

The Best Equipment in the Outdoor Activities – Sleeping Bags – Peep into the Key Points of Sleeping Bag Warmth Retention

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Preface

Over these years, the concept of LOHAS, Lifestyles of Health and Sustainability, have been prevailing. It emphasizes healthy and sustainable lifestyles and furthermore, the global sports and leisure industry has been more developed. It includes all kinds of activities, including some basic sports like jogging, ball sports, camping, hiking and other outdoor leisure activities. In the activities of camping and hiking, one of the must-prepared equipment is a sleeping bag. Staying in the

freezing deep mountains, if hikers want to have a sound and sweet sleep, it depends on the insulation level of a sleeping bag. Based on warmth retention theory, the warmth retention level a compact sleeping bag relies on insulation layer. Warmth retention depends on these factors like the bulging force of insulation, the way of separation, and the shape of a sleeping bag. Besides, the outer shell and inner lining can also decide whether to have a sound sleep or not.



Picture 1
The material of the inner lining decides the level of comfort and warmth retention of a sleeping bag

Sleeping Bag Structure:

According to the materials of bag fill, there are 4 types of insulation materials in principle.

1. Cotton fill sleeping bag:

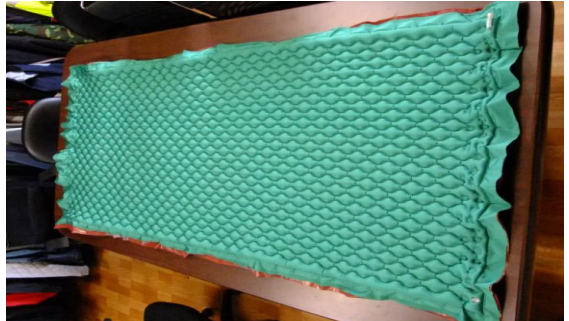
The sleeping bag is filled with a lot of cotton. This type of sleeping bag has a large size; thus it's not easy to put into the backpack. It is only suitable for camping or other occasions. It is certainly not right for hiking.

2. Synthetic fiber fill sleeping bag:

There are many kinds of synthetic fibers. Sleeping bags filled with different synthetic fibers filled into have variable functions. The most usable fiber is hollow fiber. Now it mainly includes single tube, three tube, four tube, seven tube and so on. Based on different structure, there will be various levels of warmth retention. According to the textile technology, most of synthetic fibers can provide the nearly-down warmth preservation rating and meanwhile, it has features like humidity absorbing, quick drying, anti-humidity and easy washing and so on. This type of sleeping bag is very useful for hiking.

3. Down fill sleeping bag:

The major kinds of down fill are duck down, goose down or other water birds' down. The down is mainly divided into 3 kinds including wing feather, filo plumes, down feathers. Wing feather and filo plumes are used to support sleeping bag. Down feather is the kind which provides warmth retention. Birds which live by the water grow better



Picture 2

Apart from the fill, the bottom structure of lining also affects the comfort rating of the sleeping bag.

down to keep warmth. Some land birds even grow without feathers. The down of water birds who live in the cold-temperature zone even provide high-quality down. In Taiwan, based on the percentage of down, the ratings of down sleeping bags are usually 50%, 60%, 80%, 90% and 100%.

4. Air fill sleeping bag:

Air fill sleeping bag can effectively separate the sleeping bag from cold and humid ground. Moreover, this type of sleeping bag keep can easily keep dry and comfortable. If the space between human body and sleeping bag is filled with air, the warmth retention of the sleeping bag will be much effective.

The shapes of sleeping bags generally contain the following types.

1. Rectangle-shaped sleeping bag:

This is the most common shape of sleeping bags in Taiwan. It features the L-shaped zipper on the right or left

side of the sleeping bag so that the bag can be fully opened like a quilt which could be used for 2 to 3 people. When there is a shortage of sleeping bags or lack of warmth, two of rectangle-shaped sleeping bags can be put together for 3 people. This is the distinctive feature of rectangle-shaped sleeping bags.

2. Man-shaped sleeping bag:

Man-shaped sleeping bag is similar to a mummy, so it is also called mummy-shaped sleeping bag. The name of the sleeping bag indicates that it is made according to human body, that is, the sleeping bag has a broad upper part and narrow lower part. It suits the shape of human body. Applying ergonomics to man-shaped sleeping bag, human body would be much closer to the sleeping bag and warmth preservation would be much better. This man-shaped sleeping bag has the right-straight or left-straight zipper just like L-shaped zipper of rectangle-shaped sleeping bags. So it can be also fully opened. Man-shaped sleeping bag is right for the users who would like to turn around their bodies during sleep. They would have more space to stretch themselves.

3. Cocoon-shaped sleeping bag:

A cocoon-shaped sleeping bag usually provides no zipper. The user has to getting into the sleeping bag like drilling. Generally speaking, the smaller unused space in a sleeping bag, the better the warmth retention is.



