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

GB/T 3853-2017

**Displacement compressors -- Acceptance tests
(English Translation)**

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Foreword

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

This standard replaces GB/T 3853-1998 "positive displacement compressor acceptance test." this standard compared with GB/T 3853-1998, in addition to editorial changes outside the main technical changes are as follows.

--- Modify, add some terms and definitions, according to the ISO standard terms and conditions have been adjusted (see Chapter 3, 1998 edition Chapter 3);

--- Modify the required specific energy ratio, the required volume specific energy (specific power), relative clearance volume, absolute humidity symbol e_m , e_v , E , H_1 , Added

manufacturing tolerances, flow, mixing ratio of the symbol m , q , x (see Table 1, 1998 edition of Table 1);

--- Increased intercooler temperature code int (see Table 2);

--- Supplemented and modified by the suction volume flow method to measure the flow conditions (see 5.6, 1998 version 5.6.1);

--- Modify the suction pressure correction factor calculation method (see 6.7.2, 1998 version 6.7.2);

--- Added revised power calculation (see 6.8);

--- Modify the original Appendix A, Appendix E, Appendix F is Appendix H, Appendix F, Appendix G;

--- Increased liquid ring compressor acceptance test method (see Appendix A);

--- Increased naked compressors, container compressors to simplify the performance test process gas as the media requirements (see B.1.2 and C.1.2);

--- Modify naked compressor, power test allowed the maximum deviation from $\pm 20\%$ to $\pm 10\%$ (see Table B.2 and Table C.2, Tables B2 and C2 of the 1998 edition);

--- Increased on the variable speed internal combustion engine driven compressor-related performance measurement (see D.3.3.2);

--- Increased motor-driven bulk displacement compressors acceptance test (see Appendix E);

--- According to the ISO standard to amend the general air compressor performance test instrument accuracy (Table H.2, 1998 Edition A3);

--- Modify the measurement parameters allowed fluctuation range (H.1.2, 1998 edition A1.1 and Table 1);

--- Modify the allowable error of the cooling water flowmeter from $\pm 2\%$ to $\pm 5\%$ (see H.2.7, 1998 edition A2.7);

--- Remove the general air compressor fuel consumption measurement method (see the 1998 version of A5).

This standard uses redrafted Law Amendment using ISO 1217:2009 "positive displacement compressor acceptance test." this standard and ISO 1217:2009 technical differences and the reasons are as follows.

--- On the normative references, this standard made a technical adjustment of differences in order to adapt to China's technical conditions, adjust the situation set in the second chapter "Normative references", the specific adjustments are as follows.

- GB/T 6072.1 instead of ISO 3046-1 (GB/T 6072.1-2008, ISO 3046-1:2002, IDT);
- GB/T 8117.2 instead of IEC 60953-2 (GB/T 8117.2-2008, IEC 60953-2:1990, IDT);
- GB/T 16839.1 instead of IEC 60584-1:1995 (GB/T 16839.1-1997, idt IEC 60584-1:1995);
- GB/T 16839.2 instead of IEC 60584-2 (GB/T 16839.2-1997, idt IEC 60584-2:1982);
- GB/T 15487 instead of ISO 5167-1 and ISO 9300;
- Remove IEC 60584-3;
- Added some national standards that need to be quoted, including GB/T 1029, GB/T 1032, GB/T 1311 and GB/T 7676.1;
- According to the provisions of GB/T 1.1 will C2.3 and D3.2 suspended paragraph added a strip number and title, the other related article number to be adjusted accordingly and modify
- Increased by years of practice has proved suitable for China's national general situation of positive displacement air compressor performance measurement (see Appendix H);
- Remove the reference standard in ISO 1217:2009;
- This standard itself does not involve noise measurement, so delete the chapter on the scope of ISO standards for not applicable to the noise measurement instructions.

For ease of use, this standard also made the following editorial changes.

- Pressure unit "MPa" instead of "bar", and numerical conversion.

This standard is proposed by the China Machinery Industry Federation.

This standard by the National Standardization Technical Committee compressor (SAC/TC145) centralized.

1 Scope

This standard specifies the positive displacement compressor (hereinafter referred to as the compressor) acceptance test terms and definitions, symbols, measuring equipment, methods and precision Degree, test procedure, uncertainty of measurement, comparison of test result with specified value and test report.

Appendix A of this standard specifies the liquid ring compressor performance test methods.

This standard Appendix B, Appendix C and Appendix D provides for mass production of bare compressors and container compressors simplified acceptance test method.

Appendix E of this standard specifies the motor-driven container volumetric variable speed compressor acceptance test.

This standard Appendix F and Appendix G are given compressor reference conditions and uncertainty calculation method.

Appendix H of this standard specifies the performance of general air compressor test methods.

Note: According to this standard for all acceptance tests, the flow, power, specific power and other measurement tolerances in the contract stage or before the acceptance test by manufacturing the factory and the user negotiate to determine.

This standard applies to all types of positive displacement compressor acceptance test.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1029 three-phase synchronous motor test method GB/T 1032 three-phase asynchronous motor test method GB/T 1311 DC motor test methods GB/T 15487 volumetric compressor flow measurement method GB/T 6072.1 Reciprocating internal combustion engine performance - Part 1. Calibration and test methods for power, fuel consumption and oil consumption General requirements for engines (GB/T 6072.1-2008, ISO 3046-1:2002, IDT) GB/T 7676.1 direct acting analogue electrical measuring instruments and their accessories Part 1. Definitions and general requirements [GB/T 7676.1-1998, idtIEC 60051-1.1984 (97)] GB/T 8117.2 Turbine thermal performance acceptance test procedures Part 2. Method B various types and sizes of turbine wide standard Accuracy test (GB/T 8117.2-2008, IEC 60953-2:1990, IDT) GB/T 16839.1 Thermocouples Part 1. Index table (GB/T 16839.1-1997, idtIEC 60584-1.1995) GB/T 16839.2 Thermocouples Part 2. Tolerance (GB/T 16839.2-1997, idtIEC 60584-2.1982)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 General Terms

3.1.1

Acceptance test According to this standard performance test.