vector

BASE

Clinician's Guide

Bioness®

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List of Symbols

	Caution or Warning
	Consult Instructions for Use
REF	Re-Order Number
	Manufacturer
	Date of Manufacture
EC REP	European Authorized Representative
CE	Complies with the European Union Medical Device Directive

Introduction

The Vector Base is a body weight support system designed to accelerate physical rehabilitation of patients with severe gait and/or balance impairment. The system unloads a fraction of the patient's weight, enabling the patient to practice walking with less than a full body weight. The patient may walk along a predetermined path or on a treadmill. As the patient walks, the Vector Base System remains above the patient which allows for the unload force to be applied in the vertical direction.

Device Description

The Vector Base System consists of a Mechanical Track, trolley with linear spring, trolley rope, Spreader Bar, and a Patient Harness. See Figure 1-1.

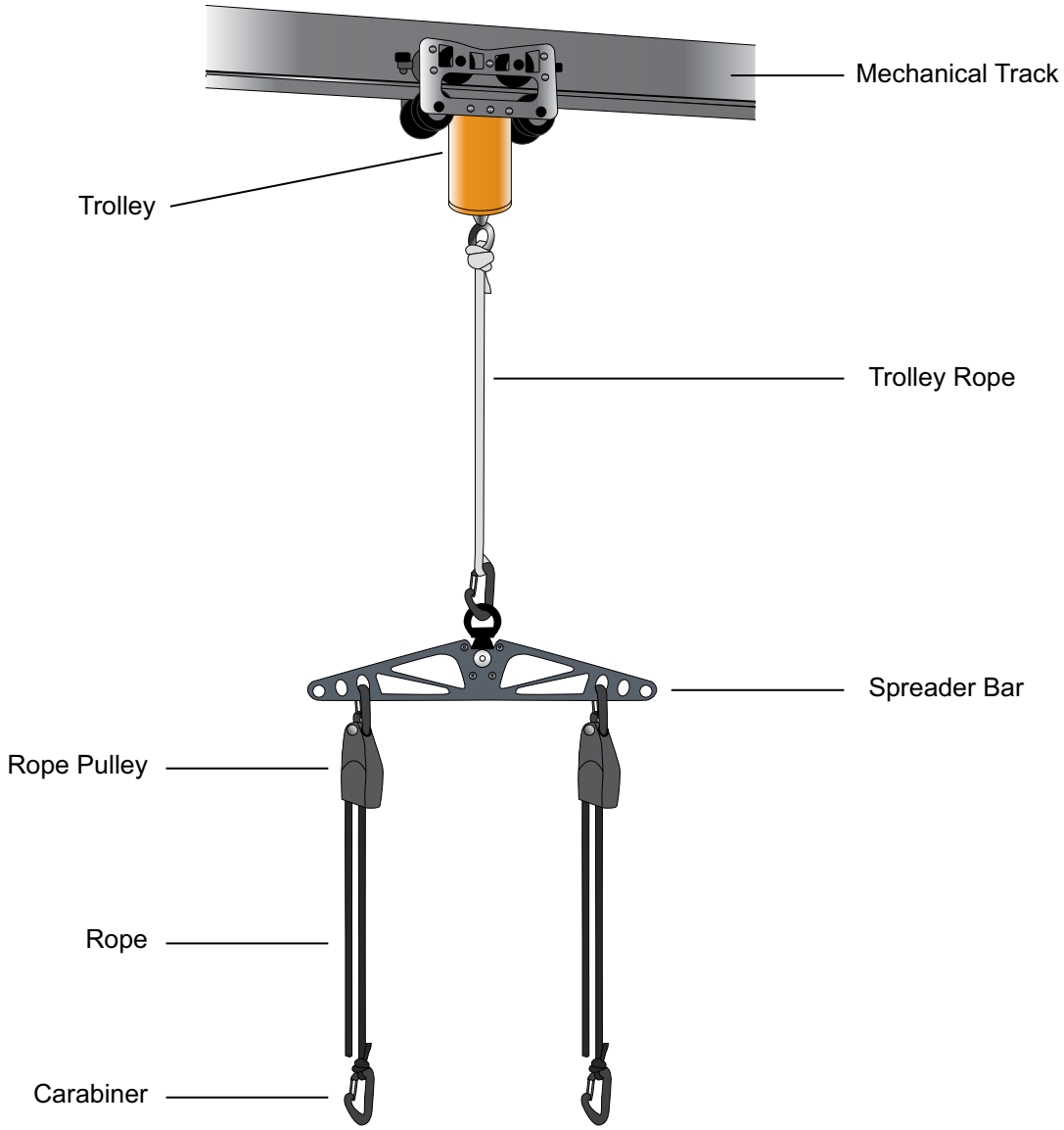

Figure 1-1: Vector Base System

Mechanical Track

The Mechanical Track is mounted overhead, typically attached to a support beam, floor or truss, and the trolley runs on the track. The Mechanical Track defines the horizontal aspect of the walking path of the patient. The track can have one or more trolleys on it. The track includes straight or curved portions that form either an open track configuration or a closed loop track configuration.

An open track configuration utilizes two End of Track Bumpers on both ends of the track. These bumpers are designed to ensure that the trolley is safely stopped at the end of the track.

Vector Base Trolley

The Vector Base Trolley is attached to and moves along the overhead Mechanical Track. The trolley has an integrated spring that allows the patient when using the system to experience a more natural gait.

Trolley Rope

The trolley rope attaches the trolley to the Spreader Bar. The trolley rope material is a 10mm diameter HMPE (High Modulus Polyethylene) and after installation is at a fixed length.

Spreader Bar

The Spreader Bar has two rope pulleys with rope attached to carabiners, which attach to a Patient Harness at two points. On each side of the Spreader Bar there are three holes built to accommodate patients of different widths.

Patient Harness

The Patient Harness secures a patient during a therapy session. The Patient Harness comes in a variety of different sizes and attaches to the Spreader Bar.

Be sure to review this guide, including all safety information, before using the Vector Base System. If you have questions contact Bioness at (800) 211-9136, Option 3 (in the United States) or your local distributor (outside of the United States). You can also visit the Bioness website at: www.bioness.com.

