RENISHAW®

apply innovation™

Delivering precision

Advanced engineering solutions for stereotactic neurosurgery

RENISHAW
apply innovation™

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Advancing medicine through innovative technologies

Meeting tomorrow's demands today

Renishaw is applying precision engineering technology to the challenges of functional neurosurgery. Our aim is to help leading clinicians to enhance the safety and cost-effectiveness of their procedures, improving patient outcomes through accurate delivery of implantable devices.[1,2,3]

Our solutions are aligned with current and emerging therapy technologies such as deep brain stimulation (DBS), stereoelectroencephalography (SEEG) and targeted drug delivery.[4] Precision-guided neurosurgery[5] using our products help clinicians[6] to meet the challenges of developing life-enhancing therapies.

Rapid service that keeps you operating

Renishaw recognises how much hospitals rely upon our products to keep neurosurgery clinics running smoothly. That is why we offer comprehensive service level agreements and support contracts, for our captial equipment, that will ensure interruptions to your service are kept to a minimum.

neuro|inspire™

neuro|mate®

neuro|guide™

"As neurosurgeons we operate a bit like pilots and the *neuromate*® is my autopilot and my GPS during the surgery guiding me precisely to the planned structure in the brain."

Professor Cuny
Head of general stereotactic and functional neurosurgery,
CHUR Roger Salegro, Lille, France

Our website, www.renishaw.com/neuro, provides comprehensive product and support information.

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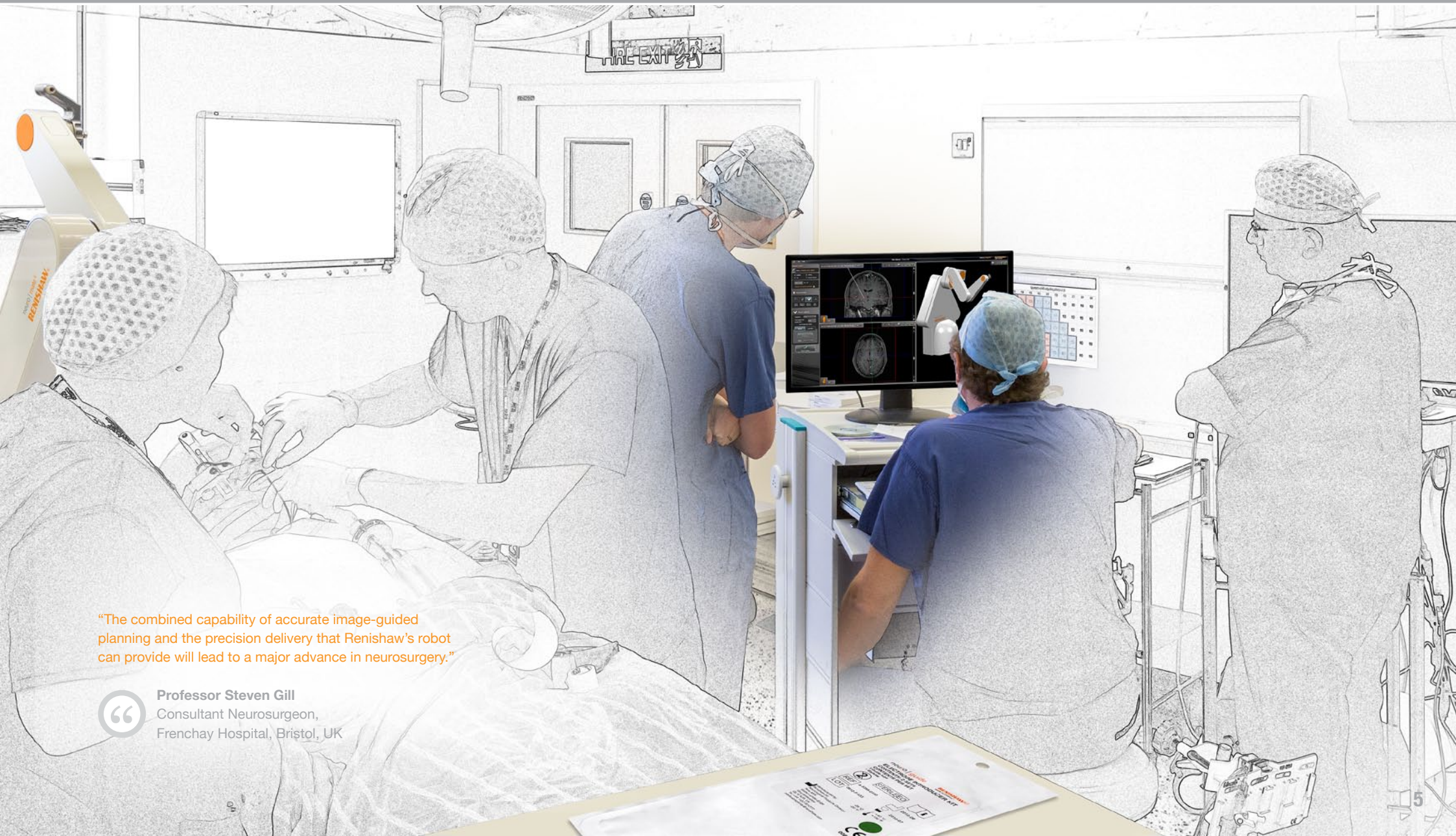


