

**ottobock.**

# Advanced microprocessor knees

4 people. 4 unique lifestyles. 4 perfect solutions.





## Designed for life

People have covered a lot of ground using intelligent microprocessor knees from Ottobock. Since introducing the world's first microprocessor knee 20 years ago, more than 70,000 Ottobock MPK users worldwide have walked nearly 120 million miles. That's almost 250 round trips from the earth to the moon!

With nearly 25 years of practical experience and dedicated research, Ottobock has created a family of unmatched microprocessor knees. While all Ottobock MPKs include sophisticated features like Inertial Motion Unit control, Intuitive Stance, and Stumble Recovery, each knee is tailored to meet the unique needs of a specific group of active users.

**Help your patients to reclaim their lives.**



#### This is Kenevo

- Kenevo's revolutionary control method supports small, shuffling steps and is not influenced by the use of walking aids
- Its Stumble Recovery Plus provides a high degree of safety
- Five essential functions intuitively support everyday movements like sitting down or standing up
- A special wheelchair mode makes it easy to maneuver while seated
- Kenevo can easily be adjusted as individuals become more active, or if they require more assistance
- One suitable combination possibility is the lightweight and stable Terion K2 prosthetic foot



The use of microprocessor technology reduces the risk of falls in the K2 population by up to 80%, and significantly reduces fall risk.<sup>1,2,3</sup>

# 1 home. 2 free hands. 1 Kenevo.

#### Meet Christa

- Christa is mainly active around her home environment and nearby familiar places
- She requires stability and a high degree of safety with every step
- Her gait is rather consistent, and she occasionally uses a walking aid or a wheelchair
- Christa's strength and coordination skills are limited, yet she takes pride in managing her daily chores independently

**Reclaim your sense of security.**



### This is C-Leg

- C-Leg's patented technology allows an easy transition from stance to swing, even on changing terrain
- It monitors every move and is ready to respond with optimized stumble recovery
- C-Leg offers a choice of two different stance functions for stability and comfort
- It is weatherproof and protected against occasional exposure to fresh water
- C-Leg's clinical benefits are proven in lab (more than 40 studies<sup>4</sup>) and in life (more than 60,000 fittings)



## 2 buddies. 100% confidence. 1 C-Leg.

### Meet Robert

- He confidently navigates mostly familiar environments like his home, office or local community
  - He relies on his knee to keep up when he needs to pick-up the pace
  - When walking in a crowded environment, he needs to be able to change direction and step backward quickly and with confidence
  - He doesn't want to worry about getting caught in the rain
- Stability in day-to-day activities is important for Robert, so trust in his prosthesis is key.

### Reclaim your determination.



#### This is Genium

- Genium's swing phase behavior is highly reliable in changing environments, on uneven terrain, slopes and ramps or when changing footwear<sup>5</sup>
- Genium enables stair ascent with a natural, easy to learn, proven step-over-step pattern<sup>5</sup>
- From toys in the living room to tree roots along the trail, step over obstacles with ease
- Genium's clinically proven Optimized Physiological Gait leads to a more symmetrical gait pattern with less stress on the back, the sound side, and the hip on the prosthetic side<sup>5</sup>
- From taking very small steps up to sprinting over short distances, Genium supports all cadences
- Smart energy management enables a longer battery life — up to five days on average



# 16 hours of family fun. 4 environments. 1 Genium.

#### Meet Jenny

- Jenny navigates changing and unknown environments where she doesn't always know what to expect
- She relies on her prosthesis to adapt to her surroundings, whether it is urban or rural or if she is at the playground or on a business trip
- Every once in a while she covers longer distances requiring physical stamina
- She needs to be able to move quickly when life demands it
- Her active lifestyle needs to be supported by a prosthetic solution that minimizes charge time and maximizes go time

#### Reclaim your strength.



### This is X3

- X3 supports an extremely wide range of activities — from work to sport to showering
- Its robust and corrosion-resistant design helps to complete daily tasks without worrying about damage
- X3 offers the highest degree of intuitive function and is easily controlled with an Android app
- X3 supports all cadences from small steps to long running strides
- It is fully functional while submerged in fresh or salt water (IP68 allows for submersion up to 3 meters for up to 1 hour)



