

OmniSuit User Manual

AUXIVO

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Purpose of these instructions

Thank you for purchasing the OmniSuit. The purpose of this document is to make you familiar with the installation and use of the OmniSuit, so that you can safely operate it. This documentation should therefore be regarded as an integral part of the OmniSuit.

Description of the user

These instructions are primarily intended for the end-user of the OmniSuit and secondary for the employer of the end-user. The end-user can be described as each person who interacts directly with the system. The end-user typically includes, but is not limited to:

- Installer
- Operator
- Maintenance personnel or technicians

The OmniSuit reduces the load on your back, neck and shoulder muscle by equipping you with “external” back and shoulder muscles. While the forces on your back, neck and shoulders are not expected to increase when wearing the OmniSuit, as a precaution, people with health problems are not allowed to use the OmniSuit without prior consultation with a medical professional.

Everyone else can use the OmniSuit. However, you shall never conduct any work while wearing the OmniSuit that would not be considered safe to conduct without the OmniSuit, e.g. working with tools which are heavier than what you can handle. The OmniSuit does not make you immune to injuries.

All use of the OmniSuit shall only be carried out by an authorized and a properly qualified and skilled person of 18 years or older, who:

- Has read and understood this manual.
- Knows how to control this product.
- Is aware of all possible dangers and acts accordingly.

The required maintenance and inspection work, as stated in this instruction handbook, is allowed by the aforementioned persons, unless clearly indicated when this is not allowed.

WARNING

The OmniSuit shall not be used by people with health problems without prior consultation with a medical professional.

Getting started

Before you start using the OmniSuit yourself, or before you hand it out to be used in your company, we advise you to take the time and read the following sections of this handbook carefully.

While the OmniSuit is not a complicated piece of equipment, you will only benefit by using it correctly. It is a wearable device that can be connected to your body for hours. This will need some getting used to until it feels like a new natural way of working.

To get the maximum benefit from your OmniSuit, we recommend the following steps:




1. Learn how to put it on, and how to adjust it to your body size.
2. Learn how to use it intuitively without thinking about it. Learn how to select the support level for your current task.
3. Get used to it. Do not use it for eight hours per day from the beginning. Start with one hour per day and increase over time until it feels perfectly natural.

Conventions used in this manual

The following style conventions are used in this document:

Bold	<i>Italic</i>
Warnings	Cross-references

Explanation of safety warnings

 DANGER	Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
 WARNING	Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
 CAUTION	Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Notice indicates information considered important, but not hazard-related.

Product Safety Signs

⚠ WARNING

Please review all safety signs which are placed on relevant parts of the OmniSuit to indicate danger warning, pinch points, etc.

The following are safety signs, which are placed on relevant parts of the OmniSuit.



Danger of crushing fingers



Read the manual

Retaining instruction handbook

⚠ WARNING

Read and understand this instruction handbook and its safety instructions before using this product. Failure to do so can result in serious injury or death. Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

Employers should make sure employees are informed or handed over these instructions. The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be voided.

In case of any unclarities in the handbook, contact your supplier or Auxivo AG to avoid any misunderstanding and resulting risks.

Important information for the employer

Employers are responsible for providing a safe work environment for their employees. Therefore, they should always have conducted a task analysis, risk analysis and informed their employees about possible hazards, before they hand out the OmniSuit in their company.

Local laws related to occupational health and safety should always be followed.

Employers should make sure all end-users have the opportunity to get used to the OmniSuit, since it can cost time to get used to.

Information and support

The latest version of this document and other product information is available at www.auxivo.com.

To improve our customer experience, we appreciate your comments. They can be submitted on the support page of our website or sent to info@auxivo.com.

For questions, information about accessories and materials, technical assistance or ordering more instruction handbooks, please contact us:

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Email: info@auxivo.com

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Intended use and reasonably foreseeable misuse

The OmniSuit is intended to be used as an exoskeleton that supports its' users' muscles. The OmniSuit is intended to support the back and hip, when lifting objects from below hip-level or working in a forward-leaning position and supports the neck and shoulder muscles when performing tasks with arms at or above shoulder level. The OmniSuit is intended to support the user and reduce the workload, for example during repetitive lifting tasks, prolonged periods of forward leaning or prolonged periods working with arms at or above shoulder level.

The OmniSuit is not a medical device. The OmniSuit is not intended to be used for any kind of medical application.

The OmniSuit is not intended to be used:

- To support other movements or other muscles than described above.
- To conduct any work that is not considered safe without wearing the OmniSuit.
- To support you during sports or other physical activities.
- As a safety harness or any kind of fall protection system.

For more information, see also:

- Section 7 What kind of work is supported by the OmniSuit?
- Section 7 What kind of work is not supported by the OmniSuit?

The OmniSuit shall be used with original accessories and components only. Only use the OmniSuit within the specified performance limits and accordingly to the instructions as described in this instruction handbook. All use other than described in this handbook is seen as unintended use.

How the OmniSuit works

The OmniSuit has a shoulder support module and a back support module. The shoulder support module is designed to support your shoulder and neck muscles when you work with arms at or above shoulder level, for example while handling a tool such as a powered drill. It functions as a set of additional shoulder muscles on the outside of your body to reduce the load on your own muscles. The back support module is designed to support your hip and back muscles when bending forward or lifting loads below hip level. The back support module functions like an additional layer of back muscles on the outside of your body to reduce load on your own muscles.

The shoulder support module reduces shoulder and neck muscle activity by between 20 and 60% when working with arms above shoulder level. The back support module reduces your back muscle activity by around 20% while lifting and leaning forward. When your muscles work less hard, the process of fatiguing can be slower.

The OmniSuit features integrated elastic elements that store energy, which is then used to support the user and reduce the workload. It offers an easy-to-use, small, and lightweight (3 kg) support system. The shoulder module provides support automatically when worn. The back module can be activated and deactivated manually as required. The user can select between two levels (level 1 and level 2) of shoulder support to match the current task. The lift support can be increased and decreased manually to tune it to the current task.

What kind of work is supported by the OmniSuit?

It is important to understand during what kind of work the OmniSuit provides support, and when it will not. By design the OmniSuit is a multitask exoskeleton, able to provide shoulder support for overhead activities and back support for lifting and forward-leaning activities. Through its back and shoulder support modules, it supports in lifting and holding objects all the way from ground to overhead level.

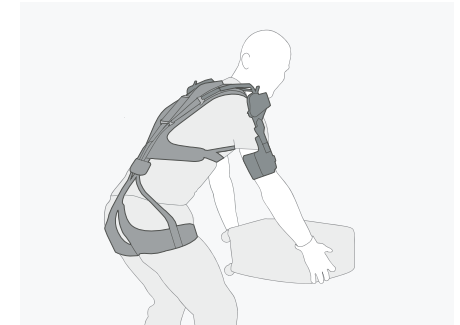
The shoulder support module of the OmniSuit can support neck and shoulder muscles when your arms are at or above shoulder level. The back support module of the OmniSuit can support hip and back muscles when leaning forward or when lifting loads below hip level.

When you wear the arm cuffs, the OmniSuit will automatically support you each time you lift your arms, for example, when lifting an object or holding a tool. Consequently, you will benefit the most from the OmniSuit shoulder support if your job includes frequent work with arms at or above shoulder level.

