

Know the difference: MPKs, water & IP ratings.

Looking to understand how your Microprocessor Knee is protected from the elements? Here are the facts:



Kenevo 3C60*	C-Leg 4 3C88/3C98-4*	Genium 3B1*	X3 3B5-3*	X4 3B5-4*
IP 22	IP 68	IP 67	IP 68	IP 68
<ul style="list-style-type: none"> Electronics are protected from dripping water Mechanical components are not corrosion resistant 	<ul style="list-style-type: none"> Electronics are protected from dust, sand, dirt, and occasional submersion in fresh water (up to 3m for 1hr) Mechanical components are not corrosion resistant 	<ul style="list-style-type: none"> Electronics are protected from dust, sand, dirt, and occasional submersion in fresh water (up to 1m for 30min) Mechanical components are not corrosion resistant 	<ul style="list-style-type: none"> Electronics are fully protected from dust, sand, dirt, and full submersion in all water types (up to 3m for 1hr) Mechanical components are fully corrosion resistant against all water types 	<ul style="list-style-type: none"> Electronics are fully protected from dust, sand, dirt, and full submersion in all water types (up to 3m for 1hr) Mechanical components are fully corrosion resistant against all water types

What is an IP rating?

- An IP “Ingress Protection” Rating classifies the degree to which a device’s electronics are protected against dust, solids, and liquids such as fresh water. It’s important to remember that an IP Rating only refers to the protection of the product’s electronics. Microprocessor knees have both electronic and mechanical parts. Therefore, a fully waterproof knee must also be corrosion resistant to ensure that both the electronic and mechanical parts are protected.

What do the numbers in an IP rating mean?

- The numbers that follow IP each have a specific meaning. The first numeral refers to the protection against solid objects and is rated on a scale from 0 (no protection) to 6 (no ingress of dust).
- The second numeral rates the enclosure’s protection against liquids and uses a scale from 0 (no protection) to 9 (high-pressure hot water from different angles).

Why is corrosion-resistance important?








- When a prosthesis comes in contact with fresh water, salt water, chlorinated water or other corrosive solutions (e.g. soap), it is susceptible to corrosion. Genium X3 and Genium X4 consist of materials with a specific alloy, which makes those knees corrosion-resistant!

Taking care of your prosthesis:

- Each individual user is responsible for maintaining their prosthesis. Even waterproof knees benefit from regular care. When prosthetic components are exposed to corrosive elements such as chlorinated water or salt water, the components should be thoroughly rinsed with fresh water, drained of excess moisture, and then dried with a lint-free towel.

For more details, please refer to the products’ respective Instructions for Use.











First Digit:
Indicates level of protection that the enclosure provides against ingress by solid foreign objects

0		No protection
1		Protected against solid foreign objects of 50mm diameter and greater
2		Protected against solid foreign objects of 12.5mm diameter and greater
3		Protected against solid foreign objects of 2.5mm diameter and greater
4		Protected against solid foreign objects of 1mm diameter and greater
5		Dust-protected
6		Dust-tight

Protection from solids:

From 0 (no protection)
to 6 (dust tight)

Second Digit:
Indicates level of protection that the enclosure provides against harmful ingress of water

0		<ul style="list-style-type: none"> No protection
1		<ul style="list-style-type: none"> Protected against vertically falling water drops. Vertically falling drops shall have no harmful effects
2		<ul style="list-style-type: none"> Protected against vertically falling water drops when enclosure is tilted up to 15° Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical
3		<ul style="list-style-type: none"> Protected against spraying water Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects
4		<ul style="list-style-type: none"> Protected against splashing water Water splashed against the enclosure from any direction shall have no harmful effects
5		<ul style="list-style-type: none"> Protected against water jets Water projected in jets against the enclosure from any directions shall have no harmful effects
6		<ul style="list-style-type: none"> Protected against powerful water jets Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7		<ul style="list-style-type: none"> Protected against the effects of temporary immersion in water Ingress of water in quantities causing harmful effects shall not to be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time
8		<ul style="list-style-type: none"> Protected against the effects of continuous immersion in water Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between the manufacturer and user, but which are more severe than for numeral 7
9		<ul style="list-style-type: none"> Protected against high pressure and temperature water jets Water projected at high pressure and high temperature against the enclosure from any direction shall not have harmful effects

Protection from liquids:

From 0 (no protection)
to 8 (continuous immersion)

IP68

**Disclaimer: for reference only. Please refer to the Instructions for Use for product specific details, care and handling.*

Source: <https://www.iec.ch/ip-ratings>, IEC (International Electrotechnical Commission)