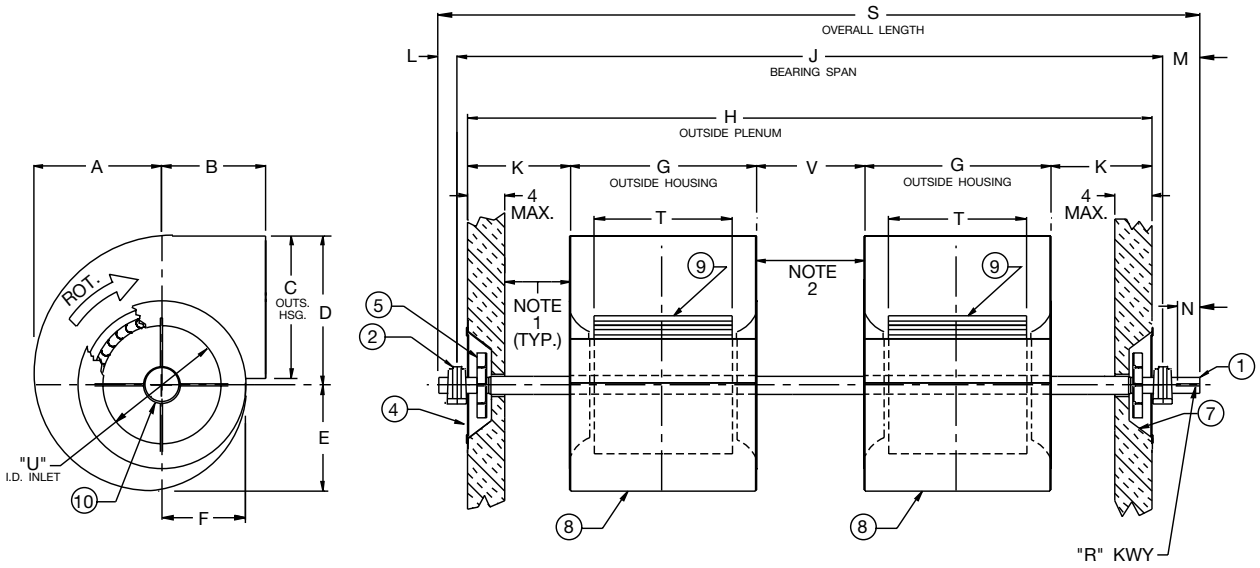
FAN SIZE	WHEEL DIA.	MAX RPM
12	12.25	2228
15	15.25	1783
18	18.25	1485
21	21.25	1273
24	24.00	1114
27	27.00	990
30	30.00	891
33	33.00	810
36	36.25	743
39	39.25	686
42	42.25	637
48	48.25	515

FAN SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
12	11.13	9.38	12.50	12.88	9.38	7.75	16.25	32.25	34.25	8	1.50	5.00	2.5	1.437	1.437	.38x.19	40.75	12.00	9.94
15	13.88	11.13	16.00	16.25	11.50	9.13	20.25	38.25	40.25	9	1.69	5.19	2.5	1.687	1.687	.38x.19	47.13	15.00	12.31
18	16.56	13.25	18.50	19.44	13.69	10.81	23.50	43.50	46.00	10	1.81	7.31	4.0	2.187	2.187	.50x.25	55.13	18.00	15.00
21	19.38	14.75	22.00	22.63	16.13	12.88	28.13	50.13	53.13	11	2.06	7.56	4.0	2.187	2.187	.50x.25	62.75	21.00	18.13
24	22.25	17.19	24.88	25.88	18.63	15.00	31.63	55.63	59.13	12	2.31	7.81	4.0	2.437	2.437	.63x.31	69.25	24.00	20.50
27	25.00	18.00	29.00	29.13	20.88	16.75	34.63	60.63	63.13	13	2.75	8.13	4.0	2.437	2.437	.63x.31	74.00	27.00	23.25
30	27.75	20.31	30.63	32.38	23.13	18.50	40.25	68.25	70.75	14	3.00	8.38	4.0	2.687	2.687	.63x.31	82.13	30.00	24.56
33	30.38	22.38	33.88	35.56	25.19	20.00	44.75	74.75	77.25	15	3.00	8.38	4.0	2.687	2.687	.63x.31	88.63	33.13	28.50
36	33.75	24.50	38.38	39.50	28.00	22.25	47.75	79.75	82.25	16	2.75	8.13	4.0	2.937	2.437	.63x.31	93.13	36.25	30.00
39	36.00	26.00	40.88	42.00	30.00	24.00	53.75	87.75	90.75	17	3.06	8.31	4.0	3.437	2.937	.75x.38	102.13	38.88	33.00
42	38.75	27.88	44.00	45.13	32.38	26.00	60.25	96.25	99.25	18	3.06	8.31	4.0	3.437	2.937	.75x.38	110.63	41.88	36.50
48	44.31	31.50	49.81	51.63	37.00	29.69	65.25	105.25	108.25	20	3.06	8.31	4.0	3.437	2.937	.75x.38	119.63	48.00	40.00

