

ICS 23.140

CCS J 72



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

GB/T 4975-2018

Displacement compressors vocabulary -- General

Issued on: July 13, 2018

Implemented on: February 1, 2019

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

1995 edition 2.7, 2.8);

1 Scope

2 General

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 4975-1995 "General Terminology for Positive Displacement Compressors".

Compared with GB/T 4975-1995, the main technical changes in this standard are as follows.

--- Removed the French equivalent and French index terminology in the term (see Chapter 2 ~ Chapter 9,.1995, Chapter 2 ~ Chapter 9)

And Appendix C);

--- The ideal volumetric flow rate of the compressor is modified to the theoretical volumetric flow rate of the compressor (see 2.2,.1995 edition 2.2);

---The standard inspiratory state and the standard exhaust state are changed to the standard inspiratory position state and the standard exhaust position state, respectively (see 2.7, 2.8,

1995 edition 2.7, 2.8);

--- Removed the standard inhalation position, standard exhaust position, standard inspiratory state, inspiratory temperature, inspiratory pressure terminology

The expression in (see 2.5, 2.6, 2.7, 3.6, 4.9,.1995 edition 2.5, 2.6, 2.7, 3.6, 4.9);

---Speed, mass ratio energy, volumetric specific energy (specific power) symbol increase N, em, ev (see Table 1,.1995 edition table D1);

--- Increased the isentropic power, unit input specific power and isentropic efficiency terms commonly used at home and abroad (see 6.8, 7.3, 8.6);

--- Added after the volumetric energy (specific power), and increased kW/(m³ . min⁻¹) for other practical units (see Table 1,.1995 edition)

Table D1);

--- The contents of the symbols and units are moved from the appendix to the body (see Chapter 10, Appendix D of the 1995 edition);

--- Added a checklist of this standard and ISO 3857-1:1977 and ISO 3857-2:1977 chapter number (see Appendix A).

This standard uses the redrafting method to modify the use of ISO 3857-1:1977 "Compressors, pneumatic tools and mechanical terms. Part 1. General

And ISO 3857-2: 1977 "Compressors, pneumatic tools and mechanical terms - Part 2. Compressors".

This standard has more structural adjustments than ISO 3857-1:1977 and ISO 3857-2:1977. This standard is listed in Appendix A.

A checklist of the number of chapters in ISO 3857-1:1977 and ISO 3857-2:1977.

The technical differences between this standard and ISO 3857-1:1977 and ISO 3857-2:1977 and their reasons are as follows.

--- Removed the tip Mach number, volume factor, power compressor interstage pressure coefficient, power type not applicable to positive displacement compressors

Terms such as compressor full pressure coefficient and thermal balance of power compressor;

--- Increased the isentropic power, unit input specific power and isentropic efficiency terms commonly used at home and abroad (see 6.8, 7.3, 8.6);

--- Increased Celsius temperature, rotational speed, mass specific energy, volumetric specific energy (specific power), isentropic power, actual power, isentropic efficiency terminology

No. t , N , e_m , e_v , P_{isen} , P_{real} , η_{isen} (see Table 1).

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Compressor Standardization Technical Committee (SAC/TC145).

This standard was drafted. Hefei General Machinery Research Institute, Hefei General Mechanical and Electrical Products Testing Institute Co., Ltd.

1 Scope

This standard defines the terms, symbols and definitions or descriptions of positive displacement compressors (hereinafter referred to as compressors).

This standard applies to all types of positive displacement compressors.

2 General

2.1

Compressor scavenging volume swept volume of a displacement compressor

The volume that the first stage compression element of the compressor is swept within one revolution.

2.2

Compressor theoretical volume flow displacement of a displacement compressor

The volume that the compressor's first stage compression element sweeps per unit of time.

2.3

Clearance volume clearance volume

The volume of the compression chamber occupied by residual gas at the end of the compressor cycle.

2.4

Relative clearance volume relative clearance volume

The ratio of the clearance volume of a certain stage to the scavenging volume of the compression element of the stage.

2.5

Standard inspiratory position standard inlet point

A typical suction position is considered on the compressor, which varies with the structure and installation of the compressor.

Note 1. The standard suction position of a bare-packed compressor is generally at the first-stage intake flange or on the rotor casing. This position is generally used for inlet filtration for testing.

After the device or muffler, unless otherwise specified.

Note 2. If the manufacturer has no regulations, the standard suction position of the container compressor is at the position where the ambient gas enters the tank; or, for the non-closed box, the position is

Allows the gas to first enter the spatial position of an attachment such as a gas filter.

2.6

Standard exhaust position standard discharge point

A typical exhaust position is considered on the compressor, which varies with the compressor construction and installation.

Note 1. The standard exhaust position of bare compressors is generally at the exhaust flange.

--- Reciprocating compressor. used at the last stage (or only) exhaust flange or as required by the standard to reduce the flow of compressed gas

The various chamber outlet flanges are pulsating and this position is described in the relevant documents.

--- Swing compressor. The last (or only) rotor housing is at the exhaust flange.

Note 2. The standard exhaust position of the manifold is at the terminal exit.

2.7

Standard inspiratory position state standard inlet condition

The state of the suction gas at the standard suction position of the compressor.

2.8

Standard exhaust position status standard discharge condition

The state of the exhaust gas at the standard exhaust position of the compressor.