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PEOPLE'S REPUBLIC OF CHINA**

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Vacuum pumps -- Safety requirements

真空泵 安全要求

(English Translation)

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Foreword

Chapter 5 of this standard 5.1.1 a), b), c), f), g), 5.1.2, 5.1.5, 5.2.1, 5.2.2, 5.3.1, 5.3.2 in a), b), 5.4, 5.6.1, 5.6.2, 5.7, 5.8, 5.9, Chapter 6, Chapter 7, Chapter 8 8.3 are mandatory, others are recommended sex.

This Standard is a modified EN1012-2:1996 "Safety requirements for compressors and vacuum pumps - Part 2. vacuum pump" (in English).

This standard EN1012-2:1996 chapters, the same terms, the same technical content.

According to this standard EN1012-2:1996 redrafted with EN1012-2:1996 Difference is.

--- to the prior art used with standard vacuum, the EN1012-2:1996 "Safety requirements for compressors and vacuum pumps Part 2. Vacuum pumps, "the name was changed to China's" vacuum pumps - Safety requirements";

--- For EN1012-2:1996 international standard references and European standards have

been modified using our standard, this standard references these standards instead of our national or international standard corresponding to European standards; for EN1012-2:1996 international standard reference Criteria and European standards in our country there is not equivalent to the standard, the standard terms of reference of these national standards corresponding Instead of international standard or the corresponding European standard; the remainder is not equal to or modifications of the standard adopted as the European standard and the international standard Quasi, are directly referenced in this standard (see Appendix B of this standard);

--- Due to EN1012-2:1996 in reference files EN292-1, EN292-2 and not referenced in the standard, according to GB/T 1.1 in Provision be deleted;

--- Because EN1012-2. in 1996 cited documents EN12076 "measurement compressors and vacuum pumps noise emissions (engineering method)" Obsolete, we deleted the present standard reference standard was replaced with GB/T 21271 "Vacuum pump noise measurement technique";

--- increase the reference standard GB 2894 Safety signs;

--- the EN1012-2. the 1996 bar, mbar change cost standard Pa, kPa.

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

The term --- "this European Standard" to "this standard";

--- deleted EN1012-2:1996 Foreword;

--- deleted EN1012-2:1996 Introduction;

--- Added Appendix B "EN1012-2:1996 and Chinese standards, international standards corresponding standard number and name." Appendix A of this standard is normative, Annex B is an informative annex.

The standard proposed by China Machinery Industry Federation.

This standard by the National Standardization Technical Committee vacuum.

This standard was drafted. on Haikai Ni Vacuum Equipment Co., Ltd., Zhejiang Vacuum Equipment Group Co., Ltd., Chengdu South-ray machines Limited Department, the State Quality Supervision and Inspection Center for vacuum, Shenyang Institute of Vacuum Technology.

2 Normative references

Terms of the following documents become provisions of this standard by reference in this standard. For dated reference documents, all later Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to agreements based on this standard Whether the latest versions of these documents. For

undated references, the latest version applies to this standard.

GB/T 825 eyebolt (GB/T 825-1988, neq ISO 3266. 1984) GB 2894 Safety Signs (GB 2894-1996, neq ISO 3864. 1984) GB/T 3163 vacuum technology (GB/T 3163-2007, ISO 3529. 1981, MOD) GB 4793.1-2007 measurement, control, and laboratory safety requirements for electrical equipment with Part 1. General Requirements (GB 4793.1-2007, IEC 61010-1:2001, IDT) GB 5226.1-2002 Safety of machinery Electrical Equipment Part 1. General requirements (IEC 60204-1:2000, IDT) GB/T 5465.2 electrical equipment graphical symbols (GB/T 5465.2-1996, idt IEC 417:1994) GB/T 8196 mechanical safety device fixed and movable guards for the design and general requirements (GB/T 8196-2003, ISO 14120:2002, MOD) GB/T 12241 General requirements valve (GB/T 12241-2005, ISO 4126-1:1991, MOD) GB/T 12265.1 mechanical safety distances to prevent (GB/T 12265.1-1997 upper limbs danger zones, eqvEN294.1992) GB /14574 and verification of labeling machines and acoustic noise emission values apparatus T (GB/T 14574-2000, eqv ISO 4871.

1996)

GB/T 16273.1 device with graphical symbols common symbol (GB/T 16273.1-1996, neq ISO 7000. 1989) GB 16754 Safety of machinery - Emergency stop design principles (GB 16754-1997, eqv ISO/IEC 13850:1995) Ergonomics data GB/T 18153 Safety of machinery may contact the surface temperature of the heat surface temperature limit determined (GB/T 18153-2000, eqvEN563.1994) GB 18209.1 mechanical safety instructions, and the operation flag Part 1. Requirements for visual, auditory and tactile signals (GB 18209.1-2000, idt IEC 61310-1:1995) GB/T 21271 Vacuum pump noise measurement technique (GB/T 21271-2007, ISO 2151:2004, MOD) ISO/T R11688-1 acoustic recommended protocol machine and the low noise design examples Part 1. Program ENV1070 term mechanical safety EN1127-1 Explosive atmospheres explosion prevention and protection - Part 1. Basic concepts and methodology EN60079-0 electrical equipment explosive gas atmospheres Part 0. general requirements EN60529 cage (IP specification) proposed degree of protection EN61000-6-2 Electromagnetic compatibility (EMC) Part 6-2. General Standard for industrial environments Immunity EN61000-6-4 Electromagnetic compatibility (EMC) Part 6-4. Generic environmental emission standard industrial frequency

3 Terms and Definitions

ENV1070 and GB/T 3163 and established the following terms and definitions apply to this standard.

Within a specified space, lower than ambient atmospheric pressure in a gaseous state.

Note: Vacuum is generally measured residual gas pressure in units of Pascals (Pa) or milibar (mbar). 1mbar = 100Pa.

Generating, improvement and (or) a means for maintaining a vacuum.

Note: In this standard, the term "vacuum" and "pump" has the same meaning.

The gas is drawn into the inlet of the vacuum pump.

A vacuum pump or vent outlet.

The maximum inlet pressure of the pump can be started.

Maximum pressure pump outlet specified by the manufacturer.

Gas flow rate through the pump inlet, the gas pressure is typically expressed as the product of its volume generated per unit time.

In addition to the vacuum pumping of the material, such as a gas, vapor, mist liquid and entrained solid particles.

Vacuum pump operation used liquid.

3.10

Maximum pump outlet pressure equal to or higher than ambient pressure.

3.11

Maximum starting pressure or maximum outlet pressure below atmospheric pressure or a vacuum pump operating at lower pressures, it is usually with the primary Associated pump generates a pressure lower than the pressure generated by the single primary pump.

3.12

For generating a vacuum with a vacuum pump or a vacuum pump unit attachment. Accessories including piping, valves, filters, coolers, control means and other devices to meet performance requirements.

3.13

Using displacement vacuum pump chamber volume of the cycle to complete suction and exhaust means, the gas is compressed prior to exclusion.

3.14

Directional high-speed vapor stream and gas molecules collide with each other to carry the gas to the vacuum pump outlet for exhaust gas. Namely. Diffusion Jet pump and a diffusion pump.

3.15

The porous medium is pumped media or on very low surface temperature (below 120K) collecting, using a large effective area, or in the low Isothermal conditions was pumped down to vacuum adsorption medium. Example. adsorption pumps and cryogenic pumps. The term "low temperature" as used herein, is lower than the temperature 120K.