

laevo

exoskeletons



User Manual
HL-V2.4.5-EN

Laevo
V2.4.5

a wearable back support
to support
repetitive bending &
working in a forward
bended posture

Make sure that you read and understand this manual before you use the Laevo.

This manual is intended for users of the Laevo. This manual contains all the information necessary for optimal use of the Laevo. It also contains important safety and maintenance information and describes potential problems related to use.

Always keep this user manual in the vicinity of the Laevo so that you always have access to information about its use, maintenance and safety.

All information, pictures, illustrations and specifications are based on the product information that was available at the time this manual was printed. The pictures and illustrations are general examples; your individual product may differ from the pictures and illustrations shown here.

The manual can also be requested at Laevo or viewed online at www.laevo.nl. If you still have questions after reading the manual, please feel free to get in touch with Laevo or your supplier. You can find the contact information on the last page of this manual.

Enjoy the Laevo!

Team Laevo

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1. Introduction

The Laevo is a wearable (back) support which supports bent-forward work and repetitive lifting movements.

The Laevo relieves the load on the back when working or moving around. Use it when you suffer from backaches or if you are trying to prevent them. The portable structure lessens the relative weight of the upper body and reduces the load on your lower back. The Laevo is a posture supporting tool that enhances the sustainable employability of a person.

The Laevo is intended to facilitate bent-forward work and lifting. The Laevo also allows you to walk, work while standing erect or stretch outwards or upwards. Any use other than that described in this manual is considered unintended use. If you have any doubts about proper use, please contact Laevo.

The Laevo makes bent-forward activities easier on the back. Because the Laevo reduces the load on the lower back you can do these activities more often, for longer duration or with more weight.

But the Laevo may NOT be used to do lifting that is heavier than permitted by law. The effect on the maximum liftable weight is limited. The Laevo is not meant to replace lifting aids for heavier weights.

Liability

Laevo B.V. cannot be held liable for:

- personal injury or damage to property as a result of a user or third party not following the recommendations and warnings contained in this manual,
- damage due to changes and/or alterations to the original product; wear and damage caused by the user due to improper use; damage due to use of non-original replacement parts.

Maximum number of bends

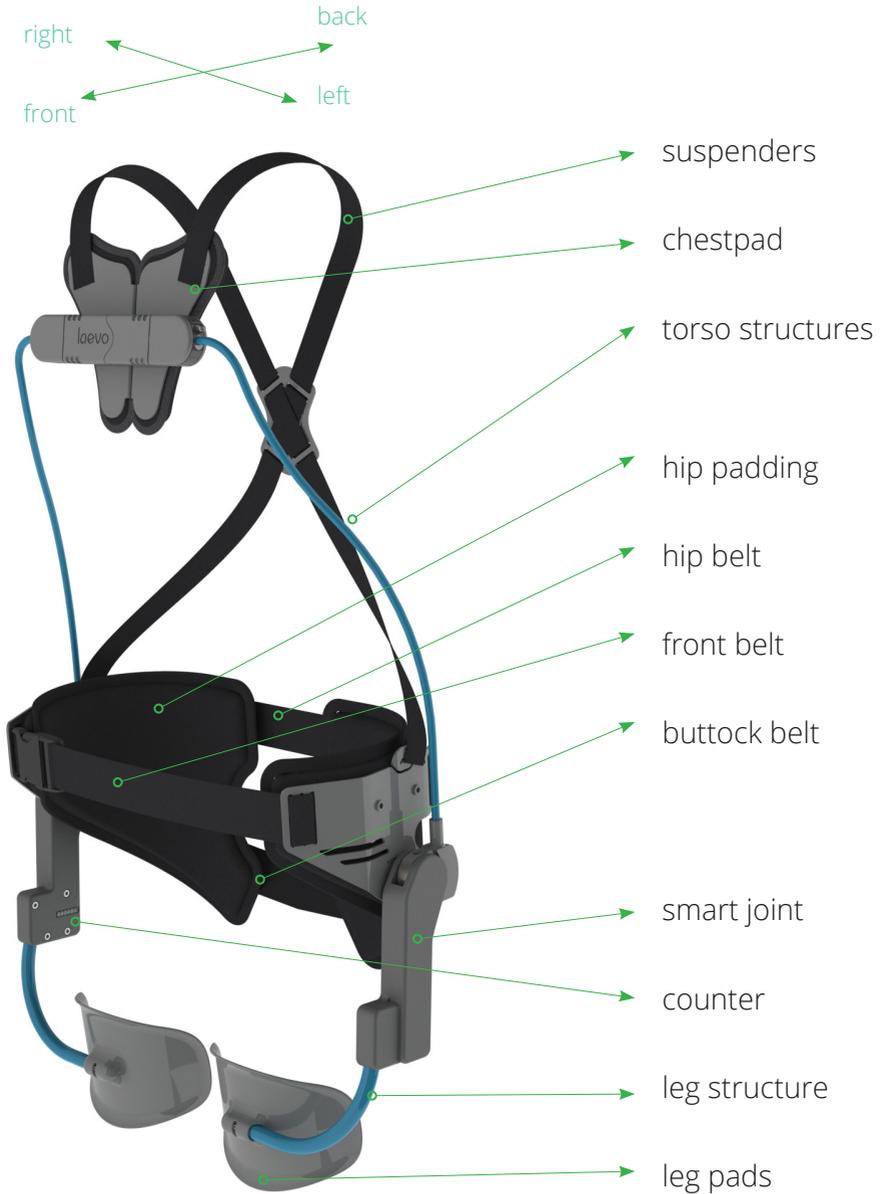
The Laevo has been tested for a minimum of 250,000 full bends, in the activated setting. The number of bends is displayed on the counters that have been integrated into the Smartjoint. When one of the counters reaches 250,000 load cycles, the Laevo may NO longer be used. The Laevo must then first have maintenance by Laevo before it can be used again. Please contact Laevo for this purpose.

