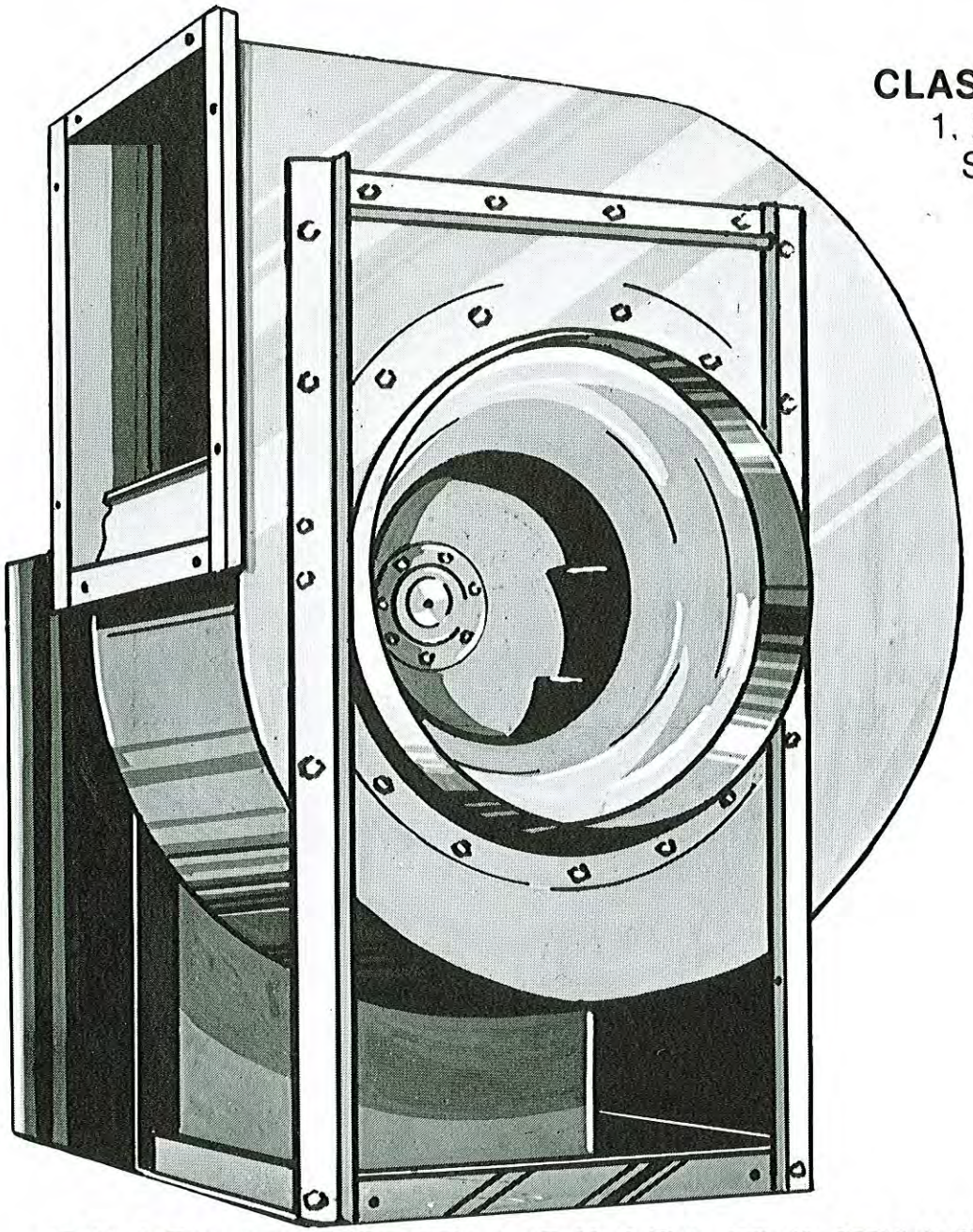
REVERSOMATIC

HEATING AND MANUFACTURING LIMITED

BACKWARD INCLINED BLADE
CENTRIFUGAL FANS



CLASSES
1, 2 & 3
SIZES
30
33
36
40
44
49
54
60

SINGLE WIDTH, SINGLE INTAKE
DOUBLE THICKNESS AIR FOIL BLADE

REVERSOMATIC HEATING AND MANUFACTURING LTD. has realized the needs of the market for Backward Inclined fans in 30", 33", 36", 40", 44" 49", 54"& 60" wheel diameter ranges. We have developed these fans following strict engineering guidelines to provide rugged construction, high efficiency, low power requirements, along with stable performance and quiet operation.

AMCA CLASS LIMITS

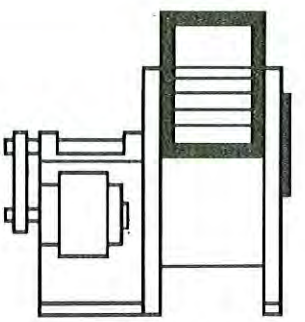
The class operating limits have been defined at certain CFM and Static Pressure in accordance with AMCA standard 2408-69. Standard information in Class 1, 2 and 3 fans is provided in this catalogue.

SOUND

Sound power levels are shown in a table on each performance curve for the area of maximum efficiency; sound levels outside this area can be approximately compensated by further addition of the indicated dB values for the lower efficiency areas, as defined by the radial lines on each performance curve.

FEATURES

- ARRANGEMENT
  The Reversomatic Fan has been designed to comply with Arrangement No. 10, with blower wheel overhung, belt drive, two bearings and motor inside base. Alternate arrangements can be supplied on request.



Arrangement No. 10

- SPUN INLET NOZZLE
  The nozzle is manufactured with heavy-gauge spun-steel to provide a smooth and quiet airflow into the blower wheel, assuring efficient performance at all operating levels.

- HOUSING
  Fan scrolls are designed to provide optimum efficiency through all the CFM range. Housings are air tight seamed and braced with plate and angle to eliminate drumming and for increased rigidity and mechanical efficiency.

- BLOWER WHEEL
  Wheels have stream-lined and double-thickness air foil blades. Blades are die-formed and jig-welded to the shroud and back plate to achieve maximum design efficiency.
  Shrouds are spun to maintain minimum inlet clearance. All wheels have heavy duty cast iron hubs.

- BEARING SUPPORTS
  Heavy duty bearing supports of structural steel prevent distortions due to belt pull and maintain accurate alignment of the moving parts.

- SHAFT
  Shafts are machined or ground to the adecuate allowances and tolerances that provide appropriate fits with bearings and hubs. Hubs are keyed to the shafts. Shafts are designed to tolerate at least 5% increase in speed over the maximum for each class limit.

- BEARINGS
  Grease lubricated antifriction ball or roller bearings are standard. They are designed for an average life expectancy of at least 150,000 hours.

- BALANCING
  Static and dynamic balancing, for both single plane and two plane components, assures quiet operation and maximum efficiency.

- FLANGED OUTLETS
  Standard on all classes of construction.

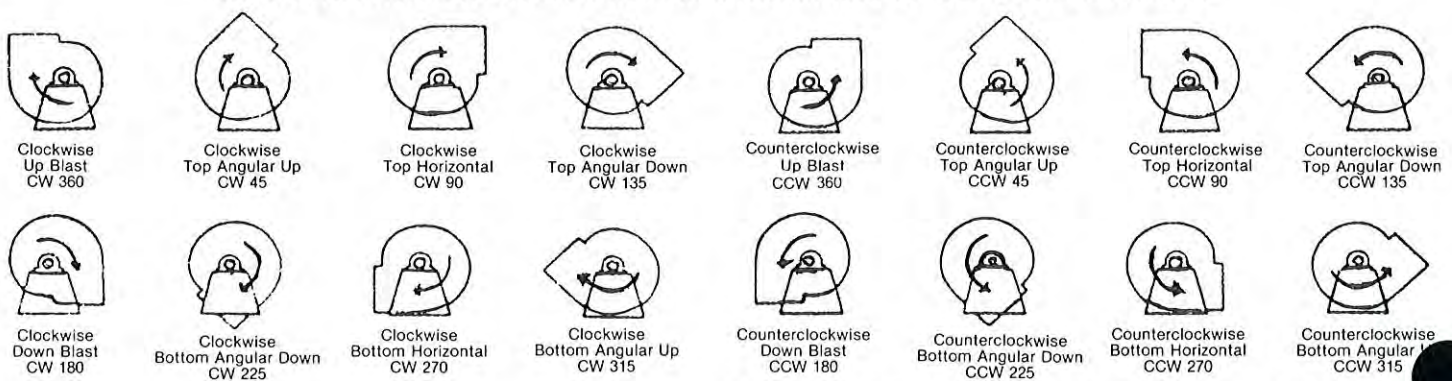
ACCESSORIES

- Access Doors on Fan Scrolls
- Plugged Drain in Lowest Part of Scroll
- Shaft Seals of Compressed Asbestos
- Inlet Bird Screen
- Intake and Exhaust Motorized Dampers
- Discharge Angles

APPLICATION

- To Pressurize Staircase & Elevator Shafts
- Air Make-Up
- Extraction of Fumes
- Kitchen Exhaust
- Dust Exhausting

DESIGNATIONS FOR ROTATION AND DISCHARGE OF CENTRIFUGAL FANS



Notes:

1. Direction of rotation is determined from drive side of fan.
2. On single inlet fans, drive side is always considered as the side opposite fan inlet.
3. On double inlet fans with drives on both sides, drive side is that with the higher powered drive under.
4. Direction of discharge is determined in accordance with diagrams. Angle of discharge is referred to the vertical axis of fan and designated in degrees from such standard reference axis. Angle of discharge may be any intermediate angle as required.
5. For fan inverted for ceiling suspension, or side wall mounting, direction of rotation and discharge is determined when fan is resting on floor.