"The combined capability of accurate image-guided planning and the precision delivery that Renishaw's robot can provide will lead to a major advance in neurosurgery."

Professor Steven Gill
Consultant Neurosurgeon,
Frenchay Hospital, Bristol, UK

neuro | inspire™ surgical planning software

Planning for the future?

neuroinspire™ surgical planning software is designed specifically to enable efficient, clear-cut planning of stereotactic neurosurgical procedures with the Elekta AB Leksell® or Radionics CRW™ frames.

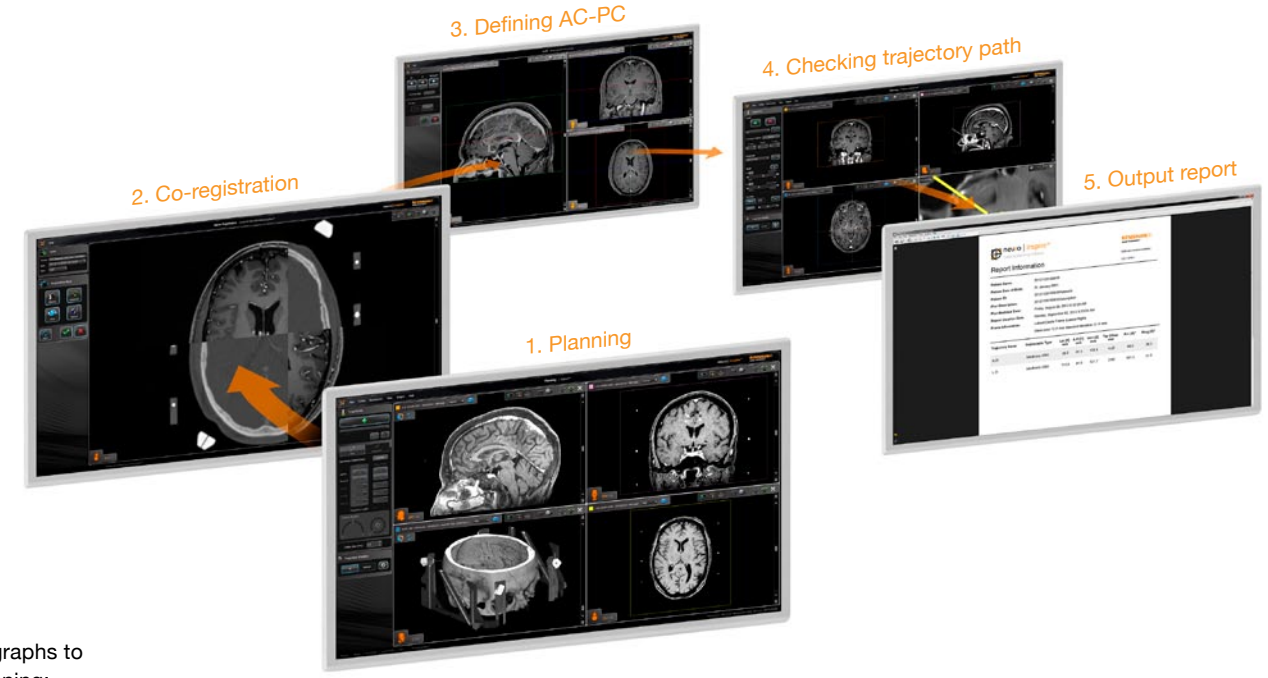
Planning at your convenience

neuroinspire™ can be provided on a laptop or desktop computer, enabling you to plan from your office, home, while on the move, or in collaboration with colleagues.

Functionality to meet your needs

Here are just some of the features *neuroinspire*™ can provide you with:

- Ability to view DICOM formatted CT and MR series including angiographs to help to locate and avoid key blood vessels during your surgical planning;
- Ability to turn any planning view from a set of 2D slices into a 3D volume;
- Ability to use the stereotactic arc configuration that best suits your surgical plan;
- Ability to transfer plans between neuroinspire stations - enabling you to plan away from your office or collaborate with remote colleagues.
- The use of a customisable catalogue of implantable devices and tools.



"The *neuroinspire*™ software planning station is the latest one to come out in many years (Spring 2012). It is a far more sophisticated program than any I've seen on the market today. For anyone considering it for their unit, it makes a great piece of kit."

Professor Tipu Aziz
Consultant Neurosurgeon,
John Radcliffe Hospital, Oxford, UK

Contact us for more information about our latest set of functionality
T +44 (0)1453 524777 F +44 (0)1453 524901 E neuro@renishaw.com

