



KAB Centrifugal Fan Air Cooled Condensers

PRODUCT DATA & INSTALLATION

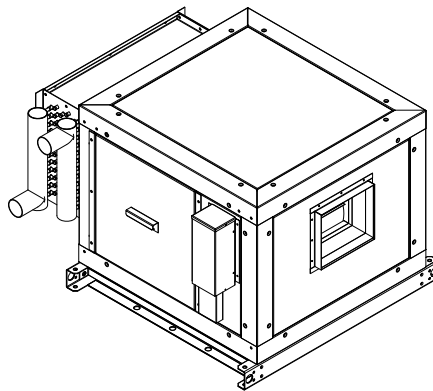
Bulletin K80-KAB-PDI-7e
Part # 1097721

Air Cooled Models
from 103 thru 182



40 to 115 Tons

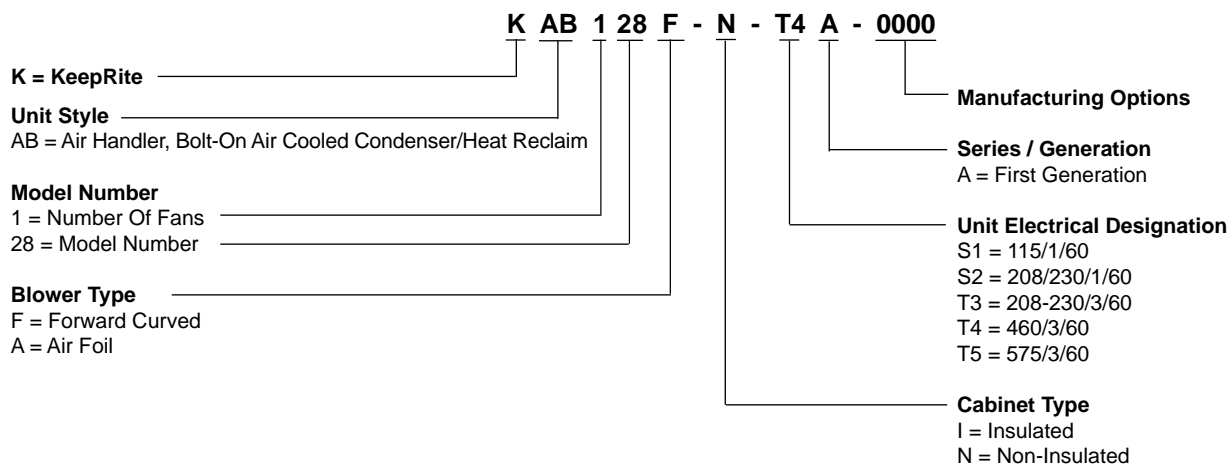
| | | |
|--|---|-------|
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NOMENCLATURE



STANDARD FEATURES

- **Indoor Applications Only** ● Large Face Area Centrifugal Fan
 - “Bolt-On” Coil for Maximum Capacity in Minimum Space
 - Single Wall Heavy Gauge Galvanized Cabinet
- Full Size Access Doors for Easy Maintenance ● Efficient Forward Curved Blower
 - 14 Models ● Up to 6” Total Static Pressure
 - Up to 55,000 CFM ● Internal Motor ● Up to 50 HP
 - Horizontal and Vertical Air Discharge
 - External Electrical Box Mounted to Cabinet
 - Extended Grease Lines with External Access

AVAILABLE OPTIONS (Factory Mounted)

- Double Wall Cabinet with 2” mineral wool Insulation
 - Internal Vibration Isolators
- Airfoil (Up to 8” Total Static Pressure)
 - Disconnect Switch ● Flat Filter
 - Angle Filters

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

| MODEL KAB | TOTAL HEAT OF REJECTION - MBH (KW) PER 1 °F (0.56 °C) TD | | | | | | | | MAX. NO. OF FEEDS | | |
|--------------|--|---------|-------|---------|-------|---------|-------|---------|-------------------------|---------|----|
| | R407A | R448A | R407C | R404A | R507 | R22 | R410A | R134a | | | |
| 103 | 1.68 | (0.49) | 1.66 | (0.49) | 1.75 | (0.51) | 1.79 | (0.52) | 1.70 | (0.50) | 12 |
| 104 | 2.54 | (0.75) | 2.52 | (0.74) | 2.65 | (0.78) | 2.70 | (0.79) | 2.57 | (0.75) | 14 |
| 106 | 3.63 | (1.06) | 3.59 | (1.05) | 3.78 | (1.11) | 3.86 | (1.13) | 3.67 | (1.07) | 16 |
| 108 | 4.84 | (1.42) | 4.79 | (1.40) | 5.04 | (1.48) | 5.14 | (1.51) | 4.89 | (1.43) | 22 |
| 111 | 6.45 | (1.89) | 6.38 | (1.87) | 6.72 | (1.97) | 6.85 | (2.01) | 6.52 | (1.91) | 22 |
| 114 | 8.25 | (2.42) | 8.16 | (2.39) | 8.59 | (2.52) | 8.76 | (2.57) | 8.33 | (2.44) | 22 |
| 117 | 9.78 | (2.87) | 9.68 | (2.84) | 10.19 | (2.99) | 10.39 | (3.05) | 9.88 | (2.90) | 22 |
| 122 | 12.13 | (3.56) | 12.01 | (3.52) | 12.64 | (3.70) | 12.89 | (3.78) | 12.26 | (3.59) | 26 |
| 128 | 15.24 | (4.46) | 15.08 | (4.42) | 15.87 | (4.65) | 16.19 | (4.74) | 15.39 | (4.51) | 26 |
| 137 | 19.99 | (5.86) | 19.78 | (5.80) | 20.82 | (6.10) | 21.24 | (6.22) | 20.20 | (5.92) | 34 |
| 141 | 23.46 | (6.87) | 23.22 | (6.80) | 24.44 | (7.16) | 24.93 | (7.30) | 23.71 | (6.95) | 40 |
| 150 | 26.99 | (7.91) | 26.70 | (7.82) | 28.11 | (8.24) | 28.67 | (8.40) | 27.27 | (7.99) | 46 |
| 164 | 34.06 | (9.98) | 33.71 | (9.88) | 35.48 | (10.40) | 36.19 | (10.60) | 34.42 | (10.08) | 58 |
| 182 | 44.26 | (12.97) | 43.80 | (12.83) | 46.10 | (13.51) | 47.02 | (13.78) | 44.72 | (13.10) | 58 |

NOTES:

- Capacity based on 12 FPI, 6 Rows and 1/2" O.D. tubes.
- Above capacity data based on 0°F subcooling and at sea level.
- For High Altitude applications apply the following correction factors: 0.94 for 2000 feet, 0.88 for 4000 feet and 0.81 for 6000 feet.
- Capacities at other TD within a range of 10 to 30 °F (5.6 to 16.7°C) are directly proportional to TD, or use formula: Capacity = Rated capacity x TD.
- For 50 HZ capacity multiply by 0.92
- Capacities for R448A, R407A and R407C are based on mean temperature. Mean temperature is the average temperature between the saturated condensing temperatures at the inlet and outlet of the condenser. For dew point ratings, consult factory.
- For R449A, use R448A data.

MULTIPLE CIRCUIT CONNECTION SIZES

Table 3

| NET TONS | | 3 - 9 † | 9.5 - 12 | 12.5 - 16 | 16.5 - 22 | 22.5 - 34 | 34.5 - 42 | 42.5 - 52 | 52.5 - 68 | 68.5 - 77 | 77.5 - 95 |
|---------------|--------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HOT GAS INLET | inches | 1 1/8 | 1 3/8 | 1 3/8 | 1 5/8 | 2 1/8 | 2 1/8 | 2 5/8 | 2 5/8 | 3 1/8 | 3 1/8 |
| LIQUID OUTLET | inches | 7/8 | 7/8 | 1 1/8 | 1 1/8 | 1 3/8 | 1 5/8 | 1 5/8 | 2 1/8 | 2 1/8 | 2 5/8 |

† - On a circuit that uses only 1 face tube, a connection tube will be provided instead of a header.
When used as a desuperheater, the inlet and outlet connections will be the same and based on Hot Gas sizing.

The selection of an air cooled condenser is based on the heat rejection capacity at the condenser rather than net refrigeration effect at the evaporator because the refrigerant gas absorbs additional energy in the compressor. This additional energy, the heat of compression, varies appreciably with the operating conditions of the system and with compressor design, whether open or suction cooled hermetic type.

Some compressor manufacturers publish heat rejection figures as part of their compressor ratings. Since heat rejection varies with compressor design, it is recommended that the compressor manufacturer's data be used whenever available in selecting an air cooled condenser.

If the compressor manufacturer does not publish heat rejection ratings, factors from Table Nos. 4 and 5 may be used to estimate total heat rejection- THR.

For systems outside the normal limits of single stage compressor application, (such as compound or cascade refrigeration systems) the following formulas may be used to arrive at the heat rejection requirements for selection of the condenser:

Open Compressors

$$THR = \text{Compressor Capacity (BTUH)} + 2545 \times \text{BHP}$$

Suction Cooled Hermetic Compressors

$$THR = \text{Compressor Capacity (BTUH)} + 3413 \times \text{KW}$$

HEAT REJECTION FACTORS

CONDENSER LOAD = COMPRESSOR CAPACITY X FACTOR

**TABLE 4:
OPEN COMPRESSORS**

| EVAP. TEMP | | CONDENSING TEMPERATURE - °F (°C) | | | | | |
|------------|-----|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| °F | °C | 90 (32) | 100 (38) | 110 (43) | 120 (49) | 130 (54) | 170 (60) |
| -30 | -34 | 1.37 | 1.42 | 1.47 | - | - | - |
| -20 | -29 | 1.33 | 1.37 | 1.42 | 1.47 | - | - |
| -10 | -23 | 1.28 | 1.32 | 1.37 | 1.42 | 1.47 | - |
| 0 | -18 | 1.24 | 1.28 | 1.32 | 1.37 | 1.41 | 1.47 |
| 10 | -12 | 1.21 | 1.24 | 1.28 | 1.32 | 1.36 | 1.42 |
| 20 | -7 | 1.17 | 1.2 | 1.24 | 1.28 | 1.32 | 1.37 |
| 30 | -1 | 1.14 | 1.17 | 1.2 | 1.24 | 1.27 | 1.32 |
| 40 | 4 | 1.12 | 1.15 | 1.17 | 1.2 | 1.23 | 1.28 |
| 50 | 10 | 1.09 | 1.12 | 1.14 | 1.17 | 1.2 | 1.24 |

**TABLE 5:
SUCTION COOLED HERMETIC COMPRESSORS**

| EVAP. TEMP | | CONDENSING TEMPERATURE - °F (°C) | | | | | |
|------------|-----|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| °F | °C | 90 (32) | 100 (38) | 110 (43) | 120 (49) | 130 (54) | 170 (60) |
| -30 | -34 | 1.57 | 1.62 | 1.68 | - | - | - |
| -20 | -29 | 1.49 | 1.53 | 1.58 | 1.65 | - | - |
| -10 | -23 | 1.42 | 1.46 | 1.50 | 1.57 | 1.64 | - |
| 0 | -18 | 1.36 | 1.40 | 1.44 | 1.50 | 1.56 | 1.62 |
| 10 | -12 | 1.31 | 1.34 | 1.38 | 1.43 | 1.49 | 1.55 |
| 20 | -7 | 1.26 | 1.29 | 1.33 | 1.37 | 1.43 | 1.49 |
| 30 | -1 | 1.22 | 1.25 | 1.28 | 1.32 | 1.37 | 1.42 |
| 40 | 4 | 1.18 | 1.21 | 1.24 | 1.27 | 1.31 | 1.35 |
| 50 | 10 | 1.14 | 1.17 | 1.20 | 1.23 | 1.26 | 1.29 |

SELECTION EXAMPLE

GIVEN:

- Compressor Capacity: 310,000 Btuh
- Evaporator Temperature: 30°F.
- Refrigerant: R404A
- Ambient Air: 95°F.
- Maximum Condensing Temp.: 110°F.
- Suction Cooled Hermetic Compressor

PROCEDURE:

(1) Assuming the compressor manufacturer's heat rejection data is not available, determine the heat rejection factors for the specified conditions from Table No. 5 above (1.28).

