



PRODUCT DATA & INSTALLATION

Bulletin T80-TA-PDI-8

Part # 1097716

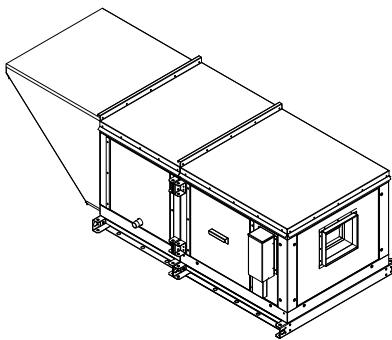
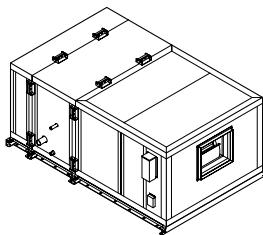


PRODUCT SUPPORT
web: www.t-rp.com/tah
email: ahu@t-rp.com
call: 1-844-893-3222 x527



TAC, TAF, TAH Central Station Air Handlers

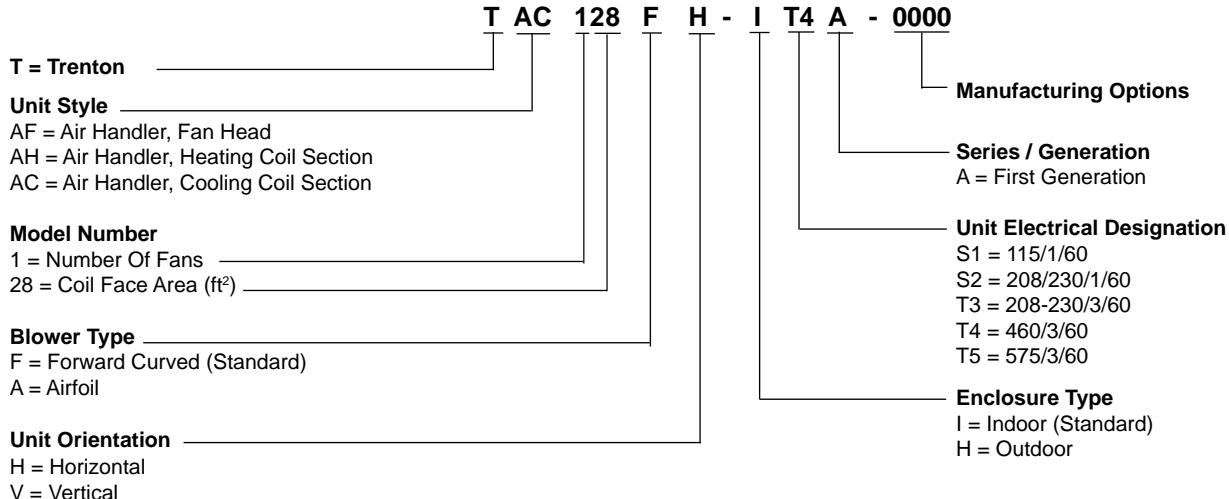
Indoor and Outdoor -
Heating, Cooling
and Ventilating Units



CONTENTS

	Page
Nomenclature.....	2
Features and Options.....	2
Blower Components	3
Coil Information	4
Unit Selection Data	5
Fan Performance Data	6 - 13
Calculation of Total Static Pressure	14
Component and Air Friction	15
Sound Data	16
Performance and Physical Data	17 - 18
Fan Motor Locations	19
Dimensional Data.....	20 - 40
Engineering Specifications.....	41
Installation and Assembly Instructions.....	42 - 44
Lifting Instructions	45 - 46
Field Installation or Removal of Coils	47 - 48
Wiring Diagrams.....	49
Electrical Data.....	50 - 51
Maintenance	52
Approximate Weights	53
Outdoor Unit Data	54 - 56
Optional Internal Spring Isolators	57
Project Information.....	58
Product Support Resources	59
“As Built” Service Parts	BACK

NOMENCLATURE



STANDARD FEATURES

- 14 Models • Up to 6" Total Static Pressure
- Single Wall Heavy Gauge Galvanized Cabinet
- Efficient Forward Curved Blower • Up to 64,000 CFM
- Internal Motor • Up to 75 HP • UL Certification
 - Horizontal and Vertical Cabinet Styles
 - External Electrical Box Mounted to Cabinet
 - Extended Grease Lines with External Access
 - Stainless Steel Drain Pan on All Cooling Coils
- Aluminum Fan Head Drain Pan (Models AC137 thru 182, downblast configuration not available)

AVAILABLE OPTIONS (Factory Mounted)

- Double Wall Cabinet with 2" Mineral Wool Insulation
 - Outdoor Cabinet
 - Internal Vibration Isolators
- Airfoil (Up to 8" Total Static Pressure)
 - Disconnect Switch • Flat Filter
 - Angle Filters • Mixing Box • Dampers
- Aluminum Fan Head Drain Pan (Models AC103 thru 128, downblast configuration not available)

OTHER OPTIONS ARE AVAILABLE AT YOUR REQUEST. CONSULT FACTORY FOR PRICING.

FEATURES A NEW ADVANCED DYNAMIC DESIGN BLOWER SECTION

- **HIGH EFFICIENCY FAN PERFORMANCE**
- **FANS TESTED PER AMCA CODE No. 210**
- **MINIMUM FAN TIP SPEEDS**
- **CLASS II CONSTRUCTION**

The air handler blower section is a matched assembly combining advanced engineering techniques with the finest materials available.

Forward-curved centrifugal fans were designed specifically to operate at low tip-speeds with minimum power consumption. To meet the low noise level requirements of comfort air conditioning, fan outlet velocities have been reduced without sacrificing good fan performance. Blowers are fully performance tested and certified in accordance with DIN, ISO, BS and AMCA 210 standards. Blowers are rated for CLASS II operation and have bearings selected to guarantee a minimum L50 life time of 200,000 hours. The fan section is complete with a rugged drive assembly. The heavy duty motor base is designed for quick and simple belt adjustment. All drives are furnished with matched V-belts.

EXCLUSIVE STEEL FRAME CONSTRUCTION

Sectionalized construction provides complete flexibility of unit arrangements with each individual section structurally designed to provide the absolute maximum in unit strength and rigidity. All static and dynamic forces are directly transmitted to the unit framework. The blowers are supported entirely by rigid frame members, eliminating all dynamic forces from the casing panel. Optional internal blower isolators are also available on all models.

For maximum durability, the entire cabinet assembly is fabricated of continuous galvanized steel. This heavy protective finish is maintained intact, completely undisturbed and is complimented with the use of corrosion resistant permanent fasteners. The positive fastening principle of a permanent fastener provides the rigidity and stability necessary for lifetime performance. Optional 2" insulated panels are available on all models. Outdoor construction is available on all models. These exclusive construction features offer you the ultimate in air handling design.

INTERNAL BLOWER CONSTRUCTION

All blower housings are manufactured in galvanized sheet steel. Impellers are also manufactured in galvanized sheet steel with tab locked blades. All impellers are balanced, both statically and dynamically, to an accuracy grade of G = 6.3 in accordance to DIN ISO 1940-1 and ANSI S2.19 – 1989. Bearings are self-aligning, single row, and deep groove ball type, in pillow block cast iron housings. All bearings have been selected to guarantee a minimum L50 life time of 200,000 hours. Operating temperatures range from -25°F to + 131°F (-31°C to +55°C) for all blowers. For operating temperatures outside these limits please consult factory. Extended lubrication lines are standard. Airfoil constructed blowers available for all models for static pressures above 6" – consult factory (models 103 & 104 excluded).

With the variety of coil sizes and types available for mounting in factory fabricated units it is important to follow a few general guidelines. Besides coil section space and unit arrangement configuration limitations, outlined below, care should be taken that all coils mounted in the same section have identical face dimensions. All coils by-passed with internal face and by-pass damper sections must be of small face area.

The maximum coil space available in standard coil sections is as follows:

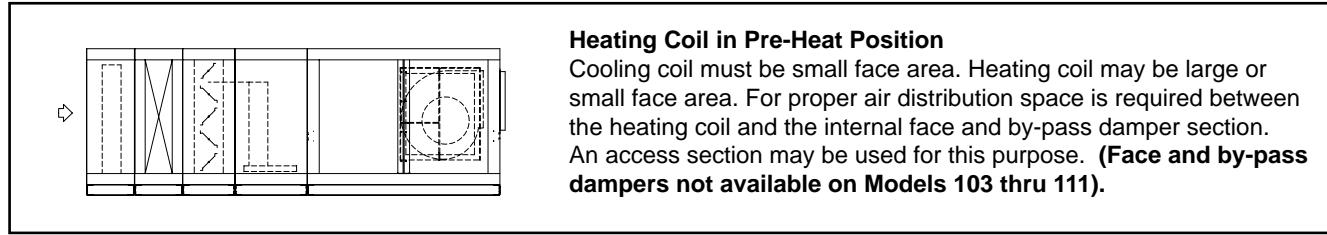
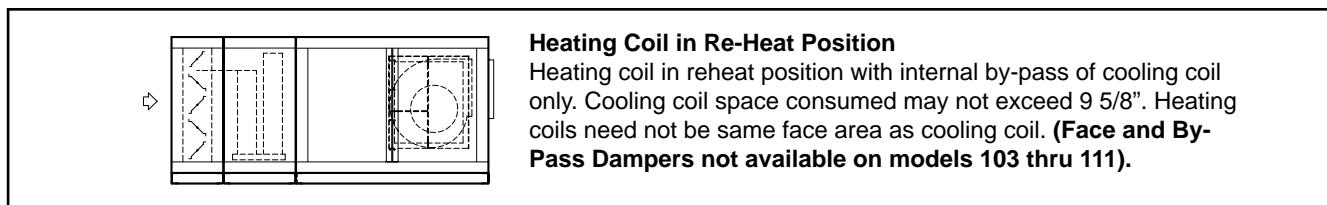
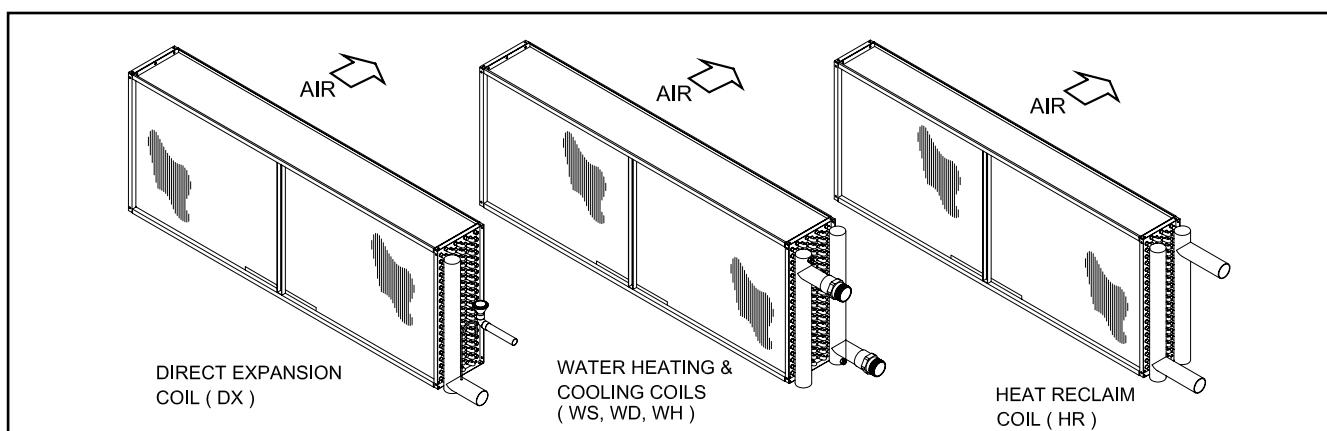
Draw Thru-Horizontal or
Vertical Cooling Coil Section..... = 17 7/8"
Heating Coil Section - 1 thru 8 Row..... = 12 3/8"

The table below lists the depth dimension of the various types and rows of coils. All dimensions are overall casing depth. In order for the coils selected on a specific unit to fit in a standard coil section, the sum of depth dimensions of the coils in series must not exceed the maximum space available.

Draw-Thru unit sizes 137 and 141 with small face area cooling coils are not equipped with the intermediate drain trough. For this reason, the maximum space available with these units may be increased by 2-3/4".

Selection of cooling & heating coils may be made from current catalogued data.

NOTE: Maximum water temperature not to exceed 200°F and air leaving 140°F.



COIL CASING DIMENSIONS

ROWS	COIL TYPE				
	TWS	TWH	TWD	THR	TDX
1	6-7/8	6-7/8	N/A	6-7/8	N/A
2	6-7/8	6-7/8	6-7/8	6-7/8	6-7/8
3	6-7/8	6-7/8	N/A	6-7/8	6-7/8
4	6-7/8	6-7/8	6-7/8	6-7/8	6-7/8
5	8-1/4	8-1/4	N/A	N/A	8-1/4
6	9-5/8	9-5/8	9-5/8	9-5/8	9-5/8
8	12-3/8	12-3/8	12-3/8	12-3/8	12-3/8
10	15-1/8	15-1/8	N/A	15-1/8	15-1/8

N/A = Not Available

GENERAL

Certain basic factors must be predetermined prior to the selection of a central station air handler. The factors which will control the unit selection are applicable codes, ventilation requirements, heating and cooling space loads, acceptable temperature differentials, thermal media and installation limitations. The selection of the unit can then be resolved to five steps:

1. Unit type and size,
2. Cooling coil,
3. Heating coil,
4. Accessories and,
5. Motor size.

SELECTION OF UNIT TYPE AND SIZE

With the overall system designed to minimize the number of units and the heating, cooling and ventilation requirements for the various zones established, selection of the optimum unit size can be made based on the required air volume. The heating load, cooling load and ventilation requirement will establish a CFM need, any one of which may be the maximum.

The unit air volume for cooling is dependent upon the sensible space cooling load and the design dry bulb temperature differential. Normal temperature differentials for air conditioning are from 12 to 25°F. The minimum air volume is calculated using the following formula:

$$\text{CFM} = \frac{\text{Sensible Space Load (Btuh)}}{1.09 \times \text{Temp. Differential } (\text{°F})}$$

Normal temperature differentials for heating are from 20 to 50°F. The required minimum air volume for heating calculated using the same formula.

The required air volume for ventilation is generally less than that for cooling or heating. However, where toxic fumes or unusual contaminants are encountered, the ventilation requirements may establish a minimum air volume in excess of that determined for cooling or heating.

The unit size can then be selected based on maximum air volume required. Usually more than one unit size can be selected to deliver the required air. Therefore, fan outlet velocity, coil face velocity, fan RPM and BHP should also be given consideration in the final selection. The fan performance tables are conveniently arranged with CFM, fan outlet velocity, coil face velocity, fan RPM and BHP in tabular form for simple selection of the optimum unit size.

SELECTION OF COILS

Having determined the unit size, the selection of the coil is resolved to three steps:

1. Choice of the face area coil for optimum face velocity,
2. Choice of the type of coil suited to the application, and
3. Determination of number of rows and fin series.

COOLING COIL

The coil size should be selected for maximum face velocity to obtain peak heat transfer efficiency and minimum cost. Generally 500 to 600 FPM is considered the optimum coil face velocity range for dehumidification application.

Determination of the number of rows and fin spacing is made using the current cooling coil catalogues.

HEATING COIL

Selection of the heating coil is a choice of coil type, size and determination of the required number of rows and fin spacing.

Determination of the number of rows and fin spacing is made from the current Heating Coil Catalogues.

NOTE: Maximum water temperature not to exceed 200°F and air leaving 140°F.

SELECTION OF ACCESSORIES

Accessories should be selected to provide a complete heating/cooling unit with proper cleaning, mixing and control of the air. A complete line of accessories is available to simplify the selection and installation of accessories.

AIR CLEANING

A filter section should be selected to provide filter area such that the filter velocity will be compatible with the choice of filter media. Two filter sections are offered; flat, and angular, for units 114 thru 182. Units 103 thru 111 use flat only.

AIR MIXING

Mixing dampers are included as a simple means of introducing outside air with thorough mixing and proportional control of the recirculated and fresh air. A mixing box is available for each unit size and is also offered in combination with the angular filter section.

TEMPERATURE CONTROL

Dampers are often selected as an effective means of temperature control because they offer close control without time lag. Face and by-pass dampers are available for units 114 thru 182. The face and by-pass dampers are available with an internal by-pass duct (used with small face area coils only) or with an external by-pass duct.

SELECTION OF FAN MOTOR

The determination of the actual fan performance requires an accurate calculation of the resistance to air flow thru the entire system. This total resistance consists of two parts. The external static pressure of the distribution system, and the internal unit resistance.

The internal unit resistance is found by summing the resistances of the coils, various unit components and accessories. Components resistances are tabulated in Fan Performance Data tables (see pages 7-13).

DETERMINATION OF FAN SPEED AND MOTOR HP REQUIREMENTS

Final determination of the actual fan performance requires an accurate calculation of the total resistance to air flow through the entire system. This total static pressure (TSP) will consist of two parts: (1) the external resistance due to air flow through the ducts, discharge grilles, diffusers, etc. of the distribution system, and (2) the internal resistance of the unit which results from air flow through the coils, filters, unit cabinet and other accessories. The method of calculating the resistance for the various components of the distribution system are well established. The internal resistances are easily determined from Fan Performance Data tables (see pages 7-13) which tabulates the resistance values for the various unit components in increments of air volume. For the internal resistances as shown in Fan Performance Data tables (see pages 7-13). The resistances of the cooling and heating coils must be added. These may be obtained from the cooling and heating coil catalogues. After calculating the total static pressure, the fan speed and motor horsepower requirements can be accurately determined. With the unit model, CFM and TSP known, the fan RPM and BHP is easily determined from the Fan Performance Tables.

FAN PERFORMANCE INFORMATION

This catalogue contains all of the fan performance tables for central station air handlers. Units are equipped with forward curved fan wheels as standard.

Further pressure loss correction is required for vertical draw-thru central station air handlers, by adding the casing air pressure drop found in Fan Performance Data tables (see pages 7-13)

SELECTION RULES

The fan performance calculation procedure is predicated on the fact that a fan is a constant volume machine, provided the RPM and static pressure do not change. This means the delivered air volume (CFM) will not change, even though the temperature may. The BHP required is inversely proportional to final air temperature and altitude; consequently BHP decreases with an increase in final air temperature or higher altitude and increases with a decrease in final air temperature or lower altitude. This requires that the static pressure be adjusted for any air conditions other than standard. After the calculation of RPM and BHP, only the BHP need be corrected to the specified conditions.

SELECTION PROCEDURE

The following data is required to determine the fan performance. The unit type, unit size, CFM, total static pressure, operating temperature and altitude.

1. From table below, obtain the temperature and altitude conversion factor.
2. Divide the specified total static pressure by the conversion factor to obtain a corrected total static pressure.
3. At the specified CFM and corrected total static pressure, determine the RPM and BHP.
4. Multiply the BHP by the conversion factor to obtain the BHP required at the specified altitude and temperature.

EXAMPLE OF SELECTION PROCEDURE -

KAC111 with 5000 CFM @ 3.0" total static pressure, 60°F air temp, 5000 feet elevation:

1. Conversion factor = 0.85
2. New TSP = $3.0" / 0.85 = 3.5"$
3. $3.5" = 1100 \text{ RPM}$ and 4.45 BHP .
4. New BHP = $4.45 \times 0.85 = 3.78$

Selection = 5000 CFM @ 1100 RPM and 3.78 BHP.

TEMPERATURE AND ALTITUDE CONVERSION FACTORS

AIR TEMP. °F	ALTITUDE (FEET)								
	0	1000	2000	3000	4000	5000	6000	7000	8000
-20	1.2	1.16	1.12	1.08	1.04	1	0.97	0.93	0.89
0	1.15	1.1	1.08	1.02	0.99	0.95	0.92	0.88	0.85
20	1.11	1.06	1.02	0.98	0.95	0.92	0.88	0.85	0.82
40	1.06	1.02	0.98	0.94	0.91	0.88	0.84	0.81	0.78
60	1.02	0.98	0.94	0.91	0.88	0.85	0.81	0.79	0.76
70	1	0.96	0.93	0.89	0.86	0.83	0.8	0.77	0.74
80	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72
100	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.7
120	0.92	0.88	0.85	0.81	0.78	0.76	0.72	0.7	0.67
140	0.89	0.85	0.82	0.79	0.76	0.73	0.7	0.68	0.65

TA*

FAN PERFORMANCE DATA

(Based on Ducted Outlet)

60Hz

MODEL: 103 Area (ft²): Outlet = 0.84 LFA (Large Face Area) Coil: 2.24 SFA (Small Face Area) Coil: N/A Forward Curved Fan: ATLI 9-9 T2

CFM STD AIR	FAN OUTLET VEL (FPM)	COIL FACE VELOCITY (FPM)		TOTAL STATIC PRESSURE [In.W.G]																				CABINET SP (In.W.G)								
				0.25		0.5		0.75		1		1.5		2		2.5		3		3.5		4		4.5								
		LFA	SFA	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP									
700	833	313	NA	523	0.05	741	0.09	939	0.15	1116	0.21	1415	0.38	1664	0.57	1879	0.79	2070	1.03	-	-	-	-	-	-	0.01						
800	952	357	NA	534	0.06	733	0.1	917	0.16	1086	0.22	1384	0.39	1636	0.58	1856	0.8	2051	1.04	2229	1.3	-	-	-	-	-	0.02					
900	1071	402	NA	549	0.08	733	0.12	903	0.17	1063	0.24	1353	0.4	1606	0.59	1828	0.81	2027	1.05	2207	1.31	2374	1.59	2528	1.89	-	-	0.02				
1000	1190	446	NA	567	0.09	740	0.14	897	0.2	1047	0.26	1325	0.42	1575	0.61	1797	0.82	1998	1.07	2182	1.33	2351	1.61	2508	1.91	2655	2.23	2794	2.56	-	-	0.03
1100	1310	491	NA	587	0.11	751	0.16	898	0.22	1038	0.28	1302	0.44	1545	0.63	1766	0.84	1967	1.08	2152	1.35	2323	1.63	2483	1.93	2633	2.25	2774	2.58	-	-	0.03
1200	1429	536	NA	607	0.14	765	0.19	904	0.25	1036	0.31	1285	0.47	1519	0.65	1736	0.87	1936	1.11	2121	1.37	2294	1.65	2455	1.95	2606	2.27	2749	2.6	2895	2.95	0.04
1300	1548	580	NA	629	0.17	782	0.22	914	0.28	1038	0.35	1275	0.5	1498	0.69	1709	0.9	1906	1.14	2090	1.4	2262	1.68	2424	1.98	2577	2.29	2722	2.63	2859	2.98	0.04
1400	1667	625	NA	652	0.2	799	0.26	927	0.32	1045	0.39	1269	0.55	1482	0.73	1685	0.94	1878	1.17	2060	1.43	2231	1.71	2393	2.01	2546	2.33	2692	2.66	2830	3.01	0.05
1500	1786	670	NA	676	0.23	818	0.3	942	0.37	1055	0.44	1269	0.59	1472	0.78	1667	0.98	1854	1.22	2032	1.47	2201	1.75	2362	2.05	2515	2.36	2661	2.69	2800	3.04	0.06
1600	1905	714	NA	701	0.27	838	0.34	959	0.41	1068	0.49	1272	0.65	1466	0.83	1653	1.04	1833	1.27	2007	1.52	2173	1.8	2332	2.09	2484	2.41	2629	2.74	2768	3.09	0.06
1800	2143	804	NA	755	0.36	881	0.45	995	0.53	1099	0.61	1289	0.77	1467	0.96	1639	1.17	1806	1.4	1968	1.65	2126	1.92	2279	2.21	2426	2.52	2569	2.85	2707	3.19	0.08
2000	2381	893	NA	813	0.48	926	0.57	1035	0.66	1134	0.75	1314	0.93	1480	1.12	1640	1.33	1794	1.56	1946	1.81	2094	2.08	2238	2.36	2379	2.67	2517	2.99	2651	3.33	0.1

MODEL: 104 Area (ft²): Outlet = 1.03 LFA (Large Face Area) Coil: 3.44 SFA (Small Face Area) Coil: N/A Forward Curved Fan: ATLI 10-10 T2

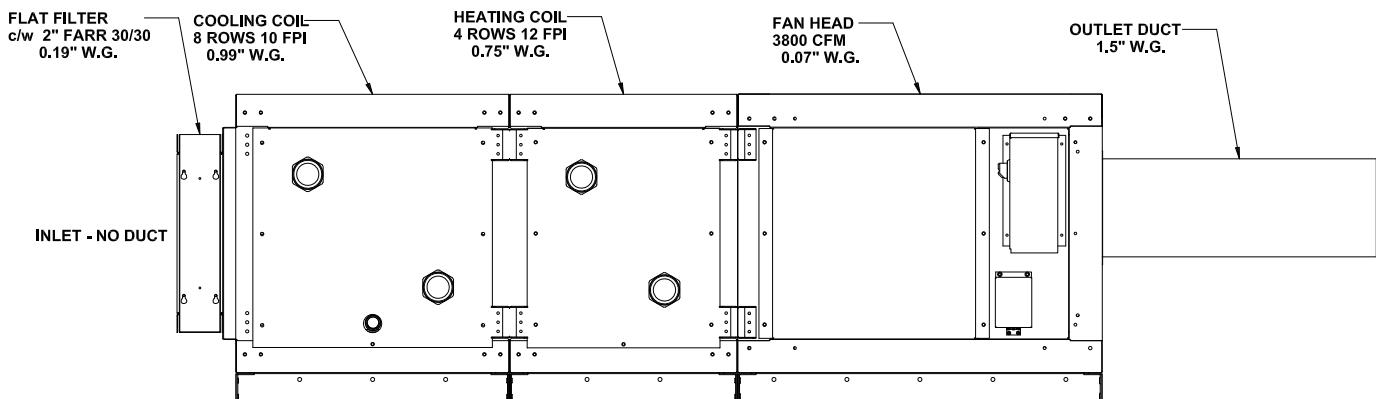
CFM STD AIR	FAN OUTLET VEL (FPM)	COIL FACE VELOCITY (FPM)		TOTAL STATIC PRESSURE (In.W.G)																				CABINET SP (In.W.G)								
				0.25		0.5		0.75		1		1.5		2		2.5		3		3.5		4		4.5								
		LFA	SFA	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP									
1000	971	291	NA	462	0.07	654	0.13	816	0.21	957	0.3	1191	0.52	1386	0.78	1556	1.07	1707	1.4	1845	1.75	1973	2.13	2092	2.54	-	-	0.01				
1200	1165	349	NA	477	0.1	648	0.16	802	0.23	939	0.32	1174	0.54	1372	0.8	1545	1.1	1699	1.43	1840	1.78	1970	2.16	2091	2.57	2205	2.99	2313	3.44	2416	3.91	0.02
1400	1359	407	NA	500	0.13	653	0.19	794	0.27	925	0.36	1156	0.58	1354	0.84	1529	1.13	1686	1.46	1829	1.82	1961	2.2	2085	2.6	2201	3.03	2310	3.48	2415	3.95	0.03
1500	1456	436	NA	514	0.16	659	0.22	794	0.29	920	0.38	1147	0.6	1345	0.86	1520	1.15	1678	1.48	1822	1.84	1955	2.22	2079	2.63	2196	3.06	2307	3.51	2412	3.98	0.03
1700	1650	494	NA	545	0.21	675	0.28	799	0.35	917	0.44	1134	0.66	1327	0.91	1502	1.21	1660	1.53	1805	1.89	1940	2.27	2066	2.68	2184	3.11	2296	3.56	2403	4.03	0.04
1800	1748	523	NA	562	0.24	686	0.31	804	0.39	918	0.48	1129	0.69	1320	0.95	1493	1.24	1651	1.57	1796	1.92	1931	2.3	2058	2.71	2177	3.14	2290	3.59	2397	4.07	0.04
2000	1942	581	NA	599	0.31	710	0.39	819	0.47	924	0.56	1123	0.77	1307	1.02	1476	1.32	1633	1.64	1778	2	1913	2.38	2041	2.78	2161	3.21	2274	3.67	2383	4.14	0.05
2200	2136	640	NA	637	0.4	739	0.48	839	0.57	937	0.66	1124	0.87	1299	1.12	1463	1.41	1617	1.74	1760	2.09	1895	2.47	2022	2.87	2143	3.3	2257	3.76	2366	4.23	0.06
2400	2330	698	NA	678	0.5	771	0.59	863	0.68	954	0.78	1130	0.99	1296	1.24	1454	1.53	1603	1.85	1744	2.2	1878	2.58	2004	2.98	2124	3.41	2239	3.86	2348	4.34	0.08
2600	2524	756	NA	720	0.61	805	0.72	891	0.81	976	0.91	1141	1.13	1299	1.39	1450	1.67	1594	1.99	1731	2.34	1862	2.71	1987	3.12	2106	3.54	2220	3.99	2330	4.47	0.09
2800	2718	814	NA	763	0.74	841	0.86	921	0.97	1001	1.07	1156	1.3	1306	1.55	1450	1.84	1589	2.15	1722	2.5	1850	2.87	1972	3.27	2090	3.7	2203	4.15	2312	4.62	0.1
3000	2913	872	NA	807	0.9	880	1.02	954	1.14	1028	1.25	1175	1.49	1317	1.74	1455	2.03	1588	2.34	1717	2.69	1841	3.06	1961	3.46	2076	3.88	2187	4.33	2295	4.8	0.12
3100	3010	901	NA	830	0.98	899	1.11	971	1.23	1043	1.35	1185	1.59	1324	1.85	1459	2.13	1589	2.45	1715	2.79	1838	3.16	1956	3.56	2070	3.98	2180	4.43	2287	4.9	0.13
3150	3058	916	NA	841	1.02	909	1.15	981	1.28	1050	1.4	1191	1.64	1328	1.9	1461	2.19	1590	2.5	1715	2.84	1836	3.21	1954	3.6	2067	4.02	2177	4.46	2284	4.93	0.13
3200	3107	930	NA	852	1.07	919	1.2	989	1.33	1058	1.45	1197	1.7	1332	1.96	1463	2.25	1591	2.56	1715	2.91	1835	3.28	1952	3.67	2065	4.09	2174	4.54	2280	5	0.14

Example #1

1. Select model based on CFM requirement and estimated static pressure.
2. Example model selected: AC108FH-IT4A - 3800 CFM @ 1.5" ESP.
3. Verify total static pressure by using charts supplied.
 - a) For coil(s) static pressure refer to Coil Catalogue - 0.99" & 0.75"
 - b) For filter area, see page 17 (3800 CFM / 10 ft²) = 380 FPM
 - c) For filter static pressure refer to Page 15 - 0.19" @ 380 FPM
 - d) For cabinet effect static pressure refer to Fan Performance Data chart pg. 8 - 0.07"
 - e) Inlet and outlet ducts static pressure calculated by others - 1.5" see Note.
4. Recalculate total static pressure - total now becomes 3.5"

Note: this example does not allow for detailed velocity inlet and outlet pressure.

