

Custom Options Address Challenging Cases

The wide array of prefabricated prosthetic liners available today can meet the needs of the majority of amputees. However, there are times when only a custom liner can do the job.

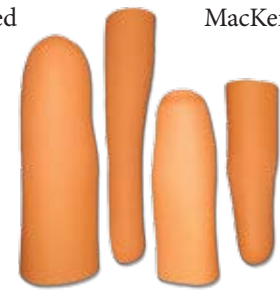
By Miki Fairley

For amputees with short, scarred, bony, invaginated, or unusually shaped residual limbs, or those with sensitive skin or skin breakdown problems, a custom liner may be the best solution.

Some manufacturers offer fabrication services; others include products that can be designed or customized at the practitioner's facility. For example, the custom liner from **Evolution Liners**, Orlando, Florida, has a silky surface that allows the liner to slide on itself, making it easier for the patient to don and doff, explains CEO Craig MacKenzie, CP. There is no coating to crack, peel, or wear off, and no cover to tear or run, he adds. The liners are available in cushion and locking designs and can be made from a negative cast, positive cast, or an AOP file.

"For best results, we ask that the cast or AOP scan be in little or no flexion with very little or no hand modifications," says MacKenzie. "Once the liner is made, the prosthetist should cast the socket over the liner using the mild hybrid technique. It is

best to cast over the liner that will be used in the final product because the liner is going to distort the tissue as it will be in the final product." Complete casting instructions are available on the company's website, www.evolutionliners.com, by clicking on the "downloads" button.



Photograph courtesy of Evolution Liners.

MacKenzie adds a tip for fitting the check socket: "Many of our customers are using Crisco shortening on the inside of the socket. As the patient steps into the check socket, the air is expelled through a small hole in the bottom, allowing the shortening to flow to the areas of low pressure. The shortening is white, making the areas of low pressure very visible, allowing the prosthetist to mark the areas on the check socket. Once the modifications, if any, are complete, the liner can be cleaned and a regular sheath and sealing sleeve can be used."

Otto Bock HealthCare, Minneapolis, Minnesota, fabricates both silicone and urethane custom liners. Scott Weber, MS, U.S. marketing manager for prosthetic feet and socket technologies,

offers casting advice for best results. Although liners typically go above the knee, Otto Bock receives many casts that are only below-knee for transtibial amputees. However, an amputee might have quadriceps that are smaller than his knee, so Weber urges customers to cast or scan as high as they want the liner to go.

Weber recommends vacuum casting. After the plaster is put on the limb, a bag is placed over it and vacuumed, pulling the bag tight around the plaster. "This technique doesn't cause compression and captures the true anatomy," Weber says. "It is basically hands-off, which eliminates the tendency to manipulate the cast. We've actually gotten casts with imprints of the practitioner's fingers in the cast."

Otto Bock also can fabricate what it calls a "Shape Plus" custom urethane liner, which can include Symes and knee disarticulation where the distal end may be larger, as well as liners with knee flexion, Weber says.

A recent innovation from **Alps Corporation**, St. Petersburg, Florida, the Thermoliner, available in locking and cushioning, can be custom-molded at the prosthetist's facility to the configuration of the user. The gel liner works in conjunction with valve suction socket systems.

Ohio Willow Wood, Mount Sterling, Ohio, offers its Alpha*

DESIGN liners, which enable prosthetists to design their own custom liner specific to each patient's individual needs, completely controlling the thickness and pattern of gel where needed in the liner to fill invaginations and add extra protection over bony prominences or sensitive areas. Alpha DESIGN liners are available in cushion and locking for both transtibial and transfemoral amputees.

Prosthetists can create detailed liners by using OMEGA* Tracer* by Ohio Willow Wood, its web-assist program, or by plaster casts with electronic or hand-completed order forms, available at www.owwco.com. A new socket should be fabricated according to instructions for the best performance of an Alpha DESIGN transtibial liner, the company notes. DESIGN liners created from plaster casts with order forms will be slightly less detailed.

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Editor's note: The O&P EDGE does not endorse any company or product. Companies and products mentioned in this article are for reader information only as a representative sample of the range of liner designs and materials currently available. This article does not provide complete coverage of manufacturers providing custom prosthetic liners.

[evolve]
[the evolution continues]

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