START TIMES and WK^2

Some low horsepower motors, when utilized to move large diameter wheels, might not be able to start the fan within a reasonable time. The next table indicates the different start times:

10 seconds or less:	Satisfactory
11 to 15 seconds:	Probably satisfactory
15 to 20 seconds:	Check with starter and motor manufacturer
Over 20 seconds:	Not recommended

The start times of the fans shown in this catalogue can be approximately calculated using the following formula:

$$t = \frac{WK^2 \times N^2 (N/Nm)^2}{1.62 + HPm}$$

t = Start time in seconds
WK^2 = Blower wheel moment of inertia lb x ft^2
N = Fan speed in 1000's of rpm
Nm = Motor speed in 1000's of rpm
HPm = Motor Horsepower

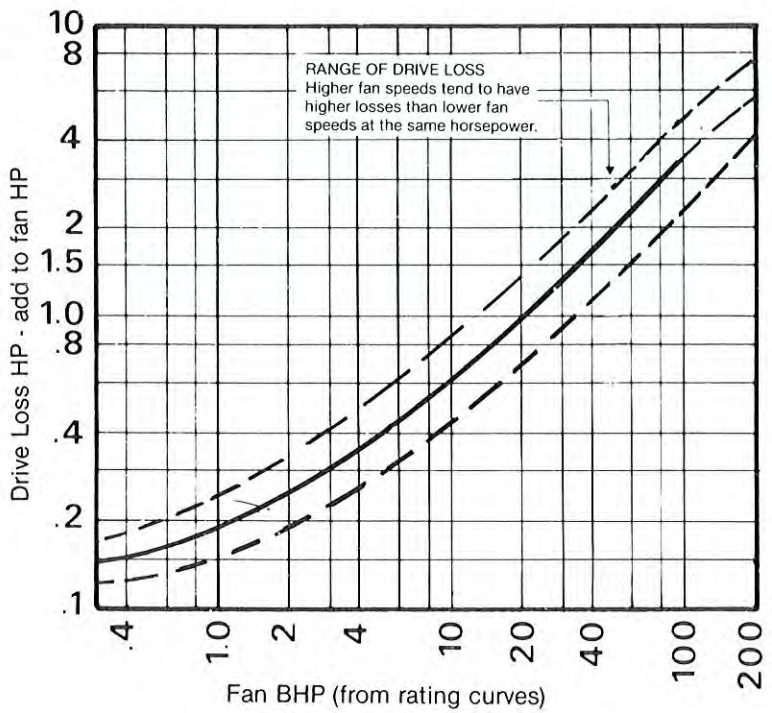
WK^2 Values, lb. ft^2

MODEL	CLASS 1	CLASS 2	CLASS 3
30	97	97	118
33	152	152	176
36	218	218	255
40	365	365	431
44	732	732	870
49	1116	1116	1268
54	1733	1733	1809
60	2845	2845	3536

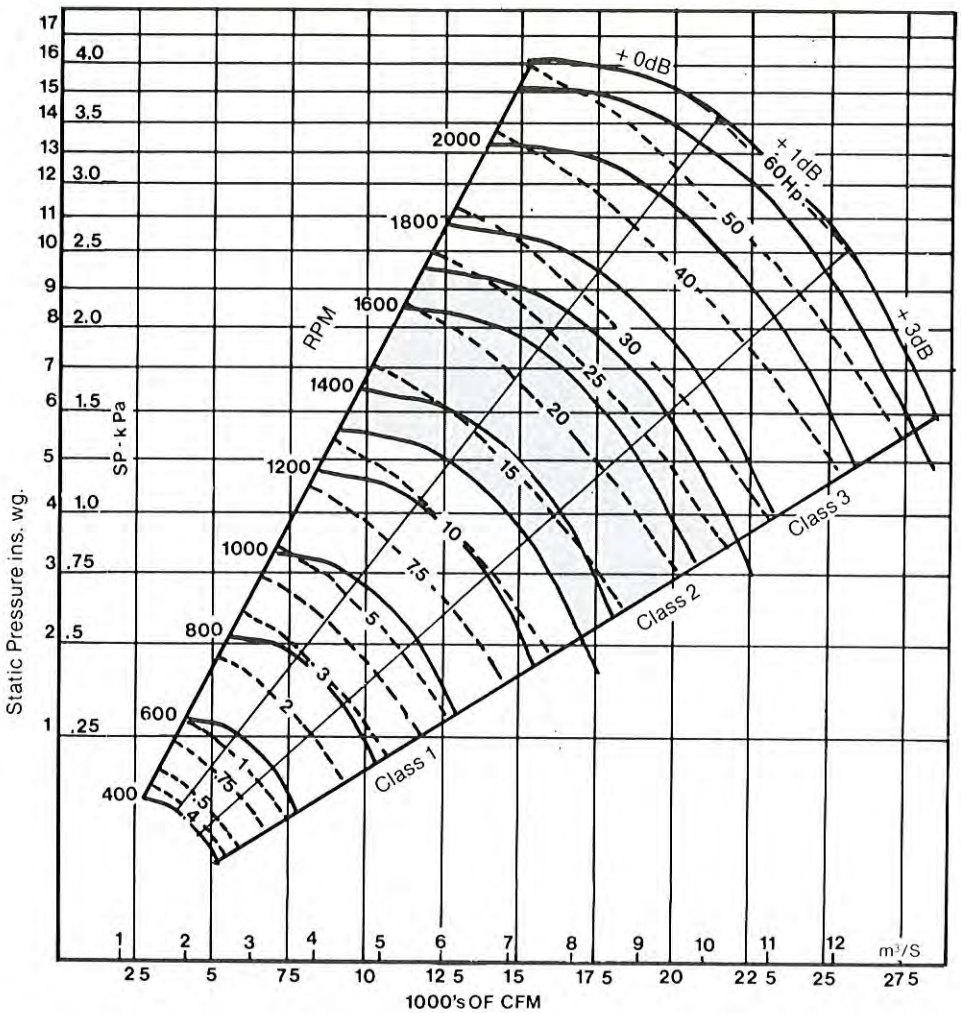
DRIVE LOSSES

Belt driven fans require a horsepower allowance for drive losses. This allowance must be added to the horsepower obtained from the rating curves. The curve shown in figure 1 is based on test and experience and indicates the horsepower to be added to the fan for compensation of drive losses.

Fig. 1



Model 30



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 30"

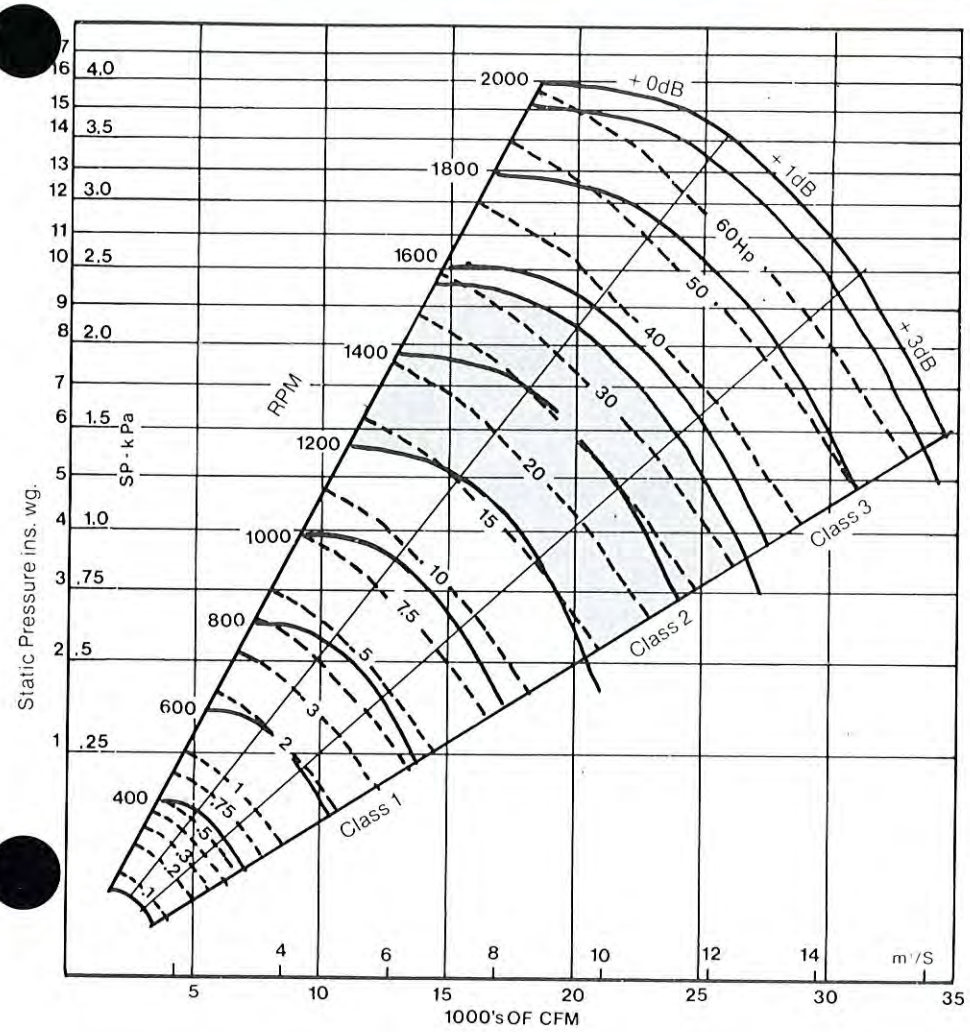
O.A. = 5.17 ft^2

MAX. BHP = $5.66(\frac{RPM}{1000})^3$

	Octave Bands Mid Frequency — Hz							
RPM	63	125	250	500	1000	2000	4000	8000
400	70	63	59	59	59	57	50	44
600	83	75	69	67	69	68	62	56
800	91	85	78	74	74	75	71	65
1000	97	93	84	79	78	80	78	72
1200	101	98	90	84	82	84	83	78
1400	104	102	96	89	86	87	86	82
1600	106	106	100	93	89	89	89	87
1800	108	109	104	96	92	91	92	90
2000	110	112	108	100	94	93	95	93
2200	112	115	111	103	97	96	97	96

