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**Renishaw’s *neuroinfuse***™ **drug delivery system shortlisted for Healthcare Award**

A novel drug delivery system that aims to enable pharmaceuticals to bypass the blood-brain barrier for the ongoing treatment of neurological disorders and brain tumours has been shortlisted for the TCT Healthcare Award. Global engineering company, [Renishaw](https://www.renishaw.com/en/neuroinfuse-drug-delivery-system--42358?utm_source=StoneJunction&utm_medium=Hard%20news&utm_content=REM157), designed and manufactured the device, which includes a metal 3D printed titanium port. The awards will be presented during the TCT Show which takes place at the NEC, Birmingham, UK, on September 25th.

It has historically been difficult to treat neurological conditions due to the blood-brain barrier, which acts to protect the brain against viruses, bacteria and fungi, as it can prevent drugs from accessing the brain. As a result, treatments require high doses that can lead to unwanted systemic side effects. The *neuroinfuse* drug delivery system acts as a mechanism to deliver pharmaceuticals directly into the brain, so that new therapeutic regimes can be developed to treat neurological disorders, using minimal doses for maximum effect.

The *neuroinfuse* chronic drug delivery system is composed of up to four catheters, which are implanted into a target area within the brain. The catheters can be accessed via a 3D printed titanium transcutaneous port implanted behind the patient’s ear. Drug-filled infusion lines are connected using an MRI compatible, 3D printed, titanium application set, which repeatably locates onto the port. Retractable needles extend through a septum in the port to enable therapeutics in the external infusion lines to be infused through the implanted catheters. The port features a roughened surface below the skin to encourage bone integration and device anchorage, whereas above the skin, it is polished to discourage bacterial settlement.

The device holds promise for the treatment of a range of neurological conditions and brain tumours. It is currently being used in a Phase I – II clinical study with Herantis Pharma Plc, investigating cerebral dopamine neurotrophic factor (CDNF), for the treatment of Parkinson’s disease. It is also currently being used on humanitarian grounds to treat children suffering with diffuse intrinsic pontine glioma (DIPG), an aggressive form of brain tumour that occurs in a difficult to access area of the brain. DIPG most commonly affects five to ten year olds.

“There is currently no approved method for the chronic delivery of drugs for neurological disorders into the brain,” explained Dr Max Woolley, Technical Fellow and Head of Drug Delivery Device Research and Development, at Renishaw. “This device has the potential to completely change how neurological diseases are treated. The port allows repeated delivery of pharmaceuticals over long periods of time, without the need for further surgery — patients can be admitted as outpatients for the infusions.”

“If we produced the device using traditional subtractive machining, we estimate it would have required up to ten parts,” added Woolley. “By designing for metal additive manufacturing, it was possible to produce it as one component, reducing the time needed for manufacture and the potential for error from unnecessary assembly operations.”

Renishaw will be exhibiting its additive manufacturing products and services from stand D100 at the TCT Show, where visitors can find out more about the technology used to design, manufacture and finish the ports. For further information on Renishaw’s additive manufacturing technology, visit [www.renishaw.com/amguide](https://www.renishaw.com/en/am-guide--41140).

**-ENDS-**

**Notes to editors**

UK-based Renishaw is a world leading engineering technologies company, supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has 5,000 employees located in the 36 countries where it has wholly owned subsidiary operations.

For the year ended June 2019 Renishaw recorded sales of £574 million of which 94% was due to exports. The company’s largest markets are the USA, China, Japan and Germany.

Throughout its history Renishaw has made a significant commitment to research and development, with historically between 13 and 18% of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company’s products is carried out in the UK.

The Company’s success has been recognised with numerous international awards, including eighteen Queen’s Awards recognising achievements in technology, export and innovation.

Further information at [www.renishaw.com](https://renishawplc-my.sharepoint.com/personal/lp138190_renishaw_com/Documents/www.renishaw.com)