

Oasis Strives To Use Earth Friendly Technology

Thermoelectric Cooling is one **GREEN** Alternative to HFC refrigerant



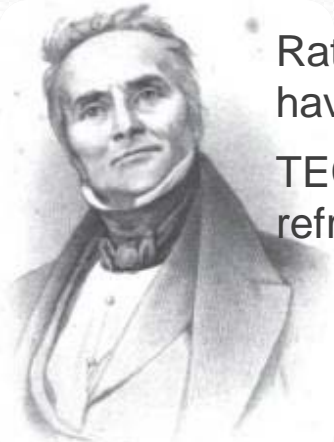
What is thermoelectric cooling?

Thermoelectric cooling uses a solid state device that acts as a heat pump to move heat from one side of the device to the other.

The device is commonly referred to as a thermo electric cooler (TEC) and is made up of numerous pairs of semiconductors enclosed by ceramic wafers on the top and bottom.

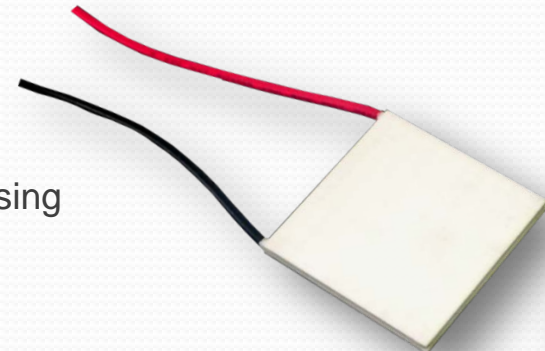
Rather than using a refrigerant gas and a compressor, TECs use only DC power and have no moving parts or complex assemblies.

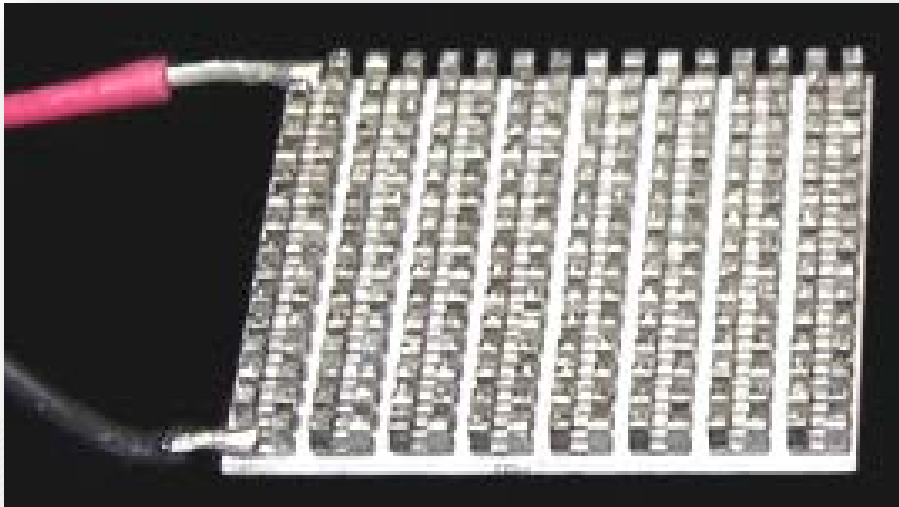
TECs are very small, light weight and rugged compared to a traditional compressor refrigeration system.



The technology was discovered by French Physicist Peltier in 1834.

TECs come in a variety of sizes. Shown here is a size that would be suitable for using in a water cooler.

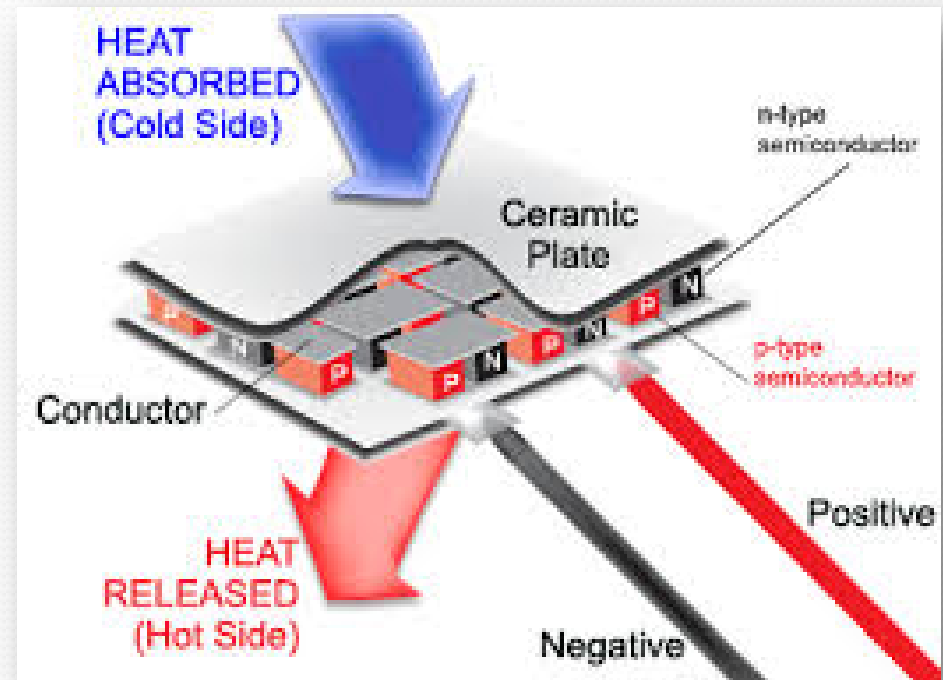




The top layer of ceramic has been removed so that the semi-conductor “cubes” can be seen.

