



Instruction Manual Hapo BR

V.09.25

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Introduction

1. Purpose of the Instruction Manual

This instruction manual contains all the information and guidance necessary to use, adjust, and maintain the Hapo BR correctly and safely.

Read it carefully and follow all instructions and recommendations related to its proper use and your safety.

This manual is an integral part of the Hapo BR product and must accompany it in the event of resale.

It is the user's responsibility to keep it complete, legible, and in good condition.

2. Abbreviations and Symbols

Abbreviation	Definition
Hapo	Posture Harness
DAP	Physical Assistance Device
Passive	Without external energy storage or power supply
PPE	Personal Protective Equipment

	General danger
	General mandatory action
	General prohibition

3. Revision History of the Manual

Date	Revision	Description
25/07/2025	A	Initial creation

Presentation of the Hapo BR

4. Description of the Hapo BR

The Hapo BR (Back Relief) is a lightweight, non-motorized physical assistance device that operates using spring rods. This equipment is designed to provide spinal extension and decompression while maintaining a high degree of freedom of movement.

The Hapo BR can be used to relieve back fatigue and to support a gradual return to physical activity.

The Hapo BR is not a Personal Protective Equipment (PPE).

-  The Hapo BR must not be worn directly on the skin.
-  Do not use the Hapo BR during pregnancy.
-  Do not use the Hapo BR in case of a thoracolumbar spine fracture or a recent rib fracture (less than 3 months).
-  Do not use the Hapo BR in case of respiratory insufficiency.
-  For any back-related pathology or pain occurring while wearing the exoskeleton, consult a medical professional.

Principe de fonctionnement

The Hapo BR is a passive physical assistance device. It consists of two belts: a lower belt positioned at the user's hips and an upper belt placed around the floating ribs. These belts are connected by four spring rods. When the device is activated, these rods create a separating force between the two belts, producing a decompression effect on the spinal column in the area between them. Once activated, the user experiences lumbar relief due to this decompression. Through this mechanism, the exoskeleton redistributes part of the trunk's weight toward the hips, thereby reducing the load on the spine.

5. Product Identification

Each of the two belts of the Hapo BR includes a sewn textile label containing the following information:

Table 1 – Textile Label Information



Letter	Meaning
A	Product type
B	Brand logo
C	Manufacturer's name and address
D	CE marking

At the back of the frames holding the springs, a traceability label is affixed.

To access it, remove the Velcro and hook-and-loop fasteners securing the upper frame assembly, take the frame out of its housing, and inspect the back side (see Chapter 25).

The following information can be found on this traceability label:



Letter	Meaning
A	Serial number
B	Year
C	Product type
D	QR code

6. Manufacturer

ErgoSanté

Head Office:: 28 ZA de Labahou 30140 Anduze – France

+33 8 05 69 06 91 (local call rate)

contact@ergosante.fr

Hapo USA Corporation

Head Office: 454 Kentucky Ave Dankville, KY USA 40422 – United States

contact@Hapo.us

7. Description of the Hapo BR

The Hapo BR physical assistance device is composed of the following elements:

Lower Belt

A textile belt positioned around the hips.

It is adjustable and secured using a 38 mm textile buckle.

The lower belt serves as the main anchoring point for transferring the decompression forces toward the pelvis.

Upper Belt

A textile belt positioned around the floating ribs.

It is adjustable and secured using a 38 mm textile buckle, similar to the lower belt.

The upper belt connects to the spring assemblies and transmits the mechanical support to the upper trunk.

Spring Assemblies

The device is equipped with two spring assemblies.

Each assembly consists of an upper frame and a lower frame, connected by two cylindrical springs that cross inward when compressed.

The springs are articulated around the frames via a pivot joint.

The frames serve as attachment points, allowing the spring assemblies to be securely fastened to the textile belts.

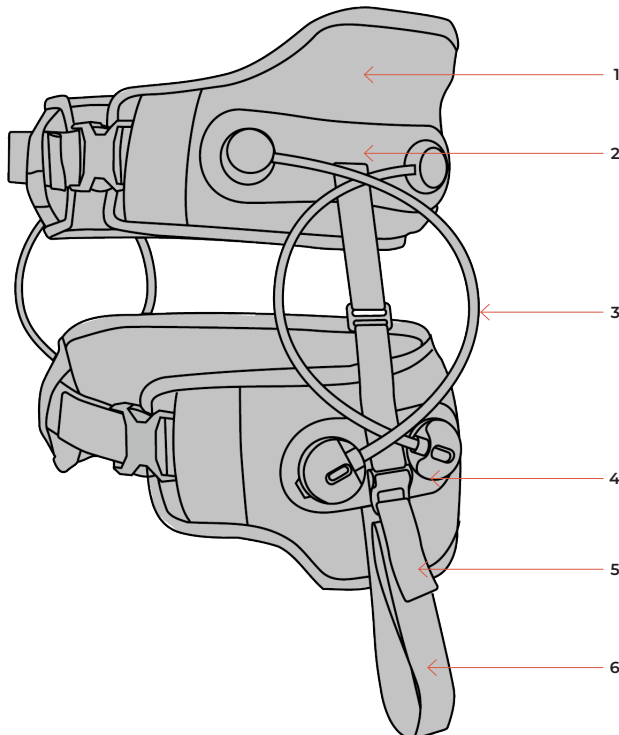
Pre-Tension Straps

On each side of the device, a 25 mm wide adjustable strap connects the upper and lower frames.

Its length can be adjusted using a cam buckle, allowing the user to increase or release the spring tension according to the desired level of assistance.

