

# Frigitek<sup>®</sup> ECM Data Collection Sheet Notes

- 1) - **The customer's cost of electricity** should be determined from a recent electric bill, by dividing the total billed amount by the number of kilowatt-hours listed on the bill. This will take into account all of the fees and taxes added to the basic cost of the electricity.
- 2) - This number will equate to the Analysis Sheet number on the Frigitek ECMotor Savings Program.
- 3) - **Provide a unique description of the room and evaporator(s)**. This is important to allow correct identification of the equipment and location for the installation.
- 4) & 5) – If the intent is to use one controller per coil, then the responses to 4) and 5) are straight forward. If however the intent is to have one controller serve more than one coil, the coils served by a single controller should be listed as one and their motors should be counted as belonging to a single coil. Example: A beverage cooler has four coils controlled by two thermostats, and each coil has two fans. If the desire is to use one controller for each pair of coils, show “2” in cell four and “4” in cell five.
- 6) - **Be sure that you read the FAN amperage**, not the defrost heater amperage.
- 7) - **The Operation Time Factor** allows an adjustment for the amount of time the system is actually in operation. Some refrigerators are only used seasonally, such as in vegetable or fruit harvesting. This factor can also be used to account for defrost time, if the power to the fans is turned off for defrosting.
- 8) - **The original Evaporator Fan motor type** is important to the accurate calculation and savings. You may have to look at the motor nameplate to determine this.
- 9) – **For most motors, we need to know the motor mount style**, so the EC Motor can be selected to fit. On the following pages are pictures and descriptions of different motor mounts. Into this cell choose the designator below to identify the mounting method.
  - (S) - SB 2-Speed Type Motor - These are the very small motors used in small coolers, box coolers and some reach-in coolers.
  - (3) - The motor has 3 wings on the rear, which slip over 3 mounting bolts protruding from the coil.
  - (4) - The motor has 4 studs on the front or the rear, which hold it into a frame.
  - (5B or 5L) – Denotes a 5” 1/20 or 1/15 Hp original motor clamped in position with a **band** or fitted with **legs**.
  - (B) - Base Mount - The motor is mounted to the evaporator case using an attached bottom support bracket which is bolted to the inside of the evaporator.
  - (WR) - **Wire Cage – Radial** - The motor is smooth on the outside, with no attached mount, and is clamped into position by means of a band or rods around the motor case. **(Adapter needed only when replacing 56 frame motors)**
  - (WL) – **Wire Cage – Longitudinal** – Similar to the radial type clamp except that 3 or 4 bars or sets of rods run the length of the motor to hold it in position. **(Needed only when replacing 56 frame motors)**
  - (O) - Other - If none of the previous mounts apply, describe and take pictures of the mount.
  - (EI) – **Base Mount Adapter** - This bracket allows the MA59 motor to be used to replace old style base and cradle mounted motors.
- (10) – Observe the motor from the Fan Side (Shaft End), with the fan between you and the motor, and note the rotation direction. “CW” – SE; Clockwise / “CCW” – SE; Counter-clockwise – shaft end.

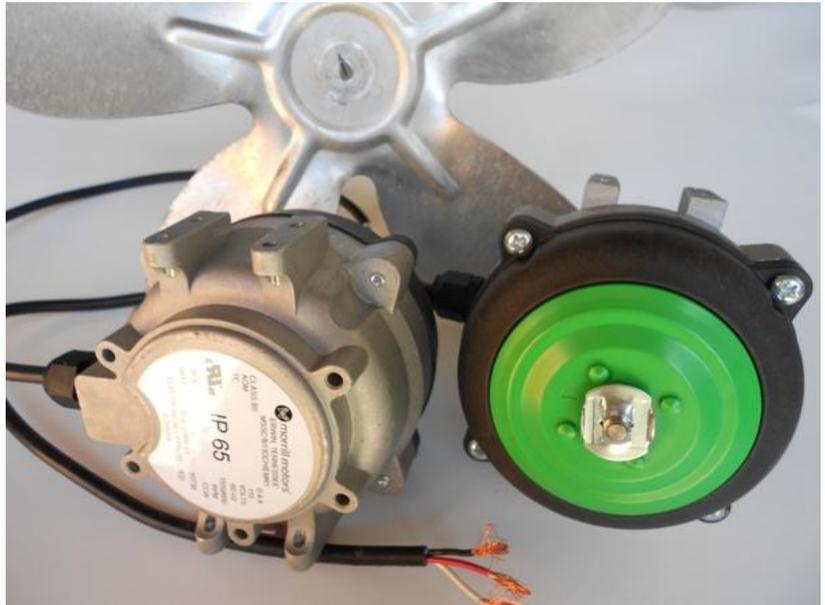
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## 2SB Motors

This style of motor is typically found in small coolers, box coolers and some reach-in coolers.

