A MATHEMATICAL MODEL OF A REGENERATIVE HEAT EXCHANGER AS AN OBJECT CONTROLLED VIA THE OUTLET TEMPERATURE OF ONE OF THE HEAT CARRIERS

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Abstract	Keywords
We developed a detailed linear mathematical model of a regenerative heat exchanger as an object controlled via the outlet temperature of one of the heat carriers. We validate the heat carrier bypass position during the adjustment process. A combination of heat energy accumulators represents the heat exchanger: two heat carriers and the structural material of the heat exchanger. For each heat energy accumulator we derive differential equations and transfer functions based on the dynamic energy balance equations. We compiled a schematic diagram of the heat exchanger containing the transfer functions obtained. The heat exchanger model developed should be used for calculating the parameters of an automatic temperature control system.	 © Bauman Moscow State Technical University, 2017

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