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

GB/T 45775-2025

**Refrigerating systems and heat pumps - Valves - Requirements,
testing and marking
(English Translation)**

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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 is modified to adopt ISO 21922:2021 "Requirements, testing and marking of valves for refrigeration systems and heat pumps".

This document has the following structural adjustments compared to ISO 21922:2021.

---Appendix A to Appendix N correspond to Appendix I, Appendix H, Appendix E, Appendix L, Appendix K, Appendix A, Appendix B, Appendix C, Appendix D, Appendix J, Appendix F, Appendix G, Appendix N and Appendix M.

The technical differences between this document and ISO 21922:2021 and their reasons are as follows.

a) The normative reference GB/T 9237 replaces ISO 5149-1 (see Chapter 3) to increase operability and maintain consistency with the Chinese standard.

Coordination and consistency of the standard system.

b) ISO 5149-1, ISO 5149-2 and ISO 5149-4 (see 5.1) are replaced by the normative reference GB/T 9237;

The referenced GB/T 4706.32 replaces IEC 60335-2-40 and deletes the refrigeration system safety standards related to the United States and Europe (See 5.1) to adapt to my country's technical conditions, increase operability, and maintain coordination and consistency with my country's standard system.

c) In the requirements for metal materials, ISO 148-1 (see 6.1.1) is replaced by the normative reference GB/T 229 to adapt to my country's technical requirements.

technical conditions and improve the applicability of the standard.

d) In the classification of refrigerants, the normative reference GB/T 7778 replaced ISO 817 to adapt to my country's technical conditions, and Increase operability and maintain coordination and consistency with my country's standard system (see B.2).

e) In the compatibility requirements for sealing materials, the normative references GB/T 1690 and GB/T 11547 have replaced ISO 1817 and ISO 175 (see E.3) to adapt to my country's technical conditions and improve the applicability of the standards.

f) Deleted the calculation methods (see F.1.1) and valve component requirements (see L.1), the method for determining the size of manual valve operating components (see N.1), etc., in order to adapt to my country's technical conditions and improve the adaptability of the standard.

Usability.

The following editorial changes have been made to this document.

- a) Incorporates the amendments to ISO 21922:2021/Amd.1:2024. The outer margins of the clauses involved are indicated by vertical Double lines (||) are marked;
- b) Deleted the notes and examples of the definitions (see 3.1 and 3.3);
- c) Replaced ISO 6708:1995 with the informative reference GB/T 1047-2019, and modified the public Definition of dimensions (see 3.5 and Appendix A);
- d) Replaced ISO 7268:1983 with the informative reference GB/T 1048-2019, and modified the public Definition of pressure (see 3.6);
- e) The source of the definition of the main pressure-bearing components has been deleted (see 3.11);
- f) deleted the note regarding national legislation that may impose additional requirements on certification bodies (see 3.13);
- g) Added the explanation of the case where the symbol has no unit (see the note to Table 1);
- h) In the requirements for materials used for pressure-containing parts, EN 1563 is replaced by the informative reference GB/T 1348 (see 6.2);
- i) In the document requirements, the informative reference GB/T 18253 replaces ISO 10474 and the corresponding European European standard classification content (see 6.11);
- j) ISO 5149-2 and ISO 5149-4 are replaced by the informative reference GB/T 9237 (see 7.2 and C.5);
- k) In the valve seat sealing requirements, a note is added for the globe ball valve used for maintenance of CO₂ refrigeration system to reduce special safety risks.
(See Note 3 to 7.6.1);
- l) deleted the note on the treatment of European regulations (see 9.1);
- m) ISO 5149-2:2014 is replaced by the informative reference GB/T 9237-2017 (see B.1);
- n) Added the national standard nomenclature corresponding to some materials and provided supplementary explanations (see Note 4, Table C.2 and its footnote b in Appendix C);
- o) Deleted the contents of the methods, material information, formulas, etc. related to American and European standards in the notes and informative appendices (see 3.14, 6.1.1, 7.6.2, G.4, I.4.1, J.1, L.2, Table A.3 and Table A.4).

1 Scope

This document specifies the safety requirements for valves and other components with similar valve bodies (hereinafter referred to as "valves") used in refrigeration and heat pump systems.

Specific functional requirements and markings, including requirements for valves with extension pipes, procedures to be followed when designing valve pressure-containing parts, material selection, the standards to be adopted in the selection and the calculation method of the valve body strength degradation caused by low temperature in the safety assessment are discussed.

This document is applicable to valves with a maximum operating temperature not exceeding 200°C and a maximum operating pressure not exceeding 16 MPa, and pressure relief valves for pressure vessels.

Design of the valve body and bonnet of the release device (including the bursting disc device).

This document does not apply to any other aspects of the design or application of pressure relief devices.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 229 Metallic materials-Charpy pendulum impact test method (GB/T 229-2020, ISO 148-1:2016, MOD) GB/T 1690 Rubber, vulcanized or thermoplastic, test method for resistance to liquids (GB/T 1690-2010, ISO 1817:2005, MOD) GB/T 4706.32 Safety of household and similar electrical appliances Part 32: Particular requirements for heat pumps, air conditioners and dehumidifiers (GB/T 4706.32-2024, IEC 60335-2-40:2022, IDT) GB/T 7778 Refrigerant numbering method and safety classification GB/T 9237 Safety and environmental requirements for refrigeration systems and heat pumps (GB/T 9237-2017, ISO 5149-1~5149-4:2014, MOD) GB/T 11547 Plastics - Determination of resistance to liquid chemical agents (GB/T 11547-2008, ISO 175:1999, MOD) grouping system)

3 Terms and Definitions

The terms and definitions defined in GB/T 9237 and the following apply to this document.

valve