8. Components

Table 2 – Numbering of Hapo BR Components



Position	Component Name
1	Upper belt
2	Upper frame assembly
3	Spring
4	Lower frame assembly
5	Release strap
6	Pre-tension strap

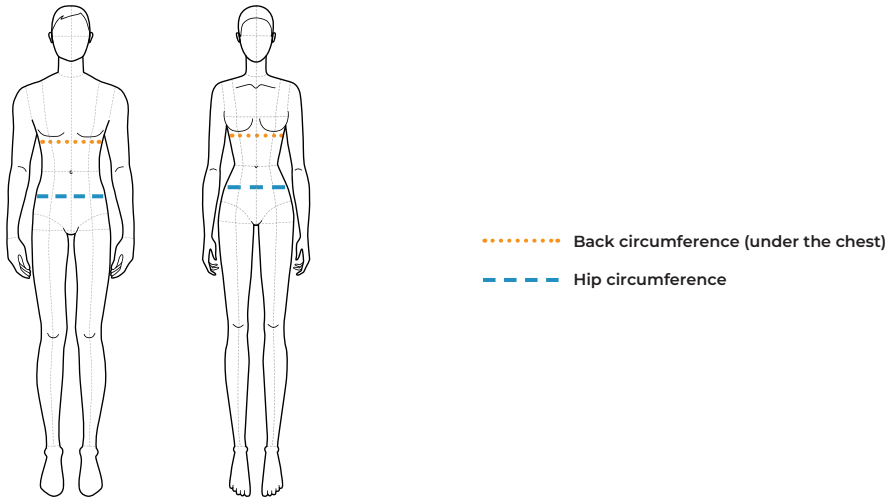
Table 3 – Components of the Hapo BR Exoskeleton

9. Technical Specifications

Assistance Characteristics			
Type of adjustment		Straps	
Range of motion		Free	
Textile Composition			
24% Polyamide – 58% Polyester – 2% Elastane – 4% Polyurethane – 12% Evazote			
Product Dimensions (in centimeters)			
	Length (cm)	Width (cm)	Height (cm)
Size 1	50	40	12
Size 2	50	45	12
Size 3	50	54	12
Product Weight (in grams)			
Size 1		885 g	
Size 2		965 g	
Size 3		1100 g	
Noise Emissions			
0 dB			
Total Assistance			
8 to 9 kg of thrust			

10. Size Guide

The Hapo BR is available with three upper belt sizes and three lower belt sizes to adapt to different body shapes (see chart below).



	Size 1	Size 2	Size 3
Back circumference (upper belt)	70 - 87 cm	88 - 107 cm	108 - 130 cm
Hip circumference (lower belt)	65 - 87 m	88 - 107 cm	108 - 125 cm

Table 4 – Size Guide

It is possible to combine different sizes of upper and lower belts.

For example:

- A size 1 lower belt can be used with a size 3 upper belt.
- A size 2 lower belt can be used with a size 1 upper belt.

11. Colors

The Hapo BR is available in a single color option.

Compliance and Safety

12. Personnel Qualification

This equipment is intended to be used by a trained individual within the scope of its proper use. The user can install the equipment and its accessories independently.

13. Intended Use

The Hapo BR is intended to be used by a single adult user. For optimal and safe use of the exoskeleton, the user must receive proper instructions from qualified personnel. Using the Hapo BR does not exempt the user from complying with the regulations in force in the country of use, including the standard NF X35-109 relating to the manual handling of loads. Likewise, the use of the Hapo BR does not exempt the user from wearing Personal Protective Equipment (PPE).

Operating and Storage Environment

It is recommended to use the exoskeleton in a clear and unobstructed area to avoid any impacts that could damage the product and to minimize the risk of snagging during movements.

Storage temperature range	Operating temperature range	Not Authorized
-10 °C to +40 °C – Dry environment	-10 °C to +40 °C	Explosive environments (ATEX), chemical splashes, or exposure to abrasive elements

Covered Body Types

Measurement	Covered Range (cm)
Back circumference	70 - 130
Hip circumference	65 - 125

Table 5 – Coverage of the Different Textile Parts

Durée de vie du produit

5 years*	Maximum 8 hours per day
* This service life is based on proper use of the product in accordance with its intended purpose and maintenance instructions (cleaning, replacement of wear parts, etc.)	

Table 6 – Service Life of the Hapo BR

The design, manufacturing, and instructions related to the proper use of the product have been established based on the intended service life. These instructions include using the product in accordance with its intended purpose and following the maintenance guidelines provided.

Use Cases

The Hapo BR can be used in most everyday situations.

The device has been designed to minimize potential material and human risks as much as possible, taking into account the risks associated with its use. However, users must keep in mind that, despite all the precautions taken during the design and development of the product, absolute safety does not exist, and residual risks may remain. Only proper use of the device and adequate user training can effectively reduce these residual risks.

14. Precautions for Use

General Precautions

1. Do not use a Hapo BR configuration that does not correspond to your size.
2. It is recommended not to wear the Hapo BR in direct contact with the skin.
3. Clean the product immediately if it comes into contact with salt water, chlorinated water, or abrasive substances (such as sand).
4. Do not expose the Hapo BR to flames, embers, or other sources of heat that could damage it.
5. Keep the Hapo BR away from solvents or chemical projections.
6. The use of the Hapo BR does not exempt the user from wearing Personal Protective Equipment (PPE).
7. Transport the Hapo BR in a suitable protective cover.
8. The Hapo BR must be used in compliance with the standards and regulations in force in the country of use.
9. For female users, it is recommended to wear non-wired bras when using the Hapo BR.
10. Do not use the Hapo BR without having read this manual in its entirety or without having been trained by qualified personnel.
11. Do not use the Hapo BR in situations involving a risk of falling (e.g., roof work) without prior approval from a safety officer or prevention advisor.
12. Do not use the Hapo BR while handling sharp or cutting objects without prior validation from a safety officer.
13. Users with back and/or chest pathologies must obtain medical approval before using the Hapo BR.
14. Do not use the Hapo BR in case of a thoracolumbar spine fracture or a recent rib fracture (less than 3 months).
15. Do not use the Hapo BR in case of respiratory insufficiency.
16. Do not use the Hapo BR without ensuring that all fasteners are properly closed and that all straps are correctly stowed in their designated holders.
17. Do not twist the spring rods manually.
18. Do not modify the Hapo BR without the written authorization of the manufacturer.
19. Do not use the device if spring damage or deterioration has been observed.
20. The use of the Hapo BR is strictly prohibited during pregnancy.

Before Use

1. Check that all adjustments are properly made and that all straps are correctly stowed in their dedicated positions before wearing the device.

During Use

1. Remove the Hapo BR immediately if any pain related to the product occurs.
2. Remove the Hapo BR if skin irritation or itching appears during use.
3. Use the Hapo BR in a clear and unobstructed area to avoid any risk of snagging with surrounding objects. To further reduce the risk of snagging, an optional textile cover can be added to encase the springs.

