STEAM-COMPRESSING THERMO-TRANSFORMER for COMBINED PRODUCTION of COLD and WARMTH

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ABSTRACT

Conservation of irreplaceable power-producing resources and reduction in harmful wastes of its products of combustion into atmosphere, which cause global warming up on Earth are a topical problem at the present time. Power imputs for obtaining cold and warmth at comparatively low temperature potential for various technological, sanitarian and technical needs in processing of food products makes up a weighty part in common use of power.

Combined production of cold and warmth by means of steam-compressing thermo-transformers (SCTT), which are mainly used for producing of cold, is the most profitable process due to its efficiency and power-consuming nature and at the same time this process is pure from ecological point of view.

Report gives the description of developed SCTT with efficient double-pipe devices intended for cooling of milk and getting of hot water at farms.

Results of comparative tests conducted by SCTT on R12, mixture R22/R142b and on mixture of hydrocarbons R290/R600a/R600 are given there. Assessment of power efficiency of the SCTT in quantitative way is implemented by means transformation factor and useful warmth obtained in it correlates with additional expenditure of electric power conditioned by rise in temperature of the condensation of a cooling agent in the SCTT and decrease in production of cold as compared with "pure" cooling cycle. The advantages of using the mixtures R290/R600a/R600 are stressed. The values of power factor of the SCTT and separate system for supplying of cold and heat are given.

The SCTT ensures drop in specific expenditure of electric power for processing of milk and getting of hot water at 5.2-5.7 fold as compared with the separate system of cold- and heat supplying.