

**INSTALLATION INSTRUCTIONS FOR ELECTRIC HEAT
 (98W96-99 & 99W00-15; 610043-01-20) USED WITH ZC/ZH 036, 048 & 060 UNITS**

Shipping and Packing List

Electric Heat Package Contains:

- 1- Electric element assembly
- 1- Heater fuse panel
- 1- Bag assembly containing:
 - 1- Wire tie

Unit fuse assembly is ordered and shipped separately. This heater assembly cannot be installed without the unit fuse kit.

Inspect package upon receiving. If damage is found, contact last carrier immediately.

Requirements

Installation of electric heaters must conform with the standards of the National Fire Protection Association (NFPA) "Standard for the Installation of Air Conditioning and Ventilating Systems," NFPA No. 90A; "Standard for the Installation of Residence Type Warm Air heating and Air Conditioning Systems," NFPA No. 90B; in Canada, CSA C22.1 Canadian Electrical Code Part I and all applicable CSA requirements; manufacturer's installation instructions and local municipal building codes. Heaters are approved for clearance to combustible materials as listed on unit rating plate. Accessibility and service clearances must take precedence over fire protection clearance. All wiring must conform with local codes and the current National Electric Code (NEC) ANSI-C1 and in Canada, CSA C22.1 Canadian Electrical Code Part I and applicable CSA requirements.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer, service agency or the gas supplier

⚠ CAUTION

Danger of sharp metallic edges. Can cause injury. Take care when servicing unit to avoid accidental contact with sharp edges.

Application

Electric heat is used as primary heaters in ZC 036, 048, 060 units and as a secondary heat source in ZH 036, 048, 060 heat pump units. See table 1 for usage.

TABLE 1

Unit	Electric Heat (kW)
	208-230, 460, 575V 60 Hz
036	5, 7.5, 10, 15
048	5, 7.5, 10, 15, 22.5
060	5, 7.5, 10, 15, 22.5

⚠ IMPORTANT

Install separately ordered unit fuse block assembly before proceeding. Refer to instruction supplied with unit fuse assembly.

Electric Heat Installation

- 1- Disconnect all power to unit.
- 2- Remove panels as shown in figure 1.
- 3- Remove and retain screw in blower flange as shown in figure 2.

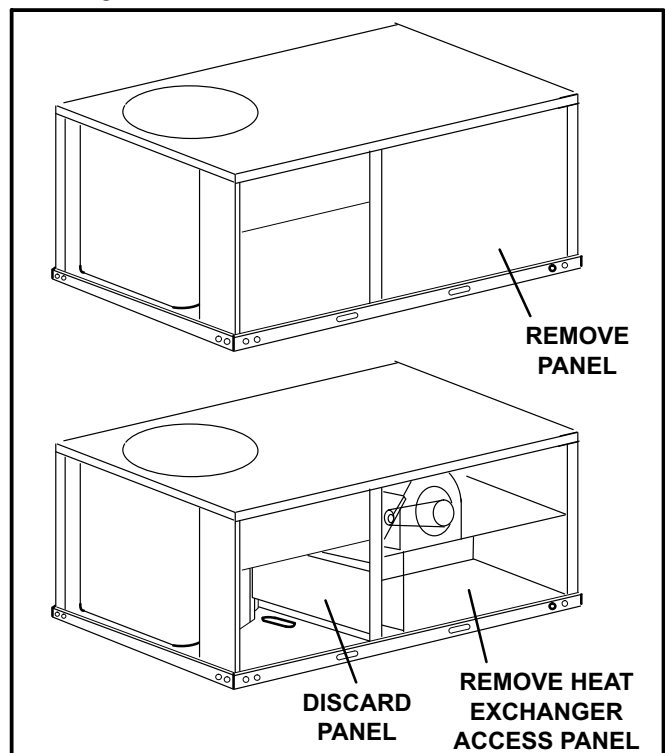


FIGURE 1



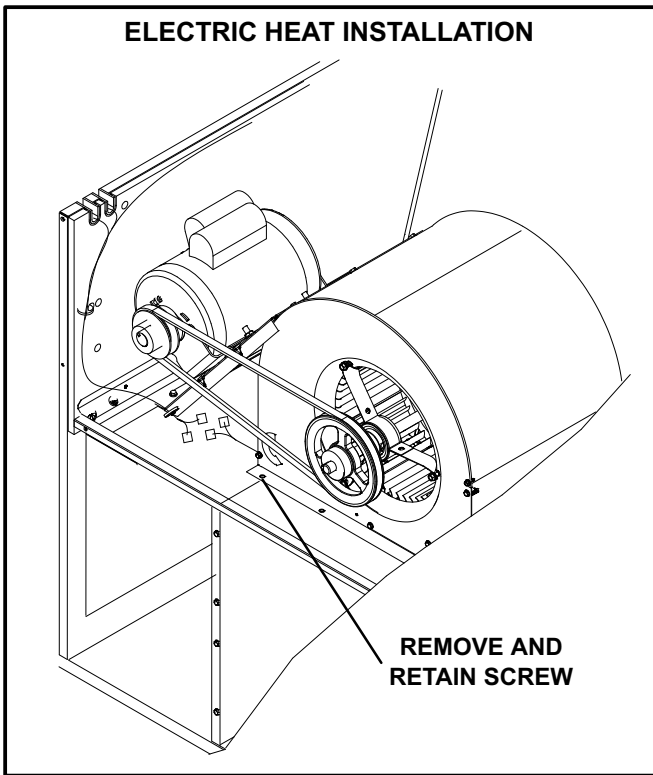


FIGURE 2

- 4- Remove heater fuse panel from the back side of the electric heat assembly. See figure 3.
- 5- Install electric heat assembly. See figure 4. Secure assembly with sheet metal screws.
- 6- Replace screw in blower deck engaging heat assembly flange.

7- Locate J2 connector hanging in the electric heat control area. On ZC units, disconnect P2 jumper plug from J2. Connect P2 from the electric heat assembly to J2.

Install Heater Fuse Panel

- 1- Set heater fuse panel near the heat control section opening. Make wiring connections as shown in figure 5 or 6.
- 2- Install heater fuse panel as shown in figure 7. From the outdoor air compartment, secure to the unit fuse assembly with sheet metal screws. Also refer to figure 8.

