ICS 97.100.10
CCS Y 63

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 20429-2024

Replacing GB 20429-2006

Installation rule for electrical water heaters

电热水器安装规范

Issued on: July 24, 2024 **Implemented on: August 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

1 Scope, normative references and terms

1 The document lays down the requirements for the installation accessories, the installation requirements, the installation operating procedure and the qualification requirements for installers of electrical water heaters. It applies to the installation of the electrical water heaters covered by GB/T 4706.11 and GB/T 4706.12, referred to below as water heaters.

2 The normative references are GB/T 1002 on single-phase plugs and socket-outlets for household and similar purposes, GB/T 2099.1 on plugs and socket-outlets for household and similar purposes, GB/T 4706.11 on the particular requirements for instantaneous water heaters and GB/T 4706.12 on the particular requirements for storage water heaters.

3.1 user - individual, household or social body that uses the water heater product and receives the water heater service.

3.2 professional installer - person with a certain grounding and technical experience who has passed professional training and is authorised to complete the installation of a water heater in the correct manner.

3.3 installing base - load-bearing surface that supports and fixes the water heater. Note: usually a wall, floor or ceiling of the building.

3.4 installing frame - structural part that allows the water heater to be fixed securely to the installing base. Note: mounting brackets, hooks and hanging frames all count as installing frames.

3.5 installation for water heater - complete activity in which the professional installer, taking account of the actual installation environment, fixes the water heater in place and carries out the correct assembly, connection, commissioning and explanation so that its intended function is achieved.

4 Installation accessories for water heaters and their requirements

4.1 The accessories and fittings used to install the water heater are to meet the relevant national and industry standards and the installation instructions; where there is no national or industry standard, they are to meet the relevant standard of the water heater manufacturer. The following key accessories and fittings need the authorisation of the water heater manufacturer before use: expansion bolts; installing frame; mixing valve; shower head; shower hose; safety valve; temperature and pressure valve; discharge pipe; sealing gasket; non-return valve; pressure reducing valve; expansion tank.

4.2 The fixing or connecting bolts that carry load and resist shear during installation are to meet the relevant national standards and the installation instructions. Where the professional installer fits expansion bolts into concrete or a similar installing base, the diameter and depth of the hole are to be decided according to the material and the soundness of the base and a suitable size of expansion bolt chosen. The number of fixing points on the installing base is not to be fewer than that given in the installation instructions, so that the installation is stable, firm and reliable.

4.3 The pipework connecting the water heater to the tap water supply of the user is to have a certain strength and toughness, and for the safety of the user its resistance to high and low temperature, to water pressure and to corrosion is to reach the relevant national standards.

5 Installation requirements for water heaters

5.1 Installation is to be carried out by a professional installer. The choice of accessories and

the installation are to meet the document and the general principles of the safety regulations, and to comply with the laws, regulations and standards issued by national and local government on electrical matters, building and environmental protection, as well as with the installation instructions of the product. The water heater to be installed is to have a mounting structure suited to its intended use and type and is to carry at least a safety certification mark.

5.2 The installation position is chosen after considering the conditions at the premises of the user: places where flammable gas may leak or where strongly corrosive gases may be present are to be avoided, as are places under the direct action of strong electric or magnetic fields; places subject to vibration should be avoided and the run between the water heater and the draw-off point should be kept short. Space is to be left for later repair, servicing, replacement, relocation and removal. The power connection is to be at a position where there is no risk of electric shock. The position is to take account of the power and water supply points so that water is not sprayed directly onto the water heater or the power connection; where the power connection is in a place liable to splashing, waterproofing measures are needed. The position is also to take account of free drainage so that drainage does not become obstructed. A class I water heater is to have an independent power connection with reliable earthing, failing which it is not to be installed. Unless the water heater is designed for outdoor use, the effects of direct sunlight, rain and wind are to be taken into account so that it works normally.

5.3 The installing base is to be firm and solid with sufficient load-bearing capacity, and its structure and material are to meet the relevant building requirements; its load-bearing capacity is to be not less than four times the total mass of the water heater when full of water. Where the strength of the base falls short, the user is to reinforce, support or damp it, or a dedicated installing frame is to be used, so that the normal operation of the water heater is not affected and no safety hazard arises.

5.4 The supply voltage of the water heater is to lie within 85 % to 110 % of its rated voltage. A water heater fitted with a plug is to use its own fixed socket-outlet, the structure of which matches the plug of the water heater and meets GB/T 2099.1 and GB/T 1002. Where the water heater has requirements concerning electromagnetic interference from the environment, such interference is to be avoided. The capacity of the supply circuit is to be greater than 1.5 times the rated current of the water heater. The water heater is to be connected through a residual current protective device, unless it already incorporates residual current protection beyond earthing protection.

5.5 The load-bearing capacity of the installing frame is to be not less than twice the total mass of the water heater when full of water. The connections between the installing base, the installing frame and the water heater are to be firm, stable and reliable so that the installed water heater does not slip off, overturn or fall. The installing frame and the fasteners are to be rust-proofed. On completion of the installation the pressure relief outlet

of the water heater is to be open to the atmosphere.

5.6 The installation is not to have an adverse effect on the use of the product, and within one year of use of the water heater poor installation is not to affect its normal operation and performance.

6 Installation operating procedure and installer qualification

6.1 Before installation the installer is to bring the necessary installation tools and the calibrated inspection instruments, check the water heater and its accessories against the packing list for completeness and condition, and read the operating and installation instructions carefully so as to know the functions, method of use, installation requirements and installation method of the water heater to be fitted.

6.2 Before installation the installer is to check the power supply, the position of the socket-outlet, the water pressure, the drainage, the earthing, the available space and the load-bearing capacity of the installing base of the user, and find out whether the capacity of the meter, the wiring and the socket-outlet meets the requirements of the water heater; help the user choose the installation position; check with a phase tester or test pen that the live and neutral conductors of the supply to be used are correctly connected; and check the earthing of the supply by visual inspection and with an effective or dedicated earthing measuring device such as an earth resistance meter or phase tester, and judge whether it is sound. Where the requirements for installing the water heater cannot be met, the installer is to tell the user clearly and advise rectification; where rectification is not possible, the installer is to refuse to install.

6.3 During installation the accessories supplied with the appliance and the specified fittings are to be used, and the installer is not to substitute, omit or modify them at will; where a part has to be made up on site, it is to be made to the document and the installation instructions, to meet the relevant national standards and to be agreed by the manufacturer of the water heater before use. A suitable installation method is chosen according to the particular model and the installing frame is fixed firmly to the installing base; the work is not to damage the structures on which the safety of the building depends, and where necessary measures are to be taken so that neither the installer nor others are put at risk. On a closed water heater, where a non-return valve is added to the pipework, a means of safe pressure relief is to be provided between the non-return valve and the water heater. Where a safety valve is fitted, the discharge pipe is to be installed with a continuous downward run, open to the atmosphere, so that discharge is free and safe. When installation is complete the vessel of the water heater is filled until water flows continuously from the outlet.

6.4 After installation the quality of the work is checked, the main points being that the pipework is connected and routed sensibly with no leakage at the joints; that the mechanical connections are firm and reliable, the installing frame not slipping, working