When the OmniSuit back support module is activated, it will support you each time you pick something up or while you remain in a forward-leaning position. Consequently, you will benefit the most from the OmniSuit back support if your work includes repetitive lifting tasks or prolonged periods in a forward-leaning position.



The OmniSuit supports work above shoulder level, such as handling a power tool, when you wear the arm cuffs of the shoulder support module.



The OmniSuit supports working in forward bending positions and lifting below hip level when the back support module is activated.

If your work currently involves a combination of movements supported by the shoulder and back support modules, it is important to make sure the back support module is activated and that you are wearing the arm cuffs. The OmniSuit is designed to support your hip, back, neck, and arm muscles during lifting movements from floor- to overhead levels through its two support modules.

When taking a break make sure to deactivate the back support module. You do not need to take off the exoskeleton. The exoskeleton does not support you, but it should not hinder your movements.

Description

What kind of work is not supported?

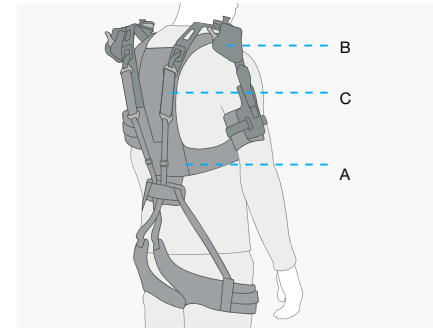
The OmniSuit is NOT designed to support other movements or other muscles besides those described in section 7 *What kind of work is supported by the OmniSuit*. It will not prevent you from doing these tasks, but it will not provide you with support. Specifically, this means you cannot expect support while sitting down or while leaning backward.

Product elements

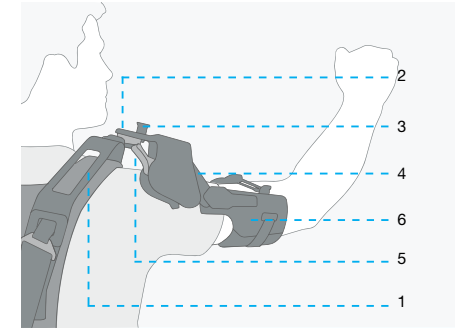
The OmniSuit consists of three main elements:

- A. The Vest that is connected to your upper body.
- B. The Shoulder Support Module that consists of:
 - 1. Back Structure that is connected to the Vest and the Shoulder Support Module.
 - 2. Shoulder Joint, which allows you to rotate your arms freely.
 - 3. Locking Pin, which allows you to lock the shoulder joint and secure the Arm Cuff behind your back to make it easier to put on/take off the Vest and to store the Arm Cuffs while taking a break.
 - 4. Shoulder Elastic Energy Storage (EES), the elastic bands that store energy to support your shoulders when working.
 - 5. Support Level Switch, which allows you to choose between two support levels.
 - 6. Arm Cuff that is connected to your upper arm.
- C. The Back Support Module that consists of:
 - 7. Thigh Cuffs that connect to your legs.
 - 8. Back Elastic Energy Storage (EES), the elastic bands that store energy to support your back when working.
 - 9. Activation mechanism, which allows you to regulate the level of back support.

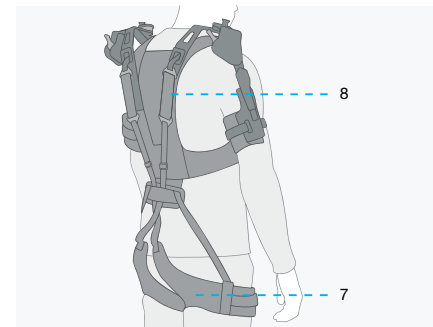
Description



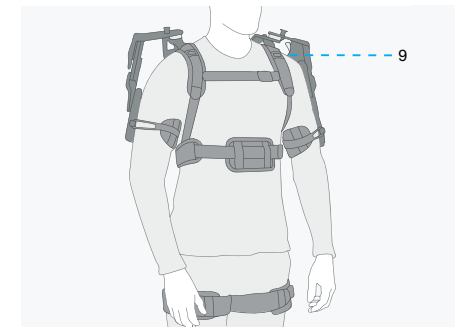
Three main elements:
A. Vest
B. Shoulder support module
C. Back support module



Shoulder support module (B):
1. Back structure
2. Shoulder joint
3. Locking Pin
4. Shoulder Elastic Energy Storage
5. Support level switch
6. Arm cuff



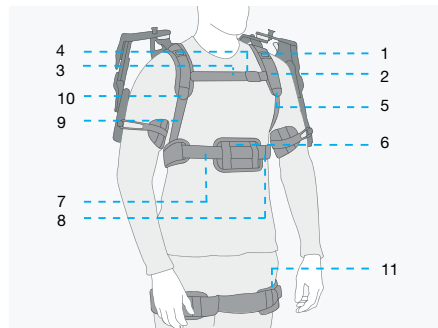
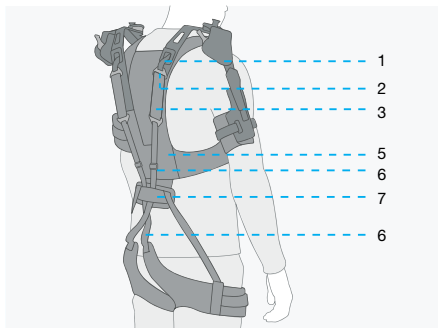
Back support module (C):
7. Thigh cuffs
8. Back Elastic Energy Storages



Back support module (C):
9. Activation mechanism

System components

For operation, maintenance and cleaning of the OmniSuit it is important to understand how and where to locate the individual components.

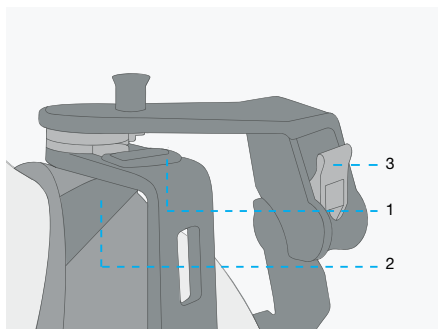


Back view

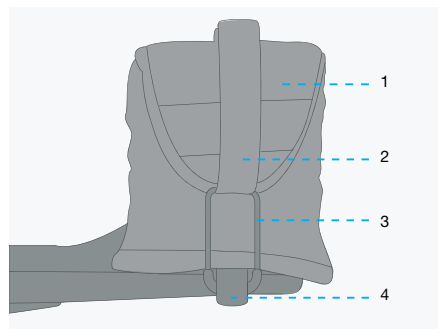
1. Upper back EES connecting strap
2. Back EES hook
3. Back EES elastic
4. Back length adjustment buckle
5. Vest pocket
6. Lower back EES connecting strap
7. Back flap with strap guidance tunnel

Front view

1. Back support module activation buckle
2. Back support module activation strap
3. Upper chest belt
4. Upper chest buckle
5. Upper chest belt height adjustment buckle
6. Chest pad
7. Lower chest belt
8. Lower chest buckle
9. Shoulder strap
10. Shoulder strap adjustment buckle
11. Thigh cuff adjustment and release buckle