⚠ **Caution:** Do not use the Vector Base System until you have been properly trained by a Bioness representative.

Safety Information

Intended Use

Vector Gait and Safety System is a body weight support system designed to accelerate physical rehabilitation of patients with severe gait and/or balance impairment. The Vector Base System unloads an amount of the patient's weight thus enabling the patient to practice walking with less than a full body weight.

Contraindications

Prior to use all patients need to be deemed medically stable and appropriate by a Vector trained healthcare professional. Patients with the following diagnoses or symptoms should not use the Vector Base System:

- Patients that weigh more than 400 lbs (181.4 kg)
- Unstable fractures
- Halo neck supports
- Uncontrolled hypertension
- Uncontrolled diabetes
- Seizures
- Severe osteoporosis

Precautions

- The Spreader Bar is low and can cause injury to the patient or therapist; use caution especially with tall patients.
- For correct usage, ensure that the Patient Harness connection to the Spreader Bar is not too narrow or too wide.
- Use care when assisting patients into/out of a harness, as they can get tangled and fall.
- Carefully measure and fit a harness to the patient. Incorrect sizing may cause discomfort and/or injury to the patient.
- Use care when attaching a Patient Harness to the Spreader Bar rope. If not attached correctly, there is a risk of the patient falling.
- When using a multi-trolley configured system on the same track leave a safe distance between patients in order to prevent injury from falling or collision.

Warnings

- Do not use the Vector Base System on a patient that weighs more than 400 lbs (181.4 kg).
- Do not exceed recommended weight limits or otherwise misuse the equipment as the equipment can dislocate and fall causing serious injury up to and including death.
- Do not use equipment if maintenance is required; serious injury and/or death can occur.
- Do not use equipment if the rope knot appears loose.
- Do not modify the Vector Base System equipment; doing so would void the warranty.

Patient Set-up

The Vector Base System is used with a patient harness. The sizing chart and fitting instructions in this chapter are for the Maine Anti-Gravity Systems Patient Harness.

Selecting a Harness Size

It is important to make sure that the proper size harness is selected for a patient to ensure safety and effectiveness while using the Vector Base System. Refer to Table 3-1 for harness sizing.

