DIN EN ISO 5802:2016-02 (E)

Industrial fans - Performance testing in situ (ISO 5802:2001 + Amd 1:2015) (includes Amendment :2015)

Contents

Page

Foreword to EN ISO 5802:2008 4

[A1] Foreword to EN ISO 5802:2008/A1:2015 [A1] 5

Foreword 6

Introduction 7

1 Scope 8

2 Normative references 8

3 Terms, definitions and symbols 8
3.1 Terms and definitions 8
3.2 Symbols 21

4 Quantities to be measured 25

5 General conditions and procedures concerning *in situ* tests 25
5.1 General recommendations 25
5.2 Selection of test point when only the system resistance can be varied 25
5.3 Fans fitted with adjustment devices 26
5.4 System throttling devices allowing the system resistance to be altered 26
5.5 Selection of the test point when the system resistance cannot be varied 26
5.6 When correction of the coefficient deduced from the test is not necessary 27

6 Instrumentation 27
6.1 Instrumentation for measurement of pressure 27
6.2 Measurement of air velocity 28
6.3 Measurement of temperature 30
6.4 Determination of density 31
6.5 Measurement of rotational speed 32

7 Determination of fan pressure 32
7.1 Location of pressure measurement plane 32
7.2 Measurement of fan pressure 34

8 Determination of flow rate 43
8.1 Choice of measuring method 43
8.2 Choice of measuring section 43
8.3 Determination of flowrate using differential pressure devices 45
8.4 Determination of flowrate by velocity area methods 45

9 Determination of power 61
9.1 Definition of performance characteristics relating to the power of a fan 61
9.2 Losses during transmission of power from the motor to the impeller 63
9.3 Methods for determination of power 63
9.4 Measuring instruments 66
9.5 Precautions to be taken during *in situ* tests 66

10 Uncertainty associated with the determination of fan performance 66
10.1 General 66
10.2 Performance errors 67
10.3 Uncertainty of measurement 67
10.4 Specified uncertainties 67
10.5 Analysis of uncertainty 67

Annex A (normative) **Position of exploration lines for a marginal wall profile compatible with a general power law** **74**

Annex B (normative) **Determination of the position of the marginal exploration lines in cases not covered by annex A** **78**

Annex C (normative) **Minimum straight lengths required upstream and downstream of the differential pressure devices (DP device) used for flow measurement** **81**

Annex D (normative) **Loss allowance for straight, smooth ducts and standardized airways** **89**

Annex E (normative) **Rotating vane anemometer calibration** **91**

Bibliography **93**