## 9 patients. 2 shifts. 1 X3.

### Meet John

- John's life requires him to navigate varying and sometimes challenging environments
- Trust in his prosthesis is key so his focus can be on more important things like being at home with family or at work in the operating room
- Staying fit and leading a healthy lifestyle is something he strongly values
- On long working days, he benefits from greater endurance and independence from daily charging
- Even when he's in the water, John expects stability and safety from his prosthesis

**Reclaim all you want to be.**

# A Powerful MPK Portfolio Designed to Fit Every Activity Level



	<b>Kenevo</b>	<b>C-Leg</b>
<b>K-Level/MOBIS Level</b>	2 / 1, 2	3, 4 / 2, 3, 4
<b>Weight Limit</b>	275 lbs/125 kg	300 lbs/136 kg
<b>Environments Navigated</b>	Familiar, controlled and unvaried	Mostly familiar
<b>Walking Speed</b>	Walking < 1.9 mph (3 km/h)	Walking < 1.9 mph (3 km/h) with variable cadence
<b>Stance Support</b>	Locked or Intuitive Stance	Intuitive or Manual Stance
<b>Stumble Recovery</b>	✓	✓
<b>Battery Life</b>	Approx. 1 day*	Approx. 2 days*
<b>Inductive Charging</b>	✓	
<b>Knee Weight (without pylon)</b>	2 lbs/920 g	2.7 lbs/1.2 kg
<b>Knee Height (with shortest possible pylon inserted)</b>	11.5"	11.25"
<b>Compatible Pylon</b>	2R17	2R57, 2R67
<b>Maximum Knee Flexion Angle</b>	124°	130°
<b>Moisture Protection</b>	Protected against dripping water with IP 22	Weatherproof with IP 67
<b>Corrosion Resistant</b>		
<b>Clinically Proven OPG</b>		
<b>Stairs and Obstacle Function</b>		
<b>Running Capability</b>		
<b>Number of My Modes</b>		2
<b>User App Available</b>		✓
<b>Service Requirement</b>	36 <sup>th</sup> month, condition-based**	36 <sup>th</sup> month, condition-based**

	<b>Genium</b>	<b>X3</b>
<b>K-Level/MOBIS Level</b>	3, 4 / 3, 4	3, 4 / 3, 4
<b>Weight Limit</b>	330 lbs/150 kg	275 lbs/125 kg
<b>Environments Navigated</b>	Changing	Changing and occasionally demanding
<b>Walking Speed</b>	Walking > 1.8 mph (3 km/h) with variable cadence up to limited running steps	Walking > 1.8 mph (3 km/h) with variable cadence up to running/jogging
<b>Stance Support</b>	Intuitive or Deliberate Stance	Intuitive or Deliberate Stance
<b>Stumble Recovery</b>	✓	✓
<b>Battery Life</b>	Approx. 5 days*	Approx. 5 days*
<b>Inductive Charging</b>	✓	✓
<b>Knee Weight (without pylon)</b>	3 lbs/1.4 kg	3.8 lbs/1.7 kg
<b>Knee Height (with shortest possible pylon inserted)</b>	12"	12"
<b>Compatible Pylon</b>	2R20, 2R21	2R19
<b>Maximum Knee Flexion Angle</b>	135°	135°
<b>Moisture Protection</b>	Weatherproof with IP 54	Waterproof and fully functional under water with IP 68
<b>Corrosion Resistant</b>		✓
<b>Clinically Proven OPG</b>	✓	✓
<b>Stairs and Obstacle Function</b>	✓	✓
<b>Running Capability</b>	Walk to run	Running mode
<b>Number of My Modes</b>	5	5
<b>User App Available</b>	✓	✓
<b>Service Requirement</b>	24 <sup>th</sup> month	12 <sup>th</sup> and 24 <sup>th</sup> month

\*Daily charging recommended.

\*\* Service may occur sooner if knee reaches specific condition based thresholds

# Make more out of it

Pair a microprocessor knee with a range of compatible mechanical and mechatronic foot options. Find below the combination proposals recommended by Ottobock.