Harness Size	Waist Size [1]	Harness Color Code
X-Small	24”-28” (60 cm - 71 cm)	Gray
Small	28”-32” (71 cm - 81 cm)	Yellow
Medium	32”-36” (81 cm - 91 cm)	Red
Double Medium	34”-38” (86 cm - 96 cm)	Purple
Large	36”-40” (91 cm - 101 cm)	Blue
X-Large	40”-44” (101 cm - 111 cm)	Green
2X-Large	44”-48” (111 cm - 121 cm)	White
3X-Large	48”-52” (121 cm - 132 cm)	Orange
4X-Large	52”56” (132 cm - 142 cm)	Brown
5X-Large	56”-60” (142 cm - 152 cm)	Pink

[1] Waist Size is determined by measuring 2 in (5 cm) below the umbilicus (belly button) tightly around the torso.

Table 3-1: Maine Anti-Gravity Systems Patient Harness Sizing Chart.

Donning a Patient Harness

⚠ **CAUTION:** Inspect the harness prior to use. Do not use if the harness straps are torn, if there is separation in the harness stitching, or if the Velcro is unable to adhere. Contact Bioness or your local distributor to order a replacement harness.

1. Detach all Velcro attachments to open the vest.
2. Make sure the patient is in a secured position.
3. Have the patient put their arms through the shoulder straps to put on the vest. The open side of the vest will face the front.
4. Secure the lower abdominal support first by attaching the Velcro. Make sure the support is as tight as possible.
5. Next secure the upper abdominal support by attaching the Velcro. Note: This is the middle support with the netting material on the back.
6. Securely attach the top torso support.

7. Tighten side straps on lower abdominal support.
8. If necessary adjust side vertical straps.
9. Wrap leg supports around the upper thigh and secure the Velcro.
10. If necessary adjust side vertical straps attached to the leg supports.
11. Adjust shoulder straps to the desired length.