(2) Multiply the compressor capacity by the heat rejection factor to estimate the required condenser capacity.

(3) Since R404A is specified, select the proper condenser from Capacity Data tables (page 3) based on the specified difference between condensing refrigerant and the ambient air (T.D.).

SELECTION:

Using the heat rejection factor from Table No. 5 above, the required condenser capacity is:

$$1.28 \times 310,000 = 396,800 \text{ Btuh}$$

From Capacity Data tables (page 3) for the specified T.D. of 15°F the proper selection is the Model AB 150 with a capacity of 421,650 Btuh. In this instance the condenser is slightly oversized and the condenser will balance the compressor heat rejection at less than the maximum condensing temperature of 110°F.

Multi circuit condenser coils are available for applications where more than one compressor is used, either on the same system or separate systems.

Multi circuit condensers are factory circuited to meet the specified capacities.

The fan on a multi circuited unit should remain operative as long as a condensing requirement exists on any circuit of the coil.

SELECTION EXAMPLE

GIVEN:

Six hermetic compressors with capacities and evaporator temperatures (tabulated below).

Refrigerant: R404A
 Ambient Air Temperature 90°F.
 Maximum Condensing Temp.: 110°F.

PROCEDURE:

1. Tabulate the compressor capacities, evaporator temperatures and heat rejection factors for each compressor. (See Sample Tabulation, below.)
2. Determine the required heat rejection capacity for each compressor.
3. Total the sectional heat rejection capacities for the six compressors.

SELECTION:

Based on the total heat rejection capacity for the six compressors of 186,160 BTUH, it can be seen from Table No. 2 that the smallest unit which will meet this requirement is the Model AB 117 with 203,800 BTUH at 20 °F. T.D. Table No. 2 lists the heat rejection capacity per “face tube” at various T.D.’s.

At 20 °F. T.D., the AB 117 has a capacity of 9260 Btuh per “face tube”. To determine the required number of face tubes for each section, divide the required sectional capacity by the capacity per “face tube”. For example, compressor No. 1 requires 18,000 : 9260 = 2 “face tubes”. Section No. 1 should be circuited with 2 “face tubes” for Compressor No. 1. Following this same procedure will determine the size of each section for the remaining compressors.

The sample tabulation shows the results of this selection and indicates that 22 “face tubes” are required when using the Model AB 117. Since the Model AB 117 has 22 “face tubes” available, the selection has been satisfied. If the total required number of “face tubes” exceeds the number of “face tubes” available as listed in Table No. 2 it will be necessary to permit a slightly higher condensing temperature than planned for one or two of the sections. A second alternative would be to select the next larger size condenser.

SAMPLE TABULATION

| No. of COMPRESSOR | COMPRESSOR CAPACITY (BTUH) | EVAPORATOR TEMPERATURE | | HEAT REJECTION FACTOR | REQUIRED CONDENSER CAPACITY (BTUH) | REQUIRED NUMBER OF FACE TUBES |
|-------------------|----------------------------|------------------------|-----|-----------------------|------------------------------------|-------------------------------|
| | | °F | °C | | | |
| 1 | 13500 | +20 | -7 | 1.37 | 18000 | 2 |
| 2 | 10000 | -15 | -23 | 1.57 | 17440 | 2 |
| 3 | 36000 | +15 | -9 | 1.40 | 51400 | 6 |
| 4 | 11000 | +20 | -7 | 1.37 | 15070 | 2 |
| 5 | 31000 | -10 | -23 | 1.57 | 50000 | 6 |
| 6 | 25000 | +20 | -7 | 1.37 | <u>34250</u> | <u>4</u> |
| total: | | | | | 186160 | 22 |

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).

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 Blower Data table (see page 4) which tabulates the resistance values for the various unit components in increments of air volume. For the internal resistances as shown in Blower Data table (see page 4). The resistances of the cooling coil must be added. These may be obtained from the charts on page 4. 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 Blower Data Tables. (page 9)

FAN PERFORMANCE INFORMATION

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

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 _____. 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. (page 8)
4. Multiply the BHP by the conversion factor to obtain the BHP required at the specified altitude and temperature.

EXAMPLE OF SELECTION PROCEDURE

AB111 with 5000 CFM @ 1.0" total static pressure, 20°F air temp, 5000 feet elevation:

1. Conversion factor = 0.92
2. New TSP = 1.0" / 0.92 = 1.09"
3. 1.09" = 586 RPM and 1.35 BHP
4. New BHP = 1.35 x 0.92 = 1.24

Selection = 5000 CFM @ 586 RPM and 1.24 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 |

BLOWER DATA
(Based on DUCTED OUTLET)

Fan RPM and Motor HP Requirements

| MODEL KAB | NOMINAL CFM | STANDARD - 6 ROW COIL ONLY | | TOTAL STATIC PRESSURE (Inches - Water Gauge) (Includes Coil, Ductwork etc.) | | | | | | | | | | | | CABINET SP (In. W.G) |
|--------------|----------------|-------------------------------|-------|--|------|------|------|------|------|------|------|------|------|------|------|-------------------------|
| | | 0.55 + CABINET SP | | 0.75 | | 1.00 | | 1.50 | | 2.00 | | 2.5 | | 3.0 | | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | |
| 103 | 2000 | 991 | 0.62 | 1035 | 0.66 | 1134 | 0.75 | 1314 | 0.93 | 1480 | 1.12 | 1640 | 1.33 | 1794 | 1.56 | 0.1 |
| 104 | 3150 | 959 | 1.24 | 981 | 1.28 | 1050 | 1.4 | 1191 | 1.64 | 1328 | 1.9 | 1461 | 2.19 | 1590 | 2.5 | 0.13 |
| 106 | 4500 | 832 | 1.76 | 854 | 1.82 | 931 | 2.03 | 1072 | 2.45 | 1198 | 2.87 | 1313 | 3.31 | 1422 | 3.76 | 0.13 |
| 108 | 6000 | 647 | 2.12 | 658 | 2.16 | 713 | 2.41 | 823 | 2.9 | 928 | 3.42 | 1030 | 3.99 | 1129 | 4.62 | 0.16 |
| 111 | 8000 | 539 | 2.32 | 564 | 2.47 | 617 | 2.83 | 714 | 3.55 | 805 | 4.3 | 891 | 5.08 | 975 | 5.9 | 0.09 |
| 114 | 10000 | 606 | 3.9 | 629 | 4.09 | 675 | 4.53 | 760 | 5.41 | 840 | 6.31 | 915 | 7.23 | 988 | 8.17 | 0.09 |
| 117 | 12000 | 677 | 6.19 | 699 | 6.41 | 742 | 6.91 | 819 | 7.95 | 891 | 9.01 | 958 | 10.1 | 1023 | 11.2 | 0.08 |
| 122 | 15000 | 562 | 6.61 | 574 | 6.8 | 612 | 7.41 | 685 | 8.75 | 755 | 10.2 | 823 | 11.7 | 890 | 13.2 | 0.12 |
| 128 | 19000 | 482 | 8.17 | 500 | 8.62 | 532 | 9.5 | 594 | 11.3 | 655 | 13.1 | 715 | 15 | 773 | 16.9 | 0.07 |
| 137 | 23000 | 413 | 9.46 | 428 | 9.91 | 458 | 11 | 517 | 13.2 | 572 | 15.4 | 625 | 17.6 | 678 | 19.9 | 0.09 |
| 141 | 29000 | 373 | 11.99 | 380 | 12.3 | 407 | 13.6 | 459 | 16.3 | 508 | 19.1 | 556 | 22 | 603 | 24.9 | 0.14 |
| 150 | 34000 | 329 | 14.05 | 333 | 14.2 | 357 | 15.3 | 405 | 18.1 | 451 | 21.2 | 493 | 24.5 | 534 | 27.9 | 0.17 |
| 164 | 42000 | 293 | 15.98 | 292 | 15.8 | 316 | 17.9 | 360 | 22 | 400 | 26 | 438 | 30.1 | 474 | 34.2 | 0.22 |
| 182 | 55000 | 269 | 21.1 | 272 | 21.4 | 291 | 24 | 328 | 29.2 | 364 | 34.4 | 399 | 39.6 | 434 | 45.1 | 0.17 |

BLOWER DATA
(Based on FREE OUTLET)

| MODEL KAB | NOMINAL CFM | STANDARD - 6 ROW COIL ONLY | | TOTAL STATIC PRESSURE (Inches - Water Gauge) (Includes Coil, no discharge duct work) | | | | | | | | | | | | CABINET SP (In. W.G) |
|--------------|----------------|-------------------------------|-------|---|-------|------|-------|------|-------|------|-------|------|-------|------|-------|-------------------------|
| | | 0.55 + CABINET SP | | 0.75 | | 1.00 | | 1.50 | | 2.00 | | 2.5 | | 3.0 | | |
| | | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | RPM | BHP | |
| 103 | 2000 | 1108 | 0.72 | 1142 | 0.76 | 1225 | 0.84 | 1384 | 1.01 | 1537 | 1.19 | 1687 | 1.4 | 1835 | 1.63 | 0.1 |
| 104 | 3150 | 1097 | 1.48 | 1114 | 1.51 | 1175 | 1.62 | 1298 | 1.85 | 1421 | 2.1 | 1541 | 2.38 | 1660 | 2.7 | 0.13 |
| 106 | 4500 | 978 | 2.17 | 995 | 2.22 | 1054 | 2.41 | 1169 | 2.78 | 1277 | 3.17 | 1380 | 3.59 | 1479 | 4.02 | 0.13 |
| 108 | 6000 | 735 | 2.51 | 743 | 2.55 | 791 | 2.76 | 887 | 3.22 | 982 | 3.72 | 1076 | 4.29 | 1167 | 4.9 | 0.16 |
| 111 | 8000 | 611 | 2.79 | 630 | 2.93 | 674 | 3.25 | 759 | 3.93 | 842 | 4.64 | 923 | 5.39 | 1001 | 6.18 | 0.09 |
| 114 | 10000 | 711 | 4.9 | 727 | 5.06 | 763 | 5.45 | 834 | 6.25 | 903 | 7.08 | 970 | 7.94 | 1036 | 8.83 | 0.09 |
| 117 | 12000 | 818 | 7.94 | 833 | 8.15 | 863 | 8.61 | 923 | 9.53 | 982 | 10.49 | 1040 | 11.47 | 1097 | 12.48 | 0.08 |
| 122 | 15000 | 659 | 8.26 | 669 | 8.44 | 700 | 9.04 | 761 | 10.31 | 822 | 11.66 | 882 | 13.07 | 942 | 14.53 | 0.12 |
| 128 | 19000 | 567 | 10.52 | 581 | 10.91 | 607 | 11.69 | 660 | 13.3 | 713 | 14.97 | 767 | 16.71 | 820 | 18.53 | 0.07 |
| 137 | 23000 | 486 | 12.02 | 497 | 12.43 | 522 | 13.39 | 570 | 15.35 | 618 | 17.35 | 666 | 19.42 | 714 | 21.54 | 0.09 |
| 141 | 29000 | 436 | 15.02 | 441 | 15.3 | 463 | 16.5 | 506 | 18.99 | 550 | 21.57 | 593 | 24.24 | 635 | 26.98 | 0.14 |
| 150 | 34000 | 384 | 16.78 | 386 | 16.92 | 406 | 18.18 | 446 | 20.91 | 486 | 23.86 | 524 | 26.99 | 561 | 30.27 | 0.17 |
| 164 | 42000 | 336 | 19.73 | 334 | 19.59 | 353 | 21.37 | 389 | 25.01 | 425 | 28.73 | 459 | 32.51 | 493 | 36.38 | 0.22 |
| 182 | 55000 | 309 | 26.7 | 311 | 26.96 | 327 | 29.2 | 359 | 33.78 | 392 | 38.53 | 423 | 43.52 | 455 | 48.76 | 0.17 |