MODEL KAC108FH-IT4A-



CALCULATE TOTAL STATIC PRESSURE (TSP)

$$\text{TSP: } 0.19 + 0.99 + 0.75 + 0.07 + 1.5 = 3.5 \text{ " W.G.}$$

FROM 108 PERFORMANCE CHART 3800 CFM
3.76 BHP
1261 RPM

TA*

COMPONENT AIR FRICTION

(Inches Of Water)

60Hz

UNIT SIZE	CFM	DAMPERS		VERTICAL UNIT CASING
		MIXING BOX	FACE & BYPASS	
103	800	0.02	NA	0.05
	1000	0.02		0.1
	1200	0.03		0.17
	1400	0.04		0.25
	1600	0.05		0.31
	1800	0.06		-
	2000	0.08		-
104	1000	0.02	NA	0.06
	1200	0.02		0.1
	1400	0.02		0.16
	1800	0.04		0.28
	2200	0.06		0.35
	2600	0.09		0.41
	3000	0.12		-
106	2000	0.03	NA	0.35
	2500	0.04		0.43
	3000	0.07		0.63
	3500	0.09		0.85
	4000	0.12		1.11
	4500	0.15		-
	5000	0.17		-
108	2200	0.02	NA	0.05
	2600	0.02		0.08
	3400	0.04		0.16
	3800	0.05		0.22
	4600	0.08		0.31
	5400	0.11		0.36
	7000	0.19		-
111	3000	0.02	NA	0.05
	3500	0.02		0.08
	4000	0.03		0.11
	5000	0.05		0.21
	6000	0.07		0.3
	8000	0.12		0.4
	10000	0.18		-
114	4000	0.02	0.02	0.06
	4500	0.02	0.03	0.08
	5000	0.03	0.04	0.11
	7000	0.06	0.07	0.26
	9000	0.1	0.11	0.36
	11000	0.15	0.16	-
	13000	0.19	0.22	-
117	5000	0.02	0.03	0.07
	6000	0.03	0.04	0.11
	7000	0.04	0.05	0.18
	9000	0.07	0.08	0.3
	11000	0.1	0.11	0.37
	13000	0.14	0.15	0.42
	15000	0.17	0.2	-

UNIT SIZE	CFM	DAMPERS		VERTICAL UNIT CASING
		MIXING BOX	FACE & BYPASS	
122	6000	0.02	0.02	0.04
	7000	0.02	0.03	0.05
	8000	0.03	0.04	0.08
	10000	0.04	0.06	0.14
	12000	0.06	0.08	0.24
	15000	0.09	0.13	0.33
	19000	0.15	0.2	-
128	8000	0.02	0.03	0.05
	9000	0.02	0.03	0.06
	10000	0.03	0.04	0.08
	13000	0.04	0.06	0.17
	17000	0.08	0.1	0.3
	21000	0.12	0.16	0.38
	25000	0.16	0.22	-
137	10000	0.02	0.02	-
	12000	0.02	0.03	-
	14000	0.03	0.04	-
	18000	0.05	0.07	-
	22000	0.07	0.1	-
	26000	0.1	0.13	-
	32000	0.15	0.2	-
141	12000	0.02	0.03	-
	14000	0.02	0.04	-
	16000	0.03	0.04	-
	20000	0.04	0.06	-
	24000	0.05	0.09	-
	28000	0.08	0.12	-
	36000	0.12	0.2	-
150	15000	0.02	0.03	-
	18000	0.04	0.04	-
	21000	0.04	0.05	-
	27000	0.07	0.08	-
	33000	0.1	0.12	-
	39000	0.15	0.17	-
	48000	0.15	0.15	-
164	18000	0.02	0.03	-
	20000	0.03	0.03	-
	24000	0.04	0.03	-
	32000	0.07	0.07	-
	40000	0.11	0.11	-
	56000	0.2	0.21	-
	56000	0.2	0.21	-
182	25000	0.03	0.03	-
	33000	0.04	0.03	-
	41000	0.07	0.07	-
	49000	0.11	0.11	-
	57000	0.15	0.15	-
	64000	0.2	0.21	-
	64000	0.2	0.21	-

NA - Not Available

When using cooling and heating coils refer to current catalogued data on these products for air friction.

To determine the air friction of combination mixing box and angular filter section add the individual resistance of the filters and mixing box at the applicable air volume.

FILTER AIR FRICTION

(Inches Of Water)

FILTER FACE VELOCITY	FARR 30/30		FARR 44	FL GOLD	ALUM. MESH
	(throw-aways)		(washable)	(metal / Renu frame)	(washable)
FPM	2"	4"	2"	2"	2"
250	0.1	0.08	0.03	0.1	0.08
300	0.14	0.12	0.05	0.13	0.1
350	0.17	0.15	0.06	0.15	0.12
400	0.21	0.19	0.07	0.18	0.15
450	0.26	0.23	0.09	0.21	0.18
500	0.31	0.27	0.11	0.25	0.21
550	NR	NR	0.14	0.29	0.24
600	NR	NR	0.16	0.33	0.27

To determine filter face velocity, divide the CFM by the filter area (see Physical Data table).

NR = Not Recommended

Ratings are at initial resistance.

SOUND

With the necessary attenuation analysis, which may include considerations of unit placement (away from occupied areas), acoustical insulation in the equipment room, duct silencers, or acoustical duct lining.

SOUND POWER LEVEL ESTIMATING

The following method of estimating centrifugal fan sound power level spectrums is taken from the latest ASHRAE sources. The method does not take into consideration such factors as cabinet attenuation or inefficient unit selection, but does provide conservative approximate values upon which to base an acoustical attenuation analysis.

Sound power levels in decibels are 10-12 watts in each of the eight octave bands may be estimated with the following formula:

$$\text{dB} = (\text{Base dB}) + (\text{System dB}) + (\text{Blade Passage Frequency dB})$$

Base dB

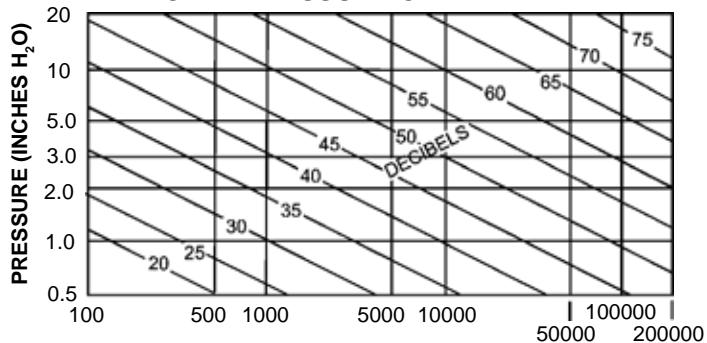
The base dB is found in the table below by entering the octave band and reading the dB in the appropriate row.

OCTAVE BAND CENTRE FREQUENCY							
Hz	63	125	250	500	1000	2000	4000
dB	47	43	39	33	28	25	23
8000							20

SYSTEM dB

The system dB is found in the chart below by entering the chart at the flow rate, rise vertically to the pressure of the system and read the decibels

CFM - PRESSURE CHART

**BLADE PASSAGE FREQUENCY dB**

The Blade Passage Frequently dB is found:

1. For forward curved fan wheel units - add 2 dB to the one octave band which contains the frequency equal to the RPM of the fan.
2. For airfoil units - add 3 dB to the one octave band which contains the frequency equal to the RPM of the fan.

TA*

PERFORMANCE AND PHYSICAL DATA

60Hz

DESCRIPTION		UNIT SIZE						
		103	104	106	108	111	114	117
CFM RANGE	COOLING (LFA Coil)	700-1230	1000-1890	1800-3000	2200-4000	3000-5800	4000-7500	5000-9200
	HEATING	700-2000	1000-3200	1800-5000	2200-7000	3000-10000	4000-13000	5000-15000
STAN-DARD FAN DATA	Outlet Area - Square Feet	0.84	1.03	1.45	2.04	2.86	2.86	2.86
	Number - Diameter (in) - Type	1 - 9 FC	1 - 10 FC	1 - 12 FC	1 - 15 FC	1 - 18 FC	1 - 18 FC	1 - 18 FC
	Shaft and Bearing Size (in)	3/4	3/4	1 3/16	1 3/16	1 7/16	1 7/16	1 7/16
OPTIONAL FAN DATA	Outlet Area - Square Feet	N/A	N/A	1.45	2.04	2.86	2.86	2.86
	Number - Diameter (in) - Type			1 - 12 AF	1 - 15 AF	1 - 18 AF	1 - 18 AF	1 - 18 AF
	Shaft and Bearing Size (in)			1 3/16	1 7/16	1 1/2	1 1/2	1 1/2
COIL DATA	LARGE	Number - Size (in)	1 - 15 x 21.5	1 - 18 x 27.5	1 - 21 x 37.5	1 - 30 x 35.5	1 - 30 x 50.5	1 - 30 x 80.5
		Face Area - Square Feet	2.24	3.44	5.47	7.4	10.54	13.7
	SMALL	Number - Size (in)	N/A	N/A	N/A	N/A	1 - 24 x 65.5	1 - 24 x 80.5
		Face Area - Square Feet					10.9	13.4
FILTER DATA	2" FLAT FILTER SECTION	Number - Size (in)	2 - 16x20x2	2 - 20x20x2	3 - 16x25x2	2 - 16x20x2 2 - 16x25x2	6 - 16x20x2	6 - 16x25x2 4 - 16x20x2 4 - 16x25x2
		Filter Area - Square Feet	4.4	5.6	8.4	10	13.3	16.7
	4" FLAT FILTER SECTION	Number - Size (in)	2 - 16x20x4	2 - 20x20x4	3 - 16x25x4	2 - 16x20x4 2 - 16x25x4	6 - 16x20x4	6 - 16x25x4 4 - 16x20x4 4 - 16x25x4
		Filter Area - Square Feet	4.4	5.6	8.4	10	13.3	16.7
	2" ANGULAR FILTER SECTION	Number - Size (in)	N/A	N/A	N/A	N/A	2 - 16x25x2 6 - 20x25x2	8 - 20x25x2
		Filter Area - Square Feet					26.4	27.8
	2' COMBI-NATION ANGULAR FILTER SECTION	Number - Size (in)	2 - 16x25x2	4 - 16x20x2	6 - 16x20x2	6 - 16x25x2	6 - 20x25x2	8 - 20x25x2
		Filter Area - Square Feet	5.6	8.9	13.3	16.7	20.9	26.4
METAL GAUGES	BLOWER SECTION	Frame	16	16	16	16	16	16
		Non Insulated Panels	16	16	16	16	16	16
		Insulated Panels	20	20	20	20	20	20
		Base	12	12	12	12	12	12
	COOLING COIL SECTION	Frame	16	16	16	16	16	16
		Non Insulated Panels	16	16	16	16	16	16
		Insulated Panels	20	20	20	20	20	20
		Base	12	12	12	12	12	12
MOTORS	MINIMUM HP	1/3	1/3	1/2	3/4	3/4	3/4	3/4
	MAXIMUM FRAME SIZE	184T	213T	215T	254T	256T	284T	284T

TA*

PERFORMANCE AND PHYSICAL DATA

(cont'd)

60Hz

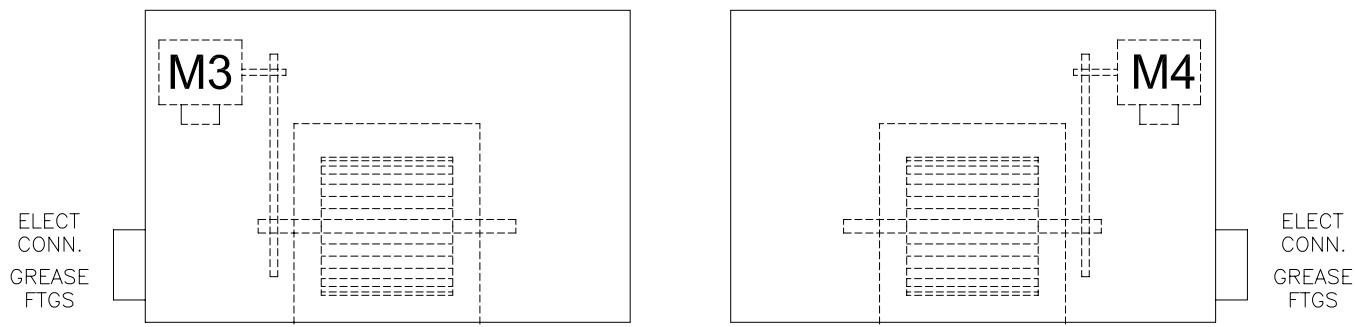
DESCRIPTION		UNIT SIZE						
		122	128	137	141	150	164	182
CFM RANGE	COOLING (LFA Coil)	6000-11600	8000-14700	10000-19600	12000-22100	15000-27100	18000-34400	25000-44700
	HEATING	6000-19000	8000-25000	10000-32000	12000-32000	15000-39000	18000-50000	25000-64000
STAN-DARD FAN DATA	FORWARD CURVED	Outlet Area - Square Feet	4.38	5.5	6.9	8.67	10.91	13.74
		Number - Diameter (in) - Type	1 - 20 FC	1 - 22 FC	1 - 25 FC	1 - 28 FC	1 - 32 FC	1 - 36 FC
		Shaft and Bearing Size (in)	1 11/16	2	2 7/16	2 7/16	2 3/16	2 7/16
OPTIONAL FAN DATA	AIRFOIL	Outlet Area - Square Feet	4.38	5.5	6.9	8.67	10.91	13.74
		Number - Diameter (in) - Type	1 - 20 AF	1 - 22 AF	1 - 25 AF	1 - 28 AF	1 - 32 AF	1 - 36 AF
		Shaft and Bearing Size (in)	1 11/16	2	2	2 3/16	2 3/16	2 7/16
COIL DATA	LARGE	Number - Size (in)	1 - 36 x 84.5	1 - 36 x 107.5	2 - 24 x 107.5	2 - 27 x 107.5	2 - 33 x 107.5	2 - 42 x 107.5
		Face Area - Square Feet	21.1	26.9	35.8	40.3	49.3	62.7
	SMALL	Number - Size (in)	1 - 27 x 84.5	1 - 27 x 107.5	1 - 39 x 107.5	1 - 42 x 107.5	1 - 27 x 107.5	2 - 33 x 139.5
FILTER DATA	2" FLAT FILTER SECTION	Face Area - Square Feet	15.9	20.2	29.1	31.4	38.1	49.3
		Number - Size (in)	12 - 16x20x2	12 - 20x20x2	12 - 20x25x2	18 - 20x20x2	12 - 20x25x2	6 - 20x25x2
		Filter Area - Square Feet	26.7	33.4	41.6	50.2	58.4	70.6
	4" FLAT FILTER SECTION	Number - Size (in)	12 - 16x20x4	12 - 20x20x4	12 - 20x25x4	18 - 20x20x4	12 - 20x25x4	6 - 20x25x4
		Filter Area - Square Feet	26.7	33.4	41.6	50.2	58.4	70.6
	2" ANGULAR FILTER SECTION	Number - Size (in)	12 - 16x25x2	12 - 20x25x2	16 - 20x25x2	24 - 20x20x2	24 - 20x25x2	30 - 20x25x2
		Filter Area - Square Feet	33.4	41.8	55.5	66.7	83.2	104
	2' COMBINATION ANGULAR FILTER SECTION	Number - Size (in)	12 - 16x25x2	12 - 20x25x2	16 - 20x25x2	24 - 20x20x2	24 - 20x25x2	30 - 20x25x2
		Filter Area - Square Feet	33.4	41.8	55.5	66.7	83.2	104
METAL GAUGES	BLOWER SECTION	Frame	16	16	16	16	16	16
		Non Insulated Panels	16	16	16	16	16	16
		Insulated Panels	20	20	20	20	20	20
		Base	12	12	10	10	10	10
	COOLING COIL SECTION	Frame	16	16	16	16	16	16
		Non Insulated Panels	16	16	16	16	16	16
		Insulated Panels	20	20	20	20	20	20
		Base	12	12	10	10	10	10
MOTORS	MINIMUM HP		1	1-1/2	1-1/2	1-1/2	1-1/2	3
	MAXIMUM FRAME SIZE		324T	324T	364T	365T	365T	405T

TOP VIEWS

MOTOR LOCATIONS M1 & M2
FOR MODELS 103 THRU 128 ONLY



MOTOR LOCATIONS M3 & M4
FOR MODELS 137 THRU 182 ONLY



LOCATIONS ARE TYPICAL FOR ALL
AIR FLOW CONFIGURATIONS

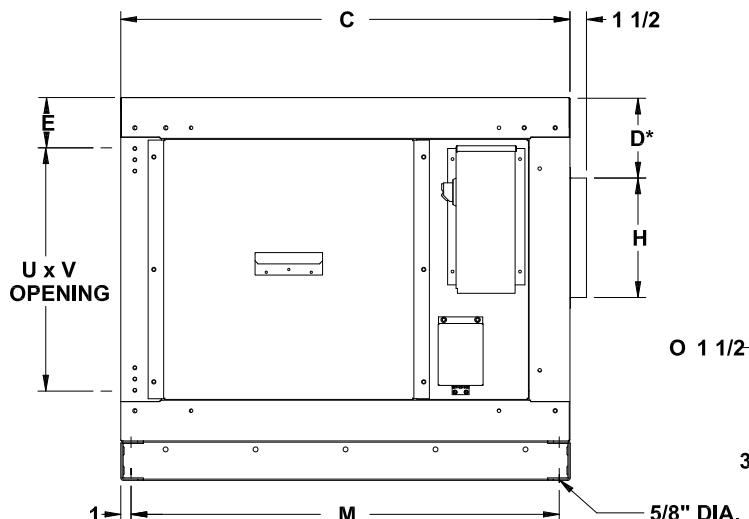
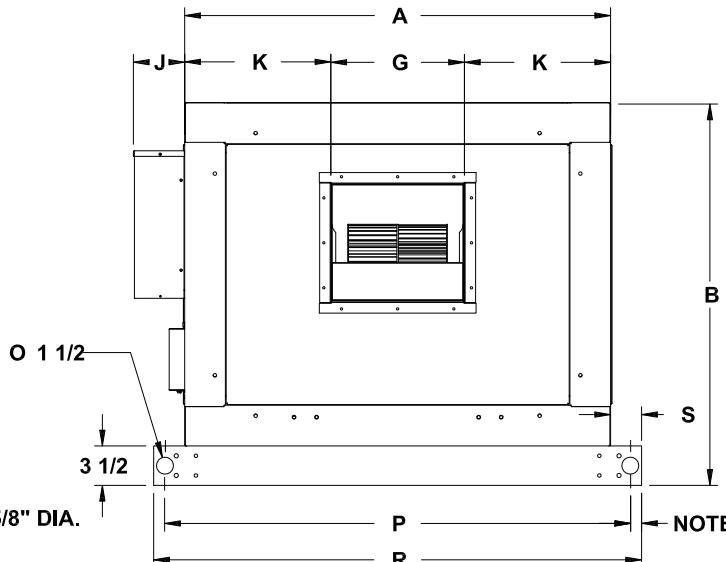
MOTOR CONSTRUCTION ARRANGEMENT

- M1 LOCATION, - F1
- M2 LOCATION, - F2
- M3 LOCATION, - F1
- M4 LOCATION, - F2

SEE MOTOR PART NUMBERS IN ELECTRICAL DATA TABLES

DRIVE INSTALLATION

- A. All motors are mounted on a heavy duty slide base located inside the cabinet.
- B. Drives are pre-set for desired RPM.
- C. Belt tension is factory set.

Models 103 - 128**SIDE VIEW****END VIEW****DIMENSIONS - IMPERIAL (inches)**

UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	M	P	R	S	U	V
103	37 7/8	34	40	7 1/8	11 1/2	10 3/8	4 7/16	12 1/8	10 3/4	4 1/2	12 7/8	38	41 3/8	43 3/8	2 3/4	21 5/8	29
104	43 7/8	37	45 1/8	8 1/8	13 3/8	11 7/16	4 7/16	13 1/4	11 5/8	4 1/2	15 5/16	43 1/8	47 3/8	49 3/8	2 3/4	24 5/8	35
106	53 7/8	40 1/2	47	8 7/16	14 3/4	12 7/16	4 7/16	15 7/8	13 3/4	4 1/2	19	45	57 3/8	59 3/8	2 3/4	28 1/8	45
108	51 7/8	48	53 9/16	12 1/4	19 7/8	6 3/16	4 7/16	19	16 1/4	4 3/4	16 7/16	51 9/16	55 3/8	57 3/8	2 3/4	35 11/16	43
111	66 7/8	48	63 1/8	7 1/2	17 1/8	7 1/4	4 7/16	22 1/4	19 1/4	4 3/4	22 5/16	61 1/8	69 3/4	72 3/4	2 15/16	35 11/16	58
114	81 7/8	48	63 1/8	7 1/2	17 1/8	7 1/2	4 7/16	22 1/4	19 1/4	4 3/4	29 13/16	61 1/8	84 3/4	87 3/4	2 15/16	35 11/16	73
117	96 7/8	48	63 1/8	6 7/8	17 1/8	7 1/8	4 7/16	22 1/4	19 1/4	4 3/4	37 5/16	61 1/8	99 3/4	102 3/4	2 15/16	35 11/16	88
122	100 7/8	54	69 1/8	6 1/2	17 1/2	6 1/2	4 7/16	25 3/8	25 3/8	4 3/4	37 3/4	67 1/8	103 3/4	106 3/4	2 15/16	41 11/16	90 1/2
128	123 7/8	57	73 1/8	5 1/4	17 5/8	6 3/4	4 7/16	28 1/4	28 1/4	4 3/4	47 13/16	71 1/8	126 3/4	129 3/4	2 15/16	44 11/16	115

NOTE: All dimensions are approximate. Certified drawings available on request.

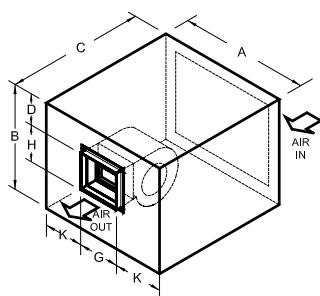
*** NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION**


FIG. #1

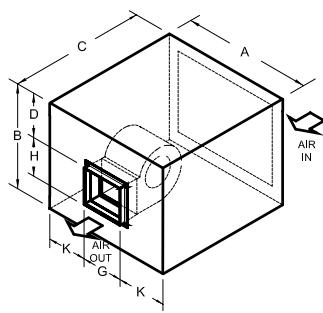


FIG. #2

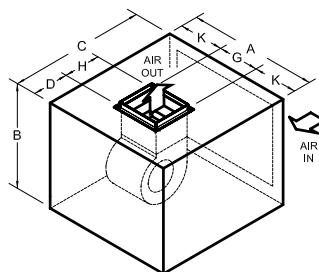


FIG. #3

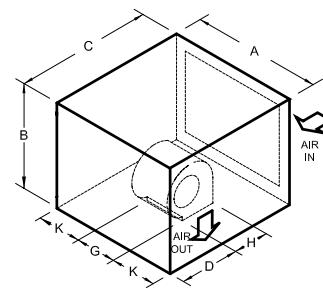
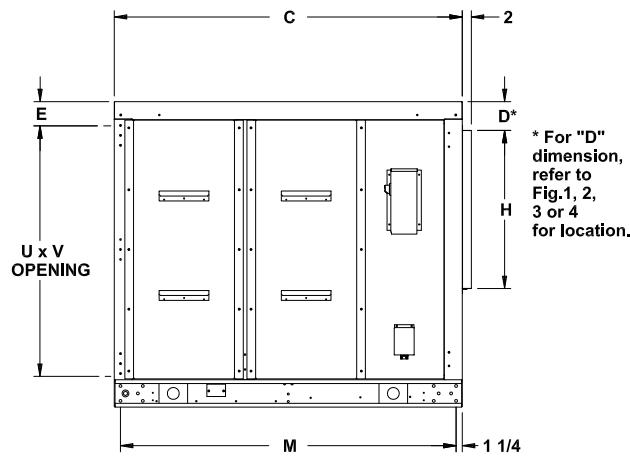
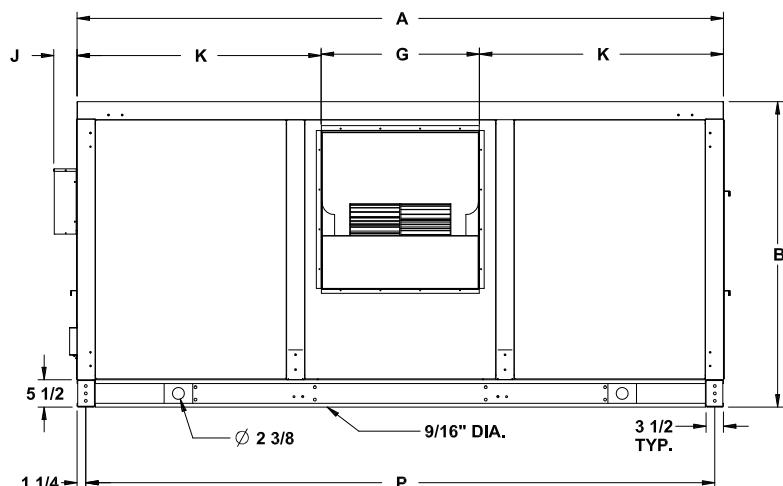
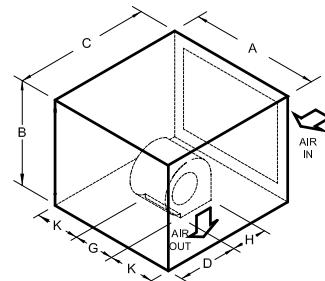
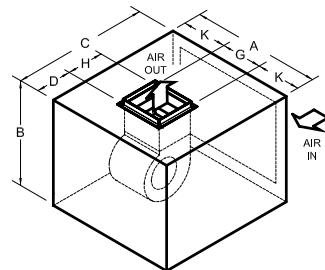
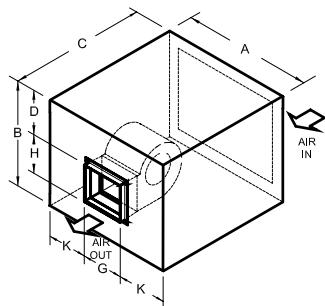
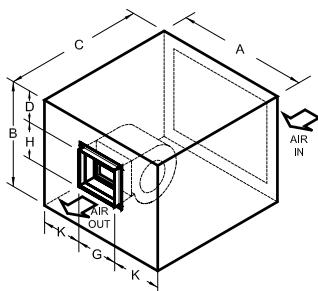


FIG. #4

Models 137 - 182**SIDE VIEW****END VIEW****DIMENSIONS - IMPERIAL (inches)**

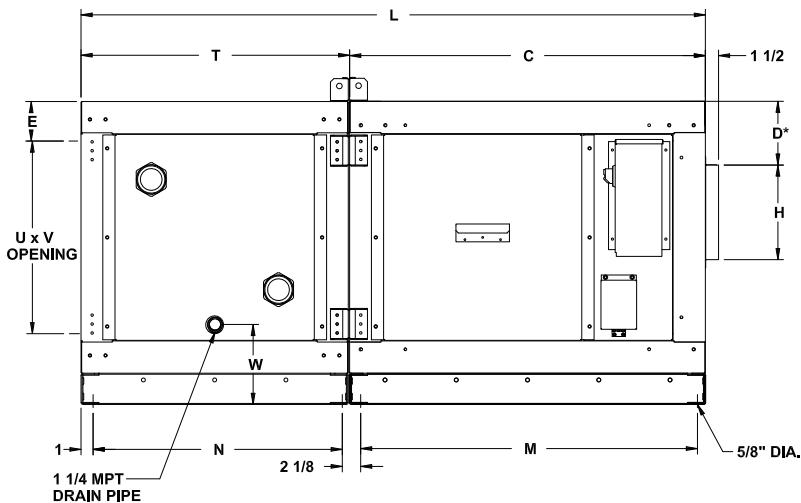
UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	M	P	R	U	V
137	130	61 1/2	70	5 3/4	17 7/8	15 7/8	4 7/16	31 3/4	31 3/4	4 3/4	49 1/8	67 1/2	127 1/2	130	55 3/4	121 1/8
141	130	67	75	6	23	17 7/8	4 7/16	35 5/8	35 5/8	4 3/4	47 3/16	72 1/2	127 1/2	130	61 3/4	121 1/8
150	130	79 1/2	82	7	24 1/2	19 3/4	4 7/16	40	40	4 3/4	45	79 1/2	127 1/2	130	74	121 1/8
164	130	97 1/2	90	17 7/8	37 1/2	23 1/4	4 7/16	44 3/4	44 3/4	5 3/4	42 5/8	87 1/2	127 1/2	130	86 1/2	121 1/8
182	160	97 1/2	96	10 7/8	31 5/8	23 1/2	4 7/16	50 1/4	50 1/4	5 3/4	54 7/8	93 1/2	127 1/2	160	86 1/2	121 1/8

NOTE: All dimensions are approximate. Certified drawings available on request.

