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Title **IMPROVING WORK EFFICIENCY BY CHANGING THE DESIGN OF THE AIR CONDITIONER**

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IMPROVING WORK EFFICIENCY BY CHANGING THE DESIGN OF THE AIR CONDITIONER

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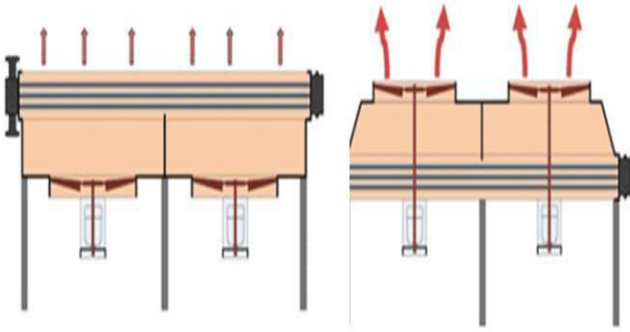
Annotation: In many oil and gas refineries, the refrigeration process is performed using a refrigerant. In an air cooler, the cooling process is carried out using atmospheric air. An air cooler is used to cool a product or raw material from ambient air to a temperature below 20-25°C. You can increase the cooling level by changing the design of the device.

Keywords: air cooler, refrigerant, electric motor, lopos, collector, belt drive, pipe, support, shaft.

Oil and gas refineries use heat exchangers of various designs to cool products and raw materials. The most commonly used are IAQ tubes and air coolers. The cooling process in the shell tube heat exchanger is performed using a cooling agent. This is economically costly. In addition, the structure of this device is difficult to repair and clean. The structure of the air cooler is simple, easy to repair and clean, the disadvantage is that the product or raw material can not be cooled to high temperatures. One of the most pressing issues facing the industry is the creation of an efficient cooling device for the cooling of products and raw materials in oil and gas refineries and the elimination of shortcomings in existing equipment. In refrigeration equipment used in oil and gas refineries, the cooling process is carried out using a refrigerant. Creating the temperature of the refrigerant requires an additional cost, while in an air-cooled device, atmospheric air is used as the refrigerant.

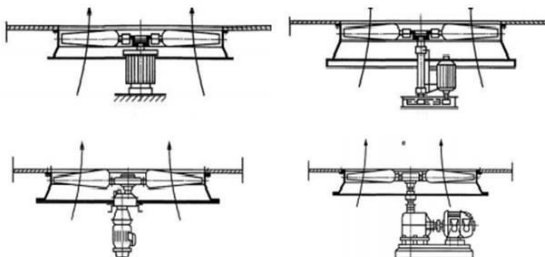
It is the most common method for cooling gas with atmospheric air in oil and gas refineries. For this purpose, different types of

air cooling (HSQ) devices are used. Structural 2-7 m winding fan blades into a set of gas-moving pipes that cool the air from the bottom to the top. To increase the heat exchange, the pipes are provided with ribbed metal packaging. Electric motors from 10 to 100 kW are selected to drive the HSQ flakes. The advantages of HSQ are simplicity of construction, reliability of work, no need to pre-prepare the refrigerant (air). The structure of the device consists of a heat exchange section and a refrigerant refrigerant. They consist of an electric motor, a blade, a collector, a diffuser, a protective grid, a base, a product moving tube transmission and an air-adjusting blind mechanism and pipe nets. The pipes are connected to the pipelines by forging. The principle of operation of the device is that the electric motor rotates the flap, the flap drives atmospheric air towards the pipe through which the product moves, and the product moving inside the pipe cools. The upper part of the device is equipped with a blind mechanism to adjust the air flow. Depending on the structure of the air cooler is divided into horizontal, vertical and oblique types.



General view of the air conditioner.

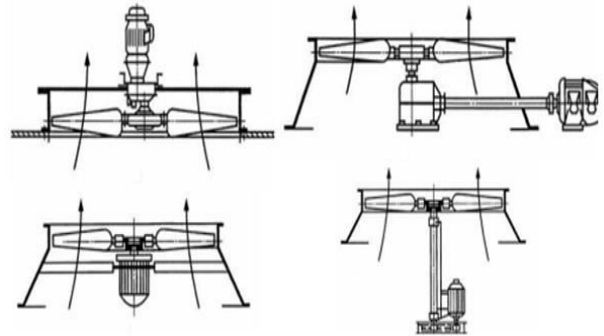
It is possible to increase the efficiency of the unit by changing the design of the air cooler used in oil refineries. The main disadvantage of the device is the inability to cool the product to high temperatures, i.e. the ability to cool the atmospheric air to a temperature below 20-25 °C. By overcoming the main drawback of this device, it can be used to increase the efficiency of the device and to carry out cooling processes in other processes. To increase the efficiency of the horizontal air cooling device can be done by spraying the upper part of the device with water. That is, by spraying water on the device, the product or raw material can be cooled to a higher temperature. During the project, a liquid spraying mechanism will be installed in the body of the air cooler. That is, if the product is sprayed with water from the top of the moving pipes and then the atmospheric air is expelled, the device will increase its efficiency (it can cool down to high temperatures).



Electric motor with paddles in the air cooler attachment methods

Cooling efficiency can be increased by spraying the liquid, but the liquid supplied can

damage the electric motor that rotates the device blade. To prevent this, you need to move the motor that rotates the blades of the device from the center. That is, the pulley shaft is connected to the electric motor by a belt drive.



The water supplied from above moves the product through the moving pipes and descends through the lops and collector. Circulating water can be collected in a drain pan. That is, water from above can be used efficiently. By changing the design of the device, it can be used to cool products and raw materials to high temperatures using atmospheric air.

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