



FC SERIES FANS

Performance Charts | FCPC-1



How to Use Tables

For a given fan size, wheel design, CFM, and static pressure; capacity tables can be used to obtain outlet velocity, wheel RPM and GHP. If capabilities are at conditions other than 70°F., sea level or standard density, correction factors must be applied to static pressure and BHP.

1. Select size, RPM and BHP of fan from capacity table.
2. If temperature or altitude is involved, correct for air density (see charts III and IV).
3. Check the maximum safe speed of the fan at the operating temperature as shown in chart I and II.
4. All ratings shown between the gray lines on capacity tables are within five percent of maximum mechanical efficiency.
5. BHP shown includes bearing drag on smaller sizes where such drag is significant.

Example: Size FC-13 Fan, to furnish 1840 CFM at 5"SP at 600°F. at .075 lbs./cu. ft. density.

1. Chart I gives a 2.00 factor for 600°F.
2. 5"SPx2.00=10"SP at 70°F.
3. Capacity tables show 1915 RPM, 5.37 BHP for FC-13 at 1840 CFM at 10"SP at 70°F.
4. Divide BHP and SP by the temperature factor.
 $10 \div 2.00 = 5"SP$
 $5.37 \div 2.00 = 2.68 BHP$
5. Actual performance: 1840 CFM at 5"SP at 1915 RPM at 2.63 BHP at 600°F.

Note: Unless otherwise specified static pressure is given in inches of water column.

CHART I
MAXIMUM SAFE RPM OF MILD STEEL
WHEELS AT VARIOUS TEMPERATURES

SIZE	70°-400°	500°	600°	700°
FC5	4815	4650	4525	4390
FC7	4690	4530	4410	4275
FC9	3650	3525	3430	3330
FC11	3460	3340	3250	3155
FC13	2930	2830	2755	2670
FC15	2530	2440	2380	2305
FC17	2230	2155	2095	2035
FC19	2000	1930	1880	1824
FC21	1810	1750	1700	1650
FC23	1650	1595	1550	1505
FC26	1460	1410	1370	1330
FC29	1310	1265	1230	1195
FC33	1150	1110	1080	1050
FC37	1020	985	960	930
FC41	930	900	875	845
FC45	840	810	790	765
FC49	770	745	725	700

CHART II
MAXIMUM SAFE SPEED FACTORS
FOR ALLOY WHEEL CONSTRUCTION

TEMP	ALUM.	304 STAIN-LESS	316 STAIN-LESS	347 STAIN-LESS
70	1	1	.25	1
200	.97	.89	.32	1
300	—	.82	.88	.99
400	—	.78	.86	.97
500	—	.75	.83	.97
600	—	.73	.8	.97
700	—	.71	.78	.96
800	—	.7	.77	.96
900	—	.68	.76	.95
1000	—	—	.75	.94

CHART III
CORRECTION
FACTORS FOR
TEMPERATURE (F°)

TEMP	FACTOR
-50	.77
-25	.82
0	.87
20	.91
40	.94
60	.98
70	1
80	1.02
100	1.06
120	1.09
140	1.13
160	1.17
180	1.21
200	1.25
225	1.29
250	1.34
275	1.39
300	1.43
325	1.48
350	1.53
375	1.58
400	1.62
450	1.72
500	1.81
550	1.91
600	2
650	2.1
700	2.19
750	2.28
800	2.38

CHART IV
CORRECTION FACTORS
FOR ALTITUDE
(FEET ABOVE SEA LEVEL)

ALT.	FACTOR
0	1
500	1.02
1000	1.04
1500	1.06
2000	1.08
2500	1.1
3000	1.12
3500	1.14
4000	1.16
4500	1.18
5000	1.2
5500	1.24
6000	1.26
6500	1.28
7000	1.3
7500	1.32
8000	1.35
8500	1.37
9000	1.4
10000	1.45

Note: If correction factor for both temperature and altitude is required, multiply factors from charts III and IV together: 3000° and 600° F.

1.12 x 2.00 = 2.34 (combined factor).



FC-11

Inlet diameter: 11" O.D. Wheel diameter: 19 1/8" Wheel Circumference: 5.01' Fan Outlet Area: .66 sq. ft. inside

Table with 13 columns (CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP) and 33 rows of performance data for FC-11 fans.

FC-13

Inlet diameter: 13" O.D. Wheel diameter: 22 5/8" Wheel Circumference: 5.92' Fan Outlet Area: .92 sq. ft. inside

Table with 13 columns (CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP) and 33 rows of performance data for FC-13 fans.



FC-19

Inlet diameter: 19" O.D. Wheel diameter: 33" Wheel Circumference: 8.64' Fan Outlet Area: 1.97 sq. ft. inside

Table with 13 columns (CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP) and 20 rows of performance data.

FC-21

Inlet diameter: 21" O.D. Wheel diameter: 36 1/2" Wheel Circumference: 9.56' Fan Outlet Area: 2.41 sq. ft. inside

Table with 13 columns (CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP) and 20 rows of performance data.



FC-45

Inlet diameter: 45" O.D. Wheel diameter: 78 1/4" Wheel Circumference: 20.49' Fan Outlet Area: 11.04 sq. ft. inside

Table with columns: CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP. Each column contains RPM and BHP values for various fan configurations.

FC-49

Inlet diameter: 49" O.D. Wheel diameter: 85 1/4" Wheel Circumference: 22.3' Fan Outlet Area: 13.17 sq. ft. inside

Table with columns: CFM OV, 4" SP, 5" SP, 6" SP, 7" SP, 8" SP, 9" SP, 10" SP, 12" SP, 14" SP, 16" SP, 18" SP, 20" SP. Each column contains RPM and BHP values for various fan configurations.

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