1. Shoulder attachment buckle
2. Shoulder adjustment strap
3. Support level switch



1. Arm cuff textile cover
2. Arm cuff adjustment strap
3. Arm cuff loop
4. Arm cuff hook

Technical specifications

Device name	OmniSuit
Model	1.0
Technical life span	2 years
Size	S/M & L/XL
Size selection	User selects OmniSuit size based on user's T-shirt size (S/M/L/XL) Note: please take into account if user wears additional thick clothing underneath the OmniSuit
Mass overall	2.7 kg (S/M) / 3.0 kg (L/XL)
Dimensions (packed)	Approx. 26 cm x 68 cm x 23 cm
Chest circumference	57 - 97 cm (S/M) / 73 - 132 cm (L/XL)
Upper arm circumference	20 - 45 cm
Thigh circumference	49 - 63 cm (S/M) / 57 - 73 cm (L/XL)
Materials	Aluminium / Steel /Nylon PA12 /POM Main fabric, Spacer mesh, Lining: 100% Polyester Lining: 79% Nylon / 21% Spandex
Ambient storage temperature	15 - 25°C (59 - 77°F)

Important safety information

DANGER

Read and understand this manual and its safety instructions before using the OmniSuit. Failure to do so can result in serious injury or death.

Do not operate the OmniSuit in explosive atmospheric conditions, such as in the presence of flammable liquids, gases or dust. Friction between OmniSuit materials may create sparks which may ignite the dust or fumes.

WARNING

Read and understand this manual and its safety instructions before using the OmniSuit. Failure to do so can result in loss of functionality, including loss of support, serious injury or death.

- Never conduct any work while wearing the OmniSuit that is not considered safe without wearing the OmniSuit.
- Do not use the OmniSuit if you have health problems without prior consultation with a medical professional.
- Do not use a damaged OmniSuit.
- Do not make any changes to the OmniSuit and its parts.
- Do not use the OmniSuit near flammable substances. The OmniSuit is not fire resistant.
- Keep the OmniSuit free of any liquids, sand, dust and debris.
- Keep the OmniSuit dry.
- Do not use the OmniSuit when clothing according to Electrostatic Discharge standard (EN 61340-5-1) is needed to protect electronic devices.
- Inspect the OmniSuit back Elastic Energy Storage monthly. Replace it when identifying damage.
- Do not use the back Elastic Energy Storage elements for more than one year or 150.000 cycles.
- Inspect the OmniSuit shoulder Elastic Energy Storage monthly and when there is wear or tear please contact your supplier or Auxivo AG.
- Use the OmniSuit only for its intended purpose. For more information, see section *Intended use and reasonably foreseeable misuse*.
- Do not do things that you would not do without the OmniSuit.
- Do not use the OmniSuit during work with a risk of falling forward.
- Do not wear the OmniSuit during work that requires the use of fall protection equipment. The OmniSuit is not a safety harness that protects you from falling. Put on the required fall protection before work.
- Make sure to use the correct size and that the OmniSuit is adjusted properly before every use. Safe and effective use of the OmniSuit relies on a proper fit to the body.
- Make sure that the OmniSuit is properly handled and stored, e.g. do not throw onto the ground or store in an enclosed space when damp or wet.
- Consider that the OmniSuit extends the body and can cause collisions with the environment.
- Do not place or carry any objects on top of any parts of the OmniSuit.
- Stop using the OmniSuit when experiencing signs of overheating, like heavy sweating, dizziness or fatigue.

CAUTION

Read and understand this manual and its safety instructions before using the OmniSuit. Failure to do so can result in discomfort or pain.

- Always use the OmniSuit with care.
- Make sure that the OmniSuit is adjusted properly before every use.
- Stop using the OmniSuit when experiencing discomfort or pain.
- Do not wear any tools below the OmniSuit.

What to do in case of an emergency and exceptional situations

NOTICE

Consult your facilities security officer to ensure internal compliance with all applicable regulations.

In case of an emergency:

- Do not remove the OmniSuit unless it is absolutely necessary.
- Make sure you are safe before assisting others.
- Follow your emergency plan.
- Get your emergency kit.

For questions or more information on how to use the OmniSuit safely in your company please contact your supplier or Auxivo AG.

Preparation and Use

Unpacking the OmniSuit

Unpack the OmniSuit. Dispose of the packaging and packaging waste in a correct manner. Keep the textile bag for washing and storing of the OmniSuit.

Make sure that the package contains the following items:

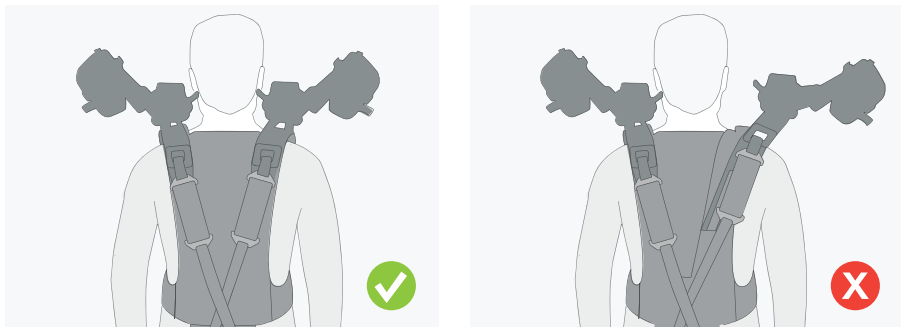
- OmniSuit exoskeleton
- User manual
- Washing and storage bag

Checking the OmniSuit

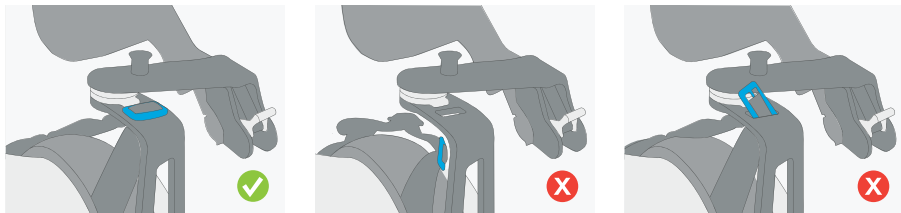
⚠ WARNING

For safe and effective use, each back structure must be correctly and fully inserted inside each vest pocket, and properly attached to the vest's shoulder attachment buckles.

Before each use, check that the shoulder support module and the back support module are correctly attached to the vest and textile covers are well connected to the arm cuffs.

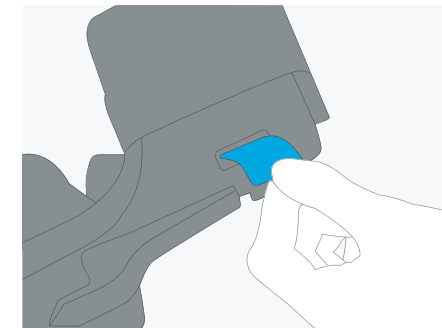
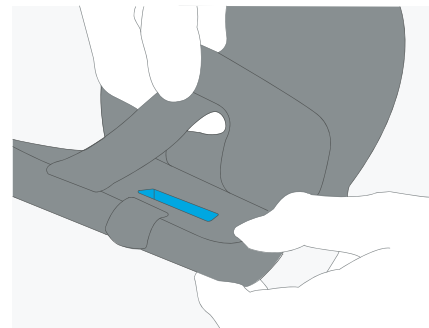


1. Check that each back structure is correctly and fully inserted inside each pocket on the back of the vest. Make sure there is no empty space in the bottom of vest pocket.

