



There's a pretty good chance that if you're on the lookout for a tent, you've come across the term "waterhead rating" or a number like "1500 mm" or "3000 mm" listed in the tent specifications.

So, the curiosity over what on earth this rating means led you to the internet and voilà! You've landed on this article where we're going to explain it all for you!

### What is a waterhead rating?

In simple terms, waterhead or hydrostatic head is a measure of how waterproof the tent is. To be more precise, a measure of how much water pressure the actual fabric the tent is made from can withhold before it starts to seep through.

Keep in mind that this only refers to the ability of the fabric to resist the penetration of water, it has nothing to do with the quality or durability of the fabric, whether or not the seams are protected from water penetration, and it does not take tent design into consideration.

The waterhead rating and season rating of a tent should be considered hand in hand. A two season tent is not designed for heavy rainfall so it won't have a high waterhead rating. Three to four season tents, on the other hand, are used in a range of weather from warm sunny climates to cold and wet or tropical conditions, so they need to boast higher waterproof properties.



*Ratings can be a little mystifying and often leave you wondering: just how waterproof is my tent? Photo: [MSRGear](#)*

### How is waterhead rating measured on a tent?

The fabrics are lab tested and there are two types of test. The first uses a device called a Suter Tester, the other involves columns filled with water bearing pressure down on the fabric. Both tests are similar.

The Suter Tester applies pressure to a piece of fabric that's clamped down into the machine. Once water starts to penetrate the fabric a psi measurement is taken that can be translated to mm as the waterhead rating.

The cylinder test involves securing a section of the fabric to the bottom of a column. The column is then filled with water and once the water starts to penetrate the fabric, the height of the water is measured in mm, giving the waterhead rating of the fabric.

It's important to note that these tests are in a controlled environment and don't take into consideration real world forces such as wind driven rain, the effect of gravity on rain, the pressure applied by an individual standing on said fabric, or as previously mentioned, the manufacturing considerations such as design and seam sealing.



*A fabric's waterproof rating is measured in mm, which represents the pressure at which water is able to press through the fabric. Photo: [MSR Summit Register](#)*

### Is a higher waterproof rating better?

No. Excessive waterproof coatings applied to increase the waterhead rating result in stiffer



and heavier fabrics with lessened tear strength, furthermore a poorly applied coating although providing a higher rating can delaminate or crack. These considerations are not factored into the tests mentioned above.



*Keep in mind ratings are tested in a controlled environment, so Mother Nature isn't in full force. Photo: [MSRGear](#)*

## What is DWR treatment?

DWR, or Durable Water Repellant treatment doesn't affect the waterhead rating of a fabric. It's a surface treatment that helps shed water from the fabric, a bit like wax for your car. It's a handy feature generally found on good quality tents as it prevents the fabric from wetting out.

## The quality & build of your tent affects how waterproof it is

Seams, zippers, tabs, anywhere that stitching exists are points of water entry. Good quality tents will have all seams sealed or at least provide sealant so it can be done post purchase to prevent water penetrating through the stitching holes created during manufacture. Well designed tents will also protect zippers and have adequately sloped walls to shed water.



*High-quality tents have sealed seams which assist with keeping your tent leak free. Photo: [Zempire](#)*

## What you really want is a waterhead rating guide... right?

### 0 - 1000mm Waterhead = Water Resistant

This is 2 season tent country. The fabrics in this range will withstand light rain for short periods.

### 1000 - 1500mm Waterhead = Waterproof

This is the lightweight hiking tent range and is adequate for lightweight 3 season hiking or compact camping tents.

General consensus is that 1000mm rating is waterproof but tent fabrics at the lower end of this range are usually made with a focus on lightweight performance rather than longevity. 1500mm is generally accepted as a good standard for hiking tents whilst, with proper storage and care, providing a longer usable lifetime.



*For 3-4 season camping you want a waterhead rating greater than 1500mm*

## **1500 - 5000mm Waterhead = Very Waterproof**

Many family tents come with ratings in this range, but would rarely require it to be as high as this upper limit. It's more of a 4-season requirement where you may be camped out in wet weather for an extended time.

A 1500mm rating should keep you dry in a rainstorm with 120kph winds but if you're camped out in a large family tent in these kinds of conditions a waterhead rating will be the least of your concerns.

The main benefit of tents with a rating in this range is that they are more likely to be better quality fabrics and will extend the usable lifetime of the tent.

## **5000mm+ Waterhead = Highly Waterproof**

Unless your camping for extended periods during a monsoon you won't need your tent fly to have a waterhead rating this high.

Tents utilising fabrics with ratings this high are likely to be high quality and made for the purpose of weather protection in extremes.

You generally won't see waterhead ratings for tents above 10,000mm as the chemicals in the coating can weaken the fibres which decreases fabric strength.



*Tent floors are usually rated higher than the fly. Pictured is the PVC coated poly oxford floor of the Instant Up Gold Tents from Coleman. Photo: Coleman*

## **What about the rating for a tent floor?**

The jury is out on this one, and the ratings can vary greatly. A tent floor needs to have a higher rating than the fly on account of the fact that the pressure we humans place on the floor of a tent is far higher than the pressure of rain hitting the fly. A quick look at [Wikipedia](#) indicates that an average human male exerts 6psi or about 6000mm of pressure or ground force when standing still, put all this pressure on one knee and the force is much higher in one spot, lay down and the pressure is far less over a larger area.

For this reason, [hiking tents](#) ideally have a 6000mm to 10,000 mm waterhead rating, but many lightweight tents are now coming out with much lower waterheads than this in favour less weight, it's all a compromise.

[Family tents](#) often have a polyethylene (tarpaulin) or PVC floor which generally don't have a waterhead rating as they form a completely waterproof and hard-wearing barrier.

## **Some final advice on waterhead ratings**

To summarise, and help you choose your new tent, a general rule is that a good quality tent with a 1500 - 3000mm waterhead rating on the tent fly, along with a 6000mm+ rating on the floor or one made from durable polyethylene or PVC, is going to keep you sheltered and dry in all but the absolute worst of conditions.

**So, how does your tent hold up in adverse weather conditions?**