

ISO 12759-6:2024-05 (E)

Fans - Efficiency classification for fans - Part 6: Calculation of the fan energy index

| Contents | | Page |
|--|--|-------------|
| Foreword | | iv |
| Introduction | | v |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms, definitions and symbols | 1 |
| 3.1 | Terms and definitions | 2 |
| 3.1.1 | General terms | 2 |
| 3.1.2 | Impeller types | 4 |
| 3.1.3 | Fan types | 5 |
| 3.2 | Symbols | 7 |
| 4 | General | 7 |
| 4.1 | Minimum testable configuration | 7 |
| 4.2 | FEI pressure basis | 8 |
| 4.3 | Appurtenances | 8 |
| 4.4 | Fans embedded in other equipment | 9 |
| 5 | Fan energy index | 9 |
| 5.1 | General | 9 |
| 5.2 | Reference electrical input power | 9 |
| 5.2.1 | General | 9 |
| 5.2.2 | Reference shaft power | 10 |
| 5.2.3 | Reference transmission efficiency | 11 |
| 5.2.4 | Reference motor efficiency | 11 |
| 5.2.5 | Reference motor controller efficiency | 12 |
| 5.3 | Actual fan electrical input power | 12 |
| 5.3.1 | General | 12 |
| 5.3.2 | Measurement of fan electrical input power | 13 |
| 5.3.3 | Fan electrical input power calculation using ISO 12759-2 | 14 |
| 5.3.4 | Combined fan shaft power with tested motor or motor and controller | 14 |
| 5.3.5 | Fan electrical input power calculation for fans with motors of unknown efficiency | 16 |
| 6 | Use of FEI | 17 |
| 6.1 | Requirements for use of FEI | 17 |
| 6.2 | Published FEI values | 17 |
| Annex A (normative) Fan types, test configurations and FEI pressure basis | | 18 |
| Annex B (informative) Usage of FEI | | 21 |
| Annex C (informative) Fan arrays | | 27 |
| Annex D (informative) Practical issues with embedded fans | | 29 |
| Annex E (informative) Electrical power measurement -- Calculation to other speeds and densities | | 30 |
| Annex F (informative) Basis for the reference electrical input power calculations | | 36 |
| Bibliography | | 40 |