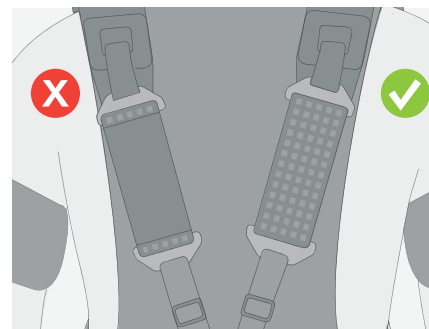


2. Check that each shoulder attachment buckle is correctly attached to the top of each back structure.

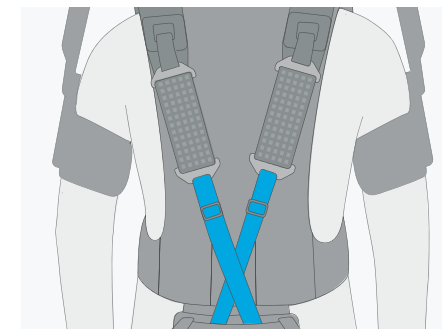
Preparation and Use



3. Check that the arm cuff textile cover is correctly attached. The Velcro should be closed through the hole.
4. Check that the Back EES are mounted correctly in two steps:



Make sure the black-white patterned side of the elastics are facing you.

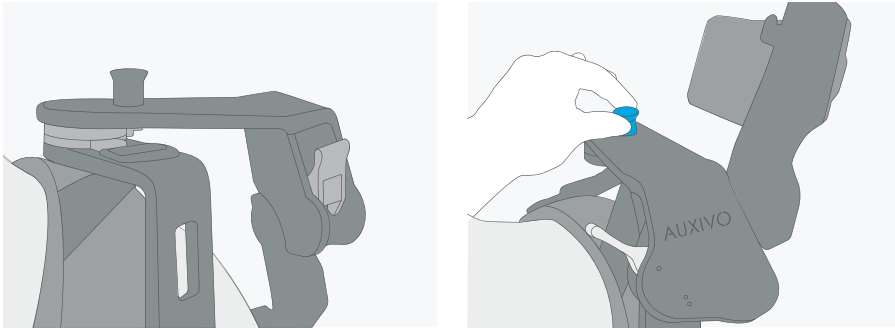


When taking a break make sure to deactivate the back support module. You do not need to take off the exoskeleton. The exoskeleton does not support you, but it should not hinder your movements.

Preparing the OmniSuit for use

⚠ WARNING

Check the OmniSuit for damages before putting it on.



Lock the shoulder joints:

- With one hand, pull up and hold the locking pin.
- With the other hand, rotate the arm cuff towards the back until it stops against a mechanical end stop.
- Release the locking pin.
- If the arm cuff can still be moved, repeat the steps.

Open all buckles and release all straps to the maximum length.

Adjusting the shoulder support level

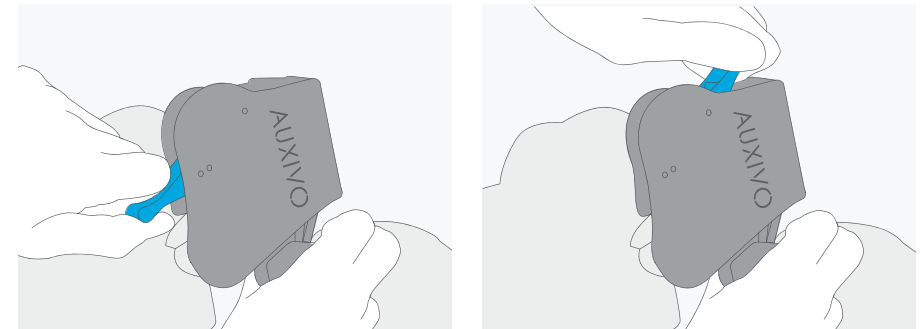
⚠ WARNING

The support level switch is spring loaded and snaps with high velocity when released before it reaches one of its end positions.

When switching between the two support levels, make sure to hold the switch until it fully reaches its end position, to avoid that it hits or pinches your fingers.

Adjust the support level before putting on the OmniSuit. If the support level needs to be adapted while wearing the OmniSuit, first take off the OmniSuit, or ask for help from someone who knows the OmniSuit well.

Objective: select support level 1 or 2 safely and correctly.



To increase to the higher support level 2, pull the blue support level switch all the way down until it reaches its end stop. Be careful not to let go too early, as this would cause the support level switch to snap back up at high speed, potentially hurting your fingers.

To reduce to the lower support level 1, guide the blue support level switch to the upper position until it reaches its end stop.

Putting on the vest and thigh cuffs

⚠ WARNING

Putting on the vest when the shoulder joints are not locked may cause the moving arm cuffs to obstruct or collide with user's head and face. Detailed instructions on how to lock the shoulder joints can be found in section 7 *Preparing the OmniSuit for use*.

⚠ CAUTION

For safe and effective use, the vest should be correctly adjusted to the upper body.

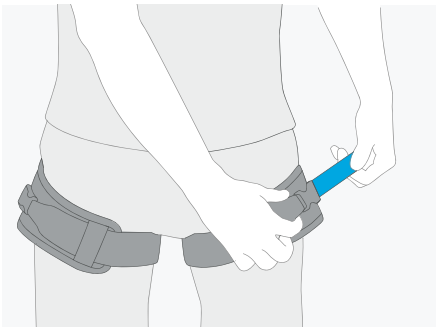
Objective: to wear the vest and thigh cuffs comfortably and safely, with sufficient stability..



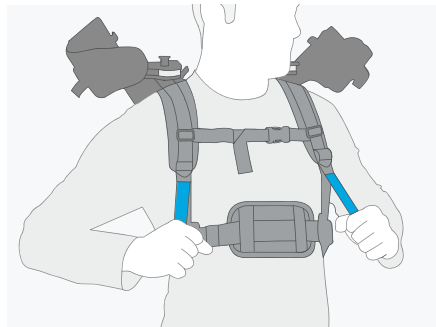
Put on the vest like a backpack.



Close and tighten both chest belts. The removable middle pad for the lower chest belt is provided for additional comfort.



Close the thigh cuffs by locking the buckles. Then tighten both thigh cuffs using the strap.



Adjust the vest height by tightening and loosening both shoulder straps. Make sure there is a gap between the shoulder joints and your shoulders to avoid pressure.

Unlocking the shoulder joints and donning the arm cuffs

⚠ WARNING

Do not pull the arm cuff down before shoulder joint is unlocked, all vest straps are closed and adjusted to size.

Pull down the arm cuff by holding on the rigid part.

Be careful when pulling down the arm cuff, which is spring loaded and thus snap at high velocity when released before your arm is correctly placed and fully resting in the arm cuff.