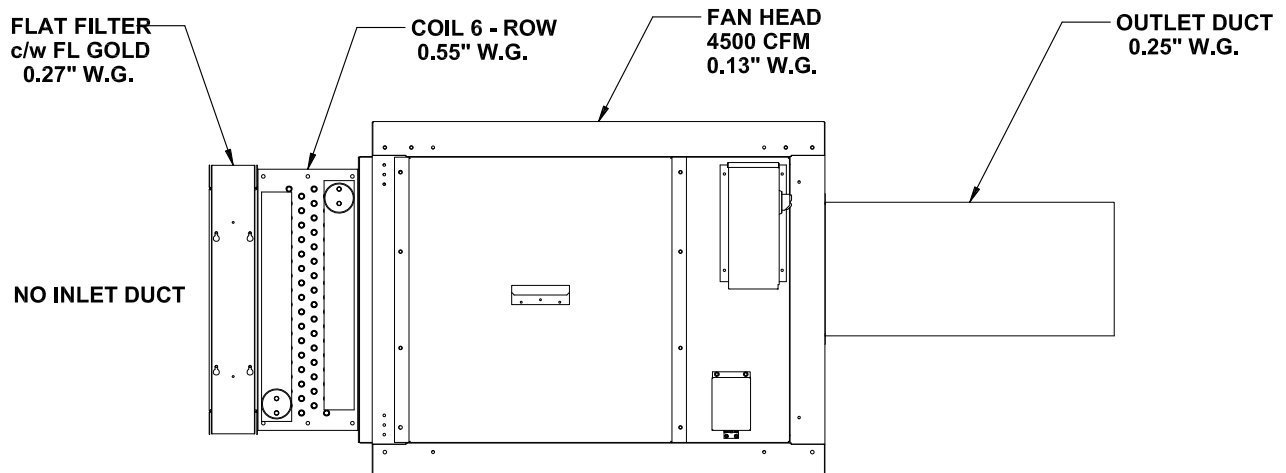
CALCULATION OF TOTAL STATIC PRESSURE

Example #1

1. Select model based on CFM requirement and estimated static pressure.
2. Example model selected AB106F-N-T3A- 4500 CFM @ 0.25" ESP.
3. Verify total internal airside resistance using charts on page 7.
 - a) For coil static pressure ref. page 8 - 0.55" used for 6 Row Coil.
 - b) For cabinet static pressure ref. page 8 - 0.13"
 - c) For filter area ref. page 11 (4500 CFM / 8.4 ft²) = 535 FPM.
 - d) For filter static pressure ref. page 10 - FL GOLD @ 535 FPM = 0.27"
 - e) external duct is example only - used 0.25"
4. Recalculate total static press - TSP = 0.27" + 0.55" + 0.13" + 0.25" = 1.2"

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

Model: AB106F-N-T3A-



CALCULATE TOTAL STATIC PRESSURE (TSP)

$$\text{TSP} = 0.27" + 0.55" + 0.13" + 0.25" = 1.2"$$

**FROM BLOWER DATA CHART: 4500 CFM
2.25 BHP
990 RPM**

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 DATA

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:

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

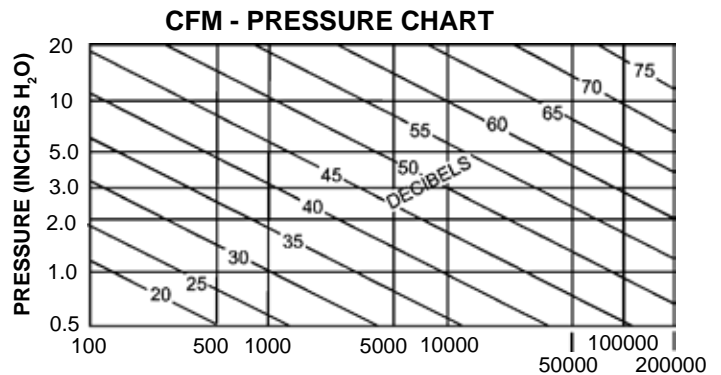
Base dB

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 | 8000 |
| dB | 47 | 43 | 39 | 33 | 28 | 25 | 23 | 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



BLADE PASSAGE FREQUENCY dB

The Blade Passage Frequency 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.

| DESCRIPTION | | | MODEL KAB | | | | | | |
|-------------------|---|-------------------------------|-------------|-------------|-------------|----------------------------|-------------|----------------------------|----------------------------|
| | | | 103 | 104 | 106 | 108 | 111 | 114 | 117 |
| CFM RANGE | | HEATING | 700-2000 | 1000-3200 | 1800-5000 | 2200-7000 | 3000-10000 | 4000-13000 | 5000-15000 |
| STANDARD FAN DATA | FORWARD CURVED | 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 | AIRFOIL | 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 | Number - Size (in) | | 18 x 30 | 21 x 36 | 24 x 45 | 33 x 44 | 33 x 58 | 33 x 74 | 33 x 88 |
| | Face Area - Square Feet | | 3.75 | 5.25 | 7.5 | 10.08 | 13.29 | 16.96 | 20.17 |
| | Number of Face Tubes | | 12 | 14 | 16 | 22 | 22 | 22 | 22 |
| | STANDARD 6 ROW COIL: Normal Refrigerant Operating Charge (lbs.) see notes below | | 4.6 | 6.3 | 8.9 | 12 | 15.6 | 19.7 | 23.3 |
| 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 | 20 |
| | 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 | 20 |
| | 2" ANGULAR FILTER SECTION | Number - Size (in) | N/A | N/A | N/A | N/A | N/A | 2 - 16x25x2 6 - 20x25x2 | 8 - 20x25x2 |
| | | Filter Area - Square Feet | | | | | | 26.4 | 27.8 |
| METAL GAUGES | BLOWER SECTION | Frame | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | | Non Insulated Panels | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | | Insulated Panels | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | | Base | 12 | 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 |

N/A = Not Available

NOTES:

- Correction Factors for Other Refrigerants - Use **R404A** Values Multiplied By

| | | | | | | |
|--------------|--------------|--------------|-------------|------------|--------------|--------------|
| R407A | R407C | R448A | R507 | R22 | R410A | R134a |
| 1.10 | 1.10 | 1.05 | 1.00 | 1.15 | 1.02 | 1.11 |

- For R449A, use R448A data.

- Charge does not include any headers.

| DESCRIPTION | | MODEL KAB | | | | | | | |
|-------------------|---|-------------------------------|--------------|--------------|--------------|--------------|-----------------------------|-----------------------------|-----------------------------|
| | | 122 | 128 | 137 | 141 | 150 | 164 | 182 | |
| HEATING | | 6000-19000 | 8000-25000 | 10000-32000 | 12000-32000 | 15000-39000 | 18000-50000 | 25000-64000 | |
| STANDARD FAN DATA | FORWARD CURVED | Outlet Area - Square Feet | 4.38 | 5.5 | 6.9 | 8.67 | 10.91 | 13.74 | 17.27 |
| | | Number - Diameter (in) - Type | 1 - 20 FC | 1 - 22 FC | 1 - 25 FC | 1 - 28 FC | 1 - 32 FC | 1 - 36 FC | 1 - 40 FC |
| | | Shaft and Bearing Size (in) | 1 11/16 | 2 | 2 7/16 | 2 7/16 | 2 3/16 | 2 7/16 | 2 7/16 |
| OPTIONAL FAN DATA | AIRFOIL | Outlet Area - Square Feet | 4.38 | 5.5 | 6.9 | 8.67 | 10.91 | 13.74 | 17.27 |
| | | Number - Diameter (in) - Type | 1 - 20 AF | 1 - 22 AF | 1 - 25 AF | 1 - 28 AF | 1 - 32 AF | 1 - 36 AF | 1 - 40 AF |
| | | Shaft and Bearing Size (in) | 1 11/16 | 2 | 2 | 2 3/16 | 2 3/16 | 2 7/16 | 2 7/16 |
| COIL DATA | Number - Size (in) | | 39 x 92 | 39 x 116 | 51 x 116 | 60 x 116 | 69 x 116 | 87 x 116 | 87 x 153 |
| | Face Area - Square Feet | | 24.92 | 31.42 | 41.08 | 48.33 | 55.58 | 70.08 | 92.44 |
| | Number of Face Tubes | | 26 | 26 | 34 | 40 | 46 | 58 | 58 |
| | STANDARD 6 ROW COIL: Normal Refrigerant Operating Charge (lbs.) see notes below | | 28.7 | 36 | 47.1 | 55.4 | 63.7 | 80.3 | 105.4 |
| FILTER DATA | 2" FLAT FILTER SECTION | Number - Size (in) | 12 - 16x20x2 | 12 - 20x20x2 | 12 - 20x25x2 | 18 - 20x20x2 | 12 - 20x25x2 6 - 20x20x2 | 6 - 20x25x2 18 - 20x20x2 | 8 - 20 X 25 24 - 20 X 20 |
| | | Filter Area - Square Feet | 26.7 | 33.4 | 41.6 | 50.2 | 58.4 | 70.6 | 90 |
| | 4" FLAT FILTER SECTION | Number - Size (in) | 12 - 16x20x4 | 12 - 20x20x4 | 12 - 20x25x4 | 18 - 20x20x4 | 12 - 20x25x4 6 - 20x20x4 | 6 - 20x25x4 18 - 20x20x4 | 8 - 20 X 25 24 - 20 X 20 |
| | | Filter Area - Square Feet | 26.7 | 33.4 | 41.6 | 50.2 | 58.4 | 70.6 | 90 |
| | 2" ANGULAR FILTER SECTION | Number - Size (in) | 12 - 16x25x2 | 12 - 20x25x2 | 16 - 20x25x2 | 24 - 20x20x2 | 24 - 20x25x2 | 30 - 20x25x2 | 6 - 16X25X2 42 - 20X25X2 |
| | | Filter Area - Square Feet | 33.4 | 41.8 | 55.5 | 66.7 | 83.2 | 104 | 154 |
| METAL GAUGES | BLOWER SECTION | Frame | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | | Non Insulated Panels | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | | Insulated Panels | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | | Base | 12 | 12 | 10 | 10 | 10 | 10 | 10 |
| MOTORS | MINIMUM HP | | 1 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 3 | 5 |
| | MAXIMUM FRAME SIZE | | 324T | 324T | 364T | 365T | 365T | 365T | 405T |

N/A = Not Available

NOTES:

- Correction Factors for Other Refrigerants - Use **R404A** Values Multiplied By

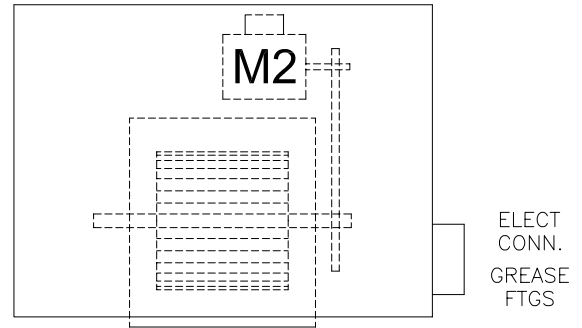
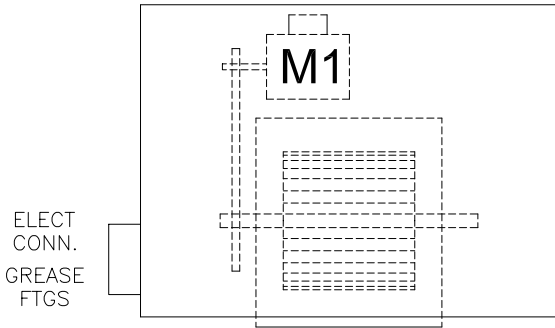
| | | | | | | |
|--------------|--------------|--------------|-------------|------------|--------------|--------------|
| R407A | R407C | R448A | R507 | R22 | R410A | R134a |
| 1.10 | 1.10 | 1.05 | 1.00 | 1.15 | 1.02 | 1.11 |

- For R449A, use R448A data.

