Like in many other situations in life, the right level of cool can mean the difference between keeping things running smoothly and suffering a heat-induced breakdown. When an electric motor is in operation, the rotor and stator losses generate heat which must be managed through an appropriate cooling method. Efficient cooling has a significant impact on the lifetime of your motor. This is especially the case for the bearings and the insulation system, which are the components most vulnerable to overheating. In addition, long-term overheating can cause metal fatigue.

This basic rule of thumb illustrates the relationship between heat and lifetime:

* The lifetime of your motor’s isolation system is divided by two for every 10°C over the rated temperature and multiplied by two for every 10°C below.
* The lifetime of your motor’s bearing grease is divided by two for every 15°C over the rated temperature and multiplied by two for every 15°C below.

In addition to ensuring the health of the motor, maintaining optimal temperature levels are important to avoid efficiency reduction in general.

There are many cooling options available for electric motors. The optimal choice depends on your application, where the motor is mounted, the operating environment and several other factors.