"*neuroinspire*™'s visualisation of 3D data is second to none, it has helped me increase the precision to which I deliver DBS electrodes."

Alex Green
Consultant Neurosurgeon,
John Radcliffe Hospital, Oxford, UK

"*neuroinspire*™ is intuitive to the needs of the surgeon and gives me the confidence to accurately and safely target deep brain structures, reliably and repeatably."

Julian Evans
Consultant Neurosurgeon,
Salford Royal Hospital, UK

Robot assisted neurosurgery

The *neuromate*® system is a consistent, accurate and repeatable platform for therapy delivery, as well as diagnostic procedures.[7] It is used in centres for applications such as deep brain stimulation (DBS), neuroendoscopy, stereoelectroencephalography (SEEG), biopsies[8] and also many research applications.[9,10]

Adapting to your workflow

Before the installation of a *neuromate*® system, our engineering team will evaluate your surgical workflows and, wherever possible, provide solutions to ensure optimal integration into your method of surgery.

"In stereoelectroencephalography (SEEG) we place up to 20 intracerebral electrodes in order to identify the epileptogenic zone and map eloquent structures. Thanks to the use of the *neuromate*® system, every target can be reached with a combination of speed and submillimetric accuracy."

Dr. Francesco Cardinale
Neurosurgeon,
Epilepsy and Parkinson Surgery Centre "Claudio Munari", Milano, Italy

"The *neuromate*® system is a highly reliable and accurate tool which is well integrated into our surgical workflows. In our centre, we use it on a very regular basis for all our stereotactic procedures such as DBS, biopsies, SEEG etc."

Professor S Blond
Head of general stereotactic and functional neurosurgery,
CHUR Roger Salegro, Lille, France

"The precision of robotic guided stereo EEG has revolutionised surgery to cure epilepsy, allowing us to offer cures to a whole new cohort of patients"

