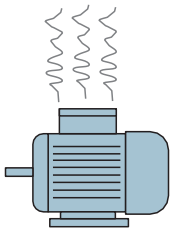


What is Temperature Rise?

Electric motors naturally heat up during operation due to copper and iron losses. Temperature rise refers to the increase in the winding temperature of the motor compared to the ambient temperature.

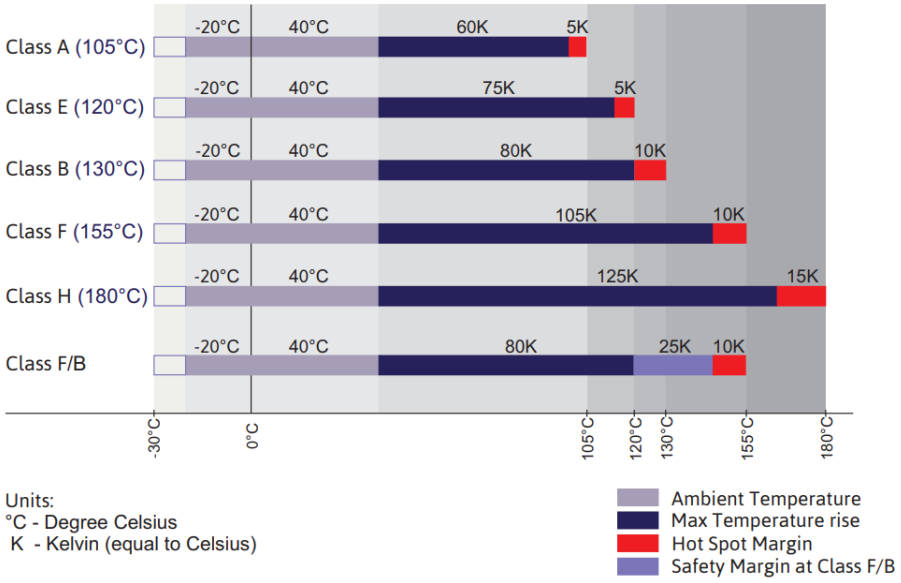
For example, if the ambient temperature is 40°C and the winding temperature is 100°C, the temperature rise is 60°C.

What is Insulation Class?

The insulation class defines the maximum temperature limit the insulation materials used in the motor windings can withstand. These temperature limits are determined by standards and are as follows:

- **Class A:** 105°C
- **Class E:** 120°C
- **Class B:** 130°C
- **Class F:** 155°C
- **Class H:** 180°C

These temperature values include the sum of the motor's maximum ambient temperature, temperature rise, and hot spot margin.



Hot spots are areas on the windings where the temperature rise is highest, leading to greater heating of insulation materials. To ensure protection in these regions, lower temperature limits are set for the insulation.

Expressions like **F to B, H to F,** or **F/B, H/F** represent insulation and temperature rise classes. The first letter indicates the insulation class, while the second represents the temperature rise class, defining the relationship between insulation durability and maximum temperature rise.

ELK motors have been produced with Class **F to B (F/B)**.This indicates that the motor's insulation materials can withstand up to 155°C while the maximum temperature rise is limited to 80 K. As a result , the motors have a temperature reserve of 25K. This reserve can be utilized for short-term overload, a higher ambient temperature (above 40°C), for supply voltage/frequency fluctuation etc.

PTCs Thermistors setting for:	Alarm	Tripping
Insulation class F	140°C	155°C
Insulation class H	170°C	180°C