Details for Follow-up Activities: Magnetic Coupling Recommendation

Installation & Labour Cost

Installation can take up to 2 hours depending upon the size of the motor. Labour for this process will cost approximately $100. The installation process can be viewed in the video below.

Implementation Schedule

Installation of the magnetic coupling will take approximately 2 hours. With assistance from the video referenced above, the process time may be decreased.

Energy Saving Cost

Assuming the motor runs for 3,300 hours per year,

Energy savings due to the magnetic coupling = 2 kW/hr

$$\frac{Energy\ Savings}{Year} = 2\left[\frac{kW}{hr}\right] * 3{,}300\ \left[\frac{hr}{yr}\right] = \mathbf{6{,}600\ kWh}$$

Assuming $0.08/kWh, the annual savings from a unit with a 15 hp motor-pump system,

$$Annual\ Savings = 6{,}600\ [kWh] * 0.08\ \left[\frac{\$}{kWh}\right] = \mathbf{\$528\ per\ year}$$

Department of Energy Recommendation [1]

Magnetically coupled ASDs (adjustable speed motors) offer some operating advantages that are desirable for niche applications. They provide speed control that can be up to 30% more efficient than fan damper control and 44% more efficient than using throttling valves for pump flow control. However, they capture only about 60% of potential energy savings compared to conventional VFDs. Relative to a conventional ASD, energy savings decrease as the motor operating speed is reduced.

Department of Energy says that not all magnetic couplings are compatible with vertical-shaft motors or belt-driven loads, they are maintenance intensive and require repair by technicians with specialized training for vertical-shaft motors or belt-driven loads.

Success Stories [1]

Department of Energy mentioned that the installation of magnetically coupled adjustable speed drive have the saved 633,000 kilowatt-hours for a 250-hp/2,300-V motor.

They provide speed control that can be up to 30% more efficient than fan damper control and 44% more efficient than using throttling valves for pump flow control.

Suppliers

The Centre of Sustainable Energy and Environmental Engineering has no affiliation with the following vendors. The following suggestions are simply a recommendation

Company	Website
FluxDrive	Here
FluxDrive	Here
Made-in-China	Here
Direct Industry	Here
MHR	Here
Dexter	Here

There are different types of couplings such as **Face to Face, Tubular, Planar.** The link here provides detailed explanations of each. A dependable coupling can cost up to $2,000 depending on the size of the motor.

Technicians

Technician	Location	Phone	Website
Pearson Pump Sales and Services	Goldsboro, NC	919-734-4267	Here
Rocky Mount Electric Motor	Rocky Mount, NC	252-446-1510	Here
Hill & Ferencz Electric Motor Co	Goldsboro, NC	919-736-7373	Here

References

[1] A. M. Office, “Energy Tips : MOTOR SYSTEMS Magnetically Coupled Adjustable Speed Motor Drives.”