EUROPE'S LEADING TECHNICAL TEXTILE MAGAZINE WINTER 2017

REPORT ALL ABOUT MEMBRANES

SAFETY ON THE SLOPES
TRY THESE
GADGETS!

SYNTHETIC ICE RINKS



Advertisement

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Editorial



Dear Readers,

Winter is a magical time, not only because of Christmas also considering the new opportunities is opens in front of us. If this season your plan is to discover new places and try new activities (also those highly extreme), you must take a look at the winter edition of the Tetex Magazine.

Our goal this season is to present some products that not only make your daily winter functioning

easier, but also take care of your safety (both on mountain trails and urban roads). There is also something of interest for fans of diving and white madness. Maybe will convince you to try something new?

We invite you а tour presenting all the best and most interesting winter ideas!

Porota Salve - Hunt

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Tetex Ltd - European Techtextil Portal

Great Britain 167 Askham Lane, YO24 3JA York +44 788 497 7809 Poland Kłobucka 7,02-699 Warsaw +48 22 101 399 8

www.tetex.com/info@tetex.com

Editor in Chief:

Dorota Sakowska-Hunt

Editorial Team:

Katarzyna Topolska Łukasz Cichoszewski

Graphic Design

Jakub Jankowski



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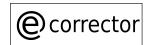
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The idea of a synthetic ice rink is based on the use of a natural ice substitute in the form of a specially designed plastic that creates the surface of an ice rink.



It is a highly specialized product developed on the basis of HDPE (high density polyethylene) that maintains high durability while being elastic enough to avoid the effect of ice skates going apart, which in turn provides high quality comfort of usage.

Who can use the ice rink and where?

Panels can be used for hockey skates and figure skates in all weather conditions. Synthetic ice rink is adapted for permanent and temporary installation, allows for multiple assembly and disassembly and can be handled anywhere both outdoor and indoor,

providing a flexible and pleasant solution for your ideas. Thanks to this fact, the ice rink does not require expensive freezing systems, any special power supply connections or specialised machines to support it.

How is the ice rink built?

The ice rink consists of panels (1 m x 1 m) and (1 m x 0.5 m), joined together using "biscuit joints". This method allows for building ice rinks with any surface configuration (within a given area). The panels are designed for two-sided use. Thickness of 18 mm grants longterm use. The surface is accompanied by boards made from the same plastic material. Precisely cut and joined modularly to the panel edges, they reinforce and stabilize the whole rink. Boards are available in sections 2m and 1m of length. In order to simplify the installation, the joining of boards is based on a simple method that uses only socket screws.

How is the ice rink installed?

The ice rink installation site should be obstacle-free and easily accessible for the installation crew, which will make the installation quick and efficient. The area should be flat, even and hardened. Meeting these requirements will ensure best results for the ice skating rink users.



Where can the rink be installed?

in areas where the ground is not hardened, but it is not recommended for permanent installations. In the event of holes or crevices on the installation site, they should be filled with sand or earth.

The assembly time of a 200 m2 ice skating rink for an assembly crew of 5 people is less than 5 hours.

Where are your ice rinks most often used?

Our ice rinks are used everywhere where installing a traditional ice rink is impossible or just unprofitable. Often they are used in city events - both during summer or winter; they also act as seasonal attractions in shopping malls. Additionally, the film and advertising industry uses our skating rinks, which become an impressive element in the stage design.

We spoke of synthetic ice rinks with their distributor company LimitLess (www.e-limitless.pl)







The warmest type of diving suits. Isolates a larger part of diver's body from water. The thermal properties of the suit depend on the type of material from which it is made and the insulation material used. It is used for diving in cold waters and for deep diving. It works great also during diving when the air and water temperature is low, as in ice diving. It might be said that if you have a dry suit the diving season never ends. Diving instructors are a group of divers that frequently use this solution.

Dry suit design

A dry suit usually consists of:

- shoes combined with the suit
- seals on the wrists wristseals, or rings for attaching dry gloves
- seal on the neck- neckseal
- waterproof zipper
- intake valve (inflator) and relief valve.

