

SOLAR INSTALATION FOR HOT WATER PRODUCTION IN HORIZONT HOTEL, GODEN SANDS RESORT, BULGARIA

In May 2001 solar collectors for domestic hot water production were mounted in Horizont Hotel in Golden Sands Resort.

Horizont Hotel is situated at 200 m from the beach. It has 120 rooms and 360 beds. The hot water production was designed by means of two boilers with installed capacity of 48 kW and total volume of 3600 litres.

The installed solar installation consists of:

- solar collectors;
- boilers with built-in serpentes;
- control module.

40 solar collectors are mounted on a metal holding on the roof of the lower corpus of the hotel building and are South-oriented. They are Bulgarian production and consists of copper serpentine with aluminium folio with the following technical parameters:

-absorbing surface	1,2 m ²
-dimensions	1500 x 900 mm
-working pressure	6 atm
-heat capacity	0,8 kW/m ²
-Total weight	34 kg
-absorber	copper tube with double-sided aluminium folio, powder painting
-absorber coefficient	0,90
-contents of fluid	0,400 l/ m ²

The existing two boilers are used in the installation. On the place of one of groups of electricity heaters is mounted a copper serpentine. This gives the possibility not to corrupt the inner anti-corrosion plating.

The control module consists of a pump, automatic supplementing group, expansion vessel and electronic unit for automatic control. The connection among solar collectors, heat exchangers (serpentes) and the control unit is made of copper tubes with respective dimensions. The automatic control unit is Bulgarian production with primary sensors platinum 100 and programable regulation with the possibility for differential comparison and variation of the threshold values and respective differences.

Thus implemented solar installation supplied about 70 % of the hot water production. The produced hot water quantity is sufficient to cover the consumption in the lunch and evening peaks. For the morning consumption the electrical heaters are used and only during the night hours, which leads to considerable decrease in electricity costs. The preliminary calculations and the experience show that the installation will be paid back within 2,5-3 years only from electricity savings.

The installation can be operational all year round and the produced heat can be used for space heating of part of the hotel (winter garden).

Fig. 1

Solar collectors in Horizont Hotel – Golden Sands Resort, mounted by “Anita” Company

