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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 16665-2025

Replacing GB/T 16665-2017

**Monitoring and testing for energy saving of air compressor unit
and air distribution system**

空气压缩机组及供气系统节能监测

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 16665-2017 "Energy Saving Monitoring of Air Compressor Units and Air Supply Systems" and is consistent with GB/T 16665-2017. Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) The scope of application has been changed (see Chapter 1, Chapter 1 of the.2017 edition);
- b) Some terms and definitions have been added and revised (see Chapter 3, Chapter 3 of the.2017 edition);
- c) Monitoring items for compressed air stations and compressed air dryers have been added (see 4.2.3);
- d) The monitoring item for compressed air leakage rate at compressed air stations has been removed (see 4.2.1 in the.2017 version);
- e) An energy-saving monitoring test method for compressed air stations and compressed air dryers has been added (see 5.2);
- f) Monitoring methods for the acceptance of newly built and renovated stations have been added (see 5.2.6);
- g) Requirements for measuring instruments have been added and changed (see 5.4,

5.5 in the 2017 edition);

h) A method for converting non-electric energy into electricity has been added (see 6.1.1);

i) A method for calculating the power transmission efficiency of compressed air stations with heat recovery has been added (see 6.1.4);

j) A method for calculating the overall power transmission efficiency of compressed air stations with different compressed air qualities has been added (see 6.1.6);

1 Scope

GB/T 16665-2025 is the Chinese national standard covering auditing a compressed air installation - the specific power measured at the machine, the pressure profile through the distribution, the leak rate found from the no-load duty cycle, and the limits an installation is judged against. It replaces GB/T 16665-2017, with the demand-side guidance GB/T 46564-2025. In force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 16665-2017.

This document specifies the energy-saving monitoring items, monitoring requirements, monitoring methods, test items, and calculation methods for air compressor units and air supply systems. Energy conservation monitoring and evaluation. This document applies to electric motor-driven air compressor units, air compressor units with supply pressures between

0.2 MPa and

1.6 MPa, and air compressor units that supply air pressures between

0.2 MPa and

1.6 MPa. Energy conservation monitoring of air systems and compressed air stations during operation and during the acceptance of new construction and renovation. This document does not apply to compressed air stations located in special locations such as underground mines, culverts, and ships.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 3853 Acceptance Test for Positive Displacement Compressors

GB/T 4975 General Terminology for Positive Displacement Compressors

GB/T 10893.1 Compressed air dryers - Part

3 Terms and Definitions

GB/T 3853, GB/T 4975, GB/T 13277.1, GB/T 15487, GB 19153, GB/T 25630, JB/T 7662, The terms and definitions defined in JB/T 7664 and JB/T 9107, as well as the following terms and definitions, apply to this document.

3.1 air compressor unit An overall system consisting of a drive motor, an electronic control or speed regulation device, a transmission mechanism, an air compressor, and functional components.

5 Methods for measuring oil vapor and organic solvents

GB/T 15487 Method for measuring the flow rate of positive displacement compressors

GB 17167 General Rules for the Configuration and Management of Energy Measuring Instruments in Energy-Using Units

GB 19153 Minimum Energy Efficiency Values and Energy Efficiency Grades for Positive Displacement Air Compressors

GB/T 25630 Performance Test Procedure for Turbo Compressors

GB 50029 Design Code for Compressed Air Stations

GB/T 45785 Energy Performance Evaluation of Compressed Air Stations

JB/T 7662 Terminology for Positive Displacement Compressors - Rotary Compressors

JB/T 7664 Compressed Air Purification Terminology

JB/T 9107 Reciprocating Compressor Terminology