In addition, for a full protection of the suit it is necessary to wear underwear and an inner warm layer. Underwear and the warm layer are worn under the suit. The thickness of the insulation depends on the type of suit and water temperature. The colder the water and the thinner the suit, the thicker the warm layer should be. The appropriate choice of inner insulation layer is a very important element. There's nothing worse than getting cold in a dry suit.

Below is a photo along with a description of a neoprene suit and a membrane suit.

In addition, to feel comfortable in a suit you must have the following:

- underwear and inner warm layer
- gloves

In a dry suit, there are two technologies applied that are named differently but in fact are quite similar, at least when they are used correctly. Incorrect technique can lead to dangerous situations while diving, especially in the technique called "rec". The type of suit you should choose depends on your individual needs.

Shell

The suit shell determines its type, the remaining elements are identical. Suits are divided into those in which the material changes its buoyancy with increasing pressure (diving depth) and those in which the material does not change their buoyancy:

- ▶ Buoyancy changing called the neoprene suits made of material that provides the initial body insulation
- ▶ Non-buoyancy changing called the membrane suits made of material whose insulation properties are minimal

Shoes

Shoes are always fixed to the suit material. Shoes can be:

- ► In membrane suits
- a Wellington boot without insulation (most often used). An advantage of this solution is easy drying, disadvantage - the need to wear appropriate feet insulation. Used as additional insulation are: ready-made company solutions, neoprene socks (preferably 5 mm), or the cheapest solution, i.e. three pairs of thick socks (fleece or wool). This solution also features a hard sole for direct contact with
- an insulated Wellington boot solution as above, except that inside the shoe there is a neoprene insulation. It is comfortable, but there is a problem with drying, especially in case of frequent diving.
- ► In neoprene suits
- neoprene shoe with a hard sole
- neoprene shoe without a sole. A solution very rarely used, additional walking shoes are required.

Wristseals

A wristseal protects the suit against water ingress. Commonly used



are latex wristseals. Suits with neoprene or latex seals are quite popular.

However, the best solution is the use of special rings which allow for fixing latex gloves. The picture below shows latex wristseals.

For hand protection all sorts of glove fixing solutions are applied; the best solution are detachable push-fit dry gloves.

Neckseal

Being a very important element of the suit, the neckseal seals the top of the dry suit both against the ingress of water into the suit





as well as against the escape of gas from the suit. The following neckseals are used:

- latex
- neoprene

One can ask which is better. The most commonly used is the latex neckseal, which ensures appropriate water tightness, is easy in wearing and removing.

Disadvantages:

- -zero insulation properties; it does not protect the neck from the cold, which can interfere with diving in cold water (about 0°C). Manufacturers insert a neoprene collar into the suit to prevent this drawback. The collar can interfere with the correct positioning of the neckseal.
- low durability; depending on the intensity of use the latex neckseal must be replaced more often than the neoprene neckseal. In heavily used suits the replacement must be carried out practically every year, in suits used on an occasional basis this period is extended to 5-10 years (depending on neckseal itself as well as its storage conditions),
- the need to apply talc before wearing,
- possible damage to the neckseal, e.g. scratching with a fingernail, or tearing while putting on will end with replacement, a latex neckseal cannot be repaired with glue. The replacement is done usually by the manufacturer; the customer incurs the costs of a new neckseal, its fixing and shipment there and back.
- low resistance to cosmetics, creams and suntan oils. The neck must not be oiled before diving.

Neoprene neckseal

It is used less frequently, although in theory it is better. It has the highest durability, incomparably greater insulating properties than latex, wearing and removing poses no problems, and in the event of damage repair is very simple, you can do it yourself

Disadvantages:

- requires rolling up when putting on, it is not problematic, but one needs to remember about this,
- should be custom-made,

- if too short or too wide, it can leak when head is tilted to the back. Important for people with thin necks. Custom-made neckseals do not have these disadvantages.

The neckseal is not the most important and decisive element of the suit and in most cases you do not have the influence on whether it is made of latex or neoprene. It is the manufacturer who decides for you. If you are unsatisfied, you can always change the neckseal type.

Dry suit zipper

The zippers used provide 100% water tightness and are specially designed. They have low resistance to mechanical damage caused by wrong handling or storage. Zippers have different length depending on their placement. Short zippers have bigger teeth which additionally increase their strength.

