

Deciding to rewind or replace your electric motor

Although infrequent, electric motor failure can have serious consequences and, in many cases, it can be difficult to know just what to do. As business downtime and losses mount, it's very easy to make a panicked decision over whether to rewind and repair, or replace your motor.

The conundrum motor owners face is a difficult one. With new high-efficiency motors available, do they take the plunge and invest in a whole new motor altogether that promises higher efficiency levels but with significantly greater costs? Or, do they commit to a motor repair or rewind? While the cost is often lower, many are concerned about the potential inefficiencies that an electric motor rewind can bring — yet are these worries grounded in fiction?

This misconception is a result of some small studies that focused specifically on smaller motors. It is claimed that carrying out a rewind can drop efficiency by between 1% and 5% each time it is rewound. Considering the associated expense and sheer volume of energy these motors use, this is naturally concerning. However, more recent research has countered these findings.

22 new motors from 50 to 300 hp were included in a study by EASA and AEMT, which was carried out in association with Nottingham University. Overall, the results found that when electric motors were rewound using good practice, there was no significant change in the efficiency of the motors. However, in some instances, efficiency actually increased. This clearly dispels the belief that a rewind is actually detrimental to a motor's performance.

Determining whether to rewind or replace

With the myth dispelled and the new findings in mind, you may not need to invest in an expensive electric motor. Of course, in cases of catastrophic failure, this may be your only option. However, it's very important to fully evaluate your options to make sure you make the right choice in terms of operation, cost and efficiency. This can be done by focusing on a series of key areas, as explained by Houghton International.

Fit for purpose

As needs change over time, your electric motor may now be unsuitable. Review the scale of the damage alongside the requirements for the motor's processes and duty cycles. If the motor is no longer suitable or too damaged, your option is to replace the motor.

Stator core and rotor

If suitability is not an issue, checking the stator core and rotor is next on your list of priorities. If significant damage is present, it may be more beneficial to purchase a new motor, as depending on the extent of the damage, repairs can be costly.

It goes without saying that you should weigh up your options ahead of purchasing a new motor. For example, if the lead times for the motor you need are long, you may decide to repair rather than replace to minimise downtime.

Examine mechanical parts

Damage to the shaft, frame, bearing housing and other mechanical parts could become a reality following motor failure. Examine the extent of the damage; you may be able to replace the affected parts at a lower cost than replacing the entire motor.

EPAct or Nema Premium motor

Failure could be the motivation to upgrade to a more efficient motor. If you are considering making the investment, make sure you fully understand the return you'll receive from doing so. Consider the energy savings you'll make alongside the expected life of the motor and its hours of operation. Always consider your overall budget too, to make sure the replacement aligns with your current financial position.

Keep in mind that if you are satisfied with your current motor efficiency, an [electric motor rewind](#) or repair that is carried out by a qualified service centre will not have a significant impact in terms of efficiency.