
Analysis of Areas of Approximate Energy Sources for Continuous Heat Supply to Housing Buildings

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Abstract: The regularity of the formation of thermal efficiency of two-electron solar hot water supply systems is studied, and appropriate calculations are performed to determine their operating parameters.

Keywords: Transparent insulation, absorption panel, insulation, collectors.

Today, the use of solar panels for heating residential buildings is not enough, but it is impossible to ignore this type of alternative energy and heat source. For us, the greatest efficiency can be achieved by using strong sunlight. Most flat solar collectors consist of four main elements. First of all, let's get acquainted with solar collectors that provide us with heat. 1-building; 2 transparent insulation; 3 channels for cooling water; 4 absorbent panels; Thermal insulation 5 Figure 1.1. Schematic diagram of a flat solar collector. Absorbent panels with ducts for cooling water are coated to ensure that they absorb at least 90 percent of the sun's rays on their surface. housing with absorbing panel and thermal insulation and covered from above with transparent insulation.

The solar radiation falling on the collector is converted into heat released as a result of the flow of cooling water (water, antifreeze, air, etc.) flowing through the channels of the absorber panel. Transparent insulation reduces convective and radiant heat loss from the absorbent panel to the atmosphere, thereby increasing the heat output of the collector. It is known that most transparent media, including glass, selectively transmit light. their transmittance depends on the wavelength of the incident radiation. Ordinary window glass, depending on the iron content, transmits 85 ... 87% of sunlight, but the panel itself is almost not transparent to thermal radiation. The transition from a single window to a secondary window reduces heat loss through transparent insulation, but also reduces the intensity of the radiation flux to the absorbing panel. Flat collectors are used in the communal sector for hot water supply and heating of residential and public buildings, in the processing and storage of products in agricultural production, in industrial (textile, leather, food, etc.) - low-tech processes. (Up to 100 ° C) temperature. Abroad, flat solar collectors are also widely used to heat water in open swimming pools in summer. In this case, a very small temperature (only a few degrees) must rise. Therefore, a vacuum panel made of plastic or rubber is usually used without glass, thermal insulation and housing. Such collectors are commonly referred to as assimilation collectors. A typical design of solar absorber collector panels is an a-standard panel heating radiator; b-double galvanized steel plate panel-corrugated and flat; c-welded aluminum panel; register of pipes attached with g-sheet; register of pipes with e-expanding metal plates; g-register made of transverse ribbed pipes; e-metal sheet and pipe connection method; Register of ribbed pipes.

The thermal efficiency of flat solar absorbers of this type, made of RSG2 type steel heating radiators and having a heat sink with no thermal insulation at the bottom, was studied. The results of the calculations are compared with the thermal efficiency of conventional collectors with a similar heat sink. The regularity of the formation of thermal efficiency of two-electron solar hot water supply systems was studied and appropriate calculations were performed to determine their operating parameters. Calculations were performed to determine the optimal value of the heating surface of the two-cycle solar and solar fuel hot water supply coils.

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