Zipper positioning

- on the back from shoulder to shoulder (the most commonly used solution)
- diagonally on the belly
- on the belly, the zipper begins at the waist, runs vertically to the top, wraps around the neck and then descends to the middle of the chest
- on the crotch, the zipper starts on the chest, runs through the crotch and ends on the back

The zipper should be properly maintained. It should be oiled with a suitable grease (paraffin) every few dives. It should be kept from sand or mud, and once it gets dirty all stains must be removed before use (e.g. by using a toothbrush or by washing with water). After diving in salt water it should be rinsed with fresh water.

Membrane dry suit

Dry suit valves

In a dry suit two types of valves are used:

▶ inflator valve - used for filling the suit, mounted on the centre of the chest or on the left side of the suit, above the waist. The inflator



PRODUCT

valve has an input to which you plug the medium pressure hose connected to the first stage of the regulator. The valve input nozzle is identical to the inflator nozzle - which means the hoses are interchangeable (Note: in the past different nozzles were used and therefore there was a need to use different inflators). The valve can feature a rotary plug which allows for easier hose connection. This valve (at least an Apex valve) is more effective than most inflators in the jacket and therefore allows for an efficient pumping up of the suit. It must be remembered that in cold water the air should be added slowly; short blows prevent the valve or the first stage of the regulator from freezing.

▶ relief valve - used for draining the suit, works automatically when the set pressure value is exceeded in the suit or when pressed. Correct valve setting adjusts the pressure value within the suit. This is done by turning the valve; turning to the right increases the pressure, turning to the left decreases it. A correct setting can automatically decrease pressure while ascending when the pressure in the suits exceeds the set value.

It should be noted that the presented valve (Apex) is ribbed on the side for easier manipulation. This type of valve can be turned to the maximum of almost 1.5 turn. A correct setting of the valve during diving is vital.

Normally, one valve of each type is used; the equipment for unusual diving usually features more valves which can be located in special places. If you have problems with the relief or excess valve you should have them serviced or buy new ones.

Hood (head)

Protects the diver's head against the cold. The following solutions are used:

▶ Neoprene head fixed permanently to the suit:

advantages:

- you can't forget to take it with you

disadvantages:

- difficulties in putting on and removing the hood,
- difficulties in rolling up the neckseal,
- the average thickness of the material from which the hood is made
- the hood doesn't fit the head (there must be a bit of free space inside in order to wear it)
- ▶ Neoprene head not fixed to the suit:



advantages:

- easy on
- ease in rolling up the neckseal,
- thickness of neoprene: 7 mm
- very good fit to the head
- ability to replace the "head" before the dive

disadvantages:

- you can forget to take it with you
- ► Thin latex fixed to the suit under which you put the appropriate



head warming layer made of an insulating material. The solution used in the "Viking" suit is particularly recommended for full face masks (complete isolation from water).

advantages:

- easy on
- easy drying

disadvantages:

- low resistance to mechanical damage,
- lack of warming layer at the neck (entering the water gives a very unpleasant feeling)
- you can forget to take the warming layer which practically makes diving impossible

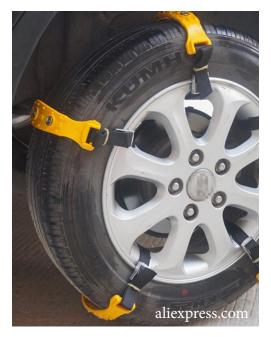
Would you like to learn more about dry suits?

Check out www.nurkomania.pl!



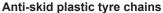
Don't let winter surprise you again!

Winter can enchant us with beautiful landscapes. Unfortunately it can also surprise us unpleasantly, most often when we least expect it.



The popular saying: "drivers were surprised by winter again" is not coincidentally cited each and every year – in fact usually the drivers are the biggest victims of winter.

However, there are a few ways to get prepared for changing weather conditions. These few gadgets can be carried in the boot of your car all year round.



