

## Electronic Knee

### Introduction

Electronic Knee is an intelligent prosthetic device for trans-femoral (above knee) amputees. For adaptive gait, the knee adapts to patient movement style in real time with the integration of indigenously developed electro-goniometer, force resistive sensor and accelerometer in order to control the swing phase dynamically. The Electronic Knee consists of sensor like electro-goniometer and force resistive sensor and accelerometer as sensor mechanisms. Knee is based on controlling a swing phase using a pneumatic cylinder mechanism attached with the embedded control mechanism to its control its flow control valve. The required energy to extend the knee into new gait cycle is provided by a spring mechanism. Three variants (electronic sensor, remote and mechanical) of knee have been developed.



### Features

- Mechanical with valve control.
- Electronic knee joint with remote control.
- Electronic knee joint with three sensors (electrogoniometer, force sensitive resistor and accelerometer).

### **Application**

Electronic Knee is an intelligent prosthetic device for trans-femoral (above knee) amputees. The device assists persons involved in activities requiring a high level of stance stability.

### **Status**

- Field testing done.
- Technology transferred to M/s Walnut Medical Pvt. Ltd., Ambala.

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