

Hapo BR Instruction Manual

Translation of the original instructions

V.10.25





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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

Table 1. Abbreviations

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

Table 2. Meaning of pictograms

į	General danger
1	General mandatory action
	General prohibition

3. Revision History of the Manual

Table 3. Revision history

Date	Revision	Description
2025/10/10	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 springs. 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).

\bigcirc	The Hapo BR must not be worn directly on the skin.
	Do not use the Hapo BR during pregnancy.
\bigcirc	Do not use the Hapo BR in case of a thoracolumbar spine fracture or a recent rib fracture (less than 3 months).
\bigcirc	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.

Operating principle

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 springs. When the device is activated, these springs 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:



Figure 1. Textile label

Table 4. Textile Label Information

Letter	Meaning
Α	Product type
В	Brand logo
С	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:

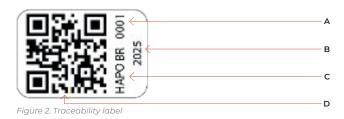


Table 5. Traceability label information

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 (1.5 in) plastic 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 (1.5 in) plastic buckle, similar to the lower belt.

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

Spring Assembly

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 (1 in) 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

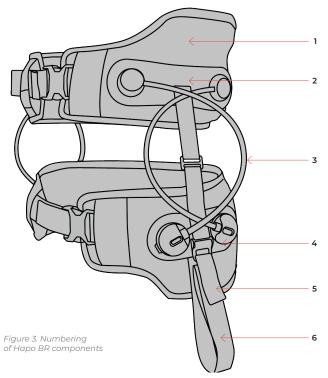


Table 6. Components of the Hapo BR

Table 6. components of the Hapo BK		
Position	Component Name	
1	Upper belt	
2	Upper frame assembly	
3	Spring	
4	Lower frame assembly	
5	Release strap	
6	Pre-tension strap	

9. Technical Specifications

able 7. Product technical data

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 (in)	Width – cm (in)	Height – cm (in)
Size 1	50 (19.7)	40 (15.7)	12 (4.7)
Size 2	50 (19.7)	45 (17.7)	12 (4.7)
Size 3	50 (19.7)	54 (21.3)	12 (4.7)

Product Weight – g (lb)		
Size 1	885 (1.95)	
Size 2	965 (2.13)	
Size 3	1100 (2.43)	

Noise Emissions	
0 dB	

Total Assistance	
7 kg (16.5 lb) to 9 kg (19.9 lb) 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).

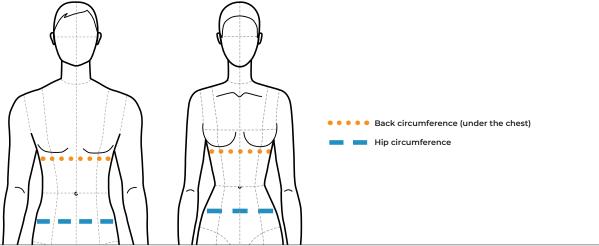


Figure 4. Measurement chart for selecting belt sizes

Table 8. Size Guide

	Back circumference – upper belt	Hip circumference – lower belt
Size 1	70 – 87 cm (2.76 – 34.25 in)	65 – 87 cm (25.59 – 34.25 in)
Size 2	88 - 107 cm (34.65 - 42.13 in)	88 - 107 cm (34.65 - 42.13 in)
Size 3	108 – 130 cm (42.52 – 51.18 in)	108 – 125 cm (42.52 – 49.21 in)

It is possible to use a different size for the upper belt and the lower belt.

For example:

- · A size I 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.

Table 9. Normal conditions of storage and use

Storage temperature range	Operating temperature range	Not Authorized
-10°C to +40°C (14°F to 104°F) – Dry environi	nent -10°C to +40°C (14°F to 104°F)	Explosive environments (ATEX), chemical splashes, or exposure to abrasive elements

Covered Body Types

Table 10. Coverage of back and hip circumferences by the different belts

Measurement	Covered Range - cm (in)		
Back circumference	70 – 130 (27.6 – 51.2)		
Hip circumference	65 – 125 (25.6 – 49.2)		

Durée de vie du produit

Table 11. Service life of the Hapo BR

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.)		

