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Press Release

maxon DC motors in surgical hair restoration device.

Since the start of the coronavirus pandemic, Ailesbury Hair Clinic, based in Dublin, Ireland, has seen a 50% increase in people coming forward for hair replacement treatments. When the clinic couldn't find a next level surgical tool to harvest hair follicles for treatments, it decided to design one and turned to DC motor specialist, maxon for help.

Hair loss affects millions of men and women globally. During the pandemic many people took the convenient opportunity to have treatment and recover while working from home. Ailesbury Hair Clinic, which specialises in the minimally invasive aesthetic hair integration follicle unit extraction (AHI FUE) procedure and has won numerous awards for its advanced technique, saw a huge increase in demand for treatment.

Most existing follicle extraction devices are heavy and bulky, so the clinic's experts decided to call on their 20 years industry experience to design a new device for themselves. Having been involved in developing various medical devices and surgical tools over the years, the clinic's experts were confident they could design a more streamlined and effective hand-held follicle extraction device that was light, robust, fast and had wireless capabilities.

Ioannis Ypatidis, a programmer and roboticist, is the Project Manager who developed the new device. He chose maxon's DC motors for the final design because of their small size and relatively high torque compared to competitive options on the market. After initially deciding to go with a geared DC motor for their device, the team contacted Martin Leahy, maxon's Sales Engineer in Ireland, to discuss concerns about noise and vibration.

"Martin directed us towards choosing a direct drive motor without gears because this would eliminate the issues around noise and vibration while increasing the product's service life," explained Ioannis. "His advice was extremely valuable and saved us a lot of time on this project.

"We were going in the wrong direction with our DC motor choice and consulting Martin allowed us to adapt without wasting a lot of unnecessary time and resources in testing the wrong solutions."

The innovative new drill is exact, reliable and extremely small - the nose is just 0.8 mm. The DC motor is from maxon's configurable DCX direct drive range which facilitates the handheld design by offering high power density and torque in a small design. Using a direct drive solution increased the device's service life and offered a reduction in weight and vibration compared to geared DC motor solutions. Using a rechargeable battery system has made the new tool portable and transferable from clinic to clinic and country to country without considering different power supplies.

"People are more comfortable now with this type of hair restoration treatment. It is considered quite mainstream and is a fairly simple and acceptable procedure. Depending on how many hairs are grafted, it usually takes approximately 3 to 4 hours of treatment, with breaks. The maxon motor within the tool is powerful and extremely efficient, providing the user with better scope for precision, power and perfection in client results," added Ioannis.

Ailesbury Hair Clinic specialises in treating men and women for hair loss and its minimally invasive AHI method has been used to treat thousands of people to an award-winning standard over its two decades in business. This meant that quality was the main consideration for its team on this project.

“We knew maxon’s DC motors were deployed on the Perseverance rover that landed on Mars earlier this year. We saw this as a huge validation of maxon’s quality and figured if it’s good enough for Mars, it will be good enough for us,” concluded Ioannis.

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



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The Swiss specialist for quality drives

maxon is a developer and manufacturer of brushed and brushless DC motors, as well as gearheads, encoders, controllers, and entire mechatronic systems. maxon drives are used wherever the requirements are particularly high: in NASA's Mars rovers, in surgical power tools, in humanoid robots and in precision industrial applications, for example. To maintain its leadership in this demanding market, the company invests a considerable share of its annual revenue in research and development. Worldwide, maxon has more than 3000 employees at nine production sites and is represented by sales companies in more than 30 countries.