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3500	677																		
4000	774	527	0.80																
4500	870	546	0.91																
5000	967	567	1.04																
5500	1064	589	1.19	740	2.18														
6000	1161	612	1.35	758	2.40														
6500	1257	635	1.54	777	2.64														
7000	1354	660	1.75	799	2.89														
7500	1451	688	1.98	821	3.18	1037	5.93												
8000	1518	718	2.24	843	3.49	1053	6.35												
8500	1644	748	2.52	866	3.63	1071	6.79												
9000	1741	780	2.83	888	4.20	1090	7.26	1264	10.65										
9500	1838	812	3.17	912	4.60	1111	7.76	1279	11.26										
10000	1934	845	3.54	938	5.04	1133	8.28	1295	11.90										
11000	2128	912	4.37	996	5.99	1177	9.45	1333	13.27	1476	17.36								
12000	2321			1057	7.09	1222	10.77	1374	14.78	1510	19.08	1639	23.60						
13000	2515			1120	8.35	1267	12.26	1418	16.47	1549	20.98	1672	25.72	1790	30.64				
14000	2708			1185	9.77	1317	13.95	1462	18.32	1591	23.02	1709	27.97	1821	33.11	1930	38.42		
15000	2902			1251	11.38	1373	15.80	1509	20.41	1635	30.43	1749	30.43	1857	35.79	1961	41.29	2062	46.97
16000	3095			1318	13.17	1433	17.84	1554	22.66	1679	33.06	1793	33.06	1896	38.62	1996	44.34		
17000	3288					1494	20.08	1604	25.18	1725	35.92	1836	35.92	1938	41.66	2035	47.64		
18000	3482					1557	22.55	1658	27.90	1770	39.02	1880	39.02	1982	44.94	2076	51.13		
19000	3675					1621	25.24	1717	30.83	1818	42.40	1926	42.40	2026	48.50	2119	54.80		
20000	3869					1687	28.19	1777	34.02	1869	46.02	1971	52.29	2070	52.29				
22000	4256					1820	34.87	1902	41.16	1983	54.16	2068	60.77	2161	60.77				
24000	4643							2031	49.45	2105	63.42	2179	70.51						

Model 33



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 33"

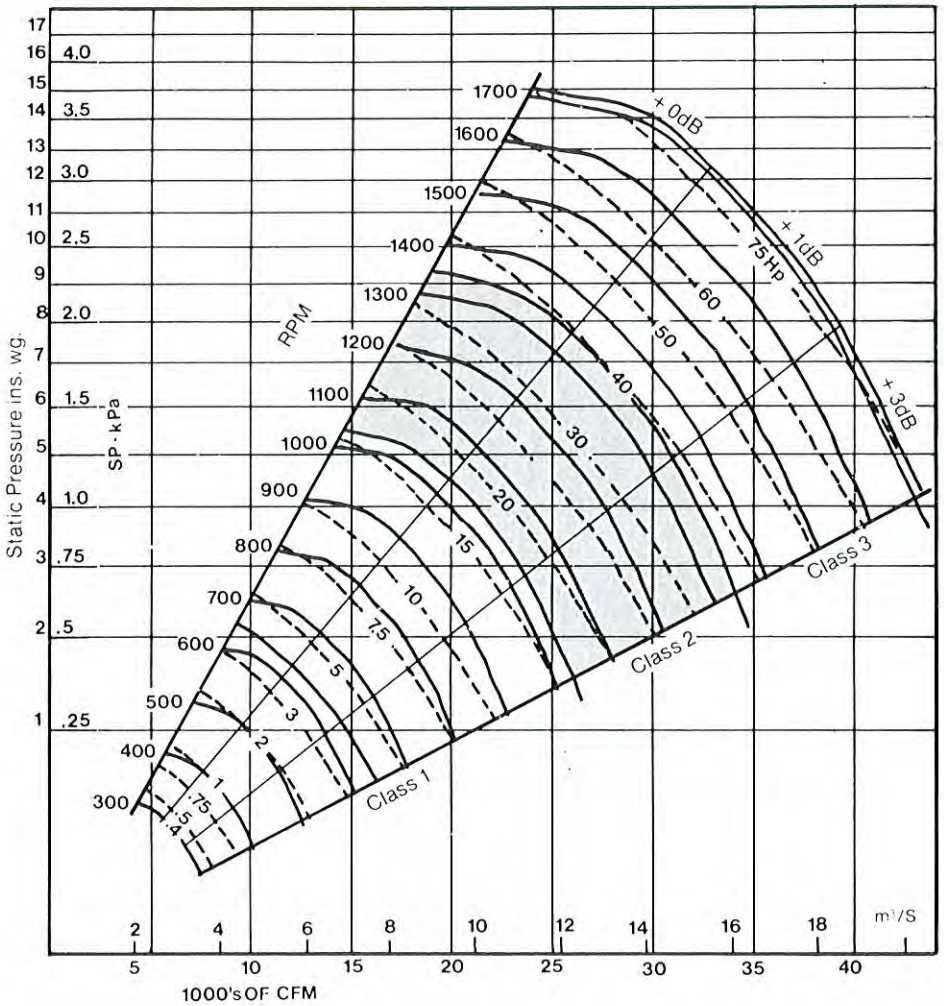
O.A. = 6.26 ft²

MAX. BHP = $9.12\left(\frac{RPM}{1000}\right)^3$

	Octave Bands Mid Frequency — Hz							
RPM	63	125	250	500	1000	2000	4000	8000
200	51	47	47	47	44	39	31	25
400	73	66	62	62	62	60	53	47
600	86	78	72	70	72	71	65	59
800	94	88	81	77	77	78	74	68
1000	100	96	87	82	81	83	81	75
1200	103	101	93	87	85	87	86	81
1400	106	105	99	92	89	90	89	85
1600	108	109	103	96	92	92	92	89
1800	111	112	107	99	95	94	95	93
2000	112	115	111	102	97	96	98	96

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5000	799	479	1.00																
5500	879	492	1.11																
6000	959	506	1.23																
6500	1038	522	1.37	665	2.60														
7000	1118	538	1.53	676	2.79														
7500	1198	556	1.71	688	3.01														
8000	1278	575	1.91	701	3.23														
8500	1358	595	2.12	715	3.49														
9000	1438	616	2.36	731	3.77	936	7.19												
9500	1518	638	2.61	747	4.06	946	7.56												
10000	1598	660	2.89	764	4.39	957	7.97												
11000	1757	707	3.53	801	5.14	982	8.84	1145	13.16										
12000	1917	756	4.27	840	5.97	1010	9.82	1165	14.30										
13000	2077	805	5.12	882	6.93	1041	10.94	1189	15.58	1327	20.67								
14000	2237	856	6.09	927	8.01	1075	12.21	1215	16.95	1347	22.21								
15000	2397			973	9.22	1110	13.63	1245	18.50	1372	23.93	1491	29.70						
16000	2556			1021	10.58	1148	15.20	1276	20.19	1397	25.73	1513	31.74	1623	38.04				
17000	2716			1069	12.10	1187	16.91	1310	22.08	1426	27.74	1537	33.86	1644	40.33	1746	47.09		
18000	2876			1119	13.77	1229	18.80	1345	24.15	1457	29.93	1564	36.16	1667	42.80	1766	49.75	1862	56.96
19000	3036			1169	15.62	1273	20.84	1381	26.45	1489	32.31	1592	38.67	1692	45.44	1788	52.59		
20000	3195			1220	17.53	1318	23.06	1419	28.86	1523	34.92	1623	41.38	1719	48.28	1812	55.56		
22000	3515					1412	28.11	1502	34.32	1595	40.83	1688	47.47	1779	54.61	1866	62.10		
24000	3834					1508	34.00	1590	40.56	1673	47.46	1759	54.57	1844	61.87				
26000	4154					1608	40.79	1682	47.75	1757	55.05	1835	62.58	1914	70.27				
28000	4473					1709	48.58	1777	55.95	1846	63.59	1917	71.62						
30000	4793							1875	65.26	1938	73.23	2003	81.57						

Model 36



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 36½"