- 4. Do not use the product to lift or support another person.
- 5. Do not release or open any buckle while using the product.
- 6. Do not loosen any belt tightening strap during use.

After Use

- ! 1. The Hapo BR must be cleaned of any foreign bodies (liquid or solid) after each use.

Change of User

- ! 1. The product must not be used by more than one person, especially in the following cases:
 - Transferring the product to another person without prior cleaning;
 - Transferring the product without inspection and preparation;
 - Use by a third party who has not received training or instruction from qualified personnel;
 - Use by a third party without proper adjustment of the product to their specific needs by qualified personnel.

When reusing the Hapo BR for another user, it is essential to ensure that the product has been thoroughly cleaned to prevent germ transmission, skin irritation, or eczema formation.
- 2. Inspect and prepare the Hapo BR between each user change.
- 3. Ensure that the device size corresponds to the new user.

In Case of Impact

- 4. Do not use the Hapo BR after an impact without having performed a visual inspection beforehand.
- 2. Do not use the Hapo BR if there is any doubt regarding the condition of any component.
- 3. It is forbidden to use the Hapo BR without an adjustment tailored to the user's specific needs by qualified personnel.
- ! 4. Any use not described in this manual as intended use is considered non-compliant.

Transport and Storage

- ! 1. Do not store the Hapo BR with the springs under tension.
- 2. Do not store the Hapo BR under heavy loads.

15. Duration of Use

The Hapo BR should be used in sequential periods of approximately one hour, which may be repeated as needed. However, its use does not replace physical rehabilitation or regular physical activity and exercise.

Duration of Use

A gradual increase in usage time is recommended until the user becomes fully accustomed to the device. The total duration should therefore be determined on a case-by-case basis, depending on the individual and the work conditions.

At present, there is no daily usage duration officially recommended by the INRS or by standard X35-800 (published in 2023), as this parameter must remain at the discretion of the employer or user organization, depending on the type of exoskeleton model and, most importantly, the nature, intensity, and frequency of the performed task.

16. Contraindications

- Do not use the device in any way other than as described in this manual.
- Do not manually twist the spring rods.
- Do not use the Hapo BR during pregnancy.
- Do not use the Hapo BR for individuals with a thoracolumbar spine fracture or a recent rib fracture (less than 3 months).
- Do not use the Hapo BR for individuals suffering from respiratory insufficiency.

17. Residual Risks and Incidents

The precautions for use and contraindications are intended to prevent most of the hazards associated with the use of the product. However, certain residual risks remain unavoidable due to the technical constraints inherent to the functioning of the device. This section aims to clearly inform users about these risks and the appropriate behaviors to adopt when facing each of them.

18. Incidents

Breakage of a Component

1. Remove the product immediately and discontinue use.
2. Contact your local agency or distributor.
3. Impacts caused by the environment may lead to damage.
4. For the springs: If the color of the sheath is not uniform or if another color appears, the spring may be weakened. In this case, the Hapo BR must no longer be used.
5. For plastic parts: Check that there are no visible cracks. If cracks are detected, do not use the Hapo BR until your agency or distributor has been contacted.
6. If in doubt about any component, contact the distributor for inspection or replacement.

⚠ The Hapo BR must be removed in any situation that could present a risk to the product or the user.

Operating Procedure

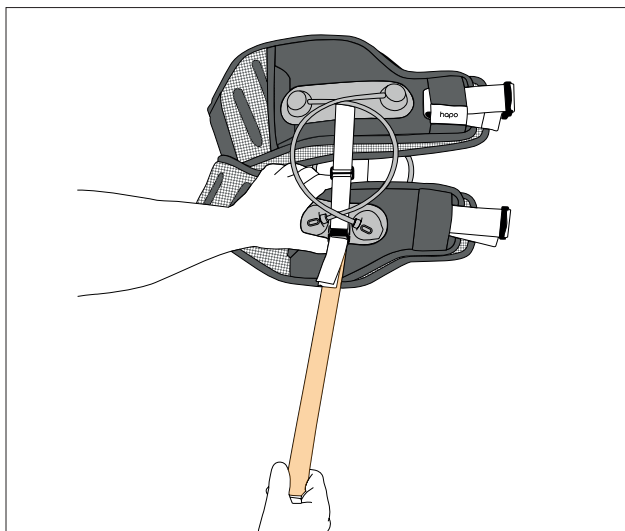
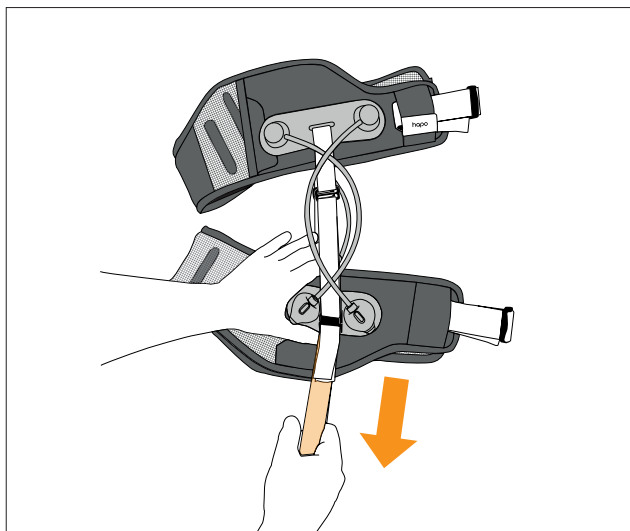
19. Unpacking

Check the external condition of the packaging. If any damage is observed before opening, take a photo of the package. Open the box and verify that the delivery is complete. Inspect the visual condition of the product. If it does not correspond to its general description (see section 7 of this manual) or if any damage is detected, contact your local agency or distributor.

