

# HOW TO CHOOSE THE BEST DRYSUIT?



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If you care about comfort while diving, you want to dive longer and deeper, primarily derive from unlimited pleasure of being under water – bet on the drysuit.

Drysuits have become increasingly popular among divers. Technical divers that often do wreck or technical diving, long and in colder waters know this perfectly well. Those who dive less often, they prefer the shorter diving in warmer waters are also increasingly inclined to opt for drysuits. Why? Because they give amazing comfort under water - we are dry, warm and comfortable. There are more benefits of their use.

Drysuit insulates virtually 100% the diver's body from the water. Thermal properties of the suit depend on the fabric which it is made of and warmer being used. It is used for all types of dives, especially in colder waters and during deep dives. It is also excellent in the course of diving, when an air temperature and water is very low, eg. Ice Diving. You could say that if we have a drysuit, diving season never ends.

# 1. Benefits of drysuit ownership

## Comfort

Drysuits give divers a great thermal comfort - both during long dives and after its completion. The diver is completely isolated from direct contact with water, so the body does not cool down so quickly.

## Protection and durability

Drysuit provides not only comfort but also safety. Above all it is the first and most important protection against unfavorable underwater environment both in terms of thermics as in the mechanical influence.

## Freedom of movement

Drysuits, with their shape and construction, guarantee freedom of movement, which is very important during long dives, especially in places where the diver makes more moves underwater such as on wrecks or in narrow caves.

## Excellent buoyancy

Drysuits provide much greater buoyancy than wet suits (foam). The ones that are made of laminates do not change buoyancy with depth, enabling faster and better change of the center of buoyancy during the dive, so we can easily adjust the trim.

## Additional emergency source of buoyancy

Drysuit can serve as an emergency source of buoyancy in the event of failure of the main source of buoyancy.

## **Extending the diving season**

Diving in drysuit extends the diving season, as it guarantees you the same comfort while diving throughout the year, not just during the summer season of diving.

## **No body contact with the water**

In a drysuit our body is not in direct contact with water which can be of significant importance to some divers. Drysuit leaves us with dry body both before and after swimming. Moreover, even after removing the drysuit when you want to remain for some time in undersuit, it protects us even against the wind.

## **Easy setting**

Drysuits can be put on simply and quickly, because they do not adhere directly to the body as tight foam. Some of the fabrics used are hydrophobic which causes them not to take in any water on their surface which then leads to quicker drying time.

## **Packing**

Drysuit packed properly takes little space, it is especially important when traveling e.x. by plane, where we must fit in the baggage limit.

## 2. Types of the drysuits

Before selecting a drysuit it is worth considering what kind of dives would it be needed to. Drysuits can be made of laminates (suits membrane) or neoprene.

In spite of still very common opinion among recreational divers that believe drysuits made of trilaminate are for very experienced divers or even extreme divers, these suits are perfect for beginners that just started their adventure with diving.

### The suits laminates

Laminates – made by connecting few types of layers, combined with spraying method, glued or combined ultrasonically, lightweight, fast drying and are more durable than neoprene fabrics.

Due to the number of layers it is divided into:

- **bilaminates** - made by combining nylon fabric with polyester material that provides proper sealing by glueing them together or thermal compression. Sealing layer can be applied using spraying method. Such layer is lightweight but less durable.
- **trilaminates** – fabric composed of three layers in which two layers - the outer polyester or nylon and the inner, most common polyester, are connected to the third (middle) butylene rubber. In some models highly resistant Cordura is used.

## Compressed neoprene suits:

Compressed neoprene ( also known as Crush-neoprene ) is a neoprene subjected to very high pressure where the typical sponge- like structure is not present. Compression removes all the air bubbles trapped in fabric. Such fabric is durable, buoyant, but does not provide enough insulation, so additional clothing underneath is required. Compressed neoprene is covered with special protective layer against mechanical damage but the downside is that it is limiting suit flexibility and diver movement.

## The neoprene suits

Neoprene suits are made of the same neoprene as wet suits are. By adding wrist and neck seals we are fully isolated from water. It is an insulation in itself, so you may not require additional internal clothing in warmer waters. In this suit you have better buoyancy in comparison to trilaminate suit and in case of flooding you don't become negatively buoyant. The negative aspect of that neoprene suit is its compression under the influence of water pressure and what follows that is diminishing insulation properties as the depth increases. Neoprene suit is also difficult to don, it's heavier and dries much longer.