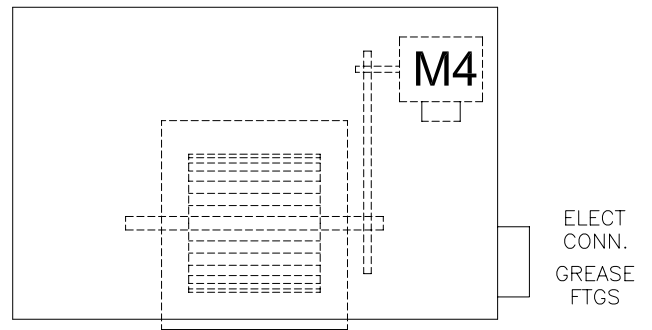
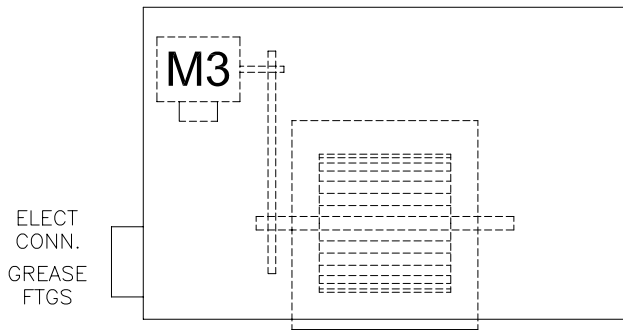
- Charge does not include any headers.

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**

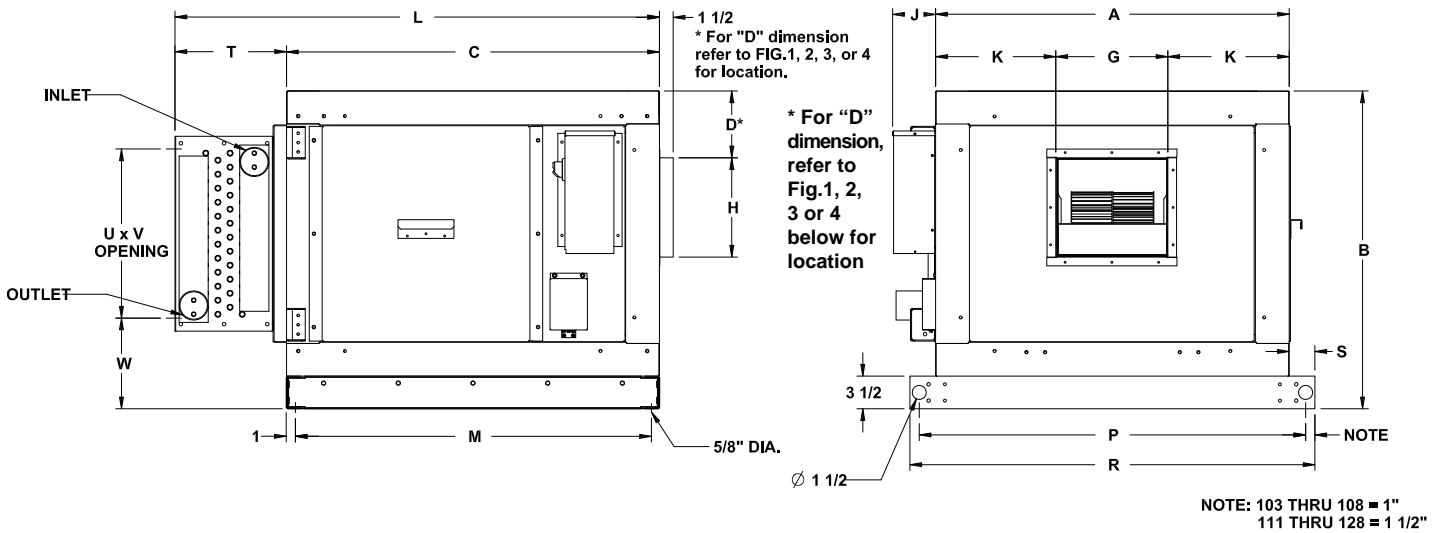
MOTOR CONSTRUCTION ARRANGEMENT

- 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.



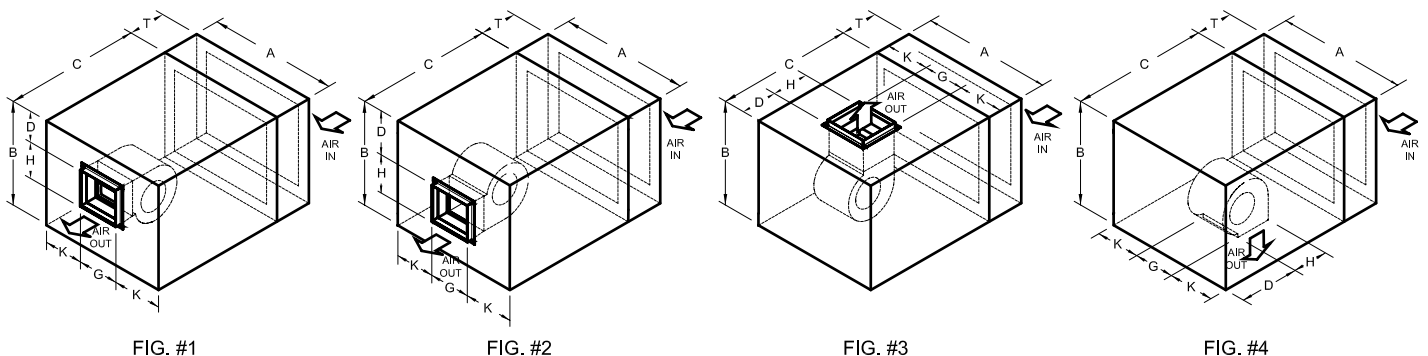
DIMENSIONS - IMPERIAL (inches) (See table below for Dimension "T")

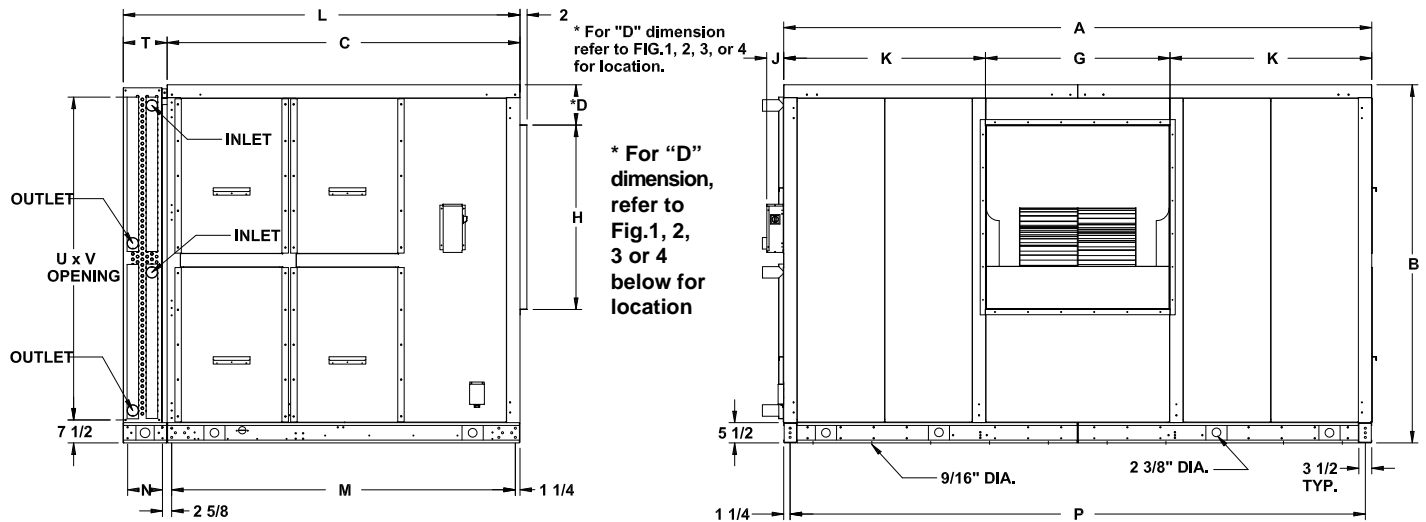
| UNIT SIZE | A | B | C | FIG. #1 D* | FIG. #2 D* | FIG. #3/4 D* | E | G | H | J | K | M | P | Q | R | S | U | V | W |
|-----------|---------|--------|---------|------------|------------|--------------|--------|--------|--------|-------|----------|---------|---------|-------|---------|---------|----|-----|--------|
| 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 | 3 1/2 | 43 3/8 | 2 3/4 | 18 | 30 | 9 3/4 |
| 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 | 3 1/2 | 49 3/8 | 2 3/4 | 21 | 36 | 9 3/4 |
| 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 | 3 1/2 | 59 3/8 | 2 3/4 | 24 | 45 | 10 |
| 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 | 3 1/2 | 57 3/8 | 2 3/4 | 33 | 44 | 9 1/4 |
| 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 | 3 1/2 | 72 3/4 | 2 15/16 | 33 | 58 | 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 | 61 1/8 | 84 3/4 | 3 1/2 | 87 3/4 | 2 15/16 | 33 | 74 | 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 | 61 1/8 | 99 3/4 | 3 1/2 | 102 3/4 | 2 15/16 | 33 | 88 | 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 | 67 1/8 | 103 3/4 | 3 1/2 | 106 3/4 | 2 15/16 | 39 | 92 | 8 3/4 |
| 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 | 71 1/8 | 126 3/4 | 3 1/2 | 129 3/4 | 2 15/16 | 39 | 116 | 10 1/4 |

| UNIT SIZE | T | T | T | T | T | T |
|-----------|------------------|------------------|--------------|---------------|---------------|----------------|
| | 6 1/2 2 ROW L | 7 1/2 3 ROW L | 9 4 ROW L | 12 6 ROW L | 15 8 ROW L | 18 10 ROW L |
| 103 | 46 1/2 | 47 1/2 | 49 | 52 | 55 | 58 |
| 104 | 51 5/8 | 52 5/8 | 54 1/8 | 57 1/8 | 60 1/8 | 63 1/8 |
| 106 | 53 1/2 | 54 1/2 | 56 | 59 | 62 | 65 |
| 108 | 60 1/8 | 61 1/8 | 62 5/8 | 65 5/8 | 68 5/8 | 71 5/8 |
| 111 | 69 5/8 | 70 5/8 | 72 1/8 | 75 1/8 | 78 1/8 | 81 1/8 |
| 114 | 69 5/8 | 70 5/8 | 72 1/8 | 75 1/8 | 78 1/8 | 81 1/8 |
| 117 | 69 5/8 | 70 5/8 | 72 1/8 | 75 1/8 | 78 1/8 | 81 1/8 |
| 122 | 75 5/8 | 76 5/8 | 78 1/8 | 81 1/8 | 84 1/8 | 87 1/8 |
| 128 | 79 5/8 | 80 5/8 | 82 1/8 | 85 1/8 | 88 1/8 | 91 1/8 |