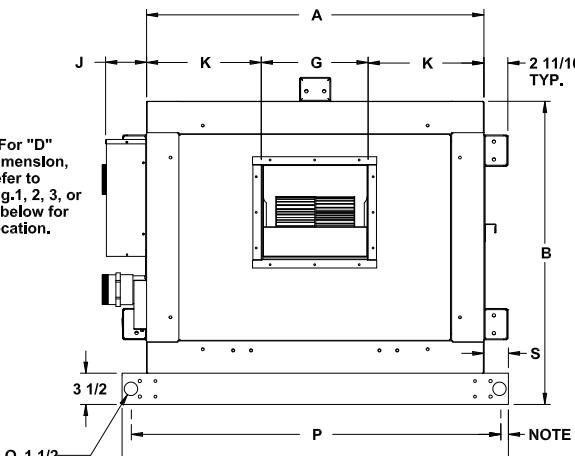
*** NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION**

Models 103 - 128

SIDE VIEW



END VIEW



NOTE: 103 THRU 108 = 1"
111 THRU 128 = 1 1/2"

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	N	P	R	S	T	U	V	W	V	W
103	37 7/8	33 1/2	40	7 1/8	11 1/2	103/8	4 7/16	12 1/8	10 3/4	4 1/2	12 7/8	70 1/8	38	28	41 3/8	3 1/2	43 3/8	2 3/4	30	21 5/8	29	8 7/8	8 7/8
104	43 7/8	36 1/2	45 1/8	8 1/8	13 3/8	11 7/16	4 7/16	13 1/4	11 5/8	4 1/2	15 5/16	75 1/4	43 1/8	28	47 3/8	3 1/2	49 3/8	2 3/4	30	24 5/8	35	8 7/8	8 7/8
106	53 7/8	40	47	8 3/8	14 3/4	12 7/16	4 7/16	15 7/8	13 3/4	4 1/2	19	77 1/8	45	28	57 3/8	3 1/2	59 3/8	2 3/4	30	28 1/8	45	8 7/8	8 7/8
108	51 7/8	48	53 9/16	12 1/4	19 7/8	6 3/16	4 7/16	19	16 1/4	4 3/4	16 7/16	83 1/2	51 9/16	28	55 3/8	3 1/2	57 3/8	2 3/4	30	35 11/16	43	8 7/8	8 7/8
111	66 7/8	48	63 1/8	7 1/2	17 1/8	7 1/4	4 7/16	22 1/4	19 1/4	4 3/4	22 5/16	93 1/4	61 1/8	28	69 3/4	3 1/2	72 3/4	2 15/16	30	35 11/16	58	9 1/4	9 1/4
114	81 7/8	48	63 1/8	7 1/2	17 1/8	7 1/2	4 7/16	22 1/4	19 1/4	4 3/4	29 13/16	93 1/4	61 1/8	28	84 3/4	3 1/2	87 3/4	2 15/16	30	35 11/16	73	9 1/4	9 1/4
117	96 7/8	48	63 1/8	6 7/8	17 1/8	7 1/8	4 7/16	22 1/4	19 1/4	4 3/4	37 5/16	93 1/4	61 1/8	28	99 3/4	3 1/2	102 3/4	2 15/16	30	35 11/16	88	9 1/4	9 1/4
122	100 7/8	54	69 1/8	6 1/2	17 1/2	6 1/2	4 7/16	25 3/8	25 3/8	4 3/4	37 3/4	99 1/4	67 1/8	28	103 3/4	3 1/2	106 3/4	2 15/16	30	41 11/16	90 1/2	9 1/4	9 1/4
128	123 7/8	57	73 1/8	5 1/4	17 5/8	6 3/4	4 7/16	28 1/4	28 1/4	4 3/4	47 13/16	103 1/4	71 1/8	28	126 3/4	3 1/2	129 3/4	2 15/16	30	44 11/16	115	9 1/4	9 1/4

NOTE: All dimensions are approximate. Certified drawings available on request.

* NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION

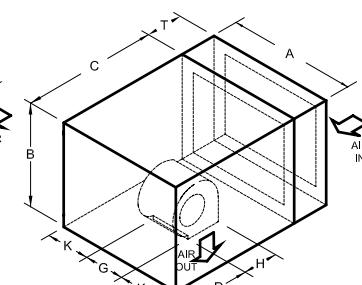
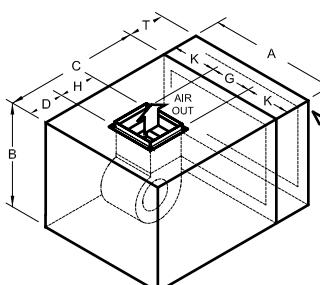
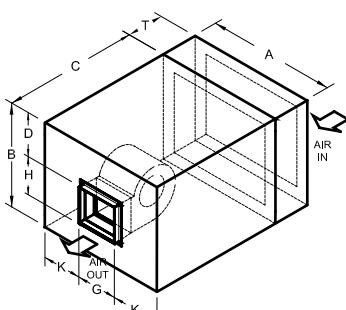
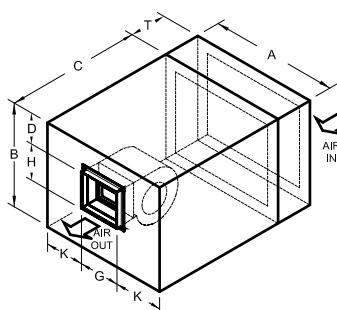


FIG. #1

FIG. #2

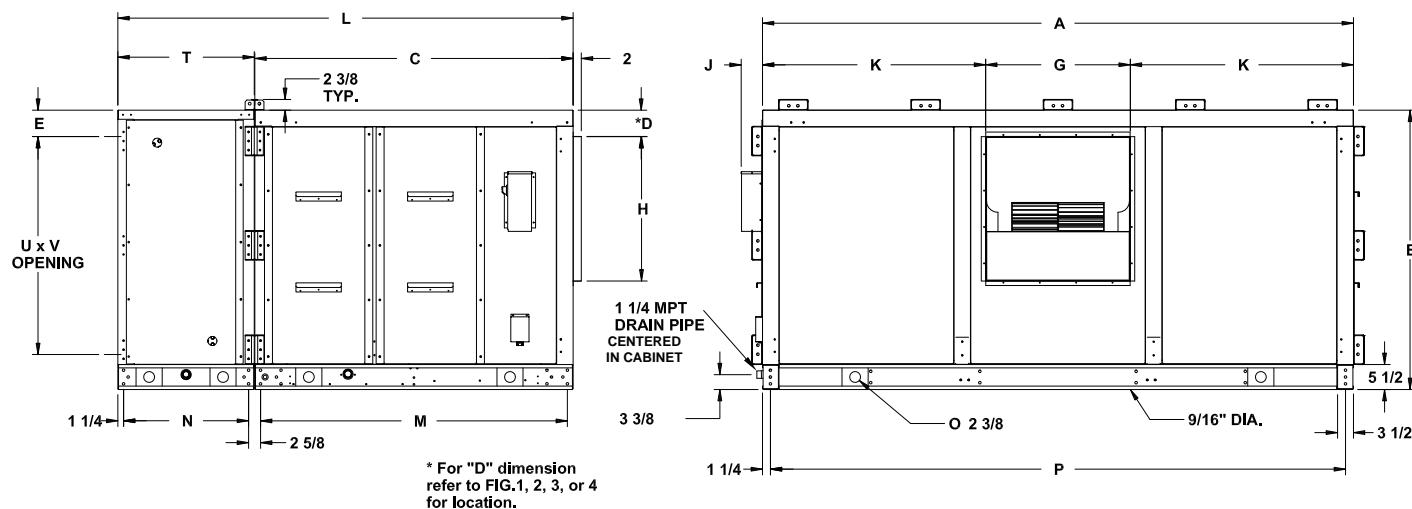
FIG. #3

FIG. #4

Models 137 - 182

SIDE VIEW

END VIEW



DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	N	P	Q	R	T	U	V
137	130	61 1/2	70	5 3/4	17 7/8	15 7/8	2 1/8	31 3/4	31 3/4	4 3/4	49 1/8	105 1/8	67 1/2	32 1/2	127 1/2	5 1/2	130	35	53 3/4	122 3/4
141	130	67	75	6	23	17 7/8	2 1/8	35 5/8	35 5/8	4 3/4	47 3/16	110 1/8	72 1/2	32 1/2	127 1/2	5 1/2	130	35	62 3/4	122 3/4
150	130	79 1/2	82	7	24 1/2	19 3/4	2 1/8	40	40	4 3/4	45	117 1/8	79 1/2	32 1/2	127 1/2	5 1/2	130	35	71 3/4	122 3/4
164	130	97 1/2	90	17 7/8	37 1/2	22 1/8	2 1/8	44 3/4	44 3/4	5 3/4	42 5/8	125 1/8	87 1/2	32 1/2	127 1/2	5 1/2	130	35	89 3/4	122 3/4
182	160	97 1/2	96	10 7/8	31 5/8	23 1/2	2 1/8	50 1/4	50 1/4	5 3/4	54 7/8	131 1/8	93 1/2	32 1/2	127 1/2	5 1/2	160	35	89 3/4	152 3/4

NOTE: All dimensions are approximate. Certified drawings available on request.

* NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION

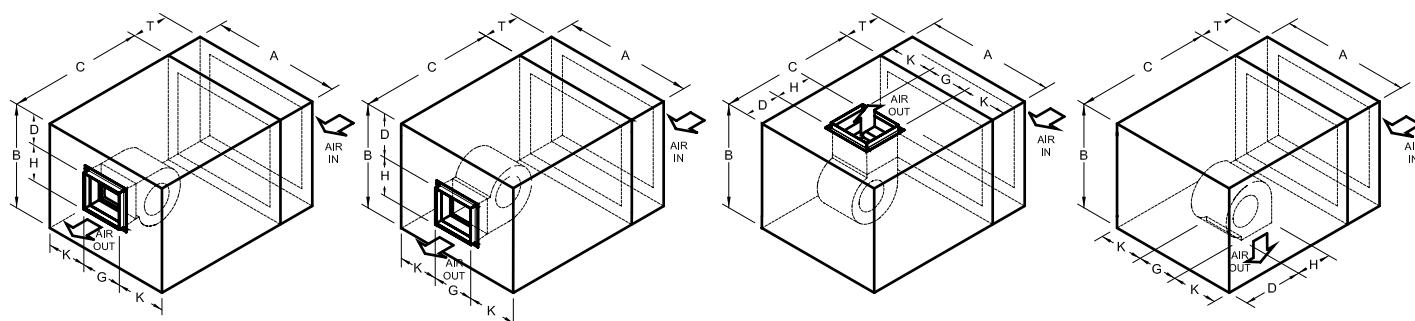


FIG. #1

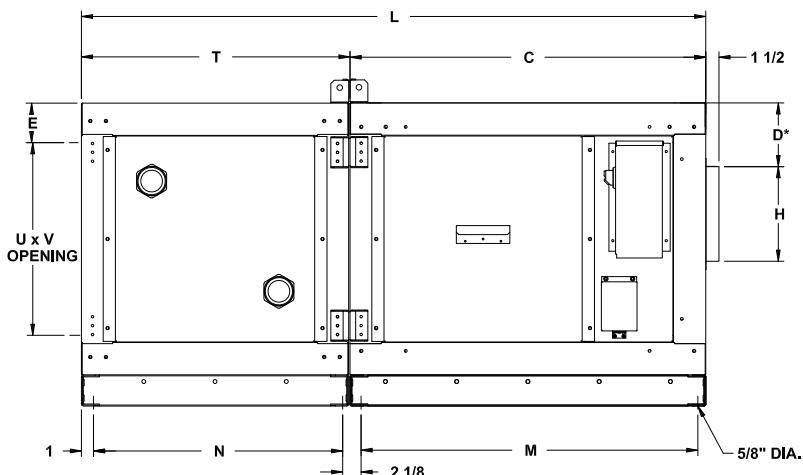
FIG. #2

FIG. #3

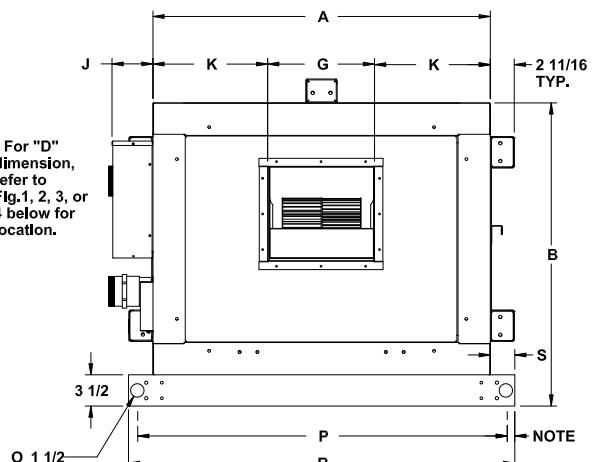
FIG. #4

Models 103 - 128

SIDE VIEW



END VIEW



NOTE: 103 THRU 108 = 1"
111 THRU 128 = 1 1/2"

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	N	P	R	S	T	U	V
103	37 7/8	33 1/2	40	7 1/8	11 1/2	10 3/8	4 7/16	12 1/8	10 3/4	4 1/2	12 7/8	65 1/8	38	23	41 3/8	43 3/8	2 3/4	25	21 5/8	29
104	43 7/8	36 1/2	45 1/8	8 1/8	13 3/8	11 7/16	4 7/16	13 1/4	11 5/8	4 1/2	15 5/16	65 1/4	43 1/8	23	47 3/8	49 3/8	2 3/4	25	24 5/8	35
106	53 7/8	40	47	8 3/8	14 3/4	12 7/16	4 7/16	15 7/8	13 3/4	4 1/2	19	72 1/8	45	23	57 3/8	59 3/8	2 3/4	25	28 1/8	45
108	51 7/8	48	53 9/16	12 1/4	19 7/8	6 3/16	4 7/16	19	16 1/4	4 3/4	16 7/16	78 5/8	51 9/16	23	55 3/8	57 3/8	2 3/4	25	35 11/16	43
111	66 7/8	48	63 1/8	7 1/2	17 1/8	7 1/4	4 7/16	22 1/4	19 1/4	4 3/4	22 5/16	88 1/4	61 1/8	23	69 3/4	72 3/4	2 15/16	25	35 11/16	58
114	81 7/8	48	63 1/8	7 1/2	17 1/8	7 1/2	4 7/16	22 1/4	19 1/4	4 3/4	29 13/16	88 1/4	61 1/8	23	84 3/4	87 3/4	2 15/16	25	35 11/16	73
117	96 7/8	48	63 1/8	6 7/8	17 1/8	7 1/8	4 7/16	22 1/4	19 1/4	4 3/4	37 5/16	88 1/4	61 1/8	23	99 3/4	102 3/4	2 15/16	25	35 11/16	88
122	100 7/8	54	69 1/8	6 1/2	17 1/2	6 1/2	4 7/16	25 3/8	25 3/8	4 3/4	37 3/4	94 1/4	67 1/8	23	103 3/4	106 3/4	2 15/16	25	41 11/16	90 1/2
128	123 7/8	57	73 1/8	5 1/4	17 5/8	6 3/4	4 7/16	28 1/4	28 1/4	4 3/4	47 13/16	98 1/4	71 1/8	23	126 3/4	129 3/4	2 15/16	25	44 11/16	115

NOTE: All dimensions are approximate. Certified drawings available on request.

* NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION

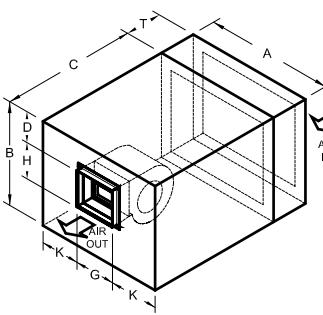


FIG. #1

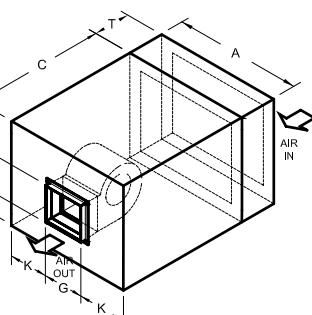


FIG. #2

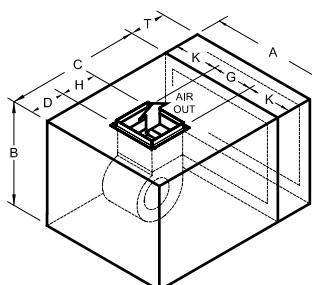


FIG. #3

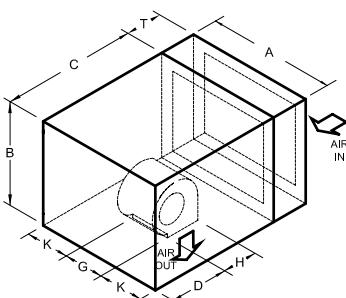
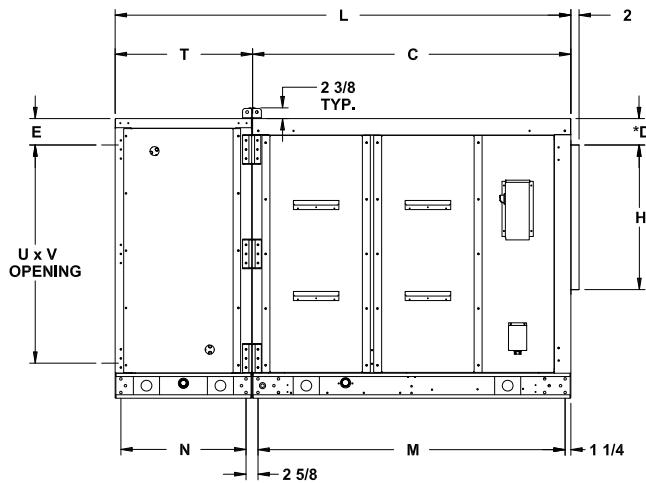


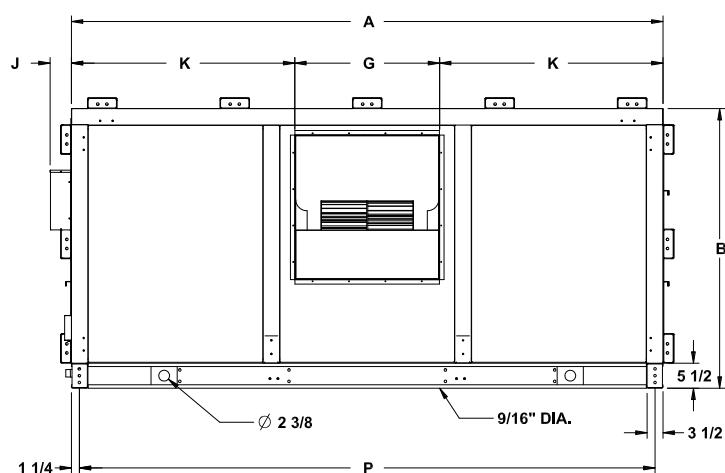
FIG. #4

Models 137 - 182

SIDE VIEW



END VIEW



DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	FIG. #1 D*	FIG. #2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	N	P	T	U	V
137	130	61 1/2	70	5 3/4	17 7/8	15 7/8	2 1/8	31 3/4	31 3/4	4 3/4	49 1/8	95 1/8	67 1/2	22 1/2	127 1/2	25	53 3/4	122 3/4
141	130	67	75	6	23	17 7/8	2 1/8	35 5/8	35 5/8	4 3/4	47 3/16	100 1/8	72 1/2	22 1/2	127 1/2	25	62 3/4	122 3/4
150	130	79 1/2	82	7	24 1/2	19 3/4	2 1/8	40	40	4 3/4	45	107 1/8	79 1/2	22 1/2	127 1/2	25	71 3/4	122 3/4
164	130	97 1/2	90	17 7/8	37 1/2	22 1/8	2 1/8	44 3/4	44 3/4	5 3/4	42 5/8	115 1/8	87 1/2	22 1/2	127 1/2	25	89 3/4	122 3/4
182	160	97 1/2	96	10 7/8	31 5/8	23 1/2	2 1/8	50 1/4	50 1/4	5 3/4	54 7/8	121 1/8	93 1/2	22 1/2	127 1/2	25	89 3/4	152 3/4

NOTE: All dimensions are approximate. Certified drawings available on request.

* NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION

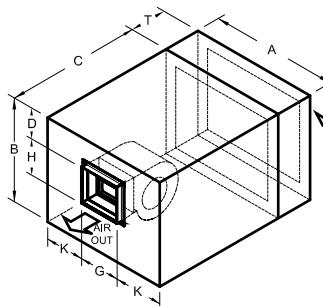


FIG. #1

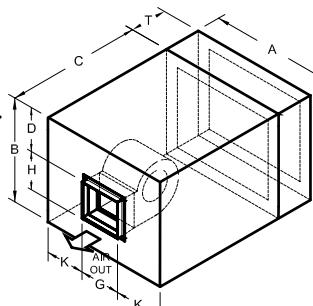


FIG. #2

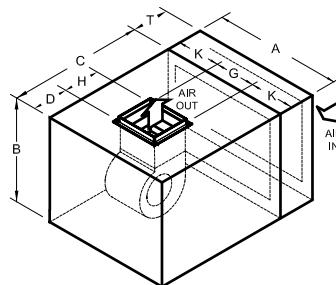


FIG. #3

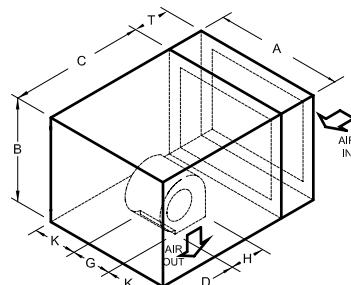
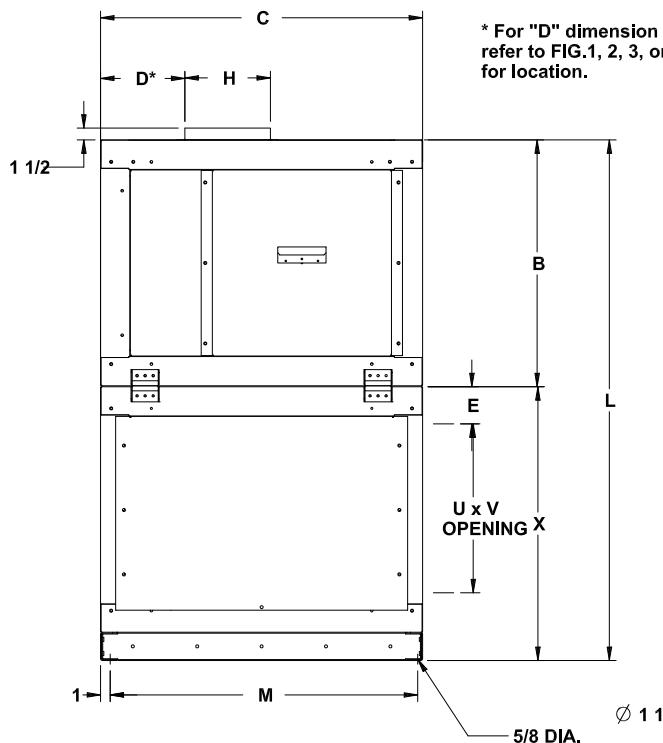
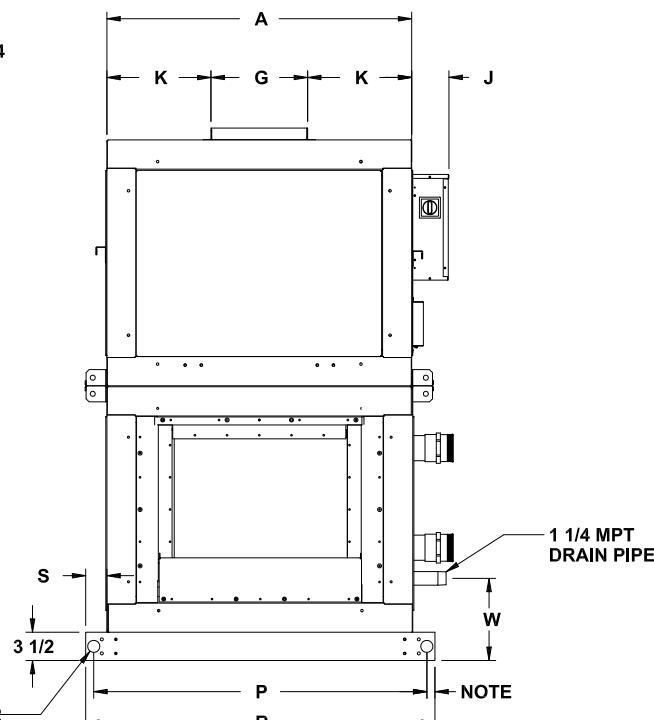


FIG. #4

SIDE VIEW



END VIEW



DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	FIG. #1/2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	P	R	S	U	V	W	X
103	37 7/8	30 1/2	40	7 1/8	10 3/8	4 7/16	12 1/8	10 3/4	4 1/2	12 7/8	64 1/2	38	41 3/8	43 3/8	2 3/4	21 5/8	29	8 7/8	34
104	43 7/8	33 1/2	45 1/8	8 1/8	11 7/16	4 7/16	13 1/4	11 5/8	4 1/2	15 5/16	70 1/2	43 1/8	47 3/8	49 3/8	2 3/4	24 5/8	35	8 7/8	37
106	53 7/8	37	47	8 7/16	12 7/16	4 7/16	15 7/8	13 3/4	4 1/2	19	77 1/2	45	57 3/8	59 3/8	2 3/4	28 1/8	45	8 7/8	40 1/2
108	51 7/8	44 1/2	53 9/16	12 1/4	6 3/16	4 7/16	19	16 1/4	4 3/4	16 7/16	92 5/8	51 9/16	55 3/8	57 3/8	2 3/4	35 11/16	43	8 7/8	48
111	66 7/8	44 1/2	63 1/8	7 1/2	7 1/4	4 7/16	22 1/4	19 1/4	4 3/4	22 5/16	92 5/8	61 1/8	69 3/4	72 3/4	3	35 11/16	58	9 1/4	48
114	81 7/8	44 1/2	63 1/8	7 1/2	7 1/2	4 7/16	22 1/4	19 1/4	4 3/4	29 13/16	92 5/8	61 1/8	84 3/4	87 3/4	3	35 11/16	73	9 1/4	48
117	96 7/8	44 1/2	63 1/8	67/8	7 1/8	4 7/16	22 1/4	19 1/4	4 3/4	37 5/16	92 5/8	61 1/8	99 3/4	102 3/4	3	35 11/16	88	9 1/4	48
122	100 7/8	50 9/16	69 1/8	6 1/2	6 1/2	4 7/16	25 3/8	25 3/8	4 3/4	37 3/4	104 5/8	67 1/8	103 3/4	106 3/4	3	41 11/16	90 1/2	9 1/4	54
128	123 7/8	53 9/16	73 1/8	5 1/4	6 3/4	4 7/16	28 1/4	28 1/4	4 3/4	47 13/16	110 5/8	71 1/8	126 3/4	129 3/4	3	44 11/16	115	9 1/4	57

NOTE: All dimensions are approximate. Certified drawings available on request.

* NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION

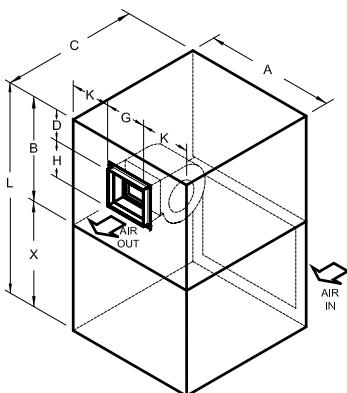


FIG. #1

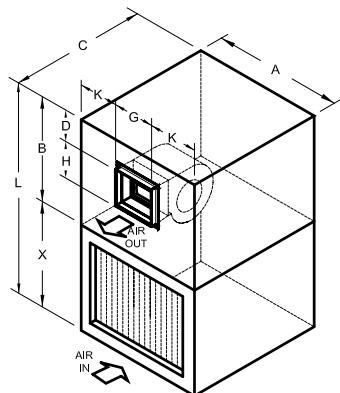


FIG. #2

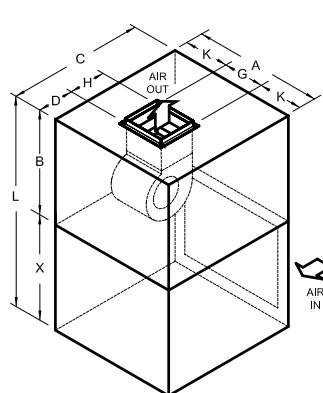


FIG. #3

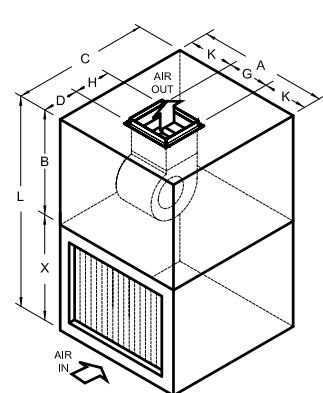
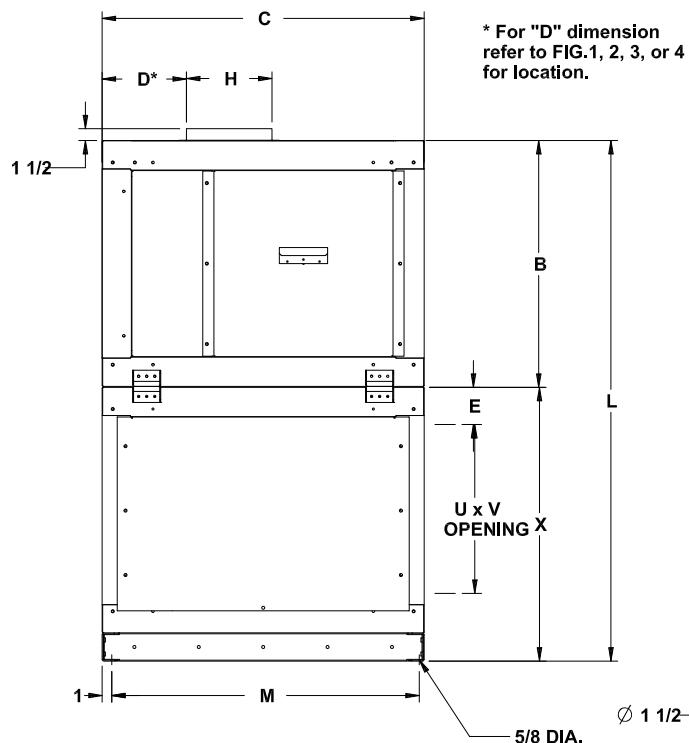
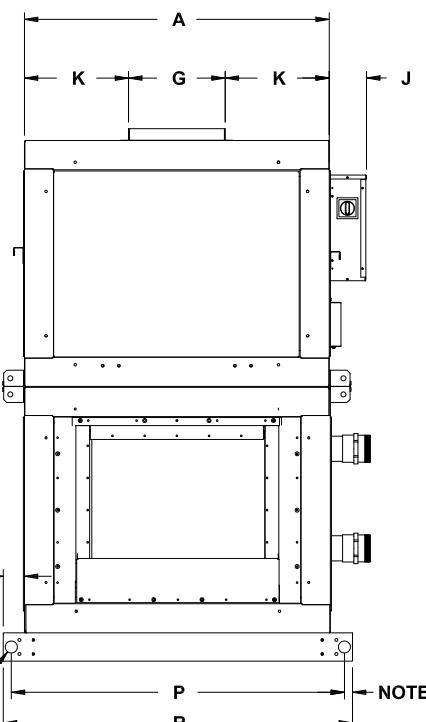


FIG. #4

TAH-V

DIMENSIONAL DATA - VERTICAL HEATING UNITS

60Hz**SIDE VIEW****END VIEW****DIMENSIONS - IMPERIAL (inches)**

UNIT SIZE	A	B	C	FIG.#1/2 D*	FIG. #3/4 D*	E	G	H	J	K	L	M	P	R	S	U	V	X
103	37 7/8	30 1/2	40	7 1/8	10 3/8	4 7/16	12 1/8	10 3/4	4 1/2	12 7/8	64 1/2	38	41 3/8	43 3/8	2 3/4	21 5/8	29	34
104	43 7/8	33 1/2	45 1/8	8 1/8	11 7/16	4 7/16	13 1/4	11 5/8	4 1/2	15 5/16	70 1/2	43 1/8	47 3/8	49 3/8	2 3/4	24 5/8	35	37
106	53 7/8	37	47	8 7/16	12 7/16	4 7/16	15 7/8	13 3/4	4 1/2	19	77 1/2	45	57 3/8	59 3/8	2 3/4	28 1/8	45	40 1/2
108	51 7/8	44 1/2	53 9/16	12 1/4	6 3/16	4 7/16	19	16 1/4	4 3/4	16 7/16	92 5/8	51 9/16	55 3/8	57 3/8	2 3/4	35 11/16	43	48
111	66 7/8	44 1/2	63 1/8	7 1/2	7 1/4	4 7/16	22 1/4	19 1/4	4 3/4	22 5/16	92 5/8	61 1/8	69 3/4	72 3/4	3	35 11/16	58	48
114	81 7/8	44 1/2	63 1/8	7 1/2	7 1/2	4 7/16	22 1/4	19 1/4	4 3/4	29 13/16	92 5/8	61 1/8	84 3/4	87 3/4	3	35 11/16	73	48
117	96 7/8	44 1/2	63 1/8	67/8	7 1/8	4 7/16	22 1/4	19 1/4	4 3/4	37 5/16	92 5/8	61 1/8	99 3/4	102 3/4	3	35 11/16	88	48
122	100 7/8	50 9/16	69 1/8	6 1/2	6 1/2	4 7/16	25 3/8	25 3/8	4 3/4	37 3/4	104 5/8	67 1/8	103 3/4	106 3/4	3	41 11/16	90 1/2	54
128	123 7/8	53 9/16	73 1/8	5 1/4	6 3/4	4 7/16	28 1/4	28 1/4	4 3/4	47 13/16	110 5/8	71 1/8	126 3/4	129 3/4	3	44 11/16	115	57

*** NOTE: "D" DIMENSION VARIES BASED ON AIRFLOW CONFIGURATION**

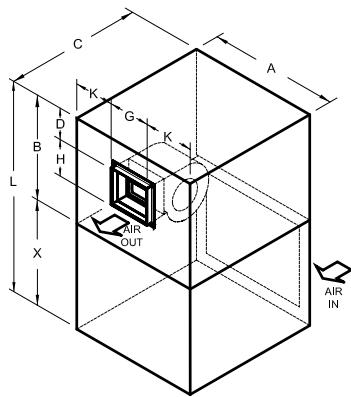


FIG. #1

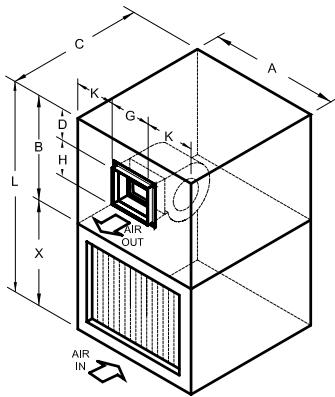


FIG. #2

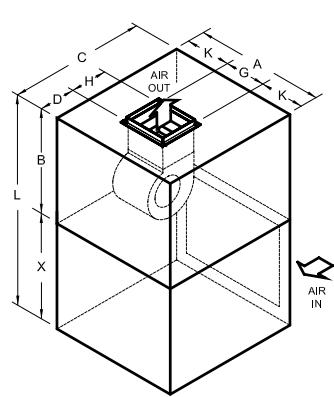


FIG. #3

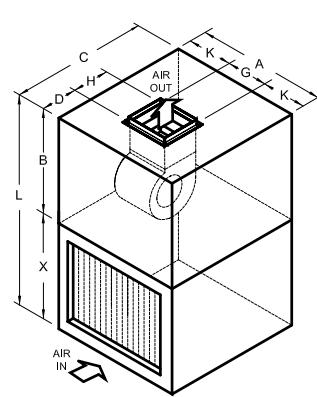
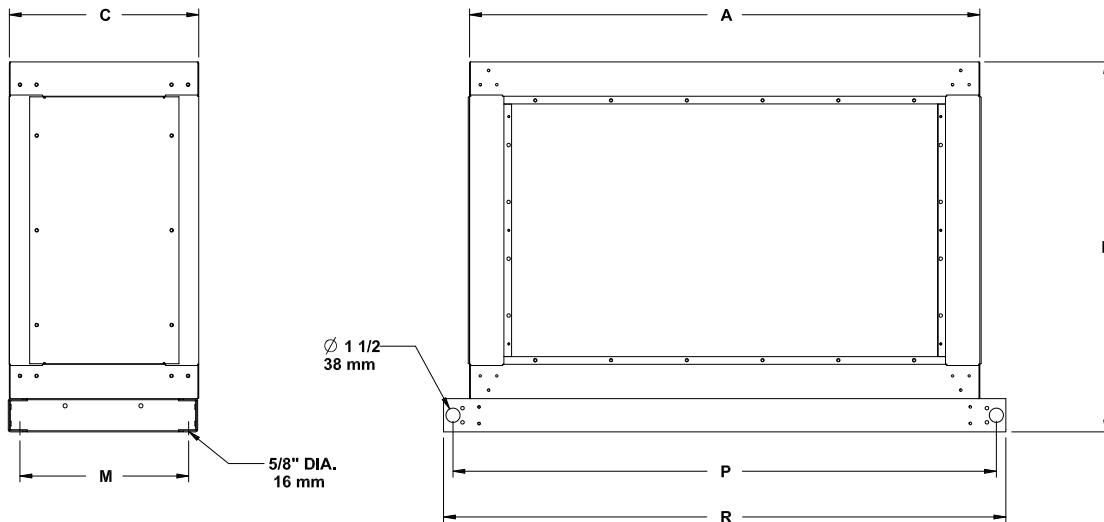


FIG. #4



Note:

Models 103 through 128 have 12GA. "C" rails extended as shown.

Curb mount capability.

See Mounting Hole Locations on Page 39

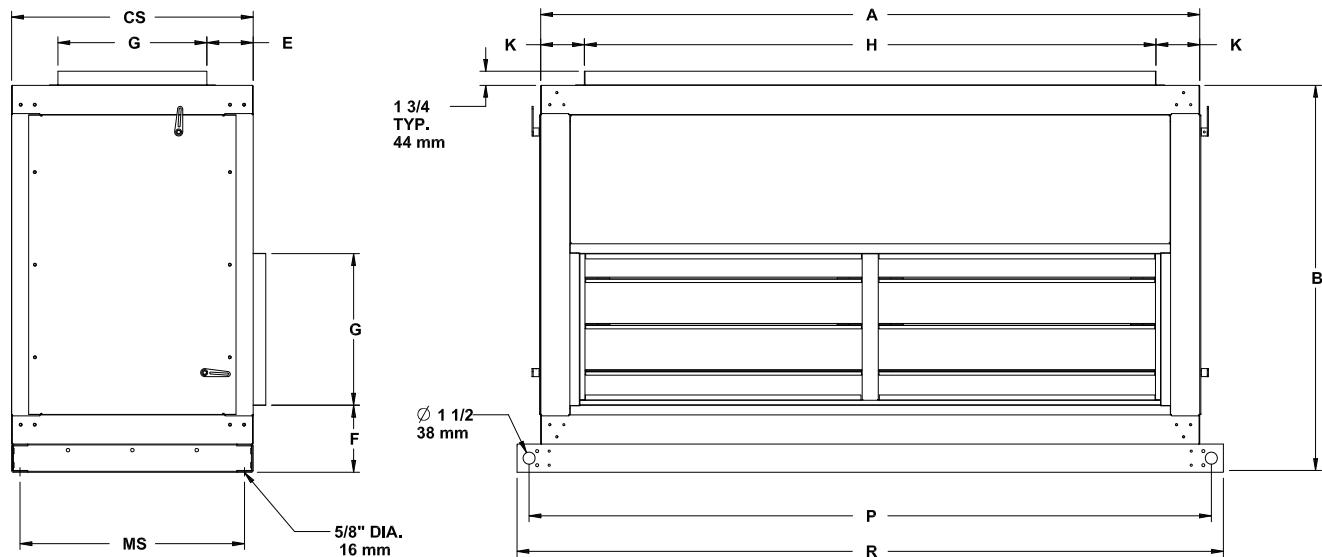
Note:

Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	M	P	R
103	37 7/8	34	20	18	41 3/8	43 3/8
104	43 7/8	37	20	18	47 3/8	49 3/8
106	53 7/8	40 1/2	20	18	57 3/8	59 3/8
108	51 7/8	48	20	18	55 3/8	57 3/8
111	66 7/8	48	20	18	69 3/4	72 3/4
114	81 7/8	48	20	18	84 3/4	87 3/4
117	96 7/8	48	20	18	99 3/4	102 3/4
122	100 7/8	54	20	18	103 3/4	106 3/4
128	123 7/8	57	20	18	126 3/4	129 3/4
137	130	61 1/2	20	18	-	130
141	130	70 1/2	20	18	-	130
150	130	79 1/2	20	18	-	130
164	130	97 1/2	20	18	-	130
182	160	97 1/2	20	18	-	160

NOTE: C - dimension of 20 can come in various widths - contact factory for desired width.
All dimensions are approximate. Certified drawings available on request.



Note:

Models 103 through 128 have 12GA. "C" rails extended as shown.

Curb mount capability.

See Mounting Hole Locations on Page 39

Note:

Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	CS	MS	E	Fig. 1 F	Fig. 2 F	G	H	K	P	R
103	37 7/8	34	25	23	5 3/4	Consult Factory	Consult Factory	12 3/8	27	5 7/16	41 3/8	43 3/8
104	43 7/8	37	25	23	5 3/4			12 3/8	33	5 7/16	47 3/8	49 3/8
106	53 7/8	40 1/2	25	23	5 3/4			12 3/8	43	5 7/16	57 3/8	59 3/8
108	51 7/8	48	30	28	5 3/4			18 5/8	41	5 7/16	55 3/8	57 3/8
111	66 7/8	48	30	28	5 3/4			18 5/8	56	5 7/16	69 3/4	72 3/4
114	81 7/8	48	30	28	5 3/4			18 5/8	71	5 7/16	84 3/4	87 3/4
117	96 7/8	48	30	28	5 3/4			18 5/8	86	5 7/16	99 3/4	102 3/4
122	100 7/8	54	35	33	5 7/16			24 1/8	90	5 7/16	103 3/4	106 3/4
128	123 7/8	57	35	33	5 7/16			24 1/8	113	5 7/16	126 3/4	129 3/4
137	130	61 1/2	45	43	5 3/4			31 7/8	119 1/8	5 7/16	-	130
141	130	70 1/2	55	53	5 3/4			39 5/8	119 1/8	5 7/16	-	130
150	130	79 1/4	55	53	5 3/4			39 5/8	119 1/8	5 7/16	-	130
164	130	97 1/2	60	58	5 3/4			47 5/8	119 1/8	5 7/16	-	130
182	160	97 1/2	60	58	5 3/4			47 5/8	149 1/8	5 7/16	-	160

NOTE: All dimensions are approximate. Certified drawings available on request.

DIMENSIONAL DATA - STANDARD MIXING BOX (cont'd)

FIG. #1 FRONT & TOP AIR ENTRY

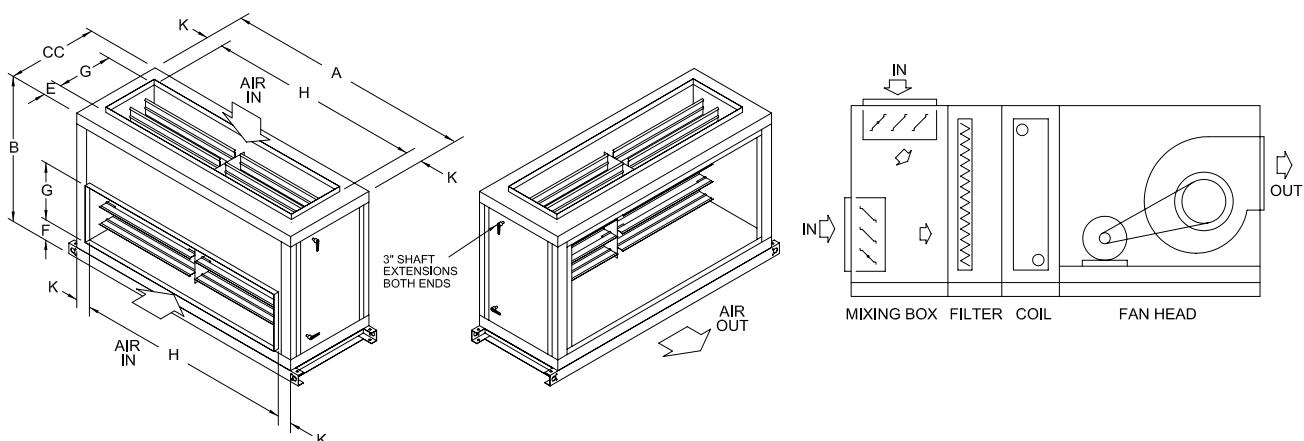
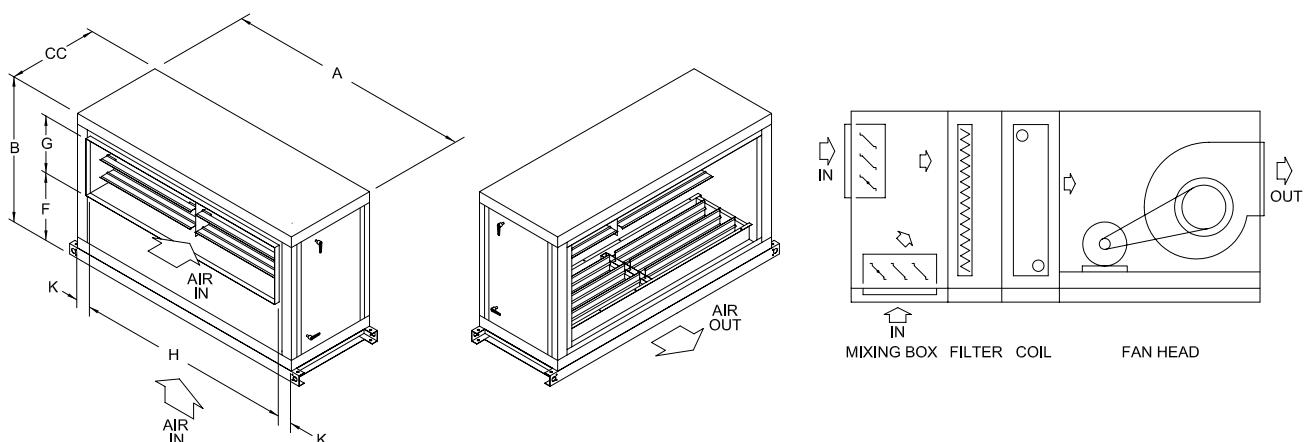
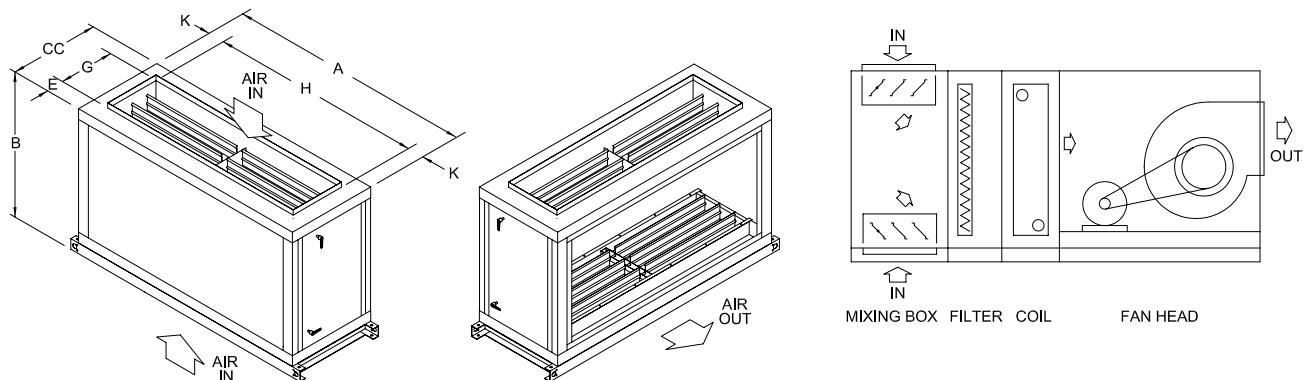


FIG. #2 FRONT & BOTTOM AIR ENTRY



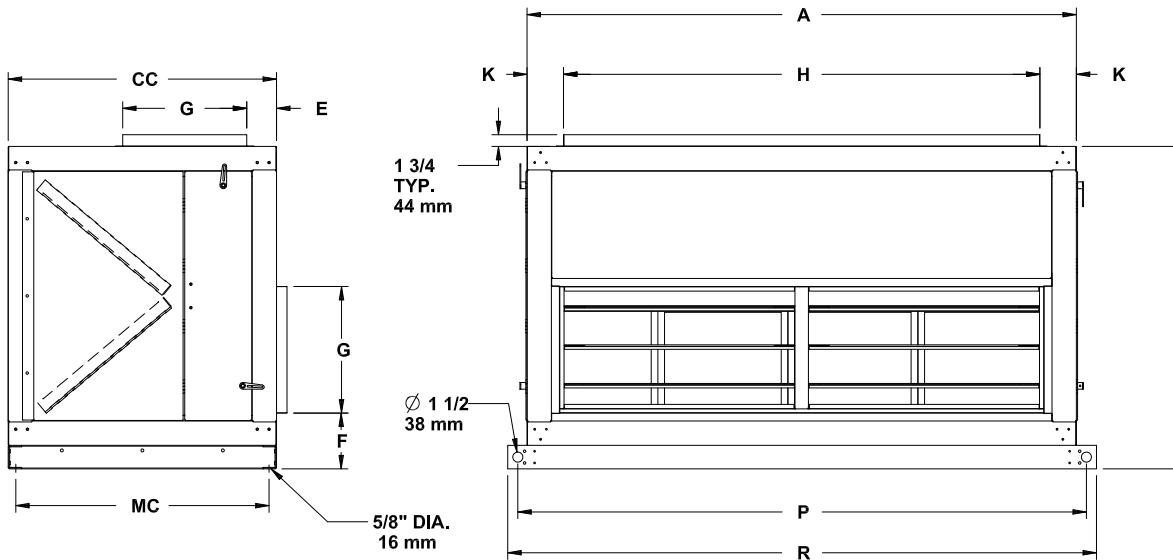
NOTE: BOTTOM INLET DIMENSIONS
ARE SAME AS TOP (SEE FIG #1)

FIG. #3 TOP & BOTTOM AIR ENTRY



NOTE: BOTTOM INLET DIMENSIONS
ARE SAME AS TOP (SEE FIG #1)

DIMENSIONAL DATA - COMBINATION MIXING BOX & ANGULAR FILTER



Note:

Models 103 through 128 have 12GA. "C" rails extended as shown.

Curb mount capability.

See Mounting Hole Locations on Page 39

Note:

Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	CC	MC	E	Fig. 1 F	Fig. 1 F	G	H	K	P	R
103	37 7/8	34	35	33	5 3/4	Consult Factory	Consult Factory	12 3/8	27	5 7/16	41 3/8	43 3/8
104	43 7/8	37	35	33	5 3/4			12 3/8	33	5 7/16	47 3/8	49 3/8
106	53 7/8	40 1/2	40	33	5 3/4			12 3/8	43	5 7/16	57 3/8	59 3/8
108	51 7/8	48	40	38	5 3/4			18 5/8	41	5 7/16	55 3/8	57 3/8
111	66 7/8	48	40	38	5 3/4			18 5/8	56	5 7/16	69 3/4	72 3/4
114	81 7/8	48	40	38	5 3/4			18 5/8	71	5 7/16	84 3/4	87 3/4
117	96 7/8	48	40	38	5 3/4			18 5/8	86	5 7/16	99 3/4	102 3/4
122	100 7/8	54	45	43	5 3/4			24 1/8	90	5 7/16	103 3/4	106 3/4
128	123 7/8	57	45	43	5 3/4			24 1/8	113	5 7/16	126 3/4	129 3/4
137	130	61 1/2	60	53	5 3/4			31 7/8	119 1/8	5 7/16	-	130
141	130	70 1/2	65	58	5 3/4			39 5/8	119 1/8	5 7/16	-	130
150	130	79 1/4	65	58	5 3/4			39 5/8	119 1/8	5 7/16	-	130
164	130	97 1/2	75	63	5 3/4			47 5/8	119 1/8	5 7/16	-	130
182	160	97 1/2	75	63	5 3/4			47 5/8	149 1/8	5 7/16	-	160

NOTE: All dimensions are approximate. Certified drawings available on request.