Mr David Sandeman
Consultant Neurosurgeon,
Frenchay Hospital, Bristol, UK

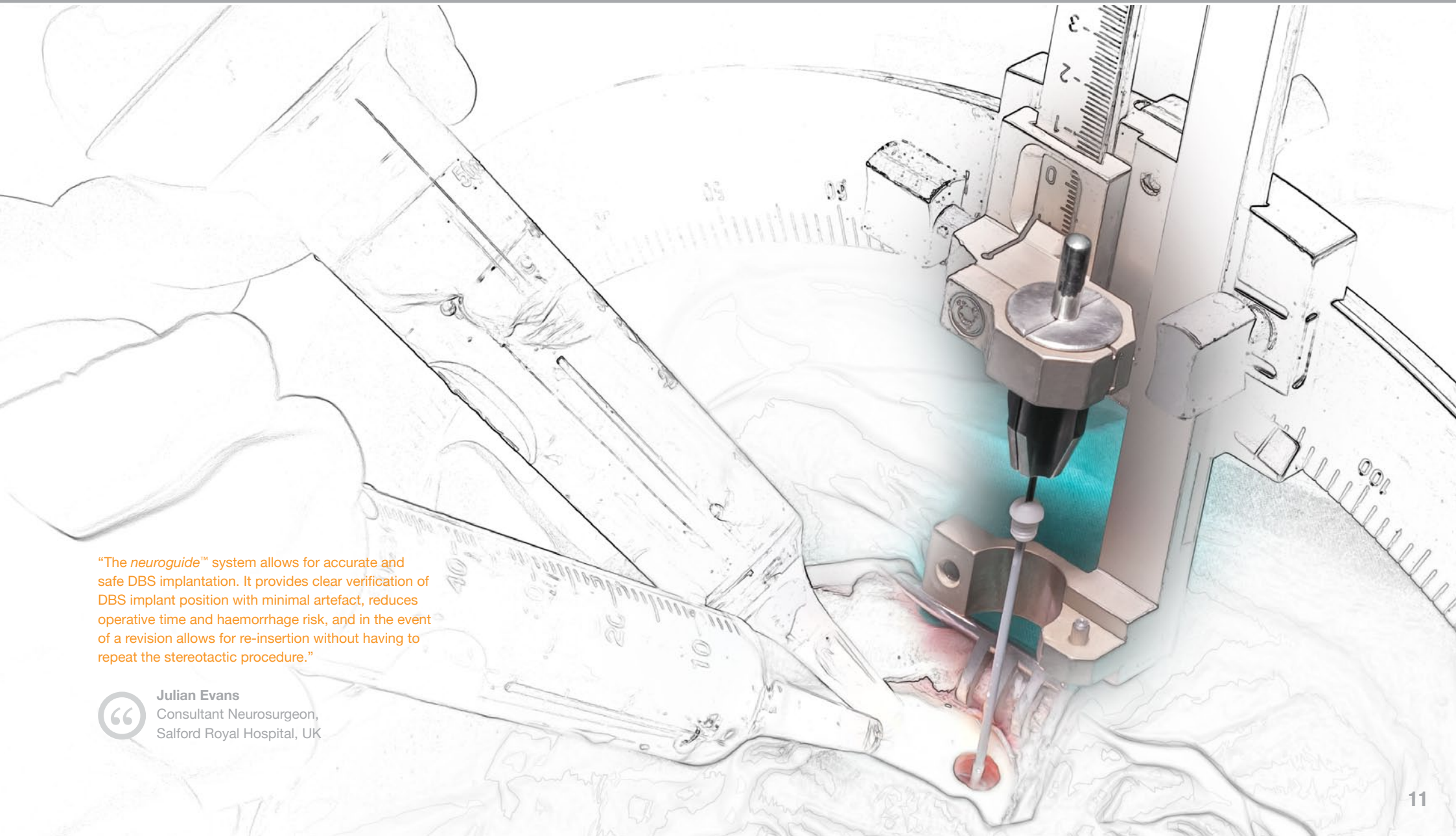
neuro | guide™ guide tube kit

Aiming high

Renishaw's *neuroguide*™ electrode introducer kit allows you to implant and guide DBS electrodes to targeted anatomy within the brain. Using MRI, the target position can be verified to reduce the effects of brain shift on placement accuracy.[11]

neuroguide™ can be integrated into your existing practice, used in combination with or instead of microelectrode recording. By requiring fewer trajectories through the approximate target volume, surgery times and the risk of haemorrhage are both reduced. In the event of a revision, the *neuroguide*™ remains in place so you can deliver positional accuracy without having to repeat the full stereotactic procedure; saving time and money, benefiting you and your patient.