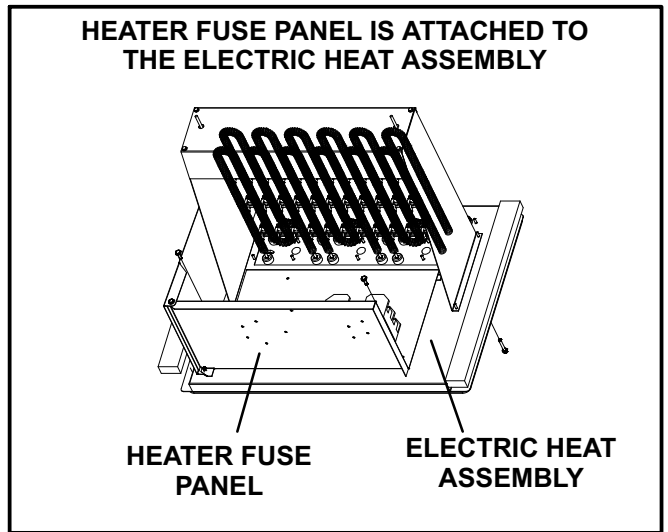


FIGURE 3

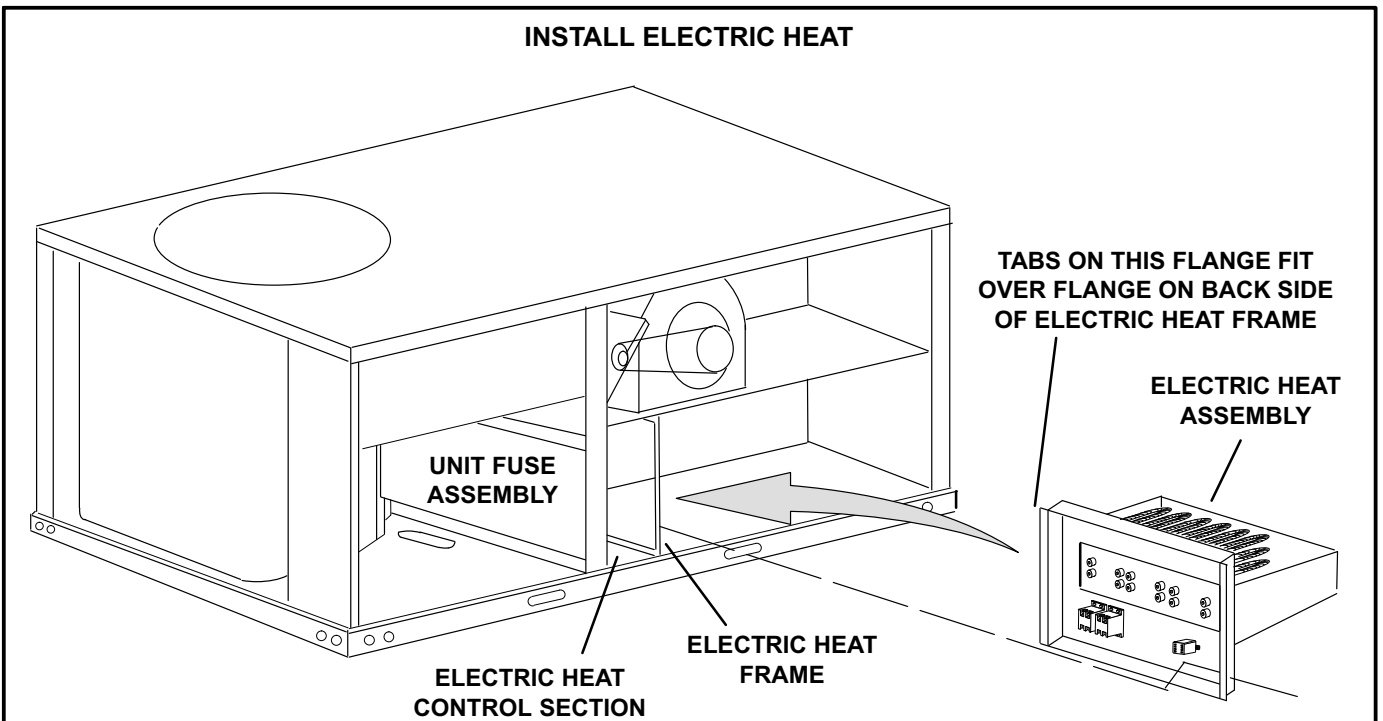


FIGURE 4

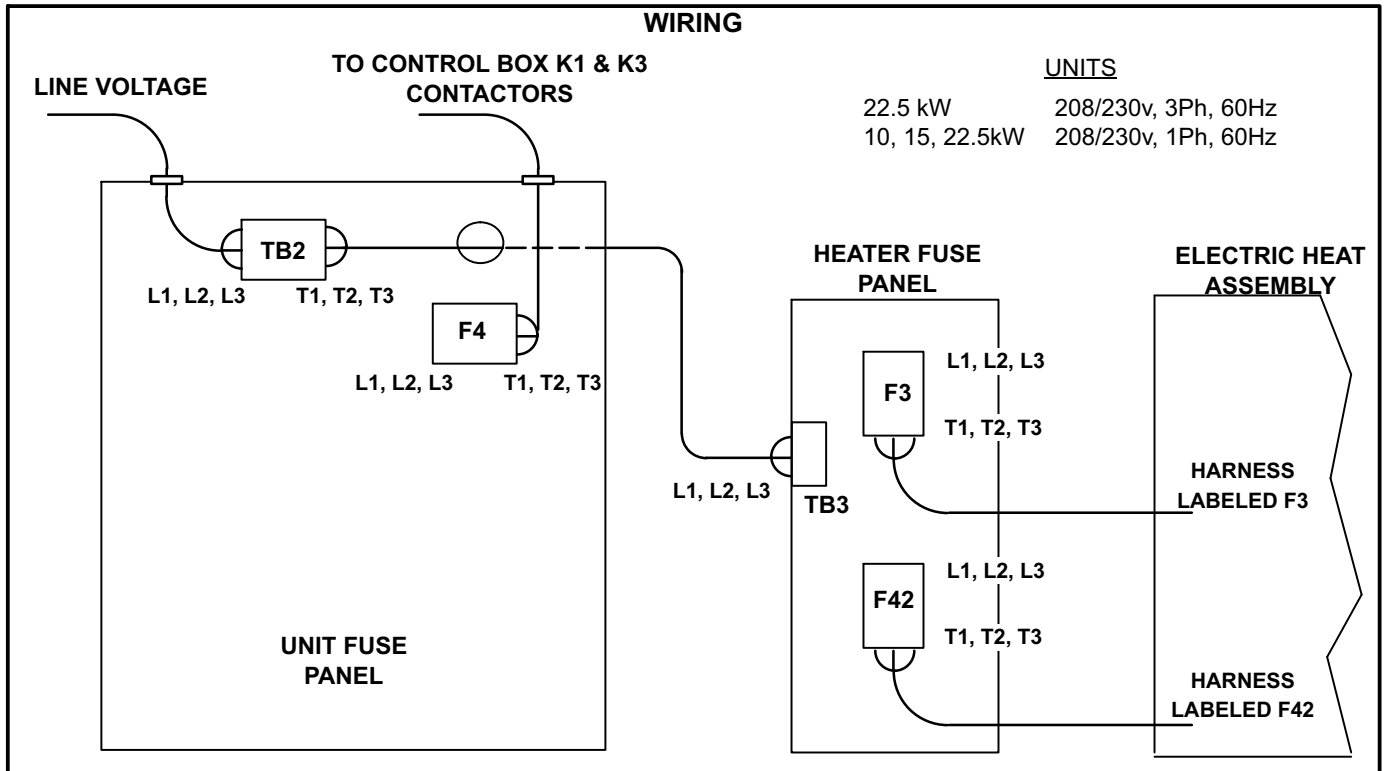


FIGURE 5

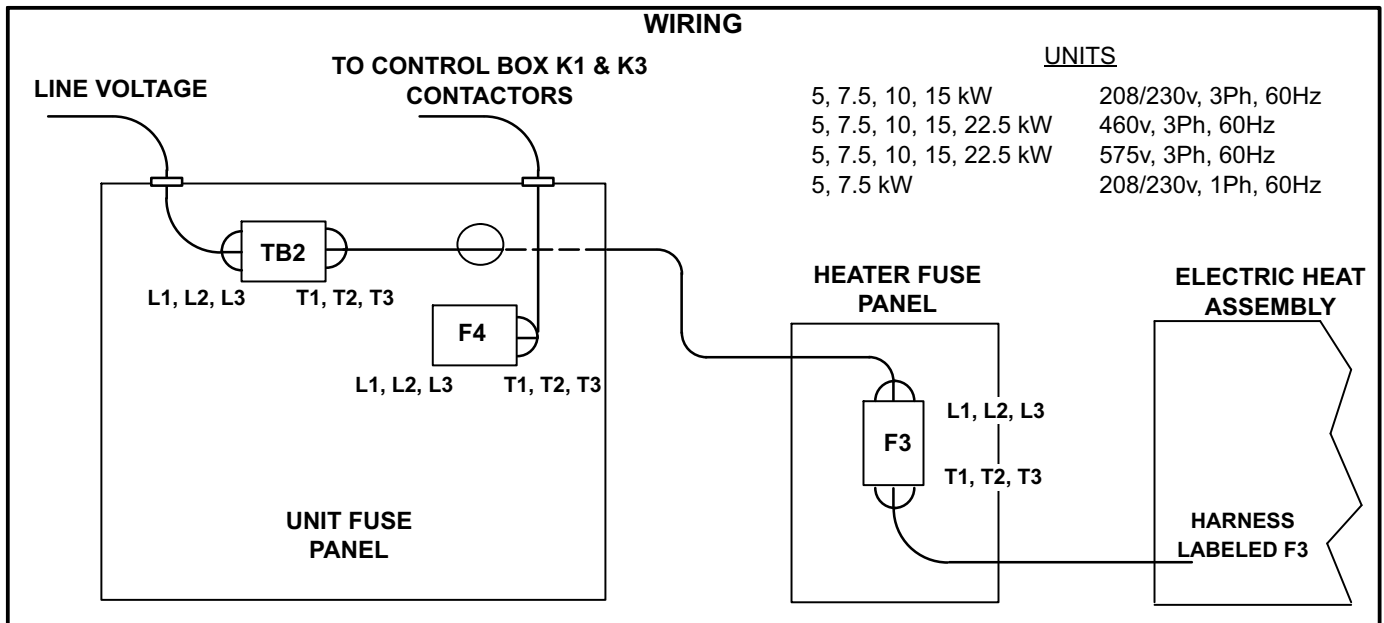


FIGURE 6

Field Wiring Connections

Wiring must conform to local codes and the current NEC/CEC. Refer closely to figure 5 or 6, the wiring diagram on the unit and the following information: If heater is being installed in an existing unit, a change in power supply wiring may be required. Remove the original supply wires or disconnect at power source. Refer to heater nameplate for minimum circuit ampacity and maximum fuse size.

- 1- When installing electric heat in an existing unit, disconnect power wiring to top of K1 contactor. Reconnect power wiring to the line side of the TB2 terminal block.
- 2- Route power wires from electric heat assembly to control area. Connect wire to load side of TB2 terminal block. Refer to figure 5 or .6

3- Locate the two harnesses provided in the kit. Install the longer harness between K1 contactor and F4 fuse block. Install the shorter harness between F4 fuse block and TB2 terminal block. Connect to the terminal marked on each wire.

Note - Minimum air requirements are shown in table 2 or 3. Do not set CFM lower than minimum CFM listed.

Blower Speed Requirements

Electric heater applications require specific blower air volumes. Refer to page 5 for accessory air resistance tables. Refer to pages 6 through 11 for proper blower speeds.

Unit Start-Up (Heating Cycle)

Set room thermostat for proper heat or auto operation if switching subbase is used. Apply power to unit and set heat setpoint above room temperature. Refer to unit installation instructions for additional information on start-up operations and adjustments.

