

Translated and Published by Japanese Standards Association

$JIS \ S \ 2109 : {}^{_{2019}}$

(JIA)

Gas burning water heaters for domestic use

ICS 27.060.20;91.140.65;97.100.20 Reference number : JIS S 2109 : 2019 (E)

Date of Establishment: 1970-05-01 Date of Revision: 2019-04-22 Date of Public Notice in Official Gazette: 2019-04-22 Investigated by: Japanese Industrial Standards Committee Standards Board for ISO area Technical Committee on Consumer Life Products

JIS S 2109:2019, First English edition published in 2020-10

Translated and published by: Japanese Standards Association Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

> In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

© JSA 2020

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

Contents

Page

1	Scope1
2	Normative references2
3	Terms and definitions
4 4.1 4.2 4.3	Classification
5 5.1 5.2	Performance ······ 8 Performance of water heater ····· 8 Performance of appliance of pressure regulated direct connection with house supply type ····· 26
$ \begin{array}{c} 6\\ 6.1\\ 6.2\\ 6.3\\ 6.4\\ 6.5\\ 6.6\\ 6.7\\ \end{array} $	Structures, materials and dimensions of appliance26General requirements for structure26Materials27Structure and dimensions by appliance type30Structure and dimensions of indoor type appliance by air supply and31exhaust type31Structure and dimensions of outdoor type appliance33Structure by installation mode33Appliance that has a function to automatically start operation at the
	scheduled time
7 7.1 7.2 7.3 7.4	Structure and dimensions of parts35General requirements for structure and dimensions35Gas supply inlet35Appliance valve36Pilot gas tube36
$7.5 \\ 7.6$	Orifice or part having a function of orifice
7.7 7.8 7.9	Air shutter
7.107.117.12	Ignition timer and/or extinguishing timer
$7.13 \\ 7.14$	Part where water passes and part contacting with water

7.15	Pressure relief valve41			
7.16	Water pressure reducing check valve41			
7.17	Exhaust fan ······41			
7.18	Combustion air blower			
8	Structure of appliance that uses the power source42			
9	Test methods44			
9.1	Performance test			
9.2	Installation condition and use condition of appliance			
9.3	Gas input rating test44			
9.4	Combustion condition test			
9.5	Temperature rise test at normal time46			
9.6	Temperature rise test at abnormal time49			
9.7	Safety device test			
9.8	Duty-cycle operation test			
9.9	Continuous combustion test and intermittent combustion test			
9.10) Water drop test			
9.11	Thermostat activation test (opening/closing type)			
9.12	2 Pressure relief valve activation test			
9.13	Using performance test of instantaneous water heater			
9.14	Using performance test of storage type closed vessel water heater			
9.15	5 Using performance test of bath tub water heater			
9.16	3 Test of structures, materials and dimensions			
9.17	7 Hydrostatic pressure test of water passage			
9.18	Durability test of solder			
10	Inspection			
10.1	Type inspection69			
10.2	Product inspection 69			
11	Marking ······69			
11.1	1 Marking on products ·······69			
11.2	2 Handling instruction			
12	Instruction manual71			
Annex A (normative) Safety requirements for instantaneous water heater and				
bath tub water heater105				

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Gas Appliances Inspection Association (JIA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14. Consequently **JIS S 2109**:2011 is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Blank

Gas burning water heaters for domestic use

1 Scope

This Standard specifies requirements for water heating appliance mainly for general domestic use (hereafter referred to as appliance), using liquefied petroleum gas or utility gas (hereafter referred to as gas) as the fuel. Appliances covered in this Standard are given in Table 1.

In this Standard, the pressure other than that indicated as the atmospheric pressure means the gauge pressure.

NOTE The instantaneous gas water heater and bath tub gas water heater are designated as liquefied petroleum gas equipment, etc. under the Act on the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas and as gas equipment under the Gas Business Act (see Annex A).

Туре	Marked gas input rating kW	Function and other information	Figure		
Instantaneous gas water heater (hereafter referred to as instantaneous water heater)	70 max.	Appliance of exclusive use for hot water supply having mechanism capable of opening/closing gas passage relating to water supply, and heating water during passing of water through heat exchanger.	Figure 34, Figure 35		
Storage type closed vessel gas water heater (hereafter referred to as storage type closed vessel water heater)	42 max.	Appliance of exclusive use for hot water supply having the mechanism to heat water previously stored in the hot water storage vessel capable of opening/closing of gas passage relating to heated water temperature, of which the hot water storage part is tightly closed and not subject to the pressure of exceeding 0.1 MPa and having a heat transfer area of 4 m ² or under.	Figure 36, Figure 37		
Bath tub gas water heater (hereafter referred to as bath tub water heater)	Appliance of bath part ^{a)} only: 21 max. Combination bath water and potable water heater of which hot water supply part has an instantaneous water heater structure: 91 max. (21 max. for bath part and 70 max. for hot water supply part)	Device for direct circulation heating of water in a bath tub using combustion heat of gas. Appliance consisting of a bath part only which is integrally constituted by combining a heat exchanger for heating water in a bath tub (hereafter referred to as heater body) and a burner (hereafter referred to as bath burner), and appliance of complex type which is a combination of the bath part and hot water supply function.	Figure 38, Figure 39		
Note ^{a)} The bath part includes that which has other functions than the hot water supply function.					

Table 1 Appliances