

TM



Heating System Manual

Heated Undersuit | Heated Vest | Heated Gloves

Our goal at SANTI is to keep the divers dry, warm and comfortable in their diving equipment. SANTI heated range was created to extend your diving time limits with the most innovative approach of keeping the warmth comfort at moderate level: not to overheat you while diving but to keep your body temperature comfortable and safe for longer. You will understand the difference when wearing it. With SANTI heated range underneath your drysuit your diving can be longer and deeper than you could ever imagine, without being cold.

Thank you for choosing SANTI Heating system.
These products provide better comfort for your diving.
Enjoy your diving, Extend your limits and Stay Dry!

General Information

Manufacturer:
SANTI sp. z o.o.
Tadeusza Wendy 7/9
81-341Gdynia POLAND
WTC EXPO Industrial Area

Please read the following manual carefully before using any product from the heated range and keep it for future reference. The usage of diving equipment by untrained person may cause health damage and even life danger. Along with an increase of depth, the thickness of the insulating material may decrease due to hydrostatic pressure. Effect of decreased thermal insulation may occur with increased depth. The product should not be cleaned with solvents or strong detergents. If any information or warning needs further explanation, we are always available to help you with any question, so please do not hesitate to contact our customer service department:

SANTI sp. z o. o.
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www.store.santidiving.com
www.santidiving.com

Thermal protection

The user is responsible for own thermal protection. Isolation depends on the right undersuit and thermal underwear selection. Lack of right thermal protection might cause thermoregulatory disorders. The user must be aware of the risks of hyperthermia and hypothermia.

Thermal isolation and depth

Thermal isolation is reduced due to hydrostatic pressure, which is increasing with depth. The user must be aware that thermal capacity of the product might be reduced.

Allergic reaction

Every synthetic material might cause allergic reactions. Before using the product, please be aware of the potential risk of experiencing allergy towards the materials used in the construction of the product.

Fitting

Correct fitting of the heated underwear gives much more comfort and satisfaction during use. Fitting should be carried out when wearing suitable underwear and an appropriate undersuit. Size should be based on the information in the size table. Please follow the size chart respective for each specific product.

Warnings

- Read and follow the manual before use.
- Use only in dry-suit while diving.
- Use with appropriate battery source only and never over 12 V !
- Charge with supplied charger only!
- Protect the plug before washing (washing machine allowed).
- The power must be switched off when out of the water.
- Switch off immediately when drysuit is flooded or when malfunction is suspected.
- Do not disassemble or modify the product and the cable.
- Do not combine with other heating sources if they are not compatible with the product.
- Be careful not to cross the cables against each other, make sure they are not banded or folded while using.
- The cables need to be well stretched under your suit.
- Before each dive inspect thoroughly all electrical cords and connections. If you notice any mechanical break or cut, do not use the product for diving, as this might cause serious injury. Once you notice any damage to the cables, contact service for repair or replacement of the broken parts.
- The product is equipped with the necessary wiring to allow the connection to the external power supply through valve connector or thermo valve.

Warranty

Limited Warranty for SANTI heating system products

With this limited warranty certificate SANTI declares that the product is free from defects in fabrics, components and craftsmanship at the time of the purchase. Please read all warnings and safety instructions before use and keep the original sales proof. This must be shown when repair should be covered by warranty. The product needs to be claimed by the dealer where it was purchased.

SANTI heated products come with 12-month guarantee against defects in materials and workmanship. The warranty does not cover damage due to: abuse, neglect, improper usage, lack of maintenance or normal wear and tear, especially mechanical cut of the cables, any change or modification made by the user or by the third parties, use of incompatible accessories that are not part of SANTI product range.

SANTI shall not be responsible in any case for incidental or consequential damages (without any limitation whatsoever to one or more persons) resulting from non-fulfillment of the obligations arising from this warranty when it comes to SANTI products.

If any defect covered by this limited warranty appears within 12 months from the date of purchase SANTI will repair, exchange parts or replace the defective product. Warranty repair can only be done at SANTI HQ service department. Any changes or technical intrusion results in warranty loss.

This warranty is valid only if the enclosed warranty form is fully filled out with following information: product name, name of the authorized dealer, product serial number product purchase date. Serial number is stated on the inside label.

SANTI reserves the right not to carry out repairs under warranty if any original information is removed or modified on the product after the original date of purchase of the product from a dealer.

