allard
Support for better life!

Discover Meracus®

100% composite precision for a seamless gait experience

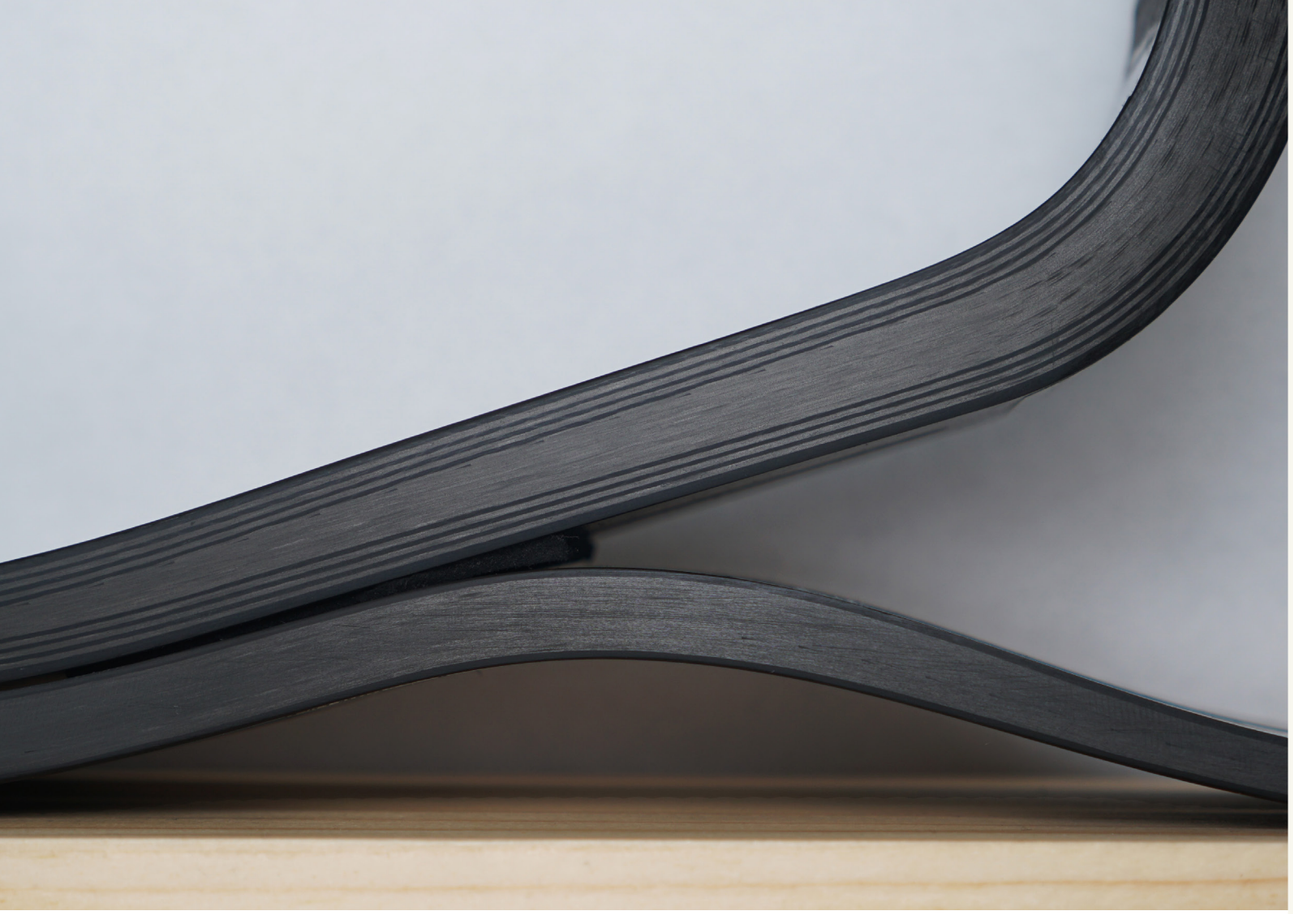
Pure composite. Pure motion.

Meracus® — a new prosthetic foot from Allard

Looking for the best for your patients? With Meracus® you can offer them the opportunity to move smoothly with balanced energy return with every step they take.

Introducing Meracus®, brought to you by the dedicated team behind the Allard AFO. This unique prosthetic foot is custom-crafted from 100% composite materials, free from metal joints or extraneous components. The pure composite design combined with a rocker heel and toe facilitate a smooth transition from heel strike to toe-off, ensuring a fluid, natural and confident stride.

Let your patients experience a seamless gait with Meracus® and join us in our mission to provide Support for Better Life!



