

## Samenvatting (EN)

My thesis is about converting an existing air conditioning system using the prohibited agent R22, into a heat pump. The aim is therefore that not only cooling but also heating will be possible in the room (in this case a container). I did this by comparing the operation of the heat pump with the air conditioning and applying the necessary changes, such as the four-way valve. As a result, I took the electronics out of the cycle and programmed one myself for the expansion valve and the thermostat. I have also provided another coolant that has the same properties as the R22 and complies with the regulations.

From the results, it can be concluded that the heat pump operates most efficiently when it operates in cooling mode. Heating is also possible, but the operation is not perfect as long as we do not connect a second evaporator in the container. The controls and safeties also do their job and are well adjusted.