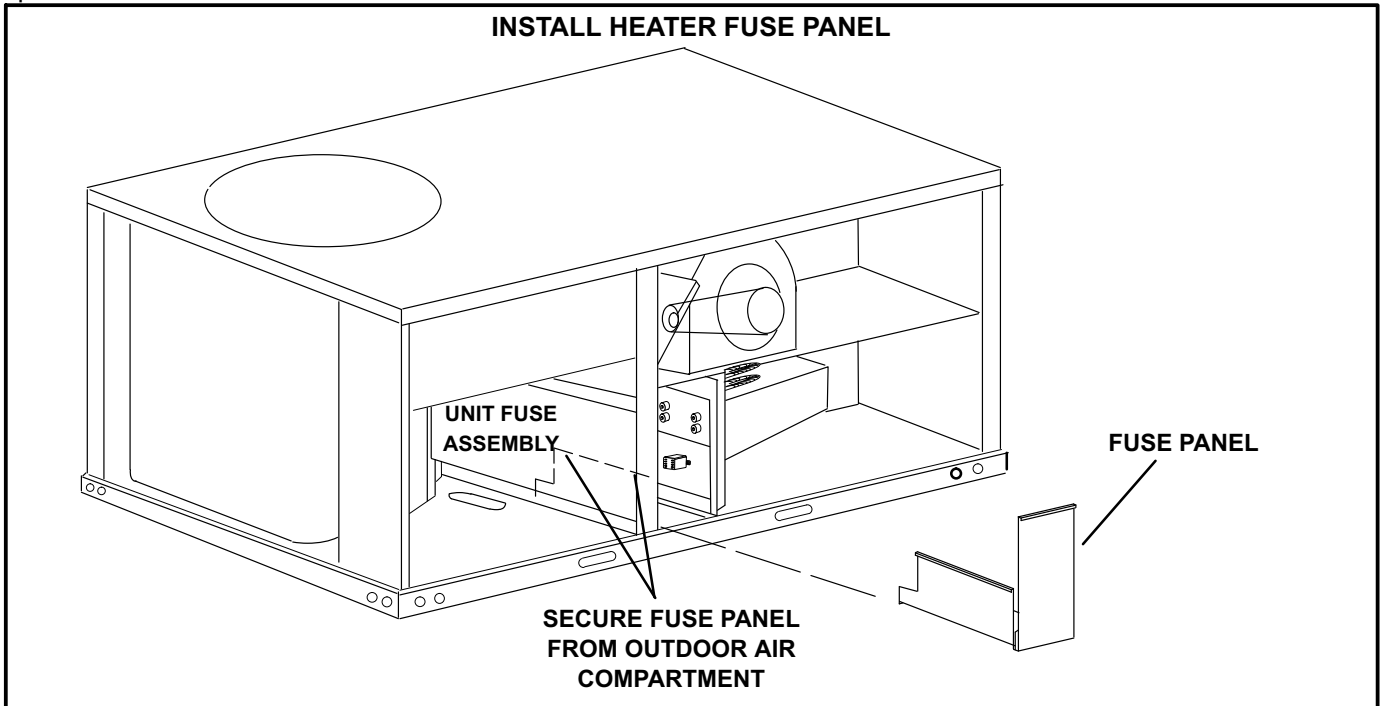


FIGURE 7

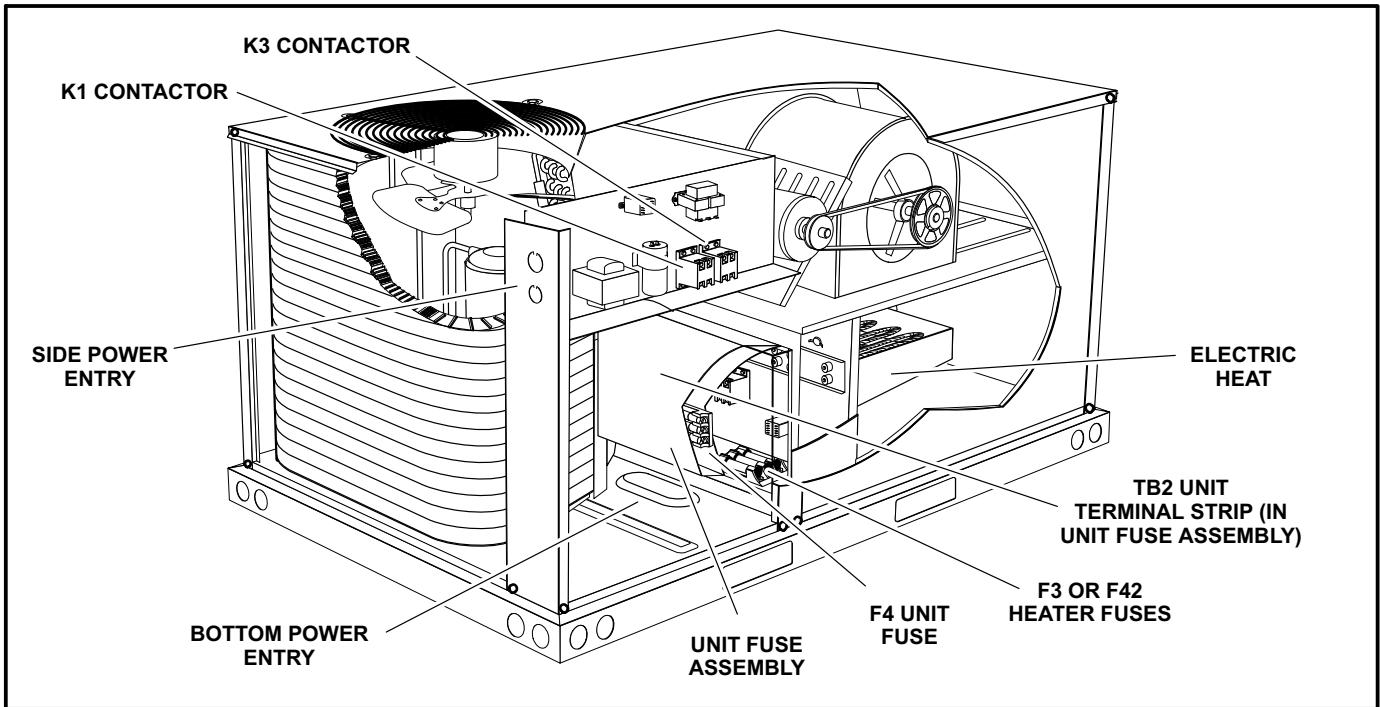


FIGURE 8

TABLE 2
MINIMUM AIRFLOW
ZC UNITS WITH ELECTRIC HEAT

Kw	CFM
	Downflow and Horizontal
5	960
7.5	960
10	960
15	960
22.5	1280

TABLE 3
MINIMUM AIRFLOW
ZH UNITS WITH ELECTRIC HEAT

Kw	CFM
	Downflow and Horizontal
5	1080
7.5	1080
10	1080
15	1080
22.5	1440

ZC OPTIONS / ACCESSORIES AIR RESISTANCE FOR 036-060 MODELS - in. w.g.

Air Volume cfm	Wet Indoor Coil		Gas Heat		Electric Heat	Economizer	
	036-048	060	Medium Input	High Input		Downflow	Horizontal
900	0.01	---	0.02	0.02	0.02	0.04	0.05
1000	0.01	---	0.02	0.02	0.04	0.04	0.05
1100	0.02	---	0.02	0.02	0.05	0.04	0.06
1200	0.02	---	0.02	0.03	0.06	0.05	0.06
1300	0.02	---	0.02	0.03	0.08	0.05	0.07
1400	0.03	---	0.03	0.04	0.09	0.06	0.07
1500	0.03	---	0.03	0.04	0.10	0.07	0.08
1600	0.03	0.04	0.03	0.04	0.12	0.08	0.09
1700	0.04	0.05	0.03	0.05	0.13	0.08	0.10
1800	0.04	0.05	0.03	0.05	0.15	0.09	0.11
1900	0.04	0.06	0.04	0.06	0.16	0.10	0.12
2000	0.05	0.06	0.04	0.06	0.17	0.12	0.13
2100	---	0.07	0.04	0.06	0.19	0.13	0.14
2200	---	0.08	0.04	0.07	0.20	0.14	0.15
2300	---	0.08	0.04	0.07	0.21	0.15	0.17
2400	---	0.09	0.05	0.80	0.23	0.17	0.18

ZH OPTIONS / ACCESSORIES AIR RESISTANCE - in. w.g.

Air Volume cfm	Wet Indoor Coil		Electric Heat	Economizer	
	036-048	060		Downflow	Horizontal
900	0.01	---	0.02	0.04	0.05
1000	0.02	---	0.04	0.04	0.05
1100	0.02	---	0.05	0.04	0.06
1200	0.02	---	0.06	0.05	0.06
1300	0.03	---	0.08	0.05	0.07
1400	0.03	---	0.09	0.06	0.07
1500	0.04	---	0.10	0.07	0.08
1600	0.04	0.03	0.12	0.08	0.09
1700	0.05	0.04	0.13	0.08	0.10
1800	0.05	0.04	0.15	0.09	0.11
1900	0.06	0.05	0.16	0.10	0.12
2000	0.06	0.05	0.17	0.12	0.13
2100	---	0.06	0.19	0.13	0.14
2200	---	0.06	0.20	0.14	0.15
2300	---	0.07	0.21	0.15	0.17
2400	---	0.07	0.23	0.17	0.18

BLOWER DATA - BELT DRIVE - ZCA036

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 12 for blower motors and drives and page 13 for wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z01											
900	555	0.16	621	0.17	691	0.19	763	0.20	832	0.22	897	0.24	956	0.26	1010	0.29
1000	577	0.18	644	0.19	715	0.21	786	0.23	855	0.24	919	0.27	976	0.29	1028	0.32
1100	601	0.20	670	0.22	741	0.23	812	0.25	879	0.28	941	0.30	996	0.33	1047	0.37
1200	629	0.22	698	0.24	770	0.26	840	0.28	905	0.31	965	0.34	1018	0.38	1066	0.41
1300	659	0.25	729	0.27	800	0.30	869	0.32	932	0.35	989	0.39	1040	0.43	1087	0.47
1400	692	0.28	763	0.31	833	0.34	899	0.37	960	0.40	1014	0.44	1063	0.48	1108	0.52
1500	728	0.32	798	0.35	866	0.38	930	0.41	987	0.45	1039	0.50	1086	0.54	1130	0.58

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1060	0.31	1108	0.34	1154	0.37	1197	0.40	1239	0.44	1279	0.47	1319	0.51	1359	0.55
1000	1077	0.35	1123	0.38	1168	0.42	1211	0.45	1252	0.49	1291	0.52	1330	0.56	1370	0.60
1100	1094	0.40	1139	0.43	1183	0.46	1225	0.50	1266	0.54	1305	0.58	1343	0.62	1382	0.66
1200	1112	0.45	1156	0.48	1199	0.52	1241	0.55	1281	0.59	1319	0.64	1357	0.68	1394	0.72
1300	1131	0.50	1174	0.54	1216	0.57	1257	0.61	1296	0.66	1334	0.70	1371	0.74	1408	0.78
1400	1151	0.56	1193	0.60	1234	0.64	1274	0.68	1313	0.72	1351	0.77	1387	0.81	1423	0.86
1500	1172	0.62	1213	0.66	1253	0.71	1293	0.75	1331	0.79	1368	0.84	1404	0.89	1440	0.93