We know composite technology

At Allard we have nearly three decades of experience with producing functional dynamic orthotics from composite materials, also commonly used in aerospace, civil and military engineering, and motorsports. Our expertise in composite materials and processing techniques allows us to enhance both manufacturing efficiency and quality. With our unique competence of combining carbon and glass fibers of various functionality, we are able to craft composites of the highest standard and target specific mechanical properties in our materials. Mastering the art of lay-up and fiber selection gives our designers great freedom to shape products for optimal function. Our state-of-the-art facility employs the latest manufacturing techniques and equipment, and we have a fully equipped QA laboratory to ensure the highest product quality. By eliminating voids in the laminates, which can negatively impact mechanical properties, we have significantly improved our products over time.

Today, all our composite products are made using 100% renewable energy. Our commitment to continuous improvement ensures that we will develop even better products in the future. Our expertise and experience in composites and orthotic products have enabled us to confidently develop and launch an innovative new prosthetic foot.

Meracus® – a prosthetic foot for everyday activities

Meracus® is a dynamic response foot that features a low build height, J-shaped keel, extended heel lever, roller shape, and a unique innovation to join the heel and keel together, made from 100% composites. The Meracus® foot's dynamic properties simulate the anatomical foot by providing shock absorption during heel strike, a smooth transition to a stable stance phase, a smooth roll-off of the forefoot and an efficient energy return during push-off.

Meracus® is well suited for individuals with the ability, or potential, for ambulation with variable cadence. Typical of the community ambulator who has the ability to traverse most environmental barriers and may have therapeutic or exercise activity that demands prosthetic utilization beyond simple locomotion.

Meracus® contributes to:

- a smooth and natural walking motion throughout the gait cycle
- support and comfort while standing
- active everyday life due to its versatile features

Meracus® is tested to the latest product safety standard, our foot meets the requirements of ISO 22675.

Lightweight

Dynamic

Adapts to terrain

Waterproof*

**Always rinse Meracus® and the foot shell in fresh water after use in salt or chlorine water, and after contact with any other corrosive elements such as sand.*

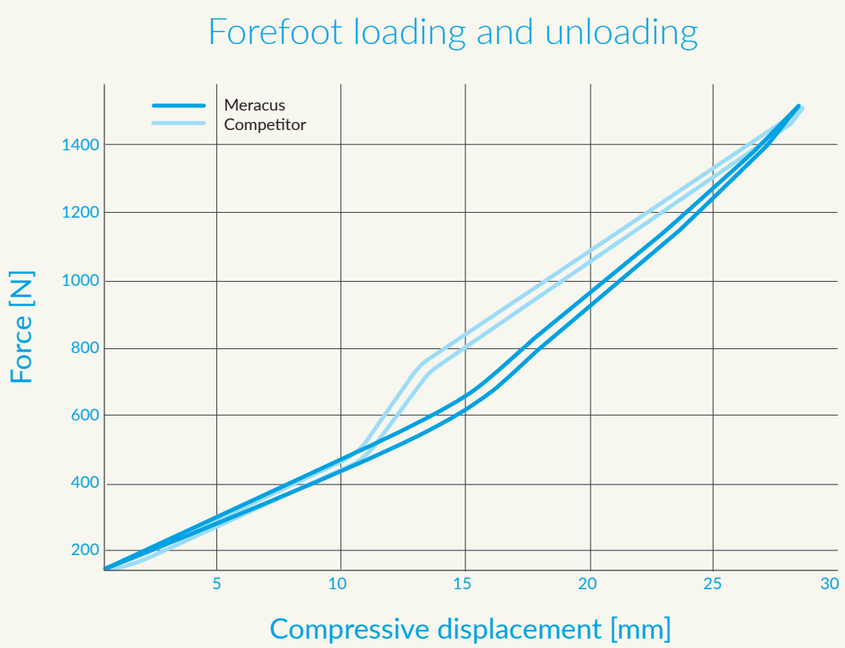
100% composite precision for a seamless gait experience

A prosthetic foot should mimic the actions of the human foot and ankle in all phases of the gait cycle. Meracus® is designed to optimize the walking pattern throughout the gait cycle. With our unique recipe and innovative design, Meracus® provides a seamless gait experience.

Hybrid composite technology

- From the attachment to the toe, the composite design of Meracus® offers a smooth transition and improved dynamic response.
- The lay-up of composites is designed to maximize function and support throughout the gait cycle.
- The heel and keel are joined with composite rivets, a new patent pending innovation that eliminates metal fasteners for improved flexibility and strength.