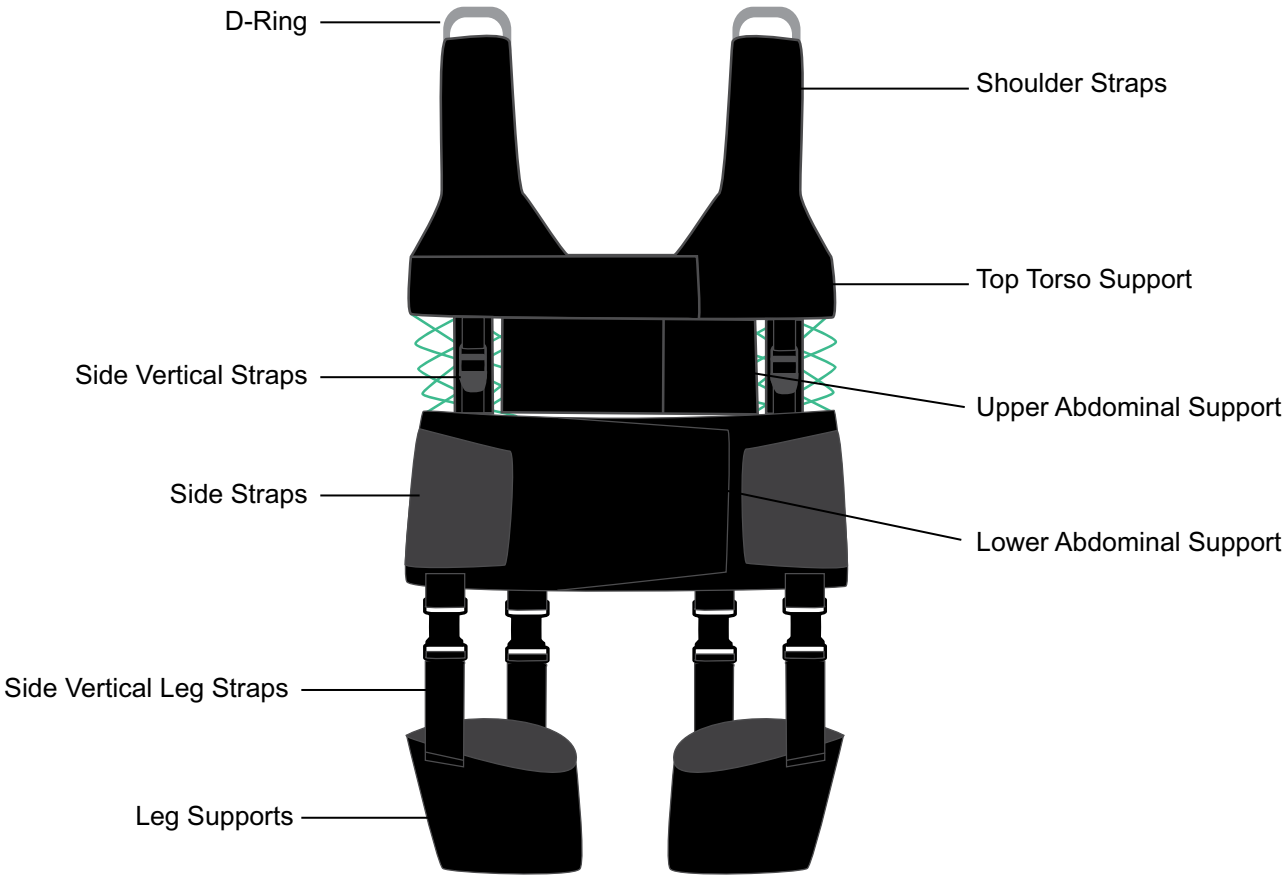

Figure 3-1: Patient Harness Features

Attaching a Patient Harness to the Spreader Bar

After a patient harness has been securely placed and adjusted on the patient, the harness will need to be attached to the Spreader Bar.

1. The Spreader Bar provides three attachment points to attach a patient harness. The selection of the attachment point depends on the width of the patient. Connect the carabiner that is attached to the rope pulley to the outermost attachment points for wide patients, and to the innermost points for narrow patients. See Figure 3-2.
2. Release the rope pulley lever to lower the side of the rope with the attached carabiner.
3. Connect the carabiner to the D-ring on the patient harness shoulder strap.

4. Pull the side of the rope that is not connected to the carabiner until the rope connected to the harness shoulder strap is tight.
5. Repeat steps 1-3 for the other patient harness shoulder strap.
6. Pull on the ropes that are not connected to the harness shoulder straps to adjust the level of tension in the harness shoulder straps.
7. After the shoulder straps have been properly adjusted, tuck the loose ropes into the back of the patient harness.

Note: While using the Vector Base System a patient harness may slide up on the patient causing a decrease in rope tension. If this happens untuck the loose ropes from the back of the harness, adjust the tension level, and tuck the loose ropes into the back of the harness.