TA*

DIMENSIONAL DATA - COMBINATION MIXING BOX & ANGULAR FILTER

60Hz

FIG. #1 FRONT & TOP AIR ENTRY

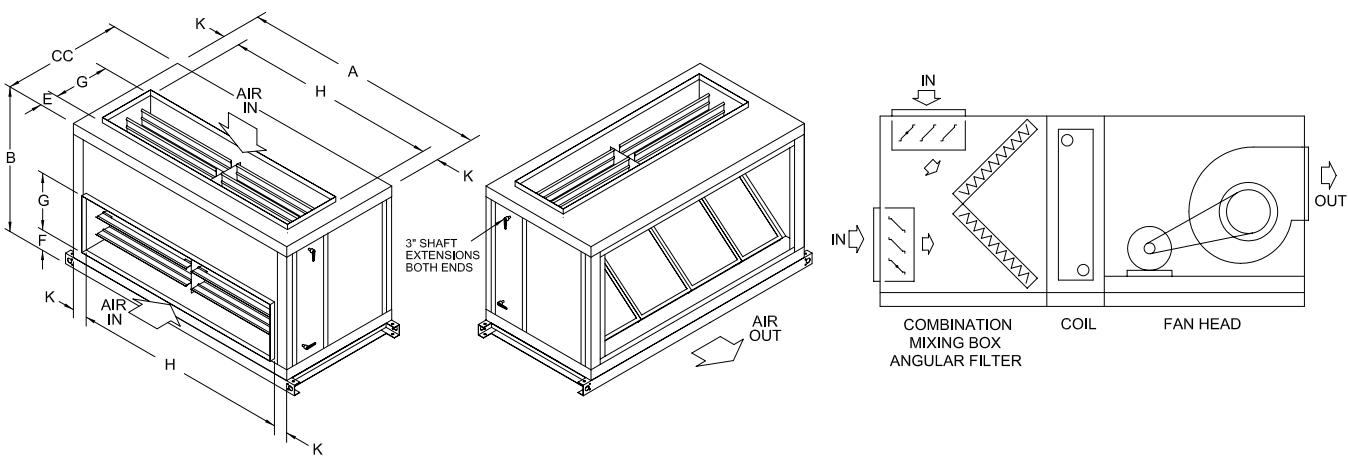


FIG. #2 FRONT & BOTTOM AIR ENTRY

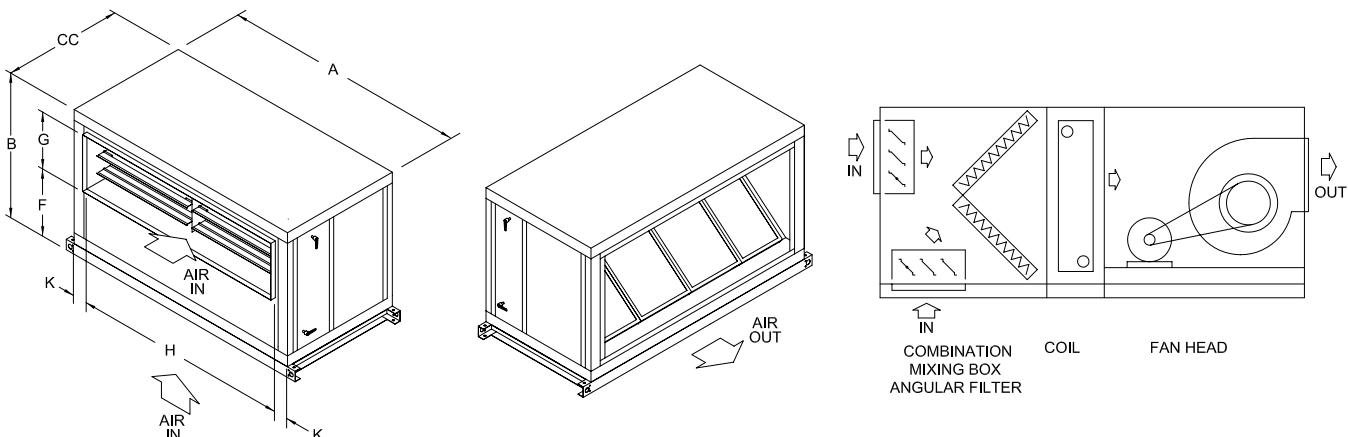
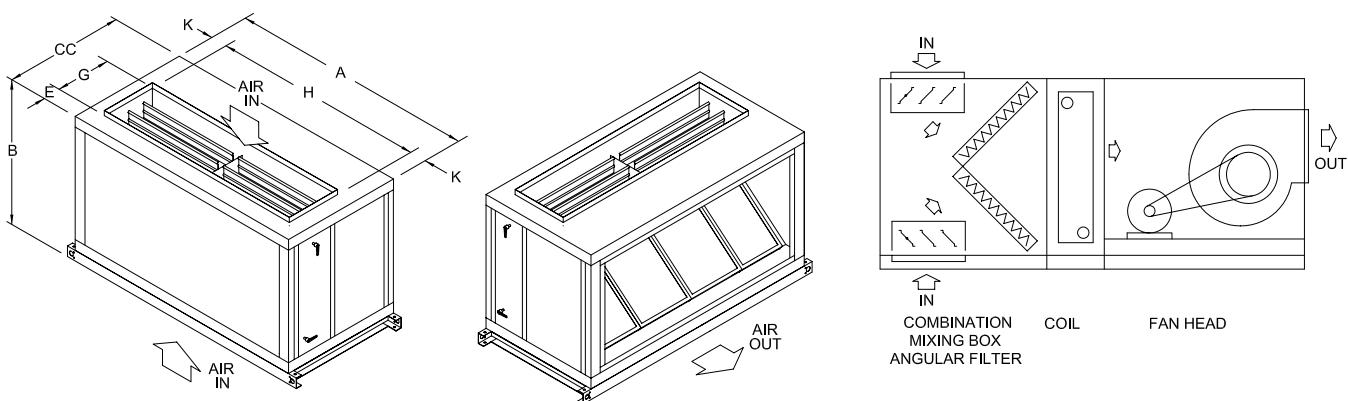
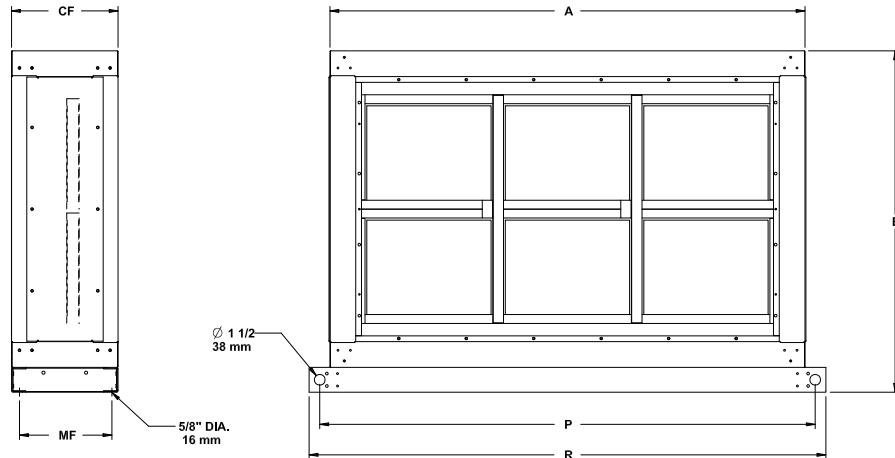


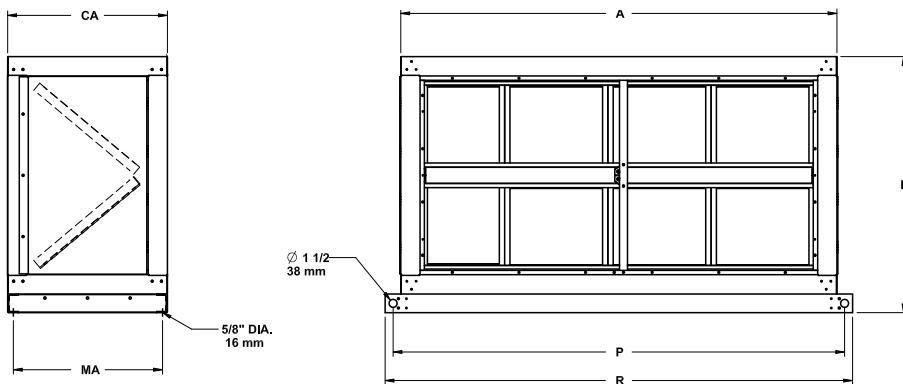
FIG. #3 TOP & BOTTOM AIR ENTRY



DIMENSIONAL DATA - ANGULAR & FLAT FILTER SECTIONS



Note: For Inlet Opening, refer to KAF "U" and "V" dimensions on pages 20-21.
Optional Duct Extension Flanges (1-1/2") available.



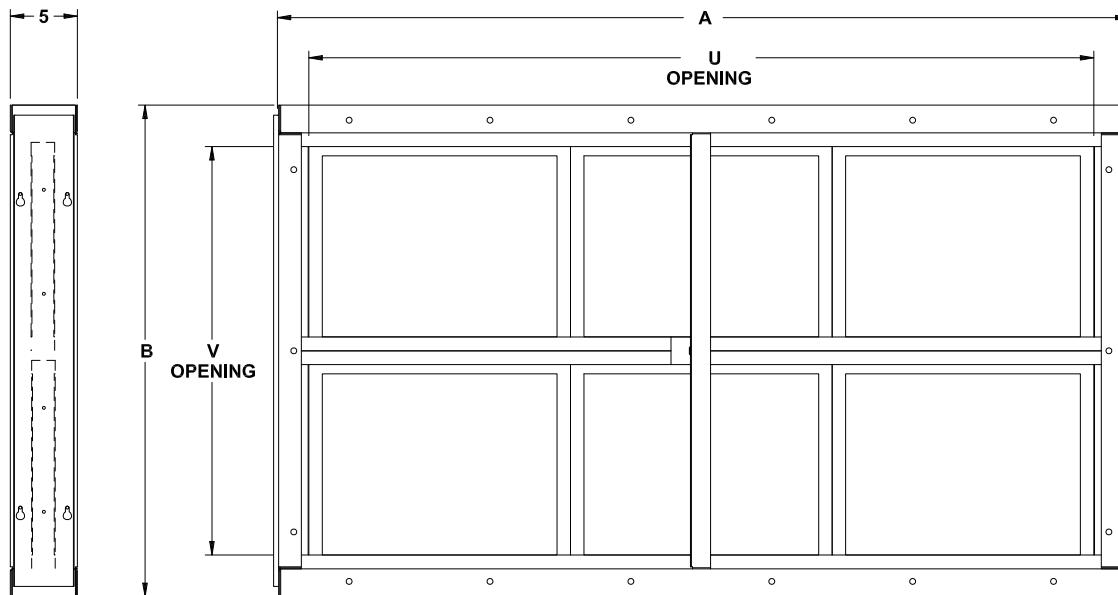
Note:
Models 103 through 128 have 12GA. "C" rails extended as shown.
Curb mount capability.
See Mounting Hole Locations on Page 39

Note:
Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	STANDARD WIDTH			STANDARD HEIGHT	ANGULAR FILTER LENGTH		FLAT FILTER LENGTH		UNIT SIZE	STANDARD WIDTH			STANDARD HEIGHT	ANGULAR FILTER LENGTH		FLAT FILTER LENGTH		
	A	P	R		B	CA	MA	CF		A	P	R		B	CA	MA	CF	MF
103	37 7/8	41 3/8	43 3/8	34	N/A	N/A		15	13	122	100 7/8	103 3/4	106 3/4	54	30	28	15	13
104	43 7/8	47 3/8	49 3/8	37	N/A	N/A		15	13	128	123 7/8	126 3/4	129 3/4	57	30	28	15	13
106	53 7/8	57 3/8	59 3/8	40 1/2	N/A	N/A		15	13	137	130	-	130	61 1/2	30	28	15	13
108	51 7/8	55 3/8	57 3/8	48	N/A	N/A		15	13	141	130	-	130	70 1/2	30	28	15	13
111	66 7/8	69 3/4	72 3/4	48	N/A	N/A		15	13	150	130	-	130	79 1/2	30	28	15	13
114	81 7/8	84 3/4	87 3/4	48	30	28		15	13	164	130	-	130	97 1/2	35	33	15	13
117	96 7/8	99 3/4	102 3/4	48	30	28		15	13	182	160		160	97 1/2	35	33	15	13

NOTE: All dimensions are approximate. Certified drawings available on request.



* AVAILABLE WITH 2" AND 4" FILTERS

DIMENSIONS - IMPERIAL (inches)

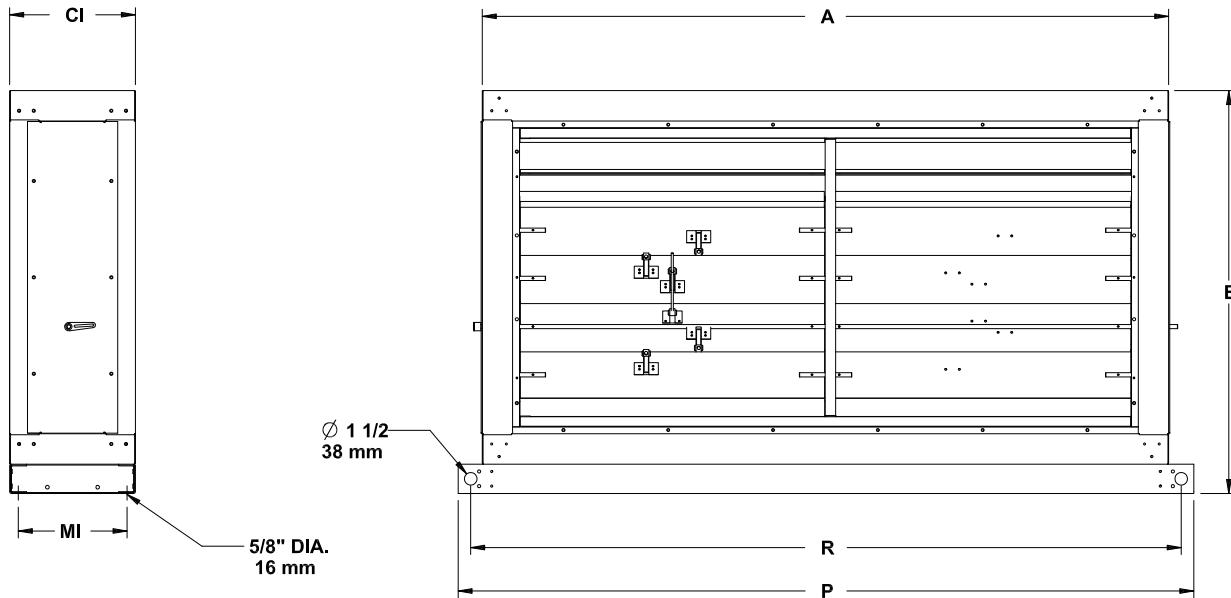
UNIT SIZE	A	B	INLET OPENING	
			U	V
103	34	21 5/8	30 5/8	17 5/8
104	40	24 5/8	36 5/8	20
106	50	27 5/8	46 5/8	23 1/8
108	48	36 5/8	44 5/8	32 1/2
111	63	36 5/8	59 5/8	32 1/2
114	78	36 5/8	74 5/8	32 1/2
117	93	36 5/8	89 5/8	32 1/2
122	97	43 5/8	93 5/8	40 1/8
128	120	43 5/8	116 5/8	40 1/8
137	119 3/8	55 1/8	116 5/8	50 1/8
141	119 3/8	63 3/8	116 5/8	60 1/8
150	119 3/8	73 1/8	116 5/8	70 1/8
164	119 3/8	91 1/8	116 5/8	85 1/4
182	149 3/8	91 1/8	154	85 1/4

NOTE: All dimensions are approximate. Certified drawings available on request.

TA*

DIMENSIONAL DATA - INTERNAL FACE & BY-PASS DAMPER

60Hz



Note:

Models 114 through 128 have 12GA. "C" rails extended as shown.

Curb mount capability.

See Mounting Hole Locations on Page 39

Note:

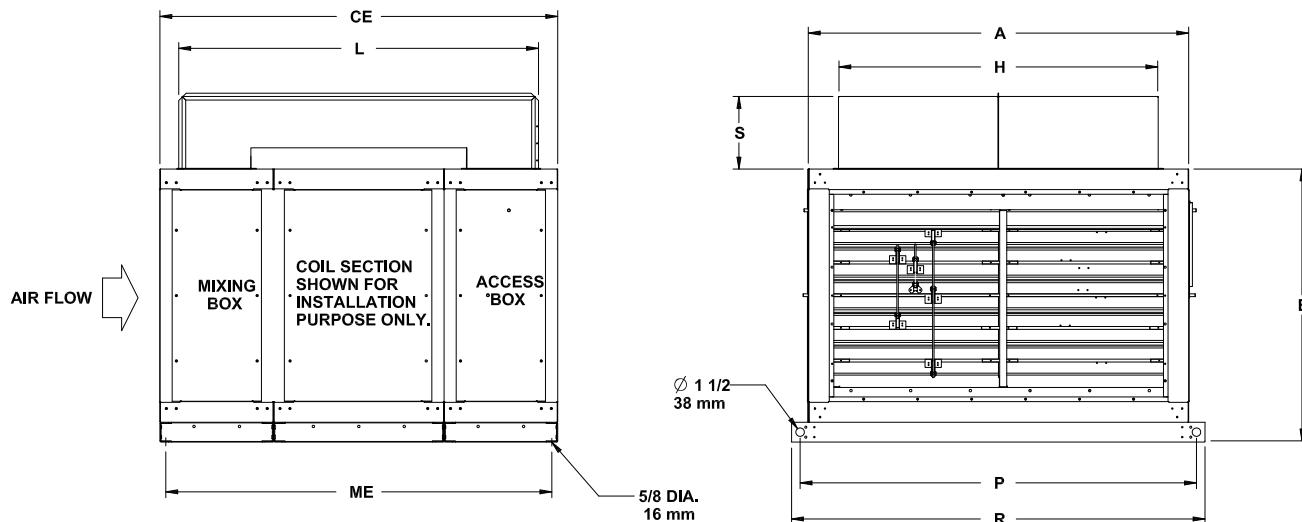
Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	CI	MI	P	R	R	S
114	81 7/8	48	15	13	84 3/4	87 3/4	72 3/4	15
117	96 7/8	48	15	13	99 3/4	102 3/4	87 3/4	15
122	100 7/8	54	15	13	103 3/4	106 3/4	102 3/4	15
128	123 7/8	57	15	13	126 3/4	129 3/4	106 3/4	18
137	130	61 1/2	15	13	-	130	129 3/4	18
141	130	70 1/2	15	13	-	130	130	22
150	130	79 1/2	15	13	-	130	130	24
164	130	97 1/2	15	13	-	130	130	26
182	160	97 1/2	15	13	-	160	130	30

NOTE: All dimensions are approximate. Certified drawings available on request.

DIMENSIONAL DATA - EXTERNAL FACE & BY-PASS DAMPER



Note:

Models 114 through 128 have 12GA. "C" rails extended as shown.

Curb mount capability.

See Mounting Hole Locations on Page 39

Note:

Models 137 through 182 have 10GA frame structure flush with cabinet.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	CE	ME	L	P	R	S
114	81 7/8	48	70	68	67 3/8	84 3/4	87 3/4	15
117	96 7/8	48	70	68	67 3/8	99 3/4	102 3/4	15
122	100 7/8	54	70	68	67 3/8	103 3/4	106 3/4	18
128	123 7/8	57	70	68	67 3/8	126 3/4	129 3/4	18
137	130	61 1/2	85	73	72 3/8	-	130	22
141	130	70 1/2	85	73	72 3/8	-	130	24
150	130	79 1/4	85	73	72 3/8	-	130	26
164	130	97 1/2	85	73	72 3/8	-	130	30
182	160	97 1/2	85	73	72 3/8	-	160	30

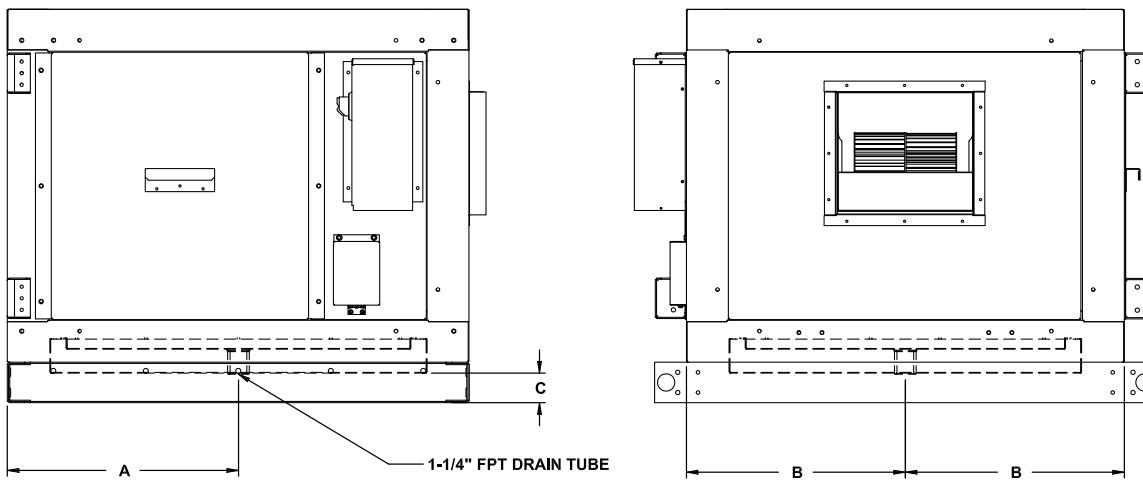
NOTE: All dimensions are approximate. Certified drawings available on request.

TA*

ACCESSORIES - DIMENSIONAL DATA - FAN HEAD DRAIN PAN

60Hz

MODELS "AC" 103 THRU 128

FOR CABINET DIMENSIONS
REF. PAGE 20.NOTE: NOT AVAILABLE
WITH FIG.4 - DOWNBLAST.

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C
103	20	18 15/16	2 1/2
104	22 1/2	21 15/16	2 1/2
106	14 7/8	26 15/16	2
108	18 3/8	25 15/16	2
111	23	33 7/16	2
114	23	40 15/16	2
117	23	48 7/16	2
122	23	50 7/16	2
128	23	61 15/16	2

NOTE: All dimensions are approximate.
Certified drawings available on request.

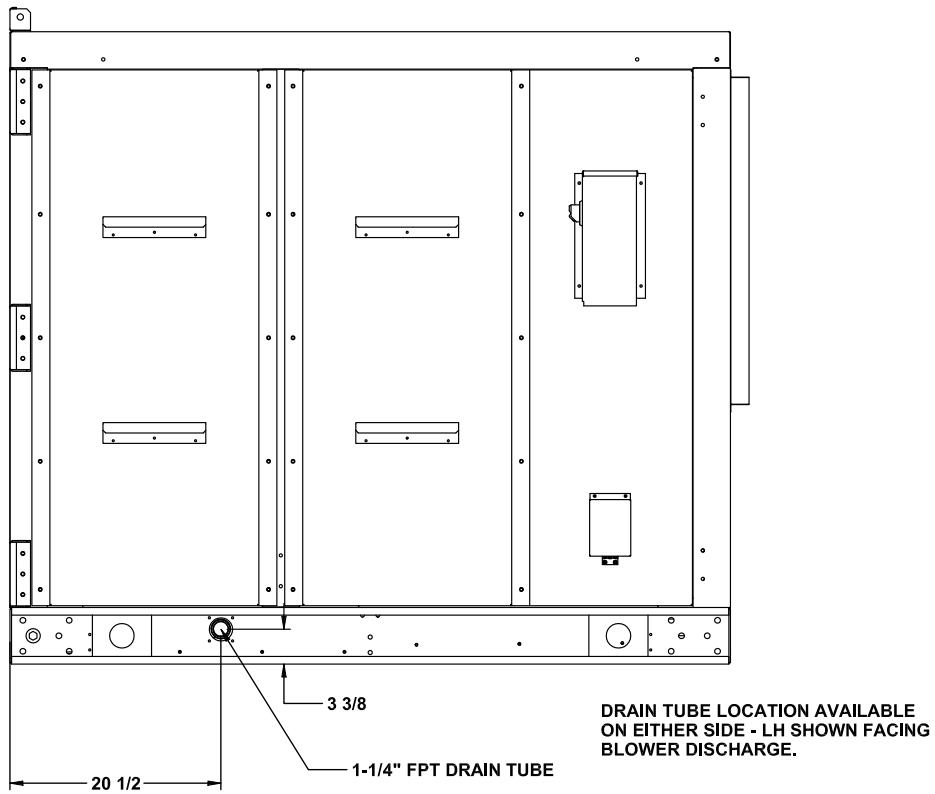
TA*

ACCESSORIES - DIMENSIONAL DATA -

FAN HEAD DRAIN PAN

60Hz

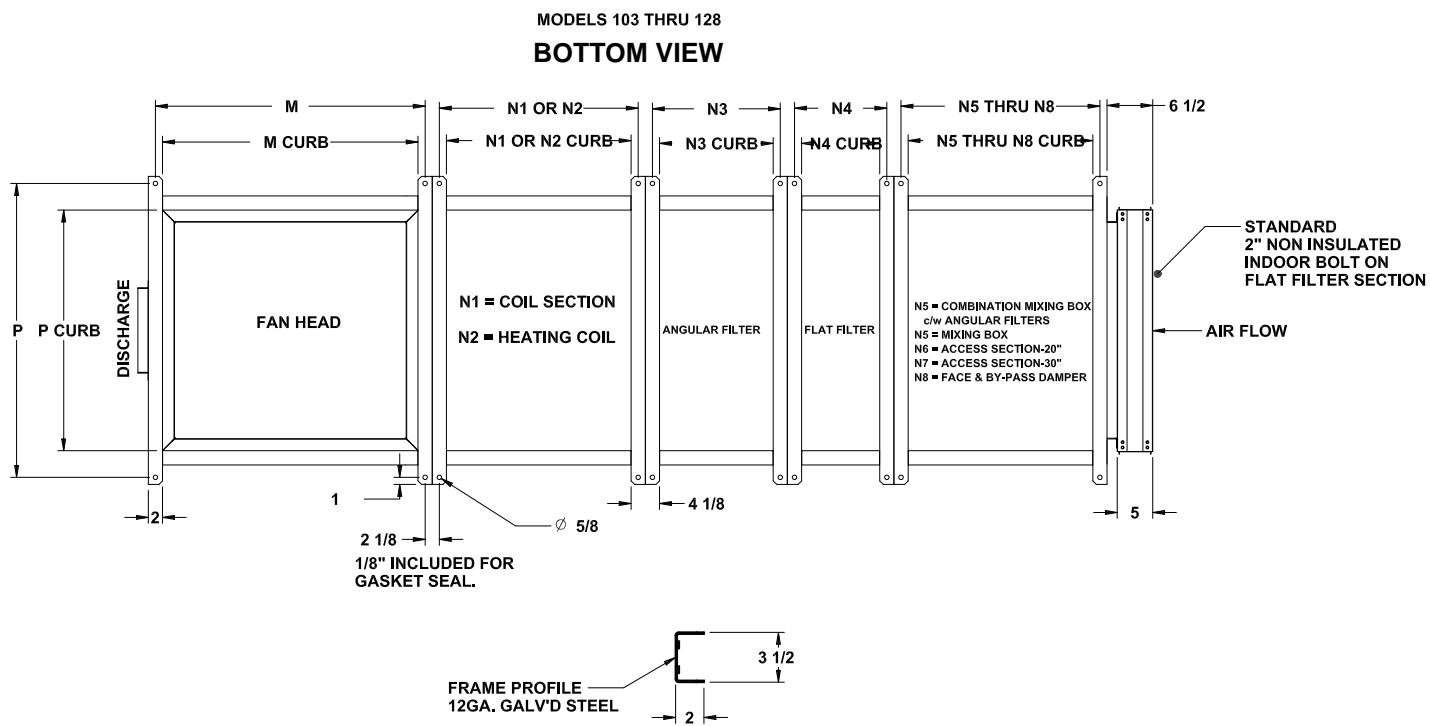
MODELS "AC" 137 THRU 182



TA*

ACCESSORIES - DIMENSIONAL DATA - MOUNTING HOLES & CURBS

60Hz



DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	STANDARD WIDTH		FAN HEAD		COOLING COIL		HEATING COIL		ANGULAR FILTER		FLAT FILTER		STANDARD MIXING BOX		COMBINATION MIXING BOX		ACCESS SECTION -20		ACCESS SECTION -30		FACE & BY-PASS DAMPER	
	P	P CURB	M	M CURB	N1	N1 CURB	N2	N2 CURB	N3	N3 CURB	N4	N4 CURB	N5	N5 CURB	N6	N6 CURB	N7	N7 CURB	N8	N8 CURB		
103	41 3/8	33 7/8	38	36	28	26	23	21	28	26	13	11	23	21	28	26	18	16	28	26	13	11
104	47 3/8	39 7/8	43 1/8	41 1/8	28	26	23	21	28	26	13	11	23	21	28	26	18	16	28	26	13	11
106	57 3/8	50	45	43	28	26	23	21	28	26	13	11	23	21	33	31	18	16	28	26	13	11
108	55 3/8	47 7/8	51 9/16	49 9/16	28	26	23	21	28	26	13	11	28	26	38	36	18	16	28	26	13	11
111	69 3/4	62 3/4	61 1/8	59 1/8	28	26	23	21	28	26	13	11	28	26	38	36	18	16	28	26	13	11
114	81 3/4	77 3/4	61 1/8	59 1/8	28	26	23	21	28	26	13	11	28	26	38	36	18	16	28	26	13	11
117	99 3/4	92 3/4	61 1/8	59 1/8	28	26	23	21	28	26	13	11	28	26	38	36	18	16	28	26	13	11
122	103 3/4	96 3/4	67 1/8	59 1/8	28	26	23	21	28	26	13	11	33	31	45	43	18	16	28	26	13	11
128	126 3/4	119 3/4	71 1/8	59 1/8	28	26	23	21	28	26	13	11	33	31	45	43	18	16	28	26	13	11

NOTE: All dimensions are approximate. Certified drawings available on request.

NOTE: SUBTRACT 1/4" (6mm) FROM CURB DIMENSIONS TO ALLOW PROPER CLEARANCE.