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

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





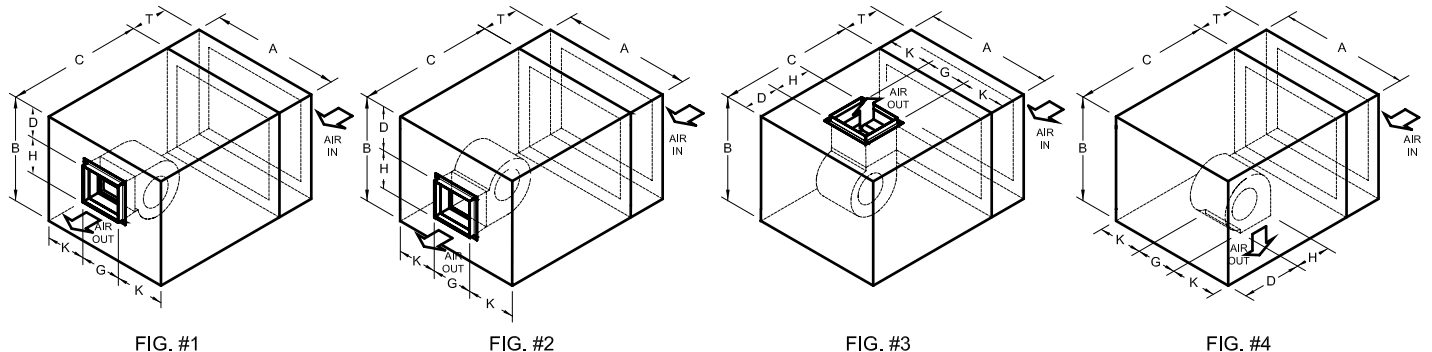
DIMENSIONS - IMPERIAL (inches) (See table below for Dimension "T")

| UNIT SIZE | A | B | C | FIG. #1 D* | FIG. #2 D* | FIG. #3/4 D* | E | G | H | J | K | M | P | 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 | 51 | 116 |
| 141 | 130 | 70 1/2 | 75 | 6 | 20 1/4 | 18 3/4 | 4 7/16 | 35 5/8 | 35 5/8 | 4 3/4 | 47 3/16 | 72 1/2 | 127 1/2 | 60 | 116 |
| 150 | 130 | 79 1/2 | 82 | 7 | 24 1/2 | 21 1/8 | 4 7/16 | 40 | 40 | 4 3/4 | 45 | 79 1/2 | 127 1/2 | 69 | 116 |
| 164 | 130 | 97 1/2 | 90 | 21 1/4 | 40 7/8 | 23 1/4 | 4 7/16 | 44 3/4 | 44 3/4 | 5 3/4 | 42 5/8 | 87 1/2 | 127 1/2 | 87 | 116 |
| 182 | 160 | 97 1/2 | 96 | 10 7/8 | 31 5/8 | 26 5/8 | 4 7/16 | 50 1/4 | 50 1/4 | 5 3/4 | 54 7/8 | 93 1/2 | 157 1/2 | 87 | 153 |

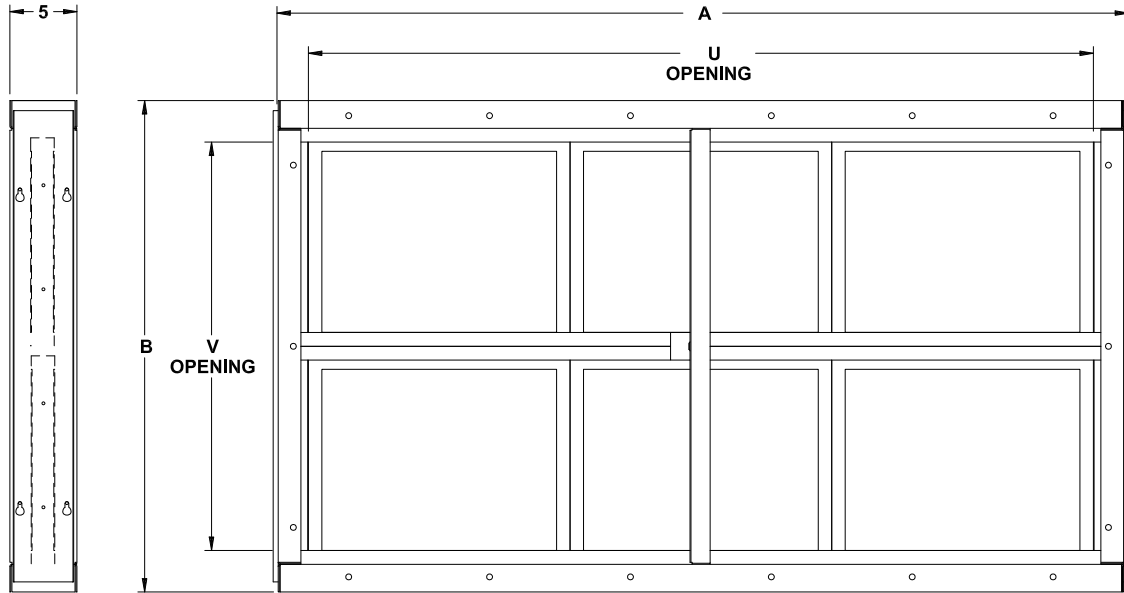
| UNIT SIZE | T | T | T | T | T | |
|-----------|------------------|------------------|--------------|---------------|---------------|----------------|
| | 6 1/2 2 ROW L | 7 1/2 3 ROW L | 9 4 ROW L | 12 6 ROW L | 15 8 ROW L | 18 10 ROW L |
| 137 | 76 1/2 | 77 1/2 | 79 | 82 | 85 | 88 |
| 141 | 81 1/2 | 82 1/2 | 84 | 87 | 90 | 93 |
| 150 | 78 1/2 | 79 1/2 | 81 | 84 | 87 | 90 |
| 164 | 96 1/2 | 97 1/2 | 99 | 102 | 105 | 108 |
| 182 | 102 1/2 | 103 1/2 | 105 | 108 | 111 | 114 |

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

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



DIMENSIONAL DATA - FLAT FILTER BOLT-ON



*** AVAILABLE WITH 2” FILTERS ONLY**

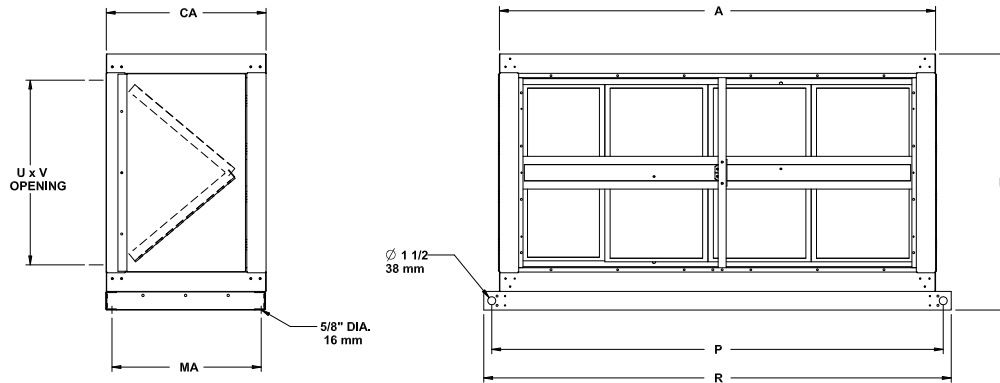
DIMENSIONS - IMPERIAL (inches)

| UNIT SIZE | A | B | INLET OPENING | | WEIGHT |
|-----------|---------|--------|---------------|--------|--------|
| | | | U | V | |
| 103 | 34 | 21 5/8 | 30 5/8 | 17 5/8 | 39 |
| 104 | 40 | 24 5/8 | 36 5/8 | 20 | 49 |
| 106 | 50 | 27 5/8 | 46 5/8 | 23 1/8 | 62 |
| 108 | 48 | 36 5/8 | 44 5/8 | 32 1/2 | 86 |
| 111 | 63 | 36 5/8 | 59 5/8 | 32 1/2 | 118 |
| 114 | 78 | 36 5/8 | 74 5/8 | 32 1/2 | 140 |
| 117 | 93 | 36 5/8 | 89 5/8 | 32 1/2 | 161 |
| 122 | 97 | 43 5/8 | 93 5/8 | 40 1/8 | 189 |
| 128 | 120 | 43 5/8 | 116 5/8 | 40 1/8 | 232 |
| 137 | 119 3/8 | 55 1/8 | 116 5/8 | 50 1/8 | 278 |
| 141 | 119 3/8 | 63 3/8 | 116 5/8 | 60 1/8 | 303 |
| 150 | 119 3/8 | 73 1/8 | 116 5/8 | 70 1/8 | 342 |
| 164 | 119 3/8 | 91 1/8 | 116 5/8 | 85 1/4 | 416 |
| 182 | 149 3/8 | 91 1/8 | 154 | 85 1/4 | 520 |

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

DIMENSIONAL DATA - ANGULAR FILTER SECTIONS

Note: Optional Duct Extension Flanges (1-1/2) available.