We don't encourage you to keep snow chains in your boot throughout the season, but these plastic chains are a quite different matter. They don't occupy more space than a first aid kit, and will work just as well, increasing the grip. The installation is much easier than the laborious mounting of traditional chains.





thinkgeek.com

Anti-slip wheel mats

Every driver knows what it means when the car gets stuck on an icy surface and its freeing borders on a miracle. If you do not possess a special winch, usually such situations require putting car mats under the wheels, however it is obvious that it's not a perfect solution. These special mats put under wheels resemble tank treads, and due to the wavy surface are much better for getting the car unstuck.

Windscreen cover

Each morning you complain about having to scrape off ice from the windscreen in your car? Probably there are some people who in fact like this activity, which is all the more amazing when you realise that there is a better way to start the day. The windscreen cover protects against frost or ice, and the only thing you need to do in the morning is to remove the cover.

Scraping the windscreen

A very useful gadget for removing snow. A scraper combined with a glove (in this case, its distinctive shape adds charm) allows you to scrape the car without exposure to something that everyone hates, which is the snow falling into the sleeves. Warmth, safety and effectiveness.

Tracks for the car

This equipment is designed for extreme situations. The tracks weigh 170 kg each and can be mounted only in off-road cars. They make it possible to move around in very thick and rough layers of snow. It is the world's first continuous track that uses wheels of the vehicle to which it is mounted. Can it reach a top speed of 65 kph, and the producer boasts that mounting only takes about 15 minutes.









EUROPE'S LEADING TECHNICAL TEXTILE WEBSITE















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LET'S MEET AT TECHTEXTIL!

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2017

✓ Active participation

Our team will actively participate in the Techtextil 2017 Fair. Visit our stand and you will get to know the latest industry trends.

✓ Professional editor and photographer

During the Fair our editor and photographer will visit the most interesting stands to discover the latest knowledge from the tech textiles world.

✓ Interviews, articles, adverts

After the Fair, the interviews and the commissioned promotion materials of exhibitors, including a photo story and an extensive article will be published on www.tetex.com, our industry portal, and in the next issue of Tetex Magazine in two language versions.



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Tetex Ltd. Great Britain 167 Askham Lane, Y024 3JA York +44 788 497 7809, +44 190 420 6905

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Fast Textile 2016 International Textile Fair

The third, record-breaking edition of the Fast Textile International Textile Fair has come to an end. This year, in the vast Ptak Warsaw Expo congress centre 350 exhibitors from all over the world for three days presented their products – fabrics, designs and trims and garment machinery, among many others.

The Fair was divided into zones which facilitated moving around the exhibition. The creation of the special 'Zone of 2017 Trends' exhibition was an interesting idea. The exposition was prepared on the basis of modern trends from the collections of the world's biggest fashion houses.

Our portal was the patron of this year's edition, so we had the opportunity to meet exhibitors and spend a few days in a very enlightening atmosphere

Below are a few exhibitors whose stands we liked for a variety of reasons:

Plush Minky

Wholesale warehouse of materials for children's products specializing in Minky fabrics, which are additionally softened and

available in a wider weight range. The material has the "child-safe" certificate.

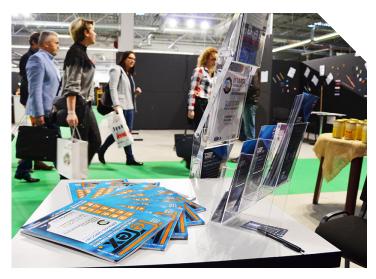
Allcomp

The company presented its latest cutter for material cutting. Thanks to the vacuum system, raw material is kept on the production site, which allows for minimising the number of staff required for machine operation.

UES Foils

A Turkish company which presented heat sealable films for instant application on materials and skin. Depending on the kind of film and design, a variety of different finishes can be obtained in a fast, simple and permanent way.







Textile printing houses

Textile print has been increasingly growing for the last few years. New methods of printing on more varieties of fabrics allow for obtaining high-quality designs with a very precise range of colours. Thanks to the range of designs it can definitely be said that in visual terms this group of exhibitors had the most eye-catching stands in the whole Fair.



The best exhibition stand

According to our judgement, the best prepared stand at this year's Fast Textile Fair was the Taiwan Textile Federation stand. Located near to the entrance to the Exhibition, their modernist and very well illuminated construction was an example of great design.