Warranty

Should the Laevo exhibit any defects within the first year after purchase, please contact Laevo and we will see to a suitable solution.

The warranty conditions are sent to you by your supplier. In any doubt, please refer to our website: <http://en.laevo.nl/legal/>.

2. Overview Figure



3. Installation

Most of the following instructions are visualized in the Quick-Guide. When you are in doubt you should always contact your supplier.

Preparation

The Laevo is personally delivered or transported in a cardboard box with filler material. This box contains:

- A Laevo,
- A Quick-Guide for first use,
- This manual.

If custom: check label

The Laevo is often customized for one person, only use your own Laevo. Check the label on the inner side of the Smartjoint to make sure you have received the right Laevo.

If not customized

No harm can be done if you are wearing a Laevo that is not custom for you. However, it can affect the comfort, ease of use and the effectiveness. If you are not using a custom Laevo, make sure that you adjust it to the most comfortable settings. Should you have the idea that the dimensions of the Laevo do not fit your physique, immediately stop using it and contact the supplier.

Donning and setting up the Laevo

The Laevo can be adjusted in many ways to improve the fit. Follow the Quick-Guide to go through these corresponding steps:

1. Take the Laevo from the box
2. Check the label and product size
3. Open the chestpad and front belt buckle.
4. Put the Laevo on like a coat and close the chestpad and front belt buckle. Because everything is set to maximum size the Laevo hangs loosely around the body.
5. Adjust the suspender length with the sliding clamps so the pivot point of the Smartjoint is at your hip joint height. Adjust the height of the crossing to your comfort. A helping hand is welcome at this step.
6. Tension the front hip belt a bit.
7. Tension the back top and bottom hip belts. Adjustment of the 3 hip belts is another key factor in perceived comfort. With the lengths of these 3 belts you are able to move the Smartjoint to a specific location on your hips. Place the pivot point of the Smartjoint as close as possible to your hip joint. You might have to adjust all belt a couple of times to get it right.
 - The top of the femur (thigh bone) is in line with the hip-joint. It can be felt clearly moving thought the skin when one pivots his foot in- and outward, while resting the heel on the ground. This point is generally 10cm below the top of the pelvis.
 - From the top view, align the Smartjoints so they are parallel to each other and your body. This will improve comfort.
8. When the belt are adjusted to satisfaction, roll up the excess belt

and fold it neatly into the elastic end of the belt.

9. When needed, adjust the 3-step width setting of the torso structures in the chestpad to improve comfort. Press the button on the corresponding side of the chestpad and slide the torso structure to the desired width setting, and release the button again. Make sure the structure connector is well secured, by lightly pulling the structure out of the chestpad. After a click sound, the structure should be secured to the chestpad. Make sure the Left and Right side are set to the same width. Note that the torso structures can be separated completely from the chestpad, when maintenance is needed.
10. Your Laevo is ready!

First movements

The first time you use the Laevo, gently make the following movements:

- Bend forward from the hip,
- Bend your knees,
- Bend forward at an angle and stretch outwards.

These movements should be comfortable and easy. In case of discomfort, contact your supplier.

Checks

Check the following settings of the Laevo with the Quick-Guide:

- A. The height and the fitting of the leg pads on the thighs.
- B. While standing straight pressure of the chest pad on the chest should be limited. It is okay for the chest pad to come loose from the body.
- C. The torso structures need to follow the contours of the body, so your arms still have sufficient freedom of movement.
 - if necessary, adjust the width of the structures according to step 9
- D. While you are bending forward, the chest pad can slide. However, it should not slide into your throat. Should this happen:
 - Tighten the back lower hip belt.
 - Adjust the hip belts so the Smartjoints are placed further towards the back of the body.
 - Try a bending movement / technique with more hip rotation and less spine or neck bending.