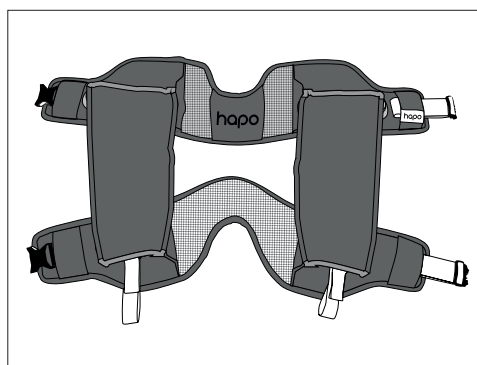
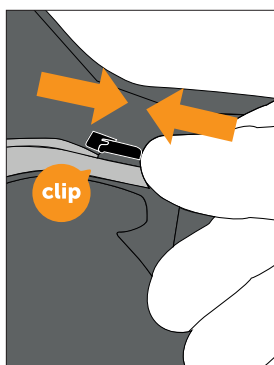
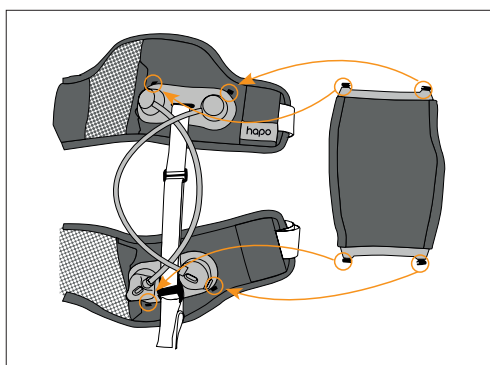
20. Fitting and Adjustment of the Hapo BR

For the first fitting, follow the steps below:

1. **Tighten** the pre-tension straps using the sewn-in loops on the straps.
 - Use one hand for support by placing it on the lower frame.

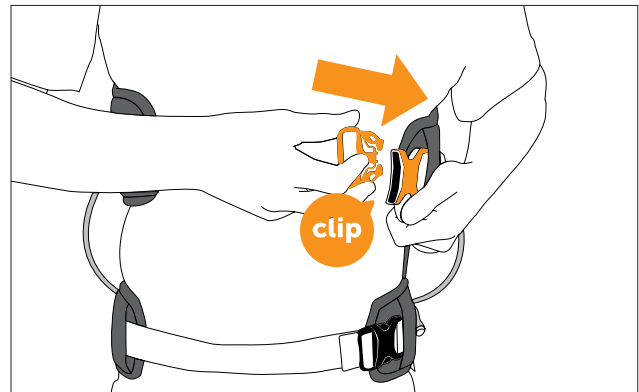
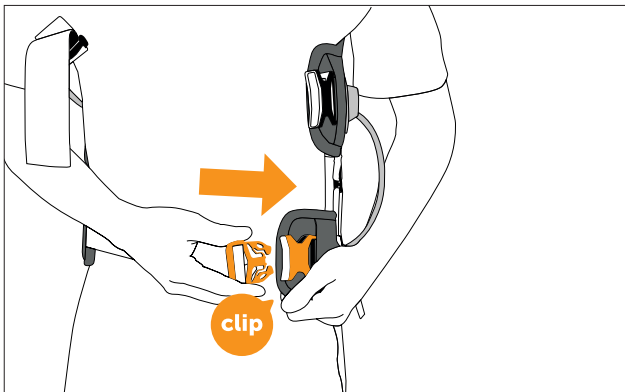


- Position the mesh using the clips if needed.

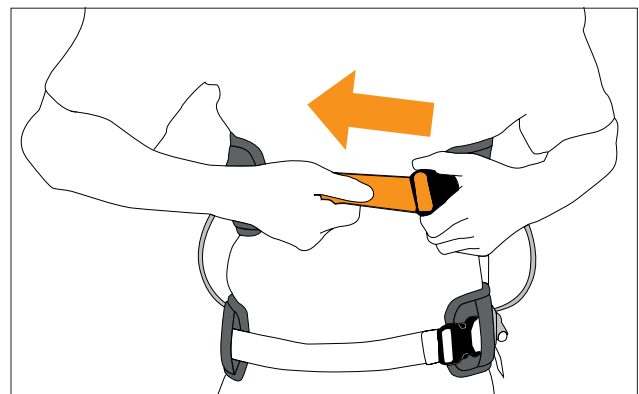
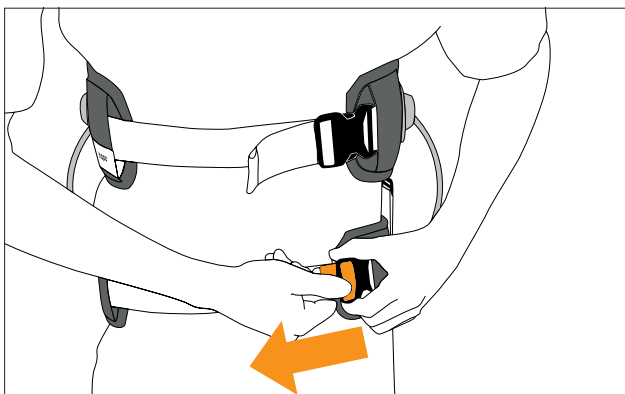


1. **Install** the lower belt: it should be positioned at the level of a trouser belt or slightly above, properly fitted around the hips.

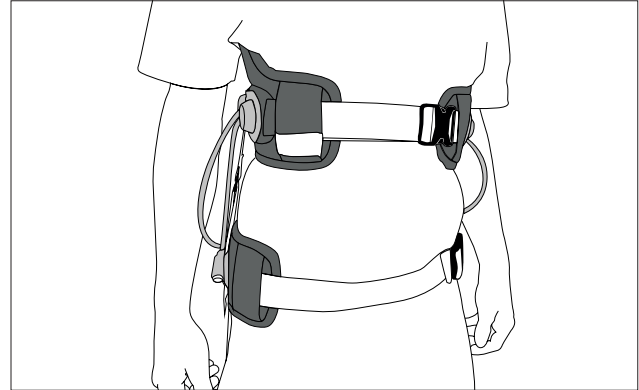
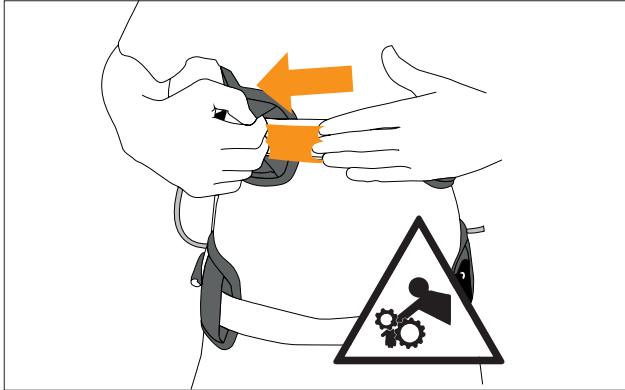
⚠ Check that the upper and lower belts are not reversed by ensuring that the “Hapo” logo and the textile labels inside are correctly oriented.



