



What is a heat pump and how does it work? Heat pump works the same way as a refrigerator. Refrigerator moves heat from inside the refrigerator out for him and deliver him into the cold frame (heat exchanger) back on. Heat pump heat loads in some sort of heat source and give it back in the reactor system in the house at a higher temperature. Heat pumps do not produce electricity but they are suitable for areas in Iceland which are called cold zone where people need to heat their houses with electricity.



Energy savings are in the range 67 to 75% by direct electrical heating, depending on the type of houses how the failure to utilize this feature heat pump to cut heating costs. There are many combinations of heat pumps but most of them work in ways that get their energy to the environment and return it in the form of heat in the reactor system in the house at a higher temperature.

Heat pumps are classified by where they get energy and how they deliver it by themselves. Similar thinking lies behind all the types of the pumps.

The main variations:

Air to air heat pump is called the version that applies energy from the outdoors temperature

and returns on a warm air blast. These heat pumps are far from new and e.g. in Sweden is several hundred thousand. These pumps have developed rapidly over time and now it is possible to get them almost silent. Modern heat pumps are running generally stable but harder or slow due to the need each time. On hot summer days, they can turn to the role and cool the air if necessary. Those pumps are the most common in Iceland.

Air to water heat pump energy loads in the outdoor temperature and returns the energy applied to water system e.g. normal water retention, low-temperature system or floor heating system. This type of heat pump is not suitable for countries in the northern regions due to the climate.

Water / water heating pumps applies energy in the natural source of water, e.g. to well where water is pumped from and the energy is returned to the water application system. This form could be used in Iceland particularly on geothermal areas which are cold.

Rock / water heat pumps are very common in Scandinavia and West Europe. They are based on the wall close to a house and in the well are two parallel pipes that are "U" connected near the bottom of the well. Energy is returned to the water system served.

Low – temperature ovens - are similar to a heating system of a car. Warm water is channeled through the spiral. Drum draws air through the spiral and blows it into the environment. In this way comes even and good heat distribution in the building and the air quality will be better.

The benefit of using a heat pump

The average energy requirements for buildings 100 square meters per year are about 16250kWh. The cost for heating this house is 10kr/kWh or $16250 \times 10 = 162.500$. – which is about 1000 Euros. A heating pump can reduce this cost up to 70% or about 97.500 ISK or about 600 Euros

[A presentation about heat pumps held in Lithuania.](#)

Written by Hannes and Júlían.