EN

Application report

Patient positioning and marking with direct laser steering on the CT

Medizinisches Versorgungszentrum Strahlentherapie
by evidia Group

Simply Precise

Precision

Proven quality for precise patient positioning on the CT

Background

Medizinisches Vorsorgezentrum Strahlentherapie Singen Friedrichshafen GmbH (Singen and Friedrichshafen Medical Care Centre, "MCC", for Radiotherapy) was founded in 2007 and today is part of evidia Group. The center has been offering extensive care for patients at its two sites – Singen and Friedrichshafen – for treatment of degenerative and inflammatory joint diseases as well as other cancers since 2007. For breast cancer, gynecological cancers, bowel cancer and prostate cancer, the MCC also collaborates with centers certified by the German Cancer Society. Both locations utilize the latest generation of equipment that are optimally attuned to one another and can be used to perform highly precise treatments.

The clinical team, lead by Medical Physicist Holger Wirtz, has been relying on the DORADO 4 external laser system for marking and positioning their patients since 2006. In daily use, the system impresses with its high level of quality and accuracy, which ensures precision patient positioning.

→ *Additional information on the MCC is available at www.strahlentherapie-singen.de*

The system

The DORADO 4 laser system consists of 5 movable laser axes and the CARINAnav control software.

It can be used to perform all workflows for patient marking, from simple marking at a suitable anatomical point to further treatment and verification workflows. The MCC uses the DORADO 4 on a flexible basis, depending on the tumor disease and available staff. The software is available via a desktop PC or tablet and includes two configurable tablet options.

→ *Note: DORADO 4 has been further developed, and has been available as DORADOnova 5 since 2019.*

Find out more about the CARINAnav software

Workspace for patient positioning: CARINAnav
CARINAnav utilizes a touchscreen interface. The tumor coordinates can be reached using three different treatment planning connections: direct laser steering, DICOM, and proprietary file format.

Reliable patient positioning
To ensure correct projection of the coordinates, MCC relies on the DORADO 4 and it's built in fail-safe system which continuously verifies the laser position utilizing two independent methods. Precise laser positioning is the basis for the projection accuracy of ±0.5 mm at 4m, this provides Dipl.-Ing. Holger Wirtz' team the accuracy they require. Combined with LAP lasers on the linear accelerator, the foundation is laid for high precision patient positioning.

Efficient and safe

Direct laser steering with the DORADO 4

At Singen-Friedrichshafen MCC for Radiotherapy, LAP's DORADO 4 is used on the Siemens SOMATOM go.Sim for virtual simulation. Once the patient is in a reproducible treatment position, the laser lines project reference or target coordinates onto the patient's skin, where the MTRA/RTT then apply the marks.

This creates a precise reference point between internal and external anatomy, providing the basis for reproducible patient positioning.

To achieve quick and error free transfer of the target and reference coordinates, MCC selected the syngo.via RT Image Suite from SIEMENS Healthineers for laser steering. The syngo.via RT Image Suite includes integrated laser steering in the CT controls. Direct laser steering enables patients to be marked efficiently, while the direct laser control is secure and simplifies the workflow for our entire team.