Note:
Models 114 through 128 have 12GA. "C" rails extended as shown.
Curb mount capability.
See Mounting Hole Locations on Page 18

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

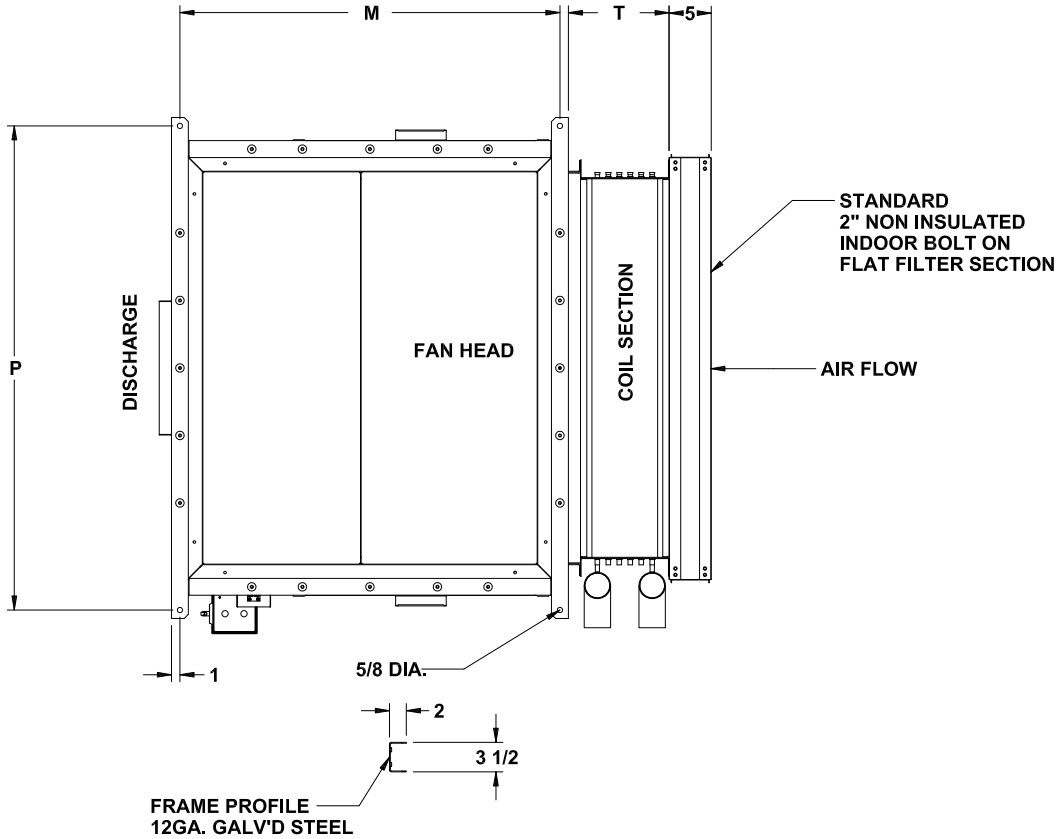
DIMENSIONS - IMPERIAL (inches)

| UNIT SIZE | STANDARD WIDTH | | | STANDARD HEIGHT | ANGULAR FILTER LENGTH | | INLET OPENING | | WEIGHT (lbs.) |
|-----------|----------------|---------|---------|-----------------|-----------------------|----|---------------|---------|---------------|
| | A | P | R | | B | CA | MA | U | |
| 114 | 81 7/8 | 84 3/4 | 87 3/4 | 48 | 30 | 28 | 35 11/16 | 73 | 507 |
| 117 | 96 7/8 | 99 3/4 | 102 3/4 | 48 | 30 | 28 | 35 11/16 | 88 | 600 |
| 122 | 100 7/8 | 103 3/4 | 106 3/4 | 54 | 30 | 28 | 41 11/16 | 90 1/2 | 674 |
| 128 | 123 7/8 | 126 3/4 | 129 3/4 | 57 | 30 | 28 | 44 11/16 | 115 | 828 |
| 137 | 130 | - | 130 | 61 1/2 | 30 | 28 | 55 3/4 | 121 1/8 | 899 |
| 141 | 130 | - | 130 | 70 1/2 | 30 | 28 | 61 3/4 | 121 1/8 | 1113 |
| 150 | 130 | - | 130 | 79 1/4 | 30 | 28 | 74 | 121 1/8 | 1159 |
| 164 | 130 | - | 130 | 97 1/2 | 30 | 28 | 86 1/2 | 121 1/8 | 1426 |
| 182 | 160 | | 160 | 97 1/2 | 30 | 28 | 86 1/2 | 151 1/8 | 1755 |

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

Models 103-128

BOTTOM VIEW



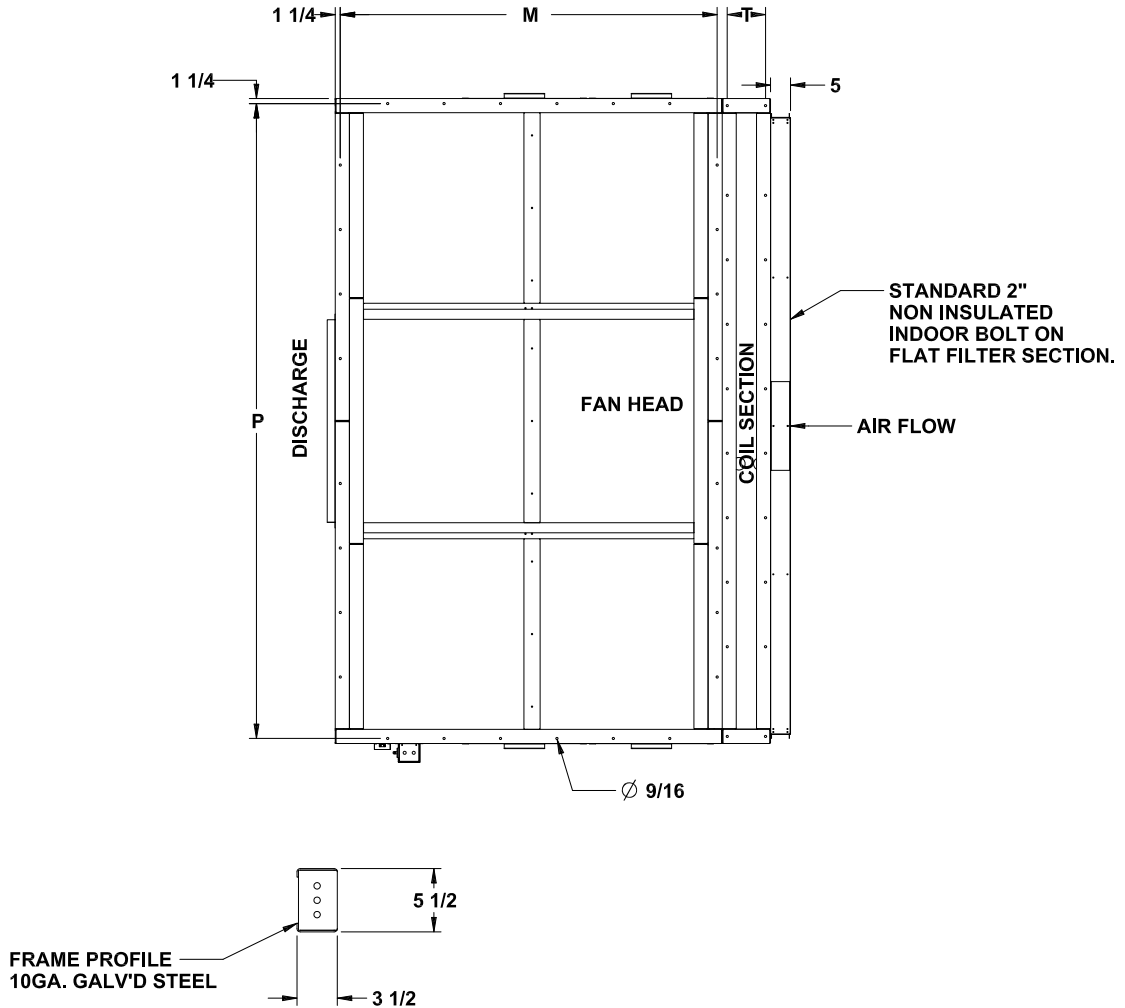
DIMENSIONS - IMPERIAL (inches)

| MODEL | STANDARD WIDTH | FAN HEAD | 2 ROW | 3 ROW | 4 ROW | 6 ROW | 8 ROW | 10 ROW |
|-------|----------------|----------|-------|-------|-------|-------|-------|--------|
| | P | M | T | T | T | T | T | T |
| 103 | 41 3/8 | 38 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 104 | 47 3/8 | 43 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 106 | 57 3/8 | 45 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 108 | 55 3/8 | 51 9/16 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 111 | 69 3/4 | 61 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 114 | 81 3/4 | 61 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 117 | 99 3/4 | 61 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 122 | 103 3/4 | 67 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 128 | 126 3/4 | 71 1/8 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |

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

Models 137-182

BOTTOM VIEW



DIMENSIONS - IMPERIAL (inches)

| MODEL | STANDARD WIDTH | FAN HEAD | 2 ROW | 3 ROW | 4 ROW | 6 ROW | 8 ROW | 10 ROW |
|-------|----------------|----------|-------|-------|-------|-------|-------|--------|
| | P | M | T | T | T | T | T | T |
| 137 | 127 1/2 | 67 1/2 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 141 | 127 1/2 | 72 1/2 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 150 | 127 1/2 | 79 1/2 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 164 | 127 1/2 | 87 1/2 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |
| 182 | 157 1/2 | 93 1/2 | 6 1/2 | 7 1/2 | 9 | 12 | 15 | 18 |

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

GENERAL

Furnish and install where shown on plans, Type AB Air Handling Units with Bolt-on type coils. 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. AB units shall be single wall and no insulation unless otherwise specified (Optional double wall and insulated with 2" mineral wool).

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 1/2 " O.D. or 5/8" O.D. copper tubes and (aluminum) (copper) rippled-corrugated fins. 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.

CONDENSER / HEAT RECLAIM COILS

Coils shall be constructed with 1/2" O.D. or 5/8" O.D. copper tubes and aluminum (copper) rippled-corrugated fins. 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.

WATER HEATING COILS

Coils shall be constructed with 5/8" O.D. copper tubes and aluminum (copper) rippled-corrugated fins. Coils shall be designed for use with heated water or glycol mixture. 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 shall be furnished as indicated on the Unit Schedule.

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.

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.

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.6

B. GASKETING:

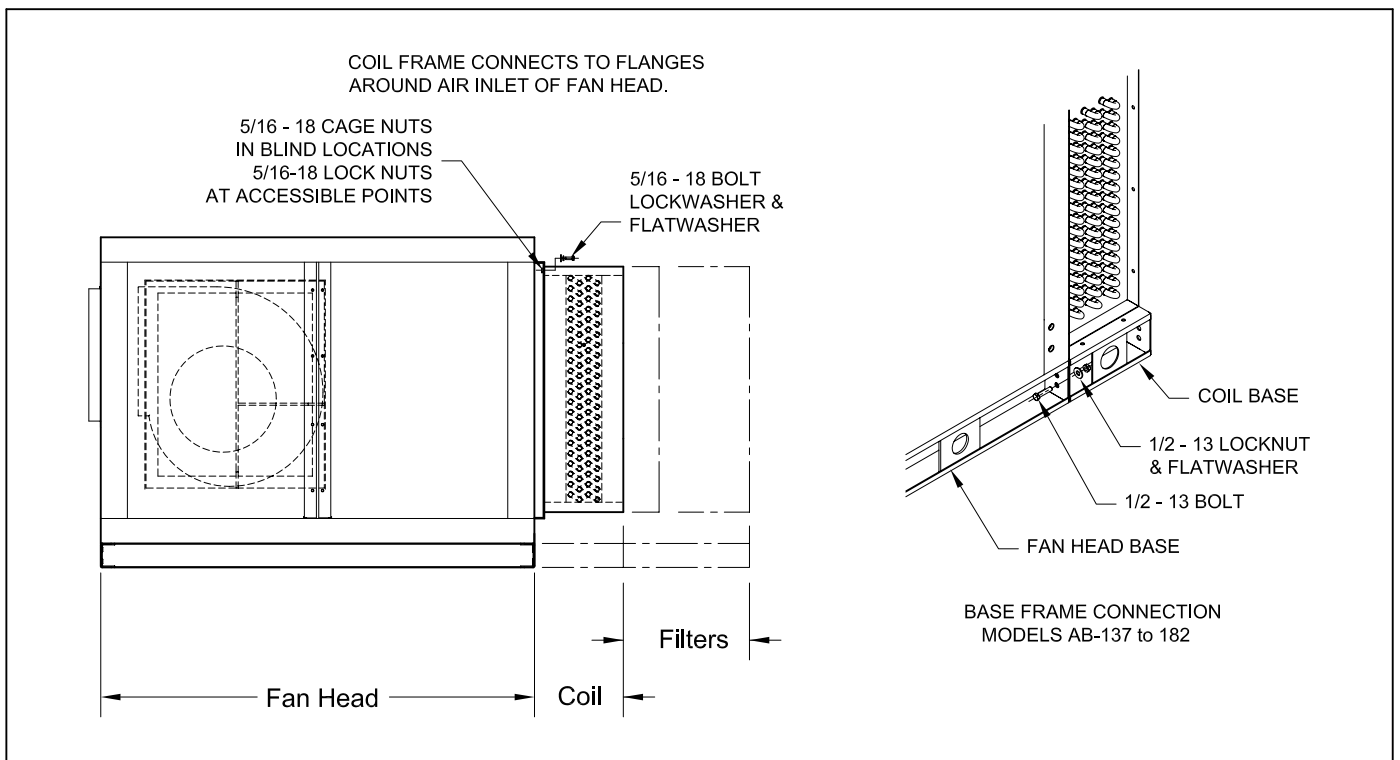
The gasketing is supplied with each section that has to be assembled on the job.