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. Use a Hapo BR configuration that corresponds to your body measurements.
- 2. Avoid wearing the Hapo BR in direct contact with the skin.
- 3. Clean the Hapo BR immediately if it comes into contact with salt water, chlorinated water, or abrasive substances (such as sand).
- 4. Keep the Hapo BR away from flames, embers, or any other sources of heat that could damage it.



- 5. Keep the Hapo BR out of reach of solvent or chemical projections.
- 6. Using the Hapo BR does not exempt the user from wearing the appropriate personal protective equipment (PPE).
- 7. Transport the Hapo BR in a suitable protective case..
- 8. Use the product in compliance with the regulations in force in the country of use.
- 9. For female users, wear a non-wired bra when using the Hapo BR.
- 10. Do not use the Hapo BR without having read this manual in its entirety or without prior training from authorized personnel.
- 11. Do not use the Hapo in situations involving a risk of falling (e.g. roof work) without prior validation by a safety officer or prevention adviser.
- 12. Do not use the Hapo BR while handling sharp or cutting tools without prior validation by a safety officer.
- 13. Users with back and/or thoracic conditions must obtain prior medical approval before using the Hapo BR.
- 14. Do not use the Hapo BR if you have a thoracolumbar spine fracture or a recent rib fracture (less than 3 months).



- 15. Do not use the Hapo BR if you suffer from respiratory insufficiency.
- 16. Do not use the product without ensuring that all fasteners are properly closed and that all straps are properly stowed in their designated holders.
- 17. Do not twist the springs manually.
- 18. Do not modify the Hapo BR without the written authorization of the manufacturer.
- 19. Do not use the Hapo BR if spring damage or deterioration has been observed.
- 20.Do not use the Hapo BR without prior adjustment by qualified personnel according to the user's specific needs.
- 21. Any use not described as compliant in this manual shall be considered non-compliant.



22.Do not use Hapo BR if you are pregnant.

Before Use



1. Ensure that all adjustments have been properly made and that all straps are correctly stowed in their dedicated locations.

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, a textile cover may be added to enclose the spring assemblies.





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

After Use



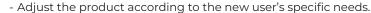
1. Clean the Hapo BR thoroughly to remove any foreign matter (liquid or solid) after each use.

User Change

1. The product must be used by only one user at a time.

When transferring the product to another user:

- Clean the product thoroughly before reuse.
- Inspect and prepare the product before each change of user.
- Ensure that the new user has received training or familiarization with the product from qualified personnel.



When reusing the product, make sure it has been cleaned to avoid contamination by germs, skin irritation, or eczema.

- 2. Inspect and prepare the product between each change of user.
- 3. Ensure that the correct product size is being used.

After an impact



- 1. Do not use the product after an impact without first performing a visual inspection. Refer to the instructions in chapter 18.
- 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. Ensure that the product is not stored with the springs under tension.



2. Do not store the product under a heavy load.

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.

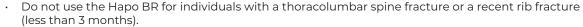


16. Contraindications



· Do not manually twist the spring rods.

Do not use the Hapo BR during pregnancy.



· 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

Component Failure

- 1. Remove the product immediately and stop using it.
- 2. Contact your local representative or distributor.

Environmental Impacts or Shocks

- 1. Remove the product immediately and stop using it.
- 2. Check the condition of the springs:
 - 2.1. Verify that the color of the spring sheath is uniform. If a different color appears, this indicates that the spring is weakened.
 - 2.2. If this is the case, contact your local representative or distributor before any further use of the product.
- 3. Check the condition of the plastic parts:
 - 3.1. Make sure there are no visible cracks on these components.
 - 3.2. If cracks are observed, contact your local representative or distributor before any further use of the product.
- 4. In case of doubt about any component, contact your local representative or distributor.
- Pemove the Hapo BR in any situation that could present a risk to the product or the user.