## Membrane suits

Suit made of membrane fabrics consists of a few unique properties connected to breathability of fabric itself. Membrane used in this laminate allows vapor permeability from inside thanks to pores and watertightness thanks to their conical shape. Such suits are lightweight, comfortable and functional especially in warm climate because these prevent from overheating before entering water. Often however membrane is a relatively thin laminate so it has lower durability against puncturing than trilaminate. It is worth considering when deciding upon purchase – it is important to know where you will be diving. From the inside and outside membrane it is covered in nylon which dries very fast, which is especially important when travelling, before or between next dives.

## 3. Fit

When choosing drysuit it is worth paying attention to its cut. The suit must be first and foremost comfortable and fit but can not hinder movement during the dive. It should be tailored to enable free and uninterrupted movement of arms and legs - the legs move freely in vertical, horizontal position and knees bent (as in classic style, whether when entering the boat) and hands (to reach the valve). At the same time it shouldn't be too large, for example: have too bulky legs.

Some companies also offer the opportunity to make some of their own production models to measure.

When selecting the suit also check how many measurement points this manufacturer requires. The bigger the number, the bigger chance the suit will be better tailored to the silhouette of the diver.

## 4. Measuring suit

Selection of proper suit size is very important. A well-chosen size can offer us comfort and freedom of movement, mismatching and reducing them can be the basis of problems under water. In order to check if the suit is properly tailored it is important to do some basic movement excersises:

- Kneel on one knee while swinging the opposing hand to the cylinder valve.
- Hug your body with your arms from shoulder to shoulder. Fabric on the back should not be very tight.
- Horizontally body positioning, legs bent at the knees.
- Raising arms in an upright position.

All the moves must be performed with no restrictions.

When measuring it is important to pay close attention to lengths and widths - these should provide comfort and should not be too tight or too loose. They need to be optimal. Do not make any decisions alone, expert salesman will always advice you which size suits you best.

## 5. Ways to put on the suit

Most popular solution in trilaminate suits are front zippers which allow for self donning and zipper closing while zippers mounted on the back require assistance from another person in order to close it.

- **Front zip** - zip runs from the front usually from the left hip to right shoulder. This solution allows the diver to dress themselves.
- **Zipper at the back** – the zipper is located on the back, at shoulder height, from the left elbow are to right. In this solution diver requires a second person during opening and closing. Self attempt involves substantial risk of breaking the zipper.

Santi offers both of these solutions depending on the models, using the best quality watertight zippers available on the market.

## 6. Equipment

Because the equipment of a complete suit consists of many elements, it is worth paying attention to their quality and whether they are available for the price of a suit or whether there are additional, paid option, which increases the cost of purchase. Drysuit diving requires appropriate additions.



### Boots

Manufacturers offer couple of solutions to provide right comfort to diver.

- **Soft neoprene boots** – made of 3-4mm neoprene with soft rubber sole and ankle strap allowing firm fitting on the legs. This option is highly recommended for whom low weight of the suit is a crucial factor.
- **Neoprene heavy duty boots** – made of thick neoprene and stiff sole entirely covered in rubber. Perfect solution for those who are looking for very durable components even with the cost of bigger suit weight.



- **Neoprene socks & rockboots** – it is a simple solution of 3mm soft neoprene socks mounted to the suit and special boots for walking on rough and unfavorable surface and diving in places where stiff and tough boots are essential to our configuration. Perfect solution for cave exploration or walking on rocky or concrete surfaces.

Santi offers all of these solutions depending on individual diver preferences within the price of every manufactured drysuit.

## Neck seals

Each drysuit also has also has a neoprene or latex wrist and neck seals.

Its purpose is to seal the head entrance. Currently there are three types of neck seals:

- **Latex seal** – durable and easy to use, it is characterised by high susceptibility to UV light, high temperatures, requires high attention to maintenance. Such seals can be often self cut to the right size. Glued to the drysuit.
- **Neoprene seal** – made of soft neoprene, adjusted to diver neck circumference, provides long service life, high endurance to most mechanical damage and additional thermal insulation from water. Glued to the drysuit.
- **Silicone seal** – flexible, soft and thin seal, easy in use. This solution requires special neck ring to be used as the silicone can't be glued in to the drysuit. It is recommended for people allergic to latex.

