

Electrical Blog No. 17

Electric Blankets

An electric blanket is a blanket comprises electrical control devices and heating elements for body warming during sleeping in a cold weather. In recent years, electrical engineers have put much effort in research and development to customize the needs of people. Nowadays, electric blankets can respond to both room and body temperatures. A sleeper can maintain a desired temperature even in a room with low ambient temperature. Many users prefer electric blankets because their use can reduce energy consumption for heating of a bed room.

An electric blanket mainly consists of three main components: a specially woven cloth called the shell; the heating element in the form of insulated wire; and a bedside control, including the power cord. For the shell, manufacturers commonly use a blend of polyester and acrylic, commonly used in the blanket industry. Heating element is usually placed above the top bed sheet and is a positive temperature coefficient material. It produces and senses heat at the same time along its entire length, thus eliminating the need for thermostats. This special wiring is encased in an insulated jacket made of a proprietary blend of plastic. The temperature controls of modern electric blankets are designed by sensing the changes in skin and air temperature made required setting adjustment. In some advanced model of blankets, the control can be programmable to facilitate pre-warming a bed at a pre-set time and keeping the bed to a desired temperature. For electric blankets to be supplied in Hong Kong, they shall have provided with the necessary safety features including overcurrent protection and thermal cut-out, and have passed a series of safety tests. In general, they should conform to the requirements of the international safety standard IEC 60335-2-17 and in conjunction of IEC 60335-1.

The Electrical Blog is contributed by the Electrical Division. If you would like to know more about this topic, please contact the Division Hon Secretary, Ir Simon Chung at simon.chung@arup.com