Try something new this winter!

Traditional skiing and snowboarding is not enough for you? We reviewed the newest trends of this winter season and we can't deny that we liked the results. Well... see for yourself!





getdatgadget.com

Skiing uphill

If you are tired of the traditional descending from the slope, perhaps you would like to ascend it for a change? Now it's possible with UpSki! This invention is a kind of parachute that a skier attaches to himself/herself using a special harness and uses the wind force to reach the top of the slope! It's not only fun, but also constitutes an alternative to places where there are no traditional lifts.

Go down when you want to

Have you ever found in a place that was perfect for a descend, but had nothing with you that could be used to go down? These inflatable sleds will do the job. You can keep them in your backpack when hiking, and when you're feeling like descending just inflate them (using the ma-

nual pump included) and start having fun!

Give yourself wings

Do you want to raise your snowboard or skiing to the next level? Kitewing is, as the name suggests, the combination of kite and wings, which allows you to gain a greater momentum, ride on flat surface, and even take off from the ground. The kite does not have any fastening cables. Instead it is very sensitive to any changes in the position which means that after becoming familiar with the equipment you will be able to add a bit of craziness to traditional skiing!

Ski-trampoline

Jump spots, slaloms and other improvements are already available in most major ski resorts. The latest idea to attract new

skiers is a giant airbag.

Located under a small jump spot, the airbag allows skiers and snowboarders for free (and most importantly, safe) falls! Be sure to look for this attraction when choosing this year's resort!

Winter tent

For some it may sound crazy, but in fact the number of winter camping fans is growing from year to year. With such customers in mind the four season tents were created. This type of tent is different from the traditional tent in a few basic things: the special shape of the dome, additional reinforcements in the shell made of more durable and more effectively insulating anti-condensation material, and additional stabilising ropes for high wind.

Go bowling

This is one of the most creative winter games we've ever seen. Based on the well-known and well-liked zorbing, giant bowling is not only attractive, but also grants a big deal of adrenaline. The zorbing ball plays the role of the bowling ball. Inside the ball there is a person who rolls down the hill and tries to knock down special giant bowling pins. In the version for adrenaline lovers, people can act as bowling pins.



inhabitat.com





Its predecessors were the traditional air and water tight materials. Fortunately, in the late 70's of the past century a technology was introduced that is being widely and readily used in the clothing industry – we're talking about the membrane.

What is a membrane?

In the literal meaning we can say a membrane is a thin, flexible coating sandwiched between two other materials. In the case of production of jackets a membrane is placed between the external and internal layers. Nowadays the most important characteristic of membrane clothing is added to the definition, which is semipermeability (both to water and air).

Membrane structure

Membranes can differ significantly and depending on the type their structure also differs. For the purpose of this article we decided to present the structure of the porous membrane, which is currently most commonly used for the production of clothing.

The surface of the membrane is covered with thousands of funnel -shaped small holes (pores) - a smaller hole from the side of the body and larger from the outside. This shape is essential for jacket permeability

and allows the molecules of sweat to escape to the outside, but doesn't allow the water molecules to enter. Thanks to this, membrane clothing is both waterproof and permeable. It must be noted that in order to enable vapour molecules to actually move there must be a difference in temperature and humidity between the inside of the jacket and the ambient. These values should be higher on the inside.

Characteristics

When choosing outdoor clothing with a membrane (which is one of its most common uses), keep two basic characteristics in mind:

- water resistance
- breathability

Water resistance is measured in thousands of millimetres of water column kept outside by the material; the higher the parameter, the better the water resistance. A membrane described as being 10,000 mm/24h means that the material did not leak under the impact of a column of water 10 meters high that pressed on it for 24 hours. It is assumed that full water resistance is reached with the parameter achieving at least 10,000 mm of water column.