Operating Procedure

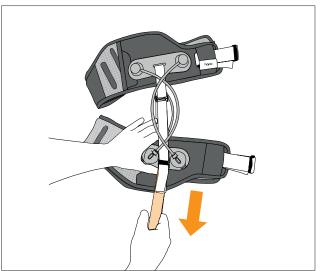
19. Unpacking

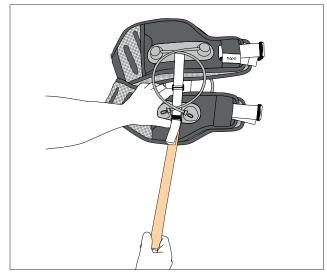
Check the external condition of the packaging. If any damage is observed before opening, take a photo of the package. Open the box and verify that the delivery is complete. Inspect the visual condition of the product. If it does not correspond to its general description (see section 7 of this manual)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

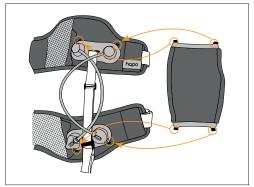
1. **Tighten** the pre-tension straps using the sewn-in loops on the straps. **Use** one hand for support by placing it on the lower frame.

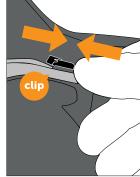


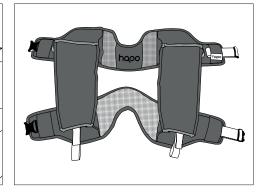


Figures 5 and 6. Tightening of the pre-tension strap (Step 1)

2. Position the mesh using the clips if needed.





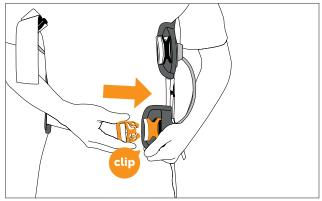


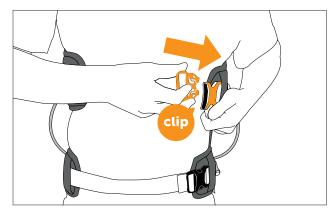
Figures 7 and 8. Installation of the mesh (Step 2)



- 3. **Install** the lower belt: it should be positioned at the level of a trouser belt or slightly above, properly fitted around the hips.
- 4. Fit the upper belt: It should be positioned at the level of the floating ribs or slightly below.
- \j\

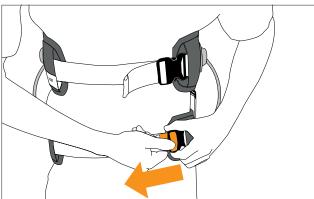
Check that the upper and lower belts are not reversed by ensuring that the "Hapo" logo and the textile labels inside are correctly oriented.

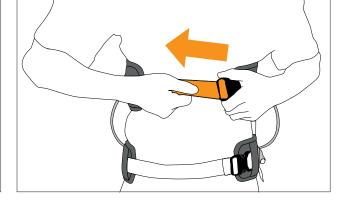




Figures 9 and 10. Installation of the lower and upper belts (Steps 3 and 4)

5. **Tighten** the lower belt strap, then do the same for the upper belt.

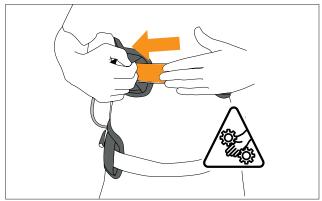


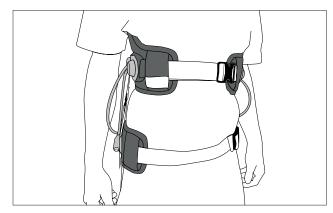


Figures 11 and 12. Fastening of lower and upper belts (Step 5)



6. Tuck the excess length of the central straps into the designated holders.





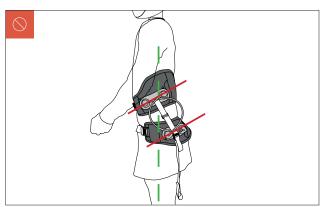
Figures 13 and 14. Storage of the belt straps (Step 6)

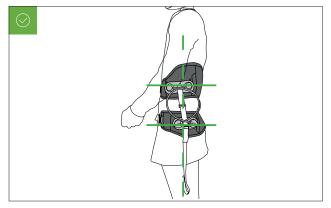


Make sure that both belts are properly centered and aligned with the body along the trunk axis.



