The ABC of tent fabrics

Our cut-out-and-keep series to assist retailers with product knowledge.

Words: Bevan Frank. Compiled with the assistance of Canvas & Tent, Ram Mountaineering, Adventure Inc and Rocky/Crown Footwear

Originally, all tents were made of heavy canvas, held in place with thick ropes, that took a small army the best part of a day to erect. Modern day tents are versatile, activity-specific and can be set up in minutes rather than hours by a few people (many by a lone traveller). They are made from all kinds of materials that all offer different benefits.

In order to sell a tent to a customer you nowadays need to know where, when and how it is going to be used so that you can recommend the model that would suit their needs best. And then you have to be ready to answer all the questions that are bound to follow when they start reading the labels.

This ABC of terms used by tent manufacturers should supply most answers.

Canvas is very long-lasting (it can last up to 20 years) and it is cooler than nylon. It is therefore ideal for extended camping holidays at the coast, when the family pitch tent for more than 5 days. It is also more rugged than nylon and will therefore be well suited for 4x4 type of adventures or expeditions.

But it is heavier and bulkier than nylon. It will therefore not be a good choice for someone going on a hiking trip, or anywhere where all camping gear has to be carried or transported in a small space (like a bicycle, canoe or kayak). Canvas needs to be bone dry when it is packed up, otherwise it will mould, and it is therefore not ideal for overnight stops if you have to pack up with dew or frost still on the surface.

Denier: The weight of fibres like nylon, rayon and silk are measured in *denier* (D). In tents it is usually expressed as 20D, 40D, etc. A denier expresses the weight of continuous fibres in grams of nine kilometers (9 000 meters) length of the material. Therefore, the lower the denier number, the finer the material; and the higher the denier number, the more robust the material. In nylon tents, a higher denier number will therefore indicate a stronger tent (However this assumes that one manufacturer's material is as strong as anothers!).

Double skin/double wall tents: It comprises the inner tent – the portion you live in – plus the fly sheet, which creates a barrier against the weather. This is a traditional method of manufacturing tents: the outer prevents moisture from entering, while the inner provides

a breathable space for condensation to travel through it and run off on the inside of the outer without coming in contact with the occupants. This still offers an excellent combination of breathability, compactness and affordability for most end users.

Hydrostatic waterhead: This is a measure of how much pressure a fabric can withstand before it lets water through. Water is poured into a column to measure how much water pressure a fabric will hold before it leaks, in other words the waterproofness of the fabric is checked. This is indicated in millimetres, namely how many millimetres high the hydrostatic water column above the fabric is before it starts to leak. No tent will ever need to hold a solid column of water on it, but the force driven by wind and fall of rain from a height generates a penetrative force, which can drive water through the fabric. The measurement refers to how it is physically tested, not necessarily how it is used.

Nylon is commonly used in double-walled hiking tents, especially for the customers requiring a serious technical tent suitable for high altitude environments. It is stronger and more expensive than polyester, and much lighter than canvas.

PU/polyurethane – a chemical substance to create waterproofing. Better fabrics have more coatings.

Polyester: Standard fabric to create double-walled hiking and camping tents, but they are generally cheaper and weaker than nylon. Polyester is very UV resistant and ranks as one of the top man-made fibres resistant to sunshine exposure. Lightweight polyester ripstop is used for tents suitable for the more adventurous 4x4 type of adventures/expeditions.

Polyester/cotton has all the benefits of polyester, but with the addition of cotton. It is more economical than 100% cotton. Cotton is a natural fibre that is used for ridge tents, dome tents and frame tents. As a natural fibre cotton is breathable. The water-repellent abilities of polyester, combined with the water absorbent abilities of cotton, makes this fabric blend one of the most water tight fabrics available. A polyester/cotton combination is fairly lightweight.

Single skin/single wall tents are manufactured in fabrics that deal adequately with water vapour. Modern single skin tents are much more breathable than the older generation. The modern construction allows moisture to escape, but no moisture comes in. They are especially popular when it is important to cut down on weight (e.g. when hiking) as it is much lighter to carry only one layer of fabric. Single skin tents really come into their own in high altitude mountaineering situations where a simple design has massive advantages.

Taped seams are applied to better quality tents to make sure seams don't leak – this is a method of waterproofing a seam. A basic explanation is that in traditional seams two pieces of material are stitched together. Those stitch holes now offer an opening for water to penetrate the otherwise *waterproof* fabric. The standard technique to waterproof this is to bond a very high tech strip of adhesive tape over the seam to now cover the little holes. This is traditionally done on the inside of the fabric.