Polypropylene endoskeletal lower limb prosthetic system

Country of origin | Switzerland

Health problem addressed

Due to road traffic injuries, wars and conflicts, non-communicable diseases and other health conditions, many people with disabilities have limited mobility and are in poor health. Nearly 35 million people in the world are in need of orthopaedic (prosthetic/orthotic) devices to improve mobility and their overall health. Among them, only 5-15% in low and middle income countries have access to one.

Product description

The system is a set of specially designed polypropylene components to fabricate/fit lower limb prosthesis (artificial limb) for people with lower limb amputation. Usually, it comes in two varieties: 1) Trans-tibial (below-knee) and 2) Trans-femoral (above knee) amputation. The system consists of a foot piece, convex ankle, two concave cylinders, convex disc, cylindrical TT cup, flat steel washer and countersunk head bolt, lock washer and a knee unit in case of Trans-femoral (above knee) prosthesis.

Product functionality

The modular endoskeletal components are mostly made out of polypropylene and available in different sizes. It also comes with a prosthetic foot and other necessary materials for fabrication of the socket and cosmetic cover. A trained prosthetist fabricates the socket, selects the needed components, assembles those to make the prosthesis as per measurement and then does the fitting.

Developer's claims of products benefits

The product is affordable, durable, comfortable, easy to use and to maintain. It has a long shelf life and at the same time, recyclable. It is compatible with different climatic regions of the world.

Development stage

Products are available on the market and are being used in more than 100 projects all around the world. The product has the ISO Norm 10328 certificate by C.E.R.A.H. The product has been evaluated by the International Society for Prosthetics and Orthotics (ISPO).

Future work and challenges

Future work includes development of an advanced prosthetic foot, knee and a hip joint.

Use and maintenance

User: Self-use

Training: Short training on use and maintenance

Maintenance: On-site every 1-2 years

Environment of use

Settings: Rural, urban, at home; for indoor and outdoor use.

Product specifications

Dimensions (mm): Components come with different sizes to accommodate all age groups.

Weight (kg): Trans-tibial 2 kg; Trans-femoral 5 kg

Consumables: Polypropylene sheets, assembly items

Life time (years): 3

Shelf life (years): Feet 18 months. Remaining components between 3-5 years depending on storage quality

Retail price (USD): Trans-tibial 150, trans-femoral 275

List price (USD): Trans-tibial 150, trans-femoral 275

List price of consumables (USD): Foot+consumables 80

Other features: Portable, continuous-use

Year of commercialization: Concept emerged in 1993, developed further since then and the development work on prosthetic foot, knee and hip is still ongoing.

Currently sold in: 72 low, middle and high income countries

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