Procedure of forwarding the claims:

- To forward a claim covered by this warranty, the buyer has to directly notify the dealer where the product was purchased with regards to the defect, presenting at the same time the defective product, a copy of the sales receipt and the Warranty registration form, duly filled out as instructed above.
- Prior to contacting the dealer, we recommend that you carefully read the user manual enclosed with the product. After 12 months from the date of purchase, this limited warranty is void for all effects and purposes.
- Repairs or maintenance under warranty do not extend the period of the warranty itself. Therefore, in case the product or one of its components is replaced, this does not initiate a new warranty period, as the purchase date of the original product shall be taken into account for warranty purposes.
- SANTI reserves at any time the right to modify without advance notice the product characteristics or functions. Only for repairs or replacement of electric components, in the event that SANTI proceeds to repairing or replacing the product, said product shall enjoy a warranty period equal to the residual portion of the original warranty or ninety (90) days from the repair date (the longer period being considered).
- This warranty does not affect the consumers rights provided by the law or the rights to which the buyer is entitled and which are expressly provided for by Directive 1999/44/CE.
- The cost of shipping to SANTI Service department is on the dealer/client side. After warranty repair confirmation all other costs are on SANTI side.
- Warranty card available on cover page.

Attention!

Diving is potentially hazardous sport. Before using any diving equipment you should be properly trained in the use of the equipment by a recognized club or organization.

Before each dive inspect thoroughly all the electrical cords and cables and make sure they are not damaged, cut or broken in any place. If you notice any mechanical break or cut, do not use the product for diving, as this might cause serious problems and injury. Once you notice any damage to the cables, contact SANTI service department for repair or replacement of the broken parts as soon as possible.

SANTI Heated Gloves



Product type:

Diving gloves with electric heating

EU Norm (CE):

PN-EN 14058:2007
PN- EN 60945:2004
PN-EN 420

Product specification

The Heating gloves are designed as a part of the complex heating system consisting of the gloves, thermo valve/connector and an external battery canister. This configuration allows a diver to wear the gloves under the dry gloves without additional valve and dangers associated with internal batteries.

Measurement/Size	XS	S	M	L	XL	XXL
PALM SIZE	6,5-7,0	8	8,5	9	9,5	10

The product should be chosen according to the SANTI size chart above.

Technical info:

- Maximum heating temperature 40°C.
- 30 W power (pair).
- Run time: SANTI battery 6 Ah / about 2,5h of heating, 10 Ah battery / about 4 hours of heating, 20 Ah battery / about 8 hours of heating,
- Made of breathable fabric.
- Keeps you warm even when the heating is off.
- Evenly distributed heating wiring that allows for freedom of movements in palms.
- Wires on fingers and outer side of palm.
- Waterproof plug, compatible with other SANTI products.
- Works with power supply no higher than 12V.

Instruction for use

- Connect the supplied wire to valve cable and put the gloves connecting cables into the sleeves.



- Let the wire ends out through the wrist seals.



- Conduct the cables of the gloves against your arms and to the connector and then connect the gloves.



- Put your drygloves on top of the heating gloves.
- Switch on the battery while in water.
- Make sure you note and follow all the warnings stated above.

Washing Instruction:

Hand or Machine-wash in cold water at the temp. of 40 °C. The gloves should be washed separately to avoid crowding in the machine and to maximize the cleaning action.

Warning: Spinning is not recommended. Cover and protect the plug while washing.

To dry, lay the product flat or tumble dry using a delicate cycle (very low temperature) or air only.

SANTI Heated Vest



Product type:

Diving Vest with electric heating

EU Norm (CE):

PN-EN 14058:2007
PN- EN 60945:2004

Product specification

The Heating vest is designed as a part of the complex heating system consisting of a vest, thermo valve/connector and an external battery canister. This configuration allows a diver to wear the vest under the drysuit without additional valve and dangers associated with internal batteries. The heating vest outer shell is made of abrasion and tear resistant polyester inside, the Thinsulate™ layer and micro fleece layer inside. The Heating vest is designed to be worn over thin form fitting thermal underwear and under the diving undersuit. In this configuration the majority of the heat output is transferred directly on diver's torso and not on thick drysuit underwear. The breathable fabric allows the vest to heat your torso and vapor the sweat, if any.