HORIZONTAL

Air Volume cfm	External Static - in. w.g.																	
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Field Furnished				Kit Z01												Kit Z04	
900	572	0.14	641	0.16	712	0.19	785	0.22	860	0.24	931	0.27	991	0.29	1039	0.32		
1000	602	0.16	671	0.19	742	0.22	815	0.24	887	0.27	954	0.30	1010	0.33	1055	0.36		
1100	636	0.19	706	0.22	776	0.25	847	0.28	916	0.31	977	0.34	1028	0.37	1070	0.41		
1200	674	0.23	744	0.26	813	0.29	881	0.32	944	0.35	999	0.38	1045	0.42	1087	0.45		
1300	716	0.26	784	0.29	851	0.33	914	0.36	971	0.40	1020	0.43	1064	0.47	1106	0.50		
1400	759	0.30	824	0.34	888	0.37	946	0.41	998	0.45	1043	0.49	1086	0.52	1129	0.55		
1500	803	0.35	865	0.39	925	0.43	979	0.47	1027	0.52	1070	0.55	1113	0.58	1156	0.61		

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1085	0.35	1135	0.38	1183	0.40	1227	0.42	1268	0.45	1305	0.49	1342	0.53	1379	0.57
1000	1099	0.39	1148	0.42	1195	0.44	1239	0.47	1279	0.50	1316	0.54	1352	0.58	1389	0.62
1100	1114	0.44	1163	0.46	1210	0.49	1253	0.52	1292	0.55	1329	0.59	1364	0.64	1401	0.68
1200	1131	0.48	1180	0.51	1226	0.54	1269	0.57	1308	0.61	1343	0.66	1378	0.70	1414	0.75
1300	1151	0.53	1199	0.56	1245	0.59	1287	0.63	1324	0.68	1359	0.72	1394	0.77	1429	0.82
1400	1175	0.58	1222	0.62	1266	0.66	1306	0.70	1342	0.75	1376	0.80	1410	0.85	1446	0.89
1500	1201	0.65	1246	0.68	1289	0.73	1327	0.78	1362	0.83	1395	0.88	1429	0.93	1464	0.98

BLOWER DATA - BELT DRIVE - ZCA048

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 12 for blower motors and drives and page 13 for wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	629	0.22	698	0.24	770	0.26	840	0.28	905	0.31	965	0.34	1018	0.38	1066	0.41
1300	659	0.25	729	0.27	800	0.30	869	0.32	932	0.35	989	0.39	1040	0.43	1087	0.47
1400	692	0.28	763	0.31	833	0.34	899	0.37	960	0.40	1014	0.44	1063	0.48	1108	0.52
1500	728	0.32	798	0.35	866	0.38	930	0.41	987	0.45	1039	0.50	1086	0.54	1130	0.58
1600	766	0.37	835	0.40	900	0.43	960	0.47	1015	0.51	1065	0.55	1110	0.60	1152	0.65
1700	806	0.42	871	0.45	934	0.48	991	0.52	1043	0.56	1091	0.61	1134	0.66	1176	0.71
1800	845	0.47	908	0.50	967	0.54	1021	0.58	1071	0.63	1117	0.68	1159	0.73	1200	0.78
1900	884	0.53	944	0.56	1000	0.60	1051	0.64	1099	0.69	1143	0.75	1185	0.80	1225	0.86
2000	923	0.59	979	0.63	1032	0.67	1082	0.72	1128	0.77	1171	0.83	1211	0.89	1251	0.95

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1112	0.45	1156	0.48	1199	0.52	1241	0.55	1281	0.59	1319	0.64	1357	0.68	1394	0.72
1300	1131	0.50	1174	0.54	1216	0.57	1257	0.61	1296	0.66	1334	0.70	1371	0.74	1408	0.78
1400	1151	0.56	1193	0.60	1234	0.64	1274	0.68	1313	0.72	1351	0.77	1387	0.81	1423	0.86
1500	1172	0.62	1213	0.66	1253	0.71	1293	0.75	1331	0.79	1368	0.84	1404	0.89	1440	0.93
1600	1193	0.69	1234	0.73	1273	0.78	1313	0.82	1350	0.87	1387	0.92	1422	0.97	1457	1.01
1700	1216	0.76	1255	0.81	1295	0.86	1333	0.90	1370	0.95	1406	1.00	1441	1.05	1475	1.10
1800	1239	0.84	1279	0.89	1317	0.94	1355	0.99	1391	1.04	1426	1.09	1461	1.14	1494	1.19
1900	1264	0.92	1303	0.98	1341	1.03	1378	1.08	1413	1.14	1448	1.19	1481	1.24	1514	1.29
2000	1290	1.01	1328	1.07	1366	1.13	1402	1.19	1436	1.24	1470	1.29	1503	1.35	1535	1.40

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	674	0.23	744	0.26	813	0.29	881	0.32	944	0.35	999	0.38	1045	0.42	1087	0.45
1300	716	0.26	784	0.29	851	0.33	914	0.36	971	0.40	1020	0.43	1064	0.47	1106	0.50
1400	759	0.30	824	0.34	888	0.37	946	0.41	998	0.45	1043	0.49	1086	0.52	1129	0.55
1500	803	0.35	865	0.39	925	0.43	979	0.47	1027	0.52	1070	0.55	1113	0.58	1156	0.61
1600	847	0.40	905	0.45	961	0.50	1013	0.54	1058	0.58	1100	0.62	1142	0.65	1185	0.68
1700	890	0.47	944	0.52	997	0.57	1047	0.62	1091	0.66	1132	0.69	1173	0.72	1216	0.76
1800	930	0.54	982	0.60	1033	0.65	1081	0.70	1124	0.74	1165	0.77	1206	0.80	1248	0.84
1900	970	0.62	1020	0.68	1069	0.73	1116	0.78	1158	0.81	1199	0.85	1239	0.89	1280	0.93
2000	1009	0.71	1058	0.76	1106	0.81	1151	0.86	1193	0.9	1233	0.94	1273	0.98	1312	1.04

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1131	0.48	1180	0.51	1226	0.54	1269	0.57	1308	0.61	1343	0.66	1378	0.70	1414	0.75
1300	1151	0.53	1199	0.56	1245	0.59	1287	0.63	1324	0.68	1359	0.72	1394	0.77	1429	0.82
1400	1175	0.58	1222	0.62	1266	0.66	1306	0.70	1342	0.75	1376	0.80	1410	0.85	1446	0.89
1500	1201	0.65	1246	0.68	1289	0.73	1327	0.78	1362	0.83	1395	0.88	1429	0.93	1464	0.98
1600	1229	0.72	1273	0.76	1313	0.81	1350	0.86	1384	0.92	1416	0.97	1450	1.02	1485	1.07
1700	1258	0.80	1300	0.85	1338	0.90	1374	0.96	1407	1.02	1440	1.07	1473	1.12	1508	1.17
1800	1289	0.89	1328	0.94	1365	1.00	1399	1.06	1432	1.13	1465	1.18	1498	1.23	1532	1.28
1900	1319	0.99	1357	1.05	1392	1.11	1426	1.18	1459	1.24	1491	1.30	1524	1.35	1558	1.39
2000	1350	1.10	1387	1.16	1421	1.23	1454	1.30	1486	1.36	1518	1.42	1551	1.47	1584	1.51

