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Energy performance evaluation of compressed air stations

压缩空气站能源绩效评价

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Foreword

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Compressed air station (air compressor system) is the infrastructure of modern factories, including air compressor units, compressed air purification equipment, control The compressed air produced by the system is one of the main driving forces of modern industry and is widely used in various fields of the national economy. At present, the overall operating efficiency of compressed air stations in my country is low, and there is a lack of indicators and methods for quantitative evaluation of system energy efficiency. Implement policy requirements, promote compressors, a key energy-consuming equipment, from single energy saving to full process and system energy saving, guide industry equipment update, This document is specially formulated to improve system energy efficiency. This document specifies the energy performance evaluation of compressed air stations in service, newly built/renovated, including energy efficiency level, energy efficiency, The evaluation of energy efficiency and energy benefits provides evaluation indicators and value rules based on measuring energy conversion efficiency, as well as energy efficiency grades. Performance truly reflects the actual operating level of the compressed air station, which is helpful for compressed air station manufacturers, design units, energy users and energy-saving service providers. Service providers set energy-saving targets, guide the energy efficiency benchmarking management of compressed air station operations, determine energy efficiency levels, discover energy-saving space, and calculate energy-saving effects. We will carry out energy conservation monitoring, energy assessment, green manufacturing evaluation, energy conservation management and other activities to promote the continuous optimization and energy efficiency of compressed air stations. promote. Energy performance evaluation of compressed air stations

1 Scope

China's national standard for evaluating the energy performance of compressed air stations. Compressed air is the most expensive utility in a factory and the one nobody measures: something like a tenth of industrial electricity goes into it, and a large part of that is wasted - in leaks that nobody hears over the noise, in pressure held higher than any tool needs because of one badly sized line, in machines running unloaded, and in the heat thrown away at the aftercooler that could have heated the building. The waste persists because the air is free at the point of use and the compressor's bill arrives with everything else. An evaluation method makes it visible and comparable between sites. The standard specifies the evaluation object and boundaries, the overall requirements, the index system and the rules for selecting values, describes the evaluation method, and sets out the process and the rules for forming results. It applies to motor-driven stations discharging at 0.25 to 1.6 MPa, above 4 cubic metres a minute and 37 kW total.

This document specifies the evaluation object and boundaries, overall requirements, evaluation index system and value selection rules for compressed air station energy performance evaluation. Then, the corresponding evaluation method is described, and the evaluation process and the rules for forming the evaluation results are stipulated. This document is applicable to air compressors driven by electric motors with exhaust pressures of 0.25MPa~1.6MPa and with a large air supply flow rate. Energy performance evaluation activities for compressed air stations with a capacity of more than 4m³/min and a total operating power of not less than 37kW.

2 Normative references

The contents of the following documents constitute 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 3853 Acceptance test for positive displacement compressors

GB/T 4975 General terms for positive displacement compressors

GB/T 5226.1 Electrical safety of machinery Electrical equipment of machinery Part

3 Terms and definitions

GB/T 3853, GB/T 4975, GB/T 13277.1, GB/T 16665, GB 19153, GB 50029 and JB/T 7664 The following terms and definitions apply to this document.

3.1 Compressed air station compressedairstation air compressor system
aircompressorsystem All air compressor units, compressed air purification equipment, power supply and distribution systems, cooling systems, monitoring systems, ventilation systems, heat recovery systems and The whole composed of pipelines, air storage tanks,

valves, instruments and other necessary auxiliary equipment for transporting compressed air before the compressed air supply main.

3.2 Factor characterizing the energy efficiency class of a compressed air station (3.1).

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