## Wrist seals

Used to seal the hands in the drysuit. We list three types of wrist seals: latex, silicone and neoprene seals. These last ones are being used less and less often in drysuits.

- **Latex wrist seals** are most common among divers, easy to fix them in the suit or to be used in special wrist ring systems, these come in various shapes and types, e.x. Bottle HD seals – 1,5mm and thinner, cone shaped 0.7mm that can be cutted to extend the size.

- **Silicone seals** is a solution very similar to latex ones but these must be used only with special wrist ring system. A big plus is the fact you can replace them yourself but same as with silicone neck seal this one is very comfortable yet fragile.

Latex and silicone wrist seals are available in every Santi drysuit. The choice is only a matter of personal preferences.

## **Dryglove rings**

Various manufacturers worldwide offers multiple solutions that allow use of dry gloves and self replacement when necessary. There are also available system mounted to wrist seals that are already mounted to the drysuit sleeves. Use of gloves in such configuraion completely isolates our hands from water and with the proper insulation inside provides big thermal comfort.

Santi offers few ring solutions including a solution already well known – Santi Smart Seals, flexible, easy to use, tested in difficult and demanding conditions. Available with every Santi drysuit model.

## **Valves**

Essential element of every drysuit which, with increasing depth and water pressure during diving, will require regulation to sustain proper byuoancy and air flow inside the suit. In order to regulate the pressure we will need two types of valves:

- **Inlet valve** – connected to the low pressure hose, has big push button allowing gas to be added to the suit increasing diver byuoancy.
- **Outlet valve** – comes in two types, non-regulated wrist valve and regulated arm valve. In the first type we regulate the pressure manually with hand, the other releases the gas by tilting the arm.

There are various valves in Santi offer from different manufacturers, among them very well known brands in diving market. The choice of any of them is an individual matter of user.



## Zippers

Its purpose is to allow easy don and, after closing, protection from water ingress. There are currently two types of zippers:

- **Metal zipper** - Older solution, characterises in significant durability to mechanical damage in relation to plastic zippers however it requires frequent maintenance, increases the overall weight of the suit and does not provide elasticity.
- **Plastic zipper** – lightweight and flexible gas-tight / water- tight zipper, easy to use and requires little maintenance. Due to its more delicate construction requires more careful use.

Santi offers both metal and plastic zipper. Here the choice is up to the customer however it is strongly advisable to use plastic zippers in lightweight drysuits as these will not stiffen the fabric and will not limit diver mobility.



## P-valve / relief valve

Physiological needs during dive is an experience very well known to every diver. Solution such as relief valve, or under more popular name – P-valve allows non problematic urination under water without exposing yourself to discomfort and in extreme situations, even health risk. There are versions for men and women.

Santi in its offer have few types of world producers. This light and ergonomic solution will be suitable in every conditions.



## Suspenders

Placed inside the drysuit, its main purpose is proper positioning on divers body.

Suspenders are a default option to every santi drysuit. Since these are a telescopic suits, suspenders are an essential part of their structure.



## Hood

A significant internal body heat is lost through head therefore proper thermal protection is essential to every drysuit configuration. Manufacturers offer many types and thicknesses of hoods depending on the type of neck seal used. Some hoods are integrated with drysuit but still predominant number of divers decide to use hoods worn separately.

When buying any Santi suit, we have the choice of two manufactured hoods, one is a 6mm light hood named “7” or, a bit thicker 8mm hood called “11”. Both of these models, although differing in thickness, are very flexible and comfortable and with their ergonomic shape adapt to most heads of users.



## Protective pads

Used to reinforce most neuralgic parts of the suit most exposed to damage, scratches etc. There is a choice of knee pads, elbow pads and in some cases individual solutions.

SANTI offers kevlar pads- soft and flexible pads made of kevlar fabric underlayered with soft neoprene, very resistant to puncturing and fraying. That will provide maximum protection of your drysuit. It is a free of charge option to every SANTI drysuit except for ENDURO which, due to fabric thickness is equipped with soft, thermoheated tapes made of Melco.