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





Figures 15 and 16. Correct and incorrect positioning of upper and lower belts

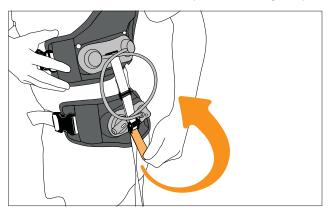
When using the exoskeleton, the upper belt may occasionally ride up. In this case, when repositioning the belt by hand, make sure to keep it properly aligned with the body axis.

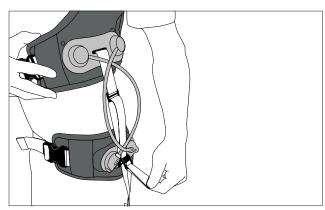


It is important to be careful during fitting and to keep the frames as horizontal as possible (within reasonable limits).



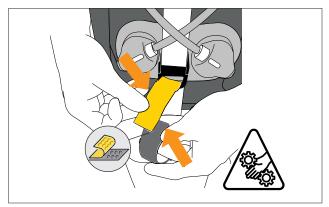
7. **Pull** the yellow strap (release strap) to activate the exoskeleton. You should notice slack in the pre-tensioning straps.

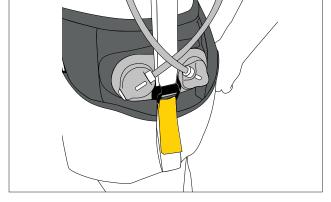




Figures 17 and 18. Activation of the exoskeleton (Step 7)

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





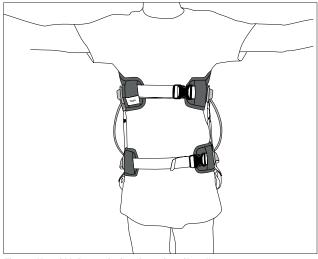
Figures 19 and 20. Storage of the pre-tensioning strap (Step 8)

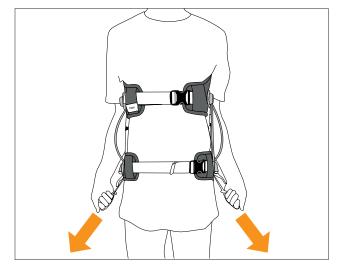


21. Removal and Storage of the Hapo BR

To remove the device:

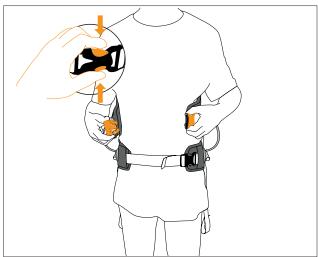
1. **Pull** the pre-tension straps downward. The upper and lower belts will move closer together, and the springs will be deactivated.



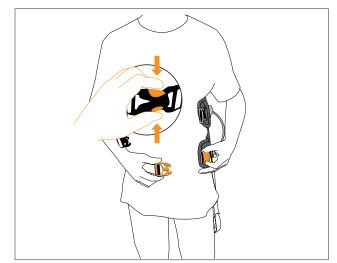


Figures 21 and 22. Re-tensioning the springs (Step 1)

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.

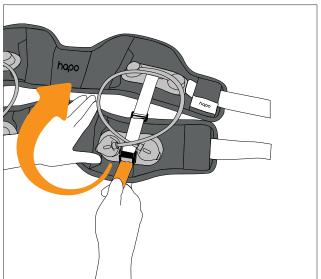
The product must be stored with the springs released.

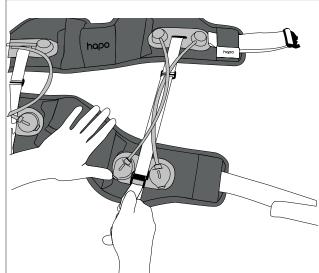
Do not store the Hapo BR in a humid location or in places with significant temperature variations.