A smooth and confident walk with 100% composite design

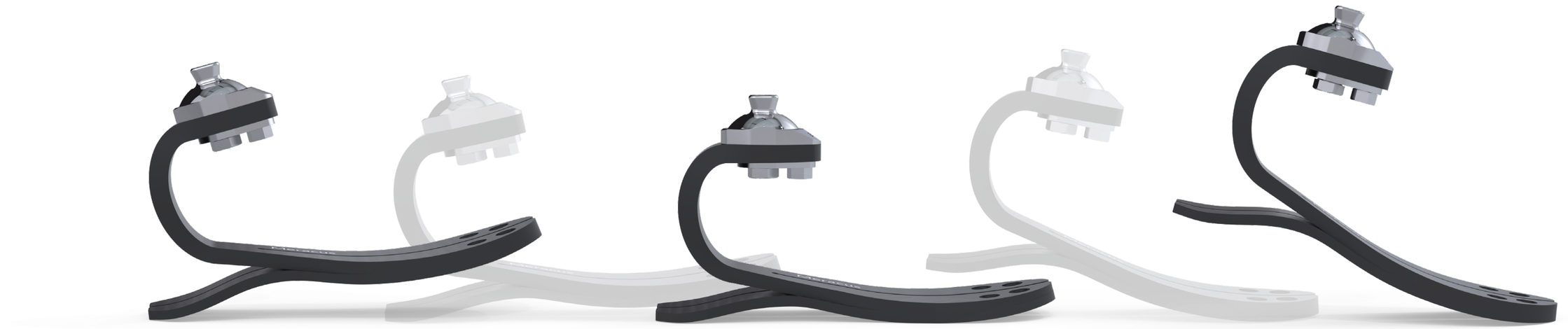


Mechanical tests show that metal fasteners can result in a stiffer product at the forefoot area. With our composite rivet technology, Meracus® presents a deflection that is evenly distributed throughout the forefoot.

”So soft and flexible, feels like my own foot!”

– 53-year-old lower leg amputee

Design innovations for flexibility and stability throughout the gait cycle



Extended heel lever design

Flexible J-shape keel

Low profile design

Dynamic roller shape

Loading response

Normally the shock absorption is done by a slight knee flexion, a controlled ankle plantar flexion and a subtalar valgus. For a person with a transtibial (below knee) amputation, the prosthetic foot must act as the two latter. At initial contact, the heel section of the prosthetic foot is deflected upwards.

The relatively long lever arm on the Meracus® heel plate accomplishes a deflection of about 10 mm for a person weighing 70 kg. This deflection pulls the forefoot down towards the ground, enabling the shock absorption and a stable weight bearing and initiates the tibial progression over the foot.

Midstance

When the center of gravity moves forward the deflected heel is restored and pushes the keel forward allowing for tibial progression. When the heel and keel are in total contact the keel starts its deflection and the ankle dorsiflexes. The resistance in the material controls the movement of the lower leg.

Terminal stance

The keel continues to compress when the center of gravity passes through the ball of the foot. The geometry of this area is very much inspired by the Allard AFO, ensuring a natural and smooth roll-over at terminal stance.

The compression of the keel – about 25 mm for a person weighing 70 kg – will load the keel with energy which will be released during pre-swing.

