ISO 13348:2025-06 (E)

Fans - Tolerances, methods of conversion and technical data presentation

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 Symbols and abbreviated terms 10

5 Performancetolerancesforpurpose-designedfansandseries-producednon-certified fans ... 13
5.1 Information to be provided by the purchaser 13
5.1.1 Operational 13
5.1.2 Tolerance grade 13
5.2 Information to be provided by the fan supplier 13
5.2.1 Essential information 13
5.2.2 Optional parameters 14
5.3 Tolerances 14
5.3.1 Tolerance grades 14
5.4 Purchasing arrangements 16
5.5 Contractual testing 16
5.5.1 Tolerance magnitude near optimum efficiency 16
5.5.2 Operation at other than optimum efficiency 20
5.5.3 Performance acceptance testing 21

6 Performancetolerancesforseries-producedfansincertifiedratingsprogrammes 28
6.1 General 28
6.2 Fan laws 28
6.3 Check-tests 28
6.4 Air performance tolerances 29
6.4.1 Check-test tolerances 29
6.4.2 Airflow Tolerance 29
6.4.3 Power tolerance (TH) .....

31 6.4.4 Efficiency tolerance 33

6.4.5 Other efficiency metrics 33
6.4.6 Application of tolerances 33
6.5 Sound Tolerances 33
6.5.1 Check-Test tolerances 33
6.5.2 Sound tolerances in octave bands 33
6.5.3 Sone value tolerance 33
6.5.4 A-weighted sound power level 33

7 Performance tolerances for Category E fans (free inlet and free outlet without a partition) 34
7.1 General 34
7.2 Performance tolerances for Jet fans 34
7.3 Performance tolerances for circulating fans 35
7.4 Performance tolerances for air curtains 35

8 Methods of conversion 36
8.1 Conversion of air performance test data 36
8.1.1 General 36
8.1.2 Similarity 36
8.1.3 Conversion rules and the fan laws 36
8.1.4 Conversion rules for series-produced fans 37
8.1.5 Conversion rules for extrapolation 37

8.1.6 Interpolation for fans incorporating one systematic geometrical change 49
8.1.7 Other identities 50
8.2 Conversion of sound power test data 51
8.2.1 General 51
8.2.2 Conditions and limits for application of conversion rules to total sound power level 51
8.2.3 Generalized methods for sound power level prediction 51

9 Technical data presentation 58
9.1 General 58
9.2 Essential information 58
9.3 Fan performance chart 58
9.4 Additional information 60
9.4.1 Sound data 60
9.4.2 Electrical data 61
9.4.3 Mechanical data 61
9.4.4 Air performance 61
9.4.5 Same fan used for different installations 61

Annex A (normative) Documentation 64

Annex B (normative) Marking 65

Annex C (informative)Systemresistanceasafunctionofflowrate 66

Annex D (informative) Scaling method 69

Bibliography 76