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

Before storing the product, release the pre-tension of the spring assemblies by lifting the yellow strap (release strap). The protective mesh can remain in place.





Figures 25 and 26. Removal of preload from spring assemblies prior to product storage

23. Cleaning and Maintenance of Textile Parts

The textile parts of the Hapo BR can be hand-washed or machine-washed (see Table 12: Cleaning and Maintenance). It is necessary to follow the disassembly procedure described in Chapter 24 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.

Table 12. Cleaning and maintenance

Machine washing allowed at 30°C (86°F), 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

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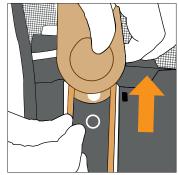
Do not use detergent powder or any product containing fabric softeners, conditioners, stain removers, or bleach. These substances will affect the performance of the textiles.



24. Disassembly Before Cleaning the Textile Parts

Undo the hook-and-loop fasteners and the snap fastener and slide the frame and spring assemblies out of the belts.



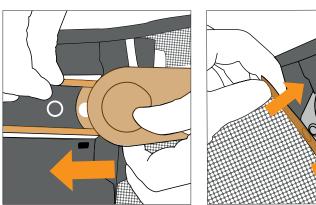


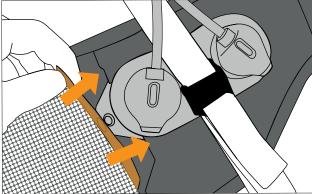
Figures 27 and 28. Separation of textile parts from rigid elements for washing

25. Reassembly After Cleaning the Textile Parts

To reassemble the fabric parts after cleaning:

- 1. 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.
- 2. Close the Velcro fasteners and snap fasteners.





Figures~29~and~30.~(1)~Sliding~the~frames~into~place-(2)~Closing~the~hook-and-loop~fasteners~and~the~snap~fasten



For each frame, make sure that both pipings are properly inserted into the frame slots.

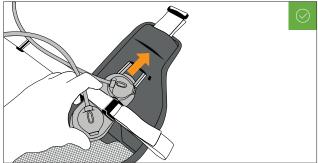


Figure 31: Both pipings must be inserted into each frame.

Reposition the mesh if necessary, following the instructions in Chapter 20, step 2.



26. Cleaning of Other Parts

The table 13 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 13 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.

Table 13. Solvents authorised for cleaning plastic parts

Plastic Parts				
		Pivots	Frames	Spring Sheaths
Materials		PA12	HDPE	POLYOLEFIN
	Water + neutral pH soap	А	А	А
	Acetone	А	А	А
	Acetaldehyde	А	А	А
Solvents	Ammonium chloride	А	А	А
Solvents	Borax (boric acid)	N/A	А	А
	Glycerin	А	А	А
	Formaldehyde	А	А	В
	Isopropyl alcohol	А	А	В
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.

Table 14. General maintenance plan

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 12: 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.	
Spring 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			



28. Spare Parts and Accessories

Table 15. Spare parts and a	Reference	Parts	Visual Reference
	KITBROOI	UPPER BELT KIT SI	hapo
	KITBR002	UPPER BELT KIT S2	hopo
	KITBR003	UPPER BELT KIT S3	hapo
	KITBR004	LOWER BELT KIT SI	
K	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 SI	



Туре	Reference	Parts	Visual Reference
Spring Assembly	KITBR007	KIT SPRING ASSEMBLY STANDARD RIGHT SI Hapo BR	
	KITBR008	KIT SPRING ASSEMBLY STANDARD LEFT SI Hapo BR	
	KITBR009	KIT SPRING ASSEMBLY STANDARD LEFT S2–S3 Hapo BR	
	KITBR010	KIT SPRING ASSEMBLY STANDARD RIGHT S2–S3 Hapo BR	
Accessories	нотні	Hapo BR SMALL TRANSPORT COVER	nopo



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.