BLOWER DATA - BELT DRIVE - ZCA060

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 12 for blower motors and drives and page 13 for wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z03											
1600	787	0.38	854	0.41	918	0.44	976	0.48	1030	0.52	1078	0.56	1123	0.61	1164	0.66
1700	827	0.43	892	0.46	952	0.49	1007	0.53	1058	0.58	1105	0.63	1148	0.68	1189	0.73
1800	868	0.48	929	0.52	986	0.55	1038	0.59	1087	0.64	1132	0.69	1174	0.75	1214	0.80
1900	907	0.54	966	0.58	1019	0.62	1069	0.66	1116	0.71	1160	0.77	1200	0.82	1240	0.88
2000	946	0.60	1001	0.65	1053	0.69	1101	0.74	1146	0.79	1188	0.85	1228	0.91	1267	0.98
2100	984	0.68	1037	0.72	1086	0.77	1132	0.83	1176	0.89	1217	0.95	1256	1.01	1295	1.08
2200	1021	0.75	1072	0.81	1120	0.86	1165	0.92	1207	0.99	1247	1.05	1286	1.12	1324	1.19
2300	1059	0.84	1108	0.90	1154	0.96	1197	1.03	1239	1.10	1278	1.17	1316	1.24	1354	1.32
2400	1097	0.95	1144	1.01	1188	1.08	1231	1.15	1271	1.22	1310	1.30	1348	1.38	1385	1.45

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03								Kit Z06							
1600	1205	0.70	1245	0.75	1284	0.79	1323	0.84	1361	0.88	1397	0.93	1432	0.98	1467	1.03
1700	1228	0.78	1268	0.82	1307	0.87	1345	0.92	1382	0.97	1417	1.02	1452	1.07	1486	1.11
1800	1253	0.85	1292	0.91	1331	0.96	1368	1.01	1404	1.06	1439	1.11	1473	1.16	1506	1.21
1900	1279	0.94	1317	1.00	1355	1.05	1392	1.10	1427	1.16	1461	1.21	1494	1.26	1527	1.31
2000	1305	1.04	1343	1.10	1380	1.15	1416	1.21	1450	1.26	1484	1.32	1516	1.37	1549	1.42
2100	1333	1.14	1370	1.21	1407	1.26	1442	1.32	1475	1.38	1508	1.43	1540	1.48	1572	1.53
2200	1361	1.26	1398	1.32	1434	1.38	1468	1.44	1501	1.50	1533	1.55	1564	1.61	1596	1.66
2300	1391	1.39	1427	1.45	1462	1.51	1495	1.57	1527	1.63	1559	1.68	1590	1.73	1622	1.78
2400	1421	1.52	1456	1.59	1490	1.65	1523	1.71	1555	1.76	1586	1.82	1617	1.87	1649	1.92

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furn.		Kit Z03													
1600	864	0.42	921	0.46	976	0.51	1027	0.56	1072	0.60	1113	0.63	1155	0.66	1198	0.69
1700	907	0.48	961	0.53	1013	0.58	1061	0.63	1105	0.67	1146	0.70	1187	0.73	1230	0.77
1800	948	0.56	999	0.61	1049	0.66	1096	0.71	1139	0.75	1180	0.78	1221	0.82	1262	0.86
1900	987	0.64	1037	0.69	1086	0.74	1132	0.79	1174	0.83	1214	0.86	1255	0.90	1295	0.95
2000	1028	0.73	1076	0.78	1123	0.83	1168	0.87	1210	0.91	1250	0.96	1289	1.00	1328	1.06
2100	1071	0.81	1117	0.86	1163	0.91	1206	0.96	1247	1.01	1286	1.06	1324	1.12	1362	1.18
2200	1116	0.91	1160	0.96	1204	1.01	1245	1.07	1285	1.12	1323	1.18	1360	1.25	1396	1.31
2300	1161	1.02	1204	1.07	1245	1.13	1285	1.19	1323	1.25	1360	1.32	1396	1.38	1432	1.45
2400	1207	1.14	1248	1.20	1288	1.26	1326	1.32	1362	1.39	1398	1.46	1433	1.53	1468	1.60

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03								Kit Z06							
1600	1242	0.73	1284	0.77	1324	0.82	1360	0.88	1394	0.93	1426	0.99	1460	1.04	1495	1.08
1700	1272	0.81	1312	0.86	1350	0.92	1385	0.98	1418	1.04	1451	1.09	1485	1.14	1519	1.19
1800	1302	0.90	1341	0.96	1377	1.02	1411	1.08	1444	1.15	1477	1.20	1510	1.25	1544	1.30
1900	1334	1.01	1371	1.07	1406	1.13	1439	1.20	1471	1.26	1504	1.32	1537	1.37	1571	1.41
2000	1365	1.12	1401	1.19	1435	1.25	1468	1.32	1500	1.38	1532	1.44	1565	1.49	1598	1.53
2100	1398	1.25	1433	1.31	1466	1.38	1497	1.45	1529	1.51	1561	1.56	1594	1.61	1626	1.65
2200	1431	1.38	1465	1.45	1497	1.52	1528	1.58	1560	1.64	1591	1.69	1623	1.73	1656	1.77
2300	1466	1.52	1498	1.59	1529	1.66	1560	1.72	1591	1.77	1623	1.82	1654	1.86	1686	1.90
2400	1500	1.67	1532	1.74	1563	1.80	1593	1.86	1624	1.91	1655	1.96	1686	2.00	1718	2.04

BLOWER DATA - BELT DRIVE - ZHA036

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 5 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished				Kit Z01											
900	562	0.16	629	0.18	699	0.19	771	0.2	840	0.22	904	0.24	962	0.26	1015	0.29
1000	586	0.18	654	0.2	725	0.21	796	0.23	864	0.25	927	0.27	983	0.3	1034	0.33
1100	612	0.2	681	0.22	752	0.24	823	0.26	890	0.28	950	0.31	1004	0.34	1054	0.37
1200	641	0.23	711	0.25	783	0.27	852	0.29	917	0.32	975	0.35	1027	0.39	1074	0.42
1300	673	0.25	744	0.28	815	0.3	882	0.33	944	0.36	1000	0.4	1050	0.44	1096	0.48
1400	709	0.29	779	0.32	849	0.34	914	0.37	973	0.41	1026	0.45	1074	0.49	1118	0.53
1500	747	0.33	816	0.36	883	0.39	945	0.42	1001	0.46	1052	0.51	1098	0.55	1141	0.59

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1065	0.32	1112	0.35	1158	0.38	1202	0.41	1243	0.44	1284	0.48	1323	0.52	1364	0.55
1000	1082	0.36	1128	0.39	1173	0.42	1216	0.45	1257	0.49	1297	0.53	1336	0.57	1375	0.6
1100	1100	0.4	1145	0.44	1189	0.47	1231	0.51	1272	0.54	1311	0.58	1349	0.62	1388	0.66
1200	1119	0.45	1163	0.49	1206	0.52	1247	0.56	1287	0.6	1326	0.64	1364	0.68	1402	0.72
1300	1139	0.51	1182	0.55	1224	0.58	1265	0.62	1304	0.66	1342	0.71	1379	0.75	1416	0.79
1400	1160	0.57	1202	0.61	1243	0.65	1283	0.69	1322	0.73	1359	0.78	1396	0.82	1432	0.87
1500	1182	0.64	1223	0.68	1263	0.72	1303	0.76	1341	0.81	1378	0.85	1414	0.9	1449	0.94