- 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.
 - a. Gasket the perimeter of the coil section flange as outlined in "Gasketing". Fig. 2 & 3
 - b. Align the sections using the mounting brackets as shown in Fig.1.
 - c. Bolt the base frame as shown in Fig.1.

**Figure 1
TYPICAL ATTACHING METHOD**



GENERAL (cont'd)

D. MOUNTING OF SECTION

1. 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.
2. When crane lifting, proper spreader bars should be used to avoid damage to the cabinet material. See Fig.4, 5, & 6.

LOCATING AND INSTALLATION HINTS

IMPORTANT: Product Coolers AB137, AB141, AB150, AB164 and AB182 MUST be platform or floor mounted.

DRIVE INSTALLATION

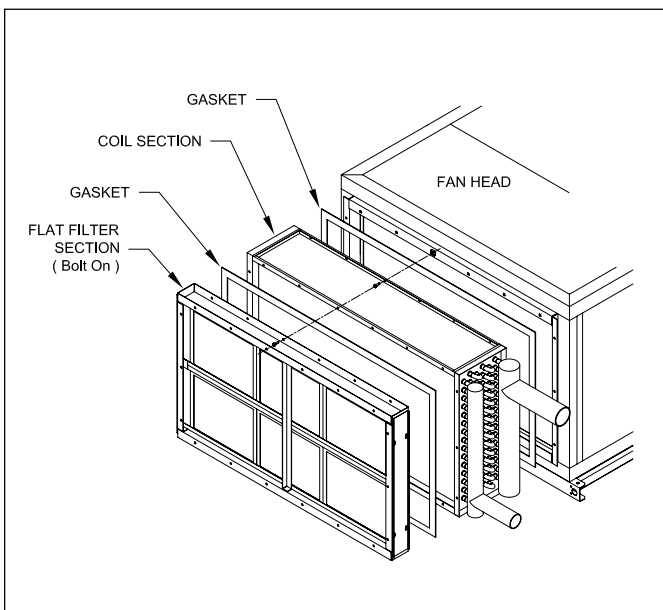
- A. All motors are mounted on a heavy duty slide base located inside the cabinet.
- B. Drives are pre-set for desired RPM.
- C. Belt tension is factory set.

UNIT INSTALLATION

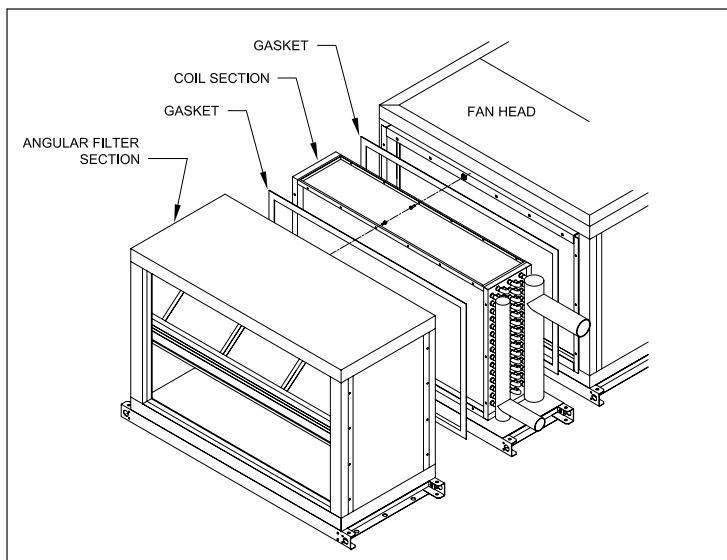
- A. Units 103 thru 128 come complete with lifting rails with 5/8" dia. mounting holes. Lifting rails are also designed to mount to roof curbs supplied by others. Lifting rails also allow for ceiling suspension with isolators – holes to allow 1/2 rod.
- B. Units 137 thru 182 come complete with 5-1/2"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

IMPORTANT
Models AB137 through 182
are suitable for bottom mounting only.
In order to suspend equipment
from the ceiling, a field installed supporting
structure must be provided

**Figure 2
FLAT FILTER to COIL (Bolt-on Style)
ALL MODELS**



**Figure 3
ANGULAR FILTER to COIL
ALL MODELS**



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, 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 4
FAN HEAD and ASSEMBLED SECTIONS -
Models AB103 - 128

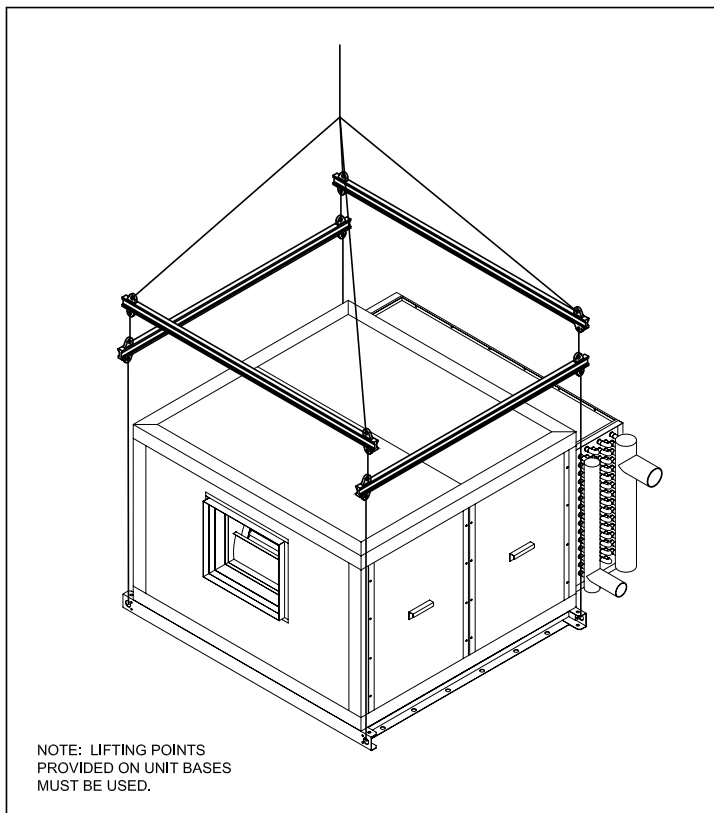


Figure 5
COILS MAY BE SHIPPED SEPARATELY

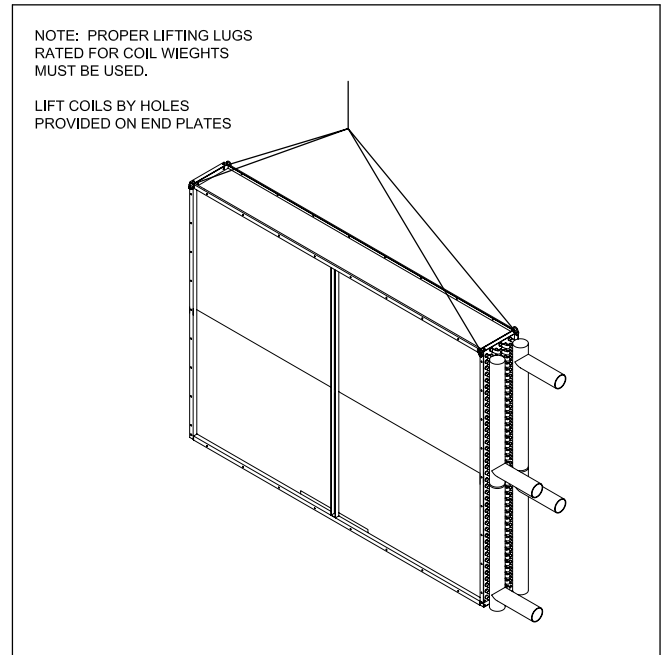
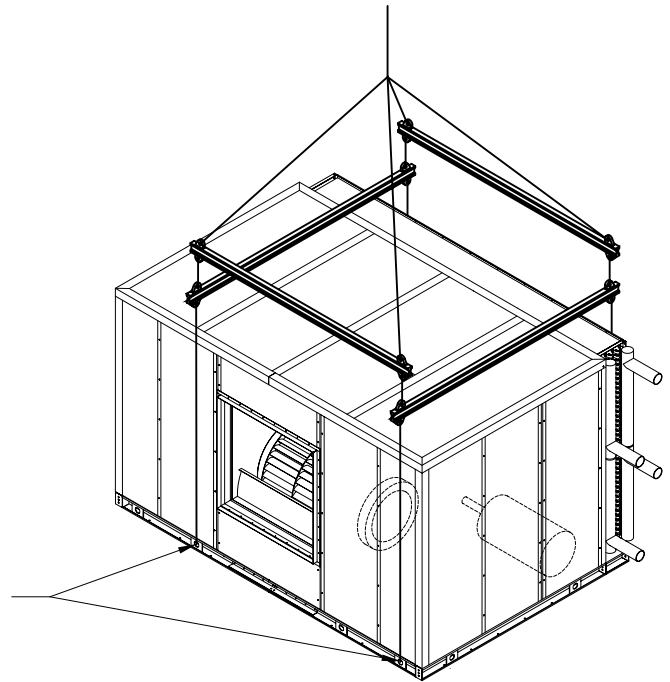


Figure 6
FAN HEAD and ASSEMBLED SECTIONS
Models AB137 - 182

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.



