

The invention relates to power engineering, namely to photovoltaic installations based on direct conversion of solar energy into electrical energy by means of photocells, and to solar engineering, in particular to liquid heating devices. The photovoltaic thermal panel consists of photovoltaic cells (1), fixed on a transparent surface (2), electrically connected to each other in a box (3) and placed on a plastic sheet (4), under which is installed an oilcloth (5) with tubes of polymer material, a cold water distributor (7) and hot water collector (8). Between the plastic sheet (4) and the oilcloth (5) is placed a paste layer (14) with high thermal conductivity. Under the oilcloth (5) is placed an elastic thermal insulation layer (15), followed by a thermal insulation layer (11), fixed on a frame (10) with a protective sheet (22). The panel is equipped with a compensator (16) for the linear expansion of pipes of polymer material when the ambient temperature changes, which has the same linear expansion coefficient as the oilcloth material (5). The compensator (16) can be made in the form of a polymer plate, on which is placed the oilcloth (5) with the tubes of polymer material, placed thereon in spacers (18), rigidly fixed on the centerline by latches (17) and with the possibility of its movement in relation to the thermal insulation layer (11) by means of fasteners (23), placed in grooves (24), and connected with the ends to the cold water distributor (7) and the hot water collector (8) by means of collar clamps (25). The compensator (16) can also be made in the form of polymer pipes, in which are placed steel rods, the length of which is less than the length of the polymer pipes, or in the form of polymer rods, placed in steel pipes.

Claims: 1  
Fig.: 4