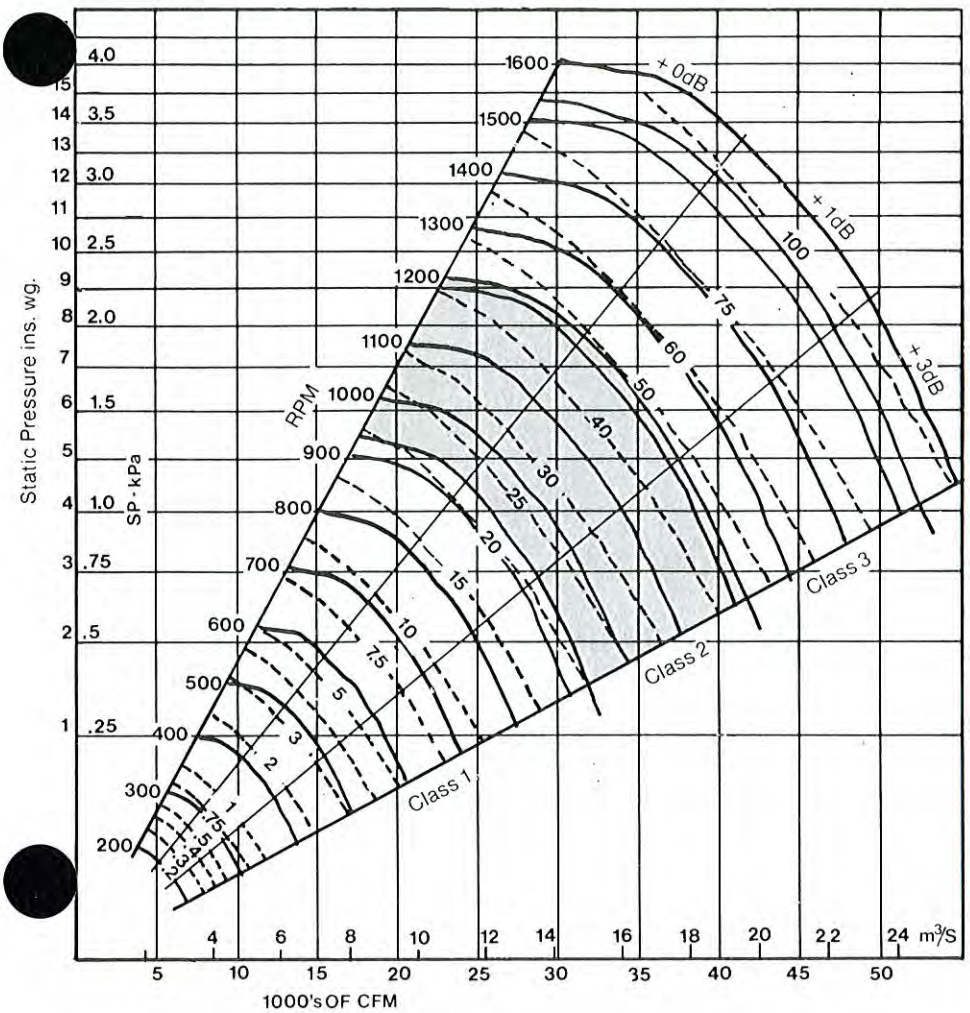
O.A. = 7.66 ft²

MAX. BHP = $16.53 \left(\frac{RPM}{1000}\right)^3$

	Octave Bands Mid Frequency — Hz							
RPM	63	125	250	500	1000	2000	4000	8000
300	66	60	56	53	52	48	43	37
400	78	67	65	60	58	57	51	46
500	85	74	71	66	63	63	58	52
600	90	82	75	71	68	67	63	58
700	94	88	79	76	72	70	68	62
800	98	93	82	80	75	73	72	66
900	101	97	85	83	78	75	75	70
1000	103	100	89	86	81	78	78	73
1100	104	103	93	88	84	80	80	76
1200	106	105	96	90	86	83	82	79
1300	107	107	100	92	89	85	83	81
1400	108	109	103	94	91	87	85	83
1500	110	111	105	96	93	88	86	85
1600	111	113	108	97	95	90	88	8
1700	112	114	110	99	96	91	89	

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7000	914	450	1.4																
8000	1045	473	1.7																
9000	1174	498	2.0	619	3.6														
10000	1306	526	2.4	638	4.1														
11000	1437	556	2.9	661	4.6	846	8.8												
12000	1567	589	3.4	685	5.2	861	9.6												
13000	1698	623	4.0	711	5.9	879	10.4												
14000	1828	659	4.7	739	6.7	899	11.3												
15000	1959	695	5.5	769	7.6	920	12.4	1059	17.9										
16000	2090	732	6.3	801	8.6	944	13.5	1077	19.2										
17000	2220	769	7.3	834	9.7	968	14.8	1096	20.6	1216	27.0								
18000	2351	807	8.4	868	10.8	994	16.2	1118	22.1	1233	28.6								
19000	2481	845	9.6	902	12.1	1021	17.7	1140	23.7	1252	30.4								
20000	2612	883	10.9	938	13.6	1050	19.3	1164	25.5	1272	32.3	1375	39.7						
21000	2743	922	12.3	974	15.1	1080	21.1	1189	27.4	1294	34.4	1394	41.9						
22000	3873	961	13.9	1011	16.8	1111	23.0	1215	29.5	1317	36.6	1413	44.2	1506	52.3				
24000	3134			1085	20.6	1176	27.1	1270	34.2	1365	41.5	1456	49.3	1544	57.7	1630	66.5	1712	75.7
26000	3395			1161	25.0	1244	32.0	1329	39.4	1417	47.1	1504	55.2	1587	63.8	1668	72.8		
28000	3657			1237	30.0	1315	37.4	1392	45.3	1473	53.4	1554	61.8	1634	70.6	1711	79.9		
30000	3918			1315	35.7	1387	43.7	1459	51.8	1532	60.4	1608	69.3	1683	78.3	1756	87.7		
32000	4179					1461	50.6	1527	59.2	1595	68.1	1665	77.4	1735	86.8				
34000	4440					1535	58.4	1598	67.4	1660	76.6	1725	86.4						
36000	4701					1611	67.0	1670	76.4	1728	86.1	1788	96.1						
38000	4963					1687	76.5	1743	86.4	1798	96.5								

Model 40



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 40¼"

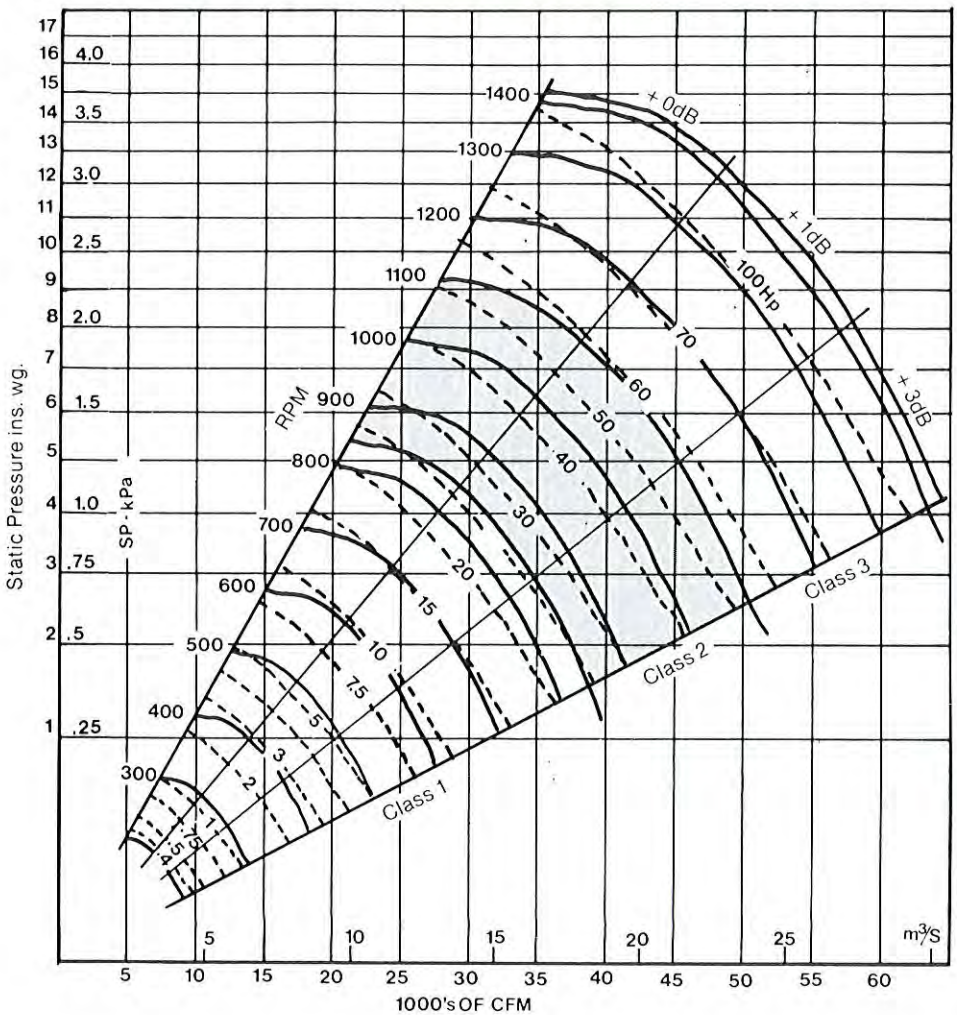
O.A. = 9.31 ft^2

MAX. BHP = $26.96\left(\frac{RPM}{1000}\right)^3$

	Octave Bands Mid Frequency — Hz							
RPM	63	125	250	500	1000	2000	4000	8000
200	55	53	48	46	45	39	33	28
300	69	63	59	56	54	51	46	40
400	81	70	68	63	61	60	54	49
500	88	77	73	69	66	66	61	55
600	93	84	78	74	71	70	66	61
700	97	91	32	79	74	73	71	65
800	101	96	85	83	78	76	75	69
900	104	100	88	86	81	78	78	73
1000	106	103	92	89	84	81	81	76
1100	107	106	96	91	87	83	83	79
1200	109	108	99	93	89	86	85	82
1300	110	110	103	95	92	88	86	84
1400	111	112	106	97	94	89	88	86
1500	113	114	108	98	96	91	89	88
1600	114	116	111	100	98	93	91	90

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
7000	752	388	1.4																
8000	859	401	1.6																
9000	967	416	1.9																
10000	1074	434	2.1																
11000	1181	453	2.5	610	6.0														
12000	1289	473	2.9	629	6.6														
13000	1396	496	3.3	649	7.4														
14000	1504	520	3.8	670	8.2														
15000	1611	545	4.4	692	9.0	768	12.0												
16000	1718	570	5.0	715	10.0	800	12.8												
17000	1826	597	5.7	739	11.0	815	13.8	945	20.3										
18000	1933	624	6.5	764	12.1	831	14.8	957	21.5										
19000	2041	651	7.3	790	13.3	848	15.9	970	22.7										
20000	2148	679	8.2	842	16.0	866	17.1	984	24.1										
21000	2255	707	9.2	896	19.2	884	18.4	999	25.5	1107	33.3								
22000	2363	735	10.3	951	22.7	904	19.8	1015	27.0	1120	35.0								
24000	2577	792	12.8	1007	26.8	845	22.9	1050	30.4	1149	38.7	1243	47.6						
26000	2792	849	15.7	1064	31.3	990	26.5	1087	34.3	1181	42.8	1271	52.0	1357	61.8				
28000	3007			1121	36.4	1037	30.4	1127	38.7	1216	47.4	1301	56.8	1383	66.9	1463	77.4		
30000	3222			1178	42.0	1087	34.9	1169	43.6	1253	52.6	1335	62.3	1413	72.6	1489	83.4		
2000	3437			1236	48.2	1138	39.9	1214	49.0	1293	58.4	1371	68.3	1446	78.8	1518	89.9	1589	101.4
000	3651			1294	55.1	1191	45.4	1261	54.9	1334	64.8	1408	74.9	1480	85.6	1551	97.0		
000	3866					1245	51.5	1311	61.3	1378	71.7	1448	82.3	1517	93.2	1584	104.7		
38000	4081					1299	58.2	1361	68.5	1425	79.2	1490	90.3	1556	101.5	1620	113.2		
40000	4296					1355	65.7	1413	76.3	1473	87.4	1534	98.8	1598	110.7				
44000	4725					1467	82.5	1520	94.0	1573	105.8	1627	118.1						

