NORTENT
NORWAY

BOOK OF TENTS

IT'S NOT JUST A TENT. IT'S A NORTENT.

BACKGROUND

Designed to give you comfortable shelter in the toughest terrain and weather.

The story

The story behind Nortent goes 30 years back in time when the founder was young. At 19 years old he left home and joined the military where he was appointed a place in the Navy. But Kjetil wanted to spend time out in the fields, forests and mountains. He did not want to be out at sea and was granted a transfer to the infantry. In the military he spent much time in tents up in the north of Norway during all seasons. Here his real passion for the outdoors was sparked. He wanted to experience nature outside of the military structure, and be free to wander the wilderness on his own terms. Kjetil still remembers the time he was standing guard and looking out over the vast, beautiful landscape and wondering what it would be like to explore the natural playground, the wilderness. Not restricted by the military and its equipment, but rather with equipment that was aligned with nature and catered to the good experience.

Kjetil's role in the military was to instruct and educate other soldiers on survival techniques and strategies in wilderness environments. When his military service ended, he continued with teaching with mathematics as one of his subjects. Through mathematics Kjetil discovered that many elements in nature are constructed by geometrics, where both human beings and animals experience a sense of harmony with shapes and sizes that have symmetry. If one looks closer one can observe geometric shapes and fractal patterns everywhere in nature. The universe operates in line with

these patterns and proportions and they give harmony to all living creatures. An example of this is the golden ratio which is measured at 1,62, the limit of the ratio of consecutive fibonacci numbers. In example a staircase where the relation between depth and height has the 1,62 ratio it feels natural to walk it. Without the 1,62 ratio it feels unnatural. The beautiful sunflower has a 1,62 ratio as well as endless other living features in nature.

As a teacher of mathematics and with his passion for nature Kjetil became more and more convinced that the equipment you rely on in nature should align with nature thus believing that a "mathematical tent" would both function better and be perceived in unison with nature.

Over the years Kjetil had spent much money and time on expensive tents and other equipment he deemed to be of poor quality. They seemed to be always lacking something. They were either too heavy, too small, too fragile, too complicated to set up or simply just unappealing to look at. Kjetil envisioned a tent that was a natural part of the environment. Spacious, light, easy to set up and above all comfortable. Equipment one can rely on in any situation, and which also has esthetic features that find their natural place in the environment thus create harmony.

This is why the mathematics teacher decided to design his own tent based on his scientific theories and empirical knowledge. He studied the shelters the indigenous people had used for centuries to keep safe and warm in the rough climate of Norway. When developing his modern day version for camping and backpacking out in nature, it was natural to seek inspiration from the indigeneous people's techniques based on ancient knowledge. Tents that are designed and created for harsh Norwegian weather conditions. This is how the Lavvo and the Gamme from Nortent came into creation. The Lavvo is cone-shaped, a shape you find in numerous features in nature. The Gamme is circular, one half of a perfect round globe.

Kjetil believes the tents to be esthetically appealing because human beings are a product of nature. That is why mathematical shapes and proportions appear in harmony and he aims for the tents to become intrinsically connected with nature. A tent should be both esthetic and practical.

With this in mind and at the same time. The perfect gear in the wild for NORTENT is spacious, lightweight, safe, easy to set up and of course comfortable, Equipment you can rely on in any situation, all seasons. After all, it is all about having the right equipment in the bag that promotes the feeling of well-being when you are walking in the mountains or deep forests. If you have a comfortable trip, the experience and memories are easily brought to the next expedition. And the urge and yearning for nature become even stronger. For us, it is important to be able to stop where we want, stay overnight where we want, make camp, and trust that we are comfortable and safe. Crawl into the sleeping bag warm and satisfied without worrying about a storm, rain or cold. Yes, we are talking about the exceptionally good feeling of being free together with nature. We believe that nature is your home, and our tents should be the doorway.

MATERIALS

> **WE ARE CONTINUOSLY IMPROVING OUR TENTS BASED ON EVERYDAY FEEDBACKS TOGETHER WITH OUR OWN EXPERIENCE AS WE IN FACT USE OUR TENTS AT EXPEDITIONS ALL SEASONS**

What is the best and most appropriate material depends on the intended use.

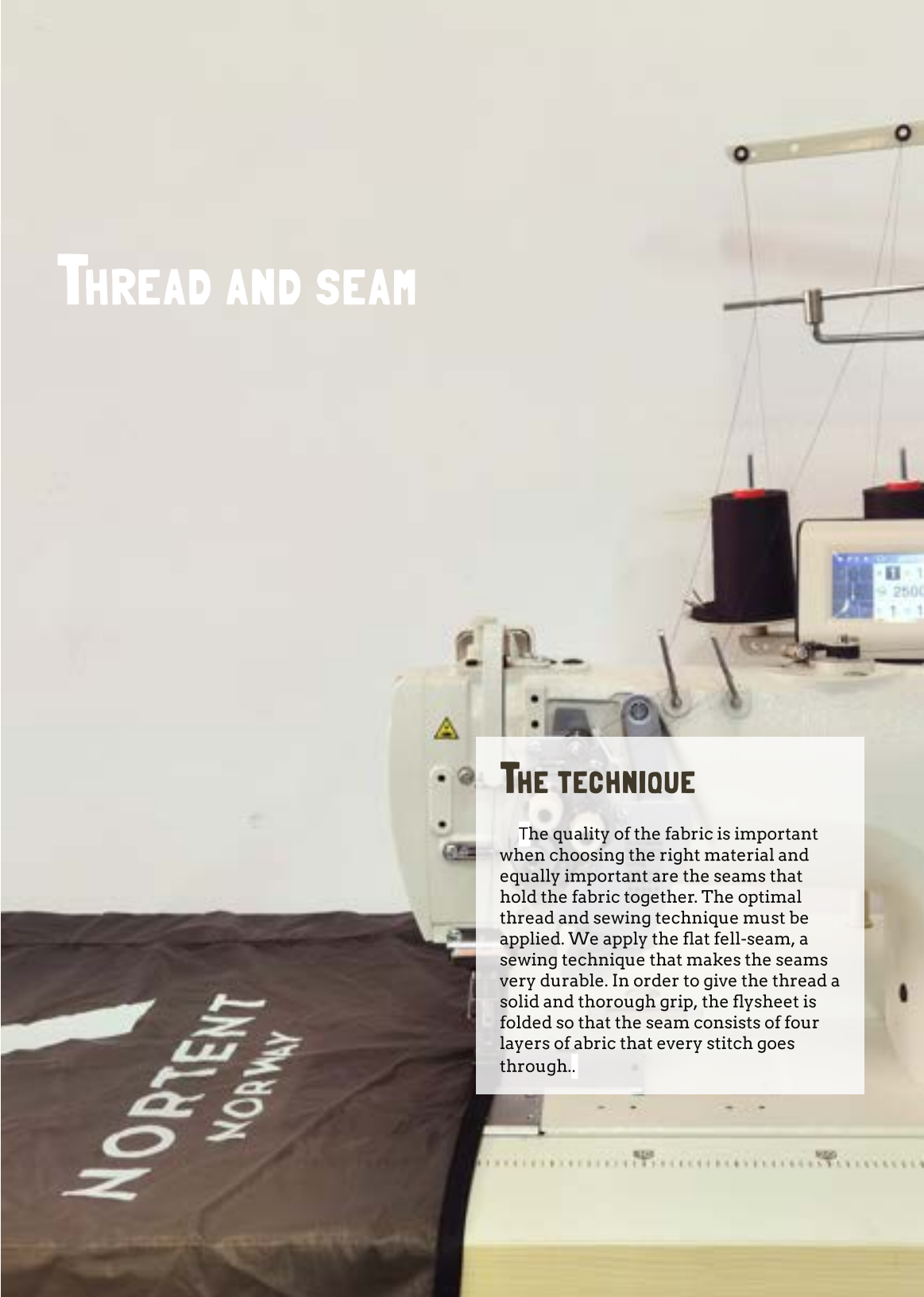
The process

All of our tents are designed and tested in Norway before going to production at our dedicated factory and service center in China where we have staff that are trained and focused on quality when sewing and handling our tents. The "final" product is actually a result of trial and error through thorough tests, use and investigation in a live environment in Norway. Here we collect real world data from the mountains and landscape in our own local environment. In this context we spend a lot of the time outdoors where the "final" product see daylight through a very laborious process, from design table to a "final" product.

With that said. We are continuously improving our tents with the feedback from customers and our own experience as we in fact use these tent on our own expeditions all seasons. This gives us a unique opportunity to adapt and perfect the designs through an infinite and flexible process that makes the tent somewhat "alive" and adaptable, in the journey for perfection.

It is precisely through our own expeditions and frequent use we evaluate which materials are appropriate and which materials are qualified for the intended use.

Thread and seam



The technique

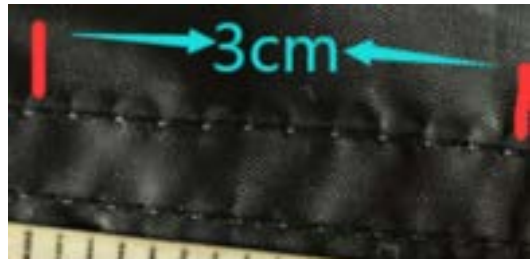
The quality of the fabric is important when choosing the right material and equally important are the seams that hold the fabric together. The optimal thread and sewing technique must be applied. We apply the flat fell-seam, a sewing technique that makes the seams very durable. In order to give the thread a solid and thorough grip, the flysheet is folded so that the seam consists of four layers of abric that every stitch goes through..