NOTE: ACCESS SECTION 20" & 30" (508 mm & 762 mm) SHOWN. SIZES RANGE FROM 15" TO 50" (381 mm TO 1270 mm)

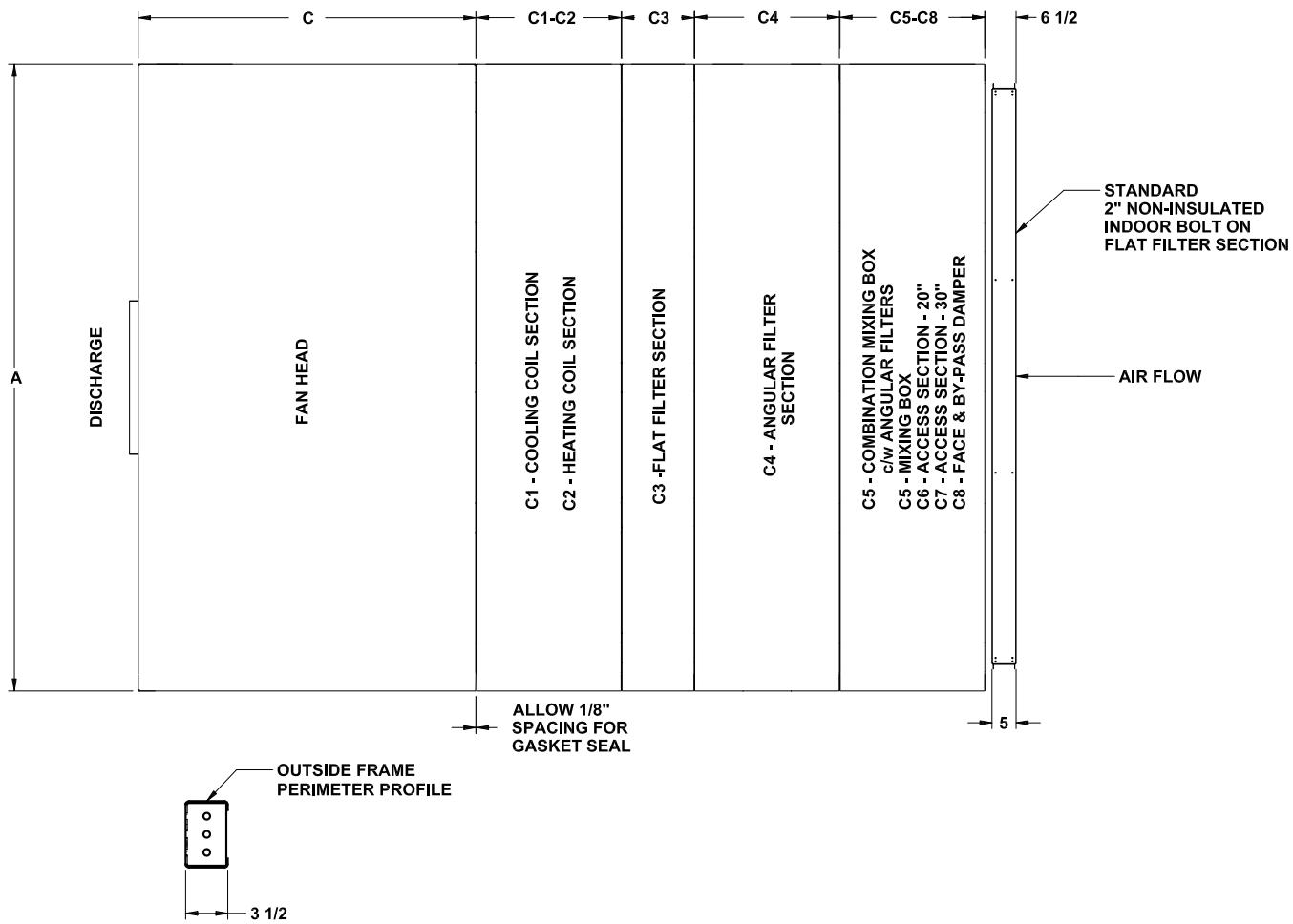
IN 5" (127 mm) INCREMENTS. FOR SPECIAL LENGTHS CONSULT FACTORY.

NOTE: FOR PROPER INSTALLATION A "STEPPED" CURB IS REQUIRED

ACCESSORIES - DIMENSIONAL DATA -

MOUNTING HOLES & CURBS

MODELS 137 THRU 182
BOTTOM VIEW



DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	FAN HEAD		COOLING COIL	HEATING COIL	FLAT FILTER	ANGULAR FILTER	STANDARD MIXING BOX	COMBINATION MIXING BOX	ACCESS SECTION 20"	ACCESS SECTION 30"	FACE & BY-PASS DAMPER
	A	C	C1	C2	C3	C4	C5	C5	C6	C7	C8
137	130	70	35	25	15	30	45	55	20	30	15
141	130	75	35	25	15	30	55	60	20	30	15
150	130	82	35	25	15	30	55	60	20	30	15
164	130	90	35	25	15	35	60	65	20	30	15
182	160	90	35	25	15	35	60	65	20	30	15

NOTE: All dimensions are approximate. Certified drawings available on request.

General

Furnish and install where shown on plans, Type (AF, AH, AC) Central Station Air Handling Units. Sizes and performance shall be as indicated in the Unit Schedule. Each unit shall be complete with factory furnished components as shown on the plans.

Cabinets shall be of sectionalized construction, and all sheet metal parts including accessories shall be fabricated of continuous galvanized steel. The casing panels shall be removable for easy access to the interior of the unit. AC units shall be double wall and insulated with 2" mineral wool. (Optional for AF and AH units.) AF and AH units shall be single wall and no insulation unless otherwise specified.

The drain pan shall be constructed of stainless steel. The drain pan on AC models shall be thermally isolated from the unit casing with mineral wool insulation. Condensate drain connections shall be provided at either end of the drain pan, coil header connection side is standard.

All cooling coils shall be arranged within the coil section in a vertical position with the air passing horizontally through the coil to insure quick removal of the condensate from the coil surface. Where multiple cooling coils are used in a single unit, intermediate drain pans shall be provided to prevent the condensate collected on the upper coil from passing over the finned surface of the bottom coil, and to eliminate unbalanced air flow. Coil headers and refrigerant distributors shall be completely enclosed within the insulated casing with only connections extended through the cabinet.

Fan Assembly

Fans shall be forward curved and designed for Class II operation. Fan ratings shall be based on fan tests conducted in accordance with AMCA Code No. 210. Fan housings and wheels shall be continuous galvanized steel. All fan wheels shall be keyed to the fan shaft.

Bearings and Fan Shaft

The fan shaft shall be solid high carbon steel, fully sized throughout. The maximum rated fan RPM shall be well below the first critical fan shaft speed.

Bearing shall be self-aligning, grease lubricated, ball type (9-9 T2 through 28-28 T2) in pillow block cast iron housings, roller type (32-32 T2 through 40-40 T2) in pillow block split cast iron housings. Lubrication fittings shall be provided, and permanently lubricated bearings will be unacceptable.

Coils - General

Coils shall be constructed with 5/8" O.D. and or 1/2 " O.D. copper tubes and (aluminum) (copper) rippled-corrugated fins spaced (8) (10) (12) per inch. Tubes shall be arranged in a staggered tube pattern with respect to air flow. Fins shall have full drawn collars to provide a continuous secondary surface cover over the entire tube length.

Tubes shall be expanded into fins to provide a continuous primary to secondary compression contact over the entire finned length.

Coil casing shall be of continuous galvanized steel. Coil face velocity shall be as indicated on the unit schedule. The rows of coil shall be as required to produce the capacities as indicated in the performance schedule. All water coils shall be circulated to obtain optimum tube water velocity. No devices shall be used inside the coil tubes which interfere with the drainability or increase water pressure drop. Depending on applications, coils shall be tested with 300, 450 or 650 PSIG air under water.

Direct Expansion Coils

Cooling coils are designed for use with most common refrigerants. Sweat type copper suction connections shall be located at the bottom of the suction headers for gravity oil drainage. (Coils shall be circuited for (face control) (row control) capacity reduction.) Pressure type liquid distributors shall be used.

Chilled Water Coils

Cooling coils shall be designed for use with chilled water. With a vent connection at the highest point, and a drain connection at the lowest point. Headers shall be fabricated of copper tubes, and the connections shall be male pipe threaded with protective caps.

Water Heating Coils

Water heating coils shall be furnished as indicated on the Unit Schedule. **NOTE: Maximum water temperature not to exceed 200°F and air leaving 140°F.**

Condenser / Heat Reclaim Coils

Coils shall be constructed with 1/2"O.D. copper tubes and aluminum (copper) rippled-corrugated fins spaced (8) (10) (12) per inch. Any number of coil circuits shall be available provided the total does not exceed the number of tubes in the coil face. Coils shall be provided with sweat-type connections and shall be circuited for proper refrigerant drainage.

Filter Section

Furnish factory built (flat) (angular) filter section complete with filters as specified herein. The filter area shall be as specified on the Unit Schedule. (Flat and Angular filter sections shall have access doors on both ends.)

Filters

Filters shall be (throwaway) (permanent) (permanent high velocity) type.

Mixing Box

Mixing dampers shall be furnished where shown on plans. Dampers shall be arranged so that the fresh and return air streams merge when entering the mixing box. Blades shall be parallel acting and interconnected. Mixing box openings shall be provided with duct flanges. Damper rods shall rotate in nylon bushings.

Combination Filter Section/Mixing Box

Furnish factory built angular filter section complete with filters as specified herein. The filter area shall be as specified on the Unit Schedule. Angular filter section shall be complete with large, quick opening, access doors on both ends to facilitate changing filters. Mixing dampers shall be furnished where shown on plans. Dampers shall be arranged so that the fresh and return air streams merge when entering the mixing box. Blades shall be parallel acting and interconnected. Mixing box openings shall be provided with duct flanges. Damper rods shall rotate in nylon bushings.

Face and By-Pass Dampers

Face and by-pass dampers shall be furnished where shown on plans. By-pass dampers shall be sized to allow for 100% air by-pass. Air shall be by-passed (externally) (internally). Face dampers shall be opposed acting. By-pass duct shall be factory insulated. Damper rods shall rotate in nylon bushings.

GENERAL

- A. The items should be carefully checked against the bills of lading to be sure all crates and cartons have been received. All units should be carefully inspected for damage when received. Visible or concealed damage should be reported immediately to the carrier and a claim filed for damage.
- B. Air Handler units are constructed of heavy gauge galvanized steel and are thoroughly inspected before leaving the plant. Care must be taken during installation to prevent damage to units.
- C. In order to insure long and trouble-free life, the units should have proper care and maintenance. Enough space should be left around the unit for filter removal, lubrication, and removal of coils if this should become necessary.
- D. Flexible connections should be used on the outlet connections and oil inlet duct connections of the unit.
- E. Special care should be taken when handling the blower section. All fans are dynamically balanced before leaving the plant. Rough handling, however, can cause misalignment of the drives. Sheaves should be carefully inspected before unit installation to make sure this has not happened.
- F. Screws, bolts, etc., for assembly of sections are supplied in a cloth bag attached to each section. Gasketing to be used between sections, when assembling, is supplied in rolls in the unit.
- G. Drain line from drain pan connection must be adequately pitched and must have a "water seal."

Some units are shipped in sections and must be assembled on the job.

A. HANDLING OF SECTIONS:

1. Lifting / Isolator rails are supplied for bottom lifting only. Models 103 thru 128.
2. Lifting rails are supplied with 5/8" dia. Holes, suitable for 1/2" rod.
3. If units are to be moved using just one hoist, a spreader bar should be used to prevent damage to the unit.
4. Models 137 thru 182 come with lifting gussets located in the base frame. Fig.4

B. GASKETING:

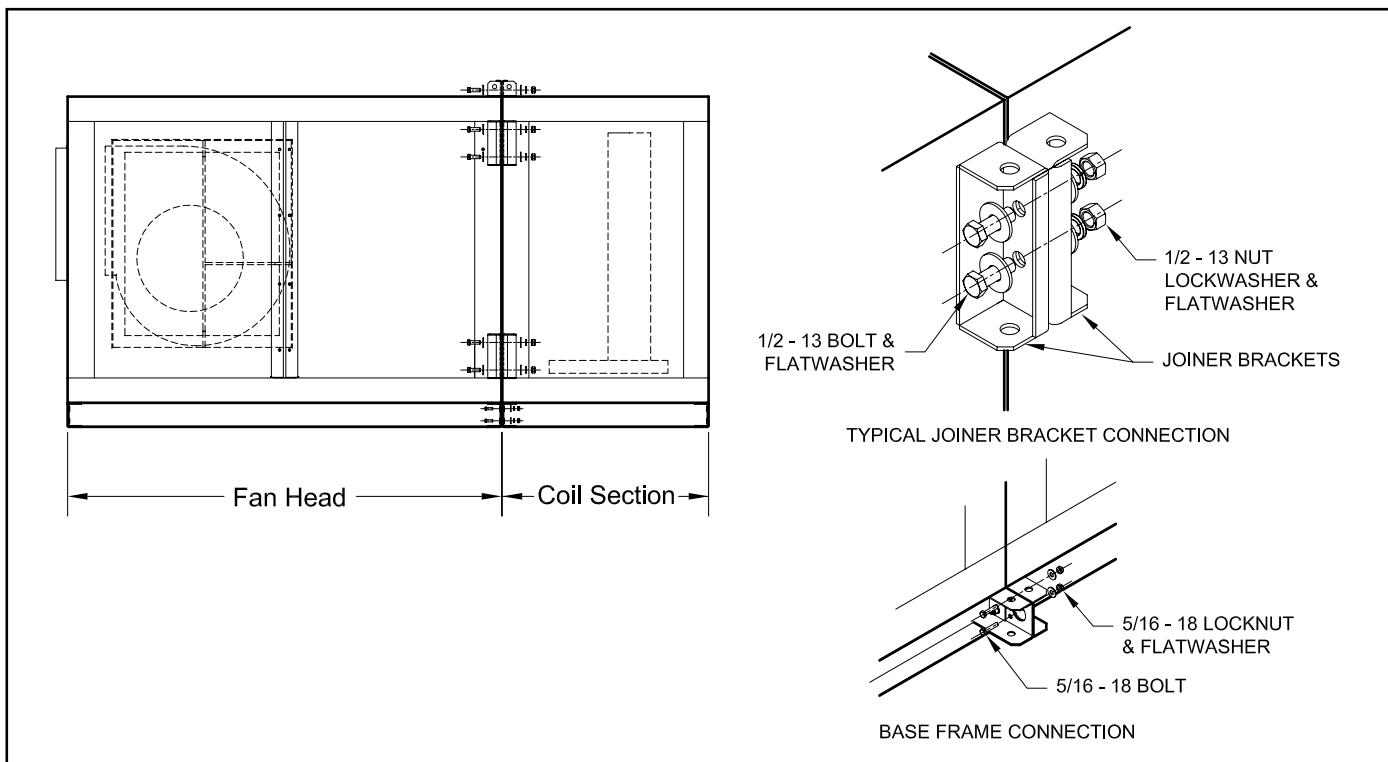
The gasketing is supplied with each section that has to be assembled on the job.

1. Gasket the perimeter of the section when necessary. Join ends tight to avoid air leakage. Fig. 2 & 3

C. FASTENING OF SECTIONS:

1. Figure 1 shows the typical attaching method used for fan head and heating and ventilating coil sections.
2. Accessories sections use the same joiner bracket connections.

Figure 1
TYPICAL ATTACHING METHOD



GENERAL (cont'd)

- C. FASTENING OF SECTIONS: (cont'd)
- Gasket the perimeter of the coil section flange as outlined in "Gasketing". Fig. 2 & 3
 - Align the sections using the mounting brackets as shown in Fig.1.
 - Bolt the 5/16 hardware in the base frame as shown in Fig.1.
 - Bolt the 1/2 hardware in the joinder bracket connections as shown in Fig.1

D. MOUNTING OF SECTION

- All models are to be moved into position using the bottom lifting rails (103 thru 128) or the base frame (137 thru 182). No units are to be lifted from the top.
- When crane lifting, proper spreader bars should be used to avoid damage to the cabinet material. See Fig.10, 11, 12.
- On models 117 thru 128, use top lifting brackets to mount fan head section to coil section only. Use bottom lifting rails only to install complete unit.

Figure 2
HORIZONTAL BLOWER SECTION
Models AC103H - 128H

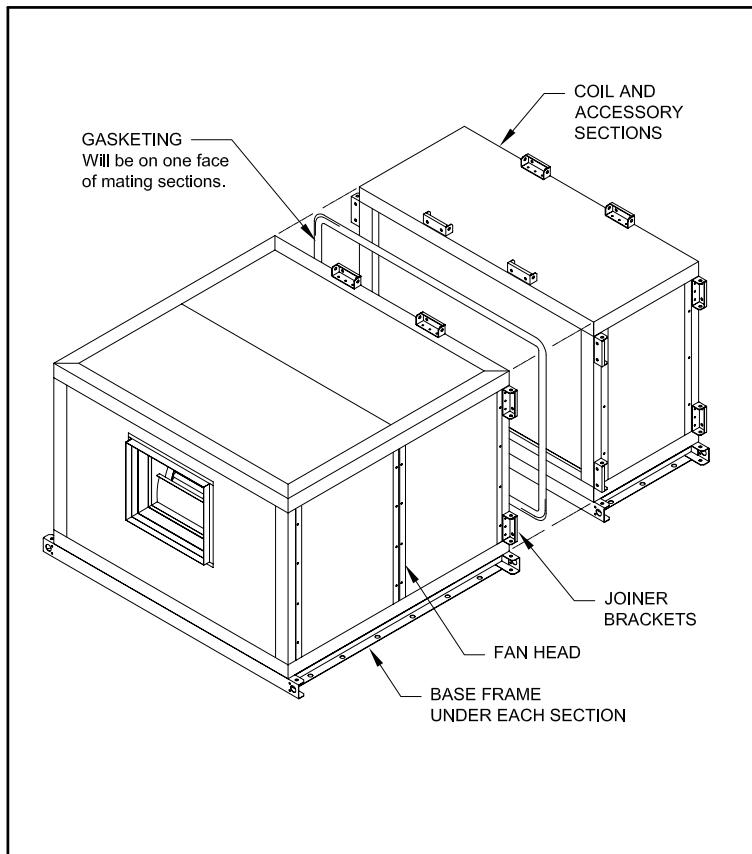


Figure 3
VERTICAL BLOWER SECTION
Models AC103V - 128V

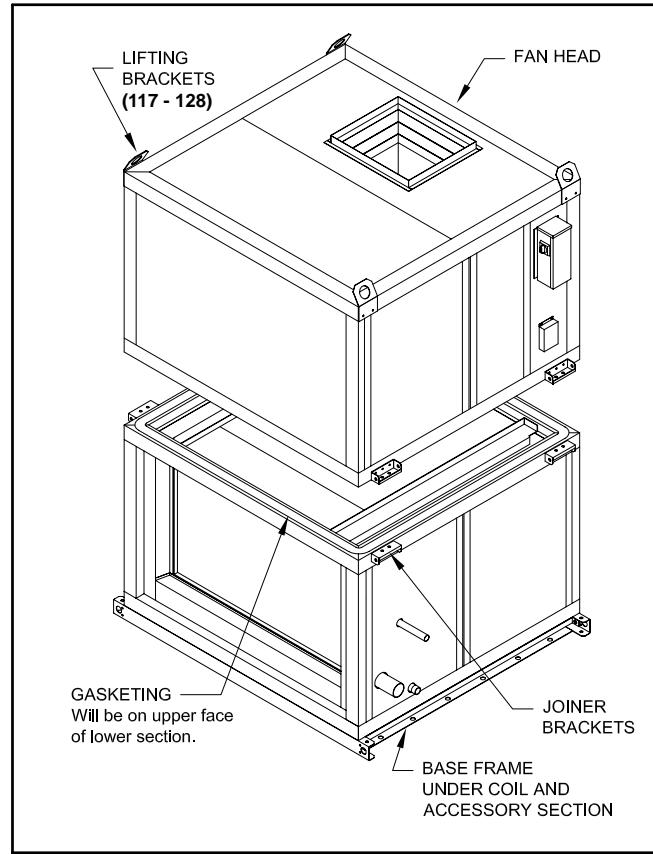


Figure 4
HORIZONTAL BLOWER SECTION
Models AC137H - 182H

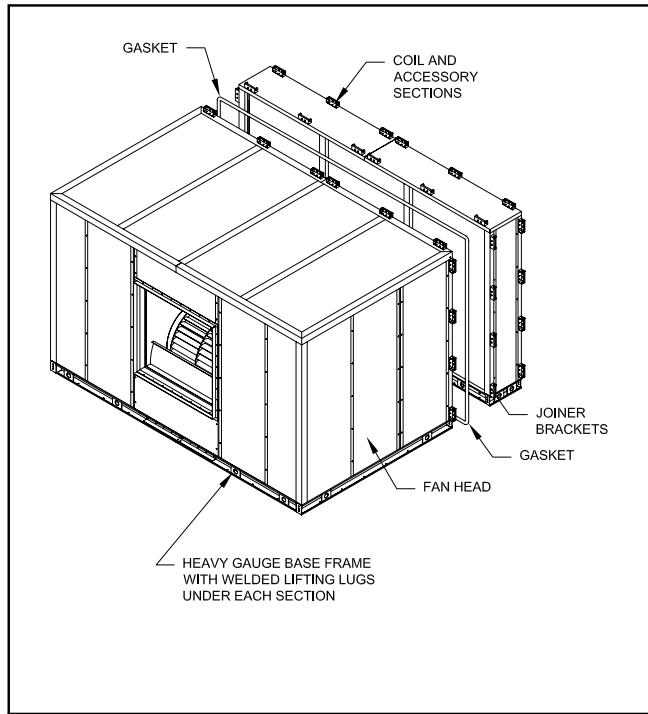


Figure 6
INTERNAL FACE & BY-PASS SECTION
Models AC114H - 182H

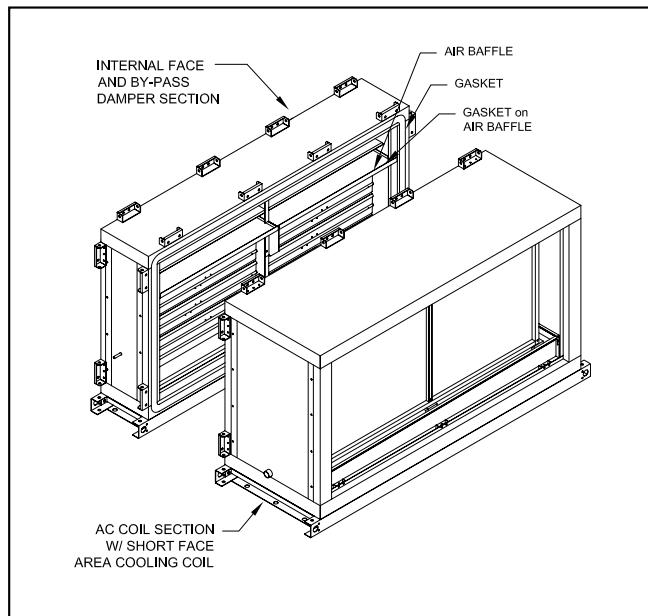


Figure 5
HORIZONTAL BY-PASS DUCT
Models 114 - 128

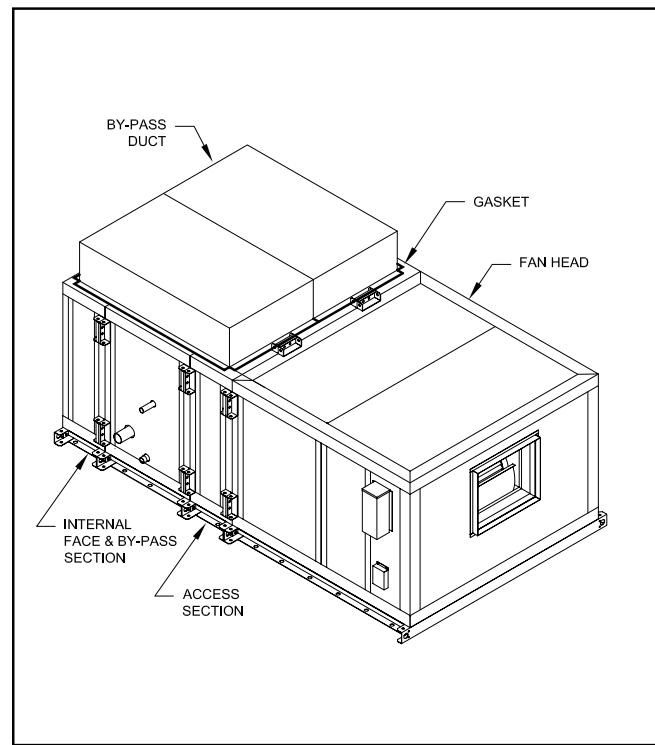


Figure 7
VERTICAL BY-PASS DUCT
Models 114 - 128

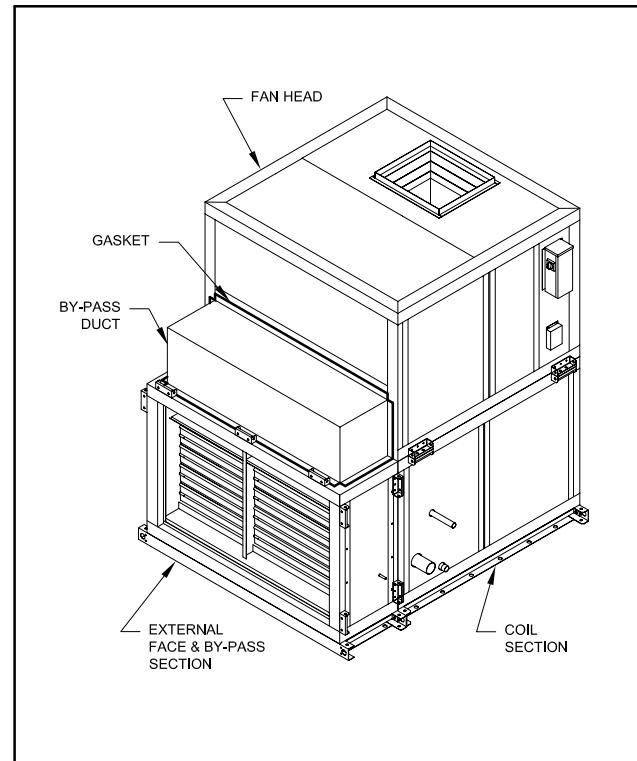
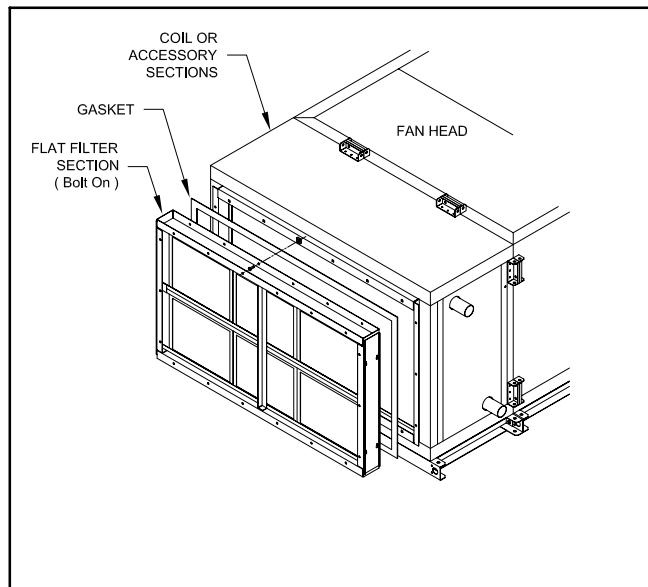


Figure 8
**FLAT FILTER (Bolt-On Style) to COIL
or ACCESSORY SECTIONS - ALL MODELS**

DRIVE INSTALLATION

- A. All motors are mounted on a heavy duty slide base located inside the cabinet.
- B. Drives are pre-set for desired RPM.
- C. Belt tension is factory set.

UNIT INSTALLATION

- A. Units 103 thru 128 come complete with lifting rails with 5/8" dia. mounting holes. Lifting rails are also designed to mount to roof curbs supplied by others. Lifting rails also allow for ceiling suspension with isolators – holes to allow 1/2" rod.
- B. Units 137 thru 182 come complete with 5-1/2" "C" channel designed for bottom mounting only.

IMPORTANT

Models AC137H through 182H

are suitable for bottom mounting only.

In order to suspend equipment from the ceiling, a field installed supporting structure must be provided

LIFTING INSTRUCTIONS

Air handling units and associated sections are large, heavy, mechanical equipment and must be handled as such. A fully qualified and properly crew with necessary rigging should be engaged to set the components into position. Lifting holes have been provided along base frames for attaching lifting slings.

Spreader bars must be used so that lifting forces are applied vertically.

