

Research Title: Heat Exchanging Device using Thermoelectric Effect

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ABSTRACT

From the medical research, it is said that a hard workout cause the increasing of body's temperature and if the heat accumulated in the body can be rapidly decreased, it can help revitalize the body. Applying this concept lead to the design of Rapid Heat Exchanger in this project. The researchers choose Thermoelectric (Peltier) model TEC-12706 for decreasing temperature, On-Off Controller for controlling temperature, NTC sensor for measuring temperature, and the copper as heat exchanger. The operation of machine are as following: On-Off Controller is used for controlling the current flow to thermoelectric. Then, the thermoelectric have a difference in temperature of each side, which is cool side and hot side. Therefore we used the cool side temperature transfer to the copper handling. The sensor at copper surface will feedback temperature to On-Off Controller for keeping temperature at 17-19 °C. From experiment, the researchers found that decreasing the copper temperature in range 17-19 °C at ambience temperature (32 °C) will take about 120–300 seconds.

Keyword : Thermoelectric, Rapid heat exchange, Heat transfer