



echelon

The award winning biomimetic foot with hydraulic control that flows with your body motion.



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The Echelon foot has been recognised by many prestigious organisations for the benefits that the innovative design brings to amputee users. The Queen's Award, Mac Roberts nomination and recognition from organisations within the P&O industry all cited the positive impact the foot has on mobility, comfort and activity. We are delighted by this response but even more proud about the user feedback telling us how much the people who wear the echelon love the foot.



Hydraulic control adapts foot position to terrain requirement. It also allows the toe to move downwards or tuck in for sitting.

Tripod spring system combined with the natural ankle motion conforms effectively to all terrain

Plantar-flexion and Dorsi-flexion stiffness adjusters.

Independent e-carbon heel and toe springs for efficient energy management

Outdoor dynamic subject-specific evaluation of internal stresses in the residual limb: Hydraulic energy-stored prosthetic foot compared to conventional energy-stored prosthetic feet

Sigal Portnoy, Anat Kristal, Amit Gefen, Itzhak Siev-Ner: Gait and Posture (2011), No of 5 pages

Walking speed related joint kinetic alterations in trans-tibial amputees: impact of hydraulic 'ankle' damping
Alan R De Asha, Ramesh Munjal, Jai Kulkarni and John G Buckley: Journal of NeuroEngineering and Rehabilitation 2013, 10:107

* Toe clearance when walking in people with unilateral transtibial amputation: Effects of passive hydraulic ankle
Louise Johnson, PhD; Alan R. De Asha, MSc; Ramesh Munjal, FRCS; Jai Kulkarni, FRCS; John G. Buckley, PhD: JRRD, Volume 51, Number 3, 2014 Pages 429-438

Attenuation of centre-of-pressure trajectory fluctuations under the prosthetic foot when using an articulating hydraulic ankle attachment compared to fixed attachment
Alan R. De Asha, Louise Johnson, Ramesh Munjal, Jai Kulkarni, John G. Buckley: Clinical Biomechanics, No of Pages 7

The Echelon foot is a unique prosthetic device, which provides self-alignment of the artificial limb on varied terrain and following footwear changes without the need for external power sources. This benefits the amputee in a number of ways:

- It improves knee stability on all surfaces, making walking safer and increasing confidence.
- The Echelon reduces the interface pressure between the prosthetic and the residual limb, thereby reducing pain and discomfort.
- Promotes greater involvement of the prosthetic side in walking.
- Reduces gait deviations and decreases the amount of work required from the muscles for efficient walking.
- Enables a greater range of self-selected walking speeds.
- Allows good posture when standing on inclines because it flexes to the slope so the user doesn't need to accommodate unnaturally at proximal joints.

Natural ankle control

Humans have an extraordinary ability to balance when standing and walking on various surfaces. When considering a snap shot moment in walking, the human locomotor system appears inherently unstable, yet neuromuscular control acts fluidly to preserve balance.

An amputee provided with a fixed ankle prosthesis loses the benefits of dynamic control, particularly when choosing to walk on uneven terrain rather than a flat surface. The Echelon foot naturally restores the individual's ankle control strategy and returns the sensation of stance stability and confident toe clearance. This means safer gait and reduced risk of falling.*



The echelon toe remains dorsi-flexed after toe off to enhance swing phase clearance.



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SPECIFICATIONS

Max. Amputee weight:	125kg
Activity level:	3
Size range:	22cm-30cm
Component weight:	688g†
Build height:	115mm sizes 22-24 120mm sizes 25-26 125mm sizes 27-30
Heel height:	10mm

ORDER EXAMPLE

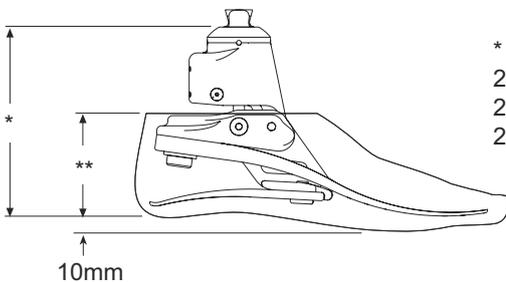
EC

25L
Side
size

5
Spring
set

For dark tone add suffix D.
Foot example: echelon,
size 25 left, spring rating 5

BUILD HEIGHT



* sizes
22 - 24 = 115mm
25 - 26 = 120mm
27 - 30 = 125mm

** sizes
22 - 24 = 70mm
25 - 30 = 75mm

Users at Level 2 and 4 activity who would benefit from this foot will require softer or stiffer springs as appropriate for the individual.

Spring set recommendations are for trans-tibial users. For trans-femoral we suggest selecting a spring set one level lower.

Activity
3

User Weight

44-52	53-59	60-68	69-77	78-88	89-100	101-116	117-125	kg
100-115	116-130	131-150	151-170	171-195	196-220	221-255	256-275	lbs

1	2	3	4	5	6	7	8
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Spring
set

†Component weight shown is for a size 26cm without footshell. Patents: US: 6719807, 8574312, 8740991. EU/RoW: 5336386, 1149568.



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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.