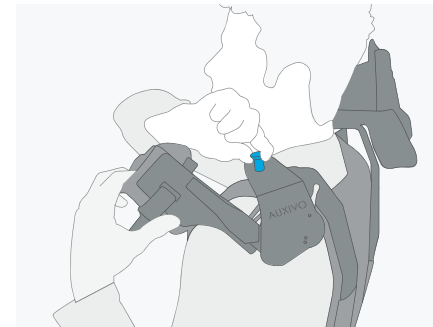
Make sure to hold and not let go of the arm cuff until your upper arm is correctly placed and fully resting on the arm cuff.

Before you start working, make sure your arms are correctly placed on the arm cuffs, which have been closed and adjusted to size. Check that the arm cuff loops are fully inserted in the hooks and that the Velcro adjustment straps are fully closed, and adjusted to size.

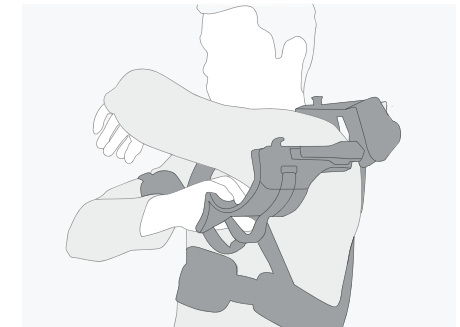
⚠ CAUTION

Make sure to unlock the shoulder joint before pulling the arm cuff down and placing arm in it. Wearing the arm cuff while the shoulder joint is locked will restrict your movement severely.

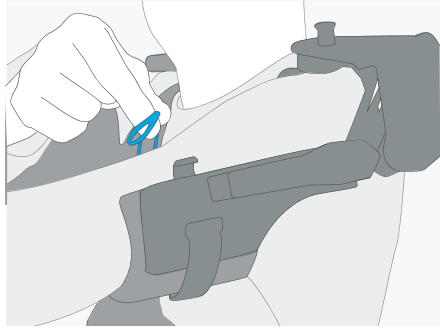
Objective: to safely put on and comfortably wear the arm cuffs.



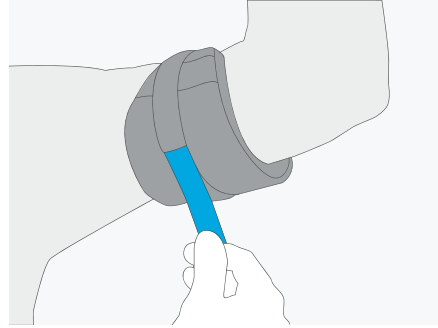
Pull up the locking pin to release the shoulder joint.



Using the opposite hand, hold the rigid part of the arm cuff, gently move it to the front and pull it down slowly. Hold it carefully while placing your upper arm on the arm cuff.



Position the arm cuff above your elbow, wherever it feels most comfortable. While keeping your arm high, use the opposite hand to close the arm cuff by connecting the arm cuff loop and the hook.



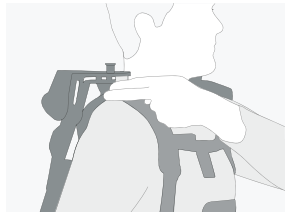
Tighten the arm cuff in 3 steps: detach the arm cuff adjustment strap, pull to tighten, and reattach.

Adjusting the shoulder joint position

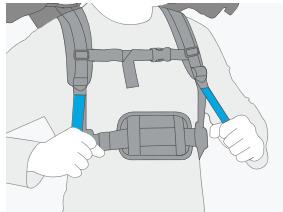
⚠ CAUTION

For safe and effective use, the vest should be correctly adjusted to the upper body.

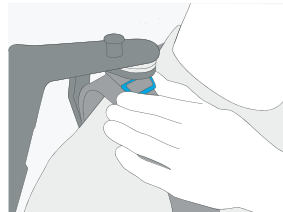
Objective: to ensure that the OmniSuit shoulder joint is positioned correctly.



Check that two or three fingers fit in the gap between the OmniSuit shoulder joint and vest.



If the gap is too small, increase the vest height by tightening both shoulder straps. If the gap is too large, lower the vest by loosening the shoulder attachment straps.

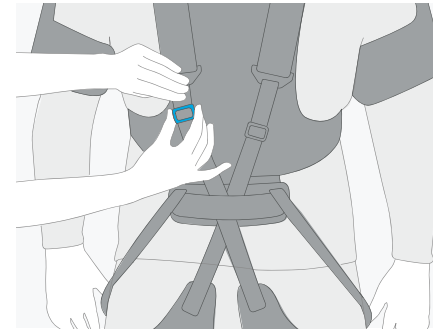


If after adjusting the vest height the gap is still too small, tighten the shoulder attachment strap. This will increase shoulder stability and prevents pressure points.

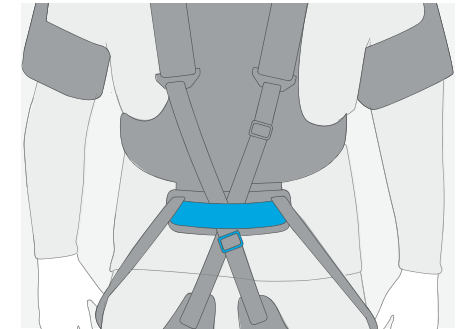
Adjusting the lower back EES connecting straps

Objective: Adjusting the OmniSuit to your size to achieve an ideal fit and the best support effect with maximum comfort for the back.

For effective activation, both lower EES connecting strap lengths must be adjusted to fit your body height. Both straps must be symmetric. This adjustment is only needed for first-time use and may require assistance.



In an upright position, move the back length adjustment buckles up or down to adjust the length of both straps to your back length.



When adjusting, you may sometimes have to pass the buckles through the back flap tunnel in the middle.

Check that both straps are symmetric. When properly adjusted, the straps should be relaxed, but not too loose. The straps should also not be too tight, such that the back EES is stretched before activating the OmniSuit.

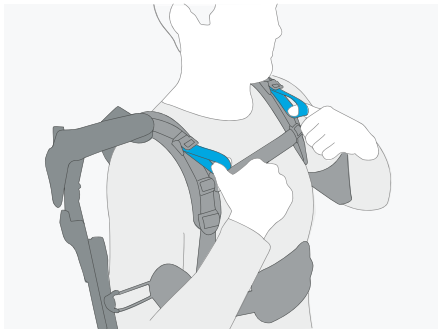
Activating and deactivating the back support

Make sure that you activate the OmniSuit back support module when you want to receive hip and back support. The OmniSuit does not support your back when this module is not activated. Make sure to deactivate the OmniSuit back support module once you have finished your task.

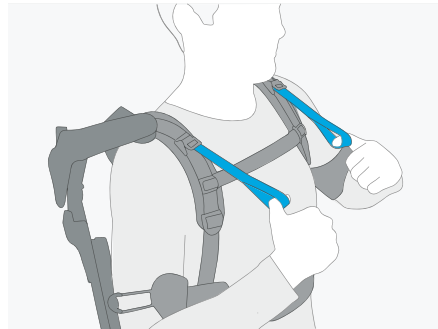
⚠ WARNING

To prevent limitations in movement, always deactivate the OmniSuit back support module when the support is not required, e.g., while taking a break, driving a vehicle, or sitting.