2. **Tighten** the belt strap.

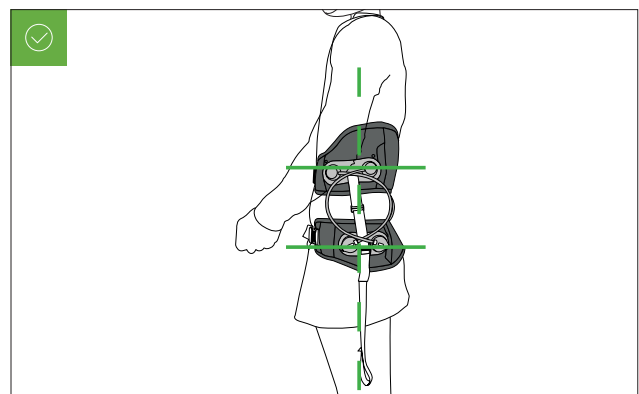
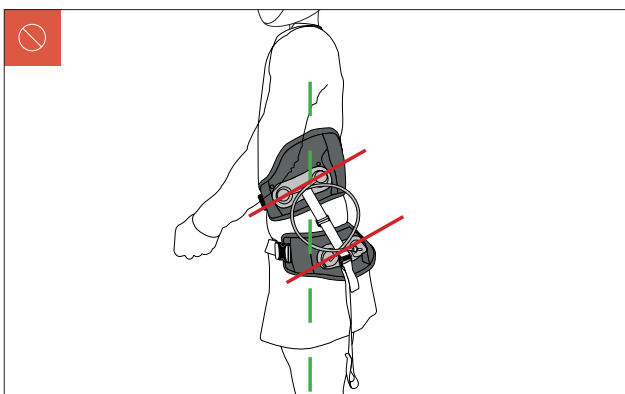


3. **Tuck** the excess length of the central strap into the designated holders.



⚠ Make sure that both belts are properly centered and aligned with the body along the trunk axis.

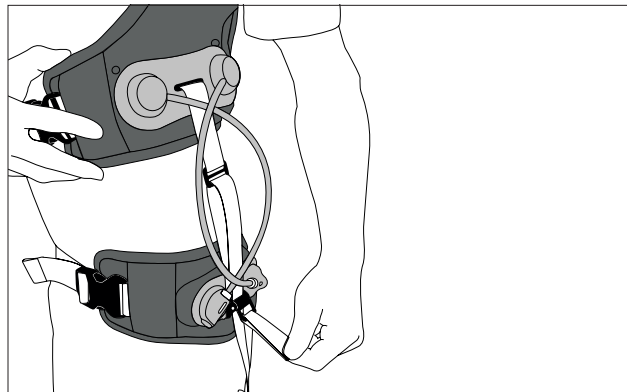
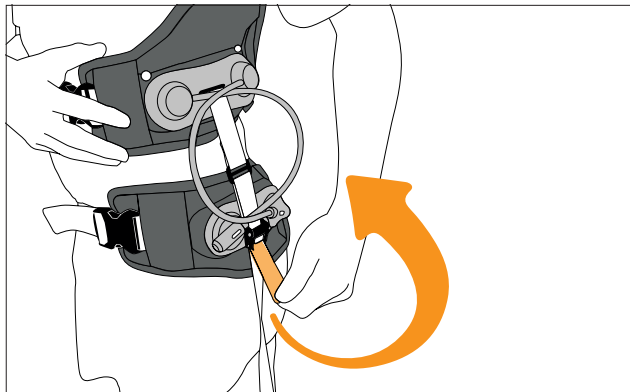
⚠ Also ensure that the spring assemblies are positioned symmetrically. Ideally, the springs should be placed along the user's sides and be perfectly symmetrical.



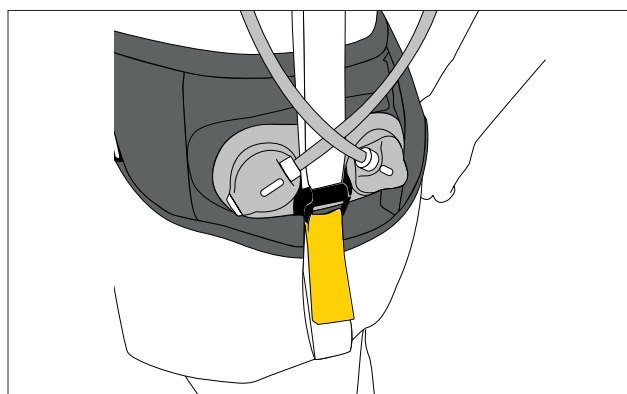
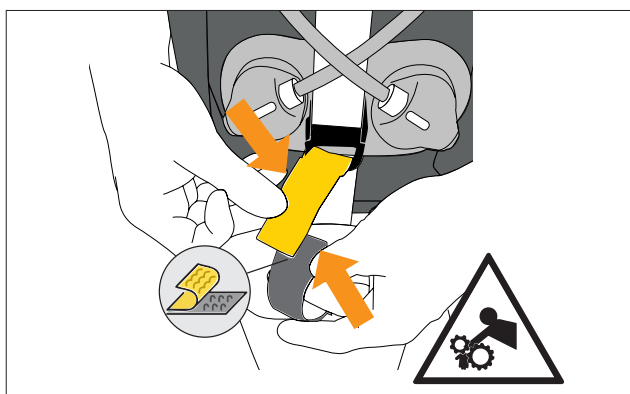
When using the exoskeleton, the upper belt may occasionally ride up. In this case, when repositioning the belt by hand, make sure to keep it properly aligned with the body axis.