The fan blades on this style of motor do not use a hub, as on larger motors. The motor shaft is threaded, and a metal clip screwed onto the end of the shaft to hold the fan in place.

It is typically mounted using the top or bottom feet which are integral to the motor, or by screw holes on the rear of the motor. These are two speed motors and replace the earlier single speed version.

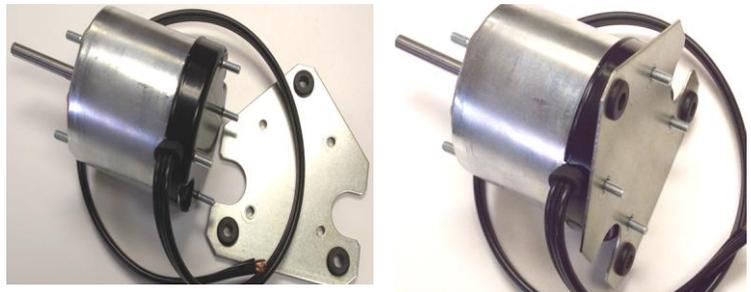


Motor Mount (S) – 2SB Motors

***This style of motor is specified with the (S) designator (for 2SB Motor).***

## “Three-Corner Adaptor”

The plate is triangular, and has three grommets holes, for mounting on three permanently-mounted studs protruding from inside the evaporator case. (Usually vertical)



Mount (3) – Motor with 3 Wing Plate

This style of mounting is typically used in the thinner ceiling-mounted evaporators, where the air is drawn in on the bottom of the evaporator, and exits on the sides.

***This combination of motor and adaptor is identified by the (3) designator (for the 3-Wing mount).***



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## MA59 Style Motors

This is the most common motor used in suspended evaporator coils. It is typically 1/20 or 1/15 Hp.

These motors feature eight studs, permanently mounted to the motor – four on the front, and four on the rear, in a 2 inch square pattern.

The studs typically mount into a light-weight wire frame, using either the front four or the rear four studs. The wire frame is a permanent part of the evaporator. These motors have a 5/16" shaft, with a flat side, and the fan blades have a collar with a set screw which is tightened onto the flat side of the shaft.



(4) Motor Mount Style

**This style of motor is identified by the (4) designator (for the 4-stud mount).**



(5B) – Mounting Adapter Band

## (5B) Mounting Adaptor Band

Mounting adaptor 5B is used to adapt the MA59 motor into coils where the original motor is 1/20 or 1/15 Hp and is 5" in diameter. The zip tie as shown in the photo is slid off as the motor is slipped into the original mounting band.

## (5L) Mounting Adaptor

Where the original 5" 1/20 and 1/15 Hp motors are fitted with legs as shown in the photo below, order the 5L mounting adaptor. The installation procedure is to install the legs into the coil and then insert the motor and the gear clamp. A shaft Sleeve, 5/16" to 3/8" will also be needed.



(5L) – Mounting Adapter

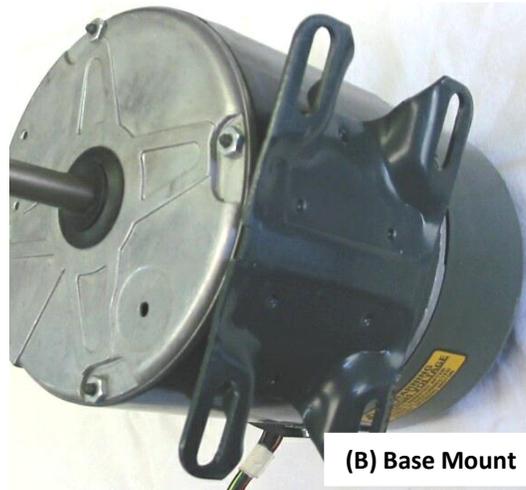
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## “Base Mount” Motors

These motors feature either a base foot which is a permanent part of the motor, or a “cradle” to which the motor is clamped. Here is an example of the permanent-foot type of motor. The base is bolted to frame-work within the evaporator case.

**This type of motor is identified with the (B) designator (for “Base” mount)**

Next is a picture of a **Cradle** type of motor mount.



(B) Base Mount

The U-shaped mounting frame is bolted to frame-work within the evaporator, and the motor is secured to the mounting frame by clamps at each end of the motor.



(B) – Cradle Mount

**This type of motor is also identified with the (B) designator (for “Base” mount)**

Because the cradle-style mount is not necessary in evaporators, (its purpose is to reduce motor vibration and to absorb torque when driving a “V” belt.) The ECE Base mount adapter will be an effective replacement.

All EC Motors of 1/5 Hp or larger are “smooth” body frame (see photo), therefore when replacing either base or cradle types, a Mounting Bracket must be ordered. See photos and instructions below.