Model 44



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 44½"

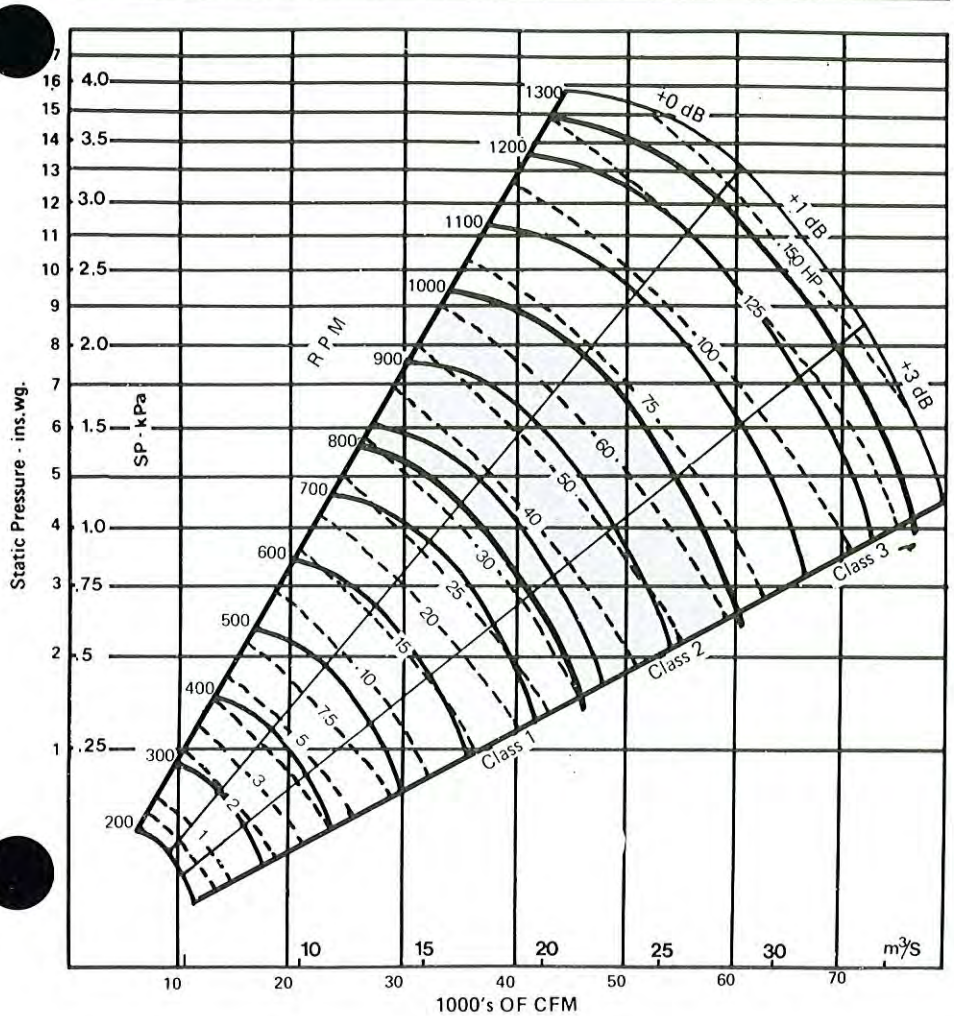
O.A. = 11.39 ft²

MAX. BHP = $44.53 \left(\frac{RPM}{1000}\right)^3$

RPM	Octave Bands Mid Frequency — Hz							
	63	125	250	500	1000	2000	4000	8000
200	58	56	51	49	48	42	36	31
300	72	66	62	59	58	54	49	43
400	84	73	71	66	64	63	57	52
500	91	80	77	72	69	69	64	58
600	96	88	81	77	74	73	69	64
700	100	94	85	82	78	76	74	68
800	104	99	88	86	81	79	78	72
900	107	103	91	89	84	81	81	76
1000	109	106	95	92	87	84	84	79
1100	110	109	99	94	90	86	86	82
1200	112	111	102	96	92	89	88	
1300	113	113	106	98	95	91	89	
1400	114	115	109	100	97	93	91	

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	704																		
9000	792	354	1.7																
10000	879	365	2.0																
11000	967	377	2.2																
12000	1055	390	2.5																
13000	1143	405	2.8	503	5.0														
14000	1231	420	3.2	514	5.5														
15000	1319	436	3.7	526	6.0														
16000	1407	453	4.1	539	6.5														
17000	1495	470	4.6	552	7.1														
18000	1583	488	5.1	566	7.8														
20000	1759	525	6.3	597	9.3	729	15.6												
22000	1935	564	7.7	629	11.1	753	17.7												
24000	2111	603	9.3	663	13.0	780	20.0												
26000	2287	644	11.2	699	15.1	808	22.7	909	30.9	1004	40.0								
28000	2463	685	13.3	737	17.5	838	25.8	935	34.2	1025	43.5								
30000	2638	727	15.7	775	20.1	870	29.3	962	37.9	1049	47.4	1153	62.4						
32000	2814	769	18.4	814	23.1	903	33.1	991	42.0	1074	51.7	1176	67.3	1249	78.9				
34000	2990			854	26.4	938	36.9	1021	46.6	1101	56.5	1202	72.8	1272	84.6	1362	103.4	1426	116.5
36000	3166			894	30.0	974	41.0	1052	51.8	1129	61.8	1229	78.8	1297	90.7	1386	110.3		
38000	3342			935	34.0	1010	45.5	1085	57.2	1158	67.5	1257	85.3	1323	97.5				
40000	3518			976	38.4	1048	50.4	1119	62.9	1188	74.2	1316	100.3	1378	112.6				
44000	3870			1060	48.5	1125	61.4	1189	74.9	1253	88.3	1380	117.7	1437	130.5				
48000	4222					1204	74.2	1263	88.7	1321	103.5	1447	136.3						
52000	4573					1285	88.9	1339	104.3	1393	120.3								
56000	4925					1367	105.8	1417	122.1	1467	139.1								

Model 49



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 49"

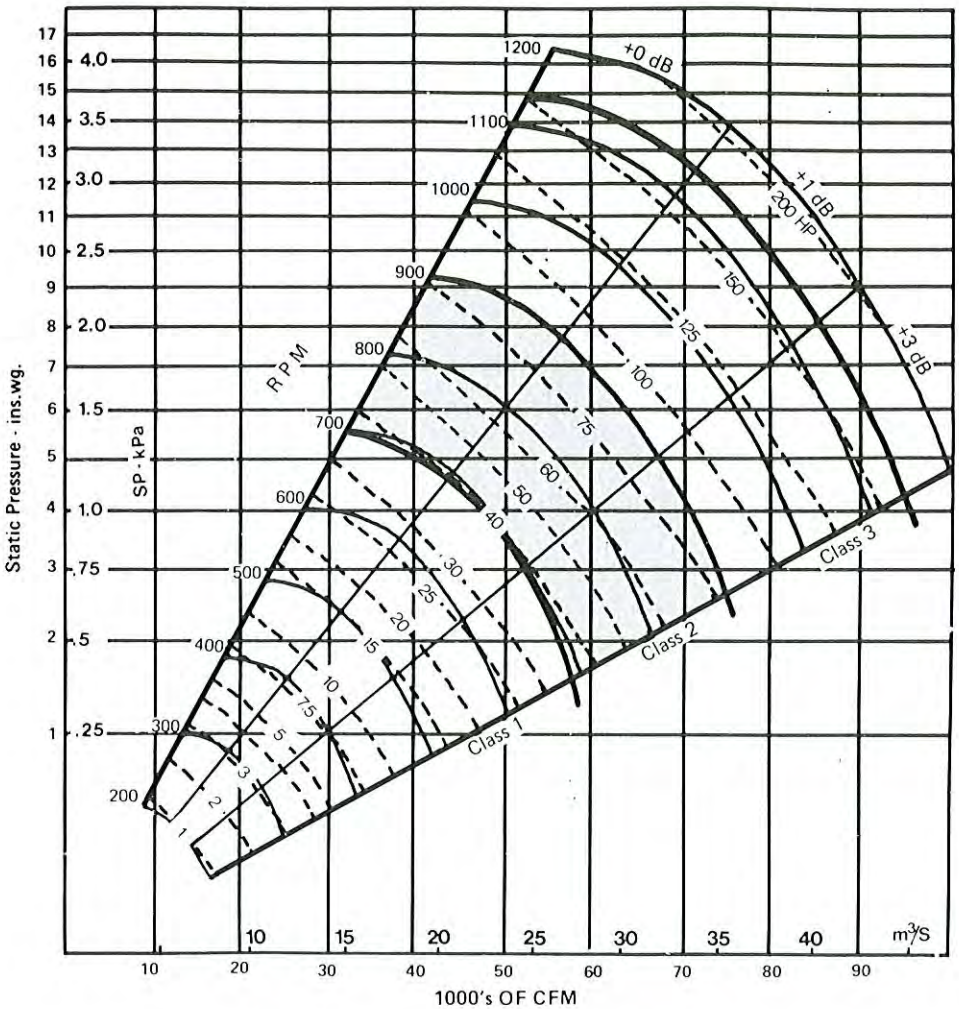
O.A. = 13.80 ft^2

MAX. BHP = $72.08 \left(\frac{RPM}{1000}\right)^3$

RPM	Octave Bands Mid Frequency – Hz							
	63	125	250	500	1000	2000	4000	8000
200	61	58	54	52	51	45	39	34
300	75	69	65	62	60	57	52	46
400	87	76	73	69	67	66	60	55
500	94	83	79	75	72	72	67	61
600	99	90	84	80	77	75	72	67
700	103	97	88	85	80	79	77	71
800	107	102	91	89	84	82	81	75
900	110	106	94	92	87	84	84	79
1000	112	109	98	95	90	87	87	82
1100	113	112	102	97	93	89	89	85
1200	115	114	105	99	95	92	90	87
1300	116	116	109	101	98	94	92	90