The thread we apply to the seams is the Amann Rasant 75 WR thread from Germany. One of its properties is that it expands when it becomes wet (an expansion thread). This means that the holes in the flysheet where the thread has gone through, will be tightened as the thread in fact expands and covers more of the hole thus makes it more waterproof.

In addition we also use a special cooled needle in the actual sewing process. This allow us to minimize the pinholes caused by the needle when sewing.

This applies especially to the silnylon fabric that is very elastic and withstand considerable stretching without being damaged. With that said. With the stretching of this fabric, the pinholes may also stretch and become less waterproof. That is why we think it is also appropriate to seal the seams on the silnylon fabric with a silicone mix to make sure the seams are 100% waterproof. The silicone mix will also penetrate through the seam and strengthen it.

The size of the stitches are also carefully considered. Many wrongfully believe that the denser the stitches are, the stronger the seam is. This is not correct and it is essential to find the right size. If the stitches is too big, the seams will become weak. Are the stitches too small and dense there will be too many pinholes, which will weaken the seams. Based on our findings we have decided on 10-12 stitches within a seam of 3 centimeter. This is where you obtain the most resilient seam.



The fabric

SILNYLON

Imagine the spider's web. It is made from thin silk threads spun by the spider. The silk in itself is not that strong but it is very elastic. When exposed to external forces the threads in the web stretch instead of breaking. Similar principles apply to the silnylon flysheet. When affected by strong wind and heavy rainfall the flysheet stretches and distributes the energy evenly over a larger area thus reducing the impact. Take a stress point like the guylines, for instance. In strong winds it is subject to great external forces. If the material around the guylines have low elasticity, too much of the energy will concentrate around that point and cause damage. With an elastic like material like silnylon the external forces will be distributed more evenly. Both in the fibers itself, but also between the guylines and the flysheet and then with less degree of inconsistent tugging and pulling..

Threadcount and density

Backpacking tents are often made from polyester or nylon. Nylon is generally stronger and more durable than polyester. Add ripstop to it, and you get a very durable fabric. The tear strength of the materials depend on the chosen thread thickness. and the density of the thread. The scale of measure is "D" for denier which is an indication of the yarn weight. The density of the thread is called threadcount. The thicker the thread and the higher the threadcount, the stronger the tear strength. But also , the heavier the fabric becomes. In example, a 10D flysheet can be very light and therefore attractive to the superlight hiker. But the tear strength will be weaker and material less durable than say a 20D fabric. Well. It is not that simple.. Other details also play a part. that we will address later on..We have made a fabric which we find is appropriate for each tent, that gives the required tear strength without compromising too much of the lightness of weight.

The coating

The quality of the fabric also depends on the coating that is applied. Coating is required to make the material waterproof. The fabric normally used for low end tents, is polyester covered with a layer of polyurethane coating. It is a more economical way to achieve a waterproof flysheet. Unfortunately a flysheet coated with PU (polyurethane) is often prone to chemical degradation In addition the PU coating literally demolishes the tear strength in the fabric. With silicone coated flysheet the case is very different. At NORTENT our choice of fabric for our lighter tents is ripstop nylon coated with silicone on both sides. This is Silnylon. It is highly water repellent, elastic and durable. The waterproof qualities do not weaken too much over time. We have chosen silicone coating on both sides of the fabric as opposed to a silicone/PU combination that many manufacturers find attractive. Our double sided silicone makes the flysheet lighter, stronger and more durable. It is a more cost expensive. But for the upgrade in quality, we'd say it's worth it

Nylon impregnated with silicone is a very dynamic fabric. It stretches, moves, contracts and retains depending on temperature and humidity. For flexibility it is one of the best fabrics to choose for the flysheet.

Understanding waterproof ratings in tents
When it comes to assessing the waterproof properties of tents, the terminology and measurements that manufacturers use can seem somwhat difficult to understand. Let's demystify these terms so they're easier to comprehend.

PU (Polyurethane) Coating:
When a tent is described as PU5000 mm, it indicates that the material has a Polyurethane coating enhancing its waterproofness. The "5000 mm" specifies the tent's waterproof rating, denoting its capacity to endure a water column of 5000 millimeters in height without leakage. Essentially, the fabric can resist the pressure of water up to 5 meters high before seeping occurs.

HH (Hydrostatic Head):
The "hydrostatic head" measurement is another indicator of fabric waterproofness. For example, in our tents, we apply PU primarily to the floor, demanding high water resistance due to direct ground contact and pressure. On the other hand, the flysheet, or outer layer, is crafted from silicone-treated nylon. This silicone isn't just a surface layer; it penetrates and bonds with the fabric, enhancing waterproofness while maintaining flexibility and durability.

So, an HH3000 mm rating for our flysheet signifies it can bear a 3000 mm tall water column before water penetrates. We use the HH term specifically for silicone-treated nylon, known as silnylon. Conversely, a PU4000mm label denotes a Polyurethane-coated fabric capable of a 4000 mm water column resistance.

In essence, these PU and HH indicators are crucial for gauging the waterproof capacity of tent materials.t.

Longevity of Waterproof Coatings:
It's important to note that PU coatings, despite starting with high hydrostatic head values, tend to deteriorate over time. That's why these tents often begin with a higher HH—to ensure lasting waterproofness, even though a modest HH of 500-600 mm would be adequate against all weather conditions. This principle also applies to waterproof jackets, which may start with a factory HH rating of 15000-20000 mm to account for gradual coating decline.

Given that PU can severely diminish a fabric's tear strength—by up to 75%—we avoid using it for our flysheets. To compensate for PU's weakness, a much thicker fabric would be required, adding unwanted weight to the tent.

Silicone-treated Fabrics:
In contrast, silicone treatments are far more enduring, preserving their waterproof quality

over many more years, which renders high HH numbers less critical. This lasting effectiveness means that a 3000 mm silicone-coated fabric can outperform a 5000 mm PU-coated material over time due to PU's decreasing efficacy. Our polycotton fabric, for example, has a modest HH rating of 700 mm, but since the waterproofing is inherent in the fibers, this rating remains consistent over the years.

The hydrostatic head rating of a fabric's coating can decrease over time due to several factors:

1. Wear and Tear
Regular use of a coated fabric can lead to micro-abrasions on the surface. For example, the repeated folding of a tent will wear away the coating, leading to a reduction in the fabric's ability to repel water.

2. UV Exposure
Prolonged exposure to ultraviolet (UV) light can degrade many materials, including the coatings on waterproof fabrics. UV radiation can break down chemical bonds in the coating, leading to a loss of waterproofness over time.

3. Dirt and Oils
Accumulation of dirt, oils, and other substances can clog the pores of the fabric's coating or create a layer over it, reducing its effectiveness.

4. Chemical Damage
Exposure to harsh chemicals, either from the environment or from cleaning agents, can break down the coating on a fabric. Certain detergents and solvents can be particularly damaging if they're not specifically designed to be safe for use on waterproof materials.

5. Hydrolysis
Hydrolysis is a chemical process that can occur in the presence of moisture and heat, leading to the decomposition of the

waterproof coating. Some coatings are more susceptible to hydrolysis than others (for example PU), and this can reduce the hydrostatic head over time.

6. Flexing and Stretching
The physical stress from flexing and stretching can also weaken the bond between the fabric and its coating. Over time, such stress can cause cracks and peeling, which allow water to seep through.

7. Production Quality
The initial quality and application of the coating also play a role. Imperfections or inconsistencies in the coating process can lead to areas that are more prone to degradation, which may not be apparent until the fabric has been in use for some time.

8. Storage Conditions
How the fabric is stored when not in use can also affect the longevity of its waterproof coating. Storing fabric in a damp, hot, or otherwise unfavorable environment can accelerate the degradation processes mentioned above.

9. Aging
Over time, all materials degrade due to various physical and chemical processes. This natural aging can lead to a gradual decrease in the hydrostatic head rating as the integrity of the waterproof coating deteriorates.

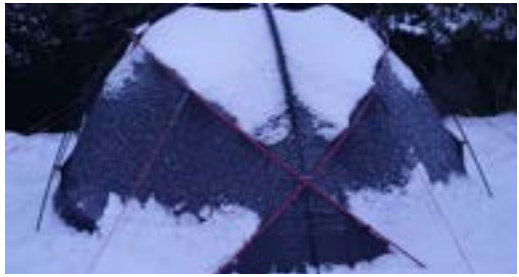
In conclusion, the hydrostatic head for the coating on fabric decreases over time due to a combination of mechanical, chemical, and environmental factors. All the listed points above are by far more vulnerable with the PU-coating compared with silicone-coating. Understanding these factors can help you to take steps to maximize the lifespan, such as choosing the right coating and high-quality materials, using appropriate cleaning agents, and storing the materials properly when not in use

Nylon 6/ 66
In the tent industry the silnylon fabric in general is divided into two standards. Nylon 6 and nylon 66. Seen from a purely technical point of view, nylon 66 is the best fabric. But. And this is a big but. Best fabric is not always the best fabric for all tents. It depends on the use and purpose of the tent. This is also why we carefully select which tent is equipped with nylon 6, and nylon 66..