TYPICAL WIRING DIAGRAM - MOTORS - ALL MODELS

TYPICAL AIR HANDLING UNIT WIRING DIAGRAMS - 1800 RPM

| 115 / 230 VOLT, 1 PHASE (1/3 TO 2 HP) | 230 / 460 VOLT, 3 PHASE (9 LEAD MOTOR - 1/3 TO 5 HP) | 230 / 460 VOLT, 3 PHASE (12 LEAD MOTOR - 3 WIRE) | 230 / 460 VOLT, 3 PHASE (12 LEAD MOTOR - 6 WIRE) | 575 VOLT, 3 PHASE | | | | | | | | | | |
|---|--|--|--|--|-----------|--|----------------|------|-----|-------------------------------|---|---|---|---|
| <p>REFER TO DATAPLATE FOR ELECTRICAL REQUIREMENTS.</p> <p>115V WIRING BLOWER MOTOR WITH MANUAL INTERNAL OVERLOAD</p> <p>230V WIRING BLOWER MOTOR WITH MANUAL INTERNAL OVERLOAD ROTATION "CW-OPE" TO REVERSE EITHER VOLTAGE INTERCHANGE RED & BLACK LEADS</p> | <p>REFER TO DATAPLATE FOR ELECTRICAL REQUIREMENTS.</p> <p>230V WIRING USING WYE-WYE MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> <p>460V WIRING USING WYE MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> | <p>REFER TO DATAPLATE FOR ELECTRICAL REQUIREMENTS.</p> <p>230V WIRING USING DELTA-DELTA MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> <p>460V WIRING USING DELTA MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> | <p>REFER TO DATAPLATE FOR ELECTRICAL REQUIREMENTS.</p> <p>230V WIRING USING DELTA-DELTA MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> <p>460V WIRING USING DELTA MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> <p>NOTE: TWO WIRES (EQUAL GAUGE AND LENGTH) USED AS SINGLE CONDUCTOR.</p> | <p>REFER TO DATAPLATE FOR ELECTRICAL REQUIREMENTS.</p> <p>575V WIRING USING WYE MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> <p>575V WIRING USING DELTA MOTOR LEADS BLOWER MOTOR (NO INTERNAL OVERLOAD) REQUIRES EXTERNAL OVERLOAD (BY OTHERS)</p> | | | | | | | | | | |
| <p>1. USE COPPER CONDUCTORS ONLY 2. USE 75°C WIRE (OR HIGHER) 3. OPTIONAL COMPONENTS -FACTORY OR INSTALLED BY OTHERS</p> <p>4. CONDUCTORS / WIRING _____ FACTORY WIRING _____ WIRING BY OTHERS - - - - - OPTIONAL COMPONENT FACTORY WIRING</p> <p>5. ALL FIELD WIRING MUST BE DONE IN COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.</p> | | | | | | | | | | | | | | |
| | | | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">REVISIONS</th> <th>DIAGRAM NUMBER</th> </tr> </thead> <tbody> <tr> <td>DATE</td> <td>LTR</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">1099106-TYPICAL MAR. 28/14</td> </tr> <tr> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>-</td> </tr> </tbody> </table> | | REVISIONS | | DIAGRAM NUMBER | DATE | LTR | 1099106-TYPICAL MAR. 28/14 | - | - | - | - |
| REVISIONS | | DIAGRAM NUMBER | | | | | | | | | | | | |
| DATE | LTR | 1099106-TYPICAL MAR. 28/14 | | | | | | | | | | | | |
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**ALL 1 PHASE MOTORS c/w
MANUAL THERMAL OVERLOAD**

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

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 | 40 | 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 | 80 | 2 1/8 |

* 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 | 40 | 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 |

* 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**

ELECTRICAL DATA - 3 Phase / .75 HP Models

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 | | 5/8 |
| 1/2 | 1725 | 56HC | 1096305-.50-TRI-F1 | 2.2 | 12.4 | 2.8 | 15 | 40 | 1 | 6.2 | 1.3 | 15 | | 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 / .75 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 prelubricated 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 prelubricated 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 prelubricated 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.

**APPROXIMATE NET WEIGHTS
(without Motor)**

| DESCRIPTION | MODEL KAB | | | | | | | | | | | | | |
|--------------------------------------|------------------------------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| | 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 |
| | HEATING COILS ALUMINUM FINS | | | | | | | | | | | | | |
| 4 ROWS | 116 | 148 | 190 | 253 | 315 | 441 | 541 | 565 | 695 | 1005 | 1105 | 1235 | 1723 | 2253 |
| 6 ROWS | 152 | 208 | 273 | 362 | 455 | 631 | 781 | 816 | 1001 | 1389 | 1596 | 1789 | 2439 | 3336 |
| 8 ROWS | 209 | 266 | 356 | 475 | 593 | 828 | 1021 | 1058 | 1305 | 1790 | 2149 | 2325 | 3172 | 4341 |
| 10 ROWS | 236 | 328 | 447 | 580 | 733 | 1018 | 1252 | 1312 | 1677 | 2202 | 2578 | 2869 | 3872 | 5260 |
| FLAT FILTER SECTION (BOLT ON) | 39 | 49 | 62 | 86 | 118 | 140 | 161 | 189 | 232 | 278 | 303 | 342 | 416 | 520 |
| ANGULAR FILTER SECTION | N/A | N/A | N/A | N/A | N/A | 507 | 600 | 674 | 828 | 899 | 1113 | 1159 | 1426 | 1755 |

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 |

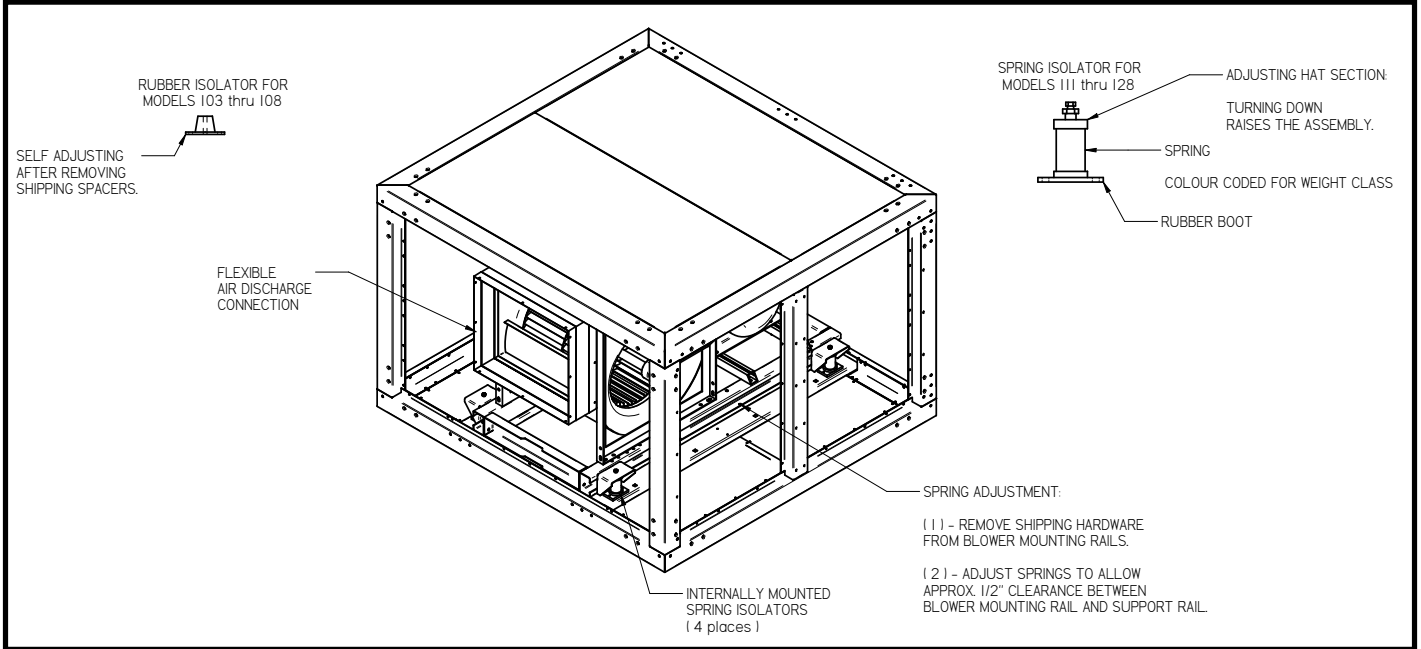
Motor: 1 phase TEFC w/ Manual Overload

| HP | 1/3 | 1/2 | 3/4 | 1 | 1.5 | 2 |
|----------------------|-----|-----|-----|----|-----|----|
| Weight - lbs. | 24 | 26 | 30 | 33 | 41 | 51 |

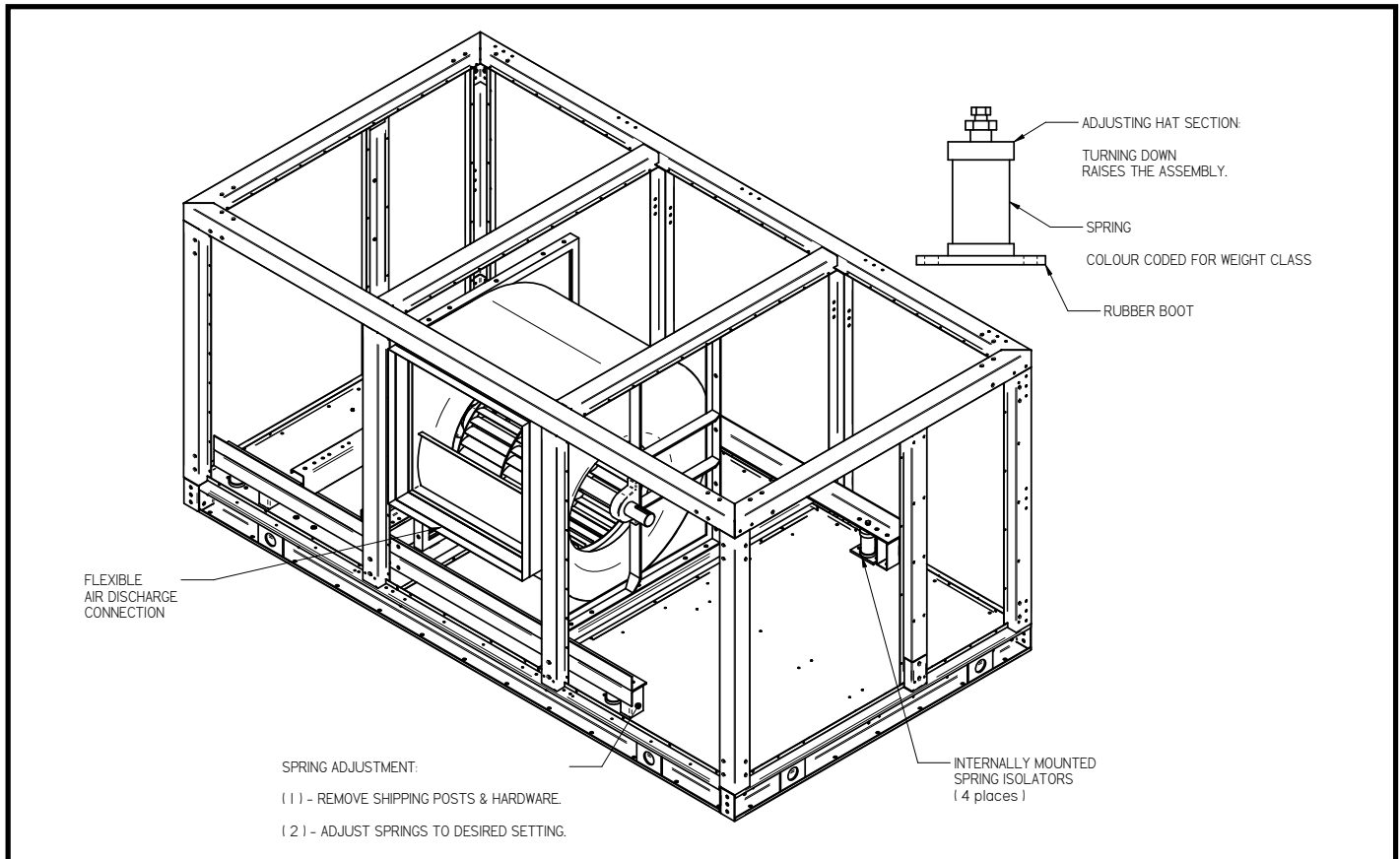
CONSULT FACTORY FOR PROPER SPRING SELECTION

AB FAN HEAD: Models AB103 - AB128

Note: Rubber isolator style used on Model 103 through 108



AB FAN HEAD: Models AB137 - AB182



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

PRODUCT SUPPORT RESOURCES

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

“AS BUILT” SERVICE PARTS LIST

Service Parts List
Label
To Be Attached
HERE



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

