THE IRVINE COMPANY

Rooftop Grease Design and Installation Criteria

Introduction:

Due to high potential of spillage and runoff from rooftop ventilation and exhaust fans and the Fats, Oils and Grease (F.O.G.) they produce, The Irvine Company, Retail Properties group has created the following criteria. This criterion has been created to significantly reduce the exposure of F.O.G. on the Landlord's roofing systems and exposure to runoff into the rooftop storm drain systems. F.O.G. is acidic in nature and causes rapid deterioration of roofing materials. Additionally, runoff of F.O.G. into the storm drain systems puts both the Tenant and Landlord at significant risk with Governmental agencies that monitor water quality issues.

Equipment:

Rooftop equipment designed by the Tenant shall conform to all regulatory and statutory requirements set forth by all municipal reviewing agencies. In addition, the following requirements shall also be adhered to in the design of the Tenant's rooftop exhaust and ventilation systems:

1. Rooftop exhaust systems shall be designed to accommodate all code requirements, but shall not be over designed as to discharge extraordinary amounts of F.O.G. onto the surrounding roof system. Exhaust velocities shall be maintained to manufacturer specifications to adequately capture all discharge materials.
2. All rooftop equipment shall provide rainproof capture and collection systems for any and all F.O.G. discharge.
3. Rooftop exhaust and ventilation equipment shall be installed in compliance with Landlord's rooftop equipment installation details set forth elsewhere in this criterion.

Although, the design and engineering of rooftop exhaust and ventilation equipment is regulated through municipal code, The Irvine Company, Retail Properties has found the following companies to provide superior grease containment and capture to other manufacturers and require that Tenants utilize one of these manufacturers.

- Supreme Fan Products
  435 East Lincoln Street
  Banning, California 92220
  Phone: (909) 849-6778
  Fax: (909) 849-7091

- Central Blower Company
  211 S. 7th Ave.
  City of Industry, Calif. 91746
  Phone: (626) 330-3182
  Fax: (626) 330-9406
  www.centralblower.com

Alternative manufacturers may be utilized only if the equipment specifications are equal to or exceed those provided by the aforementioned manufacturers and approved in writing by Landlord. The Landlord does not warrant, nor assumes any liability for the products or performance of the aforementioned companies.

Maintenance:

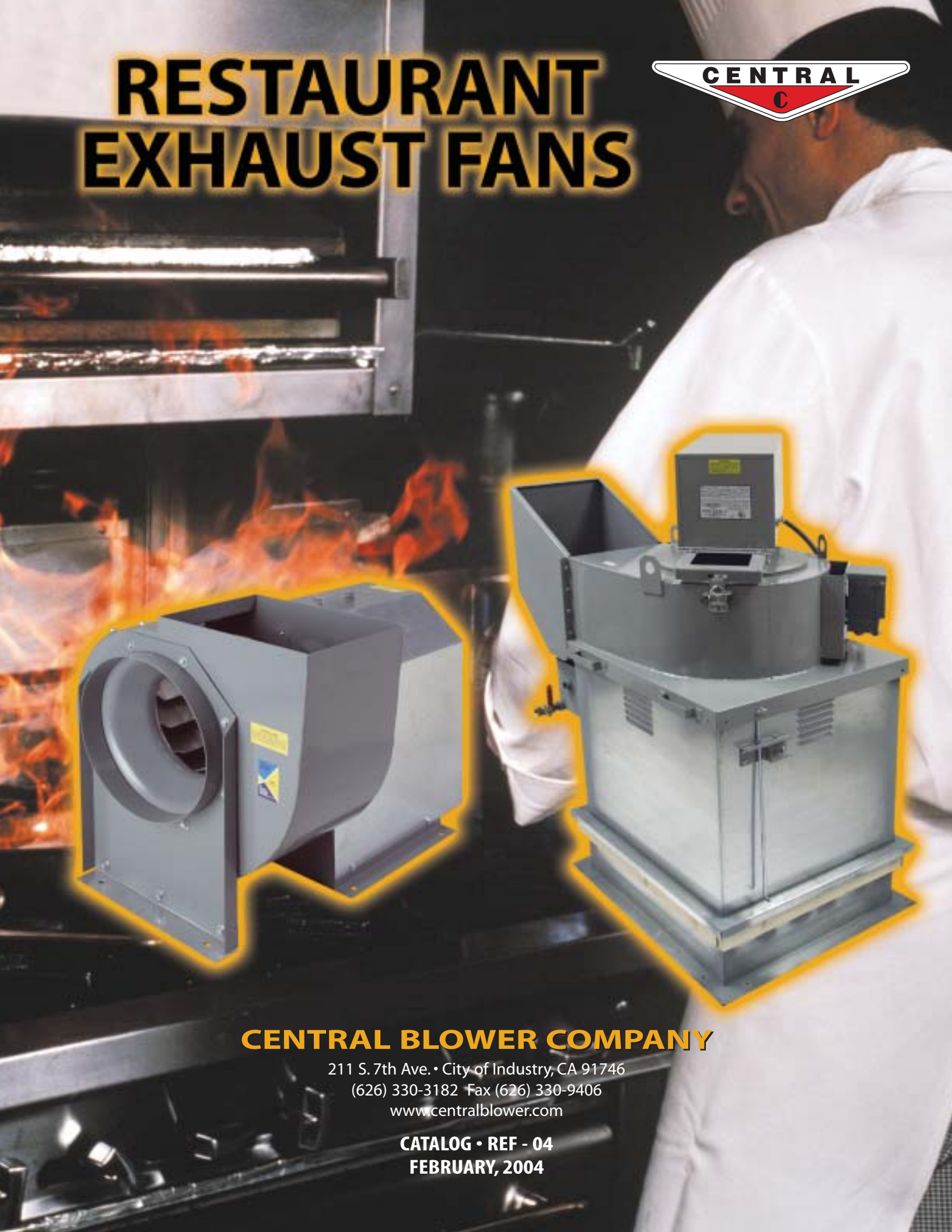
Tenants are required to maintain all grease producing rooftop equipment to eliminate the possibility of runoff of F.O.G. onto Landlord's roof systems and into roof drains. Maintenance shall be performed by a Landlord approved company licensed to inspect and maintain exhaust systems and shall occur a minimum of 6 times annually or more frequently as required by governing agencies and shall consist of the entire system from the rooftop exhaust and ventilation units all shafts leading down to the source equipment and any and all filtration systems associated with this equipment. Landlord may, at its discretion, provide rooftop exhaust maintenance services as a Common Area Expense and Tenant shall be responsible for its pro-rata share.

Landlord's Plan Review:

During the Tenants design and engineering process, all mechanical drawings showing any and all rooftop exhaust and ventilation equipment shall be submitted to Landlord for review and comment through Landlord's proprietary mechanical consultant. Tenant shall comply with all of Landlord's comments and incorporate comments into Tenant's drawings. Tenant shall pay all costs associated with Landlord's review of tenant's plans estimated as follows:

- Quick Serve Restaurant $500 per review.
- Full Service Restaurant $850 per review.
- Field Inspection reports $125 per hour with a 2-hour minimum.

RESTAURANT EXHAUST FANS



CENTRAL BLOWER COMPANY

211 S. 7th Ave. • City of Industry, CA 91746
(626) 330-3182 Fax (626) 330-9406
www.centralblower.com

CATALOG • REF - 04
FEBRUARY, 2004

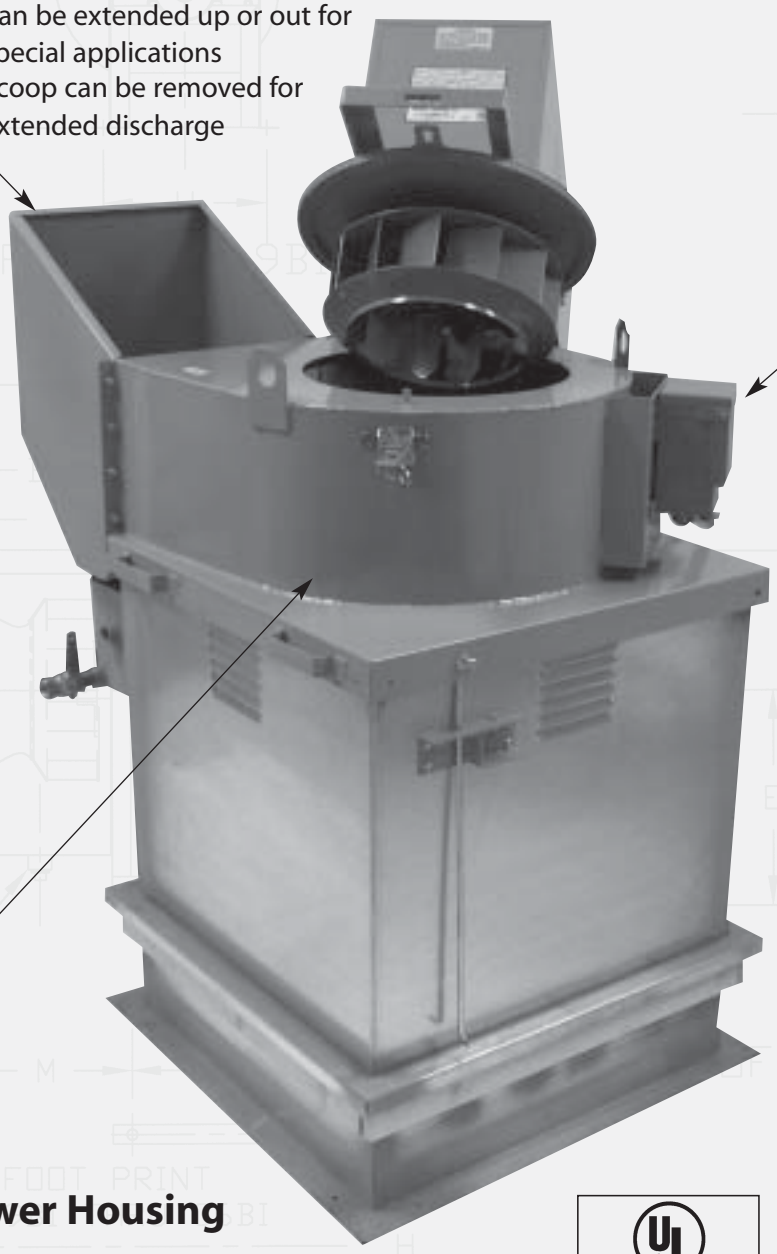
Series RE

Scoop with Grease Trough

- ▲ Sealed to blower housing with high temperature silicone foam
- ▲ Grease trough easily removed for draining
- ▲ Drain on grease trough allows rain water to run off while grease stays inside
- ▲ Can be extended up or out for special applications
- ▲ Scoop can be removed for extended discharge

Tilt Open Top Cover Assembly

- ▲ Heavy duty self cleaning backward inclined wheel
- ▲ Drives stay in adjustment when open for service
- ▲ Sealed to blower housing with high temperature silicone foam
- ▲ Heavy duty relubricatable bearings
- ▲ Latch locks cover open when cleaning
- ▲ Spare belt stored under weather cover



Safety Disconnect Switch

- ▲ Standard (specify H.P., voltage and phase)
- ▲ Weather proof enclosure
- ▲ Factory wired to motor

Blower Housing

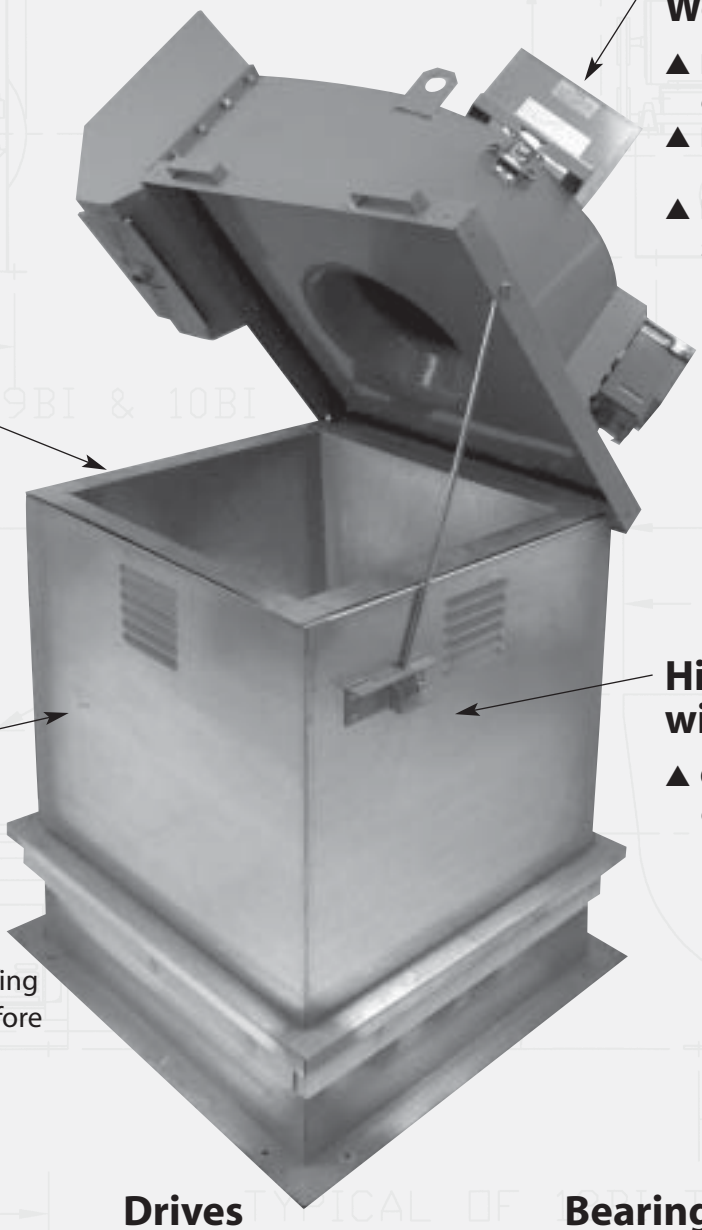
- ▲ Heavy gauge zinc coated steel
- ▲ U.L. recognized powder coating
- ▲ Housing continuously welded top and bottom

91Z0
Central Type RE Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

Central Blower Co. certifies that the Belt Drive Blowers shown on pages 2 through 15 are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of AMCA Certified Ratings Program.

Series RE Features



Standard Weather Cover

- ▲ Heavy gauge zinc coated steel
- ▲ Painted with UL recognized paint
- ▲ Easily removed with simple hand tools

Optional Funnel Fitting

- ▲ All welded
- ▲ Specify duct size when ordering
- ▲ Side inlet fitting available. See factory for price.

Vented Curb

- ▲ Galvanized Steel
- ▲ Welded
- ▲ Proper Height to place discharge 40" from roof
- ▲ Wood nailer for roofing
- ▲ One pc. curb allows roofing and duct installation before blower arrives

Hinge Kit with Prop Rod

- ▲ Cannot close without operator release

Motors

- ▲ Quality US made
- ▲ Energy efficient
- ▲ Sized to fit CFM requirements
- ▲ Mounted outside away from heat & grease

Drives

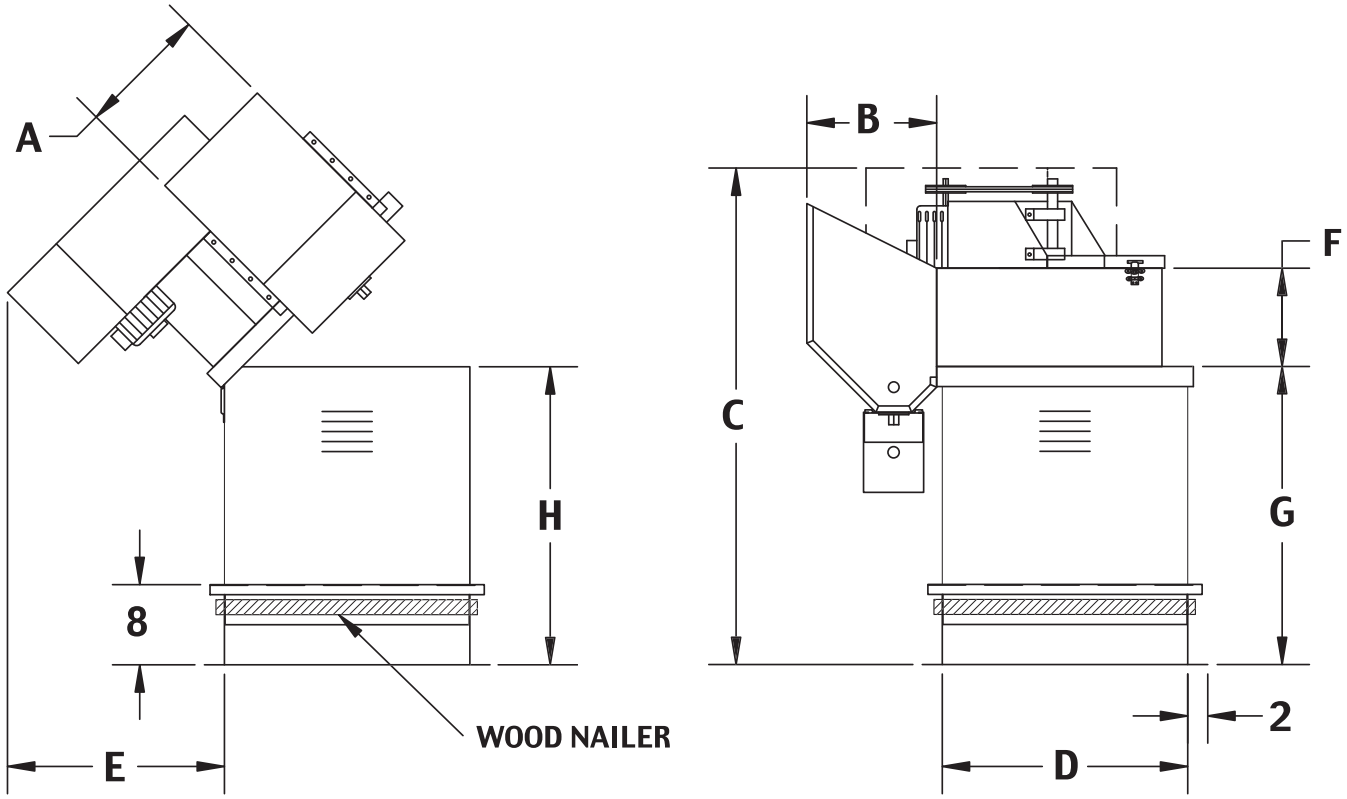
- ▲ Highest quality
- ▲ Cast iron for long life
- ▲ Variable pitch motor pulley allows speed adjustment in the field

Bearings

- ▲ Highest quality
- ▲ HD cast housing with lube fitting for maintenance
- ▲ Ground and Polished shafts with keys

Restaurant Exhaust Fans

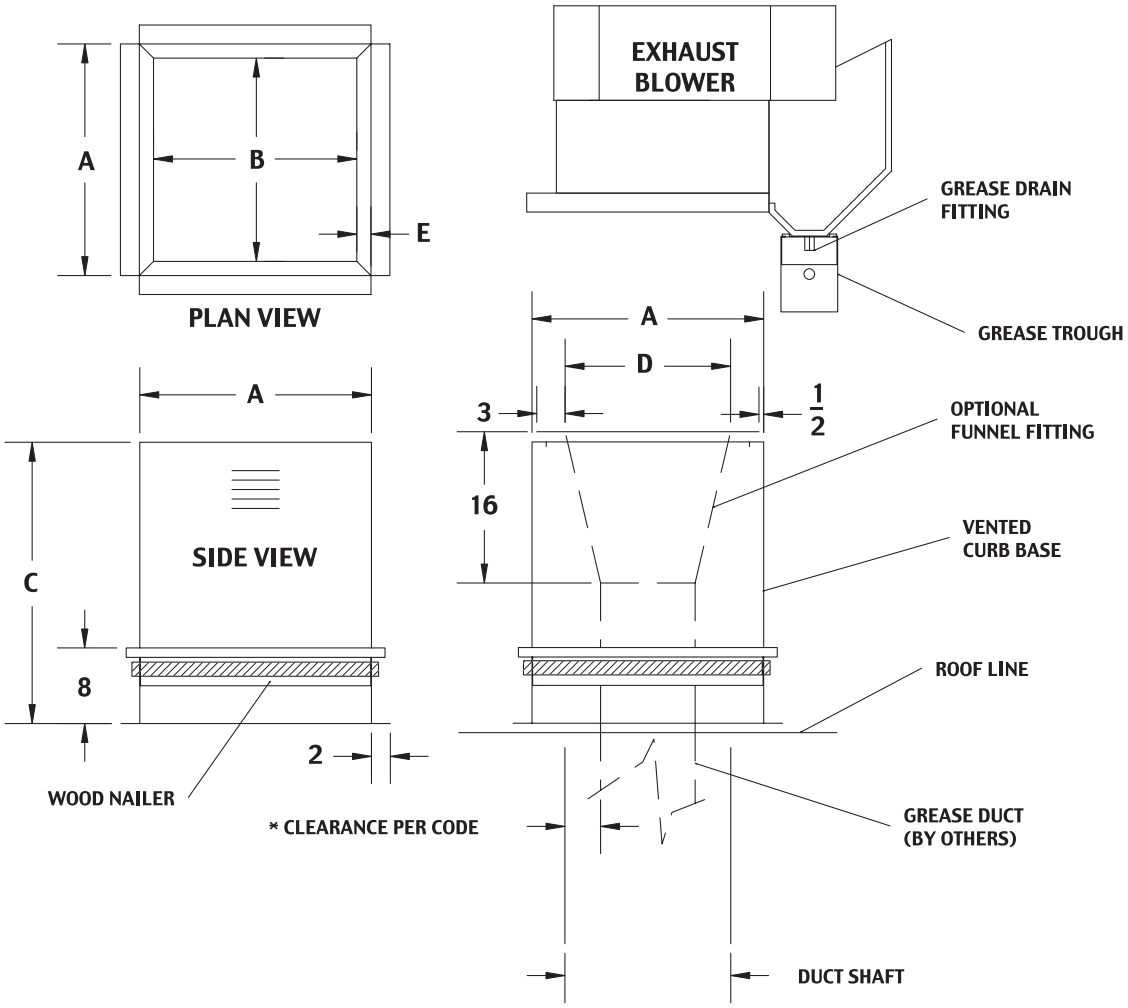
RE 12-24



Model	A	B	C	D	E	F	G	H
RE-12	13 1/8	13 1/4	49 1/8	24 1/2	20	9 3/4	30 1/4	29 3/4
RE-15	15	16 3/4	53 7/8	24 1/2	22	12 1/8	30 1/4	29 3/4
RE-18	19 5/8	19 1/4	53	39 7/8	25	14 1/2	26 1/2	26
RE-22	23 13/16	23 1/2	58 1/2	39 7/8	28	17 13/16	26 1/2	26
RE-24	26 1/4	25 7/8	57 1/4	47	30	19 1/2	21 1/2	21

