The article entitled "Lubrication of Electric Motor Bearings," by EASA technical support specialist Chuck Yung (pgs. 36-40, MAINTENANCE TECHNOLOGY, March 2008) brought the following question from a reader with a special interest in the topic of sealed bearings…

Dear Maintenance Technology:
I work as a maintenance electrician and saw the article (about lubrication of motor bearings) at work. In the article, it never addresses putting in sealed bearings so they don't need greasing. Is this a good idea or not? I am interested in an answer for an area where the temperature is 120 F+.

Thanks.
Craig Oviatt
Via e-mail

Chuck Yung responds…

Craig: The editor of Maintenance Technology magazine forwarded your excellent question to me. In certain instances, I am a fan of sealed bearings, but there are some trade-offs to consider before you use them.

The major benefit of sealed bearings is that they keep dirt and other contamination out. The most obvious downside is that it is not possible to re-lubricate them, so they have a finite life. Whereas a shielded or open bearing can be re-lubricated at regular intervals to extend the bearing life, sealed bearings cannot. I personally have seen bearings that ran for over 30 years without failing, thanks to regular preventive maintenance— while the practical life of a sealed bearing might be closer to five years.

Sealed bearings can be of either the contact-type (the seal contacts the inner race) or non-contact type. The contact-type sealed bearing is slightly better at excluding moisture, but at a cost; that contact creates friction and heat. So, the bearing temperature is higher and the motor efficiency is slightly lower. The non-contact type operates at about the same temperature

as a shielded bearing, but does not exclude contamination quite as well as the contact type of sealed bearing.

The place where a sealed bearing is especially useful is when the motor is difficult to access, so it is just not going to be greased regularly. Other cases that benefit from sealed bearings include motors operating in remote locations (such as an unmanned station); a plant where regular maintenance is impractical; or an application where moisture, chemicals or fine dirt particles are present.

Another advantage of sealed bearings is that they prevent overgreasing. Most people in my industry will tell you that we see more motor failures from over-greasing than from under-lubrication. But, if you opt for sealed bearings, make sure the service center that repairs your motors removes the grease fittings to prevent some operator from trying to force grease into a sealed bearing. It also is a good idea to label the motors that have sealed bearings, just to keep some eager tech from installing a grease fitting and trying to grease the bearings anyway. One plant even paints motors with sealed bearings a specific color to make that less likely.

In your specific example (120 F+), be sure the bearings are purchased with a grease suitable for the higher temperature. And use the noncontact type of sealed bearings, to avoid raising the bearing temperature any higher.

Chuck Yung
Via e-mail www.easa.com

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