

Prosthetic Parts

The type of amputation you have and the type of prosthesis you have been prescribed will determine what components are used to fabricate your device. Basic components include the following:

SOCKET: Fits over your residual limb and joins your residual limb to the prosthesis. It may be custom made from a plaster or fiberglass cast of your residual limb or manufactured based on computer measurements. Getting the socket fit right is critical for successful prosthesis use. If your residual limb changes shape or size due to swelling, muscle atrophy, or weight fluctuations, changes and adjustments to your socket are likely.

SOCK or LINER: An interface that goes between your skin and the socket to help prevent shear and friction. It may be made from fabric, silicone gel, or foam and may contain material with antimicrobial properties.

SUSPENSION SYSTEM: This holds your prosthesis on your residual limb. Various suspension systems are available, including belts, straps, and bands; anatomical suspension; suspension sleeves; locking pin mechanisms; suction systems; and vacuum-assisted suspension. Each type has advantages and disadvantages, and your choice will depend on several factors including cost, aesthetics, lifestyle, amputation type, activity level, and goals.

SHAFT or PYLON: This connects your socket to a terminal device.

TERMINAL DEVICE: A hand, hook, or device that attaches to the end of your upper-limb prosthesis to help you accomplish special activities.

COSMESIS: An optional cosmetic cover that is designed to look like a natural limb and is worn over the prosthesis.

Components that are specific to a level of amputation include the following:

FOOT: Prosthetic feet generally fall into the following categories:

- **Solid ankle cushioned heel (SACH):** A low-impact foot that provides a natural appearance but little or no movement during walking. Considered for someone whose functional level is one or above.
- **Single-axis:** A low-impact foot that moves up and down for increased stability; it allows for steady walking on a variety of terrain. Considered for someone whose functional level is one or above.
- **Multi-axis:** A moderate-impact foot that moves up and down and side to side. Considered for someone whose functional level is two or above.
- **Dynamic response:** A high-impact foot that stores and releases energy during walking and running. Considered for someone whose functional level is three or above.
- **Multiaxial dynamic response:** A high-impact foot for very active ambulators. Considered for someone whose functional level is three or above.



KNEE: If you have an AK amputation, you will need a prosthetic knee. Knee systems include simple hinged knees, safety knees that lock, heavy hydraulic knees that allow rotation, and more expensive and high-tech knees controlled by microprocessors with sophisticated software. There are two basic types of prosthetic knees:

- **Mechanical knees** use a mechanical hinge to replace the knee joint. A locking mechanism, friction, or a hydraulic system is used to control how quickly and easily the knee joint swings.
- **Microprocessor-controlled knees** use a computer inside the knee to monitor and control fluid (hydraulic) or air (pneumatic) inside the knee. This constant control allows for fast, automatic resistance adjustments so that users can walk at various speeds and navigate environmental barriers more safely.

ARM: Upper-limb prosthetic systems also vary:

- **Body-powered prosthetic limbs** use cables, harnesses, and straps to control terminal devices.
- **Myoelectric systems** use electrodes and muscle contractions to create movement.
- **Robotic limbs** are extremely sophisticated and run on rerouted muscle nerves or brain signals. These limbs are sometimes called "bionic."