

ISO 5222-1:2023-08 (E)

Heat recovery ventilators and energy recovery ventilators - Testing and calculating methods for seasonal performance factor - Part 1: Sensible heating recovery seasonal performance factors of heat recovery ventilators (HRV)

Contents

Page

Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols and abbreviated terms.....	2
5 Tests.....	3
5.1 General requirements.....	3
5.2 Test conditions.....	3
5.3 Test methods.....	3
5.3.1 General.....	3
5.3.2 Energy saving stage limit temperature.....	4
5.3.3 Sensible heating recovery performance test.....	4
5.3.4 Determination of bypass outdoor temperature.....	4
5.3.5 Measurement of power input of heat recovery ventilator with bypass ventilation function.....	4
5.3.6 Determination of the frosting temperature by test.....	5
6 Calculations.....	6
6.1 Gross sensible heating recovery effectiveness (ϵ_{sh}).....	6
6.2 Sensible heating coefficient of energy.....	6
6.2.1 Sensible heating coefficient of energy: ducted ventilators.....	6
6.2.2 Sensible heating coefficient of energy: unducted ventilators.....	7
6.3 Calculation of seasonal performance factor of sensible heating recovery (F_{sh}).....	7
6.3.1 Reference outdoor air heating load and sensible heating recovery capacity.....	7
6.3.2 The characteristics of sensible heating recovery capacity against outdoor temperature.....	8
6.3.3 Power input characteristics of sensible heating recovery against outdoor temperature.....	9
6.3.4 Outdoor temperature bin distribution for heating.....	10
6.3.5 Calculation of seasonal sensible heating recovery capacity (E_{sh}).....	10
6.3.6 Calculation of seasonal sensible heating recovery power input ($P_{in,E}$).....	10
6.3.7 Calculation of seasonal performance factor for sensible heating recovery (F_{sh}).....	11
7 Test report.....	11
Annex A (informative) The schematic diagram of HRV heating (H) operation.....	12
Annex B (informative) The default outdoor temperature bin distribution for heating.....	14
Annex C (normative) Method of determination of the temperature $T_{F,0}$.....	15
Annex D (informative) Calculating method for seasonal performance factor when setting a specific application heating load.....	16
Annex E (normative) Calculation of the bypass outdoor temperature.....	18
Annex F (informative) Report template.....	19
Bibliography.....	22