HORIZONTAL

Air Volume cfm	External Static - in. w.g.																	
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80			
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
	Field Furnished				Kit Z01												Kit Z04	
900	580	0.14	649	0.17	721	0.19	794	0.22	868	0.24	938	0.27	998	0.3	1045	0.33		
1000	612	0.17	681	0.19	752	0.22	825	0.25	897	0.27	963	0.3	1017	0.33	1061	0.37		
1100	647	0.2	717	0.23	788	0.26	858	0.28	926	0.31	986	0.34	1036	0.38	1077	0.41		
1200	687	0.23	757	0.26	826	0.29	893	0.32	955	0.35	1008	0.39	1054	0.42	1095	0.46		
1300	730	0.27	798	0.3	864	0.33	926	0.37	982	0.4	1030	0.44	1073	0.47	1116	0.51		
1400	775	0.31	840	0.34	902	0.38	959	0.42	1009	0.46	1054	0.5	1096	0.53	1140	0.56		
1500	820	0.36	881	0.4	939	0.44	993	0.49	1039	0.53	1082	0.56	1124	0.59	1168	0.62		

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z04															
900	1091	0.36	1140	0.38	1188	0.4	1232	0.43	1272	0.46	1309	0.49	1346	0.53	1383	0.57
1000	1105	0.4	1154	0.42	1201	0.45	1245	0.47	1284	0.5	1321	0.54	1357	0.58	1394	0.62
1100	1121	0.44	1169	0.47	1216	0.49	1259	0.52	1298	0.56	1335	0.6	1370	0.64	1406	0.69
1200	1139	0.49	1187	0.52	1234	0.54	1276	0.58	1314	0.62	1350	0.66	1385	0.71	1421	0.75
1300	1161	0.54	1208	0.57	1254	0.6	1295	0.64	1332	0.69	1366	0.73	1401	0.78	1436	0.83
1400	1185	0.59	1232	0.63	1276	0.67	1315	0.71	1351	0.76	1384	0.81	1419	0.86	1454	0.9
1500	1212	0.66	1257	0.7	1299	0.74	1337	0.79	1371	0.84	1404	0.89	1438	0.94	1473	0.99

BLOWER DATA - BELT DRIVE - ZHA048

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 5 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	641	0.23	711	0.25	783	0.27	852	0.29	917	0.32	975	0.35	1027	0.39	1074	0.42
1300	673	0.25	744	0.28	815	0.30	882	0.33	944	0.36	1000	0.40	1050	0.44	1096	0.48
1400	709	0.29	779	0.32	849	0.34	914	0.37	973	0.41	1026	0.45	1074	0.49	1118	0.53
1500	747	0.33	816	0.36	883	0.39	945	0.42	1001	0.46	1052	0.51	1098	0.55	1141	0.59
1600	787	0.38	854	0.41	918	0.44	976	0.48	1030	0.52	1078	0.56	1123	0.61	1164	0.66
1700	827	0.43	892	0.46	952	0.49	1007	0.53	1058	0.58	1105	0.63	1148	0.68	1189	0.73
1800	868	0.48	929	0.52	986	0.55	1038	0.59	1087	0.64	1132	0.69	1174	0.75	1214	0.80
1900	907	0.54	966	0.58	1019	0.62	1069	0.66	1116	0.71	1160	0.77	1200	0.82	1240	0.88
2000	946	0.60	1001	0.65	1053	0.69	1101	0.74	1146	0.79	1188	0.85	1228	0.91	1267	0.98

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1119	0.45	1163	0.49	1206	0.52	1247	0.56	1287	0.60	1326	0.64	1364	0.68	1402	0.72
1300	1139	0.51	1182	0.55	1224	0.58	1265	0.62	1304	0.66	1342	0.71	1379	0.75	1416	0.79
1400	1160	0.57	1202	0.61	1243	0.65	1283	0.69	1322	0.73	1359	0.78	1396	0.82	1432	0.87
1500	1182	0.64	1223	0.68	1263	0.72	1303	0.76	1341	0.81	1378	0.85	1414	0.90	1449	0.94
1600	1205	0.70	1245	0.75	1284	0.79	1323	0.84	1361	0.88	1397	0.93	1432	0.98	1467	1.03
1700	1228	0.78	1268	0.82	1307	0.87	1345	0.92	1382	0.97	1417	1.02	1452	1.07	1486	1.11
1800	1253	0.85	1292	0.91	1331	0.96	1368	1.01	1404	1.06	1439	1.11	1473	1.16	1506	1.21
1900	1279	0.94	1317	1.00	1355	1.05	1392	1.10	1427	1.16	1461	1.21	1494	1.26	1527	1.31
2000	1305	1.04	1343	1.10	1380	1.15	1416	1.21	1450	1.26	1484	1.32	1516	1.37	1549	1.42

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z02									
1200	687	0.23	757	0.26	826	0.29	893	0.32	955	0.35	1008	0.39	1054	0.42	1095	0.46
1300	730	0.27	798	0.30	864	0.33	926	0.37	982	0.40	1030	0.44	1073	0.47	1116	0.51
1400	775	0.31	840	0.34	902	0.38	959	0.42	1009	0.46	1054	0.50	1096	0.53	1140	0.56
1500	820	0.36	881	0.40	939	0.44	993	0.49	1039	0.53	1082	0.56	1124	0.59	1168	0.62
1600	864	0.42	921	0.46	976	0.51	1027	0.56	1072	0.60	1113	0.63	1155	0.66	1198	0.69
1700	907	0.48	961	0.53	1013	0.58	1061	0.63	1105	0.67	1146	0.70	1187	0.73	1230	0.77
1800	948	0.56	999	0.61	1049	0.66	1096	0.71	1139	0.75	1180	0.78	1221	0.82	1262	0.86
1900	987	0.64	1037	0.69	1086	0.74	1132	0.79	1174	0.83	1214	0.86	1255	0.90	1295	0.95
2000	1028	0.73	1076	0.78	1123	0.83	1168	0.87	1210	0.91	1250	0.96	1289	1.00	1328	1.06

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z02						Kit Z05									
1200	1139	0.49	1187	0.52	1234	0.54	1276	0.58	1314	0.62	1350	0.66	1385	0.71	1421	0.75
1300	1161	0.54	1208	0.57	1254	0.60	1295	0.64	1332	0.69	1366	0.73	1401	0.78	1436	0.83
1400	1185	0.59	1232	0.63	1276	0.67	1315	0.71	1351	0.76	1384	0.81	1419	0.86	1454	0.90
1500	1212	0.66	1257	0.70	1299	0.74	1337	0.79	1371	0.84	1404	0.89	1438	0.94	1473	0.99
1600	1242	0.73	1284	0.77	1324	0.82	1360	0.88	1394	0.93	1426	0.99	1460	1.04	1495	1.08
1700	1272	0.81	1312	0.86	1350	0.92	1385	0.98	1418	1.04	1451	1.09	1485	1.14	1519	1.19
1800	1302	0.90	1341	0.96	1377	1.02	1411	1.08	1444	1.15	1477	1.20	1510	1.25	1544	1.30
1900	1334	1.01	1371	1.07	1406	1.13	1439	1.20	1471	1.26	1504	1.32	1537	1.37	1571	1.41
2000	1365	1.12	1401	1.19	1435	1.25	1468	1.32	1500	1.38	1532	1.44	1565	1.49	1598	1.53

BLOWER DATA - BELT DRIVE - ZHA060

BLOWER TABLE INCLUDES RESISTANCE FOR BASE UNIT ONLY WITH DRY INDOOR COIL AND AIR FILTERS IN PLACE.