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## Wire Cage Motors

This type of motor clamp is identified with the (WL) designator (for “Wire Frame Longitudinal” mount)

These are smooth-case motors, which are clamped into a cage made of heavy wire or bands inside the evaporator case. When replacing 48 frame motors, a (W) is all of the information that is needed but if replacing 56 frame motors an adapter will be required.



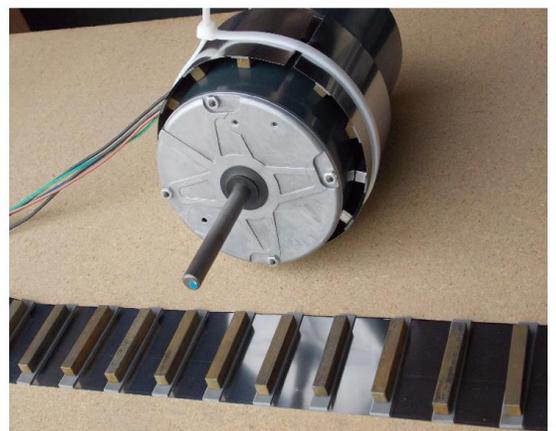
(WL) – Longitudinal Mount



(WR) – Radial Mount

This type of mounting bracket is referred to as (WR) for *Radial* mount and will require an adapter as shown when the original motor is a 56 frame type.

The zip tie is used to hold the adapter to the motor during installation. As the motor is being slid into the radial clamp, the zip tie will slide off of the clamp and may be discarded.



(WR) – 56 Frame Radial Mount Band

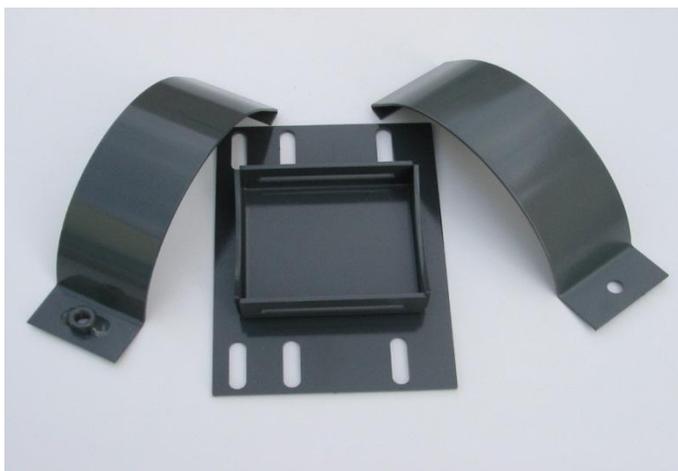
## Motor Shaft Sizes

Most of the evaporator fan motors 1/5 Hp and larger will have ½ inch diameter flatted shafts. However, there are exceptions. Thus, it is important to check and note the motor shaft size on the Data Collection Sheet for these larger motors.

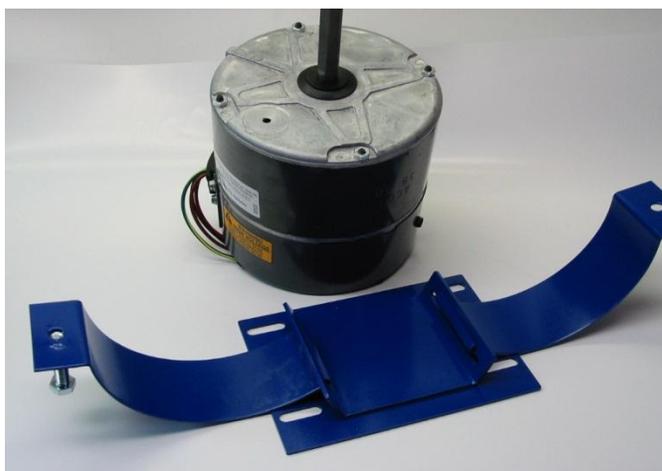
The replacement EC motors all have ½ inch shafts. For those applications where a 5/8 inch shaft is required, a Shaft Adapter sleeve should be ordered with the motor.

## Base Mount Adapters

At this time all EC motors of 1/5 Hp and larger are 48 frame type, 5.6" diameter. When replacing 48 frame base or cradle mounted motors, use the **Blue** mounting bracket. When replacing 56 frame motors, 6.5" diameter, use the **Grey** bracket.



56 Frame Base Mount (Grey)



48 Frame Base Mount (Blue)

## "EI" - Base Mount Adapter

In the photo to the right, there are four holes under the motor. This bracket allows the MA59 motor to be used to replace old style base and cradle mounted motors. If the shaft is not centered in the aperture, fender washers might be used under the bracket to raise the motor.



("EI") - Base Mount Adapter (Blue)