Note:

- Coil sections and most narrow accessory sections, if shipped separately, will have base frames installed.
- Lifting lugs are provided on unit base rails
- Ensure that unit top side is stabilized to prevent tipping when lifting sections into place.
- Under no circumstances should coil connections, drains or weather covers be used for lifting.
- Base frames must be securely anchored to the building structure, sleeper, roof curb or concrete pad.
- the weight of the air handling unit and accessory sections alone is not enough to hold in place

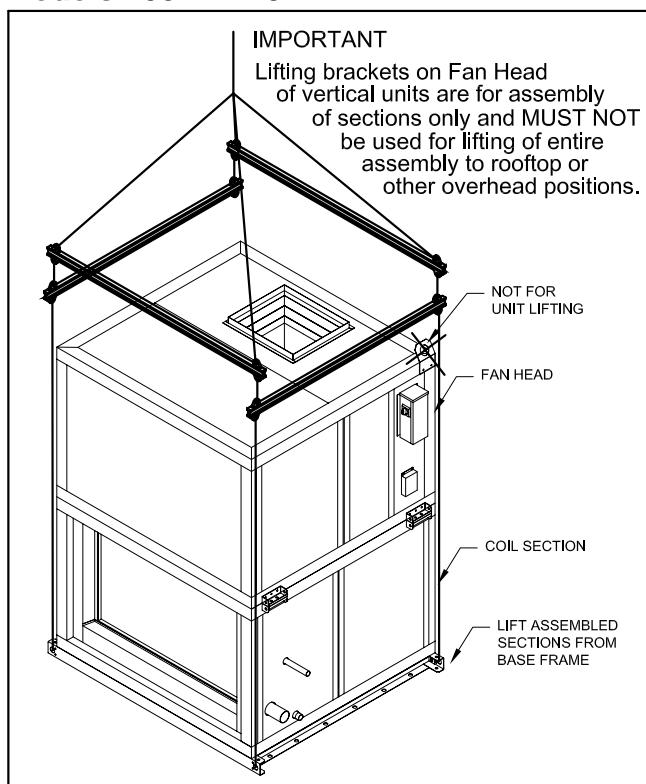
Figure 9
**VERTICAL UNITS
Models 103H - 128H**


Figure 10

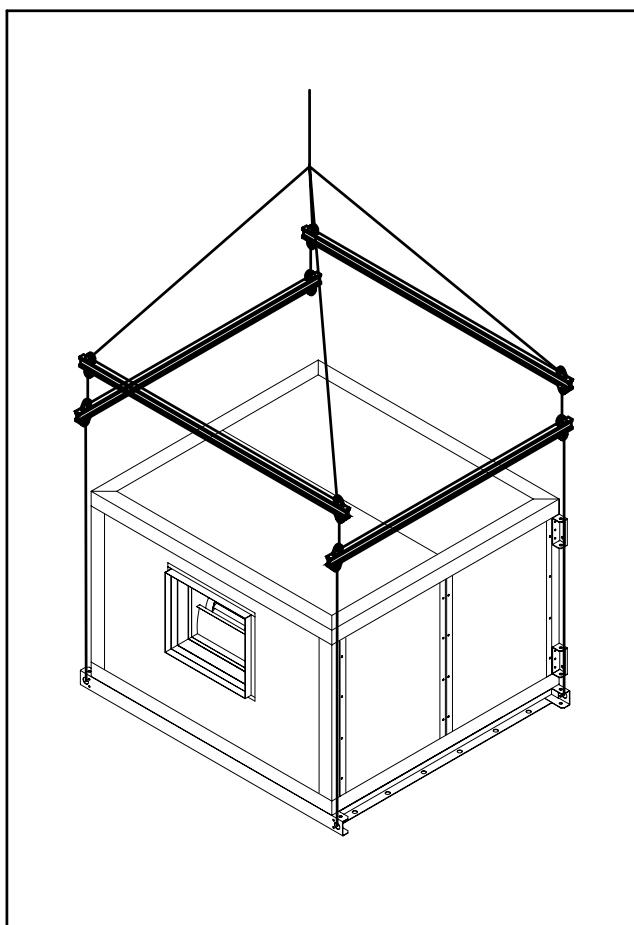
FAN HEAD LIFTING - Models 103H - 128H

Figure 11

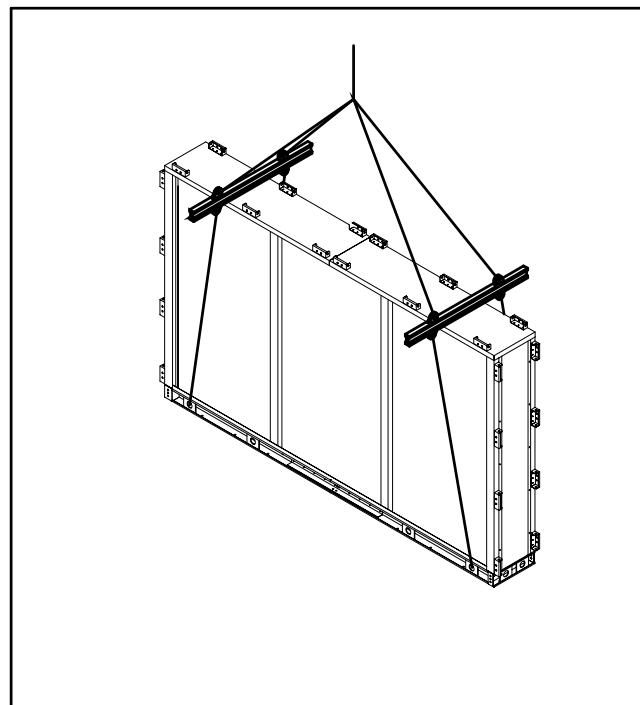
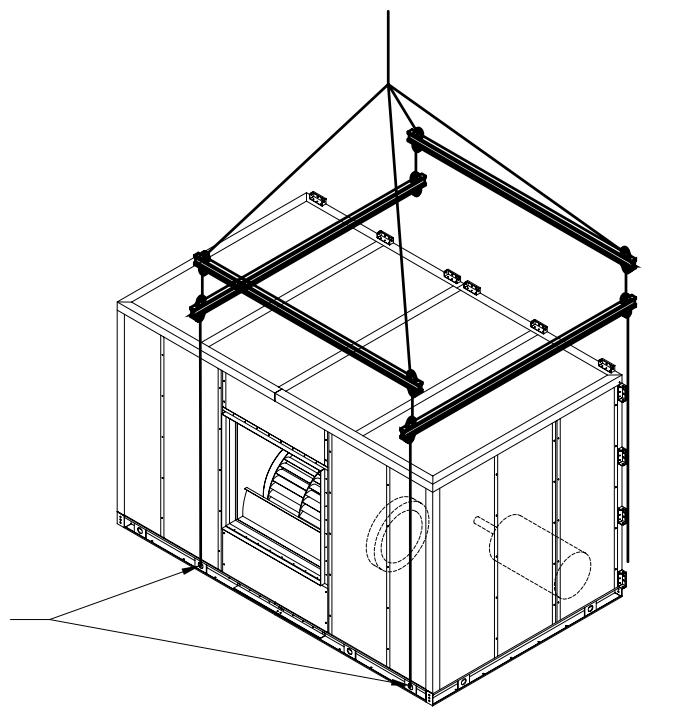
**COIL AND ACCESSORY SECTIONS
MAY BE SHIPPED SEPARATELY**

Figure 12

**FAN HEAD LIFTING
Models 137H - 182H**

On models 137 through 182, motor and drive sizes can greatly off-set the unit centre of gravity. Welded lugs are positioned in base channels to provide available points for lifting units vertically.

Care must be taken to locate motor position in unit before determining appropriate lifting points.



In all cases, the end panel of the coil section is removable. You should have access to both ends of the unit for ease of installation and proper positioning of coil. In all cases, sections or duct work must be disconnected and removed to allow access of coil close-off hardware. The procedure outlined, is for installation of coils. To remove coils, reverse the procedure.

A. Cooling Coils

Models AC 103-182 H & V, Fig. 13

- a. Slide coil through opening in coil section onto bottom coil rests. Coil should be placed against close-offs or existing coil in unit to prevent air bypass.
- b. Attach coil mounting top mounting brackets and bolt header plates to bottom coil rest in drain pan .
- c. Using sheet metal self-drilling screws attach coil to close-offs to prevent air leakage.
- d. Re-attach coil section to appropriate sections or duct work.
- e. Install piping and drain tube. See Fig. 15 for proper P-Trap dimension reference.

B. Heating Coils-Water

Models AH 103-182 H & V, Figure 13.

Follow procedure as outlined in A. (Cooling Coils).

C. Heating Coils

Since coils are pitched in units, it is necessary to keep unit level to allow proper condensate drainage.

D. Heating Coils - Water Ventilating Units

Models AH 103 – 182 H & V, Fig.13

- a. Slide coil through opening in coil section onto bottom plate. Align holes in endplates to ensure coil is placed against close-offs.
- b. Using sheet metal self-drilling screws, attach coil to close-offs to avoid air leakage.
- c. Install access doors and re-attach coil section to appropriate section or duct work. Tighten the screws holding the baffles in place. (137 and larger)

E. Locate dimensionally the supply and return connections and drill holes in end panels of unit. Holes should be located very carefully.

F. Attach end panels to unit and slip grommets over connections to prevent air leakage.

Figure 13
AC COOLING COILS

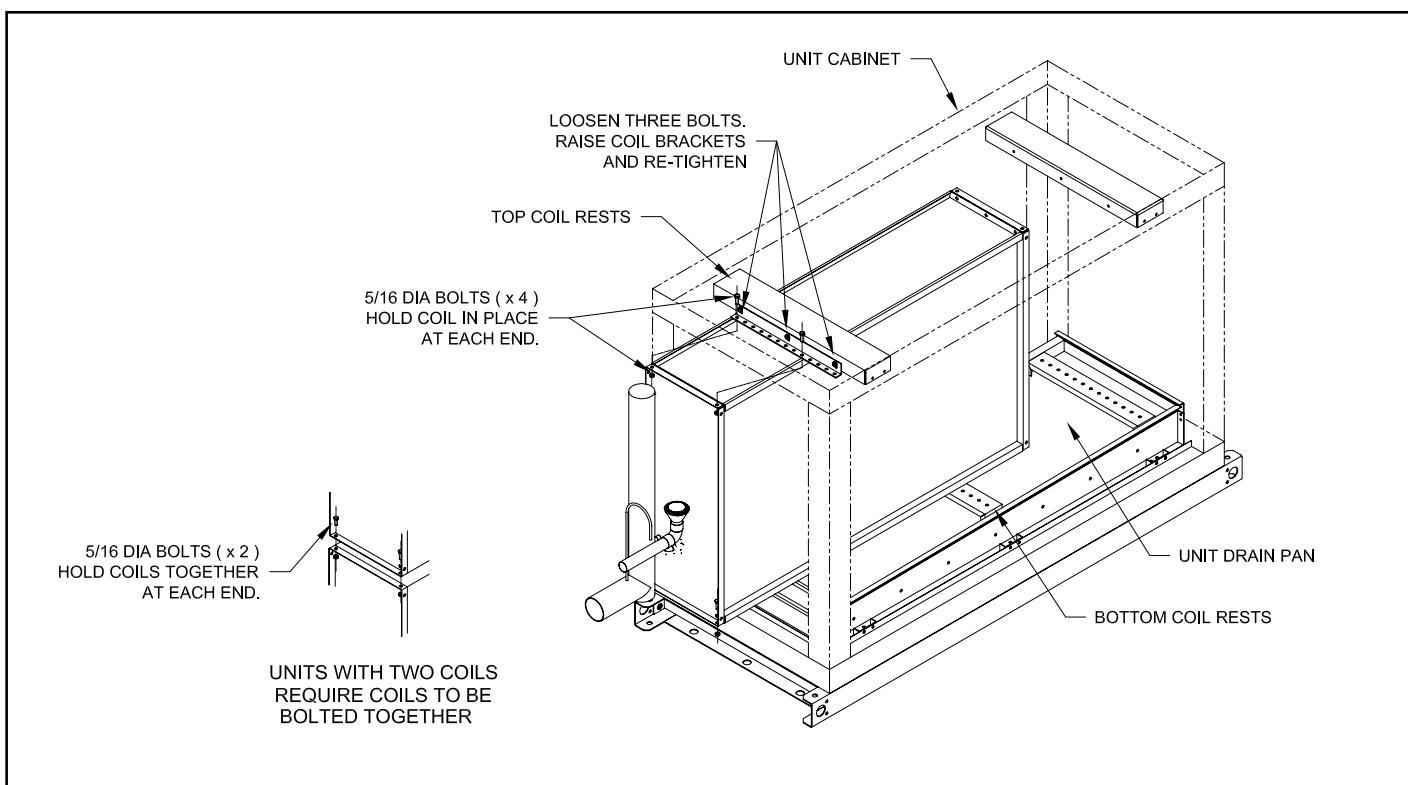


Figure 14
AH HEATING COILS

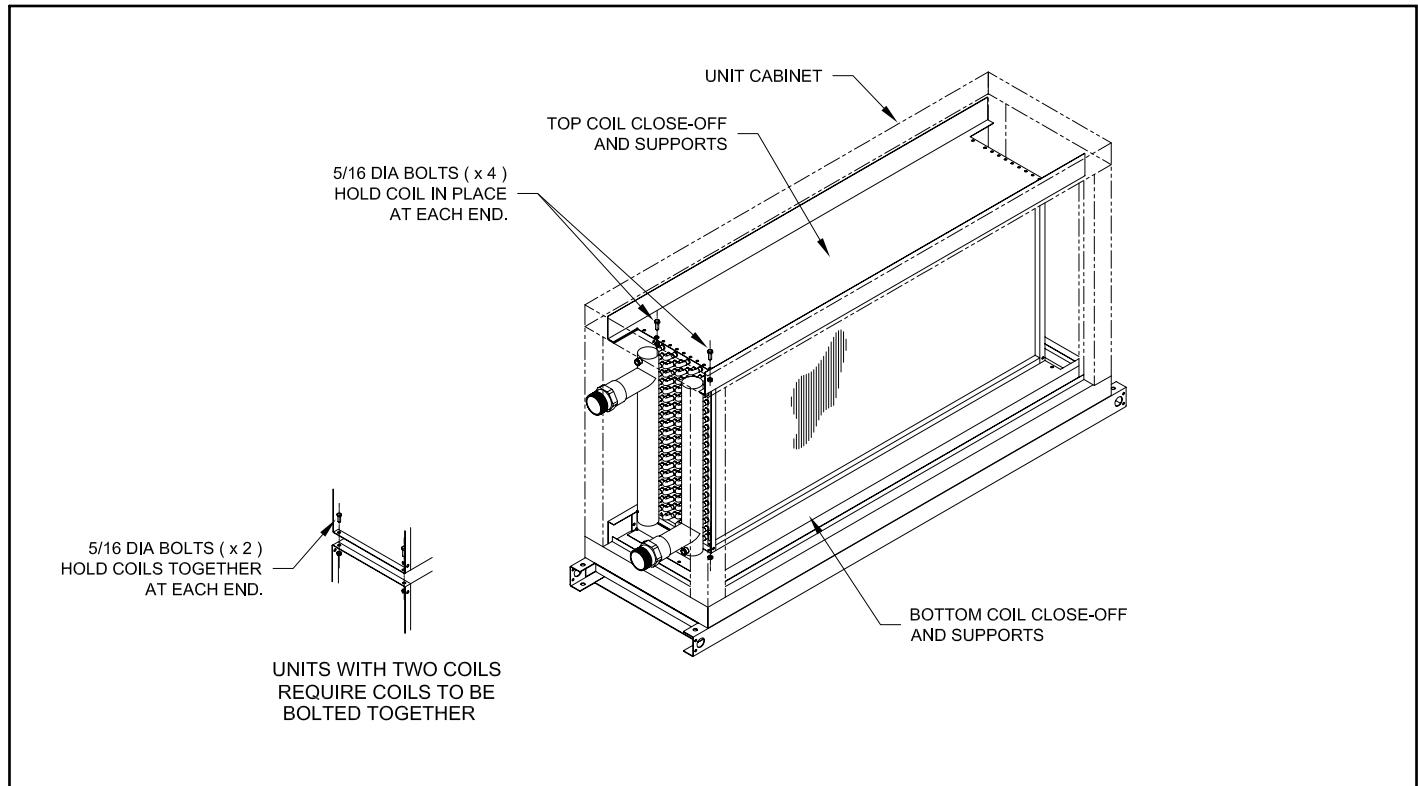
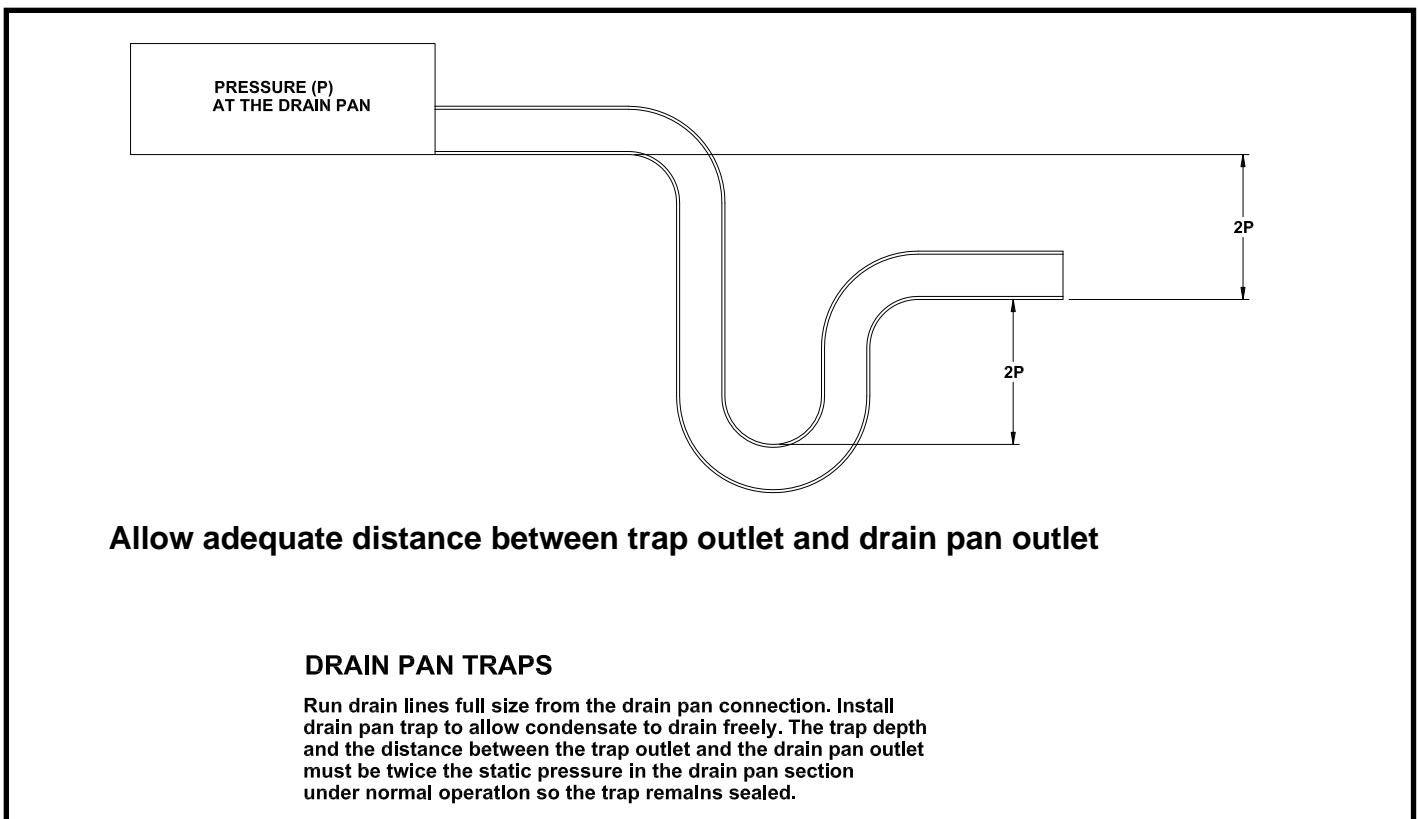
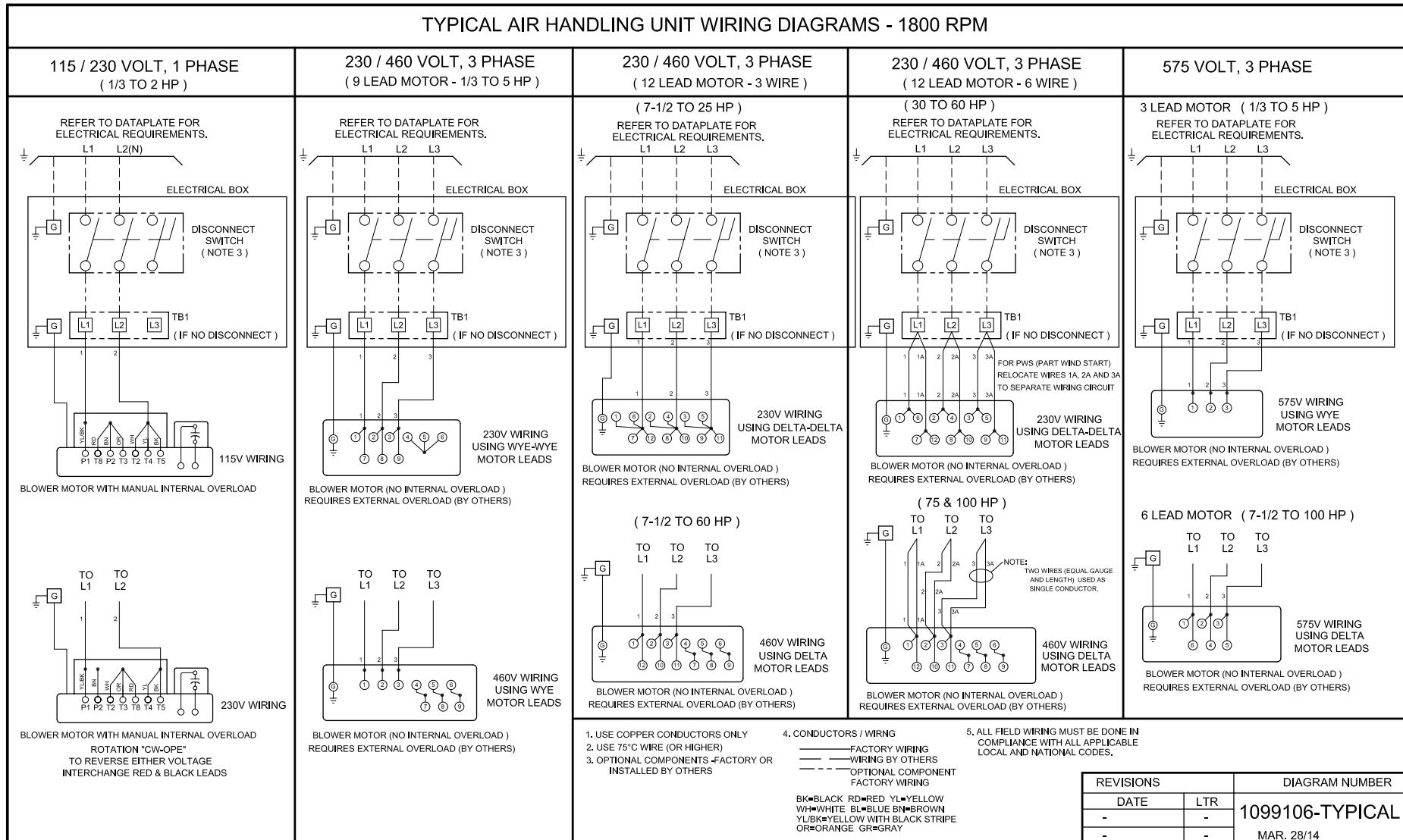


Figure 15
DRAIN PAN TRAPS





**ALL 1 PHASE MOTORS c/w
MANUAL THERMAL OVERLOAD**

**ALL 3 PHASE MOTORS ARE NOT INTERNALLY OVERLOAD PROTECTED.
EXTERNAL MOTOR OVERLOAD MUST BE PROVIDED.**

TA*

ELECTRICAL DATA - 3 Phase / 1-100 HP Models

60Hz

230/460 Volt Models - Motor: Nema Premium Efficiency NEMA 12-12 3 phase TEFC (1800 RPM) Service Factor = 1.15

HP	RPM	FRAME	F1 Part #	F2 Part #	230V						460V						BORE DIA.
					FLA	LRA	MCA	* MOP	DISCONNECT SWITCH SIZE AMPS	FLA	LRA	MCA	* MOP	DISCONNECT SWITCH SIZE AMPS			
1	1745	143T	1093600-1-TRI-F1	1093600-1-TRI-F2	3	30	3.8	15	40	1.5	15	1.9	15	40	7/8		
1.5	1750	145T	1093600-1.5-TRI-F1	1093600-1.5-TRI-F2	4.6	40	5.8	15	40	2.3	20	2.9	15	40	7/8		
2	1745	145T	1093600-2-TRI-F1	1093600-2-TRI-F2	6	50	7.5	15	40	3	25	3.8	15	40	7/8		
3	1760	182T	1093600-3-TRI-F1	1093600-3-TRI-F2	8	64	10.0	15	40	4	32	5.0	15	40	1 1/8		
5	1755	184T	1093600-5-TRI-F1	1093600-5-TRI-F2	13.4	92	16.8	30	40	6.7	46	8.4	15	40	1 1/8		
7.5	1770	213T	1093600-7.5-TRI-F1	1093600-7.5-TRI-F2	19.2	126	24.0	40	40	9.6	63	12.0	20	40	1 3/8		
10	1770	215T	1093600-10-TRI-F1	1093600-10-TRI-F2	25	161	31.3	50	80	12.5	81	15.6	25	40	1 3/8		
15	1770	254T	1093600-15-TRI-F1	1093600-15-TRI-F2	37.4	232	46.8	80	80	18.7	116	23.4	40	40	1 5/8		
20	1760	256T	1093600-20-TRI-F1	1093600-20-TRI-F2	48	290	60.0	100	100	24	145	30.0	50	40	1 5/8		
25	1775	284T	1093600-25-TRI-F1	1093600-25-TRI-F2	60	364	75.0	135	100	30	182	37.5	60	80	1 7/8		
30	1775	286T	1093600-30-TRI-F1	1093600-30-TRI-F2	71	434	88.8	150	200	35.5	217	44.4	70	80	1 7/8		
40	1780	324T	1093600-40-TRI-F1	1093600-40-TRI-F2	96	580	120.0	200	200	48	290	60.0	100	80	2 1/8		
50	1780	326T	1093600-50-TRI-F1	1093600-50-TRI-F2	120	724	150.0	250	200	60	362	75.0	125	100	2 1/8		
60	1780	364T	1093600-60-TRI-F1	1093600-60-TRI-F2	138	870	172.5	300	N/A	69	435	86.3	150	200	2 3/8		
75	1780	365T	1093600-75-TRI-F1	1093600-75-TRI-F2	N/A	N/A	N/A	N/A	N/A	86.5	542	108.1	175	200	2 3/8		
100	1790	405T	1093600-100-TRI-F1	1093600-100-TRI-F2	N/A	N/A	N/A	N/A	N/A	112	725	140.0	250	200	2 7/8		

* MOP - NOTE: MOP value is for circuit wiring protection only. Actual motor protection must not exceed 1.15 x FLA

575 Volt Models - Motor: Nema Premium Efficiency NEMA 12-12 3 phase TEFC (1800 RPM) Service Factor = 1.15

HP	RPM	FRAME	F1 Part #	F2 Part #	575V						BORE DIA.
					FLA	LRA	MCA	* MOP	DISCONNECT SWITCH SIZE AMPS		
1	1745	143T	1093600-1-575-F1	1093600-1-575-F2	1.2	12	1.5	15	40		7/8
1.5	1750	145T	1093600-1.5-575-F1	1093600-1.5-575-F2	1.9	16	2.4	15	40		7/8
2	1745	145T	1093600-2-575-F1	1093600-2-575-F2	2.4	20	3.0	15	40		7/8
3	1760	182T	1093600-3-575-F1	1093600-3-575-F2	3.2	26	4.0	15	40		1 1/8
5	1755	184T	1093600-5-575-F1	1093600-5-575-F2	5.4	37	6.8	15	40		1 1/8
7.5	1770	213T	1093600-7.5-575-F1	1093600-7.5-575-F2	7.7	50	9.6	15	40		1 3/8
10	1770	215T	1093600-10-575-F1	1093600-10-575-F2	10	65	12.5	20	40		1 3/8
15	1770	254T	1093600-15-575-F1	1093600-15-575-F2	15	93	18.8	30	40		1 5/8
20	1760	256T	1093600-20-575-F1	1093600-20-575-F2	19.2	116	24.0	40	40		1 5/8
25	1775	284T	1093600-25-575-F1	1093600-25-575-F2	24	146	30.0	50	40		1 7/8
30	1775	286T	1093600-30-575-F1	1093600-30-575-F2	28.5	174	35.6	60	80		1 7/8
40	1780	324T	1093600-40-575-F1	1093600-40-575-F2	38.4	232	48.0	80	80		2 1/8
50	1780	326T	1093600-50-575-F1	1093600-50-575-F2	48	290	60.0	100	80		2 1/8
60	1780	364T	1093600-60-575-F1	1093600-60-575-F2	56	348	70.0	125	100		2 3/8
75	1780	365T	1093600-75-575-F1	1093600-75-575-F2	69.4	434	86.8	150	200		2 3/8
100	1790	405T	1093600-100-575-F1	1093600-100-575-F2	90	580	112.5	200	200		2 7/8