All this enables you to obtain precision and accuracy, whether you are targeting the subthalamic nucleus (STN), the globus palladus interna (GPi), the thalamus (TH) or the ever more challenging pedunculopontine nucleus (PPN).



"The *neuroguide*™ system allows for accurate and safe DBS implantation. It provides clear verification of DBS implant position with minimal artefact, reduces operative time and haemorrhage risk, and in the event of a revision allows for re-insertion without having to repeat the stereotactic procedure."

Julian Evans
Consultant Neurosurgeon,
Salford Royal Hospital, UK

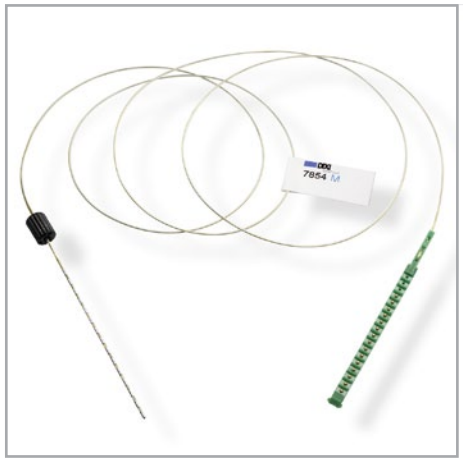
Renishaw® healthcare solutions

Evolving our clinical focus

A track record of 40 years of investment into cutting edge research and development has led to the provision of products and novel solutions in fields such as industrial metrology, forensic science, pharmaceuticals, dentistry and cancer diagnosis.

Today many of the world's manufacturers rely on our technologies to deliver productivity through enhanced precision and process consistency.

Diversification into the provision of precision health care systems is central to our recent and ongoing success.



Precision in everything

Whether they make Formula 1® engines, aircraft wings or artificial knee joints, leading manufacturers rely on Renishaw technologies to deliver productivity through enhanced precision and process consistency.

Our innovative solutions provide micrometre and even nanometre resolution dimensional measurement, position sensing, motion control and spectroscopy in a wide range of industries.

DIXI medical

Renishaw is an approved distributor of DIXI medical, a manufacturer of specialist electrodes and instruments for use in functional and stereotactic neurosurgery. For further information contact our sales team.

Spectroscopy

Renishaw Raman spectroscopy systems are used to identify and characterise the chemistry and structure of materials in a non-contact, non-destructive manner.

Potential applications include pharmaceutical, polymer, semiconductor and chemical research, development of new drugs, forensic science and oncology diagnosis.

Renishaw diagnostics

Renishaw Diagnostics is evolving its Raman spectroscopy expertise to further product development for therapeutic and medical research applications.

Renishaw Diagnostics will be launching its trace-level detection technologies as part of an evolving portfolio of in-vitro diagnostic products. Renishaw Diagnostics mandate is to develop an effective suite of molecular-level medical diagnostics solutions.

Renishaw dental

Renishaw has applied its renowned cutting-edge engineering technology to its dental CAD/CAM system.

Focusing on precision at every stage, the result is a crown or bridge that not only looks great, but fits well.

3D printing

Renishaw's laser melting process is an emerging manufacturing technology with a presence in the medical (reconstructive) industry, as well as the aerospace and high technology engineering and electronics sectors.

From patient-specific implants to, ultimately, volume production of implants featuring hybrid structures and textures; laser melting has the potential to unlock manufacturing capabilities that combine free-form shapes and intricate lattice structures that improve osseointegration.

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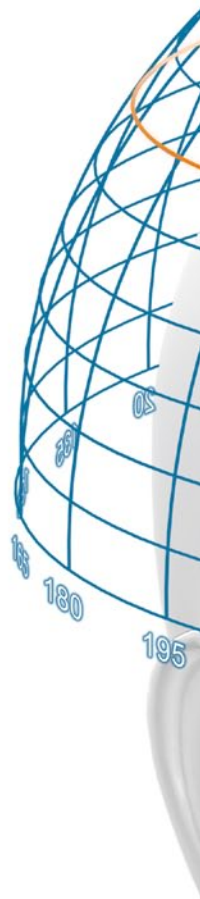

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