

# DESIGN OF WASTE HEAT RECOVERY SYSTEMS FOR A CHOCOLATE FACTORY

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## ABSTRACT

Nowadays, the protection of the environment and, indirectly, the increase of energy efficiency is an extremely important topic. One way of increasing energy efficiency is the utilization of waste heat.

In our article, we present a cooling system designed for a newly built chocolate factory, which in addition to performing the cooling task required by the customer and fulfilling the technological requirements, uses the waste heat and utilizes it in other areas.

We present the building of the chocolate factory. We determined the magnitude of winter heat loss and summer heat load.

In the next step, we reviewed the production technology used in the plant: we mapped the equipment used during production and their heat load, examined their cooling possibilities, and in which area of the factory the waste heat should be utilized.

We determined the cooling needs of the pulp mill, the ball mill and the tempering equipment and designed the method of their cooling.

We describe the current heating and hot water production system and – based on the above information – have planned the waste heat utilizing.

Based on the plans, we selected the appropriate equipment that can perform the desired tasks and prepared the technical documents for the planned system.

*Keywords: cooling, heating, waste heat recovery, energy efficiency, chocolate production*