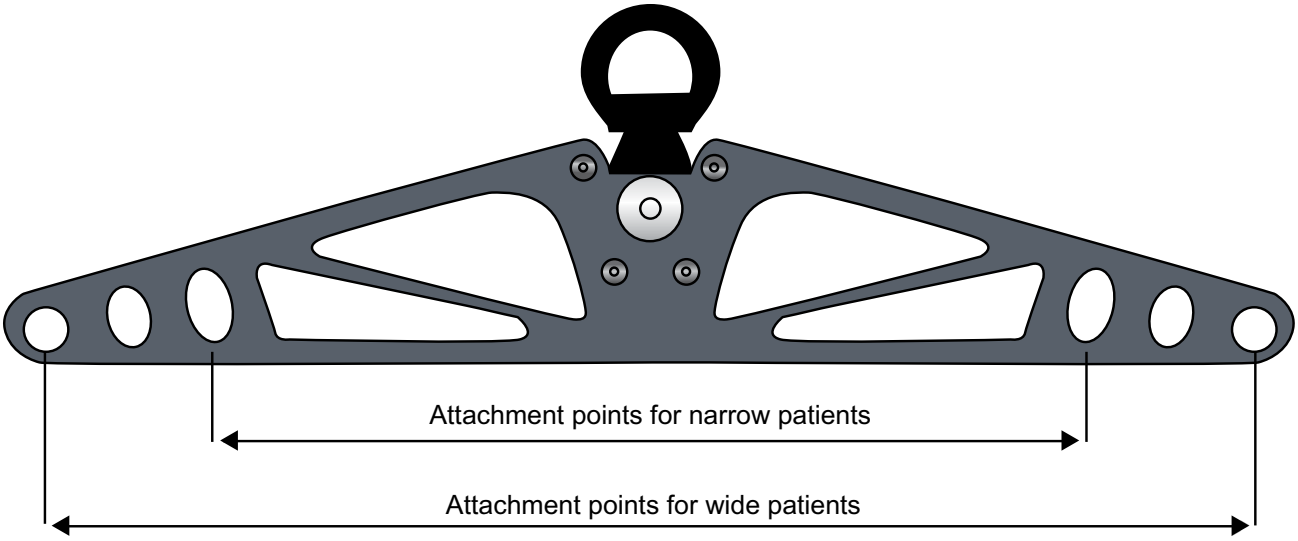

Figure 3-2: Spreader Bar Attachment Points

Chapter 4

Using the Vector Base System

Safety Features

The Vector Base System includes the following safety features:

- Mechanical tracks that are in an open track configuration contain End of Track Bumpers to prevent the trolley from coming off the end of the track.
- If a patient falls while attached to the Vector Base System, the trolley has been designed to provide cushioning so that the patient does not experience a severe jerk at the end of the rope.

Rehabilitation

In a rehabilitation environment the Vector Base System provides body weight support to patients for safe gait training, balance exercises and treadmill training. The system is designed to hold a patient up to 400 lbs (181.4 kg) and provide up to 180 lbs (81.6 kg) of body weight support via the use of a linear spring, which is built into the trolley.

The patients path of travel is limited to the path of an overhead Mechanical Track which the trolley is attached to. The system is designed to provide a safe rehabilitation environment for both patients and healthcare providers through the continuum of care.

Chapter 5

Troubleshooting and Maintenance

If you have any questions or concerns about the Vector Base System, please contact Bioness at (800) 211-9136, Option 3 or contact your local distributor.

Troubleshooting

Issue	Solution
Trolley Squeaking	Inspect track and drive wheels for debris and dirt build up. Wipe off with a dry cloth.
Harness Will Not Fit Patient Properly	• Verify that appropriate size is being used. • If appropriate use a larger harness. • Inspect Velcro and material to ensure integrity is still intact.
Rope is Worn, Frayed or Damaged	• Replace rope. • Call Bioness or your local distributor to order a replacement part.

Maintenance

Routine maintenance is critical for the safety and effectiveness of this device.

Check the following items before each use of the Vector Base System:

- Inspect the trolley rope and rope knots. If the rope is worn, frayed or damaged contact Bioness at (800) 211-9136, option 3 (in the United States) or your local distributor (outside of the United States).
- Inspect the patient harness for tears, material separation and Velcro degradation.
- Inspect the Spreader Bar before each use.
- Inspect the Spreader Bar rope and rope knots before each use.
- Inspect the carabiners before each use.

Inspect the Mechanical Track quarterly. Clean debris and/or dirt when necessary. Tighten loose bolts, screws or hardware if appropriate.

Items to be inspected and maintained on an annual basis:

- Visually inspect the trolley wheels for wear.
- Measure that the trolley spring is fully compressed when loaded with 180 lbs (81.6 kg).
- Replace the trolley rope connecting the trolley to the Spreader Bar annually. Contact Bioness or your local distributor to order a replacement part.
- Replace the rope pulleys with attached carabiners annually. Contact Bioness or your local distributor to order a replacement part.

Cleaning the Patient Harness

Cleaning Instructions:

1. Hand wash the patient harness in cold water.
2. Hang dry (do not place harness in the dryer).
3. Do not iron the patient harness.
4. Machine washing may occasionally be performed. Place the entire patient harness in a mesh washing net and wash in warm water. The water temperature should not exceed 90°F (32°C). Use a mild or moderate disinfecting detergent.

Technical Specifications

Vector Base System Technical Specifications	
Trolley Dimensions	8.75 inches (22.2 cm) long, 4.5 inches (11.4 cm) wide, and 10.4 inches (26.4 cm) tall
Trolley Material	Aluminum grade 6061-T6
Trolley Patient Weight Limit	400 lbs (181.4 kg)
Trolley Rope Material	10mm diameter HMPE (High Modulus Polyethylene)
Spreader Bar Material	Anodized Aluminum

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