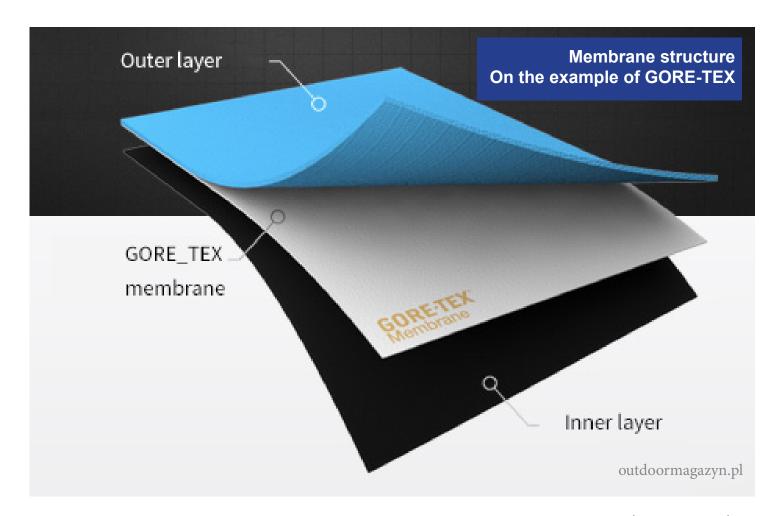
Unlike water resistance, breathability is evaluated by means of grams of water vapour drained from 1 m2 within 24 hours. Interchangeably, the RET factor is used - the lower it is, the better breathability a material has.

Membrane clothing care

First of all, read the label! Membranes of individual producers (e.g. Gore-Tex, Sympatex or eVent) differ in design and finish, which can make cleaning methods for each material vary from each other. The most important thing is that the membrane clothing can be washed in regular domestic washing machines. Set the temperature to about 40oC and wash with a mild detergent. Interestingly, already available on the market are special fluids intended for washing clothes with membranes – check if there is one recommended by your manufacturer. Never use chemicals that have the addition of softening or bleaching substances – they can significantly worsen the quality of your clothing. After drying, it's good to dry the clothing in a tumble dryer, but since this is still not widely used in Poland, you can iron it using a programme for delicate fabrics instead.

Remember!

First determine your needs when choosing outdoor clothing with a membrane. Of course, the more extreme the conditions, the greater the price of a jacket. However, there is no sense in spending a fortune on a jacket which you'll use only for city walks.



3rd Trade Fair of Technical Textiles

This year's Technical Textiles Trade Fair has attracted a record number of visitors. Our portal prepared an exhibition stand for the Fair and we used this opportunity to establish new contacts and, of course, to see the latest technical textiles industry products.







The Fair in figures:

- 1500 m2 total exhibition spa-
- more than 2100 people who visited the Fair
- 43 exhibitors
- 28 conference lectures
- 5 the exhibitors' countries of origin

The exhibitors could also try to win the Gold Medal of the TTWW Fair. The award is intended for companies that can boast an innovative product or production process. The winner of this year's edition was the company TRICOMED S.A.

Exhibitors' industry branches

- production of fabrics, knitted fabrics, tarpaulin materials, etc.
- haberdashery
- material finishing
- production of special chemicals
- · scientific research facilities
- accessories for haberdashery
- production of yarns
- medicine-related industry Visitors' industry branches:
- automotive industry
- construction and road works
- aviation and shipbuilding
- pulp and paper production
- mining
- agriculture
- metal and steel industry
- · chemical industry
- pharmaceutical industry
- medicine-related industry
- furniture industry
- home gardening

Conference Innovatex 2016

As each year, this edition of TTWW was accompanied by lectures held by experts in their fields. 28 15-minute lectures were conducted within two days of the fair, and their subject was very varied in order to match a wide range of companies visiting the fair. Sessions were devoted to the following areas: protech, buildtech, medtech, indutech and agrotech.

We tried to exchange a few words with each exhibitor and in this way we chose the five most interesting (to us) products of the Fair which are presented here.

Seat base components TSH-Tarczyński

Eco-friendly filling of upholstered furniture characterised by very good flexibility while maintaining fluffiness. The component is breathable so the seat can "breathe". Used only until recently in the automotive industry, it now begins to win the furniture market.