Activating the back support module:

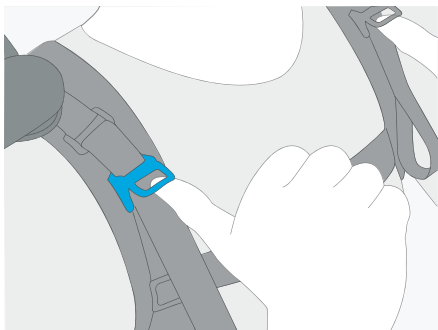


Put your thumbs in the loops of the activation straps.

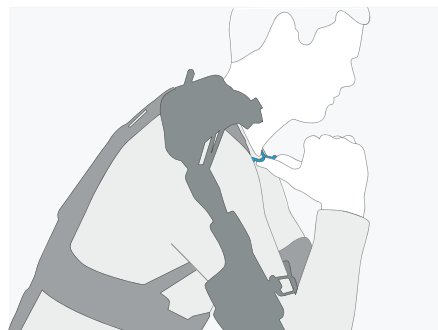


While standing in an upright position, pull the activation straps forward until you feel resistance.

Deactivating the back support module:



To deactivate the back support module, lift the levers of the activation buckles with your thumbs.



With the levers of the activation buckles lifted, bend your upper body forward. The activation loops will slide through the activation buckle.

Checking and adjusting for an optimal fit

Objective: To wear the OmniSuit with an optimal fit, the best support effect, and maximum comfort.

- The vest should sit tightly on the upper body, but comfortable enough to allow for free movements and breathing. If it is too loose, tighten the chest belts further. If you feel any discomfort, loosen the chest belts slightly.
- Check that you can raise both your arms forward. If not, make sure that arm cuffs are not locked.
- Check that when you lift your arms around, the OmniSuit shoulder joints are stable and positioned at about 2-3 fingers above the vest. If too low, shorten the shoulder straps in the front. If too high, loosen the shoulder straps in the front. Additional stability can be achieved by tightening and loosening the shoulder adjustment strap that connect the shoulder module with the vest above your shoulder joint.
- Check that the arm cuffs are not sliding down to your elbow. If so, re-position and tighten arm cuffs further. Check if the arm cuffs are too tight. If yes, loosen arm cuffs.
- Make sure the thigh cuffs are tight but still comfortable to wear. The ideal degree of tightness of the cuffs is reached when a flat hand can be pushed between the thigh and the cuff without much effort.

When friction or pressure points occur during use, corrections can be made by readjusting the vest, thigh cuffs and arm cuffs. This might be necessary especially during the first hour of use, when the OmniSuit “settles” after putting it on, or when you change your workplace, and you switch e.g. from standing work to working on your knees.

⚠ WARNING

Stop using the OmniSuit when experiencing signs of overheating, like heavy sweating, dizziness or fatigue.

Securing loose straps

⚠ WARNING

Use the safety thread-back loops or Velcro straps to properly store each loose strap end to prevent clinging to protruding objects and getting stuck in moving parts, machines, or vehicles.

- Ensure that all straps are guided through the thread-back loops. The thread-back loops should be positioned away from the buckle as far as possible.
- Ensure that both the Velcro arm cuff adjustment straps are closed.

Taking off the OmniSuit in the right order

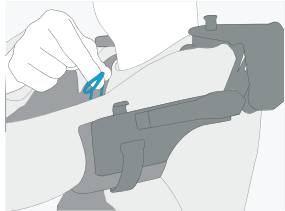
⚠ WARNING

When taking off the OmniSuit, for each side, first open arm cuff and take off arm carefully, before conducting any other steps.

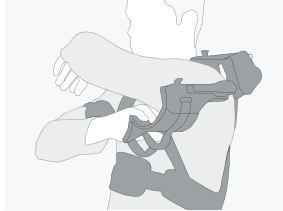
Do not take off the vest while your arms are still inside the arm cuffs.

Handle the OmniSuit gently and store it safely.

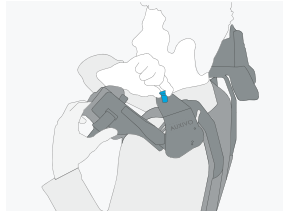
First, take off and lock the shoulder support module for each arm, one at a time:



Using the opposite hand, open the arm cuff by detaching the hook.



Keep arm high and hold the arm cuff, while slowly and carefully removing your arm from the arm cuff.



Lock shoulder joint: with one hand, pull up and hold the locking pin. Rotate the arm cuff towards the back until it stops against a mechanical end stop. Release the locking pin. If the arm cuff can still be moved, repeat the steps.

Then take off the thigh cuffs and vest:

- Check that both shoulder joints are locked.
- Make sure the back support module is deactivated.
- Open all release buckles.
- Take off the thigh cuffs and vest.
- Air dry and store afterwards.

General care

- Always handle the OmniSuit with care.
- Avoid contact between sharp or piercing objects and the OmniSuit.
- Keep your OmniSuit clean from oil and chemicals that could damage it.
- Ensure that the OmniSuit is stored in a dry and ventilated place without direct sunlight.
- When working in environments with dust, dirt, or other small particles, clean after use.

Consumables

⚠ WARNING

The OmniSuit shall only be used together with, and never without, the original OmniSuit Elastic Energy Storages (EES) manufactured by Auxivo AG.

The back Elastic Energy Storages (EES) are consumables that need to be replaced after 1 year in use. A back EES shall also be replaced when wear and tear or other damages have been established (see section 7 Inspections).

Inspections

⚠ WARNING

Perform a visual inspection at least every 1 month to ensure proper function of the OmniSuit. Keep a log to record inspections. After identifying a possible problem, e.g. a damaged part, remove the OmniSuit from operation and contact your supplier or Auxivo AG for further assistance.

When something does not feel right while working, take off the OmniSuit and perform a visual inspection before continuing to use.

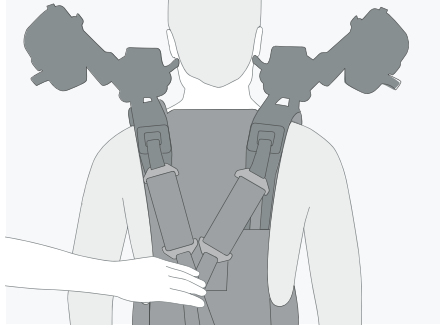
When the OmniSuit suffers from high impact force, such as falling on the ground, perform a visual inspection before continuing to use.

Cleaning, Care and Maintenance

To conduct a visual inspection, check all the components in the list below:

Vest

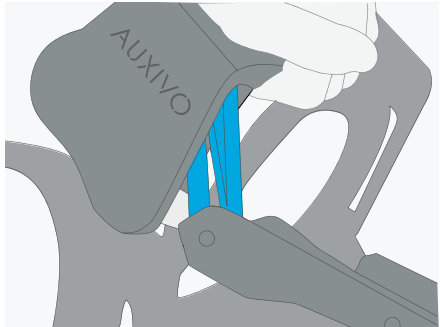
Check for signs of damage on the vest pockets, buckles, and straps.



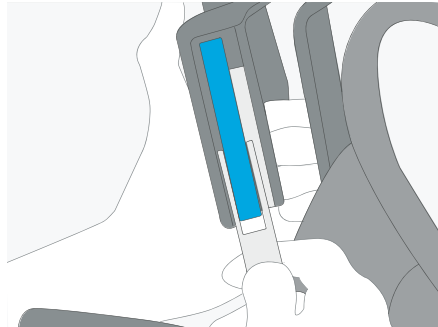
Check for signs of excessive abrasion or damage on the main fabric of the vest underneath the EES.