When the DC power is supplied, the Cold side absorbs heat and moves it to the Hot side.

The hot Side is cooled by a heat sink and fan.



Surprising Uses for TECs



Used in submarines for quiet A/C



Plutonium Reactor used as a heat source to heat **TE chips for power generation in space**—used by **NASA** on Apollo, Pioneer, Viking, Voyager, Galileo, Cassini and Curiosity



Oil burning lamp powering a radio using a TE generator (1948)



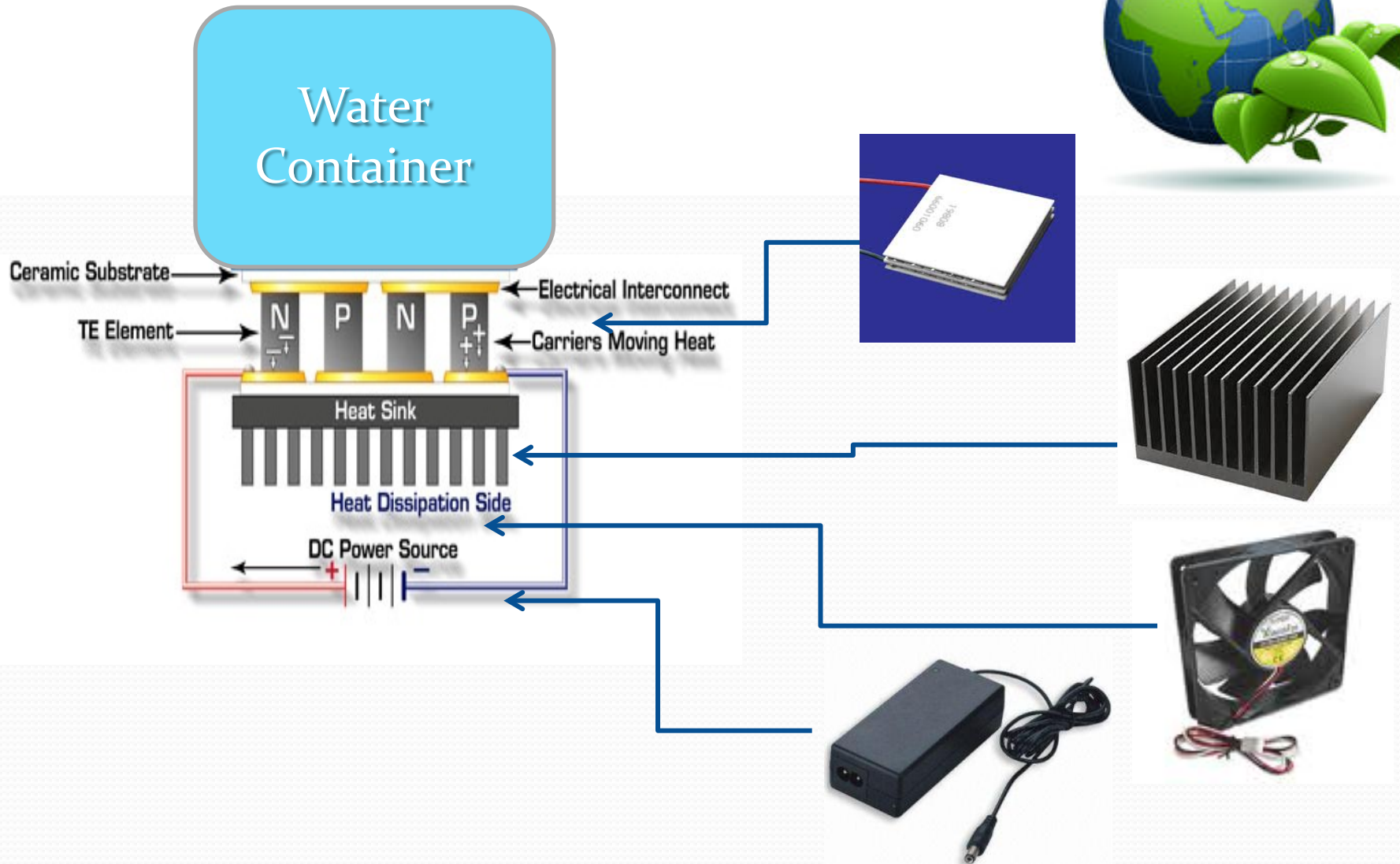
Cooling and Power Generation
Westinghouse, GE Bell, Universities and National Laboratories focused time and resources on TE

More powerful and more efficient TECs are available and an influx of new products have come to consumers

Cooled/Heated car seats



What's in a thermoelectric water cooler?

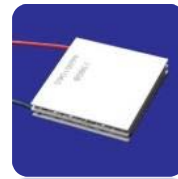


Benefits of Thermoelectric Cooling

- **ZERO** Ozone Depletion & **ZERO** Global Warming impact
- **Commercial capacity chilling** without a compressor
- Simplified Assembly and Service—**No certifications needed**



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SAVES



- **Rugged**—no refrigerant leaks
- **No gas/flammable gas** – No specialized equipment
- 25% lighter than compressor systems—**reduces transport costs and damage claims**
- **Easy disposal**, no EPA Standards
- **Unlimited design flexibility**