⚠ It is important to be careful during fitting and to keep the frames as horizontal as possible (within reasonable limits).

4. To **activate** the exoskeleton, pull the yellow strap (release strap).

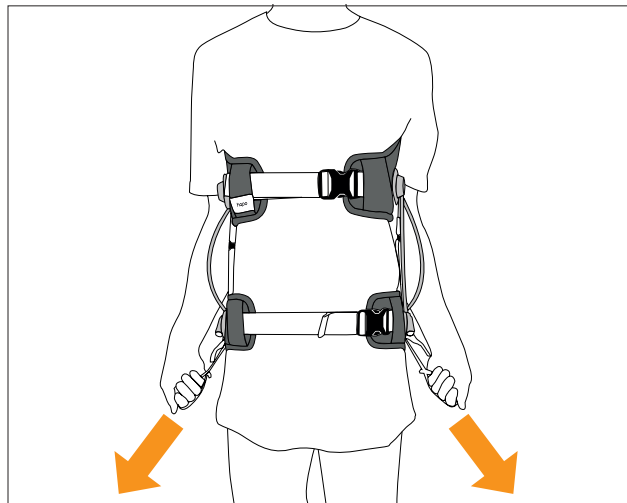
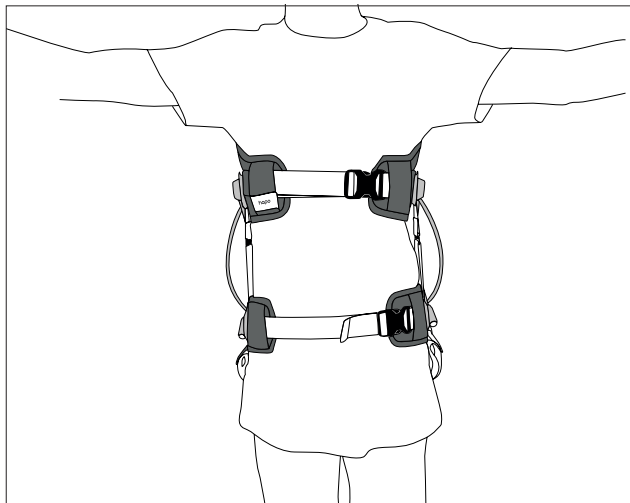


5. **Attach** the excess strap length onto the yellow strap using the hook-and-loop fastener to prevent it from hanging loosely.

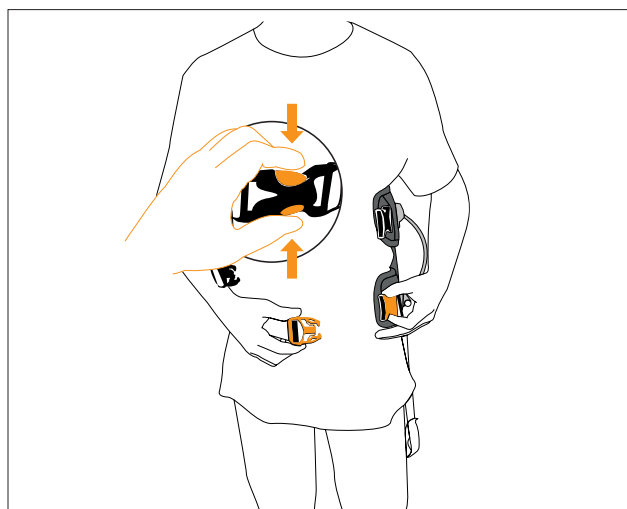
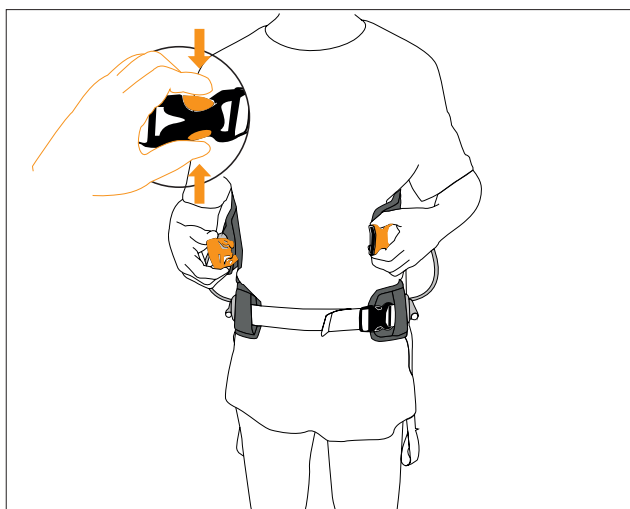


21. Removal and Storage of the Hapo BR

1. To remove the device, pull the pre-tension straps downward.
The upper and lower belts will move closer together, and the springs will be deactivated.



2. **Unclip** the upper belt first, then the lower belt.



Transport, Storage, and Maintenance

22. Transport and Storage

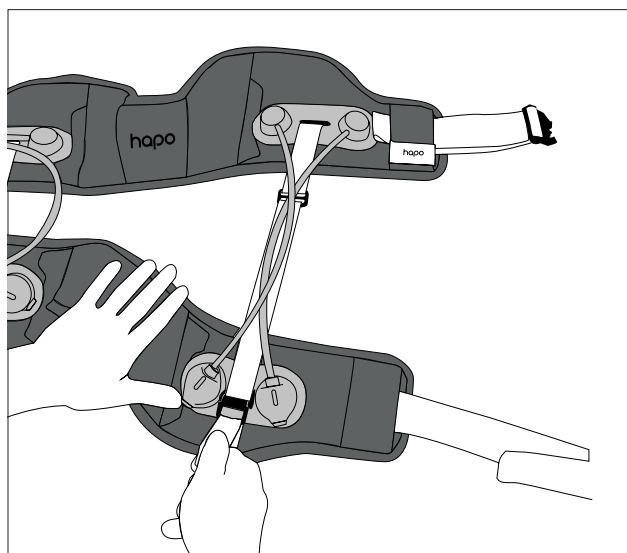
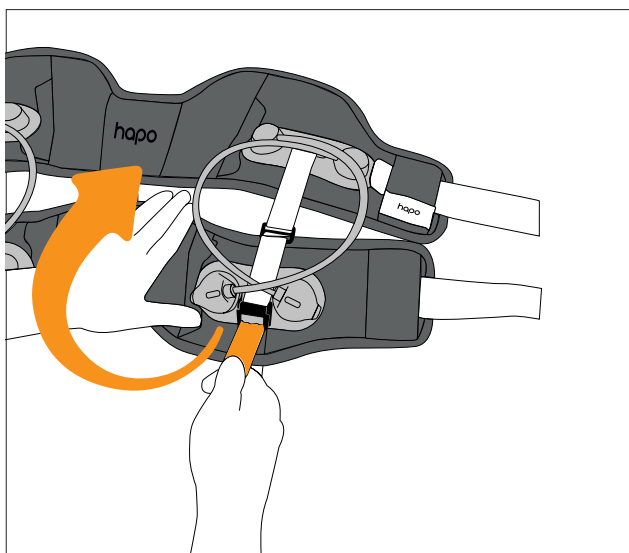
It is recommended to store and transport the Hapo BR on a hanger and/or in a suitable protective carrying bag, available as an optional accessory for this product.
The product must be stored with the springs released.

