

LET'S TALK ABOUT MOTORS

SHATTERING SOME OLD WIVES TALES - OR THE SAME OLD STUFF JUST A SHINY NEW SHOVEL

HOW SLOW CAN YOU OPERATE A DIRECT DRIVE FAN ?



SLEEVE BEARINGS
300 RPM SINCE
JULY 22, 1998 !!

**THE GUY AT THE MOTOR SHOP
SAYS YOU CAN'T RUN A SLEEVE
BEARING FAN MOTOR AT LESS
THAN 450 RPM !!!!!**

**BEARINGS WONT LAST IF YOU
RUN A MOTOR AT LESS THAN
450 RPM !!!**

WRONG !!!!!

The picture in the upper left is of our bench-demo to prove that a direct drive fan motor with sleeve bearings can be run at very low speeds for extended times. We often hear the comment: "I thought you couldn't run a motor less than 500 RPM or the bearings would burn out." To prove you can, we have taken a 1050 RPM sleeve bearing motor out of an old Lennox furnace that had been operating for more than ten years and we installed a FanHandler on it and set the speed to **300 RPM**. We didn't do anything to the motor other than oil it when the demonstration started on 7-22-98. We discontinued this demonstration about May 2004, when we moved to our new shop. It was still going strong. It ran all that time at **300 RPM and without oiling the bearings.**

Sleeve bearing catalogs shows run times for every RPM and pressure load. The slower the shaft turns in a bearing, the longer it will last. The lighter the load the longer the bearing will last. Also, when a fan motor shuts off, the oil wicks back into the bearing so the next start is on a dryer bearing surface.

The rumors about motor speed and sleeve bearing failure started when air conditioner condensers were flat and vertical, winter winds would turn the fan blade and the motor shaft turned in cold and dry bearings. (Dry because when a sleeve bearing cools, it sucks lubricant back into the porous bearing material.) When spring came around, the condenser motor bearings were shot. We've been around since 1953. Over these years other companies have tried to copy the Fan-Handler circuit. (Anyone with a soldering iron can get into the business.) The design was pretty close, but then the accountants got hold of it and cut quality. These cheap copies caused even good motors to overheat. Overheating also kills bearings.

There are some marginally designed and constructed motors that do not run well at very slow speeds. These motors have fewer iron laminates and copper windings so the amperage is high because of very little counter e.m.f. produced in the coils. These motors rely on rotation speed rather than construction to produce counter e.m.f. If the motor manufacturer cut corners on the windings and iron laminates, chances are that they cut corners when it comes to lining-up the rotor with the stator. Then there are motors that have been banging on and off for years and the bearings are worn so the rotor is no longer centered in the stator.