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	725	315	1.9																
11000	798	322	2.1																
12000	870	330	2.3																
13000	943	339	2.6																
14000	1016	349	2.9																
15000	1088	359	3.2	444	5.4														
16000	1161	370	3.5	451	5.8														
18000	1306	393	4.4	459	6.2														
20000	1451	419	5.3	476	7.1														
22000	1596	445	6.3	495	8.2	629	15.3												
24000	1741	473	7.5	516	9.6	644	17.0												
26000	1886	502	8.8	539	11.1	660	18.7												
28000	2031	531	10.4	563	12.9	677	20.7	796	32.5										
30000	2176	561	12.1	588	14.7	697	22.9	812	35.2	915	49.3								
32000	2321	592	14.0	614	16.7	717	25.4	830	38.2	931	52.9								
34000	2466	623	16.2	642	18.9	739	28.2	849	41.5	949	56.8								
36000	2611	654	18.5	670	21.3	762	31.4	870	45.2	968	61.0	1040	73.7						
38000	2756			698	23.9	785	34.9	891	49.2	987	65.6	1057	78.5	1125	92.4				
40000	2901			727	26.8	810	38.5	913	53.5	1029	75.9	1095	89.3	1159	103.6	1220	118.7		
4000	3192			757	29.9	836	42.3	960	63.7	1073	88.2	1136	101.7	1196	116.4	1255	132.0	1311	148.1
8000	3482			817	37.1	889	50.5	1010	74.8	1121	102.2	1180	116.1	1237	131.2	1292	147.0		
52000	3772			879	45.4	945	59.9	1062	86.6	1172	117.1	1226	132.9	1280	147.8				
56000	4062					1002	70.5	1116	99.7	1224	132.8								
60000	4352					1061	82.6	1172	114.3	1278	150.1								
64000	4642					1121	96.2	1230	130.6										
68000	4933							1289	148.5										

Model 54



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 54¼"

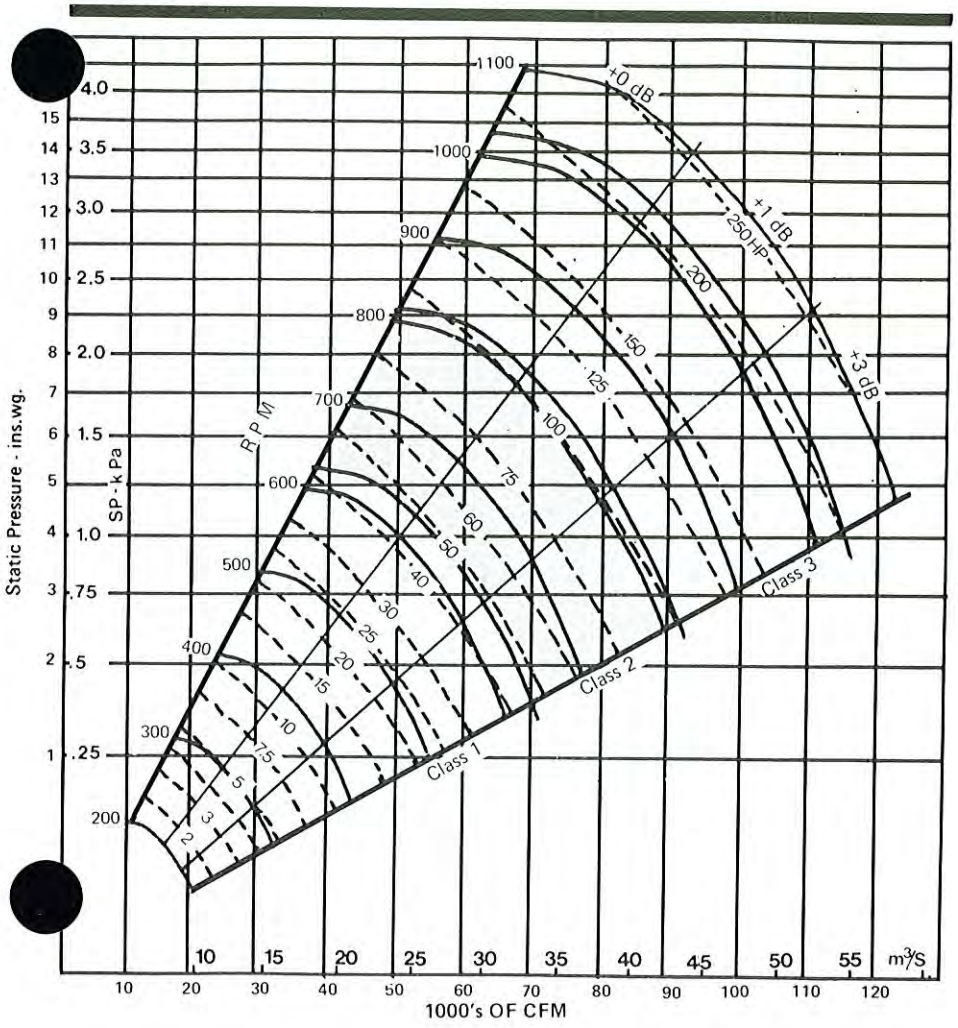
O.A. = 16.92 ft²

MAX. BHP = $119.9\left(\frac{RPM}{1000}\right)^3$

RPM	Octave Bands Mid Frequency – Hz							
	63	125	250	500	1000	2000	4000	8000
200	64	62	57	55	54	48	42	37
300	79	72	68	65	64	60	55	49
400	90	79	77	72	70	69	63	58
500	97	86	83	78	75	75	70	64
600	102	94	87	83	80	79	75	70
700	106	100	91	88	84	82	80	74
800	110	105	94	92	87	85	84	78
900	113	109	97	95	90	87	87	82
1000	115	112	101	98	93	90	90	85
1100	116	115	105	100	96	92	92	
1200	118	117	109	102	98	95	94	

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	710	283	2.3																
14000	828	294	2.7																
16000	947	307	3.2																
18000	1065	322	3.8																
20000	1184	338	4.5	405	6.9														
22000	1302	355	5.3	417	7.8														
24000	1420	373	6.3	430	8.7														
26000	1539	393	7.3	444	9.8														
28000	1657	413	8.3	459	11.0	587	21.7												
30000	1775	433	9.6	476	12.5	600	23.5												
32000	1894	455	10.9	492	14.1	613	25.5												
34000	2012	476	12.4	510	15.9	627	27.7	729	42.0										
36000	2130	498	14.1	528	17.8	642	30.2	742	45.0										
38000	2249	521	15.9	547	19.7	658	32.9	755	48.1										
40000	2367	543	18.0	567	21.8	674	35.8	785	55.2										
44000	2604	589	22.6	587	24.0	708	42.5	816	63.3	856	69.3								
48000	2804	636	28.0	629	29.1	745	50.0	850	73.1	884	77.9	948	93.7						
52000	3077	683	34.3	672	35.0	784	57.8	885	83.7	914	87.8	975	104.0	1119	161.8				
56000	3314	730	41.7	717	41.8	824	66.5	923	95.0	946	98.9	1004	115.6	1151	178.3	1090	139.5		
60000	3551	778	50.0	762	49.6	865	76.3	962	106.9	980	112.2	1035	128.7	1184	197.3	1115	152.1	1191	18
64000	3787	826	59.5	807	58.4	908	87.2	1002	120.0	1015	126.1	1068	143.3	1219	217.8	1141	165.8		
68000	4024	875	70.2			951	99.2	1043	134.3	1052	141.1	1102	160.2						
72000	4261	923	82.2			995	112.5	1085	149.7	1090	156.6	1137	177.9						
76000	4497	972	95.5			1040	127.1	1128	168.8	1130	173.1								
80000	4734	1021	110.3			1085	143.2												

Model 60



BHP shown does not include drive losses. For drive losses see Fig. 1

Performance shown above is for fans with outlet ducts and with or without inlet ducts, based on test results obtained from Arr. 1 fans.