Shoulder Elastic Energy Storage (EES)

Check for signs of wear, deformation, or tear on the shoulder EES on each side, using the following steps:



Visually inspect the shoulder EES from the front side by pulling down the arm cuff, while holding the shoulder joint. Rotate to see all sides, as well as the elastic bands inside the plastic housing.



Visually inspect the shoulder EES from the back side by pulling down the support level switch to level 2. Inspect the shoulder EES above the support level switch.

Arm cuffs

Check for signs of damage on the plastic part of the arm cuffs. Check for signs of damage to the loop of the arm cuff textile cover.

Cleaning, Care and Maintenance

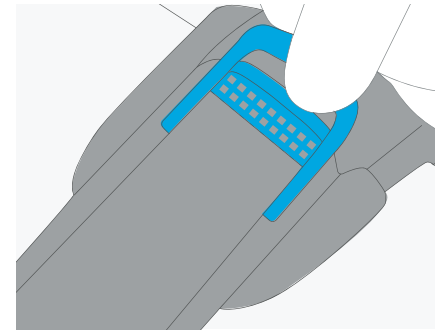
Shoulder support module cover

Check for signs of damage on the plastic cover of the shoulder support module.

Thigh cuffs

Check for signs of damage on the textile parts and the release buckles of the thigh cuffs.

Back support activation mechanism



Check for signs of damage to the activation buckle, e.g. worn-out spikes. Check that the activation buckle closes reliably.

Back Elastic Energy Storage (EES)

Check for signs of abrasion or damage on front and back side of the back EES.



After identifying wear and tear or other damages, remove the OmniSuit from operations. If the affected part is the back Elastic Energy Storages, replace this part of the OmniSuit as described in the section [7 Changing the back Elastic Energy Storages](#). If another part of the OmniSuit is affected, contact your supplier or Auxivo AG for further assistance.

Changing the back Elastic Energy Storages

The Elastic Energy Storages (EES) are consumables that need to be replaced after 150'000 cycles or 1 year in use (what is achieved first). A cycle is defined as a one-time tensioning and releasing of the EES during normal use (e.g. a normal lifting movement). An EES shall also be replaced when wear and tear or other damages have been established.

⚠ WARNING

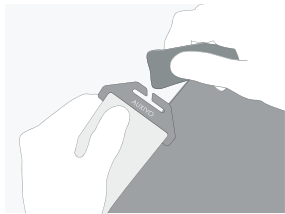
The OmniSuit shall only be used together with, and never without, the original Elastic Energy Storages (EES) manufactured by Auxivo AG.

Always remove the EES when washing or cleaning the OmniSuit. It's possible to swap the EES with a different (stiffer or softer) EES produced by Auxivo AG to adjust the support to your personal needs. For replacement parts or any issues, please contact your supplier or Auxivo AG.

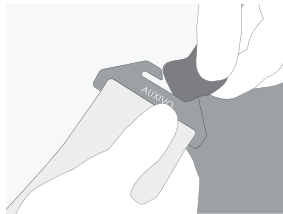
Please follow these instructions to attach, remove or replace the EES:

Attaching the back EES

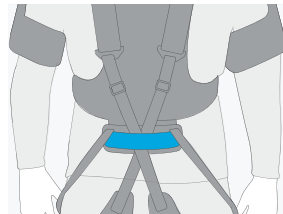
Take an original back EES. Make sure the black-white patterned side of the elastic is facing towards you.



Start by inserting the longer side of the EES hook into the loop of the upper connecting strap.

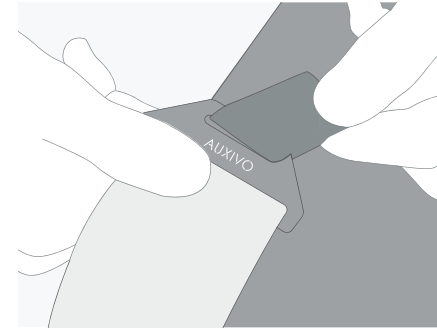


Then squeeze the loop onto the shorter side of the hook. Repeat the process for the lower connection and the other back EES.

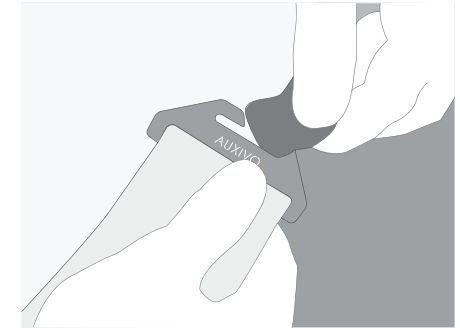


For the lower connection take the strap from the opposite thigh cuff. Make sure it runs through the back flap tunnel. The lower connecting straps should cross at the user's lower back.

Detaching the back EES



Push the loop of the connecting strap to one side and pull it away from the EES hook.



When the loop slips out of the EES hook, pull it out. Repeat the process for the other connection on the other back EES.

Check the back EES placement according to the instructions in section 7 *Checking the OmniSuit*.

Cleaning the OmniSuit

NOTICE

Incorrect care can lead to damages.

Do not use an air gun to clean any parts of the OmniSuit.

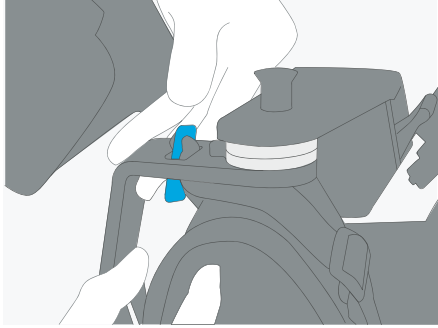
To clean the OmniSuit, please follow these steps to prevent damage to the OmniSuit:

Separate the back EES from the vest:

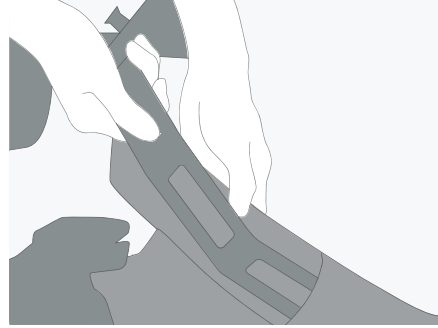
Remove the back EES prior to washing the OmniSuit, according to the instructions in section 7 *Changing the back Elastic Energy Storages*.

Cleaning, Care and Maintenance

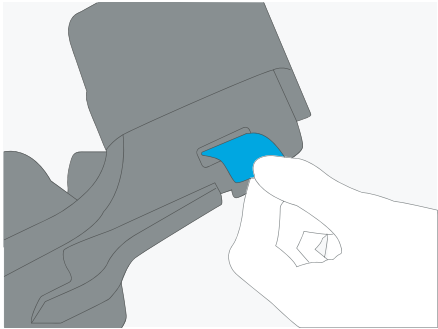
Separate the shoulder support module from the vest:



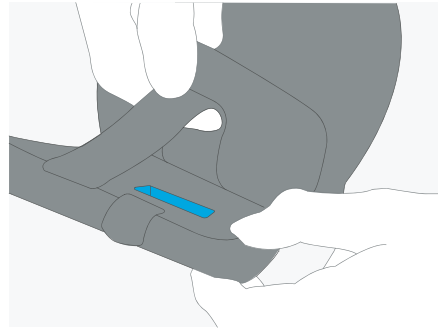
Push the loop of the connecting strap to one side and pull it away from the EES hook.