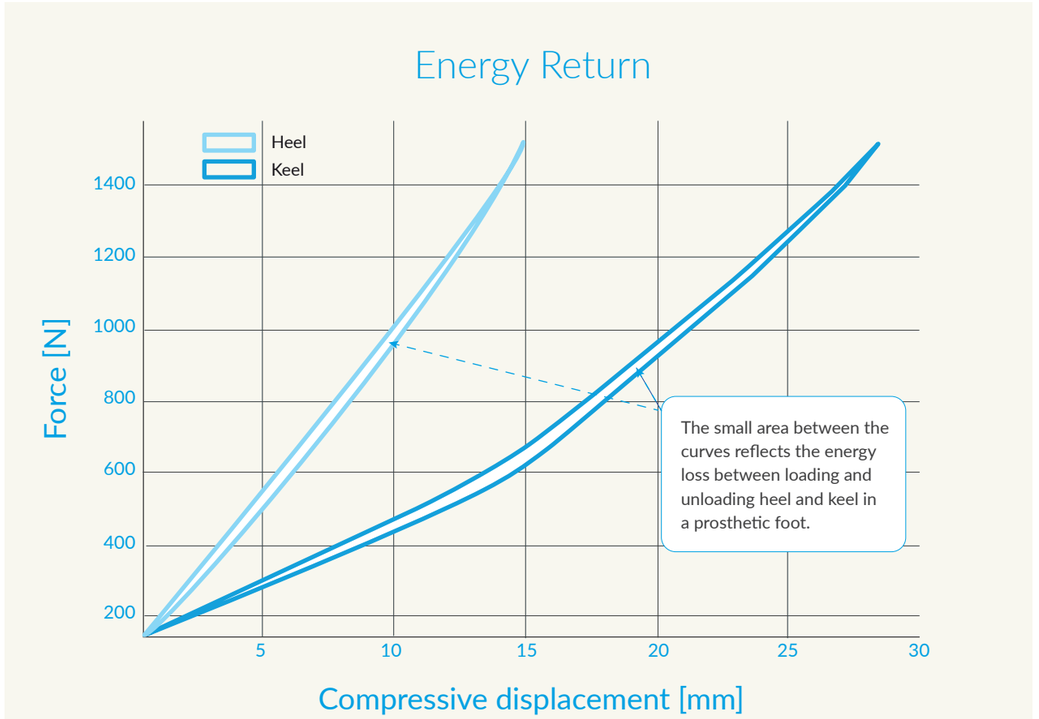
Pre-swing

When unloading the dorsiflexed (compressed) forefoot, the foot releases the energy and contributes to push-off the limb into the knee flexion needed for foot clearance during swing phase.

Effortless movement with over 95% energy return

Meracus® provides an energy return well above 95% (heel ~98%, keel~97%), empowering the user throughout gait. It is well established that the lack of functional ankle musculature in persons with lower limb loss reduces ankle push-off and can decrease walking performance[1,2]. An energy-storing prosthetic foot will assist the foot from heel-strike to midstance and provide push-off at terminal stance, mimicking a healthy foot during walking.

The geometry and lay-up in Meracus® score high in functional energy return. By closing the gap of energy loss between loading and unloading, Meracus® brings dynamics to gait.



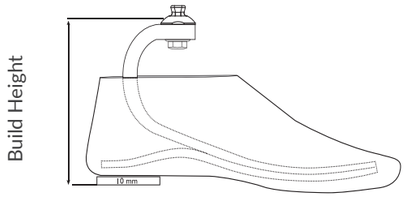
[1] Hashim A. Quraishi, Max K. Shepherd, Leo McManus, Jaap Harlaar, Dick H. Plettenburg and Elliott J. Rouse; A passive mechanism for decoupling energy storage and return in ankle-foot prostheses: A case study in recycling collision energy. Wearable Technologies (2021), 2, e9

[2] Ava D. Segal, Karl E. Zelik, Glenn k. Klute, David C. Morgenroath, Michael E. Hahn, Michael S. Orendurff, Peter G. Adamczyk, Steven H. Collins, Arthur D. Kuo and Joseph M. Czerniecki; The effects of a controlled energy storage and return prototype prosthetic foot on transtibial amputee ambulation. Hum Mov Sci. 2012 August; 31(4): 918-931

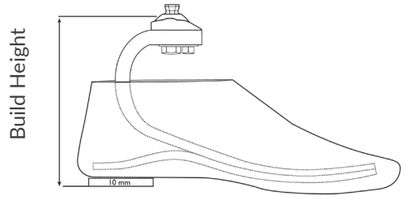
Product Selection Guide

Selection chart

Weight, kg Weight, lbs	≤60 ≤132	≤80 ≤176	≤100 ≤220	≤125 ≤275	≤150 ≤330
	Standard Pyramid Adapter			Extended Pyramid Adapter	
Size 23 Build height	23P3 125mm	23P4 125mm	23P5 125mm	Not available	
Size 24 Build height	24P3 125mm	24P4 125mm	24P5 125mm	24P6 133mm	Not available
Size 25 Build height	25P3 132mm	25P4 132mm	25P5 132mm	25P6 140mm	25P7 140mm
Size 26 Build height	26P3 132mm	26P4 132mm	26P5 132mm	26P6 140mm	26P7 140mm
Size 27 Build height	27P3 136mm	27P4 136mm	27P5 136mm	27P6 144mm	27P7 144mm
Size 28 Build height	Not available	28P4 136mm	28P5 136mm	28P6 144mm	28P7 144mm



Standard pyramid adapter, build height 125-136mm



Extended pyramid adapter, build height 133-144mm

Our selection chart is based on testing at each weight level. If a stiffer foot is preferred, you may move up one weight category. When choosing a product, also consider the user's daily activities, such as heavy lifting in connection with work or leisure activities/sports. Please note that changing from P5 to P6 results in an 8mm increase in build height.

Example:

26P5	→ 26P6
136mm	→ 144mm

Item No.	Model	P-level	Size
29000	Meracus® Prosthetic Foot	P3-P7	23-28
29002	Meracus® Foot Shell	-	23-28
29006	Spectra Sock, Black	-	One Size

Scan or click for a complete list of item numbers.

Support for Better Life

Everyone should be able to live their life to the fullest, regardless of their mobility challenges. With innovative solutions developed in close collaboration with healthcare professionals and patients, we strive to provide Support for Better Life.

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