WHEEL DIA. = 60"

O.A. = 20.70 ft^2

MAX. BHP = $198.4 \left(\frac{RPM}{1000}\right)^3$

RPM	Octave Bands Mid Frequency – Hz							
	63	125	250	500	1000	2000	4000	8000
200	67	65	60	58	57	51	46	40
300	82	75	71	68	67	63	58	52
400	93	82	80	75	73	72	66	61
500	100	89	86	81	78	78	73	67
600	105	97	90	89	83	82	78	73
700	109	103	94	91	87	85	83	78
800	113	108	97	95	90	88	87	82
900	116	112	100	98	93	90	90	85
1000	118	115	104	101	96	93	93	88
1100	119	118	108	103	99	96	95	91

Volume	O.Vel	1" SP		2" SP		4" SP		6" SP		8" SP		10" SP		12" SP		14" SP		16" SP	
CFM	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16000	774	261	3.1																
18000	871	270	3.5																
20000	968	280	4.0																
22000	1064	291	4.6																
24000	1161	302	5.3	366	8.4														
26000	1258	315	6.1	375	9.3														
28000	1355	328	7.0	384	10.2														
30000	1451	342	8.0	394	11.2														
32000	1548	356	9.0	405	12.4	539	28.1												
36000	1742	387	11.3	416	13.6	559	32.1												
40000	1935	418	14.0	440	16.7	580	36.9	659	51.4										
44000	2129	450	17.2	466	20.2	604	42.3	678	57.3	765	81.2								
48000	2322	484	21.0	495	24.1	629	48.9	699	64.1	785	89.3	845	108.3						
52000	2516	517	25.4	524	28.4	655	56.0	722	71.7	806	98.4	864	117.8	937	149.5				
56000	2709	552	30.4	555	33.2	683	63.5	746	80.3	829	108.4	884	128.3	956	161.5	1005	184.4		
60000	2903			586	38.7	711	71.5	771	90.4	852	119.5	905	139.9	977	174.7	1025	198.0	1070	222.2
64000	3096			618	44.9	741	80.3	797	101.0	877	132.3	928	152.6	999	189.1	1045	212.7	1090	237.5
68000	3290			651	51.8	772	89.8	825	112.3	903	146.1	951	166.6	1022	204.8	1066	228.9	1109	253.9
72000	3483			684	59.6	803	100.2	853	123.9	929	160.5	976	182.4	1052	226.3	1094	250.9		
76000	3677			718	68.2	834	111.6	882	136.2	964	179.4	1008	203.8	1083	251.5				
80000	3870			752	77.7	875	127.2	919	153.0	1000	199.2	1041	226.4	1115	277.4				
85000	4112					915	144.4	958	171.5	1037	220.8	1076	250.0						
90000	4354					957	163.4	997	191.6	1074	243.8	1112	274.7						
95000	4596					999	184.4	1037	213.6	1113	268.9								
100000	4838					1041	207.2	1077	237.5										

DRIVE SELECTION

- Up to 3 H.P. One Belt
  Light Duty Drive
- 5 to 14 H.P. Double Belt
  Medium Duty Drive
- 15 to 50 H.P. Triple Belt
  Heavy Duty Drive

THE BELTS ARE "V" SHAPED OF "A" AND "B" CROSS SECTION AREAS' DESIGNED TO PROVIDE SUPER-RATED PERFORMANCE WITH SMALL SHEAVES TORQUE-FLEX BELTS ARE PROVIDED TO OFFSET BINDING STRESSES.

MINIMUM RECOMMENDED SHEAVE DIAMETERS IN INCHES FOR ELECTRIC MOTORS

Motor Horse-Power	MOTOR RPM					
	575	695	870	1160	1750	3450
1/2	. . .	. . .	2-1/4	2-1/4	. . .	. . .
3/4	. . .	. . .	2-1/2	2-1/2	. . .	. . .
1	3	2-1/2	2-1/2	2-1/2	2-1/4	. . .
1-1/2	3	3	3	2-1/2	2-1/2	2-1/4
2	3-3/4	3	3		2-1/2	2-1/2
				3		
3	4-1/2	3-3/4	3	3	2-1/2	2-1/2
5	4-1/2	4-1/2	3-3/4	3-3/4	3	2-1/2
7-1/2	5-1/4	4-1/2	4-1/2	4-1/2	3	3
10	6	5-1/4	4-1/2	4-1/2	3-3/4	3
15	6-3/4	6	5-1/4		4-1/2	3-3/4
				5-1/4		
20	8-1/4	6-3/4	6	6	4-1/2	4-1/2
25	9	8-1/4	6-3/4	6-3/4	4-1/2	4-1/2
30	10	9	6-3/4		5-1/2	. . .
				6-3/4		
40	10	10	8-1/4	8-1/4	6	. . .
50	11	10	9	9	6-3/4	. . .
60	12	11	10	10	7-1/2	. . .
75	14	13	10	13	9	. . .
100	18	15	13		10	. . .
				13		
125	20	18	15	13	11	. . .
150	22	20	18	. . .	. . .	. . .
200	22	22	22	. . .	. . .	. . .
250	22	22	. . .	. . .	. . .	. . .
300	27	27	. . .		. . .	. . .

NOTE: Data in the clear section is from National Electrical Manufacturers Association Standard MGI-14-45. Data in the shaded section is a composite of Electrical Motor Manufacturers. They are generally conservative, and specific motors and bearings may permit the use of a smaller motor sheave. Consult the motor manufacturer.

$$D_B = \frac{D_M \times RPM_M}{RPM_B}$$

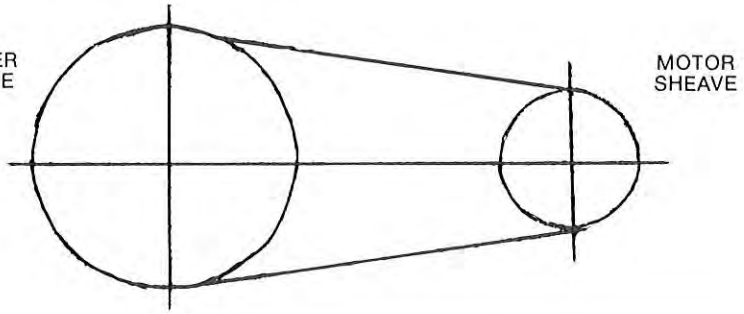
WHERE

D_B — BLOWER SHEAVE DIAMETER

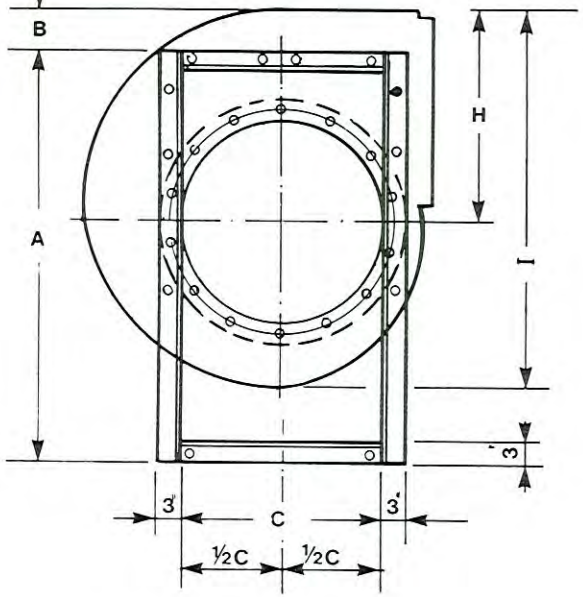
D_M — MOTOR SHEAVE DIAMETER

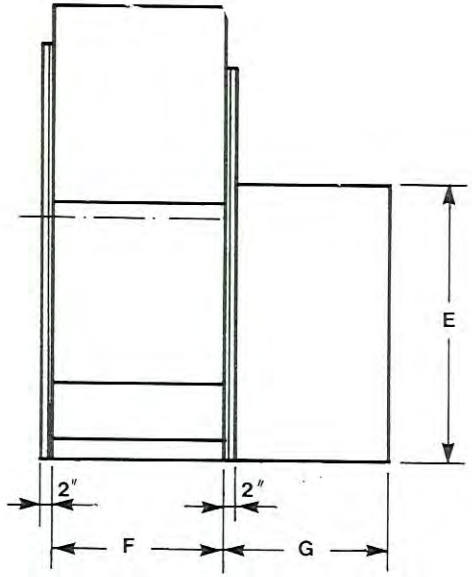
RPM_M — MOTOR SPEED

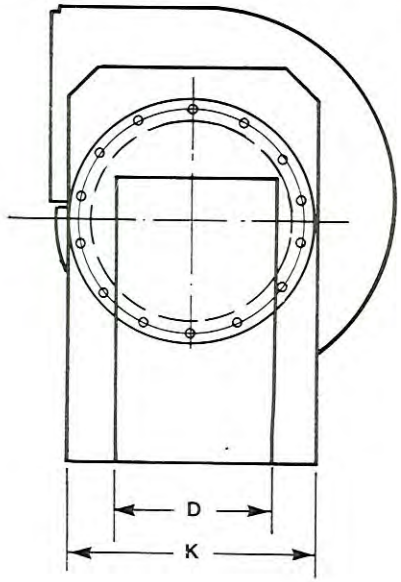
RPM_B — BLOWER SPEED

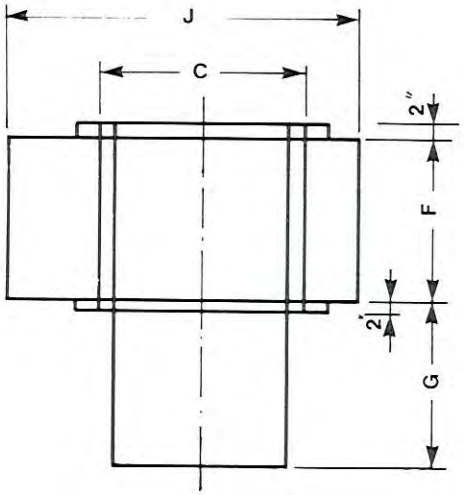


SHE









DIMENSION	MODEL 30	33	36	40	44	49	54	60
A	63	68	75	79	87	99	110	121
B	6	7	8	9	10	11	12	13
C	30	33	37	40-3/4	45-1/4	50	55	61
D	24-1/2	24-1/2	24-1/2	24-1/2	24-1/2	24-½	24-½	24-½
E	45	48	52	57	63	68	74	80
F	23	25-1/2	28	31-1/4	34-1/2	38	42	46
G	41	41	41	41	41	41	41	41
H	32-1/2	36	39-1/2	43-1/2	48-1/2	53	59	65
I	57-1/2	63	69-3/4	78	86	95	105	116
J	53	58	64	70	77	84	93	103
K	36-1/2	39-1/2	43	46-3/4	51-1/4	56	61	67

DIMENSIONS IN INCHES

JOB	FAN	FAN DETAIL TYPE BI-	
CONTRACTOR	MOTOR	DATE	SUPERSEDES / DRAWING NO
ENGINEER/ARCHITECT	DRIVE	REVERSOMATIC Heating & Mfg. Ltd. Toronto, Canada	

REVERSOMATIC
MANUFACTURING LIMITED

INSTALLATION & MAINTENANCE GUIDE

General Instructions

REGULAR MAINTENANCE / LUBRICATION OF THIS UNIT IS REQUIRED TO MAINTAIN THE MANUFACTURER'S WARRANTY.