FOR ALL UNITS ADD:

1 - Any factory installed options air resistance (heat section, economizer, wet coil, etc.).

2 - Any field installed accessories air resistance (duct resistance, diffuser, etc.).

See page 5 for blower motors and drives and wet coil and options/accessory air resistance data.

DOWNFLOW

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z03									
1600	764	0.35	822	0.39	880	0.42	936	0.46	991	0.51	1042	0.55	1091	0.60	1136	0.64
1700	801	0.40	857	0.44	913	0.48	968	0.52	1020	0.57	1070	0.61	1117	0.66	1162	0.71
1800	838	0.46	893	0.50	947	0.54	1000	0.58	1051	0.63	1099	0.68	1145	0.73	1188	0.78
1900	876	0.52	929	0.56	982	0.61	1033	0.65	1082	0.70	1129	0.75	1173	0.80	1215	0.85
2000	914	0.59	966	0.63	1017	0.68	1067	0.72	1115	0.77	1160	0.83	1203	0.88	1244	0.94
2100	953	0.66	1004	0.71	1054	0.76	1102	0.81	1148	0.86	1192	0.92	1233	0.98	1273	1.04
2200	993	0.74	1042	0.79	1090	0.85	1137	0.90	1181	0.96	1224	1.02	1264	1.09	1303	1.15
2300	1033	0.83	1081	0.89	1128	0.94	1173	1.01	1216	1.07	1257	1.14	1296	1.20	1334	1.27
2400	1074	0.93	1120	0.99	1166	1.05	1209	1.12	1251	1.19	1291	1.26	1329	1.33	1366	1.41

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03										Kit Z06					
1600	1180	0.68	1222	0.72	1263	0.76	1303	0.80	1341	0.85	1378	0.90	1414	0.94	1449	0.99
1700	1204	0.75	1245	0.79	1285	0.84	1325	0.88	1362	0.93	1398	0.98	1434	1.03	1468	1.08
1800	1229	0.83	1270	0.87	1309	0.92	1347	0.97	1384	1.02	1420	1.07	1454	1.12	1488	1.17
1900	1256	0.91	1296	0.96	1334	1.01	1371	1.07	1407	1.12	1442	1.17	1476	1.23	1509	1.28
2000	1284	1.00	1322	1.06	1360	1.11	1396	1.17	1431	1.23	1465	1.28	1498	1.33	1531	1.38
2100	1312	1.10	1350	1.16	1386	1.22	1422	1.28	1456	1.34	1489	1.40	1521	1.45	1554	1.50
2200	1341	1.22	1378	1.28	1414	1.34	1448	1.41	1481	1.46	1513	1.52	1546	1.57	1578	1.62
2300	1371	1.34	1407	1.41	1442	1.47	1475	1.54	1507	1.59	1539	1.65	1571	1.70	1602	1.75
2400	1402	1.48	1436	1.55	1470	1.61	1503	1.67	1535	1.73	1566	1.79	1597	1.84	1628	1.89

HORIZONTAL

Air Volume cfm	External Static - in. w.g.															
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Field Furnished						Kit Z03									
1600	783	0.38	844	0.41	902	0.44	957	0.48	1008	0.52	1056	0.56	1100	0.60	1142	0.64
1700	825	0.44	882	0.47	938	0.50	989	0.54	1038	0.57	1083	0.62	1126	0.66	1166	0.71
1800	866	0.50	921	0.53	973	0.56	1021	0.60	1067	0.64	1111	0.68	1152	0.73	1191	0.78
1900	907	0.56	959	0.59	1008	0.63	1054	0.66	1098	0.71	1139	0.75	1179	0.80	1217	0.86
2000	948	0.63	996	0.66	1042	0.70	1086	0.74	1128	0.78	1168	0.83	1207	0.89	1244	0.94
2100	987	0.70	1033	0.74	1077	0.78	1119	0.82	1159	0.87	1198	0.93	1235	0.99	1272	1.05
2200	1026	0.78	1070	0.82	1112	0.87	1152	0.92	1191	0.98	1228	1.03	1265	1.10	1301	1.16
2300	1064	0.88	1106	0.92	1147	0.97	1186	1.03	1223	1.09	1260	1.15	1295	1.22	1331	1.28
2400	1102	0.98	1143	1.03	1182	1.08	1220	1.15	1256	1.21	1292	1.28	1327	1.35	1362	1.42

Air Volume cfm	External Static - in. w.g.															
	0.90		1.00		1.10		1.20		1.30		1.40		1.50		1.60	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	Kit Z03										Kit Z06					
1600	1183	0.68	1223	0.72	1263	0.76	1302	0.81	1340	0.86	1377	0.91	1413	0.95	1448	1.00
1700	1205	0.75	1245	0.79	1284	0.84	1322	0.89	1360	0.94	1396	0.99	1431	1.04	1465	1.09
1800	1230	0.83	1268	0.87	1306	0.92	1344	0.98	1380	1.03	1416	1.08	1450	1.13	1483	1.19
1900	1255	0.91	1292	0.96	1330	1.02	1367	1.07	1402	1.13	1437	1.18	1470	1.24	1503	1.29
2000	1281	1.00	1318	1.06	1355	1.12	1391	1.18	1425	1.23	1459	1.29	1492	1.35	1524	1.40
2100	1308	1.11	1345	1.17	1381	1.23	1416	1.29	1450	1.35	1482	1.41	1514	1.46	1546	1.52
2200	1337	1.23	1372	1.29	1408	1.35	1442	1.42	1475	1.47	1507	1.53	1538	1.59	1569	1.64
2300	1366	1.35	1401	1.42	1435	1.49	1469	1.55	1501	1.61	1532	1.67	1563	1.72	1594	1.77
2400	1396	1.49	1431	1.56	1464	1.63	1496	1.69	1528	1.75	1559	1.81	1589	1.86	1619	1.91

BLOWER DATA

DRIVE KIT SPECIFICATIONS

Model No.	Blower Motor Choice (HP)				Drive Kit No.	RPM Range
	Nominal	Maximum	Nominal	Maximum		
036	1	1.15	1.5	1.7	Z01	678 - 1035
					Z04	964 - 1471
048	1	1.15	1.5	1.7	Z02	803 - 1226
					¹ Z05	1098 - 1490
060	1	1.15	1.5	1.7	Z03	906 - 1383
					¹ Z06	1262 - 1634

NOTE - Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor hp required. Maximum usable hp of motors furnished are shown. In Canada, nominal motor hp is also maximum usable motor hp. If motors of comparable hp are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

¹ On ZH units, 1.5 hp motor is required with Z05 and Z06 drive kits.

POWER EXHAUST FAN PERFORMANCE

Return Air System Static Pressure - in. w.g.	Air Volume Exhausted cfm
0.00	1865
0.05	1785
0.10	1710
0.15	1630
0.20	1545
0.25	1450
0.30	1350
0.35	1240