SUMMARY OF IS/IEC 60947-4-3 : 2014 - Low-Voltage Switchgear and Control gear Part 4 Contactors and Motor-Starters Section 3 - a.c semiconductor motor controllers and contractors for non-motor loads (Second Revision)

With the development of Technology, the Mechanical type contactors for a.c. non motors loads are getting replaced with a.c. semiconductor controller and contactors for switching function for an electrical load (non-motor load) and an OFF-state. A controller or a contactor is defined by its rated voltages, currents, frequency, duty cycle etc.

The consumer expects Semiconductor controller and contactors must have 1. Reliability of repeated switching On and Off operations of the load currents without unduly getting heated up of the contactors and its terminals 2. Causing least arcing effects during operation results in less danger to the surroundings. 3. Better handling capabilities of current loads without short circuits in the contactor itself. 4. Trip the circuits during overload conditions if the contactors are provided with tripping circuits.5. What type of controller/contactors used for different loads?

IS/IEC 60947-4-3: 2014 specifies Utilization categories for Typical application of the a.c. semiconductor controller and contactors for example AC-51 utilization category of the contacts to be used in non-inductive or slightly inductive loads and in resistance furnaces etc. Depends on the utilization category the standard specifies Overload current profile and ON-time/OFF-time requirement and the requirement for control circuits of the controller also specified.

The standard outlines specific limits for:

- Temperature rise when carrying load currents: For checking of capability to carry load currents depends on Duty Cycle of the controller,
- Marking requirements: To guide the consumer for easy selection of type of controller for their specific requirements of loads
- Glow wire test on Insulating parts of the controller: To ensure fire propagating properties of the controller under severe fault conditions
- Creepage Distances and Clearances to ensure safe working of controllers under Humid conditions without short circuits
- Insulation Dielectric properties: for the case of normal and surge voltages
- Normal load and over load performances of the controller etc.

In summary, IS/IEC 60947-4-3: 2014 ensures that the a.c. semiconductor controller and contactors for switching function for an electrical load (non-motor load) having high quality, safety and reliability and robustness in operation. Adherence to these quality requirements is crucial for operation and selection of a.c. semiconductor controller and contactors for switching function for an electrical load (non-motor load). Next time you purchase a.c. semiconductor controller and contactors look for the BIS mark to ensure they meet these standards, giving you peace of mind for your safety and reliable performance of a.c. semiconductor controller and contactors.