FOR MOTORS LARGER THAN 7 ½ HP, AN ELECTRONIC "SOFT START" CONTROL IS RECOMMENDED FOR LONGER BELT LIFE.

C A U T I O N

IT IS STRONGLY RECOMMENDED THAT BEFORE STARTING UP THE FAN THE FOLLOWING INSPECTIONS ARE PERFORMED.

1. **FAN BELT (IF USED) TIGHTNESS AND ALIGNMENT.**
2. **FAN BLADE CENTERING AND ROTATION.**
3. **FAN BLADE MOUNTING BOLT TIGHTNESS.**
4. **MOTOR MOUNTING PLATE BOLT TIGHTNESS.**
5. **BEARING LUBRICATION.**

WARNINGS AND SAFETY INSTRUCTIONS

1. Do not operate the fan excess of maximum limit.
2. Do not permit any object to enter the fan inlets or outlets; provide a screen covering.
3. Do not operate the fan without adequate guards over rotating parts; provide drive belt, coupling and shaft guards.
4. Provide a disconnect switch with a padlock to prevent fan switch use during maintenance.
5. Locate a disconnect switch at the fan for use of personnel working on the fan.
6. Provide vibration limiting switches to detect sudden changes in the operation of the fan, especially when operating a fan under high temperatures or in an extremely corrosive atmosphere such as fly ash.
7. Lubricate and service bearings regularly. see lubrication schedule.

Reversomatic Manufacturing Ltd.
790 Rowntree Dairy Road, Woodbridge, ON, Canada L4L 5V3 • Tel: 905-851-6701 • Fax: 905-851-8376
www.reversomatic.com • info@reversomatic.com

Performance Problems:

CFM too low - These are some common sources of this problem:

Fan - forward curved impeller installed backwards, fan running backwards, cutoff missing or improperly installed, impeller not centered with inlet collars, fan speed too slow.

System - more resistant to flow than expected, dampers or registers closed, leaks in supply ducts, insulating duct liner loose, clogged filters or coils.

Fan Inlets - leaks around fan inlets, elbows near the inlet, cabinet walls too close. Inlet obstructions cause more restrictive systems but do not cause increased negative pressure readings near the fan inlets. Fan speed may be increased to counteract the effect of restricted fan inlet, but check the maximum RPM for the wheel construction before increasing the speed.

Fan Outlet - most centrifugal fans are used in ducted systems and have been tested with a length of straight duct at the fan outlet, If there is no straight duct at the fan outlet, decreased fan performance will result. If it is not practical to install a straight section of duct at the fan outlet, the fan speed may be increased to overcome this pressure loss. Other sources affecting fan outlet may be sharp elbow nearby, improperly designed turning vanes or other obstructions near the outlet.

Noise - may be caused by:

a. Impeller hitting the inlet of the fan or cutoff plate, loose impeller.
b. Drives can cause noise if sheaves are not tight on the shaft, belts are too loose or too tight, wrong belt cross section, or mis-matched belts, also worn belts, oily belts or mis-aligned sheaves.
c. If couplings are used they may be source of noise by being unbalanced, misaligned, loose or dry of lubricant.
d. Bad bearings are a common source of noise when defective, dry of lubricant, loose on the bearing support, loose on the shaft, seals mis-aligned, dirty lubricant, fretting corrosion between inner race and shaft, etc. See separate section on bearing care.
e. There can be an electrical source of noise such as AC hum in motor or relay, starting relay chatter, noisy motor bearings, single phasing a 3 phase motor, etc.
f. A bent or undersized shaft may be a noise source. *IF MORE THAN TWO BEARINGS ARE ON THE SAME SHAFT, THEY MUST BE CAREFULLY ALIGNED.*
g. There may be other noise sources such s obstruction in high velocity air stream causing rattle or pure tone whistle, fan operating at undesirable design point, causing pulsation, cracks or holes in duct work, or whistles in fan housing.

LUBRICATION

RELUBRICATION SCHEDULE (MONTHS)*
Ball Bearing Pillow Blocks

SHAFT DIAMETER	Operating Speed (RPM)									
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
5/8" thru 1"	6	6	6	6	4	4	4	4	2	2
1 1/8" thru 1 1/2"	6	6	6	4	4	4	2	2	2	1
1 5/8" thru 1 15/16"	6	6	6	4	4	2	2	1	1	-
2" thru 2 1/2"	6	6	4	4	2	1	1	-	-	-
2 11/16" thru 3 3/16"	6	4	2	2	1	1	½	-	-	-

*Suggested initial greasing interval - relubricate while running, if safety permits, until some purging occurs at seals. Adjust lubrication frequency depending on condition of purged grease. Hours of operation, temperature, and surrounding conditions will affect the relubrication frequency required.

1. Lubricate with a high quality NLGI No. 2 or No.3 multi purpose ball bearing grease having rust inhibitors and anti-oxidant additives.

Some grease having these properties are:

• Shell - *Alvania EP No.2* • Mobil - *Mobilux Ep2* • Texaco - *Molytex No.2*
• Gulf - *Gulfcrown No. 2* • American - *Amolith No. 2*

2. Lubricate bearings prior to extended shutdown or storage and rotate shaft monthly to avoid corrosion.

Spherical Roller Bearings - Solid Pillow Blocks

SHAFT DIAMETER	Operating Speed (RPM)									
	500	1000	1500	2000	2200	2700	3000	3500	4000	4500
3/4" thru 1"	6	6	6	4	4	4	2	2	1	1
1 1/8" thru 1 1/4"	6	6	4	4	2	2	1	1	1	1
1 7/16" thru 1 1/2"	6	4	4	2	2	1	1	1	1	½
1 5/8" thru 1 3/4"	6	4	2	2	1	1	1	1	½	-
1" 15/16" thru 2"	6	4	2	1	1	1	1	½	-	-
2 3/16" thru 2 1/4"	6	4	2	1	1	1	½	-	-	-
2 7/16" thru 2 1/2"	4	2	1	1	1	½	-	-	-	-
2 11/16" thru 3"	4	2	1	1	½	-	-	-	-	-
3 3/16" thru 3 1/2"	4	2	1	½	-	-	-	-	-	-

1. Lubricate with a multi-purpose roller bearing NLGI grade 2 grease having rust inhibitors, anti-oxidant additives, and a minimum oil viscosity of 500 SSU at 100°F. Some additives.

Some grease having these properties are:

• American - *Rykon No.2* • Mobil - *Mobilgrease 28* • Texaco - *Molytex Ep2 grease*

2. Lubricate bearings prior to extended shutdown or storage and rotate shaft monthly to avoid corrosion.

RECOMMENDED 'SKF' GREASES FOR 'SKF' BEARINGS
Fixed Pillow Block - LGMT2 Fans running below 80°c (176°f)
Split Pillow Block - LGMT3 Fans running below 80°c (176°f)
***Fans Running Above 80°c thru 150°c* - LGHT3**

TROUBLESHOOTING LIST

IMPELLER . . . . . a. Loose on shaft
b. Unbalance

DRIVE . . . . . a. Sheave not tight on shaft (motor or fan)
b. Belts hitting belt tube or belt guard
c. Belts too loose. Adjust for belt stretching after 48 hours of operation.
d. Belts too tight
e. Belts wrong cross-section
f . Belts not "Matched" in length on multi-belt drive
g. Variable pitch sheaves not adjusted so each groove has same pitch diameter (multi-belt drive)
h. Misaligned sheaves
I . Belts worn
j . Motor, Motor base or fan not securely anchored
k. Belts oily or dirty
l . Improper drive selection
m. loose key
n. Excessive start-stop cycles

COUPLING . . . . . a. Coupling unbalanced, misaligned, loose or may need lubricant
b. Loose key

BEARING . . . . . a. Defective bearing
b. Needs lubrication
c. Loose on bearing support
d. Loose on shaft
e. Seals misaligned
f . Foreign material inside bearing
g. Worn bearing
h. Fretting corrosion between inner race and shaft
i . Bearing not sitting on flat surface
j . Excessive belt tension

SHAFT . . . . . a. Bent
b. Undersized

MOTOR . . . . . a. Noisy motor bearings
b. Single phasing a three phase motor
c. Low voltage

LOOSE FASTENERS. . . a. Impeller set screws
b. Bearing set screws
c. Drive component set screws
d. Fan mounting bolts
e. Bearing bolts
f . Motor bolts

WARRANTY

REVERSOMATIC HEATING AND MANUFACTURING LIMITED WARRANTS IT WILL PROVIDE A REPLACEMENT PART OF ITS FANS FOUND TO BE DEFFECTIVE IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF PURCHASE FOR FIRST USER, F.O.B. OUR PLANT.

NOTE: THIS WARRANTY DOES NOT APPLY TO LABOUR COSTS INVOLVED IN REPLACEMENT OR REINSTALLATION, DIAGNOSTIC SERVICE, CLEANING AND ADJUSTMENT, OR TRANSPORTATION. FURTHERMORE WARRANTY IS ONLY APPLICABLE WHEN REVERSOMATIC REPLACEMENT PARTS AND ACCESSORIES ARE USED.

Reversomatic Htg. & Mfg. Ltd.
790 ROWNTREE DAIRY ROAD, WOODBRIDGE, ONTARIO, CANADA L4L5V3
PHONE (905) 851-6701 • FAX (905) 851-8376 • TORONTO LINE (416) 748-3064