* MOP - NOTE: MOP value is for circuit wiring protection only. Actual motor protection must not exceed 1.15 x FLA

**Maximum
Air Over Motor
Temperature:
140°F / 60°C**

230/460 Volt Models - Motor: General Purpose 3 phase TEFC (1800 RPM) Service Factor = 1.15

HP	RPM	FRAME	F1 Part #	230V					460V					BORE DIA.
				FLA	LRA	MCA	* MOP	DISCONNECT SWITCH SIZE AMPS	FLA	LRA	MCA	* MOP	DISCONNECT SWITCH SIZE AMPS	
1/3	1725	56HC	1096305-33-TRI-F1	1.7	8.6	2.2	15	40	0.8	4.3	1	15	40	5/8
1/2	1725	56HC	1096305-50-TRI-F1	2.2	12.4	2.8	15	40	1	6.2	1.3	15	40	5/8
3/4	1725	56HC	1096305-75-TRI-F1	3	19.6	3.8	15	40	1.4	9.8	1.8	15	40	5/8

* MOP - NOTE: MOP value is for circuit wiring protection only. Actual motor protection must not exceed 1.15 x FLA

575 Volt Models - Motor: General Purpose 3 phase TEFC (1800 RPM) Service Factor = 1.15

HP	RPM	FRAME	F1 Part #	575V					BORE DIA.
				FLA	LRA	MCA	MOP	DISCONNECT SWITCH SIZE AMPS	
1/3	1725	56HC	1096305-33-575-F1	0.6	3.6	0.8	15	40	5/8
1/2	1725	56HC	1096305-50-575-F1	0.8	4.9	1	15	40	5/8
3/4	1725	56HC	1096305-75-575-F1	1.1	7.8	1.4	15	40	5/8

* MOP - NOTE: MOP value is for circuit wiring protection only. Actual motor protection must not exceed 1.15 x FLA

ELECTRICAL DATA - 1 Phase / .33 to 2 HP Models**115/230 Volt Models - Motor: 1 phase TEFC w/ Manual Overload (1800 RPM) Service Factor = 1.15**

HP	RPM	FRAME	F1 (CH) Part #	115V					230V					BORE DIA.
				FLA	LRA	MCA	MOP	DISCONNECT SWITCH SIZE AMPS	FLA	LRA	MCA	MOP	DISCONNECT SWITCH SIZE AMPS	
1/3	1725	56HC	1096300-33-DL-F1	6.6	60	8.3	15	40	3.3	33	4.2	15	40	5/8
1/2	1725	56HC	1096300-50-DL-F1	8.8	84	11	15	40	4.2	40	5.3	15	40	5/8
3/4	1725	56HC	1096300-75-DL-F1	11	105	13.8	20	40	5.5	50	6.9	15	40	5/8
1	1725	56HC	1096300-1.0-DL-F1	13.6	125	17	30	40	6.8	65	8.5	15	40	5/8
1.5	1725	56HC	1096300-1.5-DL-F1	15.2	140	19	30	40	7.6	75	9.5	15	40	5/8
2	1725	56HC	1096300-2.0-DL-F1	20	180	25	45	40	11	95	13.8	20	40	5/8

**Maximum Air Over Motor Temperature:
140°F / 60°C**

BEFORE START UP CHECKS

- A. Check tightness on all bearing, sheave, and fan wheel set screws.
- B. If fan wheel set screws are loose, check to be sure wheel is not rubbing on housing.
- C. Leak test entire system to make sure all joints are tight.
- D. Ball bearings are pre-lubricated and do not need grease for start up.
- E. Rotate shaft by hand to be sure it is free.
- F. Check fan and motor for proper rotation and ensure motor overload protection is provided.
- G. Check alignment of fan and motor sheave and belt tension.

AFTER FIRST 48 HRS. OF OPERATION

- A. Check all points under BEFORE START UP CHECKS (above)
- B. Belts have acquired their permanent stretch. Readjust motor mount to take up slack in belts.

PERIODIC SERVICE & MAINTENANCE

- A. Check all moving parts for wear every six months.
- B. Check bearing collar set screws for tightness every six months.

BALL & SLEEVE BEARINGS**A. Ball Bearings**

1. Motor bearings - All ball bearings are pre-lubricated and do not require addition of grease at time of installation. However, periodic cleaning out and renewal of grease is necessary. Please note that extreme care must be exercised to prevent foreign matter from entering the bearing. It is also important to avoid over-greasing. Only a high grade, clean mineral grease having the following characteristics should be used.

a. Consistency a little stiffer than that of vaseline, maintained over the operating temperature range; melting point preferably over 302°F (150°C), freedom from separation of oil and soap under operating and storage conditions; and freedom from abrasive matter, acid, alkali and moisture.

b. Specific greasing instructions are to be found on a tag attached to the motor and should generally be adhered to.

BALL & SLEEVE BEARINGS (cont'd)

- 2. Fan Shaft Bearings - All ball bearings are pre-lubricated and do not require addition of grease at time of installation. However, periodic cleaning out and renewal of grease is necessary. Internal bearings are accessible through access panel in cabinet. Units that are equipped with extended lube lines will have grease fittings for internal bearings on drive end panel of blower section. Apply grease while bearings are running, adding slowly until a slight bleeding of grease from the seals is noted. For greasing units with extended lube lines, remove access door so bearing can be viewed when greasing.

DO NOT OVER LUBRICATE

The lubrication interval varies with the period of operation and temperature of the ambient air. The following interval is recommended using Mobilgrease XHP 222 or equivalent:

Temperature Range (°F)	Continuous Operation	12 Hr./Day Operation
60 - 80	2 years	4 years
81 - 100	1 1/2 years	3 years
101 - 120	1 year	2 years
121 - 140	3/4 year	1 1/4 years

REPLACEMENT PARTS

When replacement parts are required, furnish factory with unit model number and serial number as shown on serial plate on drive end of blower section.

WINTERIZING WATER COILS

Due to air stratification, failure of outdoor air dampers and/or preheat controls, coil freeze up can occur. Routine draining of water cooling coils for winter shutdown cannot be depended on as insurance against freeze-up resulting in severe coil damage. It is recommended that all coils be drained as thoroughly as possible and then treated in the following manner:

Fill each coil independently with an anti-freeze solution using a small circulating pump and again thoroughly drain. Check freezing point of anti-freeze before proceeding to next coil. Due to a small amount of water always remaining in each coil there will be a diluting effect. The small amount of antifreeze solution remaining in coil must always be potent enough to prevent freeze up. Warning: Carefully read instructions for mixing anti-freeze solution used. Some products will have a higher freezing point in its natural state than when mixed with water.

TA*

APPROXIMATE NET WEIGHTS (without Motor)

60Hz

DESCRIPTION	UNIT SIZE													
	103	104	106	108	111	114	117	122	128	137	141	150	164	182
FAN HEAD														
SINGLE WALL - not insulated	360	475	589	646	908	948	973	1156	1590	1650	1801	2059	2532	3162
DOUBLE WALL - insulated	412	530	652	788	1108	1154	1280	1529	2045	2167	2288	2631	3223	4023
COOLING COIL - DOUBLE WALL INSULATED (less coil)														
HORIZONTAL	233	322	391	395	506	572	622	673	717	922	1141	1188	1461	1798
VERTICAL	409	510	616	623	773	819	975	1275	1685	N/A	N/A	N/A	N/A	N/A
HEATING COIL - DOUBLE WALL INSULATED (less coil)														
8 ROW	248	277	284	289	383	449	515	581	614	697	760	792	974	1192
COOLING COILS ALUMINUM FINS														
3 ROWS	55	78	113	148	202	243	305	375	471	658	727	862	1195	1579
4 ROWS	69	97	138	186	250	307	390	478	595	876	922	1096	1526	1983
5 ROWS	81	116	169	227	305	374	478	585	727	1040	1126	1344	1843	2524
6 ROWS	91	136	198	266	361	439	563	691	857	1211	1331	1587	2160	2937
8 ROWS	125	174	258	349	471	576	736	896	1117	1561	1792	2063	2810	3821
10 ROWS	141	215	324	426	582	708	903	1111	1436	1920	2150	2546	3430	4630
COMBINATION ANGLE FILTER MIXING BOX	273	316	388	437	564	690	816	900	1145	1231	1523	1585	1950	2400
FLAT FILTER SECTION (BOLT ON)	39	49	62	86	118	140	161	189	232	278	303	342	416	520
FLAT FILTER SECTION	140	162	198	237	306	375	443	501	615	685	719	900	937	1153
ANGULAR FILTER SECTION	N/A	N/A	N/A	N/A	N/A	507	600	674	828	899	1113	1159	1426	1755
MIXING BOX	225	261	321	348	448	549	650	726	922	1018	1260	1312	1614	1986
INTERNAL FACE & BYPASS SECTION	N/A	N/A	N/A	N/A	N/A	491	581	635	790	879	1088	1132	1392	1713
EXTERNAL FACE & BYPASS SECTION	N/A	N/A	N/A	N/A	365	447	528	589	752	839	1038	1081	1330	1639
ACCESS SECTION - 30" (ins.)	208	237	293	298	351	449	458	516	586	645	789	821	1010	1243
INLET HOOD	65	75	102	108	174	182	200	240	339	387	583	685	924	1028
OUTDOOR ROOF SECTION	30	38	47	57	84	99	117	135	162	177	189	205	243	327

APPROXIMATE MOTOR WEIGHTS

Motor: Premium Efficiency NEMA 12-11 3 phase TEFC (1800 RPM)

HP	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
Weight	47	55	56	97	112	150	167	297	315	392	418	519	594	766	783	1058

Motor: General Purpose 3 phase TEFC

HP	1/3	1/2	3/4
WEIGHT	22	24	25

Motor: 1 phase TEFC w/ Manual Overload

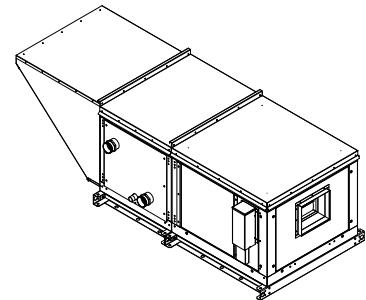
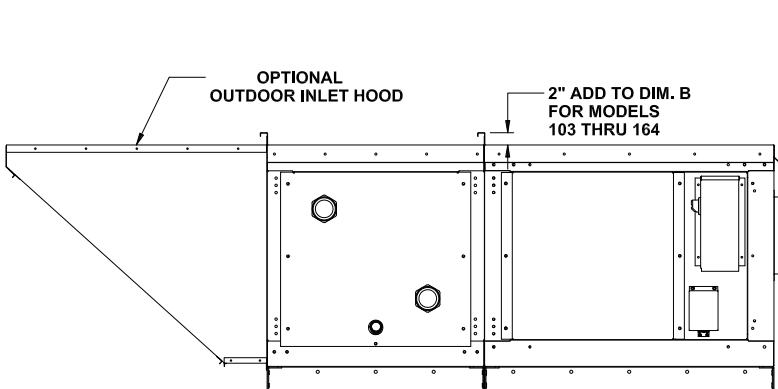
HP	1/3	1/2	3/4	1	1.5	2
WEIGHT	24	26	30	33	41	51

TA*

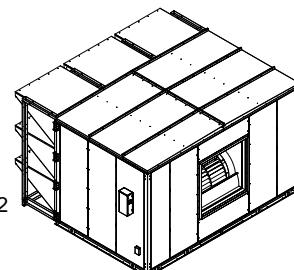
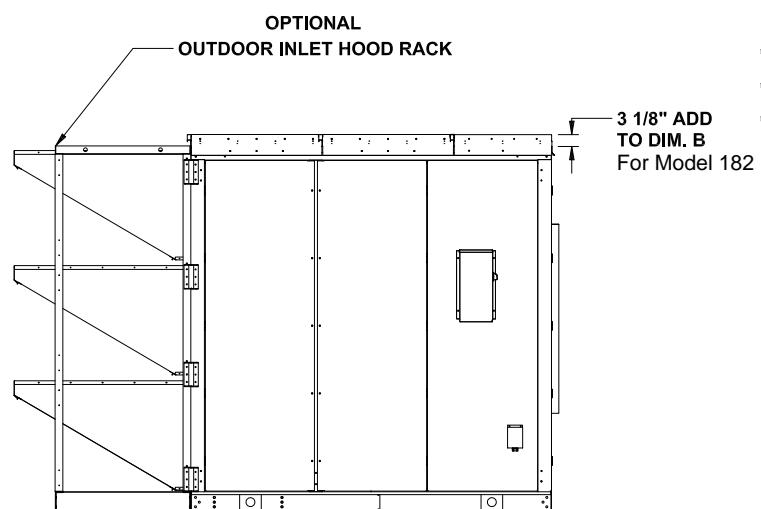
OUTDOOR UNITS (ROOF SECTION HEIGHT)

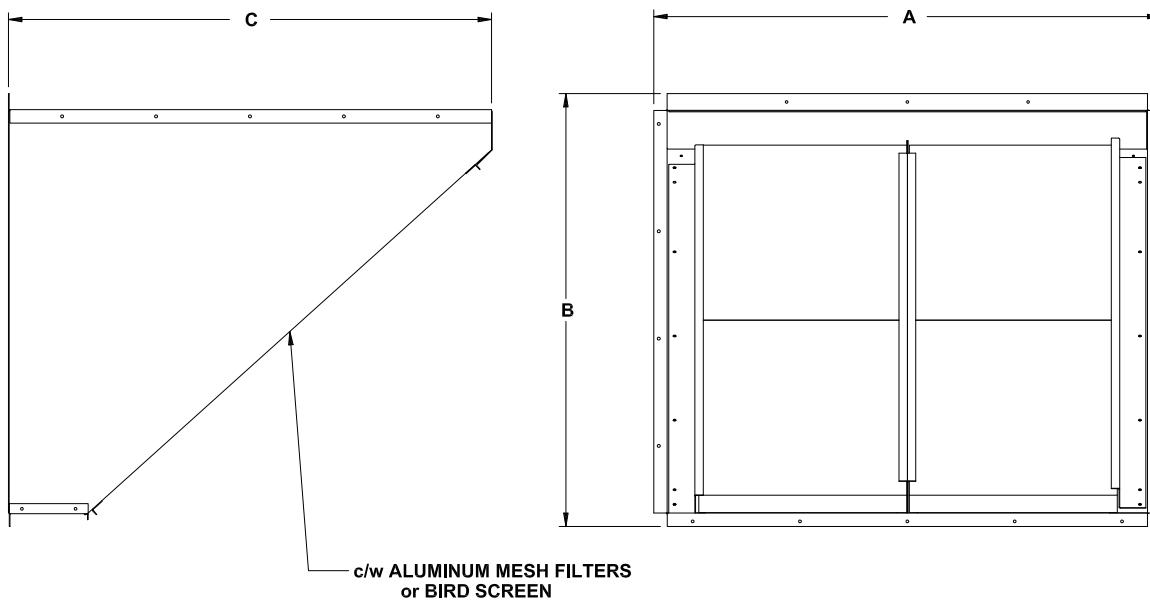
60Hz

Models 103 through 137



Models 141 through 182



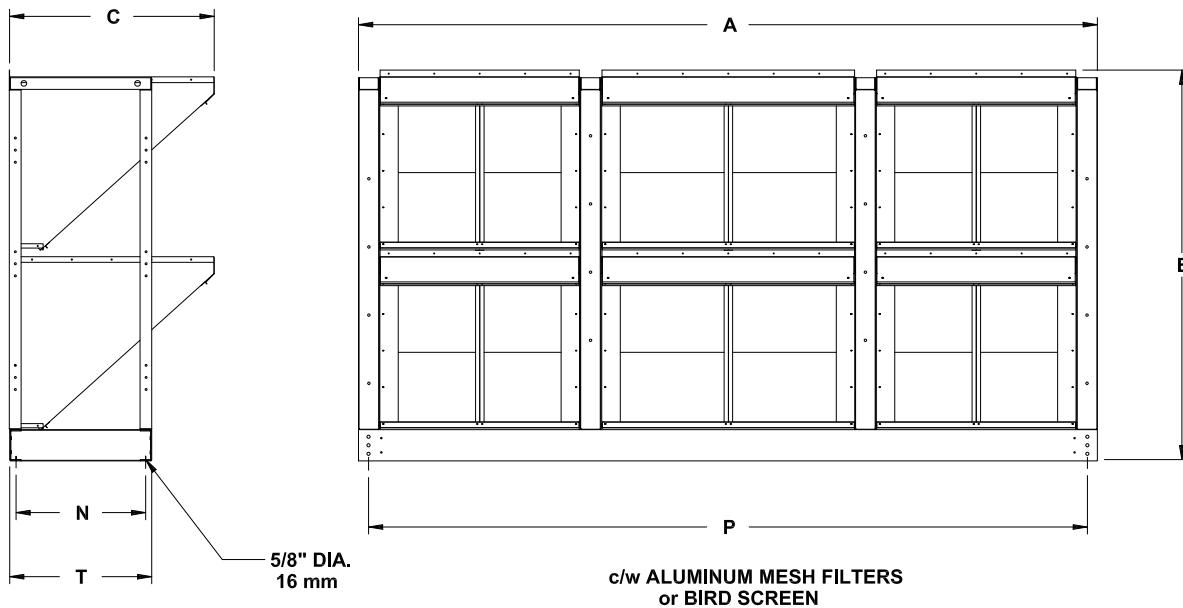
TA***DIMENSIONAL DATA -
OUTDOOR INLET HOOD****60Hz****DIMENSIONS - IMPERIAL (inches)**

UNIT SIZE	A	B	C	FILTER SIZE	FILTER AREA SQ.FT.
103	37 3/4	32 1/4	36	(4) - 16 X 20 X 2	8.89
104	43 3/4	35 1/4	40	(2) - 20 X 20 X 2 & (2) - 20 X 25 X 2	12.5
106	53 3/4	38 1/4	44 1/2	(6) - 16 X 25 X 2	16.67
108	51 3/4	45 1/4	44 1/2	(6) - 16 X 25 X 2	16.67
111	66	45 1/4	48	(8) - 16 X 25 X 2	22.22
114	79	45 1/4	48	(8) - 20 X 25 X 2	27.78
117	94	45 1/4	48	(4) - 20 X 25 X 2 & (4) 25 X 25 X 2	32.25
122	100	51 1/4	52	(8) 25 x 25 x 2	34.72
128	120	54 1/4	54	(24) 16 X 20 X 2	53.33
137	128	58	60	(24) 16 X 20 X 2	53.33

NOTE: All dimensions are approximate. Certified drawings available on request.

TA*

DIMENSIONAL DATA - OUTDOOR INLET HOOD RACK

60Hz

DIMENSIONS - IMPERIAL (inches)

UNIT SIZE	A	B	C	N	P	T	FILTER SIZE	FILTER AREA SQ.FT.
141	130	68 3/4	36	23	126 3/8	25	(16) 16 X 20 X 2 & (8) 20 X 20 X 2	58
150	130	80 1/2	45	34	126 3/8	36	(8) 16 X 25 X 2 & (16) 20 X 25 X 2	78
164	130	97 1/2	47	34	126 3/8	36	(24) 16X25X2 & (6) 20X25X2 & (6) 25X25X2	114
182	160	97 1/2	47	34	156 3/8	36	(12) 20 X 25 X 2 & (24) 25 X 25 X 2	146

NOTE: All dimensions are approximate. Certified drawings available on request.

TA*

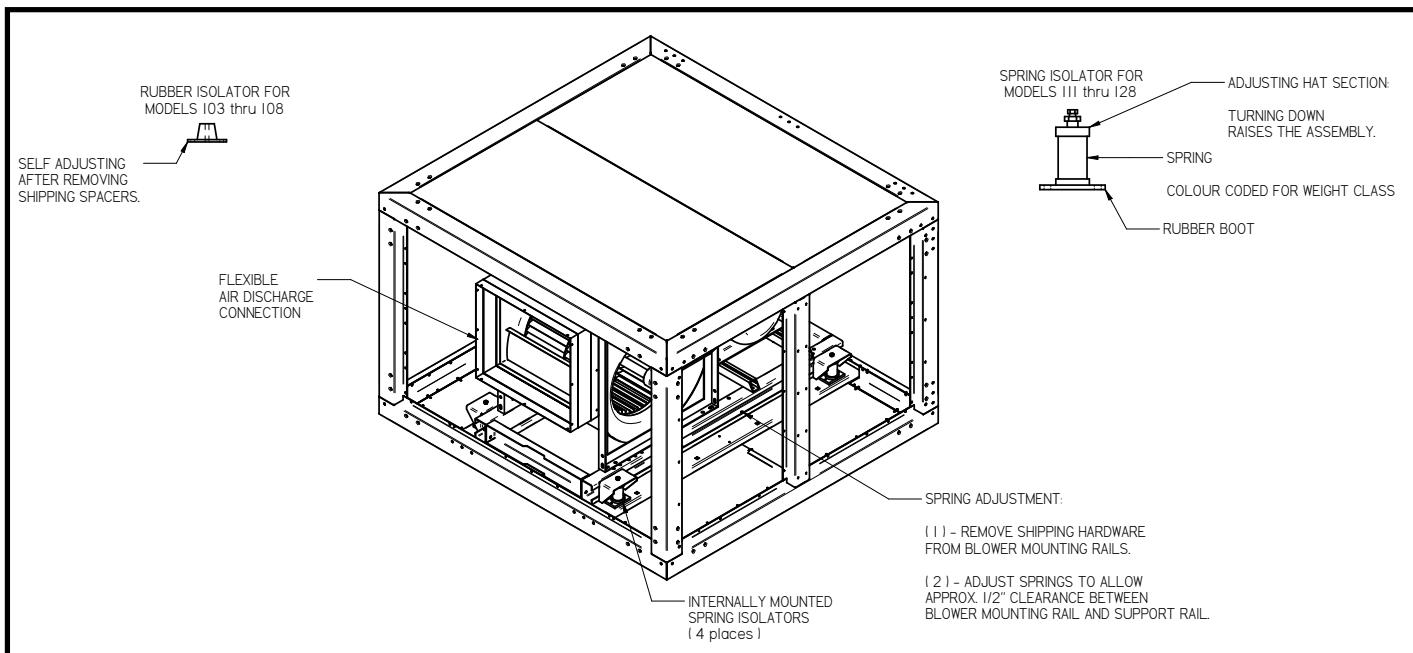
OPTIONAL INTERNAL SPRING ISOLATORS

60Hz

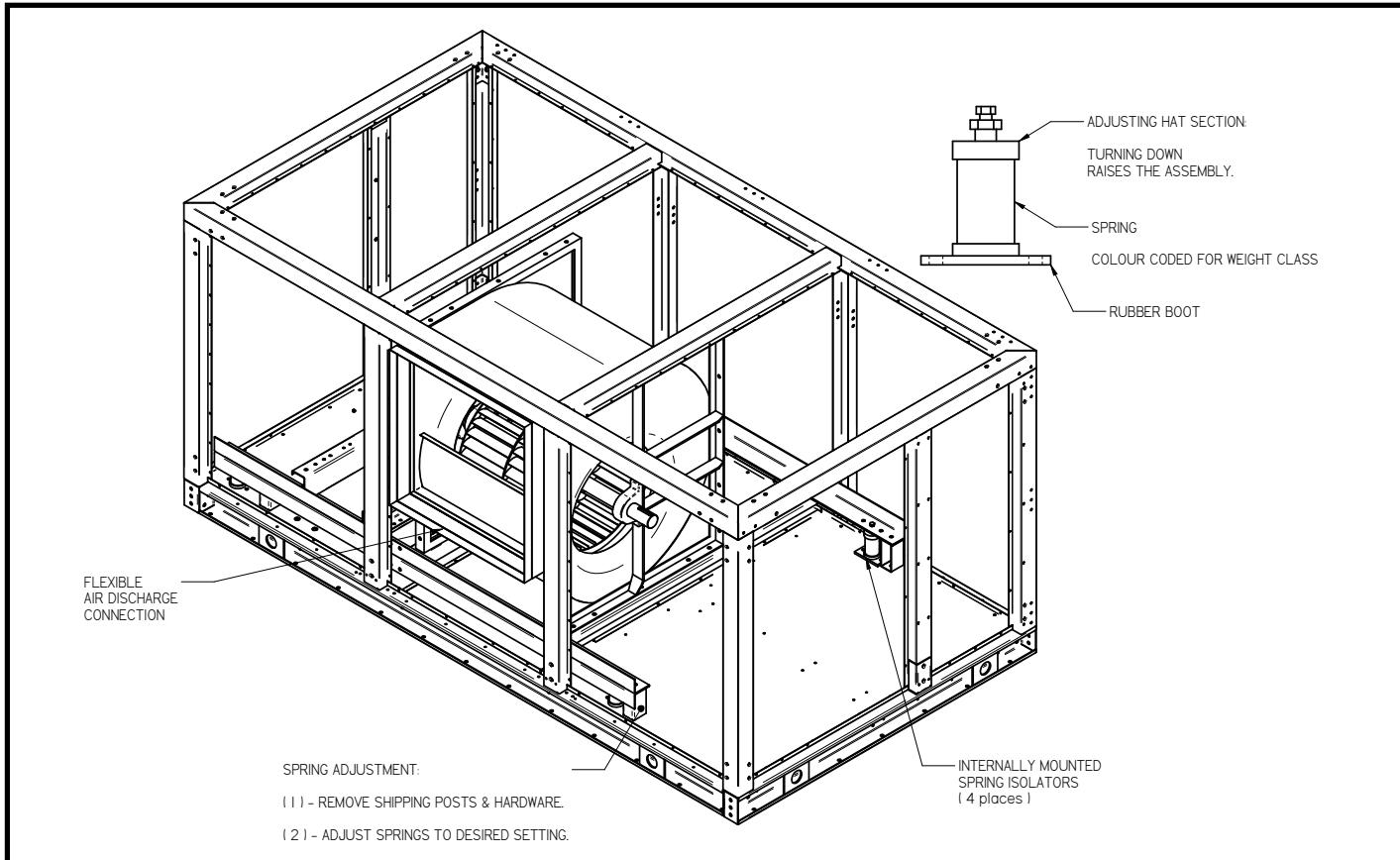
CONSULT FACTORY FOR PROPER SPRING SELECTION

AF FAN HEAD: Models AF103 - AF128

Note: Rubber isolator style used on Models 103 through 108

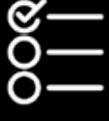


AF FAN HEAD: Models AF137 - AF182



TA***PROJECT INFORMATION****60Hz**

System	
Model Number	Date of Start-Up
Serial Number	Service Contractor
Refrigerant	Phone
Electrical Supply	Email

 PRODUCT SUPPORT	<p><i>web:</i> www.t-rp.com/tah <i>email:</i> ahu@t-rp.com <i>call:</i> 1-844-893-3222 x527</p>
 TROUBLESHOOTING	<p><i>email:</i> troubleshooting@t-rp.com <i>call:</i> 1-844-893-3222 x529</p>
 SERVICE PARTS	<p><i>web:</i> www.t-rp.com/parts <i>email:</i> parts@t-rp.com <i>call:</i> 1-844-893-3222 x504</p>
 WARRANTY	<p><i>web:</i> www.t-rp.com/warranty <i>email:</i> warranty@t-rp.com <i>call:</i> 1-844-893-3222 x507</p>
 ORDERS	<p><i>email:</i> orders@t-rp.com <i>call:</i> 1-844-893-3222 x501</p>
 SHIPPING	<p><i>email:</i> shipping@t-rp.com <i>call:</i> 1-844-893-3222 x503</p>

“AS BUILT” SERVICE PARTS LIST

Service Parts List
Label
To Be Attached
HERE



Trenton Refrigeration
Brantford, ON • Longview, TX
1-800-463-9517 info@t-rp.com www.t-rp.com