Restaurant Exhaust Fans

Models RE12, RE15, RE18, RE22 and RE24



INSTALLATION PROCEDURE

1. LOOSEN HINGE BOLT SECURING BLOWER TO BASE, SET BASE ON ROOF.

2. DROP GREASE DUCT ON BASE THROUGH OPENING IN BASE. FLANGE ON DUCT WILL SET ON LIP OF BASE TO HOLD DUCT IN PLACE

3. SET BLOWER ON BASE AND TIGHTEN BOLTS THAT SECURE HINGES TO BASE.

Model	A	B	C	D	E
RE-12	24 1/2	21 1/2	29 3/4	17 1/2	1 1/2
RE-15	24 1/2	21 1/2	29 3/4	17 1/2	1 1/2
RE-18	39 7/8	36 7/8	26	33	1 1/2
RE-22	39 7/8	36 7/8	26	33	1 1/2
RE-24	47	43	21	40	2

RE-12 12.25" Wheel Diameter

VOLUME CFM	Outlet Velocity FPM	SP, in. WG																					
		1/8"		1/4"		3/8"		1/2"		3/4"		1.0"		1-1/4"		1-1/2"		2.0"		2-1/2"		3.0"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
500	563	726	0.03	840	0.04	939	0.06	1034	.008	1210	0.13	1372	0.18	1518	0.23	1650	0.29	1887	0.40	2100	0.56	2296	0.68
600	675	824	0.04	928	0.06	1019	0.08	1102	0.10	1259	0.14	1405	0.20	1548	0.26	1676	0.32	1912	0.45	2120	0.59	2306	0.74
700	788	926	0.06	1021	0.08	1104	0.10	1182	0.12	1323	0.17	1459	0.22	1581	0.28	1710	0.35	1938	0.50	2144	0.65	2332	0.80
800	900	1031	0.08	1116	0.10	1196	0.13	1268	0.15	1402	0.20	1520	0.26	1641	0.31	1752	0.38	1971	0.54	2171	0.70	2358	0.87
900	1013	1132	0.10	1217	0.13	1289	0.16	1359	0.19	1482	0.24	1600	0.30	1703	0.36	1812	0.42	2008	0.58	2205	0.75	2388	0.94
1000	1125	1240	0.13	1321	0.17	1387	0.19	1452	0.23	1570	0.29	1681	0.35	1783	0.42	1878	0.48	2078	0.63	2243	0.81	2420	1.02
1200	1350	1463	0.22	1529	0.26	1592	0.29	1646	0.33	1758	0.40	1854	0.47	1947	0.54	2039	0.62	2205	0.78	2362	0.94	2519	1.13
1400	1575	1684	0.34	1738	0.37	1800	0.42	1852	0.46	1948	0.54	2041	0.63	2129	0.71	2208	0.79	2365	0.98	2512	1.16	2643	1.35
1600	1800	1910	0.50	1961	0.54	2005	0.57	2062	0.63	2150	0.72	2232	0.82	2316	0.92	2393	1.01	2535	1.19	2672	1.41	2805	1.62

RE-15 15.00" Wheel Diameter

VOLUME CFM	Outlet Velocity FPM	SP, in. WG																					
		1/8"		1/4"		3/8"		1/2"		3/4"		1.0"		1-1/4"		1-1/2"		2.0"		2-1/2"		3.0"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
800	633	624	0.05	701	0.07	798	0.09	870	0.12	986	0.17	1110	0.23	1228	0.31	1334	0.38	1522	0.54	1689	0.70	1841	0.87
1000	792	739	0.08	817	0.10	891	0.13	954	0.16	1075	0.22	1171	0.28	1263	0.35	1362	0.43	1551	0.62	1717	0.81	1868	1.00
1200	950	855	0.12	921	0.15	988	0.18	1052	0.22	1157	0.28	1260	0.36	1345	0.43	1422	0.51	1581	0.68	1747	0.90	1897	1.12
1400	1108	973	0.18	1036	0.21	1090	0.25	1149	0.29	1254	0.37	1341	0.44	1434	0.54	1513	0.62	1650	0.79	1781	0.98	1925	1.22
1600	1267	1095	0.24	1152	0.29	1202	0.33	1250	0.37	1351	0.47	1440	0.56	1517	0.64	1596	0.74	1740	0.94	1859	1.14	1973	1.34
1800	1425	1218	0.32	1270	0.38	1318	0.44	1361	0.48	1449	0.58	1537	0.69	1616	0.79	1685	0.88	1825	1.10	1950	1.33	2058	1.55
2000	1584	1342	0.44	1387	0.51	1435	0.50	1478	0.61	1552	0.71	1634	0.84	1712	0.95	1783	1.05	1908	1.28	2036	1.53	2149	1.79
2200	1742	1465	0.60	1510	0.65	1552	0.70	1593	0.76	1664	0.87	1734	0.99	1810	1.12	1880	1.25	2006	1.50	2117	1.74	2233	2.02
2400	1900	1589	0.77	1633	0.79	1669	0.89	1710	0.93	1780	1.07	1842	1.18	1908	1.32	1978	1.46	2103	1.75	2213	2.01	2314	2.27

RE-18 18.25" Wheel Diameter

VOLUME CFM	Outlet Velocity FPM	SP, in. WG																					
		1/8"		1/4"		3/8"		1/2"		3/4"		1.0"		1-1/4"		1-1/2"		2.0"		2-1/2"		3.0"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1400	708	591	0.11	658	0.14	715	0.17	768	0.22	868	0.30	958	0.40	1043	0.50	1123	0.62	1277	0.88	1415	1.15	1539	1.41
1600	810	654	0.14	717	0.17	773	0.22	820	0.26	913	0.36	998	0.46	1077	0.56	1152	0.68	1295	0.95	1430	1.24	1556	1.55
1800	911	718	0.17	780	0.24	830	0.27	879	0.33	962	0.41	1044	0.53	1119	0.64	1189	0.76	1323	1.03	1449	1.33	1570	1.66
2000	1012	783	0.22	842	0.30	889	0.32	936	0.39	1017	0.49	1091	0.60	1163	0.73	1231	0.85	1358	1.13	1477	1.43	1591	1.77
2200	1113	849	0.29	905	0.37	952	0.43	995	0.46	1074	0.59	1143	0.69	1211	0.82	1277	0.96	1398	1.25	1511	1.55	1620	1.89
2400	1214	916	0.35	969	0.44	1016	0.53	1055	0.57	1132	0.69	1200	0.82	1262	0.93	1323	1.07	1441	1.37	1550	1.69	1654	2.04
2600	1316	983	0.45	1032	0.51	1079	0.63	1119	0.70	1190	0.79	1258	0.95	1318	1.08	1375	1.20	1488	1.52	1593	1.85	1692	2.19
2800	1417	1051	0.59	1097	0.61	1142	0.73	1182	0.84	1248	0.90	1316	1.09	1376	1.25	1430	1.36	1536	1.67	1639	2.03	1735	2.39
3000	1518	1121	0.73	1162	0.75	1205	0.84	1245	0.97	1311	1.11	1374	1.22	1433	1.42	1487	1.56	1587	1.85	1686	2.21	1780	2.59
3200	1619	1190	0.86	1230	0.87	1269	0.94	1309	1.11	1375	1.31	1432	1.35	1491	1.58	1545	1.77	1641	2.06	1735	2.41	1827	2.81
3400	1720	1259	0.99	1296	1.00	1333	1.08	1371	1.25	1437	1.51	1495	1.62	1549	1.75	1603	1.97	1699	2.33	1787	2.63	1873	3.03
3600	1822	1327	1.14	1363	1.15	1400	1.28	1435	1.38	1501	1.72	1558	1.89	1607	1.92	1660	2.17	1757	2.60	1841	2.91	1925	3.30

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings include the effects of a discharge scoop in the airstream.
Consult Central Blower Co. for CFM and S.P. not listed above.

91Z0
Central Type RE Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

Central Blower Co. certifies that the Belt Drive Blowers shown on pages 2 through 15 are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of AMCA Certified Ratings Program.

RE-22 22.25" Wheel Diameter

VOLUME CFM	Outlet Velocity FPM	SP, in. WG																					
		1/8"		1/4"		3/8"		1/2"		3/4"		1.0"		1-1/4"		1-1/2"		2.0"		2-1/2"		3.0"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2200	756	479	0.14	532	0.20	573	0.25	613	0.31	681	0.42	762	0.57	845	0.73	920	0.89	1059	1.23	1185	1.68	1295	2.09
2400	824	512	0.18	563	0.18	604	0.29	642	0.36	710	0.49	765	0.61	850	0.79	925	0.97	1060	1.31	1182	1.72	1299	2.19
2600	893	544	0.21	595	0.21	638	0.35	672	0.40	739	0.55	794	0.68	861	0.83	930	1.02	1065	1.39	1182	1.79	1298	2.26
2800	962	579	0.25	627	0.25	669	0.39	703	0.47	768	0.60	823	0.76	875	0.89	941	1.09	1069	1.49	1188	1.89	1296	2.31
3000	1031	612	0.29	659	0.29	700	0.45	734	0.52	795	0.67	851	0.83	902	0.99	954	1.15	1073	1.57	1191	2.00	1300	2.44
3200	1100	648	0.35	692	0.35	731	0.51	768	0.59	826	0.74	880	0.92	931	1.09	977	1.24	1084	1.63	1198	2.12	1305	2.58
3400	1168	682	0.42	725	0.40	763	0.58	799	0.66	857	0.82	910	1.00	960	1.19	1004	1.37	1098	1.74	1201	2.23	1309	2.71
3600	1239	718	0.48	758	0.56	795	0.65	830	0.74	888	0.92	938	1.09	987	1.29	1032	1.49	1113	1.83	1213	2.32	1312	2.83
3800	1306	753	0.55	791	0.64	829	0.74	860	0.83	920	1.02	969	1.20	1015	1.39	1061	1.60	1141	1.99	1228	2.42	1320	2.97
4000	1374	789	0.63	825	0.72	860	0.84	892	0.92	951	1.13	1000	1.31	1045	1.50	1090	1.72	1170	2.16	1240	2.53	1332	3.09
4200	1443	825	0.71	859	0.80	893	0.92	925	1.03	983	1.23	1032	1.44	1076	1.64	1119	1.85	1199	2.32	1270	2.74	1348	3.21
4400	1512	860	0.79	892	0.91	926	1.01	958	1.16	1015	1.36	1063	1.59	1108	1.78	1149	1.99	1227	2.48	1298	2.95	1362	3.35
4600	1581	896	0.91	929	1.02	960	1.13	991	1.28	1047	1.50	1095	1.72	1139	1.94	1179	2.15	1255	2.63	1327	3.14	1391	3.60
4800	1649	932	1.03	963	1.13	992	1.25	1023	1.39	1078	1.62	1128	1.86	1170	2.11	1209	2.32	1273	2.80	1355	3.35	1420	3.84
5000	1718	969	1.14	999	1.26	1027	1.37	1057	1.51	1120	1.76	1159	2.03	1202	2.29	1240	2.51	1312	2.97	1383	3.55	1449	4.08
5200	1787	1005	1.26	1034	1.41	1061	1.52	1089	1.65	1142	1.95	1190	2.31	1232	2.47	1272	2.72	1343	3.19	1401	3.75	1478	4.33
5400	1856	1041	1.42	1070	1.57	1097	1.68	1122	1.181	1175	2.13	1221	2.38	1266	2.65	1303	2.92	1375	3.42	1440	3.96	1505	4.58
5600	1924	1079	1.58	1105	1.72	1131	1.84	1157	1.98	1208	2.31	1252	2.55	1298	2.86	1336	3.13	1406	6.65	1469	4.17	1534	4.81
5800	1993	114	1.75	1140	1.88	1165	2.01	1190	2.14	1240	2.48	1285	2.75	1329	3.08	1368	3.33	1438	3.89	1500	4.45	1562	5.05

RE-24 24.50" Wheel Diameter

VOLUME CFM	Outlet Velocity FPM	SP, in. WG																					
		1/8"		1/4"		3/8"		1/2"		3/4"		1.0"		1-1/4"		1-1/2"		2.0"		2-1/2"		3.0"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2800	793	405	0.19	466	0.28	523	0.38	577	0.48	672	0.70	752	0.90	822	1.05	887	1.22	1010	1.77	1118	2.39	1212	2.98
3200	907	447	0.25	499	0.34	551	0.46	602	0.57	694	0.82	774	1.08	845	1.30	908	1.48	1023	1.85	1131	2.50	1229	3.19
3600	1020	490	0.33	537	0.43	585	0.55	629	0.67	718	0.94	796	1.22	867	1.51	931	1.78	1043	2.18	1145	2.60	1243	3.31
4000	1133	534	0.44	576	0.54	619	0.65	662	0.78	742	1.08	818	1.38	888	1.69	953	2.01	1066	2.58	1165	3.01	1256	3.42
4400	1246	580	0.61	618	0.68	657	0.78	696	0.92	769	1.21	843	1.55	910	1.88	974	2.24	1088	2.94	1188	3.50	1277	3.99
4800	1360	628	0.85	660	0.79	696	0.93	732	1.08	803	1.40	868	1.72	935	2.09	996	2.46	1110	3.24	1210	3.99	1300	4.58
5200	1473	675	1.09	705	0.99	738	1.12	770	1.16	837	1.60	898	1.93	960	2.31	1021	2.71	1132	3.53	1232	4.37	1322	5.18
5600	1586	723	1.32	749	1.18	779	1.32	810	1.49	871	1.81	931	2.18	986	2.54	1046	2.98	1153	3.82	1254	4.73	1344	5.62
6000	1700	771	1.58	794	1.42	822	1.54	852	1.73	908	2.07	965	2.45	1019	3.84	1071	3.23	1178	4.17	1275	5.10	1368	6.08
6400	1813	818	1.81	842	1.92	867	1.83	893	1.99	946	2.34	999	2.74	1053	3.17	1103	3.58	1204	4.52	1298	5.50	1388	6.52
6800	1926	866	2.06	889	2.50	911	2.11	935	2.26	986	2.68	1036	3.08	1087	3.51	1136	3.95	1229	4.88	1323	5.93	1409	6.96
7200	2040	914	2.32	937	2.89	955	2.30	979	2.63	1027	3.06	1074	3.42	1121	3.86	1170	4.35	1257	5.28	1348	6.37	1434	7.45
7600	2153	961	2.54	985	3.38	1003	3.08	1024	3.01	1069	3.42	1112	3.80	1158	4.29	1204	4.48	1291	5.78	1374	6.80	1459	8.00
8000	2266	1008	2.78	1032	3.85	1050	3.81	1068	3.39	1111	3.82	1153	4.30	1196	4.72	1238	5.20	1325	6.27	1401	7.29	1485	8.51

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings include the effects of a discharge scoop in the airstream.
Consult Central Blower Co. for CFM and S.P. not listed above.

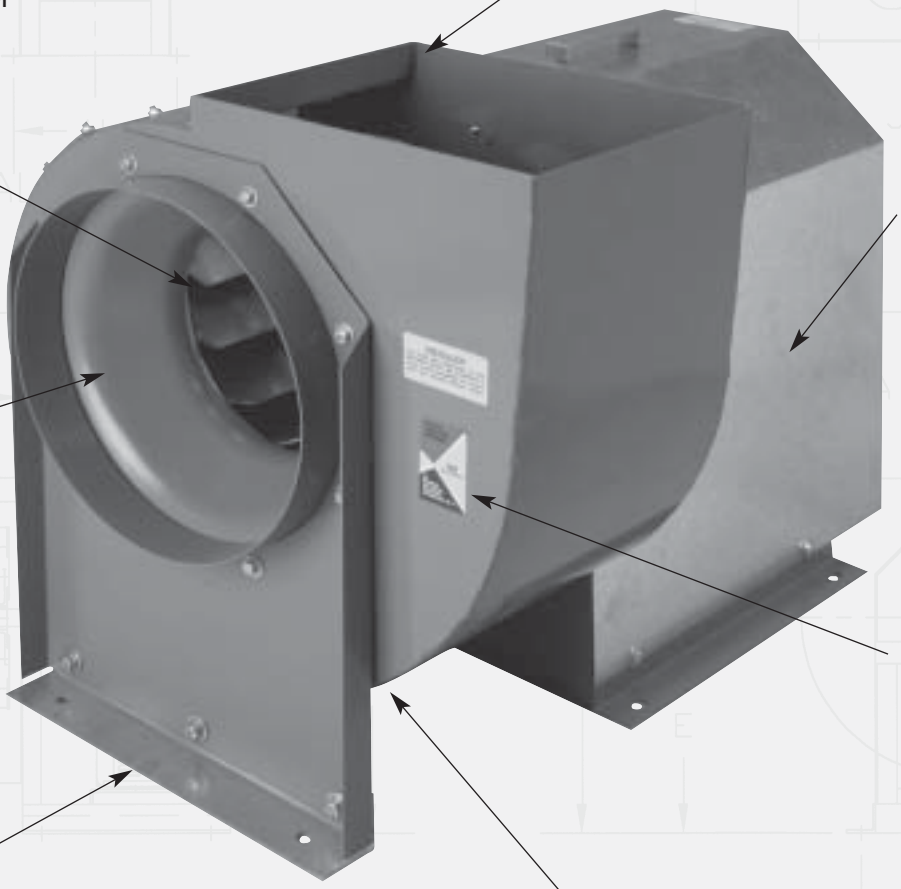
91Z0
Central Type RE Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

Central Blower Co. certifies that the Belt Drive Blowers shown on pages 2 through 15 are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of AMCA Certified Ratings Program.

Series BI UL

Backward Inclined Blowers for Restaurant Exhaust

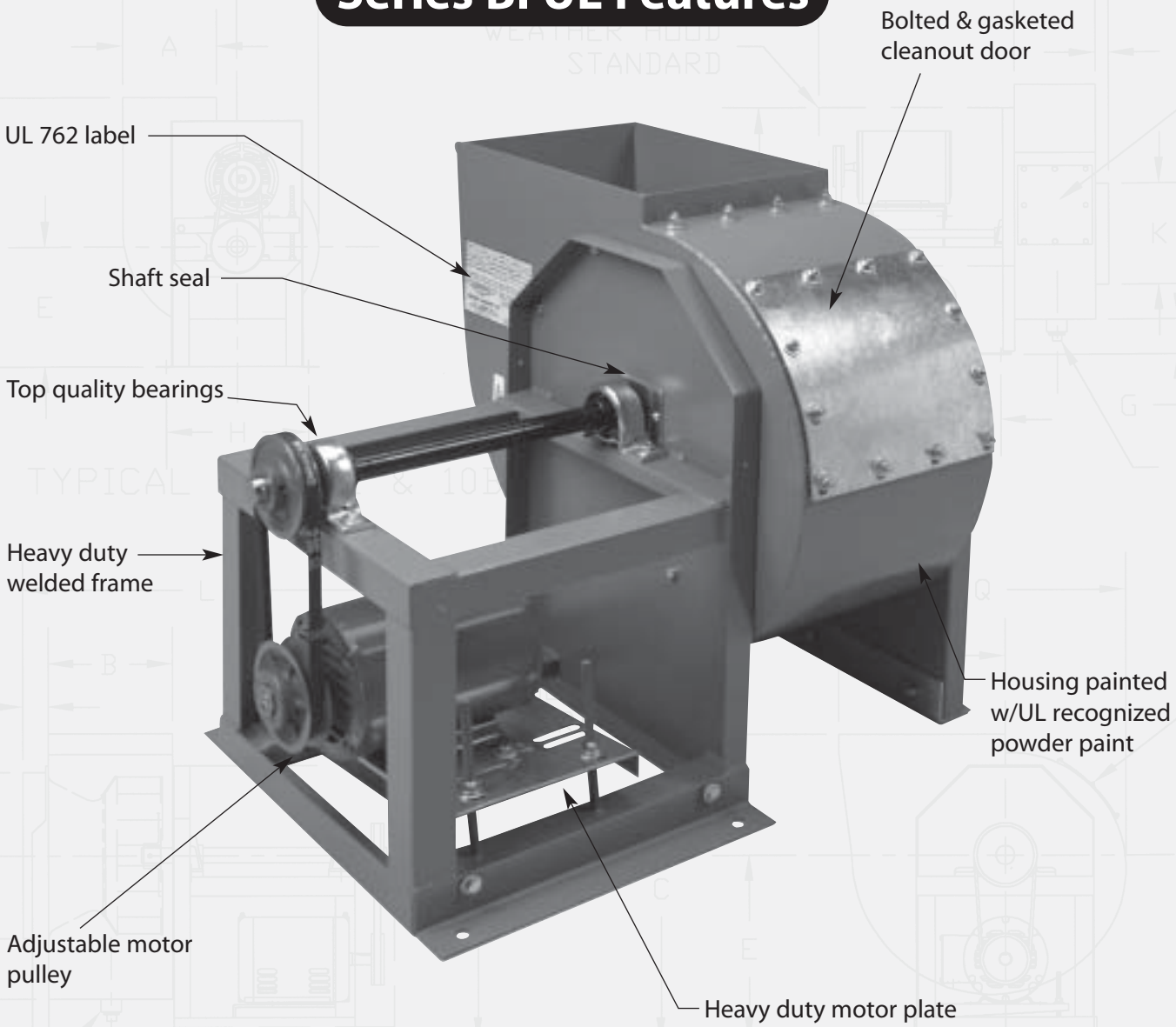


91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

Central Blower Co. certifies that the Belt Drive Blowers shown on pages 2 through 15 are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of AMCA Certified Ratings Program.

