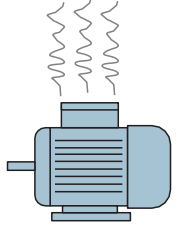
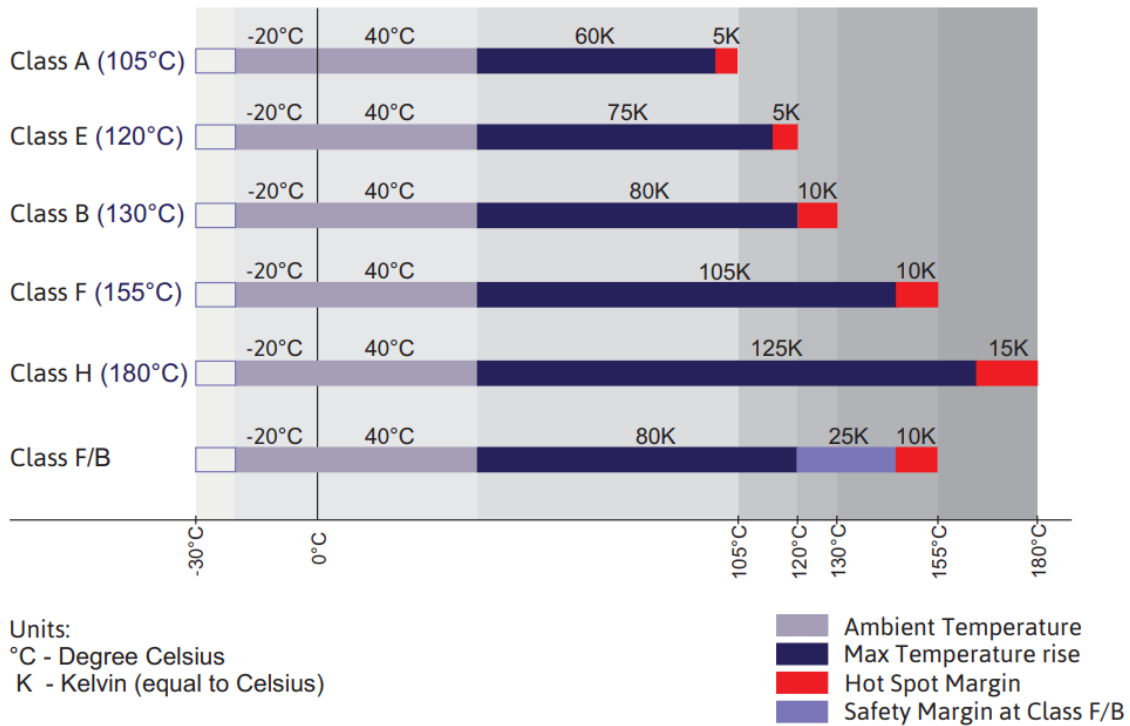


Various insulation materials are used in electric motors and each has its own function.

- Enamel wire insulation
- Slot and phase insulation materials (insulation between the winding and the stator lamination pack and phase insulation between the windings heads).
- Winding impregnation.
- Insulating sleeve used to cover wire/lead connections.
- Insulation of winding leads (between the winding and the terminal board).



These materials are specified in thermal classes referenced as Y-A-E-B-F-H-C. Every thermal class has its own temperature limit. Each material of a specific class needs to retain its mechanical and electrical properties within the temperature limit.



The maximum permissible temperature rise of the winding is determined based on the thermal class temperature limits. The temperature of the winding increases as a result of the copper and iron losses in the electric motor during operation. The winding temperature rise is determined through measuring the winding resistance, which increases with increasing temperature. To allow for any Hot Spots in winding lower temperature limits are specified for the insulation materials.

ELK motors have been produced with insulation class F with winding temperature rise in accordance with the class B (max 80K). This means that the motors have a temperature reserve of 25K. This reserve can be utilised 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

