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GB 20665-2015

Replacing GB 20665-2006

Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Domestic Gas Instantaneous Water Heaters and Gas Fired Heating and Hot Water Combi-Boilers

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Foreword

The 4.3 in this Standard is mandatory, while the rest are recommended.

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB 20665-2006 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Domestic Gas Instantaneous Water Heater and Gas Fired Heating and Hot Water Combi-Boilers*; compared with GB 20665-2006, this Standard has the major technical changes as follows besides the editorial changes:

- Change, in the scope, “this Standard is applicable to the water heater and heating furnace with heat load no greater than 70kW” into “this Standard is only applicable to the water heater and heating furnace with gas as the energy and heat load no greater than 70kW”;
- Add, in the normative references, GB 25034 *Gas-Fired Heating and Hot Water Combi-boilers*, CJ/T 336 *Condensing Domestic Gas Instantaneous Water Heaters*, CJ/T 395 *Gas-Fired Heating and Hot Water Condensing Combi-Boilers*.
- Add, in Chapter 4, “4.1 Basic Requirements”;
- Change the single limit on minimum allowable energy efficiency indicators for each level only against the original rated load and part of load heat efficiency in Table 1 into the lower limit of larger value and upper limit of smaller value against the heat efficiency.
- In addition to the requirements stipulated in GB 6932 *Domestic Gas Instantaneous Water Heater*, add the relevant requirements stipulated in GB 25034 *Gas-Fired Heating and Hot Water Combi-boilers*, CJ/T 336 *Condensing Domestic Gas Instantaneous Water Heaters*, CJ/T 395 *Gas-Fired Heating and Hot Water Condensing Combi-Boilers* in the test method.

This Standard was proposed by Department of Resources Conservation and Environmental Protection of NDRC, and Department of Energy Conservation and Resources Utilization of MIIT.

This Standard shall be under the jurisdiction of National Technical Committee for Standardization of Energy Fundamentals and Management (SAC/TC 20).

Drafting organizations of this Standard: China National Institute of Standardization, National Test and Supervision Center of Gas Appliance, National Test and Supervision Center of Gas Appliance (Foshan), Guangdong Vanward New Electric Co., Ltd., Guangzhou Devotion Domestic Boilers Manufacturing Co., Ltd., A.O. Smith (China) Water Heater Co., Ltd., Guangdong Macro Gas Appliance Co., Ltd., Haier Water

Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Domestic Gas Instantaneous Water Heaters and Gas Fired Heating and Hot Water Combi-Boilers

1 Scope

This Standard specifies the minimum allowable values of energy efficiency, energy-conservation evaluating value, energy efficiency grades, test methods and inspection rules for domestic gas instantaneous water heater (including condensing domestic gas instantaneous water heater, hereinafter referred to as water heater), and gas fired heating and hot water combi-boilers.

This Standard is applicable to the water heater and heating furnace with gas as the only energy and heat load no greater than 70kW.

This Standard is not applicable to the gas storage water heater.

The gas indicated in this Standard shall conform to the provisions of GB/T 13611.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 6932-2001 Domestic Gas Instantaneous Water Heater

GB/T 13611 Classification and Essential Property of City Gas

GB 25034-2010 Gas-Fired Heating and Hot Water Combi-Boilers

CJ/T 336-2010 Condensing Domestic Gas Instantaneous Water Heater

CJ/T 395-2012 Gas-Fired Heating and Hot Water Condensing Combi-Boilers

b) Cold water temperature in water inlet shall be $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$.

When measuring the thermal efficiency of the rated heat load, the test method shall be performed as per the Table 26 of GB 6932-2001. When measuring thermal efficiency of 50% rated heat load, adjust the effluent temperature to be $20\text{K}\pm 1\text{K}$ higher than the influent temperature; other test methods shall be performed as per the Table 26 of GB 6932-2001.

5.2 Condensing domestic gas instantaneous water heater

The test conditions and test methods of the condensing domestic gas instantaneous water heater shall be performed as per the requirements of CJ/T 336-2010; respectively measure the thermal efficiency for rated heat load and 50% rated heat load.

5.3 Gas-fired heating and hot water combi-boiler

The test conditions in hot water state of gas-fired heating and hot water combi-boiler shall be performed as per the requirements of GB 25034-2010. When measuring the thermal efficiency of the rated heat load, the test method shall be performed as per 7.7.3 of GB 25034-2010; when measuring the thermal efficiency of 50% rated heat load, adjust the effluent temperature to be $20\text{K}\pm 1\text{K}$ higher than the influent temperature, other test methods shall be performed as per 7.7.3 of GB 25034-2010. The test conditions in heating state of heating furnace shall be performed as per the requirements of GB 25034-2010; when measuring thermal efficiency of the rated heat load, the test method shall be performed as per 7.7.1 of GB 25034-2010; when measuring thermal efficiency of 30% rated heat load, the test method shall be performed as per 7.7.2.2.1 of GB 25034-2010.

5.4 Gas-fired heating and hot water condensing combi-boilers

The test conditions in hot water state of gas-fired heating and hot water condensing combi-boilers shall be performed as per CJ/T 395-2012; when measuring the thermal efficiency of the rated heat load, the test method shall be performed as per 7.6.4 of CJ/T 395-2012; when measuring the thermal efficiency of 50% rated heat load, adjust the effluent temperature to be $20\text{K}\pm 1\text{K}$ higher than the influent temperature, other test methods can be performed as per 7.6.4 of CJ/T 395-2012. The test conditions in heating state of gas-fired heating and hot water condensing combi-boilers shall be performed as per CJ/T 395-2012; when measuring the thermal efficiency of the rated heat load, the test method shall be performed as per 7.6.2 of CJ/T 395-2012; when measuring the thermal efficiency of 30% rated heat load, the test method shall be performed as per 7.6.3 of CJ/T 395-2012.

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