Series BI UL Features



Motors

- ▲ Quality US made
- ▲ Sized to fit CFM requirements
- ▲ Mounted outside, away from heat and grease

Drives

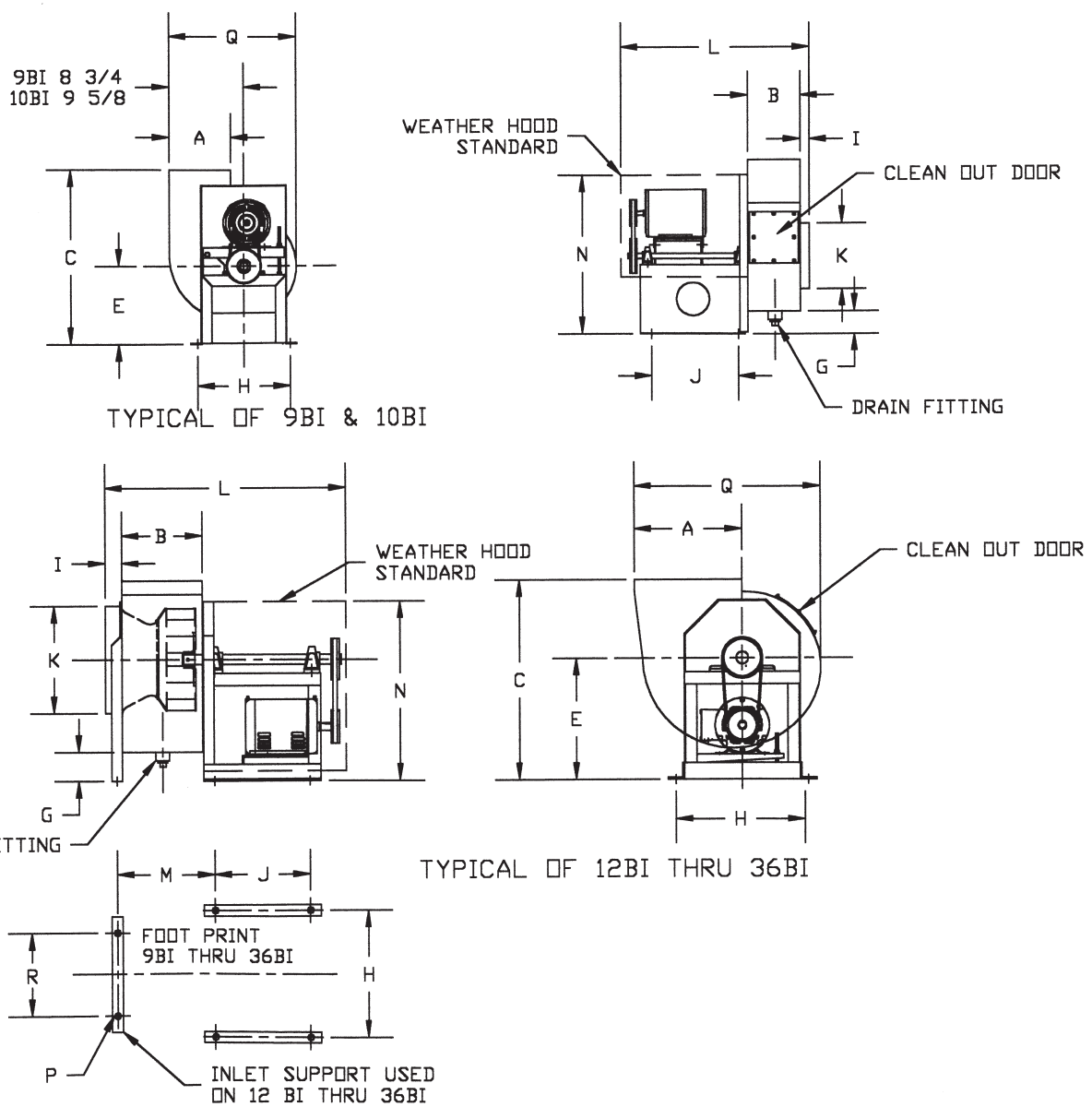
- ▲ Quality US made
- ▲ Cast iron for long life
- ▲ Variable pitch motor pulley for speed adjustment

Bearings

- ▲ Highest quality
- ▲ Rubber isolated for quiet operation

Series BI UL

Backward Inclined Blowers for Restaurant Exhaust



Dimensional Table

MODEL NO.	WHEEL DIA.	A	B	C	E	G	H	I	J	K	L	M	N	P	Q	R	SHAFT DIA.
9 BI	9 3/16	7 1/2	6 11/32	20 1/8	9 3/8	1 11/16	11 3/8	1 3/4	10 1/2	7 7/8	23		19 1/4	3/8	15 3/8		5/8
10 BI	10 5/8	8 3/16	8 3/16	23 3/16	10 1/4	1 9/16	13	1 3/4	11	8 7/8	26 1/2		21 3/4	3/8	17 3/16		3/4
12 BI	12 1/4	13 1/8	9 13/16	24 1/16	14 5/8	3 11/16	16	1 3/4	11 1/2	13	29	11 3/4	21 3/4	7/16	22 5/8	11	1
15 BI	15	16 1/8	12	29 1/8	17 5/8	4 1/4	19	2	12 1/2	15 7/8	32	14 1/8	26 1/4	9/16	27 5/8	14	1
18 BI	18 1/4	19 9/16	14 5/8	35 1/2	21 1/2	5 1/4	22 5/8	2	15 5/16	19 5/16	38 1/8	16 7/8	31 7/8	9/16	33 5/8	18	1 3/16
20 BI	20	21 7/16	15 15/16	38 7/8	23 1/2	5 23/32	22 5/8	2 3/16	15 5/16	21 3/16	39 7/16	18 3/16	33 7/8	9/16	36 7/8	22 5/8	1 3/16
22 BI	22 1/4	23 13/16	17 13/16	42 7/8	25 7/8	6 1/16	26 1/8	2 1/4	16 1/2	23 1/2	43 15/16	20 1/8	37 15/16	9/16	40 15/16	20	1 3/16
24 BI	24 1/2	26 3/16	19 5/8	49 9/16	27 7/8	6 1/8	26 1/8	2 1/4	16 1/2	25 7/8	45 1/16	21 15/16	39 15/16	9/16	45 15/16	26 1/8	1 3/16
27 BI	27	29	21 5/8	52	31 1/4	7 1/4	30 3/8	2 1/4	18 3/8	28 9/16	49 1/8	24 1/4	45 27/32	9/16	49 13/16	24	1 7/16
30 BI	30	32 3/16	24	59 1/4	36 1/4	9 1/2	39	2	20 11/16	31 1/2	58	26 15/16	54 1/4	9/16	55 1/2	39	1 11/16
36 BI	36 1/2	39 1/8	29 3/16	71 3/8	43 7/8	11 3/8	47	2	22 7/8	38 5/8	70	31 9/16	65 7/8	9/16	67 3/16	47	1 15/16

9-BI

9 3/16-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) .33

TIP SPEED (FPM) = 2.41 x RPM
MAX. BHP = .0205 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																					
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
100	297	875	0.01	1054	0.01	1206	0.02	1343	0.03	1467	0.04	1690	0.05	1887	0.07	2067	0.09	2233	0.11	2388	0.14	2672	0.19	2930	0.24	3167	0.30
200	593	1012	0.02	1172	0.02	1307	0.03	1429	0.04	1543	0.05	1750	0.07	1937	0.09	2107	0.12	2265	0.14	2413	0.17	2685	0.22	2934	0.28	3164	0.35
300	890	1200	0.03	1333	0.04	1459	0.05	1575	0.06	1683	0.07	1874	0.09	2044	0.12	2202	0.15	2350	0.18	2491	0.21	2753	0.27	2993	0.34	3215	0.41
400	1187	1429	0.05	1541	0.07	1645	0.08	1745	0.09	1842	0.10	2024	0.13	2190	0.16	2345	0.19	2484	0.22	2615	0.25	2859	0.32	3085	0.40	3298	0.48
500	1481	1673	0.08	1774	0.10	1866	0.12	1953	0.13	2036	0.15	2196	0.18	2349	0.21	2495	0.25	2632	0.28	2762	0.32	3002	0.40	3217	0.48	3418	0.56
600	1781	1929	0.13	2018	0.15	2102	0.17	2183	0.19	2257	0.21	2399	0.24	2535	0.28	2666	0.31	2794	0.36	2919	0.40	3149	0.48	3365	0.57	3565	0.66
700	2077	2193	0.18	2272	0.21	2348	0.23	2421	0.26	2492	0.29	2623	0.33	2746	0.37	2865	0.40	2980	0.45	3092	0.49	3311	0.59	3517	.069	3711	0.79
800	2374	2462	0.26	2533	0.29	2602	.0.31	2668	0.34	2733	0.37	2858	0.43	2973	0.48	3082	0.52	3187	0.57	3291	0.61	3490	0.71	3683	0.82	3871	0.93
900	2671	2735	0.36	2800	0.38	2862	0.41	2923	0.44	2983	0.48	3098	0.54	3208	0.61	3312	0.67	3410	0.72	3506	0.76	3691	0.86	3869	0.97	4042	1.09
1000	2967	3011	0.47	3070	0.50	3128	0.54	3184	0.57	3239	0.60	3345	0.68	3448	0.75	3548	0.82	3643	0.89	3732	0.95	3905	1.06	4072	1.16	4234	1.28
1100	3264	3289	0.62	3344	0.65	3397	0.68	3449	0.72	3500	0.76	3599	0.83	3695	0.91	3789	0.99	3879	1.08	3968	1.15	4131	1.28	4288	1.40	4441	1.52

10-BI

10 5/8-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) .452

TIP SPEED (FPM) = 2.78 x RPM
MAX. BHP = .0283 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																					
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
200	442	812	0.02	965	0.03	1098	0.04	1212	0.05	1322	0.06	1521	0.09	1698	0.12	1857	0.15	2002	0.19	2140	0.23	2389	0.31	2611	0.40	2820	0.50
300	664	901	0.02	1041	0.04	1161	0.05	1269	0.06	1373	0.08	1561	0.11	1725	0.14	1873	0.18	2019	0.22	2153	0.26	2403	0.35	2629	0.45	2833	0.55
400	885	1000	0.03	1134	0.05	1251	0.06	1357	0.08	1450	0.09	1623	0.13	1779	0.17	1929	0.21	2067	0.25	2193	0.30	2425	0.39	2642	0.50	2850	0.61
500	1106	1121	0.05	1233	0.07	1345	0.08	1449	0.10	1541	0.12	1710	0.16	1859	0.20	1995	0.24	2123	0.29	2248	0.34	2481	0.44	2692	0.55	2885	0.67
600	1327	1259	0.07	1358	0.09	1451	0.11	1546	0.13	1636	0.15	1801	0.19	1950	0.23	2082	0.28	2207	0.33	2321	0.38	2540	0.49	2746	0.61	2941	0.73
700	1548	1404	0.10	1491	0.12	1577	0.14	1659	0.16	1739	0.18	1896	0.23	2041	0.28	2173	0.33	2298	0.38	2411	0.44	2621	0.55	2817	0.68	2998	0.81
800	1720	1559	0.14	1634	0.16	1710	0.18	1785	0.21	1859	0.23	2000	0.28	2136	0.33	2268	0.38	2388	0.44	2502	0.50	2711	0.62	2901	0.75	3075	0.89
900	1991	1715	0.19	1785	0.21	1852	0.24	1920	0.26	1986	0.28	2118	0.34	2240	0.39	2362	0.45	2482	0.51	2596	0.57	2801	0.70	2993	0.84	3167	0.98
1000	2212	1876	0.25	1940	0.27	2001	0.30	2061	0.32	2123	0.35	2241	0.40	2358	0.46	2469	0.53	2582	0.59	2690	0.66	2895	0.79	3083	0.94	3259	1.09
1200	2654	2203	0.40	2259	0.43	2309	0.46	2364	0.49	2412	0.52	2516	0.58	2613	0.65	2713	0.72	2811	0.79	2903	0.86	3092	1.01	3272	1.17	3442	1.34
1400	3097	2539	0.61	2583	0.65	2630	0.68	2675	0.71	2721	0.75	2809	0.82	2898	0.89	2983	0.97	3069	1.04	3152	1.13	3318	1.29	3478	1.47	3639	1.64
1600	3539	2874	0.89	2916	0.93	2955	0.97	2998	1.01	3039	1.04	3118	1.12	3192	1.20	3269	1.29	3348	1.37	3420	1.46	3570	1.64	3718	1.83	3858	2.02

12-BI

12 1/4-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) .855

TIP SPEED (FPM) = 3.21 x RPM
MAX. BHP = .079 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																					
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
800	936	904	0.06	993	0.08	1077	0.10	1159	0.13	1240	0.16	1401	0.21	1548	0.27												
1000	1170	1055	0.10	1120	0.12	1190	0.14	1261	0.17	1329	0.20	1459	0.25	1593	0.32	1721	0.39	1840	0.46	1955	0.53						
1200	1404	1194	0.14	1260	0.16	1329	0.20	1389	0.23	1445	0.26	1560	0.32	1669	0.41	1775	0.46	1890	0.54	1999	0.62	2200	0.79	2389	0.97		
1400	1637	1352	0.20	1410	0.23	1469	0.27	1521	0.30	1578	0.33	1679	0.40	1779	0.48	1870	0.55	1965	0.63	2055	0.71	2249	0.89	2433	1.09	2600	1.30
1600	1871	1519	0.28	1566	0.31	1618	0.35	1667	0.39	1713	0.43	1809	0.52	1889	0.58	1989	0.67	2070	0.75	2150	0.84	2313	1.02	2482	1.23	2648	1.44
1800	2105	1680	0.39	1728	0.42	1770	0.45	1812	0.50	1860	0.54	1948	0.62	2030	0.71	2110	0.80	2190	0.89	2268	1.00	2410	1.18	2559	1.39	2700	1.60
2000	2339	1850	0.48	1890	0.54	1930	0.59	1970	0.63	2010	0.67	2090	0.77	2169	0.86	2240	0.96	2315	1.06	2386	1.17	2529	1.38	2659	1.58	2789	1.80
2200	2573	2021	0.62	2059	0.70	2091	0.74	2130	0.79	2165	0.83	2239	0.94	2310	1.03	2380	1.14	2450	1.25	2518	1.36	2641	1.58	2771	1.83	2890	2.05
2400	2807	2195	0.84	2225	0.85	2260	0.93	2290	0.97	2323	1.03	2390	1.13	2458	1.23	2520	1.34	2588	1.46	2650	1.58	2771	1.83	2890	2.06	3019	2.33
2600	3041	2369	1.08	2395	1.01	2425	1.15	2459	1.18	2485	1.24	2549	1.35	2610	1.46	2670	1.59	2730	1.70	2790	1.83	2909	2.09	3020	2.36	3128	2.61
2800	3275	2540	1.34	2569	1.32	2590	1.32	2620	1.46	2650	1.48	2709	1.62	2761	1.73	2820	1.86	2878	2.00	2930	2.12	3041	2.39	3151	2.67	3258	2.95
3000	3509	2711	1.58	2740	1.65	2761	1.55	2790	1.73	2818	1.79	2870	1.91	2920	2.04	2973	2.16	3029	2.30	3080	2.45	3181	2.70	3290	3.08	3389	3.32

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings do not include the effects of appurtenances in the airstream.

91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

15-BI

15-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 1.282

TIP SPEED (FPM) = 3.93 x RPM
MAX. BHP = .217 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																			
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1000	780	730	0.08	809	0.11	872	0.13	934	0.16	996	0.19	1108	0.25	1217	0.32	1320	0.39	1418	0.47	1510	0.55	1682	0.72	1837	0.89	1980	1.07
1100	858	767	0.10	847	0.13	912	0.15	969	0.18	1026	0.21	1131	0.27	1235	0.35	1334	0.42	1427	0.50	1519	0.58	1689	0.76	1843	0.94	1986	1.13
1200	936	804	0.11	885	0.15	952	0.18	1007	0.21	1062	0.23	1160	0.30	1257	0.37	1351	0.45	1442	0.53	1529	0.62	1695	0.80	1848	1.00	1991	1.20
1400	1092	879	0.14	959	0.19	1027	0.23	1086	0.27	1133	0.30	1229	0.37	1315	0.45	1401	0.52	1483	0.61	1564	0.70	1719	0.89	1865	1.10	2004	1.32
1600	1248	960	0.19	1032	0.23	1101	0.28	1161	0.33	1210	0.38	1307	0.46	1386	0.54	1464	0.62	1539	0.71	1613	0.80	1756	1.00	1893	1.22	2025	1.44
1800	1404	1046	0.24	1110	0.29	1174	0.34	1235	0.40	1285	0.46	1385	0.55	1466	0.64	1537	0.73	1607	0.82	1674	0.92	1806	1.12	1934	1.35	2057	1.59
2000	1560	1136	0.31	1193	0.36	1251	0.42	1308	0.47	1360	0.52	1460	0.65	1543	0.76	1617	0.87	1683	0.96	1745	1.06	1867	1.28	1987	1.50	2101	1.74
2200	1716	1227	0.39	1279	0.44	1332	0.50	1385	0.56	1435	0.62	1535	0.76	1619	0.89	1694	1.01	1763	1.13	1823	1.23	1938	1.45	2049	1.69	2158	1.93
2400	1872	1319	0.48	1368	0.54	1417	0.60	1464	0.67	1511	0.74	1607	0.88	1693	1.02	1770	1.16	1839	1.29	1905	1.42	2015	1.56	2119	1.90	2221	2.15
2600	2028	1413	0.58	1459	0.65	1503	0.72	1548	0.79	1592	0.86	1681	1.01	1767	1.17	1844	1.32	1915	1.47	1973	1.61	2096	1.89	2196	2.14	2292	2.40
2800	2184	1508	0.71	1551	0.78	1593	0.85	1634	0.92	1675	0.99	1759	1.15	1839	1.32	1918	1.49	1989	1.66	2055	1.82	2172	2.12	2276	2.41	2368	2.69
3000	2340	1603	0.85	1644	0.92	1684	1.00	1722	1.07	1760	1.14	1836	1.31	1915	1.67	1990	1.67	2063	1.85	2129	2.03	2248	2.37	2354	2.69	2448	3.00
3200	2496	1699	1.00	1738	1.09	1776	1.17	1813	1.25	1849	1.33	1921	1.50	1993	1.68	2065	1.87	2135	2.06	2203	2.26	2323	2.63	2430	2.99	2527	3.33
3400	2652	1796	1.18	1833	1.27	1869	1.36	1904	1.44	1938	1.52	2006	1.71	2070	1.89	2142	2.08	2209	2.29	2275	2.49	2397	2.90	2506	3.30	2603	3.66
3600	2808	1892	1.38	1928	1.47	1962	1.57	1996	1.66	2028	1.75	2092	1.93	2157	2.12	2220	2.32	2285	2.53	2348	2.75	2471	3.19	2579	3.61	2680	4.03
3800	2964	1990	1.60	2024	1.70	2056	1.80	2088	1.89	2119	1.98	2181	2.18	2242	2.38	2302	2.59	2362	2.80	2424	3.02	2543	3.48	2654	3.94	2753	4.38
4000	3120	2087	1.84	2120	1.95	2151	2.05	2182	2.15	2211	2.25	2271	2.46	2328	2.66	2387	2.88	2442	3.09	2502	3.32	2616	3.80	2727	4.29	2828	4.76
4200	3276	2185	2.11	2216	2.22	2247	2.33	2276	2.44	2304	2.55	2362	2.76	2416	2.97	2472	3.19	2527	3.42	2580	3.65	2692	4.14	2799	4.64	2902	5.16

18-BI

18 1/4 -INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 1.898

TIP SPEED (FPM) = 4.78 x RPM
MAX. BHP = .580 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																			
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1600	843	594	0.12	651	0.16	704	0.20	760	0.25	813	0.30	913	0.40	1000	0.51	1088	0.62	1169	0.74	1245	0.87	1387	1.14	1517	1.46	1637	1.80
1800	948	641	0.15	692	0.19	742	0.24	789	0.28	840	0.34	935	0.45	1022	0.57	1100	0.68	1178	0.80	1254	0.94	1393	1.21	1520	1.51	1639	1.86
2000	1054	690	0.19	737	0.23	783	0.28	827	0.33	869	0.38	959	0.50	1044	0.63	1123	0.75	1194	0.88	1263	1.01	1401	1.30	1527	1.61	1643	1.93
2200	1159	739	0.23	784	0.28	826	0.33	868	0.38	907	0.43	987	0.55	1067	0.68	1144	0.83	1217	0.97	1284	1.11	1410	1.40	1535	1.72	1651	2.05
2400	1264	789	0.28	833	0.33	872	0.38	911	0.44	948	0.49	1019	0.61	1095	0.75	1167	0.90	1238	1.05	1307	1.21	1428	1.51	1544	1.83	1659	2.18
2600	1370	839	0.33	881	0.39	920	0.45	956	0.50	991	0.56	1060	0.69	1125	0.82	1195	0.97	1262	1.13	1327	1.30	1452	1.63	1561	1.96	1668	2.31
2800	1475	890	0.39	931	0.46	969	0.52	1003	0.58	1036	0.64	1101	0.77	1163	0.91	1224	1.05	1290	1.22	1352	1.39	1474	1.75	1585	2.11	1685	2.47
3000	1581	942	0.46	982	0.53	1017	0.60	1051	0.67	1082	0.73	1144	0.87	1204	1.01	1261	1.15	1318	1.31	1380	1.49	1494	1.86	1608	2.27	1709	2.64
3200	1686	994	0.54	1032	0.61	1067	0.69	1100	0.76	1130	0.83	1189	0.97	1246	1.12	1301	1.27	1354	1.43	1408	1.60	1521	1.99	1626	2.39	1732	2.82
3400	1791	1046	0.66	1083	0.71	1117	0.78	1149	0.86	1179	0.94	1235	1.09	1289	1.24	1342	1.40	1394	1.56	1433	1.73	1549	2.12	1652	2.54	1751	2.97
3600	1897	1099	0.72	1134	0.81	1167	0.89	1198	0.97	1228	1.05	1282	1.21	1334	1.37	1385	1.54	1435	1.71	1483	1.88	1578	2.25	1679	2.69	1774	3.13
3800	2002	1152	0.83	1186	0.92	1281	1.01	1248	1.09	1277	1.18	1331	1.35	1380	1.52	1429	1.69	1477	1.86	1524	2.04	1613	2.41	1708	2.85	1802	3.31
4200	2213	1259	1.07	1291	1.17	1321	1.27	1350	1.37	1377	1.46	1428	1.66	1476	1.85	1521	2.03	1565	2.22	1608	2.41	1694	2.81	1774	3.21	1858	3.68
4600	2424	1368	1.37	1397	1.47	1425	1.58	1452	1.69	1478	1.80	1527	2.01	1573	2.22	1617	2.43	1658	2.63	1698	2.83	1777	3.25	1856	3.69	1929	4.13
5000	2634	1476	1.71	1504	1.83	1530	1.95	1556	2.06	1581	2.18	1628	2.41	1672	2.54	1714	2.87	1754	3.10	1792	3.31	1866	3.76	1939	4.22	2011	4.69
5400	2845	1586	2.11	1612	2.24	1637	2.37	1661	2.49	1684	2.62	1729	2.88	1772	3.12	1812	3.37	1851	3.62	1888	3.86	1958	4.34	2027	4.82	2094	5.31
5800	3056	1696	2.58	1720	2.71	1744	2.85	1767	2.98	1789	3.12	1832	3.40	1873	3.67	1912	3.93	1949	4.20	1986	4.48	2054	4.98	2117	5.49	2182	6.01
6200	3267	1806	3.11	1829	3.25	1851	3.40	1873	3.54	1894	3.69	1936	3.98	1975	4.28	2013	4.56	2049	4.84	2084	5.13	2151	5.70	2213	6.24	2272	6.79

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings do not include the effects of appurtenances in the airstream.