To be able to deliver a strong, yet lightweight and somewhat small tent we find that nylon 66 is a good choice. As the thin lightweight nylon 66 is about 10% stronger compared to nylon 6. Nylon 66 also absorbs less water than Nylon 6. Which means that the fabric do not increase as much in weight when wet. These are of course important factors when going for an ultralight alternative. This is also why nylon 66 is an appropriate fabric in a small and ligth-weight tent. But. Here comes yet another but. When increasing the thickness of the fibers/ fabric for use on the bigger tents, the differences are just not there. Where we simply can not defend the use of nylon 66 when comparing the price to what you actually get. There are actually only marginal differences between nylon 6 and nylon 66 in a bigger tent with thicker 70D silicone nylon fabric. But the price-tag is nevertheless significant. This is why we carefully consider the nylon 66 for our small, and highly lightweight tens, but rather find that nylon 6 is a better choice for the bigger tents as the bigger tents really need a thicker fabric to be able to deliver the correct functionality related to the intended use.

Snowload
You should be able to use our tents in most weather conditions. But remember it is a tent, not a cabin. Although it is designed to withstand harsh weather conditions, it is not indestructible.

It will withstand strong winds and heavy rain but do not leave the tent unattended during snowfall. Especially wet and heavy snow will put a forceful load on your tent. The snow must be regularly brushed off the flysheet or it will ultimately perhaps destroy the tent. The weight of the snow can reach as much as 400 grams per liter of snow, which means that as little as two inches of snow on the surface will measure about 20 kilos per square meter. The tent surface on for example the Lavvo 6 is about 14 square meters where the flysheet would be exposed to about 280 kilograms of pressure. Depending on the circumstances the pole or fabric will eventually break if the snow is allowed to accumulate on the tent. Snow at -3 degrees celsius weighs about 50 gram per liter. Two inches of snow equals 2.5 kilograms per square meter which adds up to 35 kilosgrams of pressure on the flysheet. With a constant force stretching/ pushing the fabric over several days will stretch the nylon fabric in such a way that it will finally break. Or the pull will gradually wear down the pole/ poles. Take strong wind into the equation and the situation will deteriorate even faster. So. Brush the snow off the tent once in a while. Do this and the tent will be a reliable shelter in most extreme weather conditions.



Understanding Windspeed

Using a tent in high winds, especially in mountainous regions, can be a challenging and potentially dangerous experience. However, with the right equipment and precautions, it can be a rewarding adventure. One crucial piece of gear is a tent that can withstand the forces of strong winds. However, it's crucial to understand that every system, no matter how resilient, has its limits and will eventually reach a breaking point.

We take pride in offering the tents, which are designed and rigorously tested to endure harsh weather. Our Vern tents, for example, has been tested in a live environment with wind speeds (unsheltered) of at least 20 m/s (approximately 45 mph). This level of wind resistance is achieved through a combination of sturdy materials, aerodynamic design, and robust anchoring systems. And yes. Live environment is something completely different than a wind tunnel...

We always strongly recommend taking additional precautions for wind speeds exceeding this threshold. Specifically, we advise using double-poling which is available for the Vern series, which involves reinforcing the tent structure with additional poles for added stability and strength. But! For a good night sleep. It is always, always highly recommneded to minimize the external forces that are exposed to the tent.

It's important to note that wind forces do not increase proportionally with wind speed. In fact, as wind speed doubles, the force exerted on a tent can increase by a factor of 4 to 5. For example, if a wind speed of 34 mph exerts a force factor of 10 on a tent, a wind speed of 70 mph would subject the tent to a force factor of approximately 40 – a staggering four times greater.

Even a seemingly small increase in wind speed can result in a significant escalation of the forces acting on your tent. As seen in the table above.

While our tents have proven their resilience in winds up to 70 mph, it's crucial to emphasize that such exposure was minimized by seeking natural protection and lower ground. When camping in high winds, it is always advisable to position your tent in a sheltered area, taking advantage of natural barriers like rock formations or dense vegetation. No tent or even some buldings would survive a direct hit of windspeed at 70 mph.

Safety should be the top priority when camping in challenging environments. By understanding the dynamics of wind forces, utilizing high-quality equipment, and employing proper techniques like double-poling and strategic campsite selection, you can mitigate the risks associated with high winds and enjoy a secure and enjoyable outdoor experience. Take care of yourself. Keep safe. :-)

Wind Force with increasing windspeed

Windspeed - mph	Windspeed - m/s	Windspeed - km/t	Force (Newton)	
0	0	0,00	0	Smoke rises vertically
11	5	18,00	25	Leaves and small twigs in constant motion; light flags extended. (8-12 mph)
22	10	36,00	100	Small trees in leaf begin to sway (19 - 24 mph)
34	15	54,00	225	Whole trees in motion (32-38)
45	20	72,00	400	Twigs break off trees, generally impedes progress (39 - 46 mph)
56	25	90,00	625	Seldom experienced inland; trees uprooted; considerable structural damage (55-63 mph)
67	30	108,00	900	Very rarely experienced, accompanied by widespread damage (64-72 mph)
78	35	126,00	1225	Devastation (73+ mph)

The fibers "live"
The silnylon being so dynamic, needs some attention by you. Picture this: You've set up the tent on a hot, sunny day. The tent looks good. It's tight with smooth, clean lines. There is a change in weather...come nighttime the temperature drops, it may rain, and the tent looks nothing like the beautiful setup you made earlier in the day. Due to the rise in humidity and lower temperatures the flysheet has stretched and taken on a slack and wrinkled appearance. The solution to this is to adjust the stakeouts or the center pole (If you have one) accordingly to make the flysheet tight and smooth again. When the sun is back out and the temperature rises, the fibers in the fabric wants to tighten back to the level it was the day before. You must now release the stakeouts equally to what it was tightened to the night before. If you do not do this the flysheet will tighten even further with a brutal tension. Be aware that it is now at its weakest. At worst it may have stretched the fabric to a degree beyond breaking point. So. Pay attention to the fabric during your stay. We strongly suggest to adjust the fabric accordingly .

With that said. You are able to stretch the tent a few percent . That's a good thing, because you "stretch" the tent into place when the surface is uneven or where you have uneven sides. But a rule of thumb is to always ensure that the flysheet have some flexibility in it and not left tight as a drum.

Flame retardant
Our nylon fabric impregnated with silicone is a flame retardant combination. Silicone requires a relatively high temperature to ignite. Nylon is far less flammable than polyester, which is a popular tent fabric with many other manufacturers. Although our silnylon fabric is flame retardant it will still cause damage if a spark finds its way to the fabric or if it comes in contact with the hot stove or pipe. It is non-flammable but the affected area will melt and create a hole in the fabric. This can easily be repaired with a seam sealer combined with some extra tent fabric. If the holes caused by sparks are particulary small, a little drop of silicon will do. plenty.

> NO SEAMS ON SILICONIZED TENT– FABRIC IS 100% WATERPROOF WITHOUT MANUALLY ADDING SILICONE TO THE SEAMS.

Seamsealing. What? Why?

Ensuring the waterproof integrity of the seams on our tents is crucial for a comfortable and dry outdoor experience. While we understand the expectation for impeccable seams right from the factory, it's important to highlight that, in most cases, seam sealing is redundant for achieving waterproof seams on our silnylon tents.

The seams for our fabric, inherently provides a high level of waterproofnes. The seams are sewn using a special expandable thread and a uniquely cooled needle, minimizing pinholes caused by the needle and creating seams that are more or less waterproof by default.

Unlike PU-coated tents, where factory-applied seam tape is the norm, the nature of silicone in silnylon tents makes traditional seam tape useless as nothing sticks to silicone, except silicone. While we recommend seam sealing as an optional step for those who seek additional peace of mind, it's essential to clarify that, for most users, the seams already offer substantial waterproofing.

It's also worth noting that the silicone-to-silicone adhesion needed for seam sealing requires a manual application, typically taking about 24 hours to fully dry. While this process may be undertaken by end-users who prefer the extra layer of protection, it's essential to understand that the seams on your silnylon tent are designed to be highly water-resistant from the start.

SilNylon Condensation. What about it?

> A TENT WITH SYNTHETIC FABRIC IS "LOCKED" TO SOME IMPORTANT PHYSICAL PRINCIPLES WHEN IT COMES TO CONDENSATION

Being able to feel warm, dry and safe in a tent is something we all prefer on an expedition. It goes without saying that it should be waterproof. One should not be worried about whether the tent can withstand the rain that hails against the tent during the night.

Our nylon fabric are silicon-coated on both sides and are of course completely waterproof. It can withstand a water pressure of at least 3000 mm. This means that if you lay out the the fabric and shape it like a pool, you can fill this pool with water where the pool can be as much as 3 meters deep without the pressure of the water pushing the water through the fabric now laying on the bottom. If you now imagine our fabric at the bottom of this pool, there is quite a lot of water pressing against the fabric. Nevertheless. The fabric keeps the water in place. But if the surroundings/the air around the "pool" is cool and moist, and the water in the "pool" the colder, you will see water droplets on the "dry" side of the fabric, even if the fabric does not let water through. This is where we meet an important physical principle. And that is **condensation**.

When moist air hits the colder tent fabric, the air is unable to retain the same humidity, and the water in gaseous form is then left as liquid water on the inside of the outer fabric. The same principle applies when you get into your car on a rainy day. Then there is condensation/water on the inside of the windscreen. Or just look at the grass one random morning. It's full of water drops even though it hasn't rained a single drop. Same principle. Condensation is perhaps a particularly big challenge when it rains, because this air contains a particularly high amount of moisture/water... (There is a reason why it rains).
You are completely dependent on getting the moist air out of the tent to avoid condensation. In some cases, however, it is almost impossible to ventilate all the moist air. Especially on humid evenings where the temperature is low and the humidity high. In several cases, you will find that the battle against condensation is lost as the tent-walls gets wet on the inside. Regardless. If you do not have a wood stove and spend the night in a wet and cold climate, we would strongly recommend an inner tent (applies to all tents with artificial fibers such as nylon or polyester). That is precisely one reason why the vast majority of tents have fixed inner tents. But you certainly do not prevent condensation inside the tent with an inner tent. You only keep it outside the sleeping area. The inside of the outer fabric will still be just as damp and wet. You notice this if the inner tent comes into contact with the outer fabric on a perhaps rainy day.

