

Refrigeration technology comparison

THERMOELECTRICS

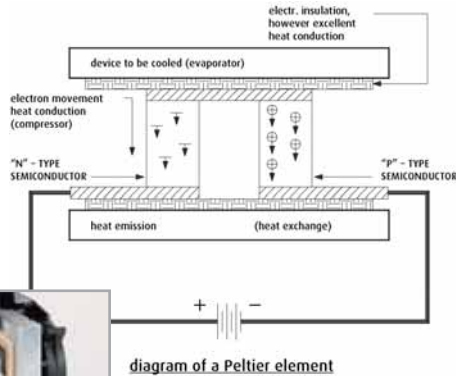


diagram of a Peltier element



The thermoelectric principle was first discovered in 1834 by J.C.A. Peltier – that's why the temperature producing parts of thermoelectric systems are described as Peltier elements. It is based on the fact that – depending from the polarity – cold or heat is generated when a direct current (DC) flows through a junction of two dissimilar metals. This cooling or heating power is still increased by heat exchangers and fans. It is sufficient for small and medium-sized coolers.

ADVANTAGES

- Problem-free operation with 12/24 volts or 100–240 volts
- Cooling performance up to 30°C below ambient temperature (depending from the volume and the design of the device)
- Can be used for both cooling and heating
- Tilt-resistant
- Low weight and problem-free transport
- Wear- and maintenance-free
- Low-priced

KOMPRESSOR TECHNOLOGY

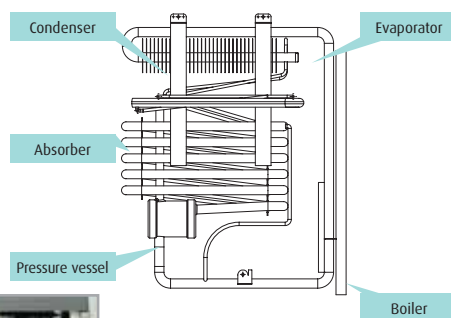


Compressor devices are running with the help of a CFC-free refrigerant. This cooling agent changes from the liquid to the gaseous state inside the evaporator. At the same time the evaporator binds the warmth from the interior of the cooling device – it's getting cold. The compressor draws in the gaseous refrigerant, compresses it and passes it on to the condenser, where the binded heat is released again. The refrigerant changes to the original liquid state once more and flows back to the evaporator, where the cycle starts again.

ADVANTAGES

- Problem-free operation with 12/24 volts or 100–240 volts
- Refrigeration and deep-freezing
- Excellent cooling performance, even at extreme outdoor temperature
- Minimal consumption
- Integrated battery protection
- Ideal for solar operation

ABSORPTION TECHNOLOGY



Concentrated solution of ammonia is heated up to a vaporous state in a tank. Under high pressure, this gas enters a condenser where it is liquefied. There it is supplied with hydrogen, which causes the liquid ammonia to evaporate. At the same time heat is extracted from the cooler's interior. The ammonia gas then enters the absorber, where it is taken up by a weak ammonia solution. The saturated ammonia solution flows back to the tank, and the cycle starts again.

ADVANTAGES

- Problem-free operation with gas, 12/24 volts or 100–240 volts
- Relatively low-priced
- Noiseless working system