91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

20-BI

20-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 2.280

TIP SPEED (FPM) = 5.24 x RPM
MAX. BHP = .910 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1900	833	517	0.13	582	0.18	637	0.23	689	0.28	736	0.34	825	0.45	904	0.57	983	0.73										
2200	965	541	0.16	621	0.23	672	0.31	720	0.34	766	0.40	850	0.52	928	0.65	1000	0.79	1066	0.93								
2500	1096	586	0.20	646	0.27	711	0.34	757	0.40	799	0.46	881	0.61	950	0.74	1024	0.89	1090	1.04	1152	1.20						
2800	1228	634	0.25	677	0.31	740	0.41	796	0.47	837	0.54	912	0.68	985	0.84	1052	1.00	1114	1.16	1176	1.33	1288	1.68	1390	2.05		
3100	1360	683	0.31	724	0.38	763	0.45	824	0.54	876	0.63	949	0.78	1017	0.95	1083	1.12	1144	1.29	1201	1.47	1312	1.84	1413	2.23	1507	2.64
3400	1491	735	0.39	772	0.46	807	0.53	848	0.61	903	0.71	988	0.90	1053	1.07	1114	1.24	1175	1.43	1231	1.62	1336	2.01	1437	2.42	1531	2.85
3700	1623	789	0.47	821	0.55	855	0.63	887	0.71	927	0.80	1026	1.02	1091	1.21	1150	1.39	1206	1.58	1260	1.79	1366	2.20	1462	2.63	1555	3.08
4000	1754	843	0.57	871	0.65	903	0.73	934	0.82	963	0.90	1049	1.13	1131	1.36	1189	1.56	1243	1.76	1294	1.96	1397	2.40	1491	2.85	1579	3.32
4300	1886	897	0.67	924	0.76	952	0.85	982	0.95	1010	1.04	1073	1.24	1159	1.50	1228	1.74	1281	1.95	1332	2.16	1429	2.61	1522	3.09	1609	3.58
4600	2018	952	0.80	978	0.89	1002	0.99	1031	1.09	1058	1.18	1109	1.38	1183	1.64	1261	1.91	1320	2.15	1370	2.38	1463	2.85	1554	3.34	1639	3.84
4900	2149	1008	0.94	1032	1.04	1056	1.14	1080	1.25	1106	1.35	1156	1.56	1207	1.78	1285	2.07	1357	2.37	1409	2.62	1501	3.11	1585	3.60	1671	4.14
5200	2281	1064	1.10	1087	1.20	1109	1.31	1131	1.42	1155	1.53	1204	1.75	1249	1.97	1309	2.24	1380	2.55	1448	2.87	1539	3.38	1623	3.82	1702	4.44
5800	2544	1176	1.46	1197	1.58	1218	1.70	1238	1.82	1257	1.94	1301	2.19	1344	2.43	1385	2.68	1428	2.95	1495	3.30	1618	4.00	1700	4.57	1776	5.14
6400	2807	1289	1.91	1309	2.04	1328	2.17	1346	2.30	1364	2.43	1400	2.71	1440	2.97	1479	3.24	1517	3.52	1553	3.80	1665	4.53	1776	5.30	1853	5.94
7000	3070	1403	2.44	1421	2.58	1438	2.72	1456	2.87	1473	3.01	1505	3.30	1539	3.60	1576	3.89	1612	4.19	1646	4.49	1712	5.10	1823	5.94	1925	6.79
7600	3333	1517	3.07	1534	3.22	1550	3.37	1567	3.53	1582	3.68	1613	4.00	1643	4.32	1674	4.64	1709	4.96	1742	5.24	1836	6.23	1870	6.62	1972	7.54

22-BI

22.25 -INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 2.821

TIP SPEED (FPM) = 5.83 x RPM
MAX. BHP = 1.562 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2200	780	466	0.16	514	0.21	564	0.27	611	0.34	658	0.42	737	0.55	815	0.71	888	0.87	955	1.05	1018	1.23	1136	1.66	1243	2.12	1341	2.61
2500	886	503	0.20	547	0.26	589	0.32	633	0.39	675	0.47	757	0.63	827	0.79	895	0.95	963	1.14	1024	1.33	1138	1.73	1245	2.20	1343	2.71
2800	993	542	0.25	583	0.31	622	0.39	659	0.44	698	0.2	774	0.70	846	0.88	910	1.06	975	1.24	1031	1.44	1145	1.86	1248	2.30	1346	2.81
3100	1099	583	0.30	621	0.37	657	0.44	692	0.52	725	0.59	796	0.77	863	0.96	929	1.17	988	1.36	1042	1.56	1152	2.00	1255	2.46	1350	2.95
3400	1205	624	0.37	661	0.45	694	0.52	727	0.60	759	0.68	820	0.85	885	1.06	945	1.27	1007	1.50	1061	1.71	1162	2.14	1262	2.63	1357	3.14
3700	1312	665	0.44	701	0.53	733	0.61	760	0.69	793	0.78	851	0.96	908	1.16	968	1.38	1023	1.61	1080	1.86	1180	2.32	1272	2.80	1364	3.33
4000	1418	707	0.53	741	0.62	773	0.71	801	0.80	830	0.89	885	1.08	936	1.27	991	1.50	1045	1.74	1097	1.99	1200	2.52	1289	3.02	1374	3.53
4300	1524	750	0.63	783	0.73	813	0.83	841	0.92	867	1.02	919	1.21	970	1.42	1017	1.63	1069	1.88	1119	2.14	1216	2.68	1309	3.24	1391	3.78
4600	1631	793	0.74	824	0.84	854	0.95	881	1.05	906	1.16	956	1.36	1004	1.57	1050	1.80	1095	2.03	1143	2.30	1236	2.86	1326	3.45	1411	4.05
4900	1737	836	0.86	867	0.98	895	1.09	921	1.20	946	1.31	993	1.53	1039	1.75	1084	1.98	1122	2.22	1169	2.47	1259	3.05	1374	3.66	1429	4.30
5200	1843	879	1.00	909	1.12	936	1.24	962	1.36	987	1.48	1032	1.71	1075	1.94	1118	2.1	1160	2.43	1200	2.68	1282	3.25	1366	3.88	1444	4.52
5800	2056	967	1.32	995	1.45	1021	1.89	1045	1.72	1068	1.85	1112	2.12	1152	2.37	1191	2.63	1229	2.90	1267	3.17	1340	3.73	1413	4.35	1489	5.06
6400	2269	1056	1.70	1082	1.85	1106	2.00	1129	2.16	1151	2.30	1193	2.59	1232	2.89	1268	3.17	1303	3.45	1339	3.74	1407	4.34	1473	4.95	1538	5.62
7000	2481	1146	2.16	1170	2.33	1192	2.49	1214	2.66	1235	2.82	1275	3.14	1312	3.46	1348	3.78	1381	4.098	1413	4.40	1478	5.03	1540	5.69	1601	6.36
7600	2694	1236	2.70	1258	2.88	1280	3.06	1300	3.24	1320	3.42	1358	3.77	1394	4.12	1429	4.47	1461	4.82	1492	5.15	1551	5.82	1610	6.51	1668	7.23
8200	2907	1327	3.33	1348	3.53	1368	3.72	1387	3.91	1406	4.10	1443	4.50	1477	4.87	1510	5.24	1542	5.62	1572	5.99	1629	6.71	1684	7.44	1738	8.19
8800	3119	1418	4.06	1438	4.26	1457	4.47	1475	4.68	1493	4.88	1528	5.30	1461	5.71	1593	6.11	1623	6.52	1653	6.92	1708	7.71	1760	8.48	1812	9.27
9400	3332	1510	4.89	1528	5.10	1546	5.32	1564	5.54	1581	5.76	1614	6.21	1646	6.66	1677	7.09	1706	7.52	1734	7.95	1789	8.82	1839	9.64	1887	10.1

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings do not include the effects of appurtenances in the airstream.

91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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

24-BI

24.50-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 3.490

TIP SPEED (FPM) = 6.41 x RPM
MAX. BHP = 2.420 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2800	802	428	0.18	476	0.25	522	0.32	565	0.40	606	0.448	680	0.65	748	0.83	811	1.02	872	1.22	929	1.43	1034	1.86	1130	2.30	1217	2.77
3200	917	457	0.23	504	0.31	547	0.38	587	0.46	626	0.55	698	0.74	763	0.93	824	1.13	881	1.34	936	1.56	1040	2.02	1135	2.51	1222	3.01
3600	1032	491	0.28	534	0.37	575	0.45	613	0.54	649	0.63	718	0.83	781	1.03	840	1.25	895	1.47	948	1.70	1047	2.18	1141	2.71	1227	3.25
4000	1146	525	0.35	567	0.44	605	0.53	641	0.63	676	0.73	740	0.93	801	1.15	859	1.38	912	1.62	963	1.86	1059	2.37	1148	2.90	1234	3.47
4400	1261	561	0.43	600	0.52	637	0.62	670	0.72	703	0.83	766	1.05	824	1.27	879	1.51	931	1.77	981	2.03	1074	2.56	1161	3.12	1242	3.70
4800	1375	598	0.51	634	0.62	670	0.72	702	0.83	733	0.94	792	1.18	848	1.42	901	1.67	952	1.93	1001	2.20	1091	2.77	1176	3.36	1256	3.97
5200	1490	636	0.62	670	0.72	703	0.84	735	0.95	765	1.07	821	1.32	875	1.58	925	1.84	974	2.11	1021	2.39	1110	2.98	1193	3.60	1270	4.24
5600	1605	674	0.73	707	0.85	738	0.97	768	1.09	797	1.22	851	1.48	902	1.75	952	2.03	998	2.30	1044	2.59	1130	3.21	1212	3.86	1288	4.53
6000	1719	712	0.86	744	0.99	774	1.11	802	1.24	830	1.38	883	1.65	931	1.93	979	2.23	1025	2.53	1068	2.82	1152	3.46	1231	4.13	1306	4.83
7000	2006	811	1.27	839	1.41	866	1.56	892	1.70	916	1.85	964	2.16	1010	2.48	1053	2.80	1095	3.14	1136	3.48	1213	4.18	1286	4.88	1358	5.64
8000	2292	912	1.79	936	1.95	960	2.12	984	2.29	1007	2.45	1051	2.79	1093	3.14	1134	3.51	1172	3.87	1209	4.25	1282	5.02	1351	5.82	1417	6.60
9000	2579	1014	2.44	1036	2.63	1057	2.82	1079	3.01	1101	3.19	1141	3.57	1179	3.95	1217	4.34	1254	4.75	1290	5.16	1356	5.99	1421	6.86	1484	7.76
10000	2865	1117	3.25	1137	3.46	1157	3.67	1176	3.88	1196	4.09	1234	4.50	1270	4.92	1305	5.35	1338	5.77	1372	6.22	1437	7..13	1497	8.06	1555	9.01
11000	3152	1221	4.23	1239	4.46	1258	4.69	1275	4.92	1295	5.16	1328	5.61	1363	6.07	1396	6.53	1427	6.99	1458	7.46	1519	8.44	1578	9.44	1633	10.5
12000	3438	1325	5.40	1342	5.65	1359	5.90	1376	6.15	1392	6.41	1424	6.91	1457	7.41	1488	7.90	1518	8.41	1547	8.91	1603	9.93	1660	11.0	1714	12.1

27-BI

27.00 -INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 4.260

TIP SPEED (FPM) = 7.07 x RPM
MAX. BHP = 3.982 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3400	798	390	0.21	430	0.630	467	0.34	502	0.45	538	0.55	604	0.79	669	0.99	730	1.22	785	1.45	838	1.69	930	2.20	1017	2.78	1095	3.33
3800	892	414	0.27	452	0.36	488	0.42	520	0.52	552	0.63	615	0.87	680	1.10	738	1.32	790	1.58	840	1.82	935	2.33	1020	2.94	1098	3.55
4200	985	442	0.34	482	0.44	512	0.52	545	0.60	572	0.73	630	0.95	691	1.20	145	1.43	795	1.72	845	1.95	940	2.50	1024	3.14	1100	3.78
4600	1080	470	0.40	509	0.50	538	0.61	568	0.72	593	0.83	648	1.05	706	1.30	758	1.56	802	1.85	855	2.10	942	2.66	1029	3.33	1105	4.00
5000	1174	504	0.44	540	0.58	566	0.70	592	0.83	622	0.96	667	1.17	722	1.42	771	1.70	812	2.00	866	2.28	950	2.84	1030	3.56	1110	4.22
5400	1268	530	0.54	568	0.67	593	0.82	617	0.95	648	1.08	688	1.30	740	1.56	786	1.84	827	2.16	880	2.30	958	3.04	1038	3.75	1115	4.49
5800	1362	560	0.65	597	0.80	620	0.94	645	1.09	673	1.22	710	1.42	760	1.56	804	2.00	842	2.31	892	2.60	967	3.23	1048	3.96	1122	4.70
6200	1455	592	0.77	626	0.90	648	1.08	674	1.22	702	1.37	738	1.60	780	1.88	822	2.18	863	2.50	910	2.81	980	3.42	1059	4.20	1132	4.93
6600	1549	623	0.92	655	1.05	675	1.22	702	1.38	728	1.52	777	1.76	803	2.06	843	2.38	886	2.69	928	3.03	996	3.68	1082	4.47	1141	5.23
7000	1643	658	1.07	687	1.20	704	1.36	732	1.52	755	1.68	793	1.93	831	2.25	868	2.59	908	2.90	949	3.24	1014	3.95	1088	4.72	1152	5.51
8000	1878	738	1.50	760	1.62	779	1.78	803	1.92	822	2.14	860	2.45	900	2.82	936	3.19	969	3.55	1006	3.88	1069	4.68	1130	5.48	1194	6.36
9000	2113	816	2.00	834	2.14	854	2.31	876	2.45	890	2.73	929	3.12	970	3.41	1002	3.96	1032	4.35	1065	4.67	1127	5.60	1182	6.42	1240	7.28
10000	2347	894	2.63	910	2.80	929	2.97	948	3.16	967	3.48	1000	3.90	1039	4.33	1070	4.88	1098	5.30	1129	5.95	1189	6.83	1240	7.70	1293	8.40
11000	2582	972	3.41	988	3.60	1005	3.80	1022	3.98	1040	4.30	1074	4.81	1109	5.24	1138	5.85	1166	6.35	1193	6.80	1252	7.87	1302	8.85	1350	9.73
12000	2817	1052	4.40	1067	4.52	1082	4.70	1102	4.93	1121	5.28	1150	5.85	1178	6.30	1213	6.88	1238	7.50	1264	8.00	1320	9.05	1365	10.3	1412	11.2
13000	3052	1132	5.45	1145	5.60	1160	5.74	1180	6.00	1198	6.42	1229	7.02	1253	7.52	1282	8.15	1305	8.75	1332	9.25	1390	10.5	1430	11.8	1477	12.8
14000	3286	1210	6.55	1222	6.73	1238	6.95	1256	7.29	1275	7.66	1307	8.35	1330	8.90	1355	9.58	1382	10.3	1405	10.8	1460	12.1	1495	13.5	1540	14.6

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss.
Performance ratings do not include the effects of appurtenances in the airstream.

91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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AIR MOVEMENT AND CONTROL ASSOCIATION, INC.

30-BI

30.00-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 5.260

TIP SPEED (FPM) = 7.85 x RPM
MAX. BHP = 6.743 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4000	760	351	0.25	387	0.35	419	0.43	452	0.53	484	0.64	544	0.91	602	1.16	657	1.47	707	1.73	754	2.00	837	2.64	915	3.33	986	4.00
4500	855	365	0.35	401	0.43	432	0.49	463	0.62	493	0.74	550	1.02	607	1.30	689	1.48	710	1.89	756	2.17	839	2.81	918	3.53	989	4.66
5000	950	390	0.37	424	0.46	450	0.58	482	0.69	508	0.84	562	1.12	620	1.42	666	1.73	713	2.04	759	2.35	844	3.00	920	3.77	990	4.54
5500	1045	416	0.43	450	0.57	477	0.70	504	0.84	527	0.99	576	1.23	630	1.57	678	1.86	720	2.22	766	2.52	847	3.21	924	4.01	993	4.81
6000	1140	443	0.49	476	0.67	501	0.81	526	0.98	551	1.11	594	1.38	644	1.72	689	2.02	729	2.41	774	2.72	851	3.43	927	4.28	997	5.11
6500	1239	468	0.62	502	0.78	526	0.98	547	1.12	576	1.28	612	1.53	661	1.85	702	2.22	731	2.59	787	2.95	857	3.65	932	4.54	1001	5.42
7000	1331	495	0.74	529	0.90	551	1.11	572	1.28	599	1.46	632	1.72	679	2.16	717	2.39	754	2.79	800	3.14	867	3.90	940	4.81	1008	5.68
8000	1521	553	1.06	581	1.23	600	1.44	624	1.62	648	1.81	682	2.10	7717	2.47	752	2.84	792	3.25	830	3.64	892	4.44	961	5.42	1024	6.35
9000	1711	612	1.47	636	1.60	652	1.80	677	2.01	697	2.22	732	2.54	765	2.96	797	3.52	831	3.78	868	4.20	926	5.12	990	6.07	1049	7.22
10000	1901	670	1.90	689	2.05	707	2.25	729	2.41	745	2.69	779	3.09	817	3.54	848	4.01	877	4.46	909	4.88	965	5.86	1020	6.77	1078	7.97
11000	2091	728	2.42	746	2.59	763	2.79	783	2.98	797	3.31	830	3.77	867	4.26	896	4.81	923	5.28	953	5.68	1009	6.79	1059	7.80	1112	8.89
12000	2281	785	3.04	801	3.21	817	3.42	835	3.64	851	4.05	883	4.57	918	5.06	945	5.70	971	6.21	1001	6.60	1055	7.72	1102	8.97	1150	9.97
13000	2471	842	3.73	857	3.95	873	4.20	887	4.42	904	4.79	935	5.37	968	5.91	995	6.64	1019	7.22	1046	7.72	1099	8.91	1144	10.2	1191	11.2
14000	2662	900	4.62	914	4.81	927	5.04	943	5.30	961	5.70	900	6.36	1017	6.89	1047	7.668	1071	8.31	1095	8.89	1146	10.1	1119	11.4	1236	12.6
15000	2852	958	5.59	971	5.74	984	5.95	1003	6.26	1019	6.69	1028	7.41	1069	7.99	1102	8.70	1125	9.44	1147	10.1	1199	11.4	1238	12.9	1278	14.0
16000	3042	1015	6.64	1028	6.84	1040	7.04	1060	7.35	1075	7.88	1103	8.60	1125	9.20	1151	9.97	1175	10.7	1197	11.4	1249	12.9	1285	14.4	1328	15.7
17000	3232	1073	7.78	1085	7.96	1098	8.21	1115	8.59	1131	9.10	1159	9.91	1181	10.5	1204	11.3	1227	12.2	1249	12.9	1301	14.4	1334	16.0	1373	17.4
18000	3422	1130	9.05	1143	9.31	1157	9.63	1175	10.0	1191	10.5	1206	11.4	1224	12.1	1260	12.9	1283	13.7	1307	14.5	1352	16.2	1384	17.9	1422	19.3

36-BI

36.50-INCH WHEEL DIAMETER
OUTLET AREA (SQ. FT.) 7.785

TIP SPEED (FPM) = 9.56 x RPM
MAX. BHP = 17.977 x (RPM/1000)^3

VOLUME CFM	O.V. FPM	SP, in. WG																							
		1/4"		3/8"		1/2"		5/8"		3/4"		1.0"		1-1/4"		1-1/2"		1-3/4"		2.0"		2-1/2"		3.0"		3-1/2"	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	770	285	0.37	314	0.49	324	0.60	368	0.79	395	0.95	445	1.35	492	1.72	540	2.19	580	2.58	618	2.98	689	3.93	752	4.95	809	5.96
7000	899	309	0.49	337	0.68	362	0.79	385	0.95	411	1.17	456	1.57	503	2.01	545	2.25	584	2.91	621	3.34	685	4.29	754	5.39	812	6.43
8000	1027	337	0.60	365	0.82	389	0.99	411	1.19	429	1.43	471	1.81	516	2.25	556	2.70	591	3.23	629	3.66	695	4.70	759	5.87	815	7.05
9000	1156	369	0.77	396	1.01	416	1.10	436	1.48	457	1.68	491	2.08	533	2.56	569	3.07	601	3.60	638	4.08	701	5.10	763	6.40	821	7.68
10000	1284	396	1.02	423	1.28	442	1.55	460	1.79	482	2.03	510	2.41	551	2.89	583	3.42	614	4.00	652	4.48	709	5.61	769	6.93	826	8.26
11000	1412	428	1.30	454	1.59	471	1.86	490	2.14	510	2.38	538	2.78	571	3.31	602	3.84	632	4.42	668	4.99	720	6.09	778	7.49	834	8.83
12000	1541	462	1.64	484	1.88	500	2.19	519	2.47	539	2.74	566	3.18	594	3.73	623	4.29	653	4.83	684	5.48	735	6.67	791	8.08	844	9.50
13000	1669	493	2.05	515	2.25	527	2.58	549	2.89	564	3.16	593	3.64	625	4.22	647	4.88	677	5.45	706	6.05	754	7.55	808	8.77	850	10.2
14000	1798	592	2.49	542	2.67	556	2.98	575	3.27	529	3.62	619	4.13	653	4.79	675	5.45	701	6.05	729	6.65	777	8.08	832	9.50	874	11.0
15000	1926	557	2.92	573	3.13	588	3.40	606	3.66	618	4.09	646	4.71	678	5.37	703	6.07	726	6.76	753	7.35	799	8.85	843	10.3	981	11.9
16000	2055	588	3.42	604	3.66	617	3.98	634	4.22	645	4.68	675	5.37	704	6.07	729	6.85	752	7.57	777	8.13	823	9.78	865	11.2	908	12.8
17000	2183	623	3.98	636	4.22	648	4.53	664	4.84	677	5.39	704	6.07	732	6.87	756	7.71	777	8.42	802	9.03	847	10.7	886	12.3	929	13.8
18000	2312	652	4.61	666	4.90	686	5.19	685	5.54	706	6.12	732	6.89	761	7.68	784	8.16	805	9.36	827	9.96	872	11.7	911	13.4	951	14.9
20000	2569	717	6.16	728	6.47	739	6.82	753	7.16	766	7.77	791	8.61	817	9.45	839	10.5	859	11.4	880	12.2	923	14.0	960	15.9	998	17.5
22000	2825	783	8.08	793	8.33	803	8.64	817	9.08	823	9.72	854	10.7	874	11.5	892	12.6	919	13.7	936	14.7	980	16.6	1012	18.8	1051	20.5
24000	3082	845	10.1	854	10.4	865	10.7	880	11.2	893	12.0	916	13.1	935	14.0	954	15.1	973	16.3	1058	17.4	1036	19.5	1064	21.8	1099	23.7
26000	3339	911	12.5	919	12.8	932	13.3	945	13.8	957	14.6	982	15.9	998	16.8	1016	18.2	1036	19.3	1054	20.4	1093	22.8	1120	25.4	1151	27.4

Performance shown is for Type B - Free Inlet, Ducted Outlet.
Power rating (BHP) does not include drive losses. Add 10% for drive loss
Performance ratings do not include the effects of appurtenances in the airstream.