4. Using the Laevo

Work posture, tasks and activities

The following activities can be performed with the Laevo:

- Forward bended working,
- Lifting,
- Bending to the ground,
- Kneeling and squatting,
- Stretching outwards and upwards,
- Walking.

It is not advised to perform the following activities with the Laevo:

- Walking up and down stairs,
- Running,
- Climbing,
- Sitting.

User environment

The Laevo is designed for indoor use.

- ▲ The Laevo may not be used or stored in direct sunlight.
- ▲ The Laevo may not be used in a setting where the ambient temperature is lower than 0 °C or higher than 40 °C.

Gradually increase use

Gradually increase first use of the Laevo: from 1 hour a day, to 2 hours a day, to 4 hours a day, to 6 hours a day and to the maximum time of 8 hours a day.

Storage

When the Laevo is not being used, preferred method of storage is to hang it on a hat rack or in a clothes locker. Make sure that it is stored in a dry place.

5. Safety Instructions

Failure to comply with the instructions contained in these precautionary measures and safety instructions could result in injury to the user(s) and/ or damage to the product. Please read this information carefully.

Check structure connectors before each use

The user needs to make sure the structures are securely mounted to the chestpad. Gently trying to pull out the structures without pressing the mounting buttons while standing in a straight position with no load on the chestpad is advised.

Discontinue use and contact your supplier

- ▲ when experiencing physical complaints or negative side-effects,
- ▲ when wearing the Laevo becomes less comfortable,
- ▲ when a part is dysfunctional (for example: a buckle or a hinge),
- ▲ if you notice visible damage.

Sometimes the solution is to stop and restart getting used to the product. Just stop and build up the frequency and duration of the usage again.

Laevo and your physical condition

The Laevo is not safe for use by individuals with one of the following conditions:

- a pacemaker,
- breast implants,
- removal of the axillary lymph nodes.

Individuals with one of the following conditions should contact a physician prior to using the Laevo. For example, it can be advised to do an extra slow build-up of the wearing time:

- inguinal hernia,
- knee injury,
- hip prosthesis,
- knee prosthesis,
- hernia,
- hyperextended knee,
- recent new knee or hip.

Calamities

▲ If CPR or a defibrillator has to be used on someone wearing a Laevo, the Laevo must first be disengaged. This can be done by pulling apart the two halves of the chestpad and the belt buckle, making it possible to flip the Laevo outward and expose the chest.

Avoid dangerous situations

- ⚠ The Laevo is only intended for professional use.
- ⚠ Only use a Laevo that fits your body.
- ⚠ Do not use any flammable substances (e.g. matches, lighters, candles) in the vicinity of the product. The materials used in the Laevo are not flame retardant.

Avoid moisture, dust and damages

- ⚠ The Laevo must be kept dry. The moving parts of the Laevo must be kept free of any fluids.
- ⚠ The mechanical parts of the Laevo must be kept free of sand and other debris.
- ⚠ Do not stand on (parts of) the Laevo.
- ⚠ Do not place any heavy objects on (parts of) the Laevo.

Wear appropriate clothing

It is inadvisable to wear, while wearing or carrying a Laevo, any clothing with loose ends, such as a necklace or a scarf.

- ▲ Make sure there are no hard objects in your clothing or pockets that could become pinned underneath the Laevo.
- ▲ If your clothing becomes ensnared in the smart joint, bend forward to open the smart joint and remove the clothing from the smart joint.
- ▲ Do not wear the chest or leg pad directly on exposed skin.

Beware of jamming

Misuse can lead to entrapment, with possible injuries.

- ▲ Never place your hands or fingers near the smart joint and chestpad while bending.
- ▲ Keep the Laevo away from children and pets.

Beware of bystanders

- ▲ Avoid situations where (potentially aggressive) people might attempt to grab the Laevo, which could lead to a dangerous situation. In such circumstances, it is advisable to wear clothing (e.g a jacket) over the Laevo to reduce the risk of someone grabbing it.

Cleaning

To clean the Laevo, use a moist cloth, lukewarm/hot water and a mild cleaning product (no cleaning products that contain solvents).

- ▲ Make sure no water gets into the moving parts. Never immerse the Laevo in water.
- ▲ Do not use any solvents, bleach, polisher or detergent.

Maintenance

Regularly check (according to extent of use):

- the counters on the smart joint,
- for visible damage,
- whether all parts are still securely attached without play,
- functioning of the adjustments and switches,

Repair

For customer service and repair, please contact your supplier.

Disposal

Please contact the supplier if you no longer need the product or if it needs to be disposed off on account of depreciation. The supplier will ensure that it is disposed of properly.

7. Technical Specs

Technical Product Specifications

Product name:	Laevo
Product number:	Laevo V2.4.5
Serial number:	Retrievable on the sticker on the inner sides of the Smartjoints.
Weight:	2.8 kg
Size:	Size depends on the measurements of the user.
Certification:	CE - Medical Device Class I



Manual

Manual no: HL-V2.4.5-EN

Manufacturer

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