

Specifiche Premio Accessibilità Sostenibilità Qualità della Vita



Nome Prodotto

Progettista

Azienda Produttrice

Campo di attività

Certificazioni

Azienda distributrice

Indirizzo

Telefono

Fax

Indirizzo e-mail

e dell'innovazione
Web page

Descrizione del prodotto

Materiali

Dimensioni

Tecnologia / Funzionamento

Benefici per l'ambiente

Benefici per la persona

Altri prodotti che seguono criteri di innovazione accessibile e sostenibile per una migliore qualità della vita

X-Finger

Dan Didrick

Didrick Medical Inc.

Didrick Medical has developed and distributes the worlds only funtional prosthetic fingers for finger amputees.

Bachelor of Science - Heidelberg University

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The X-Finger is the first functional artificial finger designed specifically for finger amputees. Each device is body-powered and require no electronic components to operate. The movement of each residual finger controls the flexion and extension movements of the artificial phalanges. When a finger is entirely missing, an opposing finger controls the movement. When all of the fingers are missing the movement of the palm controls the movement of the fingers. The independently controlled artificial fingers move as quickly as the users prior fingers restoring considerable dexterity.

Until now, the only prosthetic option available for finger amputees was cosmetic. While these prostheses look incredibly realistic, they do not flex or extend as they are fabricated entirely from silicone. Our low profile mechanical devices fit within the confines of hollow cosmetic fingers allowing them to operate for the first time. The X-Finger enables users to once again type, play a musical instrument and most importantly continue to be productive members of society.

The substructure of each device is machined from stainless steel. There are two outer components that are fabricated from plastic which hold the shape of each phalange. The completed assemblies are then inserted into a biodegradable glove for added realism.

Each device is custom assembled to fit each patient individually. Devices range in sizes from a small child's hand to a large adult's hand. The average sized assembly is approximately 10cm x 2cm x 2cm.

To fabricate a device, a cast of the patient's hand must be sent to our facility. For many cases, previously machined components can be assembled to complete a device. For custom or complex cases, the hand casts are scanned using a 3D scanner. When a hand cast is scanned, a 3D model of the physical hand cast can be imported into CAD (computer aided design) programs. This enables custom devices to be designed directly over the patient's hand model using a computer. When the design is complete, the drawing are used as measurements to have the components machined from stainless steel. Once complete, the components are assembled and shipped to the patient's practitioner for application.

Our cosmetic gloves used to cover the X-Fingers are the first prosthesis to be fabricated using a new biodegradable material. Not only does this allow us to create environmentally safe products, but also prove new concepts inspiring other companies to follow suit. This material is extremely soft and will conserve battery life in mioelectric arms, as well as conserve the longevity of all prosthetic devices as less force is required to flex or stretch this material

Nearly 1 in every 150 people have suffered the loss of at least one finger. It has been estimated that individuals with limited use of their hands earn approximately half of those with full use of their hands. The X-Finger will enable finger amputees to continue to be productive members of society and continue to support themselves and loved ones.

They are currently in the process of developing an expandable device. This will be of significant importance for the pediatric market. Children are often not fit with finger prosthesis as they outgrow them too quickly. The device I am developing will essentially "grow" with the child allowing them continued use for many years.