CONDENSATION IN A TENT IS THE RESULT OF MOISTURE FROM THE PEOPLE STAYING IN THE TENT, FROM THE GROUND, AND NOT LEAST FROM THE AIR ITSELF.

> **IF YOU ARE WITHOUT HEATING AND SPEND THE NIGHT IN A WET AND COLD CLIMATE, WE WOULD STRONGLY RECOMMEND AN INNER TENT IN A NYLON/POLYESTER TENT**

Even though we have optimized the air flow in our tents with a lot of options for ventilation, it is common with some water on the inside of the outer tent on those cold and damp evenings as a result of condensation.

Ventilation and heating are perhaps the best way to reduce condensation inside the tent. With proper ventilation, the moist air is replaced with dry air and transported out of the tent, preventing water droplets from forming on the inside of the tent fabric. But. When it rains, the air is saturated with moisture. This means we have 100% humidity. The same humidity then applies inside the tent. When this air then hits the inside of the cooled, thin tent wall, the saturated air is cooled very quickly and the air simply cannot hold the same amount of water. And it must then let go of the water. The water goes from gas to liquid (same principle when it rains outside). This phenomenon can be seen in the form of water droplets that runs down the inside of the tent wall. If the weather in addition is windy, the tent walls will flap where some of the water on the inside of the tent will be thrown off by the flapping fabric, on the inside of the tent. It feels as if it is raining through the tent walls. Of course it doesn't. This is called "misting" and is a well-known phenomenon when staying in a cooled tent without an inner tent on a rainy day.

THE UNDENIABLE RELATIONSHIP BETWEEN TEMNPERATURE AND HUMIDITY

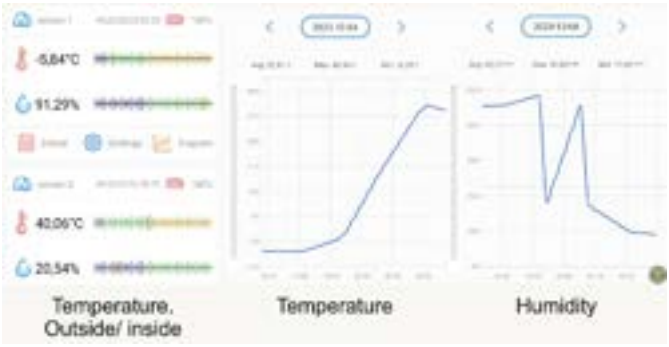
It's fascinating to observe the undeniable relationship between temperature and humidity inside a tent. -6 degrees Celsius outside. 40 degrees Celsius inside the tent.

From left. The difference between ouside and inside temperature. The temperature in the tent from starting up the stove 19:15 until 20:45. To the right. The corresponding humidity.

Watching humidity is interesting, especially at the beginning of this measurement. It seems that when the snow around the tent melts, it causes a unique and unexpected pattern in humidity. The melting snow ouside the tent appears to interact with the surroundings, influencing how humidity behaves in a way that's generates the somewhat unexpected diagram to the right. As seen on the diagram.: The humidity initially drops as the temperature increases, then it goes up before eventually decreasing consistently.

The diagrams clearly shows when temperature rises, the air's capacity to hold moisture also increases. This phenomenon is known as the saturation point. As the air warms up, it can retain more water vapor before reaching saturation. Consequently, the relative humidity, which is the ratio of the actual amount of moisture in the air to the maximum amount it can hold at that temperature, decreases.

In simpler terms, when it gets warmer, the air can hold more water vapor without feeling "saturated." So, even if the absolute amount of moisture remains constant, the relative humidity decreases because the air has a higher capacity for moisture at higher temperatures. This is a common relationship observed in meteorology and explains why, generally, hotter conditions are associated with lower relative humidity.



> ON WINDLESS DAYS WITH HEAVY RAIN, YOU WILL BE SURE TO EXPERIENCE THE BUILDUP OF CONDENSTAION ON THE INSIDE OF YOUR OUTER TENT.

When it rains, is damp, and/or cool, we strongly recommend an inner tent if you do not have the opportunity to use a wood stove. On particularly windless days with a lot of rain, you will experience condensation on the inside of the outer tent as it is somewhat difficult to get rid of the moist air. Also. With an inner tent, the need of seam sealing is perhaps not that essential. This is also the reason why most tent manufacturers with silicone-based fabric do not inform about seam sealing. As the inner tent that comes with the tent nevertheless keeps a distance from the water that may occur on the inside of the outer fabric.

However, For many of our tents we offer you a choice to use an inner tent, or not. Where we do recommend seam-sealing the seams as the seams on silicone-based tents cannot be taped waterproof. These must be lubricated with silicone to make them 100% waterproof. With that said. Most of the water on the inside of the tent-fabric is a result of condensation where the inner tent is the solution for a dry and comfortable tent if you are not using a stove.

The fabric

Polycotton

With breathable polycotton fabric you avoid condensation on the inside walls of the outer tent.

Most tent fabrics need some kind of waterproof coating to make it waterproof. But with polycotton much of the "waterproofing" work is done by the fiber itself. A cotton canvas is not completely waterproof from the factory. It needs to be exposed to water so that the fibers in the fabric expand and thus make the fabric 100% waterproof. Be it from exposure to rain or water from a garden hose, this process is called weathering. This also applies to the thread in the seams. With this in mind it may be good to know that it is normal with a few drops of water coming through the fabric during the first rain showers. The fabric will become denser after each time and eventually become completely waterproof. It is the internal fibers in the tent fabric that are making the fabric completely waterproof. With proper care and storage the tent will maintain its waterproof properties for many years to come with no extra maintenance to waterproofing.

Cotton has a long history as a canvas for tents. Some of the first commercial tents were made of cotton canvas. These tents were warm, with an acceptable indoor climate. We at NORTENT have experience with cotton tents from the army where the cotton tents worked perfectly as shelter and insulation. The big downside, however, was that these tents were too heavy to carry. They had to be brought to camp by motorized transportation.

Eventually we got tents with synthetic fabric, mainly polyester. Polyester was and still is an inexpensive and strong fabric. However, with synthetic fiber it's challenging to keep a good indoor climate. Condensation can easily build up if the air flow is not maintained. In a very humid, environment it is close to impossible to avoid condensation with a fully synthehic flysheet regardless of designs and models.

This is where the good properties of polycotton come into play. Polycotton is, as the name suggests, a fiber- blend of polyester and cotton that preserves the best of both worlds. The cotton makes the canvas breathable where you do not have to constantly fight against the condensation inside the tent. In addition, cotton insulates and gives a much warmer and drier indoor climate. With a proportion of polyester in the cotton fiber, you can make this fabric much lighter and thinner and at the same time maintain the durability of the tent. Have a look at our Lavvo 6 PC. This would easily have a weight over 20 kilos if the canvas was made out of 100% cotton. With our hybrid fabric made of polycotton we reduce its weight to only 7.5 kilos, and at the same time benefit from all the good properties of a regular cotton canvas. The downside is that they are still heavy compared to tents as light as synthetic tents. So you have to consider what's important to you. If a dry, warm and ventilating tent are important characteristics for you, then you should spend a few nights in our PC tents. The indoor climate is much better than what a synthetic tent can offer.

Because the polycotton fabric is ventilating and breathable, the need for an inner tent is considerably reduced. One of the tasks of an inner tent is to keep the wet and damp tent walls away from the persons living in the tent. The mesh fabric of the inner tent lets through moist air so you avoid condensation inside the inner tent itself. occur on the inside walls of the outer tent.

Polycotton-Magic wand?
Even though cotton fabrics and tents are breathable, condensation can still occur, especially in damp and cold surroundings with little air movement. This is due to a combination of factors such as air circulation, temperature differences, and humidity:

Air circulation:
Tents are typically equipped with vents to allow air circulation. This helps remove humid air from inside the tent and brings in cooler, fresh air from the outside. However, when the warmer, humid air encounters cooler surfaces, like the tent fabric at night, it can lead to condensation. Air circulation and breathable fabric helps to mitigate, but not always eliminate, this issue. Nevertheless, cotton tents reduce condensation significantly.

Temperature difference:
Nighttime temperatures can be significantly lower than daytime temperatures, especially in mountainous areas or under cold weather conditions. This temperature difference can cause the humidity inside the tent to condense on the inner surface of the tent fabric. This is especially true in particularly humid environments, such as near water or a marsh. Again. Breathable fabric helps to reduce the condensation.

Surroundings
If the tent is placed in a sheltered or quiet environment, it may have less air circulation, increasing the chances of condensation. Stagnant air makes it harder to remove the accumulated moisture inside the tent. This physical principle applies to all materials, breathable or non-breathable.

There will be situations where condensation occur, especially in environments where the air is stagnant (resulting in poor air circulation), damp, and cold. In such cases, condensation is unavoidable, driven by physical principles that are impossible to avoid. This holds true whether you are in a tent with breathable properties or a non-breathable one. Similarly, in a cold cabin with inadequate air circulation, these physical principles will lead to damp walls inside the cabin unless you ventilate or provide some form of heating.