Size Chart:	XS	S	M	L	XL	XXL	XXXL
HEIGHT	160 - 165	166 - 171	172 - 177	178 - 183	184 - 189	190 - 195	190 - 195
CHEST	85 - 92	93 - 96	95 - 100	100 - 105	106 - 111	112 - 117	118 - 123
WAIST	71 - 76	77 - 82	83 - 88	89 - 94	95 - 110	111 - 116	116 - 121
HIPS	85 - 89	90 - 94	95 - 99	100 - 105	106 - 111	112 - 117	118 - 123

Technical info:

New generation of heating wire covered with ultra-soft, silicone isolation resistant to breaking.

Innovative, synthetic power wire crust resistant to high temperatures and cuts.

Heating power of 55W.

Works with batteries: 6 Ah SANTI battery / 1,2 - 1,5 hours of heating, 10 Ah / 2-2,5 hours of heating, 20 Ah/ 4-5 hours of heating.

New, more ergonomic nesting and wire layout inside.

Special vest bag included.

- Maximum heating temperature 45°C,
- Made of Thinsulate™ BZ200 (210g/m²).
- Made of breathable fabric.
- Keeps you warm even when the heating is off.
- Safety switch preventing from overheating and too strong current.
- Evenly distributed heating wiring that allows for freedom of movements.
- Warms up the whole body corpus (front and back).
- Extra pocket for the wire.
- Waterproof plug, compatible with other SANTI products.

CE certified

Sizes: XS, S, M, L, XL, XXL, XXXL.

Instruction for use:

- Put the vest on your thermal under wear and not directly on the naked body. Wear it under your undersuit.
- Put the cable of the vest outside of your undersuit and connect it to a connector or thermo valve wire that will provide power from your battery.
- Make sure you note and follow all the warnings stated above.

Washing instruction:

Machine-wash in cold water at the temp. of 40°C. Hand washing is not recommended since it is difficult to work the water into and through the vest to flush away dirt and it is also difficult to remove the water by hand without damaging the insulation and cables inside. The vest should be washed separately to avoid crowding in the machine and to maximize the cleaning action.

Warning: Spinning is not recommended. Cover and protect the plug while washing.
To dry, lay the product flat or tumble dry using a delicate cycle (very low temperature) or air only.

SANTI Heated Undersuit



Product type:

Diving undersuit with electric heating

EU Norm (CE):

PN-EN 14058:2007

PN- EN 60945:2004

Product Specification

The SANTI innovative Heating undersuit is designed as a part of the complex heating system consisting of at least an undersuit, thermovalve/connector and an external battery canister. This configuration allows a diver to wear the undersuit under the drysuit without additional valve and dangers associated with internal batteries. The heating undersuit outer shell is made of abrasion and tear resistant polyester inside, the Thinsulate™ 3M BZ 400 layer and micro fleece layer inside. The Heating undersuit is designed to be worn over thin form fitting thermal wear. It is not recommended to wear on in the naked body. In this configuration the majority of the heat output is transferred directly on diver's torso, back and thighs. The breathable fabric allows the undersuit to heat and keep the warmth of your body and vapor the sweat, if any. The undersuit keeps you warm even when the batteries are low or completely drained.

The heated undersuit is adjusted to use together with heating gloves as a set. It is equipped with integrated glove plugs in sleeves that might be covered or put out when you use heated gloves in your diving set.

16 sizes in standard men, MTM / Custom offer.
12 sizes in standard ladies, MTM / Custom offer.

Mens Undersuits Size Chart

Measurement/Size	HEIGHT	CHEST	ARM LENGTH INNER	BICEPS	FOREARM	WAIST	HIPS	INNER LEG	THIGH	CALF	BODY TRUNK
XS	162-166	84-88	51	28	26	70-74	84-88	74	50	34	155
S	168-172	90-94	52	29	27	76-80	90-94	76	52	36	160
SL	174-178	92-96	53	30	27	78-82	92-96	80	52	38	165
M	172-176	96-100	53	32	28	82-86	96-100	79	55	39	165
ML	176-180	96-100	55	32	29	82-86	96-100	84	55	40	170
MLL	182-186	100-104	57	33	29	84-88	100-104	88	55	40	175
LS	172-176	106-110	52	35	30	92-96	106-110	79	62	43	165
L	180-184	106-110	54	35	29	92-96	106-110	83	60	41	170
LL	184-188	106-110	56	36	30	92-96	106-110	86	61	42	175
LLL	190-194	110-114	58	37	30	98-102	110-114	89	61	42	180
XLS	174-178	112-116	54	38	31	100-104	112-116	80	65	44	170
XL	184-188	112-116	56	37	30	100-104	112-116	85	65	44	175
XLL	192-196	112-116	58	38	30	100-104	112-116	89	65	44	180
XXLS	176-182	118-122	55	40	31	108-112	118-122	80	68	46	175
XXL	190-194	118-122	57	40	31	108-112	118-122	84	68	46	185
XXXL	192-196	130-134	58	42	32	116-120	130-134	86	72	47	195

