DIN EN 13203-3:2022-10 (E)

Gas-fired domestic appliances producing hot water - Part 3: Assessment of energy consumption of solar supported gas-fired appliances

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 General test conditions 8
4.1 Reference conditions 8
4.2 Measurement uncertainties 8
4.2.1 General 8
4.2.2 Steady-state conditions 8
4.3 Test conditions 8
4.3.1 General 8
4.3.2 Test room 8
4.3.3 Water supply 8
4.3.4 Initial adjustment of the appliance 8
4.3.5 Conditions for the determination of the maximum load profile 9
4.3.6 Electrical supply 9
4.3.7 Solar circuit 9
4.3.8 Solar thermal input 9

5 Determination of the energy consumption of the solar supported gas-fired appliance 9
5.1 General 9
5.2 Load profiles and solar cycle 9
5.3 Determination of the energy recovered by the useful water 10
5.4 Calculation of gas energy 10
5.4.1 Calculation of daily gas energy consumption in summer mode 10
5.4.2 Calculation of daily gas energy consumption in winter mode 11
5.4.3 Daily gas energy consumption seasonally weighted 11
5.5 Calculation of daily electrical energy consumption 11
5.6 Measurement of energy consumption in standby mode 11
5.6.1 General 11
5.6.2 Calculation of daily gas energy consumption in standby mode 11
5.6.3 Calculation of daily auxiliary electrical energy consumption in standby mode 11
5.7 Determination of daily auxiliary energy consumption in the off mode 11

6 Determination of ration of wasted water to total water 11

7 Eco design related products data 11
7.1 Water heating energy efficiency 11
7.2 Smart control factor (SFC) and smart 11
7.3 Annual fuel consumption (AFC) 11
7.4 Annual electricity consumption (AEC) 11

Annex A (informative) Test conditions 12

Annex B (informative) Examples of test rig and measurement devices 13

Annex C (informative) Declaration of the Maximum Load Profile 14

Annex D (informative) Solar collector simulator 15

D.1 General 15
D.2 Derivation of the equation used for the calculation of TC,out 16
D.3 Alternative solar collector simulator 17

Annex E (normative) Appliances covered by this document 20

Bibliography 22