Activity level	Feet	Kenevo	C-Leg 4	Genium	X3
Low	1M10 Adjust 	✓	-	-	-
	1C11 Terion K2 	✓	✓	-	-
Moderate	1C30 Trias 	-	✓	✓	-
Active to moderate	1C62 Triton Harmony 	-	✓	✓	✓
	1C63 Triton Low Profile 	-	✓	✓	✓
	1B1 Meridium 	-	✓	✓	-
	1C66 Triton Smart Ankle 	-	✓	✓	-
Active	1T01 TaiLor Made 	-	✓*	✓	✓
	1C61 Triton Vertical Shock 	-	✓	✓	✓
	1C64 Triton Heavy Duty 	-	✓	✓	✓
	1C60 Triton 	-	✓	✓	✓

\*Size range limited to 21-27 for C-Leg 4 and TaiLorMade

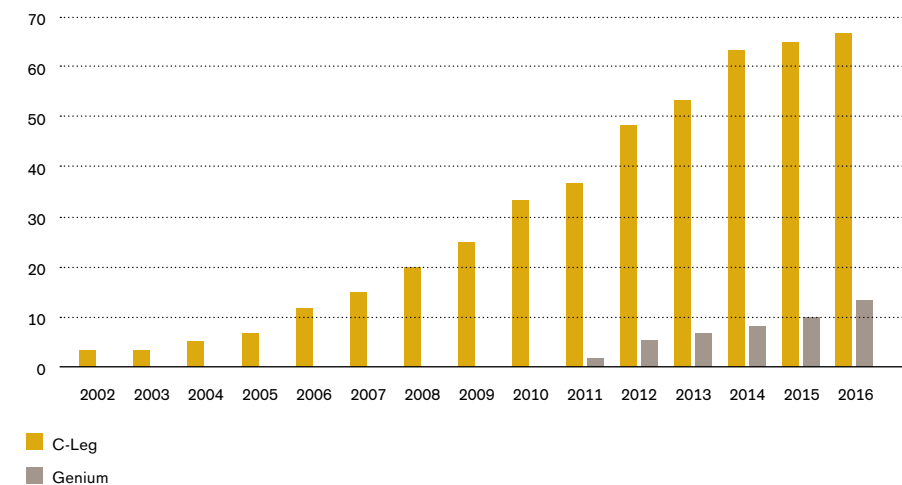
# Clinically proven

Our advanced prosthetic knees have undergone thorough clinical research at some of the world's leading hospitals and universities. Numerous biomechanical analyses and clinical studies compare products and treatment methods with respect to their safety and performance.

## Clinical publications for C-Leg and Genium/Genium X3

- C-Leg and Genium have been investigated in combined total of 66 published studies
- 54 publications clearly demonstrate the benefits of C-Leg over other prosthetic solutions in terms of safety and function
- 12 publications prove the superiority of the Genium family over C-Leg as a long-term industry standard

## Accumulated study publications



	Total number of publications	Functions and Activities							Participation	Environment	
		Level walking	Stairs	Ramps, hills	Uneven ground obstacles	Cognitive demand	Energy	Safety	Activity mobility ADL	Preference satisfaction QoL	Health economics
C-Leg	66	27	19	15	11	6	11	21	18	21	6
Genium	13*	7	8	8	5	0	0	6	3	2	0

\*Includes 1 publication with focus on osseointegration

See for yourself: [www.ottobock.com/clinicalresearch](http://www.ottobock.com/clinicalresearch)

## References

- 1 Kannenberg A, Zacharias B, Probsing E. (2014): Benefits of microprocessor-controlled prosthetic knees to limited community ambulators: systematic review. *J Rehabil Res Dev*; 51:1469-1496.
- 2 Kahle JT, Highsmith MJ, Hubbard SL. (2008): Comparison of non-microprocessor knee mechanism versus C-Leg on prosthesis evaluation questionnaire, stumbles, falls, walking tests, stair descent, and knee preference; *J Rehabil Res Dev*; 45 (1): 1-14.
- 3 Hafner BJ, Smith DG. (2009): Differences in function and safety between Medicare Functional Classification Level-2 and -3 transfemoral amputees and influence of prosthetic knee joint control. *J Rehabil Res Dev*; 46 (3): 417-434.
- 4 International C-Leg Studies, published by Otto Bock HealthCare GmbH, 3rd Edition, 2014, 646B33=GB-05-1403.
- 5 Genium/Genium X3, Clinically proven technology, published by Otto Bock HealthCare GmbH, 2016, 646D1109=EN-01-1605.



