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

GB/T 30833-2014

**Pneumatic fluid power - Compressible fluids consumed by
equipment - Determination and measurement of compressed
air power**

气压传动 设备消耗的可压缩流体 压缩空气功率的表示及测量

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Machinery Industry Federation. This standard by the National Standardization Technical Committee of hydraulic and pneumatic (SAC/TC3) centralized. This standard is drafted by: Beijing University of Aeronautics and Astronautics. Participated in the drafting of this standard. Wuxi Institute of Technology Pneumatic Co., Ltd., Ningbo Xingjian Space Machinery Co., Ltd., Beijing Institute of Technology, Guangdong Zhaoqing Fangda Pneumatic Co., Ltd., Ningbo Sono Industrial Automation Equipment Co., Ltd. Zhaoqing City Jinke Hai Qidongyeya, Country Home Air Quality Supervision and Inspection Center, Industrial Automation Co., Ltd. Ningbo AirTAC. The main drafters of this standard. Ltd .. Shiyang, Fang Qinghua, Yang Sui Ran, high Zep, Li Jianguo, Wang Tao, Chen Dingzhi LAM, Mao Xinjiang, Chen Qi Fu, Stuart Hadrian, ZHANG Jia-xiong, Lu Bo, Liu Li Jiao, Chen early Yang, Liu Yong.

In the pneumatic system, power is to pass through the loop and compressed air control. This standard is based on the requirements of energy conservation policy for air power, that is compressed in a unit time through the status change Of the maximum can do mechanical work, we proposed a standardized way to represent and measure, established the allocation of an in pneumatic systems of energy, Loss and evaluation system utilization. Application of this standard will allow energy consumption pneumatic systems and components to be quantified, so a correct understanding of energy distribution in the pneumatic system, Take the right route energy-saving technologies, promoting manufacturers and users to improve the energy efficiency of pneumatic systems and components, and reduce waste. Pneumatic equipment compressible fluid consumption Representation and measurement of compressed air power

1 Scope

China's national standard for expressing and measuring the compressed air power consumed by pneumatic equipment. It specifies the terms and definitions of pneumatic

power, the way that power is expressed, the measuring apparatus and the measurement methods, and it applies to equipment and components that operate under atmospheric conditions using compressed air as the working medium. It exists because compressed air is the most expensive utility in a factory and the one least often measured. Generating it is inefficient - most of the electrical energy going into a compressor leaves as heat - and once generated it leaks, it is throttled, it is used at higher pressure than the application needs, and it is blown to atmosphere at the end of every cycle. Yet a pneumatic component is normally specified by flow rate and pressure, neither of which alone tells anyone how much energy it consumes, and there was no agreed way to state the energy performance of a cylinder, a valve or a complete machine. This standard supplies one. It defines compressed air power as the maximum mechanical work the air can do per unit time as its state changes, which makes it an availability or exergy quantity rather than a simple product of pressure and flow, and that is the definition that makes energy accounting across a pneumatic system possible: the power supplied, the power lost at each restriction and the power actually converted into useful work can all be expressed in the same units and added up. The result is that pneumatic components and systems can be compared on energy performance, losses can be located, and the effect of a proposed change can be predicted rather than guessed. Issued on 24 June 2014 and in force since 1 March 2015.

This standard specifies the terms and definitions pneumatic power, representation, measuring apparatus and measurement methods. This standard applies to work under atmospheric conditions, compressed air as the working medium equipment (including components) compressed air consumption Representation and power measurement.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 17446 Fluid power systems and components - Vocabulary

ISO 6358 (all parts) Pneumatic compressible fluid flow characteristics of the element measured (Pneumaticfluidpower-Determinationofflow-ratecharacteristicsofcomponentsusingcompressiblefluids)

3 Terms and Definitions

GB/T 17446 and defined by the following terms and definitions apply to this document.

3.1 Pneumatic effective energy pneumaticavailableenergy Under atmospheric conditions, the maximum mechanical output of compressed air theoretically can. This energy is a form of atmospheric temperature and pressure The relative amounts of the benchmark for the state.

3.2 Pneumatic conveying can pneumatictransmissionenergy Air can effectively promote energy for air delivery to downstream. The energy is not an integral part of the energy of the air.

3.3 Pneumatic expansion can pneumaticexpansionenergy Under atmospheric conditions, the compressed air is released through the expansion of the energy used to make the maximum mechanical work. The energy within the air Part.

3.4 Pneumatic power pneumaticpower Compressed air per unit of time effective to fully convert mechanical work done.

3.5 Pneumatic conveying power pneumatictransmissionpower The compressed air in the pneumatic conveying unit time to fully convert mechanical work done.

3.6 Pneumatic expansion power pneumaticexpansionpower Compressed air in the pneumatic expansion unit time will be able to complete the conversion of mechanical work done.