Ladies Undersuits Size Chart

Measurement/Size	HEIGHT	CHEST	ARM LENGHT INNER	BICEPS	FOREARM	WAIST	HIPS	INNER LEG	THIGH	CALF	BACK LENGTH	BODY TRUNK
XS	156-160	80-84	48	26,5	23	62-66	86-90	76	50	33,5	39	137
S	156-160	86-90	48	28	24	68-72	92-96	75,5	53	34,5	39	139
SL	162-166	86-90	50	28	24	68-72	92-96	79	53	34,5	40,5	143
M	162-166	92-96	50	29,5	25	74-78	98-102	79	56	35,5	40,5	145
ML	168-172	92-96	52	29,5	25	74-78	98-102	82,5	56	35,5	42	149
MLL	174-178	92-96	54	29,5	25	74-78	98-102	86	56	35,5	43,5	153
LS	162-166	98-102	50	31	26	80-84	104-108	78,5	59	37	40,5	148
L	168-172	98-102	52	31	26	80-84	104-108	82	59	37	42	152
LL	174-178	98-102	54	31	26	80-84	104-108	85	59	37	43,5	156
XLS	168-172	104-108	52	32,5	27	86-90	110-114	81,5	62	38	42	154
XL	174-178	104-108	54	32,5	27	86-90	110-114	85	62	38	43,5	158
2XL	180-184	110-114	56	34	28	92-96	116-120	88	65	39,5	45	165

Technical info:

**New generation of heating wire covered with ultra-soft, silicone isolation resistant to breaking
Innovative, synthetic power wire crust resistant to high temperatures and cuts
New, more ergonomic nesting and wire layout inside
Special undersuit bag included.**

- Maximum heating temperature 45°C.
- Heating power: 110 W.
- Works with batteries: 10 Ah battery / about 1,2 – 1,5 hours of heating, 20 Ah battery / about 2 – 2,5 hours of heating.
- Works only with maximum 12V batteries.
- Safety switch preventing from overheating and too strong current.
- Made of Thinsulate™ BZ400 (420g/m²).
- Made of fully breathable materials.
- Keeps you warm even when the heating is off.
- Regularly distributed heating wiring that allows you freedom of movement.
- Warms up the whole body corpus, thighs and arms.
- Extra pocket for the wire ends.
- Waterproof plug, compatible with other SANTI products, flexible and overheating resistant cables, additional. cables integrated to plug in the heating gloves in standard.
- P-valve holes on both legs in standard.
- Napoleon pocket.
- Water-resistant cuffs.
- Tapes, which supply air to the dry gloves.
- Two-way zip protected with a flap.
- CE certified.

Washing instruction:

Machine-wash in cold water at the temp. of 40°C. Hand washing is not recommended since it is difficult to work the water into and through the undersuit to flush away dirt and it is also difficult to remove the water by hand without damaging the insulation and cables inside. The undersuit should be washed separately to avoid crowding in the machine and to maximize the cleaning action.

Warning: Spinning is not recommended. Cover and protect the plug while washing. The plugs are water resistant. To dry, lay the product flat or tumble dry using a delicate cycle (very low temperature) or air only.

Possible combinations



Heated Vest

OR



Heated Gloves





Thermovalve

OR



Connector



SANTI Battery 6Ah



Heated Undersuit

OR



Heated Vest

OR



Heated Gloves



Heated Undersuit



Heated Gloves

OR



Heated Vest



Heated Gloves

Possible combinations



Thermovalve

OR



Connector



20Ah Battery

OR



10Ah Battery

Extend Your Limits

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