Infinitum

Blog | By Anthony Lou

Retrofitting a Pump Motor: Challenges and Considerations for Top Performance

There are a number of reasons to retrofit the motor in your pump system. The most common reason to retrofit a pump motor is to upgrade your system. In this scenario, you'll need to select a different motor model or even manufacturer to meet your retrofit goals. This is the best solution if your goals include:

- Improving the performance of your motor, such as making it faster, increasing the horsepower, or improving torque;
- reducing the energy consumption of your motor;
- allowing for different operating speeds, by switching from a single speed motor to variable speed;
- or improving overall reliability of your system

Selecting a new motor to retrofit for your pump motor can be overwhelming—there are a myriad of factors to consider when making your decision. In this blog post, we'll highlight some of the challenges of retrofitting the motor in your pump system, as well as several considerations for motor selection.

Challenges of Retrofitting Motors in a Pump system

Operational Downtime

The challenge with the greatest potential impact to your operations is downtime, as your pump system will be offline throughout the entire retrofit process. With proactive planning, you can minimize the impact this has on your operations. For example, when retrofitting multiple motors in multiple independent pump systems, you can stagger your retrofit schedule. Another way to minimize the downtime caused by your retrofit is to plan the retrofit during a time when your production schedule is typically light, such as during a third shift or during a

weekend or holiday. Lastly, you can minimize downtime by selecting a motor that can be easily and quickly installed.

Shaft Misalignment

Ensuring proper mounting and shaft alignment with the pump in your system is another potential challenge in the retrofit process. Having proper shaft alignment is essential to ensuring that the motor is efficiently transferring power to the pump. Misalignment can cause several issues that range from annoying to potentially harmful to the system or personnel, including:

- High levels of acoustic noise
- Excessive vibration
- Increased temperatures

A common consequence of these issues is one of the most common sources of motor failure: bearing failure. Some ways to mitigate challenges associated with shaft misalignment include: ensuring proper mounting and shaft alignment upon installation, checking alignment after a few months of operation and annually thereafter, and regularly monitoring potential indicators of misalignment, such as vibration levels.

Considerations for Retrofit Motor Selection

1. Sufficient Operational Requirements

The most critical consideration when retrofitting the motor in your pump system is selecting a motor that sufficiently meets the operational requirements for your application. This is dependent on more than just the specifications of the original motor. If replacing an existing motor, the retrofitted motor must also fit within the optimal performance range of the pump that it powers.

2. Ease of Installation

Another consideration for retrofitting your motor is the ease of installation. A motor that can be installed quickly and easily can help to minimize the amount of downtime required for your retrofit and ultimately minimize the impact of the retrofit on your operations.

3. Size and Weight

The size of the motor you've selected for your retrofit is also a critical consideration. You need to ensure that the motor you've selected has a footprint and weight that can fit within and be supported by your current installation setup.

4. Problem-Solving

Lastly, consider whether the motor you've selected for your retrofit addresses any of the other pain points that you experience with your current pump system. Is your current setup noisy under normal operating conditions? Look for a quieter motor. Is your current motor a pain to maintain? Do you have to call an OEM specialist for any maintenance tasks? Look for a motor that your local motor repair shop can maintain without requiring extensive training.

Consider an IEs Series Motor for Your Retrofit

The IEs series motor from Infinitum, which features our patented printed circuit board stator design, may be the right choice for your pump system retrofit. IEs series motors, created for general purpose industrial use, can be designed to meet any specifications, making it easy to meet your pump's optimal performance range. These motors are up to 50% smaller than a conventional motor with similar horsepower. This allows IEs motors to fit most existing pump-motor installations, with the added benefit of easier installation. The IEs Series motors weigh up to 50% less than equivalent traditional motors and do not require rental of heavy equipment for installation, saving you time, money, and personnel. This also means the motor is more accessible and easier to maintain. To address the pump system noise pain point, Infinitum motors are designed to have a quiet operating volume that can be as low as 45 dB.

For applications that require variable speed operation, the IEs series features an integral variable frequency drive (VFD). The combined motor and VFD means that you don't need to retrofit the motor and VFD separately. The integrated VFD provides enhanced motor performance, energy savings, and improved system reliability through fine control of pressure and flow in your pump system. Finally, the IEs series motor offers Industrial Internet of Things (IIoT) connectivity. Sensors built into the motor design allow you to continuously monitor critical parameters remotely in real-time. This provides you with essential data that can be used for preventative maintenance.

Learn more about the IEs Series motors here. Ready to retrofit the motor in your pump system? Contact us today.