Picture 3 Man-shaped sleeping bag

The secret weapon to distinguish warmth retention level – temperature rating On the down fill sleeping bags which we often use, often there are many technical parameters which are important references; they indicate the functions of the sleeping bag. However, very often buyers or users do not really know what technical parameters indicate. Therefore, while they buy or use the sleeping bag, it's very easy to have doubts or misunderstandings. So it is necessary to understand what the technical parameters mean.

Then we can know how to choose the most suitable sleeping bag for ourselves. The level of warmth retention is indicated by the temperature rating.

Temperature rating is the indicator of the sleeping bag's temperatures including extreme temperature and comfort temperature. The extreme temperature indicate which the sleeping bag can be used in a certain extreme temperature. Normally we have to care for comfort temperature, that is, the average temperature make most of the people feel comfortable. However, we need to specify that temperature rating has no unified standard. So they are only for reference. For examples, some European and American import and export

sleeping bags, the temperature rating are slightly lower. We could only guess this has something to do with their body temperatures and eating habits. Principally, they are more resistant to the coldness than Chinese people. Thus, when we buy this type of sleeping bag, we also need to think about this and make proper judgments. Under the same level of warmth retention, the lightest ones of the down fill sleeping bag would be the most expensive ones.

Four temperature rating to choose a suitable sleeping bag

With regard to choosing a proper sleeping bag, we need to consider two factors: one is the environment for use; another is the user's resistance to coldness. Usually sleeping bags provide four different temperature ratings which says the temperature ranges which the sleeping bag could adjust. These four temperatures are explained as followed

1. Comfort temperature:

It indicates the highest temperature which the sleeping bag can be used. Under this temperature, the user will not feel the heat unbearably.

2. Target temperature:

It points out the highest temperature which the sleeping bag is designed for. Under this temperature, the user would feel rather comfortable. Nevertheless, the target temperature is a reference because it depends

on the user's body temperature. There might be a 10°F difference.

3. Extreme temperature:

This indicates the lowest temperature which the sleeping bag is designed for. Under this temperature, the user might feel uncomfortable. However, if the user wear warm clothes, the sleeping bag would be comfortable still.

4. Dangerous temperature

If the user use the sleeping bag at the dangerous temperature, it would be dangerous to the health condition. Unless under the necessary condition, the user shall not use it. While using it, the user shall have enough warm clothes.

Introduction of international outdoor brands

1. Western Mountaineering

Western Mountaineering is located in St. John in America, provides excellent products with characters. They offer customers the sleeping bags for all kinds of activities no matter for outing or expedition or in need of the lightest, the warmest sleeping bags.

In 1980, two mountaineers from North California came together to establish this company. They have the vision to provide the highest quality down fill sleeping bags, now named Western Mountaineering. With their efforts and persistence, they want to bring a different perspective for the outdoor products. They have concentrated to look for the best raw materials. With meticulous designs and excellent workmanship, they have insisted doing the outdoor products and today they have the fame to always provide the best down fill products with delicate designs



Picture 4 Western Mountaineering Product

and high quality. They can produce unsurpassed quality sleeping bags with thirty different models. Not only so, Western Mountaineering want to make their customer to be proud of the sleeping bags they have chosen.

2. Sierra Designs

The major products of Sierra Designs are tents and sleeping bags. From last year, they have develop DriDown waterproof down fill products and the series products with the superlight system, Cloud Layering System, and prepare to show them at the Outdoor Retailer Show in Salt Lake City.

3. Deuter

In 1898, at the early stage of Deuter's establishment. They only produced simple sleeping bags and tents. In 1934, they started to involve in the hiking products and provided special backpacks to the expedition team at the German's Himalayan Mountain. From then, Deuter has been active at the high mountains.

Almost every employees of Deuter is an outdoor activity lover. Many of them climbed up the Mountain Everest. There are also hikers who finished climbing the seven highest mountains



Picture 5 DriDown waterproof down fill sleeping bag

in different continents. And also there are female hikers who climbed twelve mountains above eight thousand meter high. Early in 1978, the current general manager Mr. Bernd Kullmann was the youngest European hiker at the Mountain Everest.

The latest sleeping bag of Deuter features flexibility which allow the user to turn around easily during sleep. This is the new design over this two years. With mummy-shaped design, the sleeping bag could provide better warmth preservation.

Conclusion

The sleeping bags designed for hiking are resistant to rains and freezing wind and they can protect hikers. In the meantime, they can help dry out sweat and moisture so as to make air dry and warm. Their quality shall be strong and good enough to protect hikers and to make them sleep soundly at the stormy, freezing and snowy or harsh weather conditions. Besides, they shall also satisfy different users' demands such as low-temperature resistance down fill sleeping bag, flexible sleeping bag, mummy-typed sleeping bags, cold-resistant and breathable cocoon-typed sleeping bag, etc. The material development of sleeping bags, as believed, would have a promising future in the outdoor market.



Picture 6 Deuter's latest sleeping bag features flexibility and warmth retention

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