

HEAT PUMP INSTALLATION “WATER TO WATER” WITH SOLAR ASSISTANCE IN HEAT SUPPLY WORKING CONDITIONS

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ABSTRACT

In this work results from modelling investigation of the cooperative work of heat pump “water to water” and solar thermal collectors in heating work conditions have been presented. An evaluation of the increased heat pump efficiency in cooperative work with solar collectors has been made. A variant of an installation scheme for practical implementation enables collaboration of the collectors and the heat pump has been proposed. The solar collectors can be used for producing of domestic hot water (DHW) as priority or to help the heat pump in heating work conditions.

REFERENCES

1. Bobilov, V., P. Zlatev, Zh. Kolev, Pl. Mushakov, G. Genchev. *Investigation of solar thermal installation with optional power source heat pump "water to water"*. Scientific Conference of University of Ruse, volume 50, series 1.2, Ruse, Bulgaria, p.83-89, in Bulgarian (2012).
2. Duffie J., W. Beckman. *Solar Engineering of Thermal Processes*. 2nd edition, John Wiley & Sons New York (1991).
3. *RETScreen ENGINEERING & CASES TEXTBOOK*. Ground-Source Heat Pump Project Analysis, Minister of Natural Resources, Canada 2001-2005.
4. Ursula, E. *Technologies for Buildings*. Wiley (2003).