

echelon  
VAC




Exceptional control and comfort



endolite

A Blatchford Company



“As an amputee, socket security is one of the most important things.” Charlie

Optimal socket connection is critical to an amputee's comfort, security and stability. By pairing Biomimetic Hydraulic Technology with an elevated vacuum system, the design of EchelonVAC works to create a secure and comfortable socket connection.

**Energy Absorption**  
Hydraulics absorb energy to  
minimise tissue stress

**Self-alignment**  
To fine tune joint position for  
improved posture, gait symmetry and  
reduced socket interface stress

**Adjustment and control**  
Fine tuned to the user's requirements

**Viscoelastic**  
Using both spring and damper to reduce  
the rate of loading and removing force  
from the system and therefore the limb

**Biomimetic Design**



Relative movement is a major issue for amputees and can lead to:

Rubbing/chafing



Potential skin breakdown

Pistoning



Increased risk of falls and reduced gait symmetry

Reduced proprioception

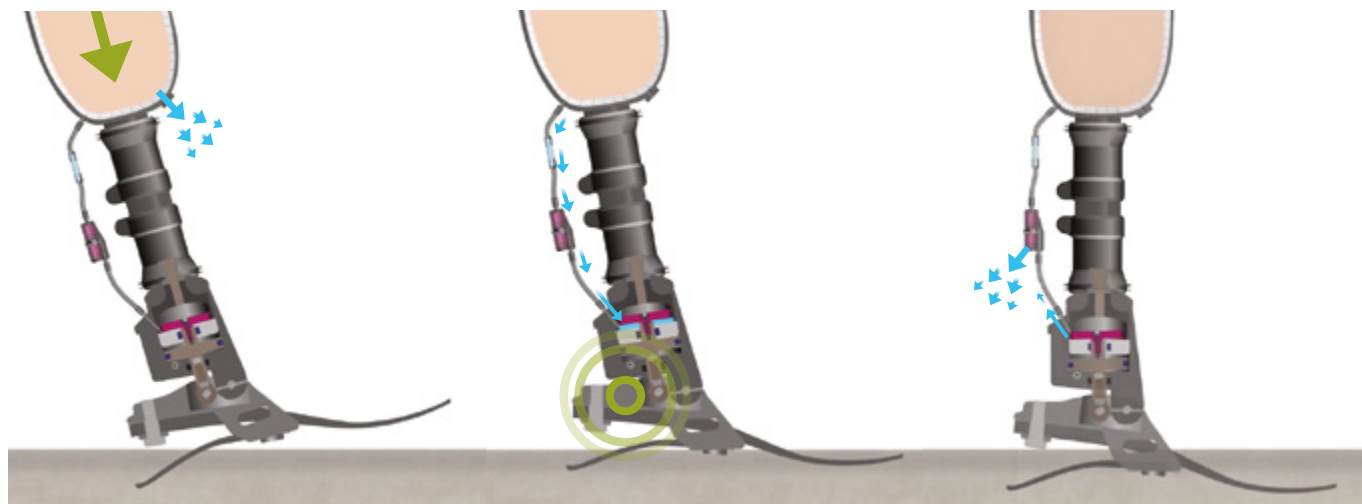


Less control, compromised safety

By harnessing natural ankle motion, EchelonVAC quietly creates elevated vacuum, helping to maintain an optimally fitting socket throughout the day.

With every step, the wearer presses their weight into the prosthesis, initially expelling air through a one-way valve. Simultaneously the ankle plantarflexes, actively drawing air out of the socket. This air is held in the vacuum chamber and expelled through a secondary one way valve as the tibia progresses and the ankle dorsiflexes.

The result is greater residual limb volume control and an improved connection between the residual limb and the socket. For the user, this reduces relative movement, improving proprioception and control of the prosthesis for greater comfort and safety every day.