91Z0
Central Type BI Centrifugal Blowers are available as U.L. Listed for Grease Removal (UL762)

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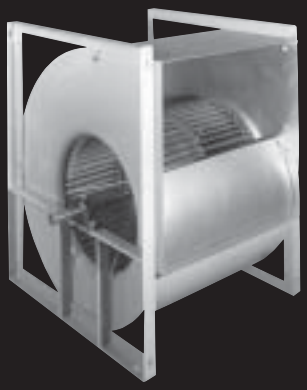
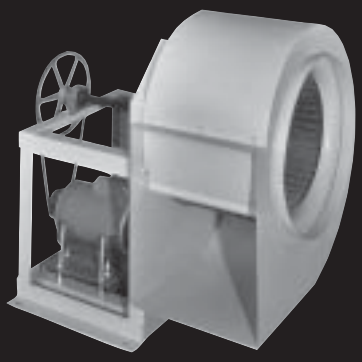
REV 11/03

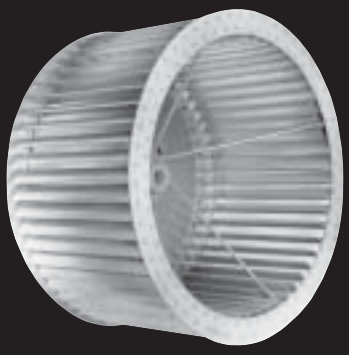
Other Central Products



Series FCD
Double Inlet Forward Curved Blowers
Sizes: 18, 22, 26 and 30



Series FC
Belt Drive Blowers
Sizes 9 thru 30"



Forward Curved and Backward Inclined Wheels

Coated Laboratory Exhaust Fans

WARRANTY

Central Blower Co. (the Company) warrants that each blower manufactured by the Company shall be free from defects in material and workmanship under normal use and service for a period of eighteen (18) months from the date of shipment or twelve (12) months from date of original installation, "whichever occurs first." If it appears within the warranty period that the blower does not meet the warranties specified above and the purchaser notifies the Company promptly, the Company agrees to remedy any such defect, at the Company's option, either by repairing any defective parts or by furnishing at the Company's factory a repair or replacement part.

This warranty shall not apply to any equipment which has been repaired or altered in any way so as, in the Company's judgement, to affect its performance or reliability, nor which has been improperly installed or subject to misuse, negligence or accident. This warranty does not apply to electric motors, which however, carry warranty of the motor manufacturer. Warranty does not apply to drive belts.

This warranty is expressed in lieu of all other warranties expressed or implied, and of all other obligations or liabilities on the Company's part. The Company neither assumes, nor authorizes any representative or other persons to assume for it, any other liability in connection with the sale of its equipment.

CENTRAL

CENTRAL BLOWER CO.

211 S. 7th Ave. • City of Industry, CA 91746 (626) 330-3182 Fax (626) 330-9406
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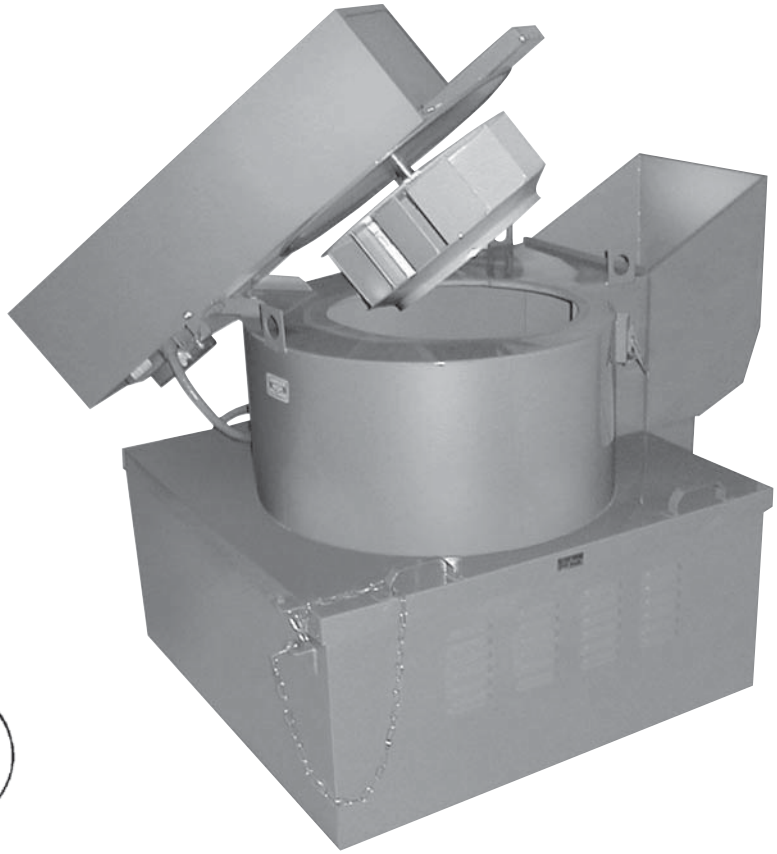
SupremeFan

GBD

EXHAUST BLOWER

Installation, Maintenance and Service Manual



Experience the Supreme Difference

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Kitchen Hood Exhauster - Installation Procedure

Duct Construction

1. Ducts should be sized for a minimum air velocity of 1500 FPM and a maximum of 2200 FPM (consult local codes).
2. Ducts shall be constructed of material not less than 16 gauge steel.
3. All joints and seams shall be made with a continuous grease tight weld on the external surface.
4. Ducts must have clean outs (consult local codes).
5. Ducts must be constructed to prevent accumulation of grease build-up.
6. No ducts shall be penetrated be screws, nails, etc.
7. Duct shaft should be built in accordance with local code and space requirements.

Curb

A minimum curb height of 8" is recommended (consult local codes). The curb must be level and square; refer to physical dimensions for maximum curb size.

Electrical

Necessary electrical service must be brought to the unit near the motor location (consult local codes prior to installation).

Clearance

Proper clearance must be provided on the hinge side of the fan from any parapet or wall to allow fan to swing open for duct cleaning. See dimension "E" in catalog dimensional data.

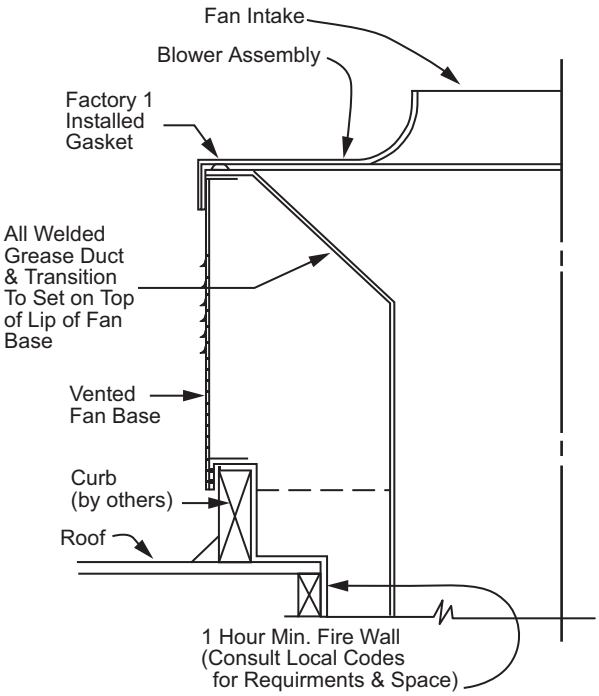


Figure 1

Step-1 Installation of Fan Base

Once the curb has been inspected for squareness and level, the fan base should be set. Loosen hinge bolts securing blower to base and lift blower off base. Set base on roof curb. Verify fan base is oriented with hinge bolts on correct side for desired direction of blower discharge.

Step-2 Installation of Duct and Transition

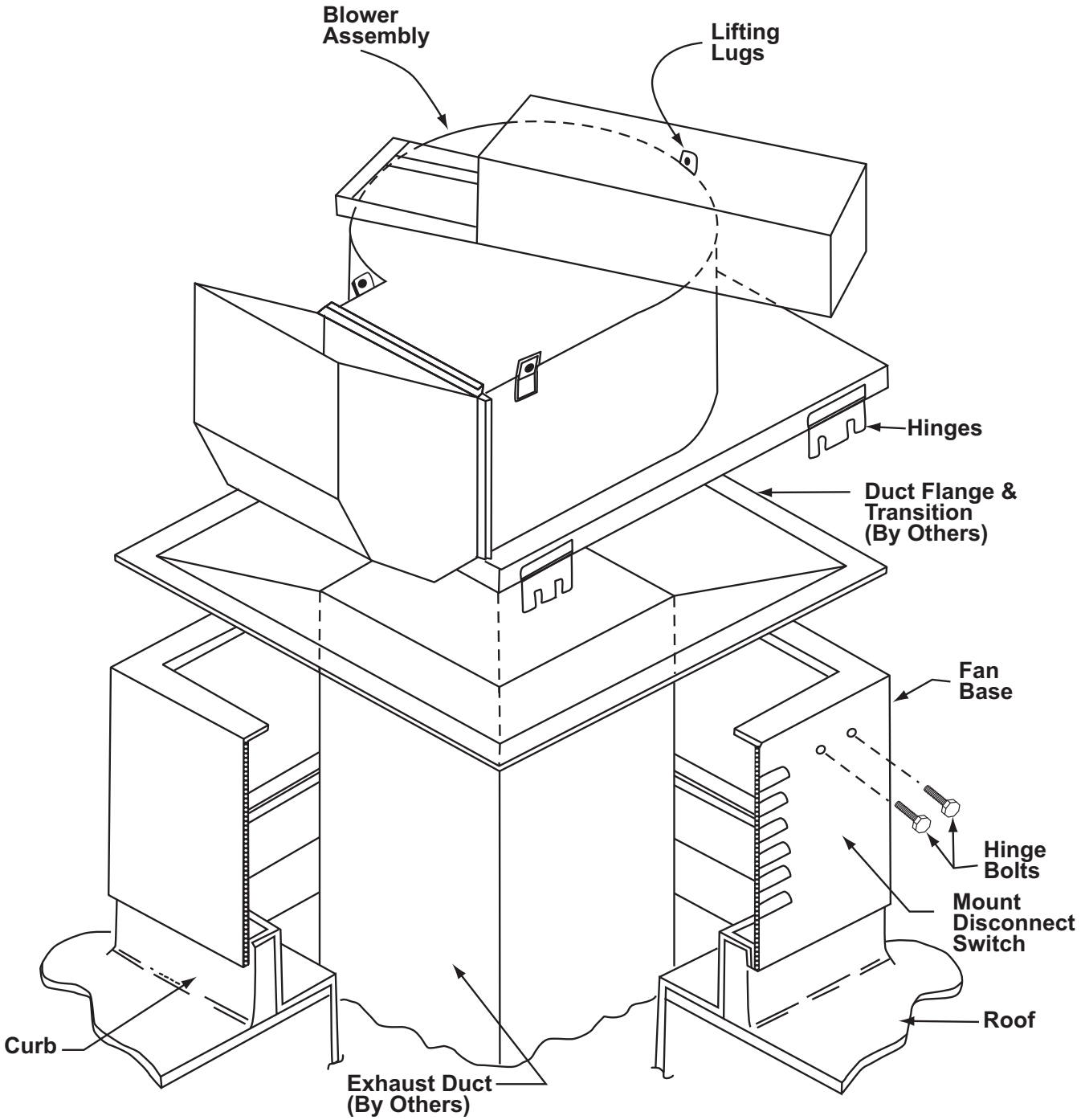
The all welded steel duct (by others) can now be set (see Fig. 1). Drop prefabricated grease duct through opening in base. Flanges on duct transition must set on lip of base to hold duct in place. Do not terminate grease duct below vented fan base.

NOTE: If the ductwork assembly is designed and installed as shown in Fig. 1, no fasteners will be required to secure the fan base into place.

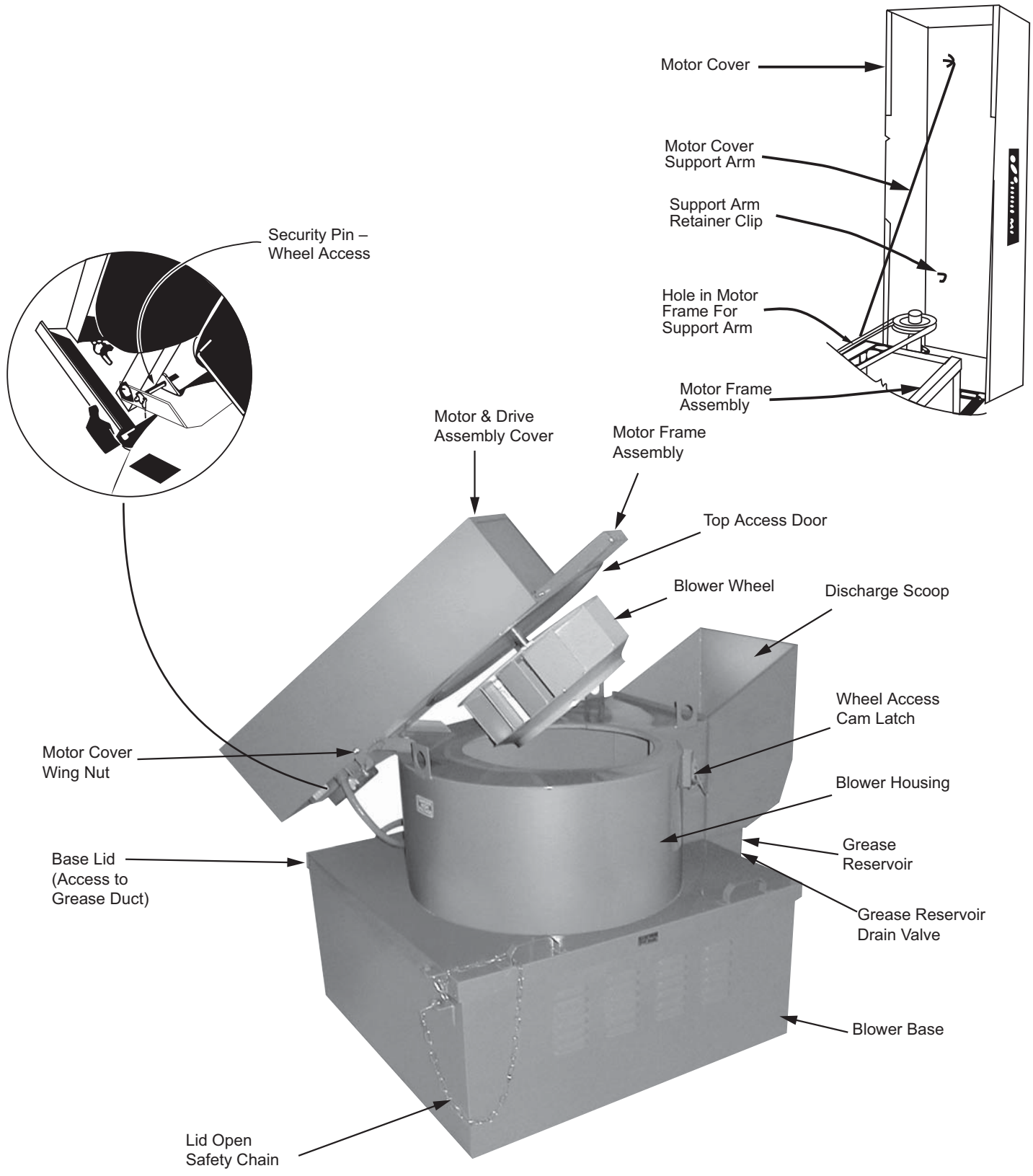
Kitchen Hood Exhauster - Installation Procedure

Step-3 Installation of Top Blower Assembly

Once the duct and transition are in place, the blower assembly can be set. Lifting lugs are factory provided for rigging. Set blower assembly on fan base so hinges match hinge holes in fan base. Tighten hinge bolts and install electrical.



Basic Component Identification



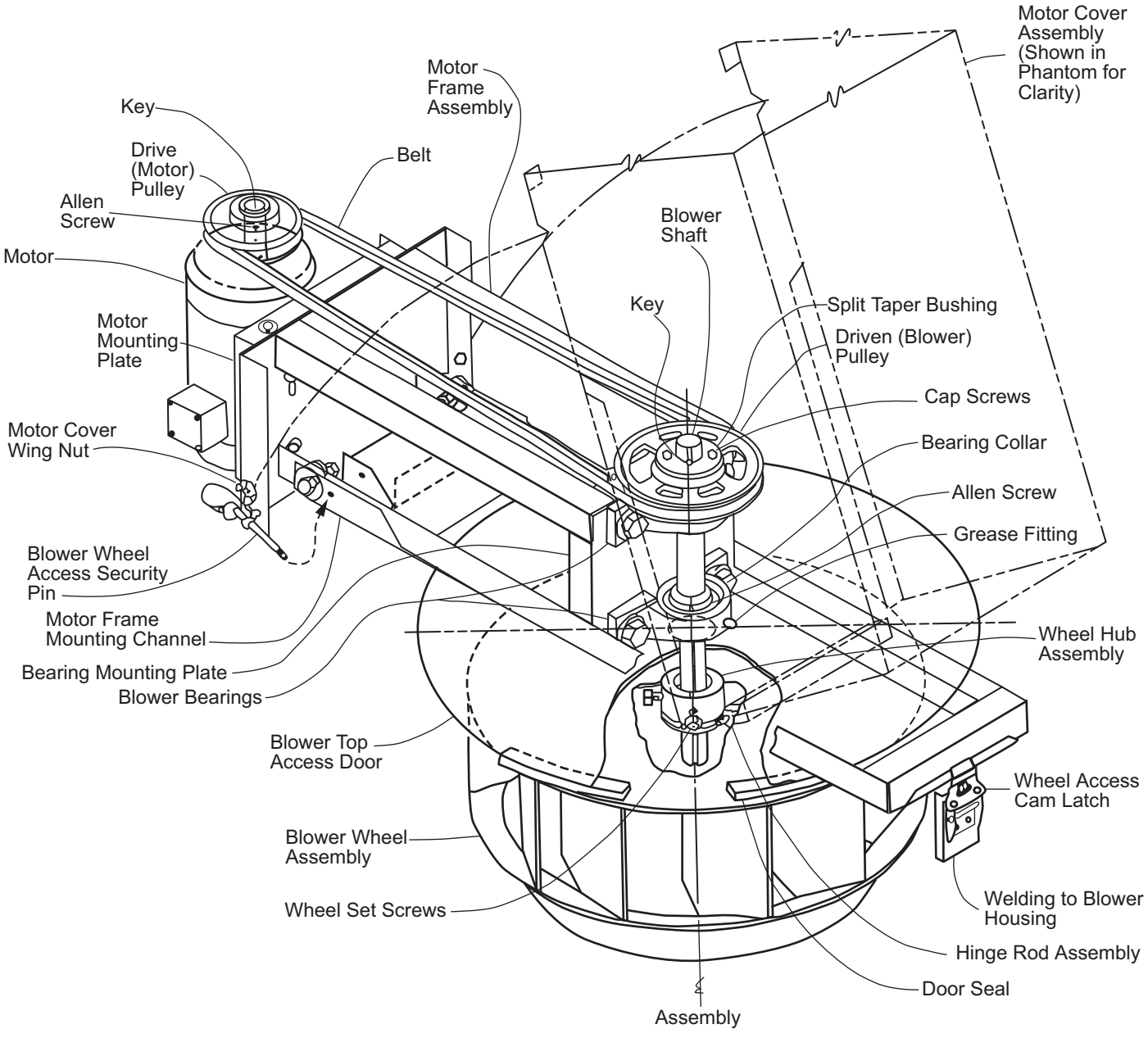
Supreme Exhaust Fan Maintenance

The exhaust fan should be inspected and serviced at least every two months as follows:

CAUTION: *MAKE SURE THE POWER TO THE EXHAUST FAN IS TURNED "OFF" AT THE DISCONNECT SWITCH BEFORE WORKING ON THE EXHAUST FAN. WHEN ELECTRICAL CIRCUIT TESTING IS REQUIRED, IT SHOULD BE PERFORMED ONLY BY QUALIFIED SERVICE PERSONNEL. EXTREME CARE MUST BE EXERCISED WHEN WORKING WITH LIVE ELECTRICAL CIRCUITS!*

1. Rotate and open the wheel access cam latch and lift the blower wheel out of the blower housing. Install the blower wheel access security pin. Visually inspect the wheel for debris (such as paper towels, cook's hats, etc.) and remove if found. If grease build-up has occurred, scrape and clean the wheel and housing thoroughly to ensure quiet and efficient operation. Remove the access security pin, lower the blower wheel and engage the cam latch.
2. Loosen the (2) wing nuts on the sides of the motor cover and lift the motor cover to gain access to the motor, pulleys, belt and fan bearings. Install the motor cover support arm for safety to ensure the motor cover will not drop while working on the motor and drive assembly.
3. Check the belt tension and wear. Adjust the belt, if required, or replace the belt if excessive wear or cracking is apparent.
4. The motor has pre-lubricated bearings that require no additional lubrication for normal operation.
5. The blower wheel bearings are equipped with grease fittings. Grease should be added per chart in GBD catalog. Add grease SLOWLY with shaft rotating until a slight bead forms at the seals, DO NOT OVER-FILL! ...over filling will rupture the seals, eventually causing damage to the bearings. Use only grease rated for 1000 degrees F. Use a good lubricant such as a premium lithium complex NLGI #2 bearing grease, lithium base and mineral base oil. Always use grease from the same chemical group. Mixing different types of grease can greatly lower its chemical and mechanical stability.
6. Replace the motor cover support arm in its clip and lower the motor cover. Tighten the motor cover wing nuts. Turn "ON" the electrical disconnect switch.
7. Inspect the fan discharge grease reservoir for any grease residue. If grease has accumulated, place a large container under the valve outlet and open the valve to drain. Close the valve. **NOTE**: THIS RESERVOIR IS MANUFACTURED IN A WAY TO ALLOW RAIN WATER TO RUN OUT ONTO THE ROOF BUT WILL RETAIN THE GREASE WITHIN THE RESERVOIR.