Breathable polycotton helps to reduce condensation considerably. But it is no magical wand that can bend the laws of nature. End users may however help further to avoid condensation by picking appropriate camping-grounds. Pitching the tent close to the water, stagnate airflow and low temperature. You will experience condensation as condensation is bound to physical principles mentioned above. So. Condensation is always a symbiosis between the design of the tent, the fabric, climate, surroundings and the knowledge from end-user.

The fabric

Dyneema

All exposed areas on the outer fabric are reinforced with Dyneema fabric. Dyneema is considered the worlds strongest fabric. .

Dyneema is a type of synthetic fiber that is as mentioned known for its extreme strength and lightweight nature. It is made from ultra-high molecular weight polyethylene (UHMWPE), which is a type of plastic that has been highly stretched to align the molecules in a specific way. This process makes the fibers extremely strong, with a tensile strength that is 15 times stronger than steel on a weight-for-weight basis. Dyneeama fabric is in fact often used in bulletproof vests and other protective gear because of its ability to stop bullets and other high-velocity projectiles.

It is therefore perfectly appropriate that we have added this fabric on parts of our tents where the brute force is expected to be very high.

> "DYNEEMA IS AN EXCELLENT CHOICE FOR USE AS A REINFORCEMENT MATERIAL DUE TO ITS EXTREME STRENGTH AND LIGHTWEIGHT NATURE."

Dyneema fabric is very strong, but an extremly expencive fabric. This is also why we use Dyneema on only parts of the tent where it is actually appropriate. Which is as a reinforcement, to add strength and durability to the tent's structure. Particularly in areas that are prone to high stress and wear and tear

One of the main advantages of using Dyneema fabric as a reinforcement material in tents is its strength-to-weight ratio. Dyneema fibers are extremely strong, but they are also lightweight, making them ideal for use in tents that need to be carried over long distances. In addition, Dyneema fabric is highly durable and resistant to wear and tear, which makes it an ideal material for use in tents that will be subjected to harsh weather conditions and rough terrain.

Further. The Dyneema fabric is excellent as a reinforcement material because of its ability to withstand brute force. We find that our tents reinforced with Dyneema fabric are less likely to be damaged by strong winds and are more resistant to tearing and puncturing. This makes them suitable for use in exposed locations and high-altitude environments where winds can be strong and gusty.

Overall, Dyneema fabric is an excellent choice for use as a reinforcement material due to its extreme strength, lightweight nature, and durability. It helps to add strength and durability to the tent's overall structure, making it more suitable for use in harsh environments and challenging conditions.

Embarking on outdoor adventures demands gear that can stand up to nature's toughest tests, and at the core lies our ARCX-N fabric. Developed through rigorous experimentation and innovation, ARCX-N represents our tireless pursuit of fabric perfection. We understand that the fabric's thickness, density, and waterproofing are pivotal factors in creating a tent that not only provides shelter but also endures the rigors of the wild.

The thickness of the fabric determines its strength while the density of the threads in the flysheet contributes to its overall durability. Finding the right ratio of the above combined with nylon and silicone ensures that our tents offer reliable protection against harsh elements. Moreover, we've categorized the ARCX-N fabric into a range from the ultra-lightweight ARCX-N100 to the incredibly robust ARCX-N700, providing options tailored to diverse outdoor pursuits.

With our ARCX-N fabric, you can confidently explore remote trails, brave unpredictable weather, knowing that your tent's fabric is optimized for performance, durability, and comfort."

> **TAKING CARE OF YOUR FABRIC AFTER THE TENT HAS BEEN USED IS AN ESSENTIAL PART OF MAINTAINING THE LONGEVITY AND FUNCTIONALITY OF YOUR TENT.**

A tent is a great way to spend time outdoors, but it's important to remember that taking care of your tent is almost as important as enjoying the trip itself. One of the most important pieces of equipment you'll need is in fact the tent, and it's essential to take good care of it to ensure it lasts for many trips to come.

Proper cleaning is key to maintaining your tent. After each expedition, make sure to remove all dirt, debris, and sand from the tent by shaking it out or using a soft brush. You should also clean the tent floor and flysheet with mild detergent and water. Avoid using harsh chemicals or bleach, as these can damage the fabric and zippers.

It's also important to make sure your tent is completely dry before storing it. Moisture can cause mold and mildew to grow, which can weaken the fabric and cause unpleasant odors.Set it up in a well-ventilated area to dry before storing it in its carrying bag.

Always store your tent in a cool, dry place, away from direct sunlight or heat sources. Avoid storing it in a damp or humid area. .

As mentioned earlier it is important to store the tent away from direct sunlight. This also applies when the tent is pitched. Direct sunlight can cause the fabric of the tent to fade, weaken, and even become brittle. The UV rays can also cause the color to fade.

It's important to note that all our tents are treated with UV protection to help mitigate this effect, but it is still important to keep the tent out of direct sunlight as much as possible. Use a shaded area, or use a tarp or other shading device to protect it from the sun.

The bits and pieces

Nylon

The saying "a chain is only as strong as its weakest link" is often used to illustrate the importance of every part working together in a system. In the case of a tent, this means that even though the overall structure may be strong, if one of the smaller parts is weak or not functioning properly, it can compromise the integrity of the entire tent. This is why it is important to use high-quality materials and construction techniques in all parts of the tent, including the small bits and pieces like fastening devices, hooks, cups, etc.

> "OUR SMALL BITS AND PIECES ARE MADE OF FLEXIBLE NYLON, AND NOT HARD AND STIFF PLASTIC."

Tents consist of many different parts that work together to provide you with a comfortable place to sleep while on a trip. Some of these parts include small devices like fastening devices, hooks, etc., which are used to hold the tent together and ensure that it all stays in place through those harsh winter storms, freezing temperatures and ravages of time. These small bits and pieces are often easy to forget and neglect in regards to the the standards and quality that are put into the rest of the tent..

You have perhaps heard of ABS plastic. In fact most tents use this for the small bits and pieces. It is hard, it is light and somewhat durable. However. It fails to deliver over time as ABS plastic is stiff and cracks when exposed to extreme cold and general wear and tear over time..

This is why our small bits and pieces are made of a somewhat flexible nylon, and not hard and stiff plastic. Nylon is known for being one of the strongest synthetic materials available, and it has a high strength-to-weight ratio. This means that it is very strong and durable, making it an ideal choice for us. ABS plastic is also more brittle than nylon, which can make it more susceptible to damage.

By choosing nylon over hard hard plastic for the small bits and pieces, we strive to ensure that every part of our tents are strong, durable and reliable, helping to prevent any weak points that could compromise the overall structure. In this way, you can be confident that your tent will provide a safe and secure place to sleep, not only today but in many years to come for your adventures and expeditions.

Poles and pegs

Aluminum

Aluminum is a great metal. It is lightweight, strong and durable, hence a good choice for use on hikes off the beaten track. It is our choice of metal for use in poles and stakes in all our tent models. It reacts little to other substances, but aluminum in its purest form reacts very readily with the oxygen in the air. Therefore it is also rare to find pure aluminum in nature. However. This is also an advantage with manufactured aluminum as the surface of the aluminum reacts readily with oxygen and forms a protective film on the surface of the metal so that the metal does not react further with the air. Aluminum in its purest form is not a strong metal.But by adding other metals to the mix, such as magnesium, copper and zinc, its characteristics can be adjusted to fit the desired purpose.

It is this alloy that determines, for example, whether your aluminum stake or tent poles should be strong, flexible, rigid, etc. Properties that vary in terms of what it should be used for. A center pole in our Lavvo should contain other characteristics than, for example, the tent stakes. The center pole of the Lavvo should be somewhat flexible so it can withstand being slightly bent (without breaking, of course). This is an important feature of the center pole as it is subjected to great forces and energy that tries to bend it. Same goes for the poles on Gamme series and Vern series as well.. These poles should be even more flexible. We want some of the energy from the wind to actually bend the poles slightly instead of cracking it.

If we for example were to use the same aluminum alloy in the poles as in the tent stakes, the poles would have been very rigid and sooner or later cracked as a result of the movement it is constantly subjected to. Especially when the tent is exposed to a lot of wind. The stakes, on the other hand, should contain an aluminum alloy that makes the stake a lot rigid but at the same time strong where the plug must withstand bending to a certain extent without breaking. The tent stakes are, as you know, mostly planted in the soil without any movement and do not need the same flexibility as for example a tent pole.

That is why we use different aluminum alloys for different applications. For our aluminium poles and pegs, we use the industry's strongest aluminum alloy of the 7000 series where the aluminum is mixed with zinc, magnesium, and copper.But the ratio between these are depending on if it is a pole, peg, etc. A pole needs to be very flexible where it is able to bend quite a bit without breaking. So both the pegs and poles are carefully designed and manufactured based on what we think is necessary and appropriate for real adventures.

Although carbon poles are marginally stronger and lighter than aluminum, they are not as flexible. If they are bent, the carbon pole breaks a lot quicker. For the "lightweightjunkie" we do of course offer carbon poles Because we want this to be your choice. But in general we actually recommend aluminum as aluminum is a very flexible alloy which can better be adapted to the different and special uses.

In the world of outdoor gear, the aluminum poles and pegs we use are super important. They're like the backbone that supports our commitment to quality. We work with different factories, carefully developing the poles and pegs for dedicated reasons. What makes our tents stand out is not just putting parts together. it's the careful selection of materials, particularly our custom-made aluminum poles designed exclusively for our brand. All poles are made of aluminium in the 7000 series. Aluminum poles from the 7000 series excel in a superior strength-to-weight ratio. This specialized alloy combines high tensile strength with lightweight properties, making the poles robust yet remarkably light.