Do not store the Hapo BR in a humid location or in places with significant temperature variations.



- Improper storage may damage the spring rods and lead to premature breakage.
- Improper storage may weaken non-textile parts, resulting in premature wear.

1. For storage, release the pre-tension of the spring assemblies by lifting the yellow strap (release strap).
The protective mesh may remain in place.



23. Cleaning and Maintenance of Textile Parts

The textile parts of the Hapo BR can be hand-washed or machine-washed (see Table 7: Cleaning and Maintenance). It is necessary to follow the disassembly procedure described in Chapter 25 before cleaning. Only the textile components are suitable for machine washing. The warranty excludes any damage to the Hapo BR resulting from improper maintenance. It is recommended to use a washing bag and to close all hook-and-loop fasteners (Velcro) before machine washing.

Machine washing allowed at 30 °C, gentle cycle (maximum 600 rpm)
Hand washing allowed
Do not use bleach or whitening agents.
Do not iron.
Solvent-based cleaning products are prohibited
Air drying on a line is allowed; tumble drying is prohibited

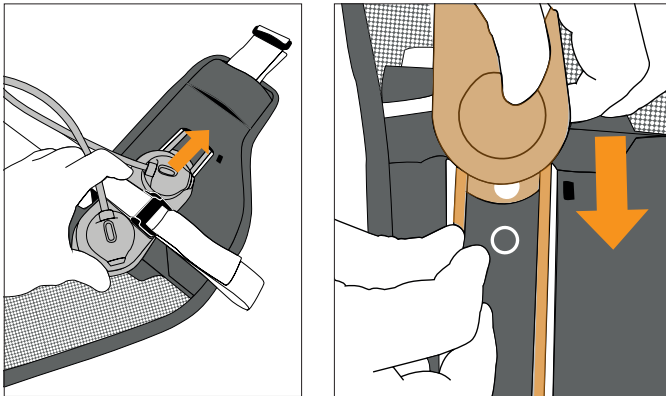
Table 7 – Cleaning and Maintenance



Do not use detergent powder or any product containing fabric softeners, conditioners, stain removers, or bleach. These substances will affect the performance of the textiles.

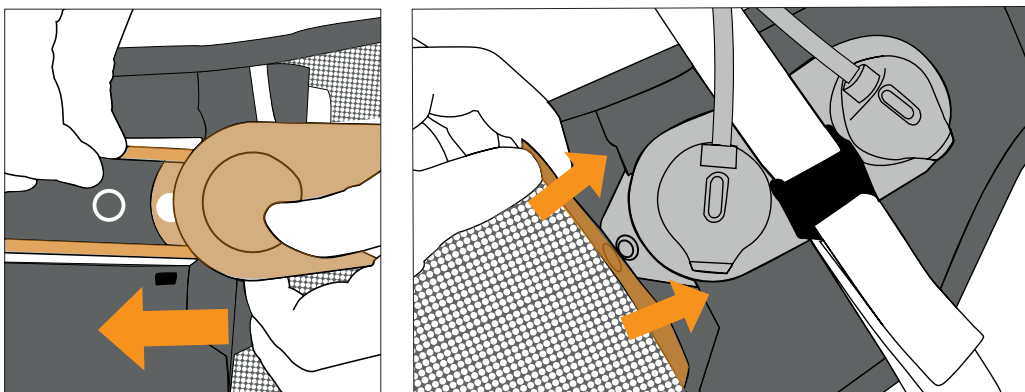
24. Disassembly Before Cleaning the Textile Parts

Undo the hook-and-loop fasteners (Velcro) and slide the frame and spring assemblies out of the belts.

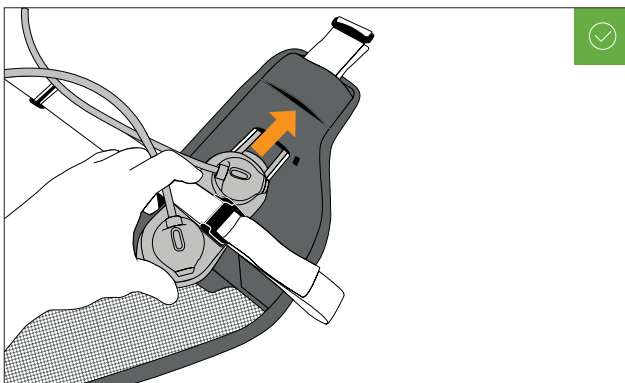


25. Reassembly After Cleaning the Textile Parts

Slide the frame and spring assemblies into the piping channels of the upper and lower belts, matching the shapes and color indicators located on the frames and the belts.



! For each frame, make sure that both piping channels are properly inserted into the frame slots.



Reposition the mesh if necessary, following the instructions in Chapter 20, Section 1.

26. Cleaning of Other Parts

The following table provides an indication of the chemical resistance of the Hapo BR plastic parts to solvents commonly found in cleaning products (A: Very good resistance; B: Good resistance). These solvents may be used to clean the various plastic components of the exoskeleton.



Using solvents other than those listed in the table may damage the plastic parts instead of cleaning them. Please ensure that the components of the cleaning product you intend to use are included in this table.