A person wearing a bright blue t-shirt and dark shorts is sitting on a wooden park bench. Their right leg is a prosthetic, which is black and textured, attached to a metal joint. They are wearing a bright orange and blue striped athletic shoe. The background is a lush green park with sunlight filtering through the trees.

“ It’s had a great impact on my day-to-day life. ” Charlie



# Innovative Design

The innovative design of EchelonVAC is **lightweight** and has a **low build height** as no external power source is required.

With **no batteries** or **pump** to worry about, EchelonVAC is **quiet** and **easy to fit**.

When used in conjunction with a Silcare Breathe liner, the vacuum is applied directly to the residual limb to further enhance the connection between the limb and the socket.



# The Evidence

Active vacuum systems help to stabilise residual limb volume to improve socket stability and proprioception. Scientific studies\* have shown that elevated vacuum systems help to:

- Reduce volume fluctuation <sup>1</sup>
- Reduce interface pressures <sup>2</sup>
- Improve wound healing <sup>3</sup>
- Reduce pistoning <sup>4-7</sup>
- Improve gait symmetry<sup>1</sup>, balance<sup>8</sup> and reduce risk of falls <sup>9</sup>
- Greater comfort and improved overall satisfaction <sup>10-11</sup>

\*Please refer to the back cover for further details.

## Features

- Biomimetic Hydraulic Technology with integrated elevated vacuum
- No power required, quiet gentle operation
- Lightweight, compact design
- Low build height
- E-carbon springs for efficient energy return
- Split toe design for ground compliance on uneven terrain
- Weatherproof - suitable for outdoor use
- Sandal toe footshell

## Technical Information

- **Maximum User Weight:** 125kg
- **Activity Level:** 2\*, 3, 4\*
- **Component Weight:** 930g<sup>†</sup>
- **Maximum Vacuum:** 17" Hg
- **Build Height:**
  - Sizes 22-24: 121mm
  - Sizes 25-26: 126mm
  - Sizes 27-30: 131mm
- **Heel Height:** 10mm
- **Warranty:** 36 months
  - Foot shell - 12 months
  - Glide Sock - 3 months

## Order Example

Product Code	Size	Side	Width*	Spring Set	Sandal Toe
<b>EVAC</b>	<b>25</b>	<b>L</b>	<b>N</b>	<b>3</b>	<b>S</b>

\*For sizes 25-27 only.

For dark tone add suffix D.

Example: foot size 25, left, narrow, spring rating 3, sandal toe.

### Spring Set Selection

Activity	User Weight								Foot Spring Set
	44-52 (100-115)	53-59 (116-130)	60-68 (131-150)	69-77 (151-170)	78-88 (171-195)	89-100 (196-220)	101-116 (221-255)	117-125 (256-275)	
3	1	2	3	4	5	6	7	8	

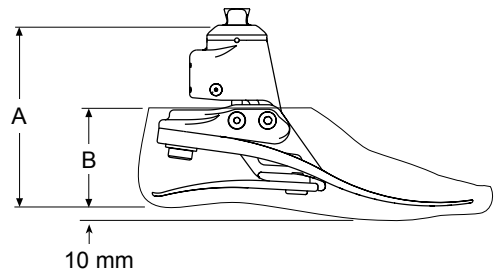
\*Dependent on local reimbursement guidelines. May not be suitable for running or high impact activities.

<sup>†</sup>Component weight shown is for a size 26cm without footshell.

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Suitable for outdoor use



Size	A	Size	B
22-24	121 mm	22-26	65 mm
25-26	126 mm	27-28	70 mm
27-30	131 mm	29-30	75 mm

## References

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**Patent numbers:** US8308815, GB2536056 App, EP2124843 App, EP2124842 App, US8574312, US7985265, US8740991, US8641780, JP5336386, JP5560045, WO 2007/054736, WO 2008/071975, WO 2008/103917

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An annual visual inspection is recommended. Check for visual defects that may affect proper function. Maintenance must be carried out by competent personnel. Please check with your clinician before carrying out any new activities of daily living that you have not received training for with your EchelonVAC.