

### **3.6 Unvented thermal storage type electric water heaters**

- (1) Thermal storage type electric water heaters which are designed for household use and are not provided with individual expansion pipes, i.e. unvented type, are classified as prescribed products.
- (2) Other types of electric water heaters are not classified as prescribed products and should comply with the essential safety requirements listed in the Regulation if they are designed for household use, examples of which include :
  - (A) instantaneous electric water heater;
  - (B) thermal storage type free-outlet electric water heater; and
  - (C) vented thermal storage type electric water heater.
- (3) Specific safety requirements
  - (A) The safety standard to which the water heater conforms and the storage capacity in litres (l) should be clearly and permanently marked on the body of the water heater in addition to the marking requirements stipulated in the essential safety requirements.
  - (B) Manufacturer's installation instructions including recommendations and warnings to users and installers etc., should also be provided and clearly marked.
  - (C) Hot water cylinder or tank of a capacity of not less than 100 litres, should -
    - (I) if made of mild steel, comply with the requirements for cylinders or tanks, as the case may be, of BS 417, Part 2 for galvanized mild steel cisterns, tanks and cylinders;
    - (II) if made of copper, comply with BS 699 for copper cylinders for domestic purposes or with BS 1566, Parts 1 and 2 for copper indirect cylinders; and
    - (III) after completion of all fabrication of the storage cylinder of the electric water heater but before insulation, be tested by sealing all connections and subjected to an internal pressure of 1.5 times the static water pressure head available at the water heater, either hydraulically for a period of not less than 5 minutes or pneumatically for a period of not less than 2 minutes. The rate of pressure should not exceed 1.3 bar/s and no significant distortion should be observed.
  - (D) The unvented thermal storage electric water heater should be fitted with the following safety devices :
    - (I) a thermostat to control the heating of the stored water;

- (II) a thermal cut-out (complying with BS 3955) to cut off the supply of electricity if the stored water is heated above the temperature setting of the thermostat and before the operation of the temperature and pressure relief valve is initiated. The thermal cut-out should be connected in series with the thermostat and should be reset manually after dismantling of the enclosure of the water heater.
- (III) a temperature and pressure relief valve which shall be either :
  - (a) (i) a non-resettable temperature relief valve having a setting of 90<sup>0</sup>C, and complete with manual test easing gear; and
  - (ii) a pressure relief valve having a set pressure of not greater than the maximum design pressure of the water heater or than 1000 kPa, and complete with manual test easing gear;
  - or (b) a non-resettable temperature and pressure relief valve having a set temperature of 90<sup>0</sup>C and a set pressure not greater than the maximum designed pressure of the water heater or than 1000 kPa, and complete with manual test easing gear;
  - or (c) a temperature and pressure relief valve complying with EN 1490 or equivalent safety standards. [Notice of Exemption dated 8 March 2002]

(4) Other relevant legislation and safety guidelines on the use of electric water heater

- (A) The suppliers and installers of electric water heater should also follow the requirements stipulated in the Waterworks Regulations which are made under the Waterworks Ordinance (CAP. 102). Installation of the electric water heaters (parts other than electric wiring) shall be carried out by licensed plumbers.
- (B) The electrical parts of the electric water heaters should be installed by electrical workers and electrical contractors registered with EMSD under the Electricity Ordinance (CAP. 406).
- (C) The safe functioning of an electric water heater relies on the correct installation of the heater and its proper operation and maintenance after installation. There should not be any attempts to modify or tamper with the safety devices, electrical installation and plumbing of the water heater.

- (D) Registered electrical contractors/workers and licensed plumbers should be employed to conduct regular checks on the water heater and carry out maintenance and repair as necessary.