CLAIMS

1. An elevator, characterized by comprising:

a door control motor, which drives opening and closing of a door of the elevator and has star-connected coils; and

a door control board, which controls the driving of the door control motor, and has a temperature-rise monitoring mechanism for monitoring a coil temperature of the door control motor,

the temperature-rise monitoring mechanism comprising:

a coil initial temperature acquiring unit, which obtains a temperature of the coils as coil initial temperatures (Tu1, Tv1, Tw1) before the door control motor starts to operate;

a voltage measuring unit, which is connected to the door control motor to measure phase voltages (Uu, Uv, Uw) of each phase of the coils of the door control motor;

a current measuring unit, which is connected to the door control motor to measure phase currents (IvF, IuF, IwF) of each phase of the coils of the door control motor in synchronization with measurement of the phase voltage;

a coil initial resistance value calculation unit, which is connected to the voltage measuring unit and the current measuring unit and which, before the door control motor starts to operate and in a state where operation of the door control motor is stopped, calculates a resistance value of the coils as a coil initial resistance value according to the measured phase voltage and phase current of the coils by the following Expression 1,

Expression 1: Rul=Uu/IuF, Rvl=Uv/IvF, Rwl=Uw/IwF;

a coil real-time resistance value calculation unit, which is connected to the voltage measuring unit and the current measuring unit and which, after the door control motor has been operated for a predetermined period of time and in a state where the door is completely closed, calculates a coil real-time resistance values (Ru2, Rv2, Rw2) according to the measured phase voltage and phase current of the coils by the following Expression 2,

Expression 2: Ru2=Uu/IuF, Rv2=Uv/IvF, Rw2=Uw/lwF;

a temperature rise calculation unit, which is connected to the coil initial temperature acquiring unit, the coil initial resistance value calculation unit and the coil real-time resistance value calculation unit, and which calculates a temperature rise value of the coils according to the coil initial temperature, the coil initial resistance value and the coil real-time resistance value by using a resistance method, the temperature rise values

are calculated by the following Expression 3,

Expression 3: Tu2=((Ru2/Ru1)-1)*（234.5+Tu1), Tv2=((Rv2/Rv1)-1)*(234.5+ Tv1), Tw2=((Rw2/Rw1)-1)*(234.5+ Tw1),

the temperature-rise monitoring mechanism monitoring the coil temperature of the door control motor in real time according to the temperature rise value.

2. The elevator as claimed in claim 1, characterized in that,

the temperature-rise monitoring mechanism further comprises:

a comparison unit, which is connected to the temperature rise calculation unit and compares the temperature rise value from the temperature rise calculation unit with a preset temperature upper limit value; and

a warning unit, which is connected to the comparison unit and issues a warning when the comparison result of the comparison unit is that the temperature rise value exceeds the temperature upper limit value.

3. The elevator as claimed in claim 1, characterized in that,

the elevator is provided with an operation mechanism enabling the user to perform various inputs,

the coil initial temperature acquiring unit is connected to the operation mechanism and acquires a specified temperature value inputted by the user through the operation mechanism as the coil initial temperature.

4. The elevator as claimed in claim 1, characterized in that,

provided on the door control board is a temperature sensor, which is connected to the door control motor and measures temperature of the coils of the door control motor,

the coil initial temperature acquiring unit reads the temperature value of the temperature sensor as the coil initial temperature before the door control motor starts to operate.

5. The elevator as claimed in claim 3 or 4, characterized in that,

the elevator is provided with a remote monitoring mechanism, which is connected to the temperature-rise monitoring mechanism to remotely monitor the coil temperature of the door control motor.

6. The elevator as claimed in claim 1, characterized in that,

the temperature upper limit value is set in advance according to the temperature levels of the motor.