When we talk about lightweight tents, where every bit of weight matters, our dedication to being top-notch shines through. The aluminum poles we use aren't just regular ones you can pick off the shelf. These poles are carefully designed to be thin, super light, and really strong adapted to our goals and our tents.

In the world of bigger tents, it's not just about having a strong structure; it's about finding the right balance between being strong and flexible. Our poles are made not to break when things get tough but to bend gracefully. In tough conditions where our tents are put to the test, these poles stand strong, bending and flexing without giving in.

To wrap it up, whether it's the lightweight tents or the bigger ones, our aluminum poles are not just randomly chosen. They're crafted to match the standards and needs of our brand. They represent our commitment to quality, precision, and our constant effort to give outdoor lovers gear they can rely on.

The advantage of in-house tent pioles.

When it comes to choosing the poles for our tents, we take a unique approach by producing our own dedicated poles rather than using the well known DAC poles. So. Why would we do such a thing as DAC poles are renowned for their durability and performance. Instead, our choice stems from the flexibility and control it affords us in the manufacturing process.

By designing and producing our own tent poles, we gain the ability to tailor every aspect of their construction to our exact specifications. This level of customization allows us to optimize factors such as weight, strength, and flexibility to perfectly complement the design and intended use of each tent model in our lineup.

Moreover, having complete control over the pole manufacturing process enables us to seamlessly integrate new materials, technologies, or design innovations as they emerge. This agility ensures that our tents remain at the forefront of innovation, incorporating the latest advancements to enhance their performance and user experience.

Furthermore, producing our own poles eliminates the need to rely on external suppliers, streamlining our supply chain and reducing potential delays or disruptions. This vertical integration not only enhances our operational efficiency but also allows us to maintain tighter quality control over every component that goes into our tents.

While DAC poles are undoubtedly a high-quality option, our commitment to using our own dedicated poles is driven by a desire for unparalleled flexibility, customization, and control over the manufacturing process. This approach enables us to deliver tents that are meticulously tailored to meet the unique needs and preferences of our customers, while staying ahead of the curve in terms of innovation and performance.

By producing the poles ourselves, we can carefully work to achieve the optimal balance between strength and flexibility. It's not just the aluminum alloy that determines how sturdy the poles are – thickness also plays a crucial role. Poles that are too thick can become overly stiff and inflexible, while poles that are too thin may lack the strength needed to withstand external forces.

Through ourwork, experience and testing, we stribe to find the perfect balance for each tent model – a balanced thickness that provides sufficient strength to keep the tent stable and structurally sound, without compromising the necessary flexibility to handle wind and movement. This fine-tuning of thickness and material composition is something we can only achieve by having complete control over the manufacturing process.

This approach ensures that our poles are neither too brittle and fragile nor too weak and yielding, but rather maintain the right combination of robustness and pliancy for optimal performance across various weather conditions and terrain.

Why design the poles on the outside of the tent?

One of the most distinctive features of Nortent tents is the integration of the inner and outer tents. This design allows the flysheet, or outer tent, to be pitched first, providing essential protection for the inner tent during setup. In harsh weather conditions, such as rain or snow, this is a game-changer, as the inner tent remains completely shielded from the elements and stays dry throughout the setup process.

This design is particularly advantageous for backpackers and adventurers who often have to set up camp in challenging weather. With the outer flysheet serving as the first layer of defense against wind and rain, it creates a secure shelter before the inner tent is even exposed. Once the flysheet is erected, the inner tent can be easily attached, keeping it dry and safe from water intrusion. This approach ensures adventurers stay comfortable and dry, even when the weather is unpredictable.

In addition. This design is crucial because it prevents the poles from damaging the flysheet in the event of a breakage. In traditional tents, broken poles often puncture the outer fabric, especially in high winds or under the weight of snow. By positioning the poles externally, Nortent eliminates this risk, ensuring that even if a pole snaps, the flysheet remains intact. This thoughtful design significantly boosts the tent's durability and resilience, allowing it to perform reliably in extreme conditions even if unexpected damage..

Mind the gap!
When setting up a tent, it is crucial to properly assemble the poles without any gaps between the joints. Gaps in the pole joints can significantly weaken the tent's structure and increase the risk of pole breakage during setup.

Proper pole assembly is not only important for the durability of the pole, but also for ensuring that the tent pitches properly. Gaps in the pole joints can cause the tent to be unstable and not pitch correctly, resulting in poor support and increased risk of collapse in high winds or inclement weather.

To ensure proper pole assembly, it is important to take the time to assemble the poles without any gaps. To ensure the overall strength of the pole.

Proper assembly of tent poles without any gaps between the joints is a critical step in the tent setup process. Neglecting this step can increase the risk of pole breakage and damage to the tent.

Excessive force
When setting up the tent, it is important to avoid using excessive force in any way. Using too much force can damage the tent's poles or fabric, potentially rendering the tent unusable. It can also lead to injury if a pole snaps. Rule of thumb: If you are using a whole lot of force when pitching the tent, you are doing something wrong. It is important to note that most breakage of tent poles occurs during pitching the tent as the poles are most prone to breakage at this stage. They are in fact constructed for optimal strength when installed to the tent itself.

Zippers

The importance of a quality zipper

There is a wide variety of zippers to choose from out there. They are used in clothing, bags and all different types of gear. When the zipper fails the product often becomes useless.

In order to give the end user a less expensive product it may be tempting to cut cost on the zipper as it's a detail which is often overlooked by the consumer. We're of a different opinion

The devil is in the details and the tent is only as strong as its weakest point. We put clear emphasis on a high quality zipper. It must meet the same high standards that you set for the other parts of the tent, such as the flysheet, poles, straps etc. If not, the overall assessment of the tent becomes poorer and optimal choices with the other details lose significance.

That is why we have chosen the YKK zipper for all our product line. The brand dates back to 1934 and is world renowned for its strength, durability and reliability. The YKK is a zipper to be trusted throughout the lifespan of the tent.

The zipper is as mentioned very important. If it fails, parts of the tent gets pretty much unusable. In addition to a quality zipper your own use of it also matter. Taking care of the zipper is therefore essential to make it work as expected through the entire lifespan of the tent.

Keep away dirt, sand, etc. These small particles may be a silent workers on a mission to destroy your zipper. With that said. It may be a good idea to also clean the zipper regularly to keep it "fresh" and functional over time.. One tip once in a while is to rub the zipper with some candle wax. This will help the puller to have a smooth glide on the zipper itself. We do not recommend using oil, etc as this may attract particles or even wander on to fabric of the tent. You do not want that.

Take care of the zipper and it will last the entire lifespan of the tent.

THE POSITIONING OF THE STOVE-JACK

> **AFTER COUNTLESS OURS IN THE FIELD, WE HAVE FOUND WHAT WE BELIEVE IS THE OPTIMAL POSITION FOR THE STOVE IN A TENT. HENCE ALSO WHERE THE STOVE-JACK SHOULD BE PLACED ON THE TENT ITSELF.**

Where is the most appropriate place for a stove in a tent?.

The plan

First, the obvious. To prevent the pipe or stove from coming into contact with the tent fabric, it is of course vital to keep these as far away from the tent fabric as possible. Placing the stove and pipe near the tent wall that often flickers or moves is not a good idea. Because of this, we have placed the stove-jack as close to the center of the tent as possible so that the stove and pipe are as far away from the tent-wall as possible.

Second. The stove-jack is placed as close to the center of the tent as possible. Another important reason for this is that this area is the most stable part on a tent. Where the flysheet flickers and moves least and is kept steady by nearby tent poles / center-pole. In addition, the wind moves directly over the flysheet in this area without being hindered in its way. The result is a quiet and stable fabric at the center of the tent. This applies to most tents. If, on the other hand, the stove-jack is placed further down the tent wall where much of the energy in the wind is left on the wall itself, the pipe will at times be exposed to a lot of movement by the flysheet as this area flickers a lot more when the tent becomes exposed to wind. In the worst case scenario, the pipe may be pulled out of the stove or the stove will tip over due to large movement caused by the flysheet. We therefore believe it is very appropriate to place the stove-jack as close to the center of the tent as possible, even if this steals a little more space inside the tent. Or at least where the flysheet is stable.

Our **third** argument for placing the stove-jack near the center of the tent is the distribution of heat from the stove.In a cabin much of the heat will be reflected from the walls back into the room. In a tent, the heat does not reflect back from the walls but rather penetrates the walls and vanishes outside. A stove at the center will more evenly distribute the heat before it escapes through the walls.

