

DIN EN ISO 11011:2015-08 (E)

Compressed air - Energy efficiency - Assessment (ISO 11011:2013)

| Contents | | Page |
|---|---|-------------|
| Foreword | | 4 |
| Introduction | | 5 |
| 1 Scope | | 6 |
| 2 Normative references | | 6 |
| 3 Terms and definitions | | 6 |
| 3.1 | General | 7 |
| 3.2 | Flow | 8 |
| 3.3 | Pressure | 9 |
| 3.4 | Storage | 10 |
| 3.5 | Volume | 10 |
| 4 Roles and responsibilities | | 11 |
| 4.1 | Identification of assessment team members | 11 |
| 4.2 | Site management support | 12 |
| 4.3 | Communications | 12 |
| 4.4 | Access to equipment, resources, and information | 12 |
| 4.5 | Assessment objectives and scope | 12 |
| 4.6 | Identification of other assessment team members | 12 |
| 4.7 | Objective check | 12 |
| 5 Assessment methodology | | 13 |
| 5.1 | General | 13 |
| 5.2 | Systems engineering methods | 13 |
| 5.3 | Systems engineering process | 13 |
| 5.4 | System assessment process | 14 |
| 6 Parameters and their determination | | 15 |
| 6.1 | General | 15 |
| 6.2 | Measurement | 15 |
| 6.3 | Pressure | 15 |
| 6.4 | Flow rate | 16 |
| 6.5 | Power | 17 |
| 7 Initial data collection and evaluation | | 18 |
| 7.1 | General | 18 |
| 7.2 | Plant background | 18 |
| 7.3 | Plant function | 18 |
| 7.4 | Compressed air system definition | 18 |
| 7.5 | Inventory of key end-use air demands | 18 |
| 7.6 | Heat recovery | 18 |
| 7.7 | Baseline period and duration of data logging | 19 |
| 7.8 | Energy use | 19 |
| 7.9 | Compressed air system supply efficiency | 19 |
| 7.10 | System volume | 19 |
| 7.11 | Pressure | 20 |
| 7.12 | Flowrate | 20 |
| 7.13 | Critical air demands | 20 |
| 7.14 | Compressed air waste | 20 |
| 7.15 | Air treatment | 20 |
| 7.16 | Compressor control | 21 |
| 7.17 | Storage | 21 |
| 7.18 | Maintenance | 21 |
| 7.19 | Ambient intake conditions | 21 |
| 8 Analysis of data from assessment | | 21 |
| 8.1 | General | 21 |

| | | |
|----------|---|-----------|
| 8.2 | Baseline profiles | 22 |
| 8.3 | System volume | 24 |
| 8.4 | Pressure profile | 24 |
| 8.5 | Perceived high-pressure demand | 26 |
| 8.6 | Demand profile | 27 |
| 8.7 | Critical air demands | 28 |
| 8.8 | Compressed air waste | 29 |
| 8.9 | Optimized air treatment | 30 |
| 8.10 | Reduced system operating pressure | 31 |
| 8.11 | Balance of supply and demand | 32 |
| 8.12 | Maintenance opportunities | 32 |
| 8.13 | Heat recovery opportunities | 33 |
| 9 | Reporting and documentation of assessment findings | 33 |
| 9.1 | Assessment report | 33 |
| 9.2 | Confidentiality | 34 |
| 9.3 | Energy-saving opportunities | 34 |
| 9.4 | Data for third-party review | 34 |
| | Annex A (informative) Introduction to energy assessment | 35 |
| | Annex B (informative) Assessment activities — General | 37 |
| | Annex C (informative) Assessment activities — Supply | 42 |
| | Annex D (informative) Assessment activities — Transmission | 48 |
| | Annex E (informative) Assessment activities — Demand | 52 |
| | Annex F (informative) Competencies | 55 |
| | Bibliography | 56 |