Motor Frame and Blower Wheel Assembly



Troubleshooting Guide

WARNING! *INSPECTION, TESTING, SERVICING AND REPAIR OF THE EXHAUST BLOWER SHOULD BE PERFORMED ONLY BY QUALIFIED SERVICE PERSONNEL. THE UNIT SHOULD BE TURNED OFF AT THE DISCONNECT SWITCH WHEN SERVICING TO AVOID THE DANGER OF SOMEONE INADVERTENTLY TURNING THE UNIT ON WHILE IT IS BEING SERVICED. IF ELECTRICAL TESTING IS REQUIRED, EXTREME CARE MUST BE EXERCISED DUE TO EXPOSED LIVE CIRCUITS!*

PROBLEM	PROBLEM CAUSE	CORRECTIVE ACTION
Motor does not run	a. Main circuit breaker off b. Circuit breaker tripped c. Disconnect switch off d. Motor starter overloads tripped e. Fan switch in kitchen turned off f. Off from interlocking equipment being off g. Defective motor	a. Turn on main circuit breaker b. Reset tripped circuit breaker c. Turn on disconnect switch d. Reset starter overloads e. Turn on exhaust fan switch f. Turn on interlock equipment g. Replace motor
Fan does not operate (motor runs)	a. Broken belt b. Seized fan bearings c. Wheel slipped on shaft and wedged against intake cone	a. Replace belt b. Replace bearings c. Re-position wheel and secure on shaft
Fan noisy	a. Loose parts b. Bearings need lubrication c. Cracked belt d. Defective bearings e. Locking collar loose on shaft f. Debris on fan wheel (throwing it out of balance) g. Wheel slipped down on shaft, ticking on intake cone h. Unbalanced wheel	a. Locate and tighten b. Lubricate bearings c. Replace belt d. Replace bearings e. Tighten locking collar f. Remove debris (crew hats, paper towels, grille slips, grease build-up, etc.) g. Re-position wheel and secure on shaft h. Replace wheel
Fan cycles on and off	a. Motor overloading b. Defective motor	a. Check F.L.A.-replace with larger motor if over amps b. Replace motor

Troubleshooting Guide (cont.)

PROBLEM	PROBLEM CAUSE	CORRECTIVE ACTION
Grease leakage at fan	a. Grease reservoir filled to overflow b. Damaged lid to base gasket c. Damaged wheel access gasket d. Damaged grease reservoir gasket	a. Empty grease reservoir b. Replace gasket c. Replace gasket d. Replace gasket
Frequent motor failures	a. Low on high voltage to motor b. Fan running backwards c. Motor overloaded d. Motor single phasing	a. Check line voltage, call utility company b. Change rotation c. Check F.L.A. draw (must fall within nameplate rating), slow down, or change to larger motor if overloaded d. Correct cause for loss of one leg
Frequent belt failures	a. Pulleys misaligned b. Belt not tensioned properly c. Cracked pulley	a. Re-align pulley b. Adjust to proper tension c. Replace pulley
Frequent bearing failures	a. Improper lubrication b. Belt too tight c. Loose locking collars	a. See instructions, lubricate properly b. Retention belt c. Tighten locking collars
Low CFM (exhaust air)	a. Fan running backwards b. Loose belt c. Debris on wheel d. Grease filters in hood/kitchen extremely dirty e. Fan RPM too low	a. Change motor rotation b. Tighten belt c. Clean wheel d. Clean filters e. Speed up fan (WARNING – verify motor not overloaded check motor full load amps)

DRIVE MOTOR AND DRIVEN BLOWER WHEEL PULLEY VARIATIONS:

Drive Pulley

This pulley is a variable pitch pulley. The pitch diameter of the pulley is adjustable to allow speeding up or slowing down of the blower wheel a small amount within the adjustment range of the pulley. For small single groove pulleys, an allen head set screw is provided in the shoulder on the bottom side of the pulley, to tighten the pulley to a flat spot on the shaft of the motor. On the top side of the pulley, an allen head set screw is provided in the shoulder to tighten the threaded adjustable portion of the pulley to a flat spot on the threaded hub of the pulley.

On pulleys of a larger size, the flat spots on both the motor shaft and the threaded hub of the pulley, are replaced with keyways and square or rectangular keys. The key slides into the keyway of the motor shaft and pulley keyway and the shoulder set screw locks the pulley into place. After the threaded adjustable portion of the pulley has been adjusted to the proper setting, align the keyway and slide the second key into the keyway. Tighten the set screw to lock the pulley at this setting.

The two groove variable pitch pulleys are similar to above, except that the set screw that locks the pulley to the motor shaft, is located inside between the grooves. The threaded groove adjustment must be opened to allow access to this set screw. There are two set screws, one on each outside hub, that locks the outside of each groove to the key at the proper adjustment setting. Caution must be exercised to make sure that each of the two grooves are adjusted to the same setting to maintain equal tension on both belts.

Driven Pulley

The driven pulley is a fixed size (not adjustable). It is secured to the blower shaft with a split tapered bushing and cap screws. To install the pulley and bushing to the blower shaft, slip the pulley and bushing onto the shaft. Align the clearance holes in the bushing flange with the threaded holes in the pulley hub. Insert the cap screws through the clearance holes of the bushing flange and screw the cap screws loosely into the threaded holes of the pulley hub. Position the assembly on the shaft (see “Pulley Alignment”) and tighten the cap screws progressively and uniformly until tight. To remove the pulley, remove the cap screws. Screw the cap screws into the threaded holes in the bushing flange. Progressively tighten the cap screws against the pulley hub until the bushing breaks free from the pulley. Remove the bushing and pulley from the shaft. Remove the cap screws form the threaded holes in the bushing flange.

The two groove driven pulleys are identical to the single groove pulleys for installation and removal.

Pulley Alignment

For access to the motor, pulleys, belts and fan bearings, loosen the wing nuts on the sides of the drive assembly cover and hinge cover up. Install the motor cover support arm for safety to ensure that the motor cover will not drop while working on the drive assembly.

The pulley alignment should be accomplished by laying a level or straight edge across the pulleys. Both pulleys should be level and aligned. If not perfectly level, remove the belt (see “How To Replace Belt”), loosen the driven pulley (See “Driven Pulley”), and adjust up or down to obtain level. Firmly re-tighten the pulley and reinstall and re-adjust the belt. If the pulleys are not properly aligned, excessive belt wear will occur. It may cause fan vibration and could cause the belt to “jump” off the pulleys.

To Adjust Belt Tension

The bottom tension bolt is welded to the motor frame plate, the top tension bolt is loose. To increase the belt tension, turn the lock nuts counter-clockwise at the motor mounting plate on the side towards the motor until substantially loose. Gradually tighten both lock nuts clockwise at the motor mounting plate on side away from motor until the belt is properly tensioned. Proper belt tension is when the belt deflects about one inch at the center when squeezed firmly from both sides. Firmly re-tighten the lock nuts on the motor side of the motor mounting plate. To decrease the belt tension, reverse the above procedure.

To Replace Belt

Turn lock nuts on belt tension bolts clockwise at motor mounting plate on side away from motor way down to allow the motor mounting plate to swing in and allow slack on the belt. Remove the old belt and install the new belt. See “How To Adjust Belt Tension” to tighten new belt.

Supreme Exhaust Fan Service (cont.)

To Replace Motor

CAUTION! *MAKE SURE POWER IS TURNED OFF AT THE DISCONNECT SWITCH PRIOR TO CHANGING MOTOR.*

Open the motor cover and install the cover support arm. Loosen the belt tension lock nuts and remove the belt. Remove the motor J-box cover. Disconnect the motor wiring in the motor J-box. Disconnect the conduit connector from the motor J-box. Loosen the pulley set screw and remove the pulley key. Pry the pulley off the motor shaft. Remove the four bolts, nuts and washers securing the motor to the motor mounting plate. Remove the motor. Install the new motor using the four bolts, nuts and washers. Install the pulley key in the motor shaft and re-install and align the pulley (see "Pulley Alignment"). Tighten the pulley key set screw. Insert the motor wiring and the conduit connector into the motor J-box and fasten the conduit connector. Reconnect the motor wiring, making sure the connections are made in compliance with the wiring diagram on the motor. Leave J-box cover off at this time. Re-install the belt and adjust the belt tension. Turn the disconnect switch "ON" and momentarily energize the exhaust fan motor to verify correct rotation. If rotation is incorrect, turn the disconnect switch "OFF" and reverse motor rotation. Turn "ON" disconnect switch. Verify the motor rotation is now correct by, again, momentarily energizing the fan motor. Using the motor leads in the motor J-box, take a correct reading with an appropriate instrument to verify that the motor is running within the nameplate amperage range and is not overloaded. Re-install the motor J-box cover. With the fan "ON", visually inspect that all is in proper working order. Turn "OFF" the disconnect switch. Replace the motor cover support arm in its retainer clip, close the cover and tighten the cover wing nuts. Turn the disconnect switch "ON".

To Increase Exhaust Air Delivery

By increasing the blower wheel speed. Prior to accomplishing this procedure, it is important to check these items:

1. With the exhaust fan running, remove the motor J-box cover and take current readings on each leg of the motor supplying conductors to verify that there is additional motor amperage available to increase the motor load. Inspect the motor nameplate to ascertain the maximum motor full load amps. DO NOT exceed this value. If additional amperage is available, leave the motor J-box cover off to take additional readings.
2. Turn "OFF" the motor. Visually inspect the adjustable motor drive pulley to verify that there is additional adjustment available to close the pulley groove to speed up the blower wheel. If the "V" belt is riding at the top of the pulley, there is no adjustment available. The pulley must be changed to the next larger size pulley.
3. Check the position of the belt tensioning bolts at the motor mounting plate to verify that additional adjustment is available for the increased belt length created by the pulley adjustment. If the belt will be out of range for the adjustment, the next longer size belt must be installed.

To Adjust the Pulley

Remove the fan "V" belt (see "How To Replace Belt"). Loosen the allen screw at the hub of the pulley and remove the key. Rotate the top of the pulley clockwise to close the belt groove 1/2 turn, 1 turn, 1-1/2 turns or 2 turns as required to obtain the required adjustment. Re-install the key and tighten the key set screw. Re-install the "V" belt and adjust the belt tension. Turn the fan "ON" and check the motor full load amps to verify that the motor is not overloaded. Re-install the motor J-box cover.

To Decrease Exhaust Air Delivery

By decreasing the blower wheel speed. Follow the above procedure except…rotate the top of the pulley counter-clockwise to open the belt groove as required to obtain the required adjustment.

NOTE: The "V" belt must not ride on the bottom or flat of the pulley. If this condition occurs during the adjustment, change the pulley to the next smaller size. This may also require changing the "V" belt to the next shorter size.

Re-assemble all parts as noted above and turn "ON" the exhaust fan.

Supreme Exhaust Fan Service (cont.)

To Replace Fan Wheel Bearings

CAUTION! *MAKE SURE THE FAN IS TURNED "OFF" AT THE DISCONNECT SWITCH.*

Loosen the wing nuts, open the motor cover and install the cover support arm. Remove the "V" belt (see "How To Replace Belt"). Remove the driven pulley (See "Driven Pulley"). Loosen the set screws in both bearing collars. Using fine emery cloth, sand the upper part of the blower shaft to remove any oxidation, rust or burrs. Lift the top locking collar off the shaft. Make sure to remove the burr that may have been caused by the locking collar set screw. Loosen and remove the two bolts, nuts and washers that secure the top bearing to the motor frame bearing plate. Slide the bearing up off the blower shaft. Repeat the complete process to remove the bottom bearing. When the bottom bearing is released, the blower wheel will drop slightly and rest on top of the intake cone. To install new bearings, slip the bottom bearing down over the shaft. Raise the blower wheel and shaft and temporarily lay a board across the intake cone to rest the blower wheel on, using the discharge opening of the fan for access. Install the two bearing bolts, washers and nuts through the bearing and mounting plate and loosely tighten. Slip the locking collar down over the shaft, leaving loose at this time. Slip the top bearing down over the shaft. Install the two bearing bolts, washer and nuts through to the bearing and mounting plate, leaving loose at this time. Slip the top bearing locking collar down over the shaft, leaving loose. Remove the board supporting the blower wheel. Lower the wheel and shaft until the lower edge of the wheel intake is just above the intake cone (1/16" to 1/8" clearance). Tighten both sets of bearing bolts securely and recheck the wheel to intake clearances. If clearance is correct, firmly tighten both bearing locking collar set screws. Manually spin the wheel (through the discharge opening) to verify proper clearance.

Re-install the blower pulley (see "Driven Pulley), making sure that the pulleys are properly aligned (see "Pulley Alignment"). Re-install and re-adjust the "V" belt (see "How To Replace Belt" and "How To Adjust Belt Tension"). Turn fan "ON" to confirm that all is in proper working order. Turn fan "OFF", replace the motor cover support arm, lower and secure the motor cover and turn the fan "ON".

To Replace the Blower Wheel

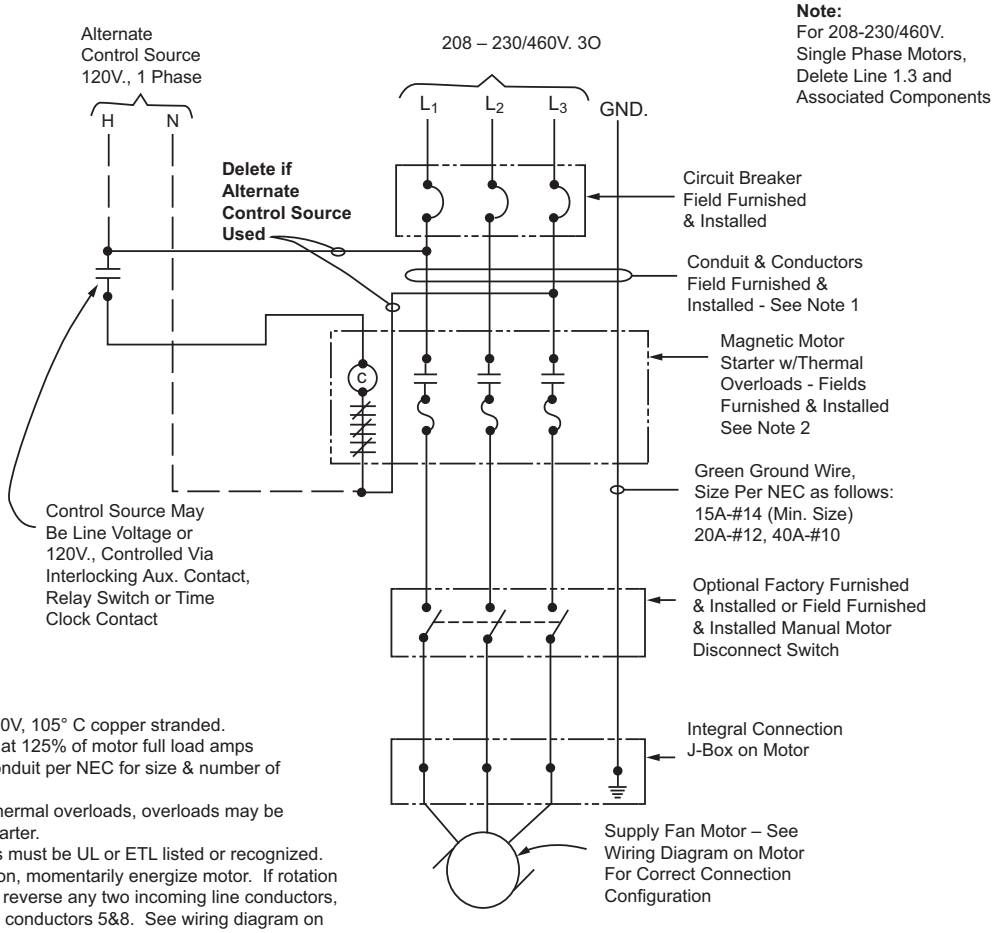
CAUTION! *TURN FAN "OFF" AT THE DISCONNECT SWITCH.*

Rotate and open the wheel access cam latch. Lift up the motor frame assembly and install the security pin to hold the assembly open. Measure and note the distance of the bottom of the wheel hub to the bottom of the shaft for repositioning the new wheel on the shaft. Loosen the set screws in the hub of the wheel securing the wheel to the shaft. Using fine emery cloth, sand the lower part of the shaft to remove any accumulation of debris, rust, oxidation or burrs. Using an appropriate puller, attach the puller jaws to the groove in the blower wheel hub and slowly tighten the forcing screw, drawing the blower wheel from the shaft. Use caution not to lose the shaft key. Before installing the new wheel, use fine emery cloth to clean the shaft. Remove any burrs that might be present from the previous set screws. To facilitate installation, lubricate the shaft with WD-40. Slip the new blower wheel onto the shaft and align the keyway, making sure that the wheel is at the same location as the old wheel (from the measurement previously taken). Slip the key into keyway and lightly tighten the set screw. Remove the security pin, lower the motor frame assembly and fasten the access cam latch. Double check the wheel clearance from the intake cone-1/16" to 1/8" clearance, using the fan discharge opening for access. Manually spin the wheel to verify clearance all around the wheel. Open the cam latch, lift the motor frame assembly and install the security pin. Make any further adjustments if required. Firmly tighten the set screws in the wheel collar. Remove the security pin, lower the motor frame assembly and fasten the cam latch. Manually spin the wheel again to verify clearance. Turn the disconnect switch "ON" to verify correct fan operation.

To Replace the Blower Wheel Shaft

See "How To Replace Fan Wheel Bearings" and "How To Replace Blower Wheel".

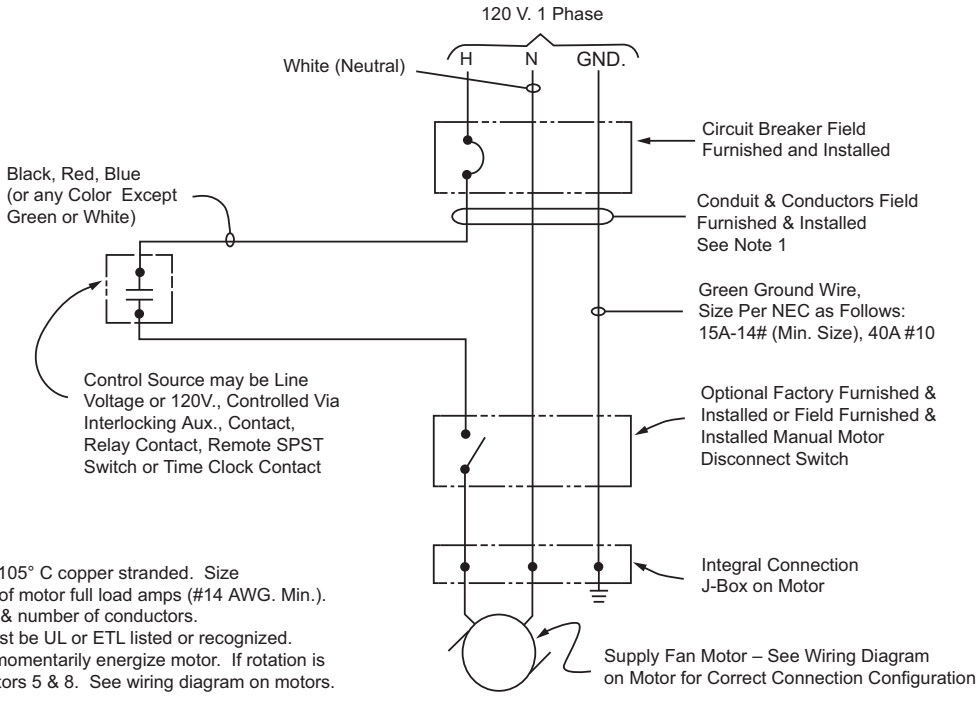
Installation Wiring Diagram



Note:
For 208-230/460V. Single Phase Motors, Delete Line 1.3 and Associated Components

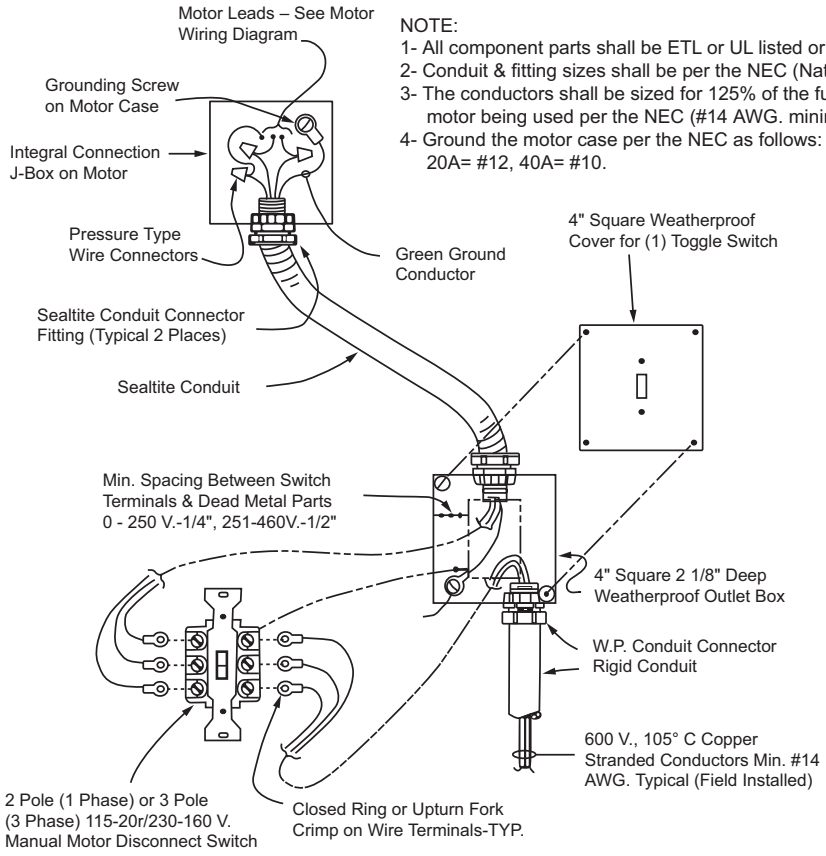
Note:
1. Conductors – UL listed 600V, 105° C copper stranded. Size conductors per NEC at 125% of motor full load amps (#14 AWG. Min.). Size conduit per NEC for size & number of conductors.
2. If motor is provided with thermal overloads, overloads may be omitted in the magnetic starter.
3. All material & components must be UL or ETL listed or recognized.
4. To verify correct fan rotation, momentarily energize motor. If rotation is incorrect, (for 3 phase), reverse any two incoming line conductors, (for 1 phase), interchange conductors 5&8. See wiring diagram on motor.