## Pockets

Most of the drysuits are equipped with cargo pockets allowing to store necessary accessories such as spool, buoy, spare mask, spare torch or wetnotes. Some less expensive drysuits are delivered without cargo pockets or with just one. So if you look for drysuit. Always look for the one that has them included to be secured for future. Pockets come in many types and sizes. Some have zippers, some are closed on vlcro straps. The best type of pockets are the ones that expand when full allowing much easier access to the content and adapt the size to what is being stored inside. Look for bungee loops that comes from the sides of pockets so you can hook your items preventing from loosing them.

Every SANTI drysuit is equipped with two big cargo pockets designed individually to every model. Each an every pocket is made to fullfil every divers needs.



## Watertight zipper protective flap

Additional cover for watertight zipper often closed with another zipper. It prevents from mechanical damage and contamination. This option is available to some of the SANTI drysuit models.

# 7. The undergarments for the drysuit

Each drysuit requires additional warming. In the warm waters or during short dives thermal underwear is enough; longer, cooler waters require additional warming.

Type of warmer will depend on the fabric from which the suit is made. Drysuits made of neoprene do not require warmer or a thin lining is applied. Suits with trylaminate require warmer undergarment.

Time of freezing in drysuits is different than in neoprene. The neoprene itself has insulating properties, drysuit is not, because it freezes faster in the case of a bad body insulation.



**Which SANTI suit  
to choose?**

# Which SANTI suit to choose?

SANTI has few different types of drysuits in its offer - from the lightest to the heavier from the dedicated to universal dives under special conditions. Find out which suits you best.

SANTI suits are highly valued by divers around the world. All SANTI suits have the same number of measurement points on the body, so is to fit best in the size - for women it is 25 measurement points, for men - 23.



- Newest addition in SANTI offer, new flexible ripstop fabric that provides even bigger comfort of wearing and allowing even better mobility in the drysuit.
- Telescopic torso of extensibility of 30 cm allows excellent mobility, regardless of the thickness of the warmer.
- Knees are reinforced with special kevlar pads.
- Special cut of the crotch pad allows for comfortable leg movements.
- Equipped with plastic zipper which is very durable but also light and flexible. It is highly resistant to dirt and needs only minimal maintenance.
- SANTI offers 2 years warranty for the plastic zipper.
- Equipped in standard with most innovative and comfortable SANTI Smart Seals® system – soft rings that allow fast and easy seal exchange for any seal you like or have at hand.
- It has two large cargo pockets with bungee rubber bands. Rights pocket has a handy zipper pocket on the “double ender”.
- Equipped in standard with SANTI Flexsole boots and one of two types of hoods to choose from.



- The fabric has a modern design, low weight and durability.
- In standard option it is equipped with all necessary aids, allowing professional diving, among other things, long watertight plastic zipper on the front, additionally zip covered with placket, a telescopic torso and ergonomic fit.
- It contains specially designed for this model, pockets on the thighs and Kevlar patches on thin neoprene with ergonomic shape. The standards have suspenders with practical pocket for documents or keys.
- Equipped with modern plastic zipper, durable and lightweight and easy to use. It is resistant to dirt and requires only minimal maintenance. SANTI gives 2 years of warranty.
- Equipped with Flexsoles- soft neoprene boots in standard and one of two thickness and types of hoods to choose from.





- The construction of E.Motion PLUS includes top part and top front of trousers made of flexible and light 260 g/m<sup>2</sup> Ripstop trilaminate fabric and exclusive E.Lite trilaminated fabric
- of 535 g/m<sup>2</sup> in back of the trousers, at the belly and lower back area, elbows, crotch pad and lower part of front trousers for maximum protection where needed, at places exposed to possible damage.
- Telescopic torso of extensibility of 30 cm allows excellent mobility, regardless of the thickness of the warmer.
- The E.Motion PLUS suit is equipped with plastic zipper which is very durable but also light and flexible. It is highly resistant to dirt and needs only minimal maintenance.
- SANTI offers 2 years warranty for the plastic zipper.
- E.Motion PLUS is equipped in standard with most innovative and comfortable SANTI Smart Seals® system – soft rings that allow fast and easy seal exchange for any seal you like or have at hand.
- Equipped in two big and solid cargo pockets with bungee strings to mount the equipment.
- In this model both pockets have a useful additional zipper fastened pocket for double ender.
- E.Motion Plus is equipped in standard with SANTI Flexsole boots and one of two types of hoods to choose from.