Revitalisation of antique fabrics Textile Research Institute Among others, IW deals with the restoration of historical fabrics based on photos and descriptive documentation. As a result, the fabrics created imitate the original interior designs, but are made with materials that are fireproof and easier to maintain. Orbital bone prosthesis

Tricomed

Made of polypropylene yarn, the prosthesis is intended for filling the orbital bone loss (so far, other bone prostheses have been created from this material, ribs and cranial vault bones among others). The prosthesis possesses properties that practically allow for identify it with the natural bone.

SAKOPLAN Security Sako-Expo Techtextilplast

An innovative system of tarpaulin reinforcement for lorries, tents, etc. Sakoplan Security is equipped with an electric alarm and a GPS system.

Mobile Laboratory The "Moratex" Institute of Security Technology

The mobile laboratory is intended for police forensic services that aim to disclose dacty-loscopic traces directly on the spot. The laboratory features innovative solutions for pneumatic textile structures.









Snow frenzy? Only with these gadgets!

Perhaps the saying "each and every year you hope to be trendy on the slope" may not necessarily be something that you have in mind during a skiing trip, but everybody agrees that good gear can help us avoid freezing or other worries. We present gadgets that you will love at first sight!

Bear sole - a special purpose sole

Our grandmothers used to say that warm boots and socks are best for winter. We have to add something to this. The soles! The bear sole is covered with sheep's wool which is an excellent insulator. This natural lining makes the foot breathe and also has antibacterial properties. An additional foam filling makes the sole distribute large pressures, which is useful especially when hiking in the rocky ground.



trendhunter.com

Goggles for eyeglasses wearers

Every skiing lover who wears glasses knows perfectly the problems with wearing goggles. Wearing goggles on eyeglasses makes the glasses mist up in bad weather conditions, forcing the skier to stop. SnowVision is the combination of snow goggles with a spot for inserting prescription eyeglass lenses. The product is just entering the mass market, but has already gained a group of faithful customers.

Harness for carrying gear

The feeling when you put on the skis and can ski down freely through the snow is incomparable with anything else. However, before you stand on the top, you must first carry the skis or snowboard all the way up, and every skier knows this is the least pleasant of moments on the slope. KrakenFix harness allows for wearing gear as a traditional backpack, enabling you move your hands freely. It doesn't "cut" into the body, can be used with every size



of skis or snowboard and you can carry them in the pocket of your jacket. A simple and very helpful gadget.

A turtle with a modern twist

Traditional back protectors for snowboarders are stiff and uncomfortable in extreme downhill snowboarding. Spine Ergo Bug is a flexible spine protector fixed with the help of shoulder straps and hip belt and a great means of protection on the slopes. Everybody likes a little risk, but it's great to have gear that will







protect you against negative effects of risk-taking.

Yeti ski mask

Last year was the season of masks with beards, this year we go one step further. Do you want to stand out on the slope and ensure a high thermal comfort at the same time? If you're not afraid to arouse controversy, a mask with a beard that imitates fur will be a good idea. This funny addition will make you look like the legendary Bigfoot and will make your friends identify you more quickly on the slope:)

Pet balaclavas

Snow falling straight on your face is not a pleasant experience. A balaclava is a great option, but let's face it, in its traditional



version it makes you look like a gangster or thief. Fortunately, designers came up with the idea of balaclavas with funny patterns printed on them. The idea is simple and looks great when combined with other parts of ski wear.

Inflatable jacket

When you are out in the field, the thing that can surprise you the most is the temperature. Modern sportswear already started to adapt better to the weather conditions, but this jacket is a real revolution. Klymit Ulaar Jacket is filled with materials which you can always inflate to create an extra layer of insulation. When you are too hot, you simply deflate it.

Avalanche backpack

The mountains attract their lovers with their unique charm, but one has to remember that the snowy slopes can also be extremely dangerous. Snow avalanches are the main danger that we may encounter in the mountains. To increase the chances of survival under a layer of snow, North Face has created a backpack combined with an air bag that inflates after impact and increases the wearer's displacement, thus pushing him as close to the surface as possible.





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 - comprehensive promotion of your product
 - innovative approach to marketing
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100 000
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- info@tetex.com +44 788 497 7809 +48 22 101 39 98
- TETEX LTD.
 167 Askham Lane,
 Y024 3JA York,
 Great Britain