Installation Wiring Diagram 120V, 1 Phase



Note-1:
1. Conductors – UL listed 600V, 105° C copper stranded. Size conductors per NEC at 125% of motor full load amps (#14 AWG. Min.). Size conduit per NEC for size & number of conductors.
2. All material & components must be UL or ETL listed or recognized. To verify correct fan rotation, momentarily energize motor. If rotation is incorrect, interchange conductors 5 & 8. See wiring diagram on motors.

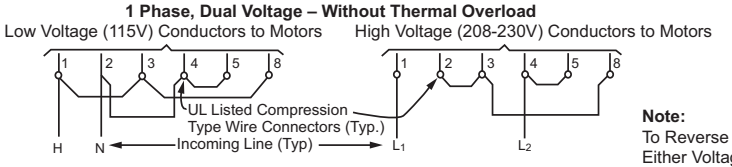
Optional Disconnect Switch, Conduit & Wiring Installation (3 Phase Shown, 1 Phase Similar)



NOTE:
1- All component parts shall be ETL or UL listed or classified.
2- Conduit & fitting sizes shall be per the NEC (Nat'l, Elec. Code)
3- The conductors shall be sized for 125% of the full load amps the motor being used per the NEC (#14 AWG. minimum)
4- Ground the motor case per the NEC as follows: 15A= #14, 20A= #12, 40A= #10.

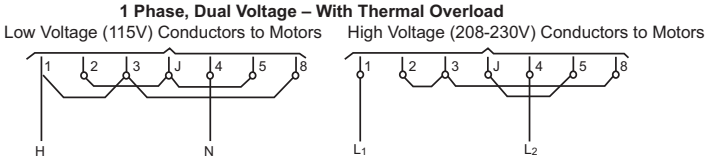
Wiring Diagrams / Baldor Motors Conductor Connections at Motor Integral Junction Box

1 Phase, Dual Voltage – Without Thermal Overload

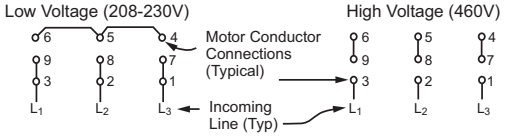


Note:
To Reverse 1 Phase Rotation, Either Voltage, Interchange Conductors 5 & 8

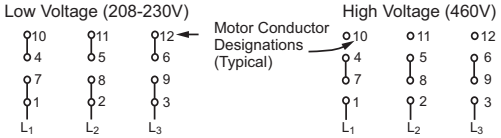
1 Phase, Dual Voltage – With Thermal Overload



3 Phase, Dual Voltage – Without Thermal Overloads



3 Phase, Dual Voltage – With Thermal Overloads



Note:
To Reverse 3 Phase Rotation, Either Voltage, Reverse any Two Incoming Line Conductor Connections

Warning:
Verify Wiring Diagram on Motor (For Variations) Prior to Connecting or Energizing Motor.

Warranty

What Products Are Covered
Supreme Fan products (each, a "Supreme Fan Product")

One Year Limited Warranty For Supreme Fan Products
Supreme Fan warrants to the original commercial purchaser that the Supreme Fan Products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment.

Exclusive Remedy
Supreme Fan will, at its option, repair or replace (without removal or installation) the affected components of any defective Supreme Fan Product; repair or replace (without removal or installation) the entire defective Supreme Fan Product; or refund the invoice price of the Supreme Fan Product. In all cases, a reasonable time period must be allowed for warranty repairs to be completed.

What You Must Do
In order to make a claim under these warranties:

1. You must be the original commercial purchaser of the Supreme Fan Product.
2. You must promptly notify us, within the warranty period, of any defect and provide us with any substantiation that we may reasonably request.
3. The Supreme Fan Product must have been installed and maintained in accordance with good industry practice and any specific Supreme Fan recommendations.

Exclusions
These warranties do not cover defects caused by:

1. Improper design or operation of the system into which the Supreme Fan Product is incorporated.
2. Improper installation.
3. Accident, abuse or misuse.
4. Unreasonable use (including any use for non-commercial purposes, failure to provide reasonable and necessary maintenance as specified by Supreme Fan, misapplication and operation in excess of stated performance characteristics).
5. Components not manufactured by Supreme Fan.

Limitations
1. In all cases, Supreme Fan reserves the right to fully satisfy its obligations under the Limited Warranties by refunding the invoice price of the defective Supreme Fan Product (or, if the Supreme Fan Product has been discontinued, of the most nearly comparable current product).
2. Supreme Fan reserves the right to furnish a substitute or replacement component or product in the event a Supreme Fan Product or any component of the product is discontinued or otherwise unavailable.
3. Supreme Fan's only obligation with respect to components not manufactured by Supreme Fan shall be to pass through the warranty made by the manufacturer of the defective component.

General
The foregoing warranties are exclusive and in lieu of all other warranties except that of title, whether written, oral or implied, in fact or in law (including any warranty of merchantability or fitness for a particular purpose).

Supreme Fan hereby disclaims any liability for special, punitive, indirect, incidental or consequential damages, including without limitation lost profits or revenues, loss of use of equipment, cost of capital, cost of substitute products, facilities or services, downtime, shutdown or slowdown costs.

The remedies of the original commercial purchaser set forth herein are exclusive and the liability of Supreme Fan with respect to the Supreme Fan Products, whether in contract, tort, warranty, strict liability or other legal theory shall not exceed the invoice price charged by Supreme Fan to its customer for the affected Supreme Fan Product at the time the claim is made.

Inquiries regarding these warranties should be sent to: Supreme Fan, 843 Indianapolis Avenue, Lebanon, IN 46052

SupremeFan

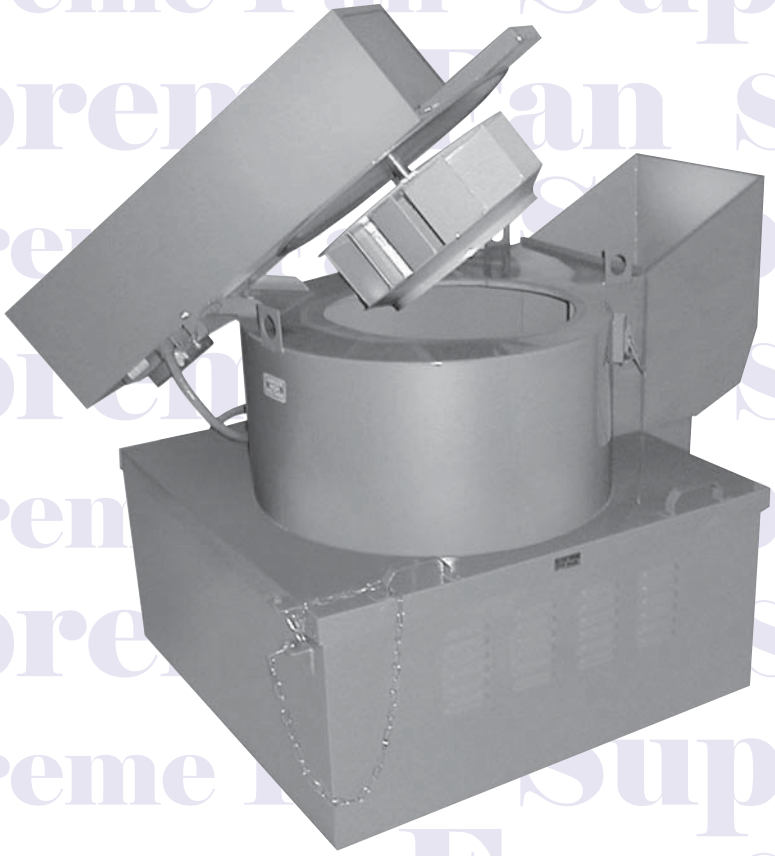
Experience the Supreme Difference

843 Indianapolis Avenue
Lebanon, IN 46052
Phone: 765-483-5819

www.supremefan.com

Bulletin SF-GB06
January 2006

Supreme Fan



GBD-C-H

Heavy-Duty Curb Mounted
Exhaust Blower for
Restaurant Ventilation

Experience the Supreme Difference

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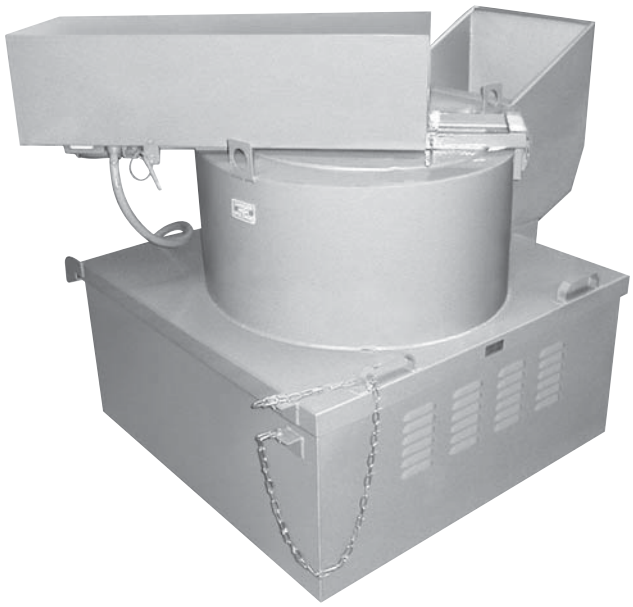


LISTED

The Supreme GBD blower is UL listed (classification YZHW, subject #5372) for use in restaurants with grease-laden air.

Supreme Fan Products certifies that the GBD exhaust blowers shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

SupremeFan

Introduction

Whether installing a new kitchen ventilation system or renovating an existing one, quality conscious restaurant owners and designers have insisted on GBD from Supreme Fan for over 25 years. This exceptional, heavy duty, curb mounted exhaust blower system is easily installed, delivers efficient performance and offers easy access for cleaning and servicing. The GBD, with static pressure capabilities to 5” w.g., is available in seven sizes from 12” – 30” and in CFM ranges from 500 – 14,000.

Here are the features which make the Supreme difference in setting the GBD apart from typical kitchen exhaust systems:

Heavy Duty Bearings

Bearings used on GBD blowers are durable, self aligning, pillow-block, ball bearing type with Zerk fittings for effortless lubrication.

Fan Wheel

The fan wheel is constructed of heavy gauge aluminum or steel and is backwardly inclined and non-overloading. The standard Supreme wheel is capable of exhausting up to 5” w.g. (consult factory for higher static applications).

The lift-out wheel used on the GBD is counterbalanced and designed to lift out of the fan assembly. This allows for easy cleaning and maintenance.

Motor

The motors used on all Supreme Fan products are energy efficient and are rated for continuous duty operation. Being completely out of airstream, the motor is readily accessible for maintenance by simply raising the motor cover, without the use of tools.

Base

The bases available for GBD blowers are fabricated from heavy gauge steel and are continuously welded for strength and durability. Bases are vented and reinforced at hinging points for extra strength.

Discharge Scoop

The discharge scoop used on the GBD blowers is continuously welded to the blower housing to prevent grease leakage. The GBD blower has a very low profile. Supreme Fan offers a 36" discharge extension, if needed, to extend the discharge above the roof line.

Grease Reservoir

The unique design of the grease reservoir on GBD blowers is another part of why these units are Supreme. Its heavy gauge construction separates it from other manufacturers; the extra large Supreme reservoir is designed to separate water from real restaurant grease. The reservoir is integral to the fan base, continuously welded liquid-tight, and is designed to handle large amounts of liquid. Water and snow are allowed to separate from the grease and run off onto the roof, while the grease is trapped in the reservoir. The reservoir is provided with a brass ball valve for ease of draining. The liquids can be optionally piped to a code-approved receptor, eliminating the need for rooftop maintenance of the reservoir.

Funnel Fitting

A funnel to connect ductwork from the fan inlet to the exhaust duct is available. It is constructed of heavy gauge galvanized material and is continuously welded to make a liquid-tight connection to the blower unit. Provide duct size when ordering.

Housing

The housing is made of heavy gauge steel and is continuously welded liquid-tight for strength and to prevent grease leakage. Supreme covers the entire unit with UL approved high gloss paint to make cleaning easy. Lifting lugs are factory installed for ease of rigging. The fan housing is hinged to make access and cleaning of ductwork simple. The stainless steel hinges pivot the fan housing and welded steel stops hold the fan in place.

MODELS	
GBD	Heavy Duty Curb Mounted Exhaust Blower with Vented Base
GBC	Heavy Duty Curb Mounted Exhaust Blower with Dual Motor Option
GBH	Heavy Duty Curb Mounted Exhaust Blower Less Base

Optional Equipment

Extended Discharge Scoop
The optional extended discharge scoop is available if a greater distance is required between the exhaust and supply inlets in order to meet code requirements or job site conditions. The single outlet discharge on the GBD makes this separation easier.

Roof Curb
If requested, Supreme can provide an all steel roof curb for the GBD, designed for easy, weatherproof mounting.

Side Inlet Fitting
Unlike other manufacturers, if horizontal roof ductwork is required, Supreme offers the option of a continuously welded, grease-tight, side inlet fitting incorporated into the base of the GBD. This option is needed if ductwork is to be run horizontally into the fan.

Funnel Fitting
A funnel fitting to connect the grease duct to the fan is required and is available as a factory supplied option.

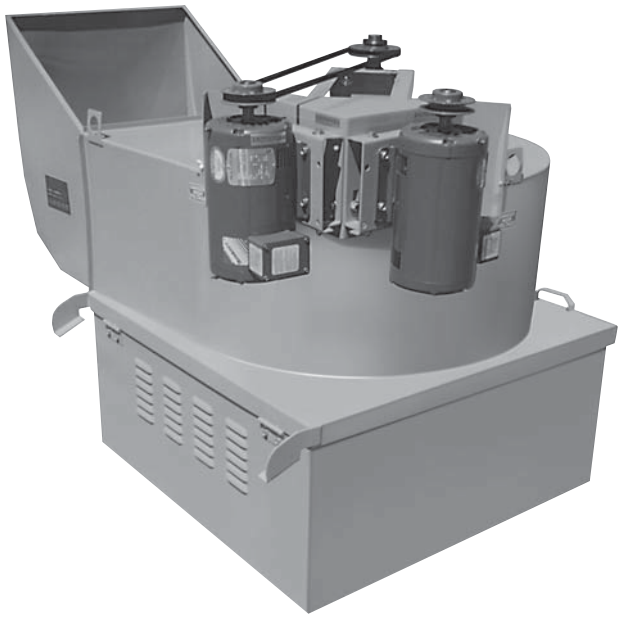
Disconnect Switches
A complete line of disconnect switches are available, factory installed and pre-wired. Switches provided are non-fused and NEMA 3R.

GBC Dual Motor Blower

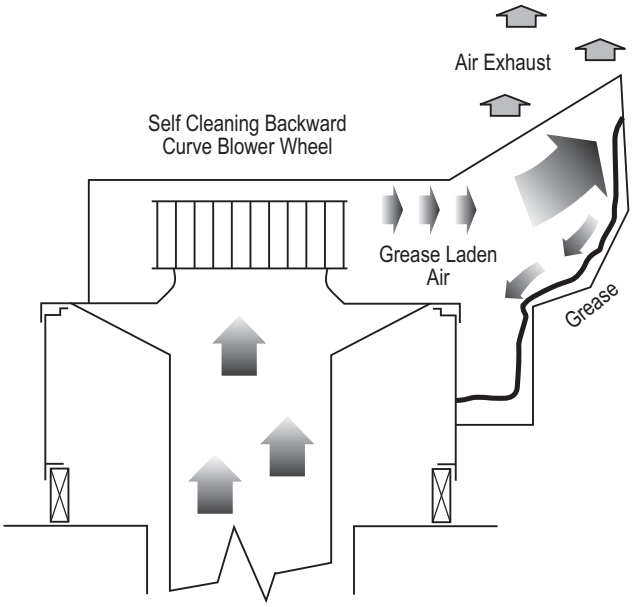
100% STANDBY PROTECTION AT A FRACTION OF THE COST OF TWO SEPARATE FANS

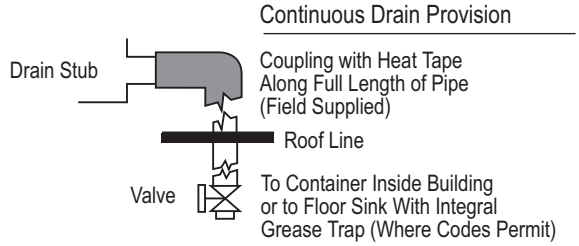
GBC heavy duty, dual motor exhaust blowers from Supreme Fan have something no one else in the industry can touch... an ingenious solution to a constant food service operator's headache. What happens when an exhaust blower fails? You shut down and wait for service. Or you planned ahead and bought a backup blower, just in case. Now Supreme puts the standby protection you need into a package that costs hundreds less than buying a redundant blower and eliminates the need to wait for service.

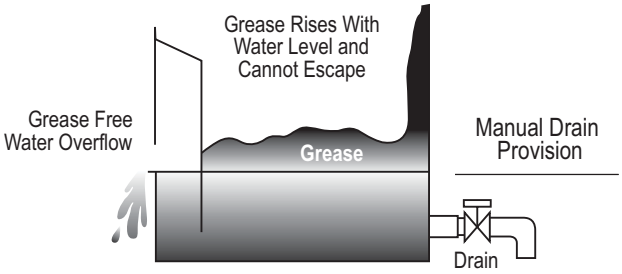
GBC Dual Motor Option
Supreme's GBC blowers have all of the outstanding features of our GBD models, plus a second motor. This dual motor system allows for true continuous performance. Should one of the motors fail to operate, the second motor can be brought on-line with the simple installation of a drive belt. The second motor can be energized via the control panel (by others).



Sample Specifications







GBD exhaust blowers shall be curb-mounted with fan housing entirely constructed of heavy gauge steel, fully welded. Blower shall have a single, integral, continuously welded upblast discharge scoop constructed of similar materials with a fully welded drain for liquid to travel to a fully welded grease reservoir. Reservoir shall be permanently mounted to the base under the discharge scoop and shall be designed to allow water to escape while retaining grease in the reservoir. Grease shall be drained by the use of a brass single-throw ball valve.

The entire unit shall be painted with UL approved high gloss paint. Supreme Fan can provide a full range of coatings for various applications (consult factory for details).

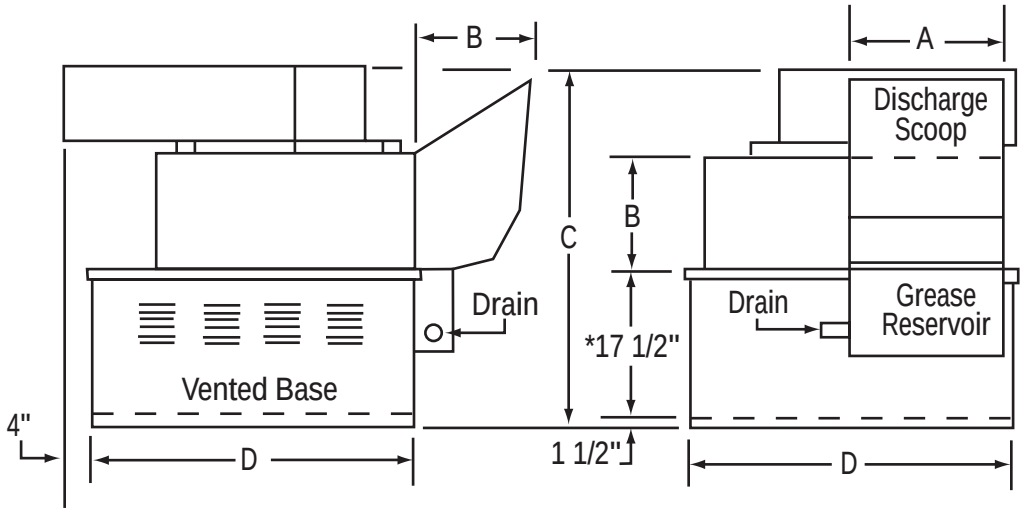
Blower shall have a counterbalanced, tilt-out fan wheel, including a safety lockout pin to prevent the wheel assembly from dropping during maintenance. Fan wheel shall be constructed from heavy duty, welded aluminum or steel, shall be backward-inclined, staticly and dynamically balanced, and of a non-overloading type.

