

## Climgear

ClimaGear is a temperature regulating apparel technology that aids in the comfort of outdoor workers/enthusiasts and military personnel. By allowing them to choose the temperature that comforts them (warmth or coolness), they are able to remain in their harsh environment without adding stress, discomfort, health problems, or lost productivity. Technology relies on a battery to power thermoelectric heat pumps that remove /add heat to and from the body. The uniqueness of the technology implements an electronic temperature control that allows user to select the temperature that comforts the user. It is mobile, quiet, lightweight, failure tolerant, easy to use, with no moving parts. This is quite different from current solutions, which include vapor compression, resistive heating, chemical reaction heating, electric variable resistive heating, and phase change materials; none of which can add heat and coolness.

The potential benefits of ClimaGear are the novel combination of existing thermoelectric and heat transport technologies that offer users a source of comfort in differing hot or cold climates

### Salient Features

- 20 cooling/heating points on the torso and arms with each having a cooling/heating area of 36 sq cm. This cooling/heating area is covering 80% of the torso.
- Entire weight of the jacket including battery pack is 2.5 lbs. Average winter jacket weights around 1.6lbs.
- Batteries, which are embedded in a detachable belt last for 8 hours and can be recharged. The weight of the batteries is distributed on the body. The thickness of the belt holding batteries is 1.5 cm. The normal belt is around 0.5 cm.
- No floating wires or any thing that decreases the aesthetic and functional performance of the garment. The design is done keeping system completely closed
- 50ml of water needs to be recharged after four to five uses. The water carrying tubes have 2.2 mm outer diameter.

### Major Application / End Users

- military personnel
- ski enthusiasts
- Pilots