AC12891D

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

Twin Fan Assembly



BILL OF MATERIALS				
ITEM	DESCRIPTION	DWG.	FURN. BY	
			TCF	OTHER
1	SHAFT “P” DIAMETER WITH “Q” DIAMETER TURNDOWN			
2	BEARING “Q” DIAMETER			
3	HIGH-EXPANSION BEARING MODIFICATION	BC12895		
4	COOLER GUARD	BS12895		
5	SHAFT COOLER “Q” BORE	BS12895		
6	SHAFT SEAL (NOT SHOWN)	BS12895		
7	RECESS CONE	BS12895		
8	HOUSING	SHOWN		
9	WHEEL	SHOWN		
10	STRAIGHTENING VANES	BS12895		
11	MOTOR			
12	V-BELT DRIVE			

NOTES:
1. CLEARANCE = “K” MINUS INSULATION THICKNESS.
2. CLEARANCE = APPROXIMATELY 2/3 WHEEL DIAMETER.
3. MAX. RPM GIVEN IS AT 70°F.

Twin Fan Assembly

FAN SIZE	WHEEL DIA.	A	B	C	D	E	F	G	H	K	N	T	U	V
12	11.13	12.25	9.38	12.50	12.88	9.38	7.75	16.25	56.50	8.00	4.00	12.00	9.94	8.00
15	13.88	15.25	11.13	16.00	16.25	11.50	9.13	20.25	68.50	9.00	4.00	15.00	12.31	10.00
18	16.56	18.25	13.25	18.50	19.44	13.69	10.81	23.50	79.00	10.00	4.00	18.00	15.00	12.00
21	19.38	21.25	14.75	22.00	22.63	16.13	12.88	28.13	92.25	11.00	4.00	21.00	18.13	14.00
24	22.25	24.00	17.19	24.88	25.88	18.63	15.00	31.63	103.25	12.00	4.00	24.00	20.50	16.00
27	25.00	27.00	18.00	29.00	29.13	20.88	16.75	34.63	113.25	13.00	4.00	27.00	23.25	18.00
30	27.75	30.00	20.31	30.63	32.38	23.13	18.50	40.25	128.50	14.00	4.00	30.00	24.56	20.00
33	30.38	33.00	22.38	33.88	35.56	25.19	20.00	44.75	141.50	15.00	4.00	33.13	28.50	22.00

FAN SIZE	SHAFT DESIGN "A"								SHAFT DESIGN "B"							
	J	L	M	P	Q	R	S	MAX. RPM	J	L	M	P	Q	R	S	MAX. RPM
12	59.00	2.19	7.56	2.44	2.44	0.63x0.31	68.75	1584	59.50	2.31	7.69	2.69	2.69	0.63x0.31	69.50	1868
15	71.50	2.31	7.69	2.69	2.69	0.63x0.31	81.50	1335	71.00	2.19	7.56	2.94	2.44	0.63x0.31	80.75	1542
18	82.00	2.31	7.69	2.69	2.69	0.63x0.31	92.00	983	81.50	2.19	7.56	2.94	2.44	0.63x0.31	91.25	1135
21	95.25	2.31	7.69	2.69	2.69	0.63x0.31	105.25	740	94.75	1.81	7.31	2.94	2.19	0.50x0.25	103.88	853
24	105.25	1.81	7.31	2.94	1.94	0.50x0.25	114.38	641	106.75	2.31	7.69	3.44	2.44	0.63x0.31	116.75	768
27	115.75	1.81	7.31	2.94	2.19	0.50x0.25	124.88	551	116.75	2.31	7.69	3.44	2.44	0.63x0.31	126.75	640
30	131.00	1.81	7.31	3.44	2.19	0.50x0.25	140.13	480	131.50	2.75	8.13	3.94	2.44	0.63x0.31	142.38	596
33	145.00	2.31	7.69	3.44	2.44	0.63x0.31	155.00	445	144.50	2.75	8.13	3.94	2.44	0.63x0.31	155.38	492

FAN SIZE	SHAFT DESIGN "C"								SHAFT DESIGN "D"							
	J	L	M	P	Q	R	S	MAX. RPM	J	L	M	P	Q	R	S	MAX. RPM
12	59.00	1.81	7.31	2.94	2.31	0.50x0.25	68.13	2162	—	—	—	—	—	—	—	—
15	72.00	2.31	7.69	3.44	2.44	0.63x0.31	82.00	1782	—	—	—	—	—	—	—	—
18	82.50	2.31	7.69	3.44	2.44	0.63x0.31	92.50	1257	82.00	2.75	8.13	3.94	2.44	0.63x0.31	92.88	1485
21	95.75	2.31	7.69	3.44	2.44	0.63x0.31	105.75	959	95.25	2.75	8.13	3.94	2.44	0.63x0.31	106.13	1190
24	106.25	3.00	8.38	3.94	2.69	0.63x0.31	117.63	953	106.25	3.00	8.38	4.44	2.94	0.75x0.38	117.63	1100
27	116.25	2.75	8.13	3.94	2.44	0.63x0.31	127.13	794	116.25	3.00	8.38	4.44	2.94	0.75x0.38	127.63	918
30	131.25	3.00	8.38	4.44	2.69	0.63x0.31	142.88	697	131.50	3.00	8.38	4.94	2.94	0.75x0.38	142.88	807
33	144.50	3.00	8.38	4.44	2.69	0.63x0.31	155.88	577	144.50	3.00	8.38	4.94	2.94	0.75x0.38	155.88	668

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

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