Fan motor shall be mounted out of the air stream on a heavy gauge welded angle iron frame. Motor shall be a continuous duty, energy efficient type. Motor, belt and pulley assembly shall be factory installed.

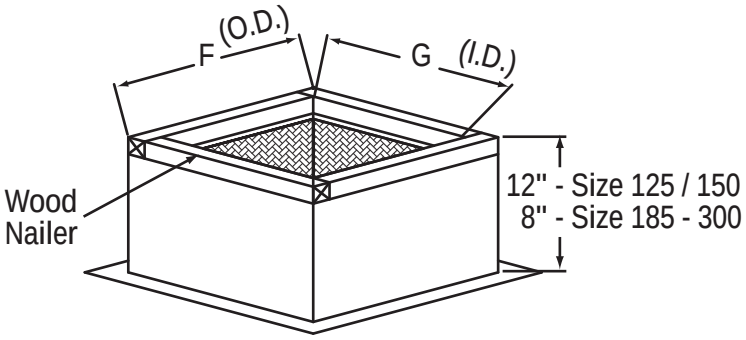
Entire blower shall be base-mounted and hinged, so that the unit may be tilted upward for cleaning of exhaust duct system. Unit shall be equipped with a safety chain to prevent damage during the cleaning operation.

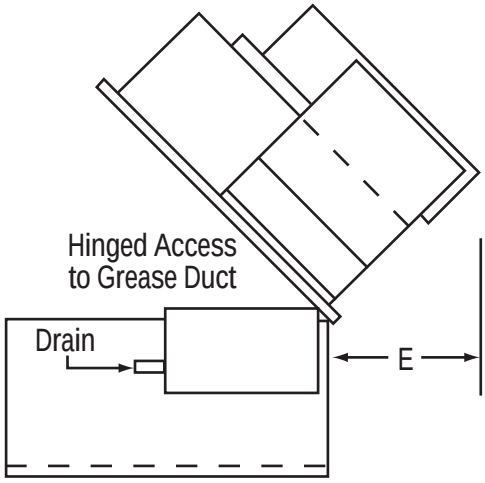
Motor cover shall be constructed from steel and shall be easily opened for maintenance without the use of tools. Bearings shall be heavy duty, pillow-block ball bearing type with Zerk fittings for lubrication. Blower is licensed to bear the AMCA seal. The GBD blower is UL listed (classification YZHW, subject #537Z) for use on restaurant exhaust systems.

GBD DIMENSIONAL DATA



*18 1/2" on GBD - 125 & GBD - 150





MODEL	DIAGRAM REFERENCE DIMENSIONS							EQUIPMENT WEIGHTS			APPROXIMATE CRATE OR CARTON DIMENSIONS		
	A	B	C	D	E+	F	G	FAN WEIGHT	SHIP WEIGHT*	CURB WEIGHT	LENGTH	WIDTH	HEIGHT
GBD-125	16 1/8	12	44 1/2	34	29	33 1/2	30 1/2	250 lb.	350 lb.	40 lb.	61	45 1/2	52
GBD-150	16 1/8	12	44 1/2	34	29	33 1/2	30 1/2	250 lb.	350 lb.	40 lb.	61	45 1/2	52
GBD-182	19 1/2	14 5/8	46	40 1/2	32	39 3/4	36 3/4	350 lb.	475 lb.	40 lb.	72	48 1/4	55
GBD-222	23 3/4	17 3/4	49 1/2	40 1/2	35	39 3/4	36 3/4	420 lb.	545 lb.	40 lb.	72	48 1/4	55
GBD-245	26 1/4	19 5/8	52	47	37	46 1/2	43 1/2	520 lb.	695 lb.	45 lb.	81 1/2	57 1/2	62 1/2
GBD-270	29	21 5/8	53	53	39	52 1/2	49 1/2	620 lb.	820 lb.	45 lb.	91	66 1/2	69 1/2
GBD-300	32 1/4	23 3/4	55	65 1/2	41	64 1/2	61 1/2	720 lb.	970 lb.	55 lb.	104	73 1/2	72 1/2

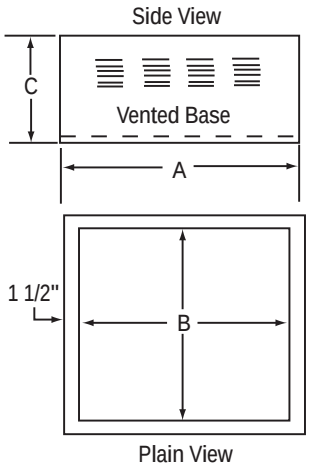
+Nominal max. dimension in open position *Approximate
All dimensions in inches.

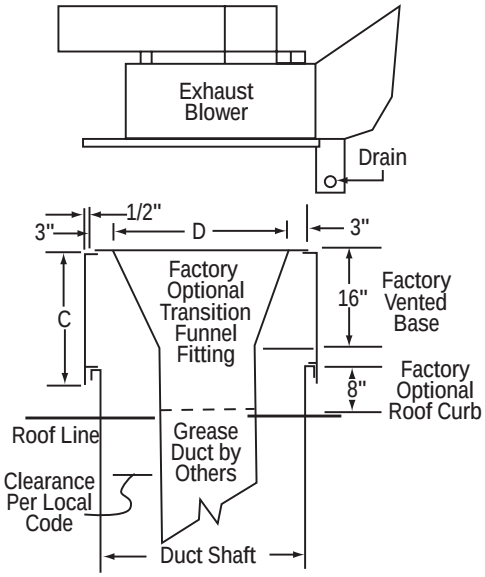
Grease Duct Installation

Grease Duct Installation Procedure

1. Loosen hinge bolts securing blower to base. Lift blower off base. Set base on roof curb.
2. Drop grease duct through opening in base. Flanges on duct will set on lip of base to hold duct in place.
3. Set blower on base and tighten bolts that secure hinges to base.

MODEL	A	B	C	D
GBD-125	34	31	20	27
GBD-150	34	31	20	27
GBD-182	40 1/2	37 1/2	19	33 1/2
GBD-222	40 1/2	37 1/2	19	33 1/2
GBD-245	47	44	19	40
GBD-270	53	50	19	46
GBD-300	65 1/2	62 1/2	19	58 1/2



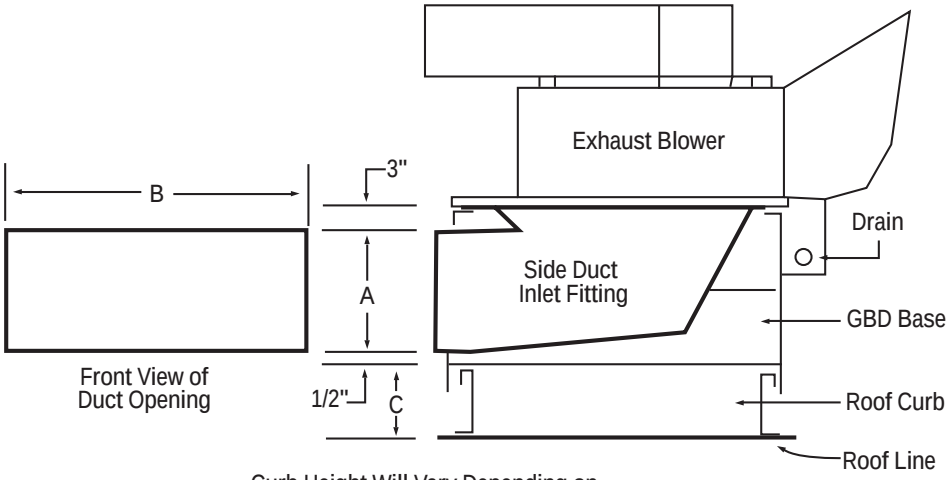


Side Inlet Fitting (Factory Option)

When Ordering...

1. Supply A and B dimensions for proper connection of the grease duct.
2. Supply C dimension that will allow proper horizontal duct run. Duct installation must conform with NFPA 96 or local code requirements.

MODEL	MAXIMUM DIMENSIONS	
	A	B
GBD-125	14	30 1/2
GBD-150	14	30 1/2
GBD-182	14	36 3/8
GBD-222	14	36 3/8
GBD-245	14	43 1/2
GBD-270	14	49 1/2
GBD-300	14	61 7/8



Curb Height Will Vary Depending on Length of Exposed Duct on Roof

GBD Performance Data

GBD-125

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)															
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
500	747	0.07	963	0.14	1135	0.23	1286	0.32	1543	0.54	1759	0.79	1950	1.06	2123	1.35
700	854	0.10	1053	0.19	1218	0.29	1360	0.40	1603	0.64	1817	0.91	2008	1.21	2180	1.53
900	976	0.15	1155	0.25	1311	0.37	1447	0.49	1684	0.76	1886	1.05	2068	1.37	2239	1.71
1100	1105	0.21	1273	0.33	1414	0.46	1544	0.60	1772	0.90	1971	1.22	2147	1.56	2309	1.93
1300	1240	0.29	1397	0.43	1531	0.58	1650	0.73	1868	1.06	2059	1.42	2234	1.79		
1500	1377	0.40	1527	0.56	1653	0.72	1767	0.89	1970	1.25	2156	1.63	2324	2.04		
1700	1518	0.53	1660	0.71	1780	0.89	1889	1.07	2083	1.46	2259	1.88				
1900	1661	0.68	1795	0.89	1911	1.09	2015	1.29	2202	1.71						

GBD-150

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1200	969	0.17	1099	0.25	1216	0.33	1326	0.42	1547	0.64	1725	0.86	1869	1.08	2004	1.30	2271	1.80	2522	2.37
1400	1088	0.24	1204	0.33	1310	0.41	1411	0.51	1600	0.73	1791	0.99	1952	1.26	2080	1.50	2319	2.02	2546	2.58
1600	1210	0.33	1315	0.43	1412	0.52	1506	0.63	1678	0.85	1844	1.11	2010	1.41	2163	1.73	2399	2.30	2604	2.87
1800	1333	0.45	1430	0.55	1521	0.66	1606	0.77	1768	1.01	1916	1.27	2063	1.55	2215	1.90	2481	2.60		
2000	1439	0.59	1550	0.70	1634	0.82	1713	0.94	1864	1.19	2004	1.47	2137	1.75	2271	2.08	2535	2.83		
2400	1717	0.95	1795	1.09	1868	1.23	1939	1.37	2070	1.66	2197	1.96	2316	2.28	2433	2.61				

GBD-182

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1800	695	0.20	806	0.30	908	0.41	999	0.53	1159	0.78	1299	1.06	1432	1.35	1560	1.64	1799	2.24	2002	2.88
2000	747	0.25	850	0.35	946	0.48	1034	0.60	1190	0.87	1326	1.16	1451	1.47	1570	1.79	1800	2.44	2010	3.11
2400	855	0.37	946	0.50	1030	0.63	1110	0.77	1258	1.08	1388	1.39	1508	1.73	1617	2.09	1822	2.85	2019	3.63
2800	966	0.54	1049	0.68	1124	0.83	1195	0.98	1332	1.32	1457	1.69	1572	2.05	1677	2.42	1870	3.24	2048	4.12
3200	1080	0.76	1156	0.92	1224	1.08	1290	1.25	1413	1.61	1532	2.01	1642	2.42	1744	2.83	1931	3.69	2102	4.62
3600	1196	1.04	1266	1.22	1330	1.40	1389	1.58	1503	1.96	1612	2.38	1716	2.83	1816	3.30	1997	4.23	2164	5.19
4400	1430	1.78	1491	2.01	1548	2.23	1600	2.44	1700	2.89	1794	3.35	1884	3.85	1972	4.37	2142	5.47	2300	6.62

GBD-222

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2800	640	0.34	723	0.48	799	0.64	870	0.82	982	1.15	1085	1.51	1198	1.98	1306	2.48	1494	3.43	1657	4.83
3200	707	0.46	783	0.62	852	0.78	918	0.97	1036	1.37	1130	1.75	1219	2.15	1317	2.66	1508	3.79	1673	4.88
3600	776	0.61	846	0.78	910	0.96	971	1.16	1086	1.60	1183	2.04	1266	2.47	1346	2.92	1517	4.03	1686	5.32
4200	882	0.89	945	1.10	1003	1.30	1058	1.51	1161	1.97	1259	2.49	1347	3.02	1421	3.51	1559	4.54	1703	5.78
4600	953	1.13	1012	1.35	1067	1.57	1119	1.80	1216	2.28	1308	2.81	1396	3.39	1475	3.97	1608	5.05	1732	6.20
5000	1026	1.40	1081	1.65	1133	1.89	1182	2.13	1274	2.64	1360	3.18	1445	3.78	1525	4.41	1661	5.63	1780	6.82
5600	1135	1.90	1186	2.17	1234	2.46	1280	2.72	1365	3.27	1445	3.85	1525	4.46	1598	5.12	1740	6.54	1858	7.88

Performance shown is for Installation Type A: free inlet, free outlet. Power rating (BHP) does not include drive losses. Performance ratings include the effects of the discharge scoop in the airstream.

GBD Performance Data (cont.)

GBD-245

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4400	709	0.75	773	0.97	831	1.19	885	1.42	989	1.96	1078	2.50	1153	3.02	1225	3.56	1379	4.91	1532	6.48
4800	762	0.93	822	1.16	876	1.40	928	1.65	1026	2.20	1117	2.81	1193	3.38	1261	3.95	1394	5.19	1538	6.77
5200	815	1.14	872	1.39	924	1.65	972	1.91	1065	2.47	1153	3.10	1234	3.77	1301	4.38	1425	5.63	1551	7.10
5600	869	1.38	922	1.65	972	1.92	1018	2.20	1107	2.78	1190	3.43	1270	4.13	1342	4.84	1462	6.16	1575	7.55
6000	923	1.65	974	1.95	1021	2.24	1066	2.53	1150	3.14	1229	3.79	1306	4.52	1379	5.28	1502	6.73	1610	8.17
6400	977	1.96	1026	2.28	1071	2.59	1114	2.90	1195	3.54	1271	4.21	1344	4.94	1415	5.74	1543	7.35	1649	8.85
6800	1032	2.31	1079	2.65	1122	2.98	1163	3.31	1241	3.96	1314	4.68	1383	5.42	1452	6.22	1581	7.94		
7200	1087	2.70	1132	3.06	1174	3.41	1213	3.75	1288	4.46	1358	5.19	1425	5.93	1490	6.75	1617	8.54		

GBD-270

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5400	649	0.94	706	1.20	758	1.47	808	1.76	902	2.41	983	3.08	1051	3.71	1115	4.38	1252	6.00	1390	7.91
5800	688	1.12	743	1.40	793	1.69	840	1.98	929	2.64	1012	3.38	1081	4.07	1143	4.76	1264	6.28	1396	8.21
6200	728	1.32	780	1.62	828	1.93	873	2.24	957	2.91	1039	3.68	1111	4.46	1172	5.18	1286	6.70	1404	8.52
6600	768	1.55	818	1.87	864	2.20	907	2.52	988	3.21	1066	3.99	1139	4.83	1202	5.64	1313	7.20	1417	8.90
7000	808	1.81	856	2.15	900	2.49	942	2.83	1020	3.55	1094	4.33	1166	5.20	1232	6.10	1342	7.75	1442	9.47
7800	890	2.41	934	2.79	975	3.17	1013	3.55	1086	4.33	1155	5.14	1221	6.03	1286	6.99	1402	8.96	1498	10.79
8600	972	3.13	1013	3.56	1051	3.98	1087	4.40	1156	5.24	1220	6.11	1282	7.02	1342	8.00	1457	10.14	1558	12.28
9400	1055	3.99	1093	4.47	1129	4.93	1163	5.39	1227	6.30	1288	7.24	1347	8.20	1403	9.20	1512	11.40		
10200	1138	5.01	1174	5.53	1207	6.03	1240	6.53	1301	7.52	1358	8.52	1414	9.54	1467	10.59	1569	12.80		

GBD-300

CFM	FAN CAPACITY - CUBIC FEET PER MINUTE (CFM)																			
	0.250" SP		0.500" SP		0.750" SP		1.000" SP		1.500" SP		2.000" SP		2.500" SP		3.000" SP		4.000" SP		5.000" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	680	1.83	726	2.22	767	2.61	807	3.01	881	3.85	952	4.81	1018	5.83	1074	6.79	1174	8.70	1273	10.87
9000	754	2.48	796	2.92	834	3.36	871	3.80	939	4.71	1004	5.68	1067	6.78	1126	7.92	1227	10.10	1315	12.25
10000	828	3.29	867	3.78	903	4.27	937	4.75	1001	5.74	1061	6.78	1119	7.87	1176	9.08	1281	11.63	1368	14.00
11000	903	4.26	939	4.81	973	5.35	1005	5.88	1065	6.95	1122	8.06	1176	9.20	1228	10.41	1331	13.11	1424	15.92
12000	979	5.41	1013	6.02	1044	6.60	1074	7.19	1131	8.36	1184	9.54	1236	10.76	1285	12.01	1381	14.74	1473	17.75
13000	1055	6.76	1086	7.42	1116	8.07	1145	8.70	1198	9.96	1249	11.23	1298	12.52	1345	13.85	1435	16.63		
14000	1131	8.33	1161	9.05	1189	9.74	1216	10.43	1267	11.79	1315	13.15	1362	14.53	1406	15.93				

Performance shown is for Installation Type A: free inlet, free outlet. Power rating (BHP) does not include drive losses. Performance ratings include the effects of the discharge scoop in the airstream.

GBD Lubrication & Maintenance

Prelubricated Bearings

All bearing units are prelubricated with grease chosen for its chemical and mechanical stability.

Units furnished with a grease fitting should be periodically relubricated. The relubrication interval depends on bearing operating conditions including speed, temperature and environment:

Speed (RPM)	Temperature (°F)	Type of Enviroment	Greasing Interval
to 500	up to 120°F	clean	6 months
to 1000	up to 150°F	clean	6 months
to 1500	up to 210°F	clean	5 months
to 2000	over 210°F	clean	4 months
any	up to 150°F	dirty	5 months
any	over 150°F	dirty	4 months
any	any	extreme	3 months

The fan bearings are supplied with premium lithium complex NLGI #2 bearing grease.

Mixing different kinds of grease can greatly affect the viscosity, dropping point and penetration properties of the lubricant. Water and heat-resisting properties and mechanical stability are lowered. It is essential that the thickener (soap base), NLGI penetration grade and the base oil be of the same group. See the chart below for the mixing properties of grease.

Maintenance Procedures

The exhaust blower should be inspected every three months as follows:

1. Check the blower wheel; it lifts out of the scroll on GBD models. If grease laden, clean to insure quiet and efficient operation.
2. Check belt tension and wear; replace belts if wear is excessive.
3. Motors are equipped with prelubricated ball bearings, and will require no lubrication for normal operation.
4. Exhaust blower wheel ball bearings are equipped with grease fittings. Grease per instructions on left.

Relubrication Procedure

1. Add grease slowly with shaft rotating until a slight bead forms at the seals.
2. Relubrication is generally accompanied by a slight rise in operating temperature until the bearing chamber is stabilized with the proper amount of grease.
3. If necessary to relubricate while bearing is stationary, refer to bearing manufacturer's specifications for maximum grease capacity for size of bearing.
4. For abnormal operating conditions of high temperature or abnormal environments, consult the factory.

Mixing Properties of Grease

SOAP BASE	CALCIUM	SODIUM	ALUMINUM	BARIUM	LITHIUM
CALCIUM	+	•	•	x	•
SODIUM	•	+	•	x	x
ALUMINUM	•	•	+	x	x
BARIUM	x	x	x	+	x
LITHIUM	•	x	x	x	+

+	Mixing will not produce appreciable changes of properties.
•	Mixing may produce considerable changes of properties.
x	Mixing will cause a drastic change of properties.

Warranty

What Products Are Covered

Supreme Fans (each, a “Supreme Fan Product”)

One Year Limited Warranty For Supreme Fan Products

Supreme Fan warrants to the original commercial purchaser that the Supreme Fan Products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment.

Exclusive Remedy

Supreme Fan will, at its option, repair or replace (without removal or installation) the affected components of any defective Supreme Fan Product; repair or replace (without removal or installation) the entire defective Supreme Fan Product; or refund the invoice price of the Supreme Fan Product. In all cases, a reasonable time period must be allowed for warranty repairs to be completed.

What You Must Do

In order to make a claim under these warranties:

1. You must be the original commercial purchaser of the Supreme Fan Product.
2. You must promptly notify us, within the warranty period, of any defect and provide us with any substantiation that we may reasonably request.
3. The Supreme Fan Product must have been installed and maintained in accordance with good industry practice and any specific Supreme Fan recommendations.

Exclusions

These warranties do not cover defects caused by:

1. Improper design or operation of the system into which the Supreme Fan Product is incorporated.
2. Improper installation.
3. Accident, abuse or misuse.
4. Unreasonable use (including any use for non-commercial purposes, failure to provide reasonable and necessary maintenance as specified by Supreme Fan, misapplication and operation in excess of stated performance characteristics).
5. Components not manufactured by Supreme Fan.

Limitations

1. In all cases, Supreme Fan reserves the right to fully satisfy its obligations under the Limited Warranties by refunding the invoice price of the defective Supreme Fan Product (or, if the Supreme Fan Product has been discontinued, of the most nearly comparable current product).
2. Supreme Fan reserves the right to furnish a substitute or replacement component or product in the event a Supreme Fan Product or any component of the product is discontinued or otherwise unavailable.
3. Supreme Fan's only obligation with respect to components not manufactured by Supreme Fan shall be to pass through the warranty made by the manufacturer of the defective component.

General

The foregoing warranties are exclusive and in lieu of all other warranties except that of title, whether written, oral or implied, in fact or in law (including any warranty of merchantability or fitness for a particular purpose).

Supreme Fan hereby disclaims any liability for special, punitive, indirect, incidental or consequential damages, including without limitation lost profits or revenues, loss of use of equipment, cost of capital, cost of substitute products, facilities or services, downtime, shutdown or slowdown costs.

The remedies of the original commercial purchaser set forth herein are exclusive and the liability of Supreme Fan with respect to the Supreme Fan Products, whether in contract, tort, warranty, strict liability or other legal theory shall not exceed the invoice price charged by Supreme Fan to its customer for the affected Supreme Fan Product at the time the claim is made.

Inquiries regarding these warranties should be sent to: Supreme Fan, 843 Indianapolis Avenue, Lebanon, IN 46052

SupremeFan

Experience the Supreme Difference

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