

**THREE-DimensionALLY DISTRIBUTED LIQUID ATOMIZATION HEAT
EXCHANGER, CONTROL METHOD THEREOF, REFRIGERATION SYSTEM,
AND AIR CONDITIONER**

ABSTRACT

A three-dimensionally distributed liquid atomization heat exchanger, comprising a housing (1), an air extraction device (2), a heat exchange device (3) and a liquid atomization device. The air extraction device (2) is used for forming negative pressure in the housing (1). The liquid atomization device comprises a liquid supply pipe, atomization discharge pipes (4) and atomization heads (5). The atomization discharge pipes (4) are connected to the liquid supply pipe. The atomization heads (5) are arranged on the atomization discharge pipes (4). The atomization discharge pipes (4) are three-dimensionally distributed in the housing (1). Control devices are arranged on the atomization heads (5) to control the atomization heads (5) to be opened or closed. The control devices are connected to a control center which can, according to a preset time, a preset percentage of the atomization heads (5) which are open and a randomization function, select randomly the atomization heads (5) to be opened or closed. Each of the atomization heads (5) is opened or closed randomly such as atomized liquid is uniformly distributed in the housing.

[Fig. 1]