OUR TENTS

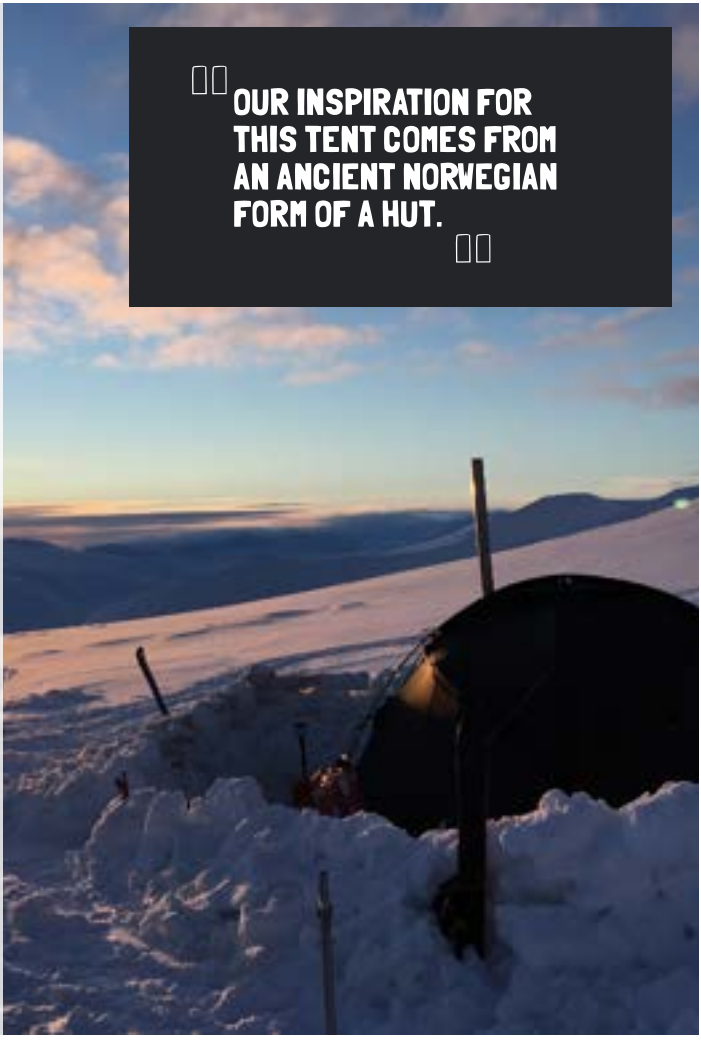

GAMME SERIES

Our inspiration for this tent comes from an ancient Norwegian form of a hut. The Gamme has been used since the first people came to Norway thousands of years ago, providing a safe and secure shelter. It is still used today by indigenous Sami people of Norway.

Gamme series has storm-flaps all around the tent to make the tent even more stable with snow, sand or stones over the flaps. A 4-season tent that provides shelter and protection in most conditions. Summer and winter. Even without the guylines, the tent stands very firmly in the wind .

Gamme is designed with a stove in mind. Being able to have a warm, pleasant, and cosy tent is something we believe lifts the adventure to completely new levels. While the storm rages outside with ice-cold winds and rain, one can enjoy an indescribable comfort inside the tent .

A truly versatile tent for the vast majority of adventures and expeditions.



> **OUR INSPIRATION FOR THIS TENT COMES FROM AN ANCIENT NORWEGIAN FORM OF A HUT.**

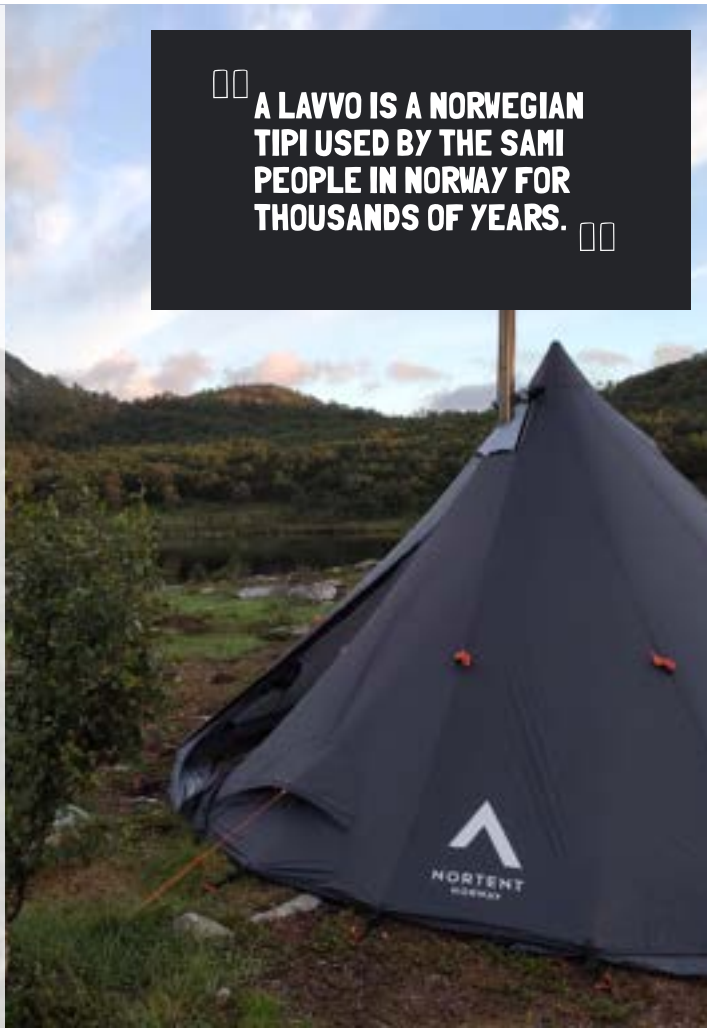

LAVVO SERIES

The Sami in Norway have through generations been in close contact with nature and has always sworn to the lavvo for protection against the harsh weather. This is also our inspiration when designing our Lavvo which is a Norwegian version of a tipi.

NORTENT Lavvo is a very flexible 4 season tent. And is the result of a desire to develop a light tent that can be used in most situations. From family excursions to demanding walks in mountains and forests where comfort, flexibility, spaciousness and reliability are important factors.

Our Lavvo is lower than a traditional tipi. This is to achieve a perfect combination between comfort and aerodynamics. We have made a tipi with a relatively small angle so that the energy in the wind is not left on the flysheet, but is led up and around the tent.

"A LAVVO IS A NORWEGIAN TIPI USED BY THE SAMI PEOPLE IN NORWAY FOR THOUSANDS OF YEARS."

