DIN EN 12309-6:2025-11 (E)

Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW - Part 6: Calculation of seasonal performances

Contents

Page

European foreword 4

1 Scope 5
1.1 Scope of EN 12309 5
1.2 Scope of this Part 6 to EN 12309 5

2 Normative references 5

3 Terms and definitions 6

4 Calculation methods for reference SGUE and SAEF in cooling mode 6
4.1 General 6
4.2 Part load conditions 6
4.2.1 General 6
4.2.2 Air-to-water appliances 7
4.2.3 Water-to-water and brine-to-water appliances 7
4.3 Calculation of reference SGUEc 8
4.4 Calculation of reference SAEFc 9
4.5 Calculation of reference annual cooling demand (Qrefc) 9
4.6 Calculation of reference SAEFcon 9
4.7 Procedures for the determination of GUEc / AEFc values 10

5 Calculation methods for reference seasonal performance in heating mode 10
5.1 General 10
5.2 Part load conditions 11
5.2.1 General 11
5.2.2 Air-to-water appliances 12
5.2.3 Water-to-water and brine-to-water appliances 15
5.3 Calculation of reference SPERh 18
5.4 Calculation of reference SGUEh 18
5.5 Calculation of reference SAEFh 20
5.6 Calculation of reference annual heating demand (Qrefh) 21
5.7 Calculation of reference SAEFhon 21
5.8 Procedures for the determination of GUEh / AEFh values 22

Annex A (informative) Calculation example for reference SGUEc and SAEFc 23

Annex B (informative) Calculation example for reference SGUEh, SAEFh and SPERh 25

Annex C (normative) Number of hours in thermostat off mode, stand-by mode and off mode for reference SAEFc and SAEFh calculation 27

Annex D (normative) Calculation of the reference seasonal performance in heating mode for bivalent appliances 31

D.1 General 31
D.2 Determination of supplementary heater efficiency and heating capacity 31
D.3 Determination of GUEh and AEFh 32
D.4 Seasonal performance figures for the bivalent appliance as a whole 33
D.5 Seasonal performance figures for the sole heat pumps appliance during active mode 35

Annex E (normative) Procedures for the determination of GUEh, AEFh and SAEFh value with multiple identical heat pumps 37

E.1 General 37
E.2 Calculation procedure for GUEh and AEFh for fixed capacity heat pumps 37
E.3 Calculation procedure for GUEh and AEFh for variable capacity heat pumps 38
E.4 Calculation procedure for SAEFh 39

Annex F (normative) Calculation of seasonal space heating energy efficiency for monovalent or bivalent gas-driven sorption heat pump based heating appliances 40

Annex ZA (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 813/2013 of 2 August 2013 [OJEU L 239/136, 6.9.2013] aimed to be covered 43

Annex ZB (informative) Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 811/2013 of 18 February 2013 [OJEU L 239/1, 6.9.2013] aimed to be covered 44

Bibliography 45