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Press Release

This glove restores grip strength



Your hand's functionality is suddenly compromised because of a stroke or an accident. Two medical technicians promise assistance with a revolutionary product.

Gloves are typically used for warmth or protection. However, some gloves serve other uses, such as giving the wearer's fingers some mobility again. This is the rationale behind the exomotion® Hand One mechatronic orthosis. A custom-fitted exo-finger mechanic, a supporting forearm splint, a sensor, a control unit, and four tiny drives that give the wearer's fingers the ability to open and close make up the exomotion® hand one, which is worn like a glove. In order to give the wearer back the range of motion they may have lost due to a stroke, an accident, or a degenerative disease, the glove provides six different types of grips to the wearer.

Dominik Hepp and Tobias Knobloch, two medical engineers, created the hand orthosis. They initially connected at university, where they both studied this issue in depth, and in 2017 they established a start-up called HKK Bionics. The two men hope to bridge a gap: Dominik Hepp adds, "We provide patients with completely or partially paralysed hands with an aid that permits them to conduct routine tasks on their own again." He's talking about everyday things like cooking, carrying bags of groceries, and opening products. "These individuals can regain some level of freedom in their daily life with an aid that is appropriate for everyday use."

Before creating the most recent iteration of their bionic orthosis, the creators faced a number of obstacles. The product must be durable, highly functional, and lightweight because it will be worn continuously. Therefore, after creating the initial prototype, the primary goal was to reduce the size of the orthosis, which required locating new parts that were appropriate. Dominik Hepp explains, "That was a significant challenge because we couldn't tolerate any sacrifice in terms of stability or performance. The two designers worked with suppliers to create unique components in order to find a solution to this issue. The hand orthosis is powered by **four specialised EC motors from maxon**.

These motors must be compact but strong, and they must provide tens of thousands of working cycles over the course of many years of service. Brushless micromotors provide the required grip force and are controlled by sensors that react to the user's remaining muscles, a principle also seen in prosthetic arms.

"We want to make the exomotion® hand one accessible to as many patients as possible. That's why we are pursuing collaborative partnerships with selected medical supply stores while expanding our network to include doctors and therapists," explains Dominik Hepp.

Currently, HKK Bionics has two clinical partners, seven supply partners, and ten more supply partners are on the way. For the two young businessmen, this exciting challenge is at the intersection of technology and human beings. "It's great to see that with our experience, plenty of creativity, and some tinkering around, we can contribute to improving the quality of patients' lives." Additionally, a successor for the exomotion® hand one is already in development.

maxon motor Australia tel. +61 2 9457 7477.

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The press release is available on the internet at: www.maxongroup.net.au

maxon motor Australia Pty Ltd
Unit 1, 12-14 Beaumont Road
Mt Kuring-Gai NSW 2080

Tel: +61 2 9457 7477
sales.au@maxongroup.com
www.maxongroup.net.au
Twitter @maxongroupAus

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