

УДК 621.51

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г. Казань

COMPRESSED AIR

Compressed air is air that is under some pressure, usually exceeding atmospheric pressure. Air consists of 77% nitrogen, 19-20% oxygen and about 3-4% other gases, as well as water vapor. When the air is compressed, it is the same mixture of gases, but forced to be located in a smaller space, where the distance between the molecules is reduced.

Compressed air that can be stored at high pressure is an excellent means of energy transfer. It is a popular source of energy, as it is safe, versatile, has unlimited reserves in nature, and is also easier to handle than alternatives such as steam and batteries. As for the cost, the price of electricity is 7-8 times lower than the cost of compressed air, but equipment running on compressed air is significantly cheaper, including its simplicity of design, strength and greater durability [1].

Along with electricity, gas and water, compressed air is often called the fourth energy carrier in global industry and production. Many enterprises are completely dependent on compressed air, which supplies energy to production processes. It plays an important role in supplying energy to most of the components of the modern world [2].

The air entering the compressor contains up to 2 billion dust particles. Then it is polluted with moisture, oil vapors and carbon particles. Accordingly, the air must be cleaned. In order for the compressed air to meet the quality, it is necessary to adhere to the norms and standards of DIN ISO 8573-1:2016 [3].

In order to meet the high requirements for compressed air, complex air preparation and purification systems are used. Air coolers are used for condensate precipitation by means of cooling, dehumidifiers for obtaining compressed air with the required moisture content, as well as filters for removing impurities and contaminants [4].

The use of compressed air is very diverse, every industrial production uses it in a particular technological process. It is used in the automotive and shipbuilding industries, metalworking enterprises, chemical plants, pharmaceutical and food industries, energy, etc.

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