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

GB/T 4980-2025

Replacing GB/T 4980-2003

**Determination of sound level for noise emitted by displacement
compressors**

容积式压缩机噪声的测定

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 4980-2003 "Determination of noise level of positive displacement compressors".

In addition to the integration and editorial changes, the main technical changes are as follows.

- Changed the scope (see Chapter 1, Chapter 1 of the 2003 edition);
- Added all terms and definitions (see Chapter 3);
- Changed the requirements for measuring instruments (see Chapter 5, 4.1 of the 2003 edition);
- Changed the installation and operation of the compressor (see Chapter 6, 4.3 of the 2003 edition);
- Changed the measuring point position (see 7.3.2, 5.1.3.2 of the 2003 edition);
- The measurement method has been changed (see 8.1.2, 5.1.4 of the 2003 edition);
- Changed the background noise correction method (see 8.3, 5.1.1 of the 2003 edition);
- Added the noise measurement method for compressors with main dimensions greater than 7m (see 9.1, Appendix D);
- Changed the uncertainty (see Chapter 10, 4.2.3 of the 2003 edition);
- The acoustic environment identification method has been changed (see Appendix A, 5.3 of the 2003 edition, Appendix E).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

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This document was first issued in 1985, revised for the first time in 2003, and this is the second revision.

Determination of Noise of Positive Displacement Compressors

1 Scope

This document describes the method for determining the noise emitted by positive displacement compressors (including the method for determining the sound power level of positive displacement compressors and the method for determining the noise emitted by positive displacement compressors in the workplace).

The standard specifies the method for determining the emission sound pressure level at the working position and specifies the installation, operation and working requirements of positive displacement compressors during the determination.

This document applies to positive displacement compressors including the driver.

2 Normative references

GB/T 3102.7

GB/T 3241-2010

GB/T 3785.1-2023

GB/T 3947

GB/T 15173-2010

3 Terms and definitions

The terms and definitions defined in GB/T 3102.7 and GB/T 3947 and the following apply to this document.

3.1

A machine that increases static pressure by sequentially sucking a certain volume of gas into and out of a closed space through the displacement of moving parts.

3.2 emission

The airborne sound radiated by a specific noise source (such as the machine under test) under specific operating and installation conditions.

Note. The basic noise emission is the sound power level of the sound source itself and the emission sound pressure level in the workplace and other specified locations near the sound source.

3.3

The sound pressure at a specified position on a reflecting plane near a sound source working under specified installation and operating conditions.

Note 1. The emitted sound pressure does not include the background noise and the reflected sound outside the test target's allowed one or more reflecting surfaces.

Note 2. The unit of emitted sound pressure is Pascal (Pa).

3.4 L_p

The ratio of the square of the emitted sound pressure p to the square of the reference sound pressure p_0 is 10 times the logarithm with base 10. $L_p = 10 \lg \frac{p^2}{p_0^2}$