Plastic Parts				
		Pivots	Frames	Spring Sheaths
Materials		PA12	HDPE	POLYOLEFIN
Solvents	Water + neutral pH soap	A	A	A
	Acetone	A	A	A
	Acetaldehyde	A	A	A
	Ammonium chloride	A	A	A
	Borax (boric acid)	N/A	A	A
	Glycerin	A	A	A
	Formaldehyde	A	A	B
	Isopropyl alcohol	A	A	B
A: Very good resistance – B: Good resistance – C: Limited resistance – N/A: No data				

27. General Maintenance

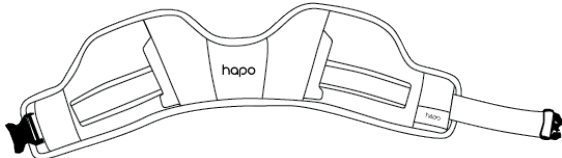
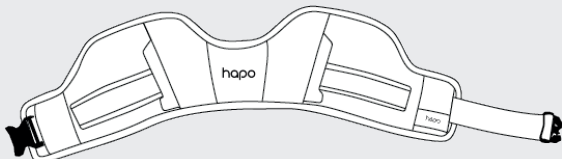
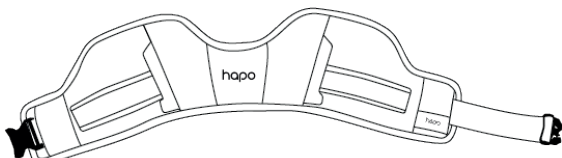
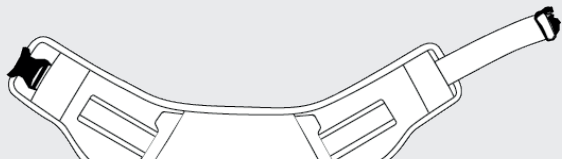
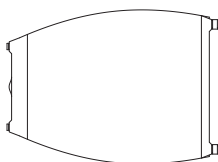
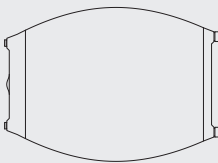


The frequency of inspections and maintenance varies depending on the actual level of use. If the product is subjected to heavy or intensive use, the maintenance intervals should be shortened accordingly.

Sub-assembly	Component	Day	Week	Month	Year
Upper / Lower Belt	Textile	Visual inspection: tearing, excessive fraying that may affect product use	Washing according to recommendations (see Table 7: Cleaning and Maintenance).		
	Hook-and-loop fastener + snap button			Check the fastening strength of the hook-and-loop and proper engagement of the snap button	
	Clip / buckle	Check visual condition. Verify proper locking of closures		Verify proper locking of closures	
Spring	/	Visual inspection (red sheath not visible)		Check attachment at both ends of the spring. The assembly play should remain minimal.	
	Pivot	Visual inspection: no impact or cracks		Check assembly play between the pivot and the frame. The pivot must not protrude more than one millimeter from the frame.	
Frame Assembly	Frame		Check that the frame is securely held in place within the textile. The frame must not open completely or allow the pulling strap to slip out.		
	Pre-tension strap	Visual inspection: tearing, excessive fraying that may affect product use			

Table 8 – General Maintenance

28. Spare Parts and Accessories

Type	Reference	Parts	Visual Reference
Textile	KITBR001	UPPER BELT KIT S1	
	KITBR002	UPPER BELT KIT S2	
	KITBR003	UPPER BELT KIT S3	
	KITBR004	LOWER BELT KIT S1	
	KITBR005	LOWER BELT KIT S2	
	KITBR006	LOWER BELT KIT S3	
	KITBR011	PROTECTIVE MESH KIT – MECHANISM Hapo BR S2-S3	
	KITBR012	PROTECTIVE MESH KIT – MECHANISM Hapo BR S1	

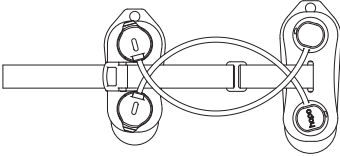
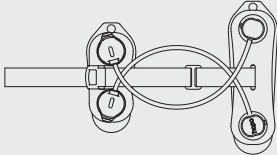
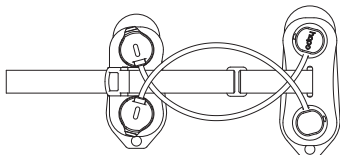
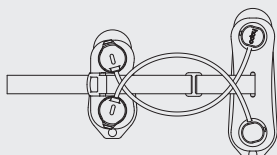
Type	Reference	Parts	Visual Reference
Frame Assembly	KITBR007	KIT SPRING ASSEMBLY STANDARD RIGHT S1 Hapo BR	
	KITBR008	KIT SPRING ASSEMBLY STANDARD LEFT S1 Hapo BR	
	KITBR009	KIT SPRING ASSEMBLY STANDARD LEFT S2-S3 Hapo BR	
	KITBR010	KIT SPRING ASSEMBLY STANDARD RIGHT S2-S3 Hapo BR	
Accessories	HDTH1	Hapo BR SMALL TRANSPORT COVER	

Table 9 – Spare Parts and Accessories

Warranty

The Hapo BR is covered by a 2-year warranty, starting from the date of warranty registration, or, if unavailable, from the date of product shipment from the manufacturer. After purchasing the Hapo BR, please visit the following website and complete the warranty form:

<https://www.Hapo.eu/fr/declaration-de-garantie>

Recycling

To help protect the planet and reduce waste production, the manufacturer offers a take-back and recycling program for end-of-life exoskeletons.

Each part is carefully sorted by material, then placed in appropriate recycling bins or shredded internally to promote material reuse.

Disposal

Disposal of the equipment must comply with the waste-sorting regulations in force in the country of use.

Legal Information

The Hapo BR bears the CE marking in accordance with Directive 2006/42/EC for sales within Europe. All legal conditions are subject to the national legislation of the country of use.

Liability

The manufacturer is liable only if the product is used in accordance with the descriptions and instructions provided in this manual. The manufacturer declines all responsibility for any damage resulting from failure to comply with the instructions in this manual.

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