- Made from specially designed for SANTI rip-stop fabric with low weight and a special weave that provides high stretchability and resistance. This makes it lightweight, strong and meets the highest expectations of divers.
- Telescopic torso of extensibility of 30 cm allows excellent mobility, regardless of the thickness of the warmer.
- Knees are reinforced with special patches made from Kevlar.
- Special cut of the crotch pad allows for comfortable leg movements.
- It is equipped with a plastic zipper which is very durable but also light and flexible. It is highly resistant to dirt and needs only minimal maintenance.
- SANTI offers 2 years warranty for the plastic zipper.
- It has two large cargo pockets with bungee rubber bands. Rights pocket has a handy zipper pocket on the “double ender”.
- Standardly equipped with Flexsole boots and two types of hoods to choose from.



- It's cut allows us to match it perfectly to the body, without limiting the movement in any direction.
- Telescopic torso of extensibility of 30 cm allows excellent mobility, regardless of the thickness of the warmer.
- The sleeves are sewn in, in such a manner that the suit is located on the ground arranged in a Y shape rather than the T to guarantee unlimited, free hand gestures, for example. At screwing the valves. In developing the cut of the legs and sleeves we eliminated cross-stitching.
- It has two pockets in standard. Right pocket has a compartment for "wet note" and two smaller d-rings, which allows plugging buoys and a notebook on a different d-rings. This allows us to draw some elements without hooking the other in the pocket.
- Equipped with metal zipper in standard, durable in use. It's resistant to dirt and requires frequent maintenance. Santi gives one year warranty for it. It is optional to choose the plastic zipper.
- The standard suit is equipped with neoprene boots and two types of hoods to choose from.



- This model is equipped with all the necessary aids for professional diving.
- The suit also has a telescopic torso of extensibility of 30 cm which allows excellent mobility.
- Fabric is stitched on contact and connected with 4 cm rubber tape from inside. From the outside covered manually with reinforcing Melco tape which gives imperceptible joining effect and increases the comfort of use.
- The standard is fixed also with suspenders with practical pocket for documents and keys.
- Equipped with metal zipper in standard, durable in use. It's resistant to dirt and requires frequent maintenance. Santi gives one year warranty for it. It is optional to choose the plastic zipper.
- The standard suit is equipped with neoprene boots and two types of hoods to choose from

Compare suit weight, material weights and material type of our suits and choose the one for your needs:

DRYSUIT	SUIT WEIGHT WITH BOOTS	MATERIAL WEIGHT	TRILAMINAT TYPE
<b>E.Lite +</b>	3,9 kg	515g / m2	Ripstop nylon /Ripstop nylon
<b>E.Lite</b>	4,2 kg	535g / m2	Ripstop nylon /Polyester
<b>E.Motion +</b>	3,9 kg	260g / m2 i 535 g / m2	Ripstop nylon /Nylon
<b>E.Motion</b>	3,2 kg	260g / m2	Ripstop nylon /Nylon
<b>Espace</b>	4 kg	440g / m2	Nylon/Polyester
<b>Enduro</b>	5,2 kg	620g / m2	Cordura/Polyester

Which model should I choose from? Find out what is important to You:

DRYSUIT	LIGHTWEIGHT AND EASY TO PACK	FAST DRYING	HIGHLY RESISTANT TO PUNCTURING AND FRAYING	INCREASED ELASTICITY	WELL FITTED TO SILHOUETTE	LOWER PRICE	RECOMMENDED TO RECREATIONAL DIVING	RECOMMENDED TO COMMERCIAL DIVING AND UNDERWATER WORKS
<b>E.Lite +</b>	✓		✓	✓	✓		✓	
<b>E.Lite</b>			✓		✓		✓	✓
<b>E.Motion +</b>	✓	✓		✓	✓		✓	
<b>E.Motion</b>	✓	✓		✓	✓	✓	✓	
<b>Espace</b>			✓			✓	✓	✓
<b>Enduro</b>			✓			✓		✓

# TM SANTI

Description:

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