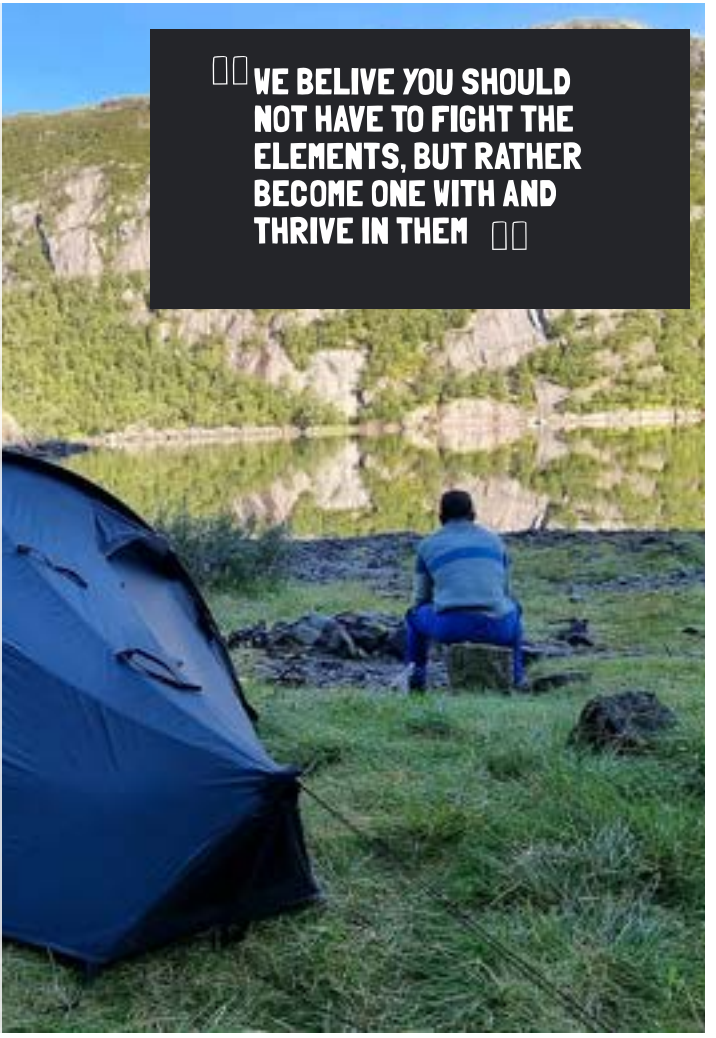



VERN SERIES

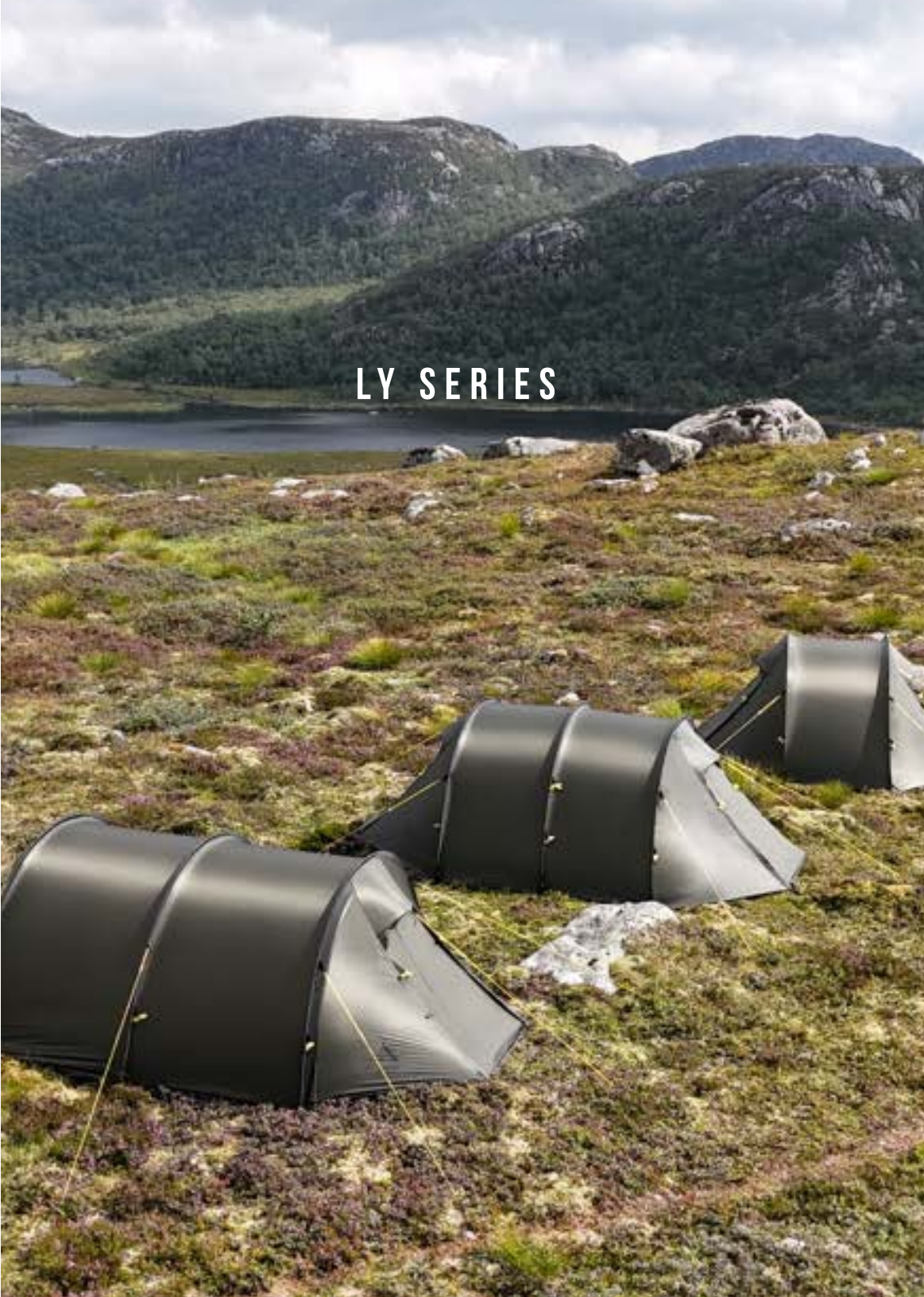
The tents in Vern series are extremely light tents for its size. Optimal for the longer hikes in mountains and over isolate plains where you really need a reliable shelter against the elements. With its aerodynamic shape and many possibilities for anchoring the tent to the ground, this tent is a true friend which will keep you safe in the different elements.

Vern is designed to provide clean and correct lines that blend in with nature. We have placed great emphasis on the tent being able to be set up quickly and easily without obstacles. With a little practice you should be able to set up the tent in 4-5 minutes where you can then crawl into a warm and safe sleeping bag.

You can rely on Vern throughout all four seasons. Whether the snow is falling or you're facing inclement weather, Vern will consistently be your dependable companion.



"WE BELIVE YOU SHOULD NOT HAVE TO FIGHT THE ELEMENTS, BUT RATHER BECOME ONE WITH AND THRIVE IN THEM"


LY SERIES

The tents in Ly series are extremely robust tenst with plenty of room along with equipment and cooking. Very suitable for longer hikes into the wilderness far away from houses and cabins where you really need reliable protection against the elements. With its aerodynamic shape and many possibilities for anchoring the tent to the ground, this tent is a true friend that will keep you safe in various weather conditions. We believe you should not have to fight the elements but rather become one with and thrive in them.

Ly is designed to provide clean and correct lines that blend in with nature. As a tunnel tent, Ly is incredibly easy to set up quickly and effortlessly, making it ideal for those long walks in the outdoors with a reliable shelter for the night.. Additionally, as a tunnel tent, our Ly tents requires few poles, reducing the overall weight and making it easier to carry.

> "LY", A NORWEGIAN WORD MEANING SHELTER OR PROTECTION FROM THE WEATHER.


SKJUL
NORTENT
NORWAY

Are you an adventurer who values mobility, discretion, and quick setup? Meet Skjul, our top-of-the-line one-person bivi that combines compact design with superior weather protection, making it the perfect companion for your outdoor escapades.

Not for Everyone, but Perfect for You. Skjul is designed for those who prioritize stealth and a minimal footprint. Unlike traditional tents that require ample space and time to set up, Skjul offers a hassle-free, instant shelter solution. It's the ideal choice for solo adventurers who prefer to camp in unconventional spots where larger tents simply won't fit.

Skjul is engineered for the modern adventurer who demands more from their gear. With its large, easily accessible opening, highly breathable fabric, integrated air valve, and mosquito netting, Skjul stribes for a comfortable and enjoyable camping experience even thoug this is a very small shelter .

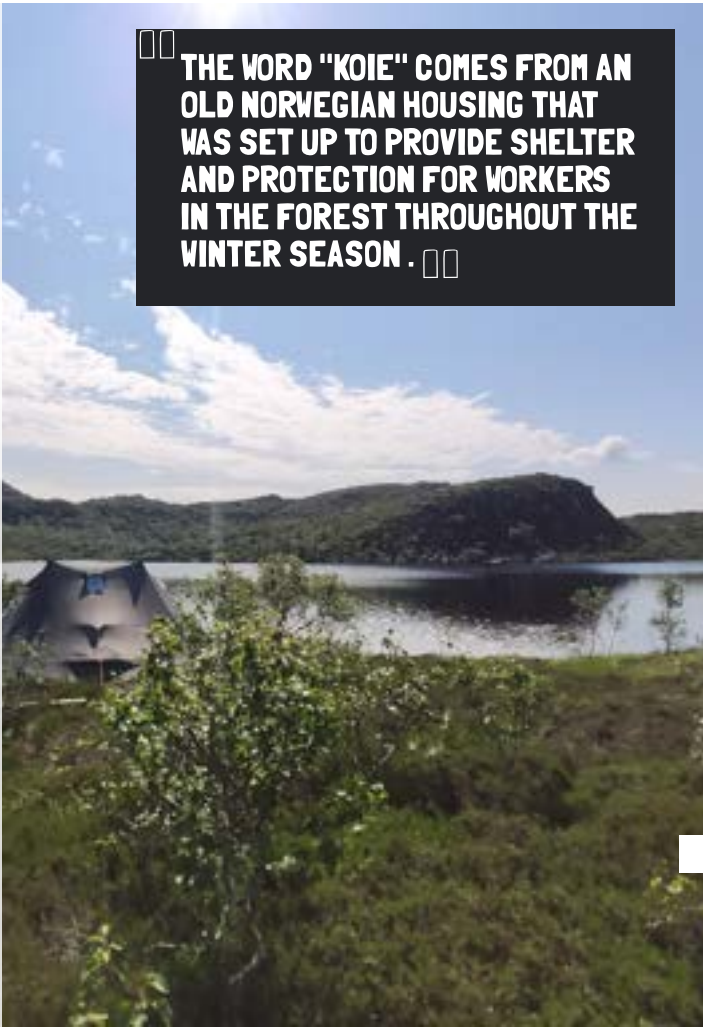
> **SKJUL IS NOT JUST A BIVI. ITS A GATEWAY TO UNSTRICTED ADVENTURES**


KOIE SERIES

NORTENT Koie 7 is a very stable and solid tent. Koie 7 is designed to accommodate a "large" number of people, but still withstand a lot of weather. We have equipped Koie 7 with as many as 11 guylines in addition to 22 fasteners for stakes that encloses the tent. This gives a very solid and "fixed" tent that does not care that much when the wind increases. You simply avoid a lot of the flickering in the tent fabric you often experience with other tents as the 33 attachment stabilizes the fabric in such a way that the fabric itself is somewhat steady, stable and fixed..

Koie 7 is designed with a stove in mind. Being able to feel warm, pleasant and comfortable in a tent is something we believe lifts the whole outdoor experience to new levels.

The location of the stove is placed in the center of the tent where you may easily enjoy heat from both sides of the tent.



"THE WORD "KOIE" COMES FROM AN OLD NORWEGIAN HOUSING THAT WAS SET UP TO PROVIDE SHELTER AND PROTECTION FOR WORKERS IN THE FOREST THROUGHOUT THE WINTER SEASON ."


TARPS

Our tarps come in two different designs.

The **Bivuakk** is a Norwegian word that originally comes from military units to describe a simple, temporary camp outdoors where it will provide shelter from the elements. A bivuakk is basically meant to provide shelter and protection for one soldier or a small group of soldiers who are left alone out in the woods or mountains. This is also our inspiration for this lightweight, simple and versatile design that will provide a safe shelter.

The **Helleren**. The word "helleren" is actually a Norwegian name for a type of overhang carved in the mountains giving a natural shelter for both animals and humans. Our Helleren packs down to a very small gear, weights almost nothing and takes up very little space in the backpack. Helleren is sewn in a so-called catenary cut. We have chosen this cut to reduce movement and flapping of the flysheet when it is windy.

"OUR TARPS ARE PERFECT FOR THOSE WHO REQUIRE A TRULY ULTRALIGHT ALTERNATIVE THAT PROTECTS YOU FROM THE THE ELEMENTS, BUT WHERE AT THE SAME TIME YOU DON'T WANT TO COMPROMISE ON DURABILITY AN QUALITY ."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