

The invention relates to the heat pumps with vortex tube, used in the thermal treatment systems for the production of heat and cold, where the extra heat is produced as a result of interaction of liquid and gas flows.

The heat pump with vortex tube comprises a compressor (1), the input of which is connected to the output of the first ejector (2), and the output of the compressor (1) is connected to the input of the first heat exchanger – gas cooler (3), the output of which is connected to the input of the first control valve (4), whose output is connected to the input of the pump (5) with adjustable pressure and to the ejecting input of the second ejector (7). The output of the pump (5) is connected to the input of the vortex tube (6). The output of the warm gas flow (H) of the vortex tube (6) is connected to the input of the second heat exchanger – evaporator (9), the output of which is connected to the input of the second control valve (10), and its output is connected to the input of the ejected flow of the first ejector (2). The outputs of the gas (G) and liquid (F) cold flows of the vortex tube (6) are connected to the input of the third heat exchanger – evaporator (11), the output of which is connected to the input of the third control valve (12), and its output is connected to the input of the ejected flow of the second ejector (7). The output of the second ejector (7) is connected to the input of the fourth heat exchanger – evaporator (8), the output of which is connected to the ejecting input of the first ejector (2).

Claims: 1

Fig.: 1