When the loop slips out of the EES hook, pull it out. Repeat the process for the other connection on the other back EES.



Take off each arm cuff textile cover by detaching the Velcro strap on the bottom of the arm cuff and passing it through the slot next to the arm cuff hook.



Pull the arm cuff textile cover off the arm cuff.

Clean textile parts:

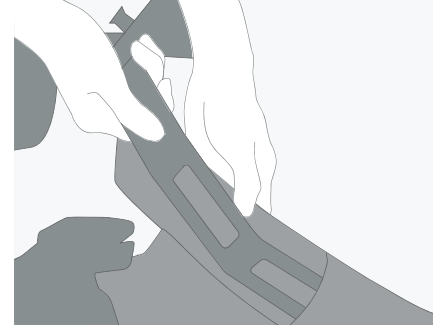
- Close all release buckles of the vest.
- Close all straps and loops on both arm cuff textile covers.
- Put into a washing bag.
- Machine wash the textile components at 30°C. Do not use fabric softener. Use mild detergent. Wash separately. Only gentle spinning. Do not tumble-dry.
- Air dry the textile components. Make sure that it is fully dried before using it.

Clean non-textile parts:

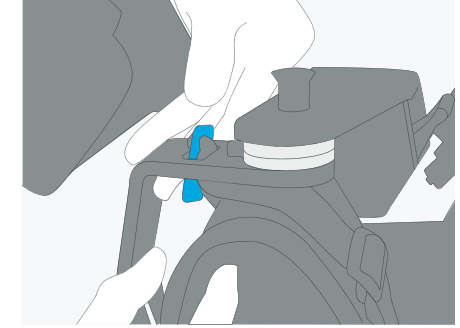
- Wipe all surfaces with a damp cloth and air dry.
- Store safely until the textile parts are washed and ready.

Cleaning, Care and Maintenance

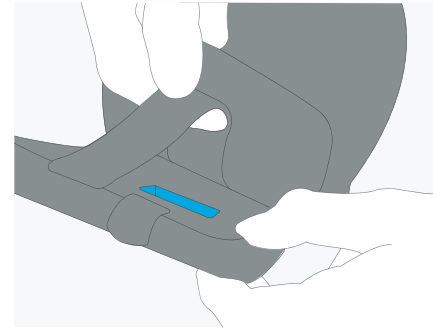
Re-assemble all parts:



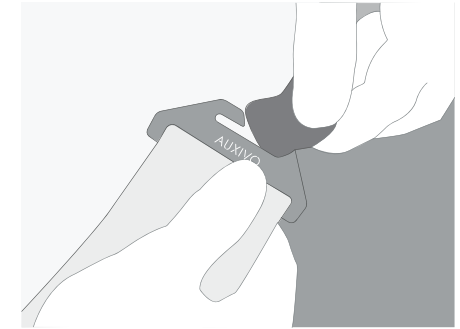
Insert each back structure into the correct vest pocket. Make sure that there is no empty space in the bottom of each vest pocket.



Attach each shoulder attachment buckle to the slot on each back structure.



Attach arm cuff textile cover on each arm cuff.



Reattach back EES according to section 7 Changing the back Elastic Energy Storages.

WARNING

After assembly inspect to ensure that all parts of the OmniSuit are correctly assembled for the next use, as described in section 7 Checking the OmniSuit.

Multiple users for one OmniSuit

WARNING

To ensure safety and comfort, the OmniSuit should be adjusted to every new user. Instructions on adjustment and customization can be found in chapter 7 *Preparation and Use*.

When the OmniSuit is being used by multiple users, the OmniSuit should be properly cleaned and washed in between users. Information on cleaning the OmniSuit can be found in section 7 *Cleaning the OmniSuit*.

Disposal

Dispose of the device and the packaging according to local regulation to avoid environmental and public health hazards. The packaging is made of environmentally friendly materials, which may be disposed of through your local recycling facilities. The recycling of materials contributes to the conservation of natural resources.

Liability

Auxivo AG cannot be held liable for:

- Personal injury or damage to property caused by not following the instructions and warnings in this handbook.
- Damage caused by changes and/or alterations to the OmniSuit.
- Wear and damage as a result of improper use.
- Damage caused by the use of non-original product parts, e.g. replacement parts.

Warranty

Auxivo AG warrants that the OmniSuit has the functions described in this handbook and is free from defects in material that eliminate or substantially reduce its functions upon delivery during a sending-in warranty period of 1 year. However, the OmniSuit also contains consumables (see section 7 *Consumables*) that must be replaced by the customer regularly at their own costs, depending on use and are not covered by the 1-year warranty period. If an OmniSuit has defects covered by the warranty, the supplier or Auxivo AG will replace the defective OmniSuit or defective parts of OmniSuit. This warranty shall be applicable only if the customer has inspected the OmniSuit and a claim pursuant to this warranty is made in writing to the supplier or Auxivo AG within 14 days after delivery stating the serial number of the defective OmniSuit, the date such OmniSuit was delivered and a description of the defect. Subsequently, the defective OmniSuit must be returned to the supplier or Auxivo AG.

No warranty is given in relation to OmniSuits that have been repaired or altered by anyone else than Auxivo AG, nor OmniSuits that have been subject to use contrary to this handbook, to negligence, to an accident or to misuse.

This warranty is in lieu of all warranties of Auxivo AG, express or implied.

For replacement parts or warranty issues, please contact your supplier or Auxivo AG.

Accessories and Spare Parts

List of Accessories and Spare Parts

(DEU) Zubehör- und Ersatzteilliste (ESP) Lista de accesorios y piezas de repuesto (FRA) Liste des accessoires et des pièces détachées (ITA) Elenco di accessori e ricambi (NLD) Lijst van accessoires en onderdelen (PRT) Lista de acessórios e peças sobressalentes

Name	Article Number
Pair of back Elastic Energy Storage (EES)	Back-EES-Blue

EC Declaration of Conformity

EC Declaration of Conformity

(DEU) EG-Konformitätserklärung (ESP) Declaración de conformidad (FRA) Déclaration de conformité (ITA) Dichiarazione CE di conformità (NLD) Verklaring van overeenstemming (PRT) Declaração de conformidade

Manufacturer: Auxivo AG
Address: Sonnenbergstrasse 74
8603 Schwerzenbach
Switzerland



Product Identification Passives industrielles Exoskelett „OmniSuit“

The product described above, as presented, complies with the provisions of the following directives:

2006/42/EG Machinery Directive

Conformity with the directives is ensured by applying the following harmonized standards:

2006/42/EG	EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
	EN 1005-3+A1	Safety of machinery - Human physical performance - Part 3: Recommended force limits for machinery operation

Schwerzenbach, 21.09.2023
Ort, Datum

Dr. Volker Bartenbach
CEO Auxivo AG

Dario Bee
Product Engineer Auxivo AG

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Issue: September 2023

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