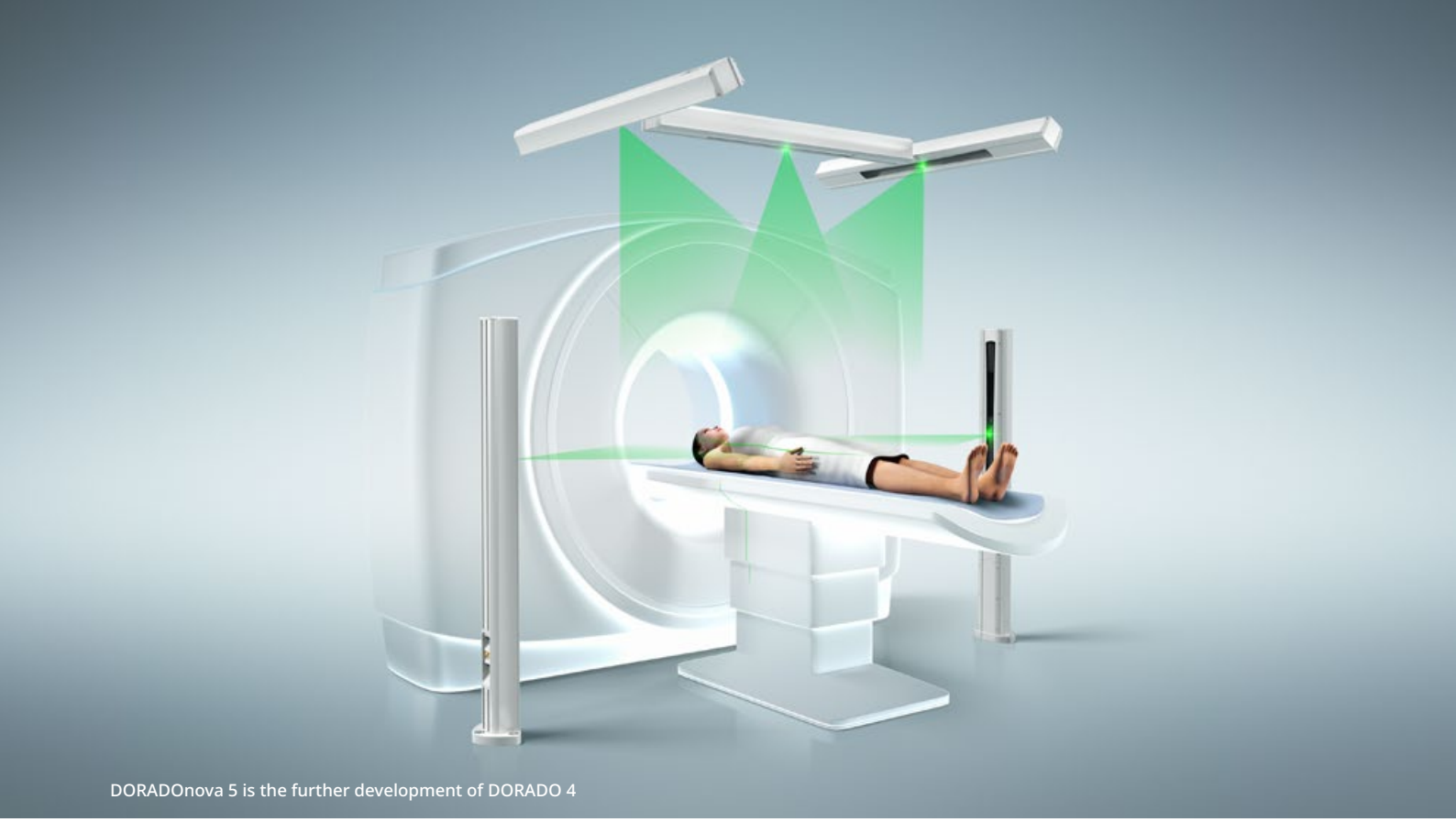
„Direct laser steering enables us to mark our patients very efficiently, while data transfer is secure and simplifies the workflow for our entire team."

Dipl.-Ing. Holger Wirtz,

Head of Medical Physics,
MVZ Strahlentherapie Singen-Friedrichshafen GmbH by evidia group

Direct laser steering with the syngo.via RT Image Suite
The DORADO 4 laser system can be controlled directly from the syngo.via RT Image Suite from SIEMENS Healthineers. Integration of the external LAP laser is comparable to integrated lasers on the CT. After the CT scan, the MCC contours the tumor and at-risk organs. Then, the target coordinates are calculated and transferred directly to the laser, and the patient is marked accordingly. This enables the team to work efficiently and safely.

Dipl.-Ing. Holger Wirtz
Dipl.-Ing. Holger Wirtz is the Lead Medical Physics Expert at Singen-Friedrichshafen MCC for Radiotherapy. His studies in physical technology, focused on biomedical technology at Aachen University of Applied Sciences laid the foundation for his work as a medical physics expert. He has over 30 years of experience as a medical physics expert at various centers for radiotherapy and is a member of a range of specialist societies and a driver of digitized radiotherapy.



DORADOnova 5 is the further development of DORADO 4

Advantages at a glance

Projection accuracy

±0.5 mm at a projection distance of up to 4 m

Compatibility

The laser system is compatible with established treatment planning systems

3 laser colours

The laser system can be configured in 3 different colours: red, green or blue

Commissioning, maintenance and support

We are available for free-of-charge advice, room planning, and training, and you are also welcome to contact us at any time after a purchase.

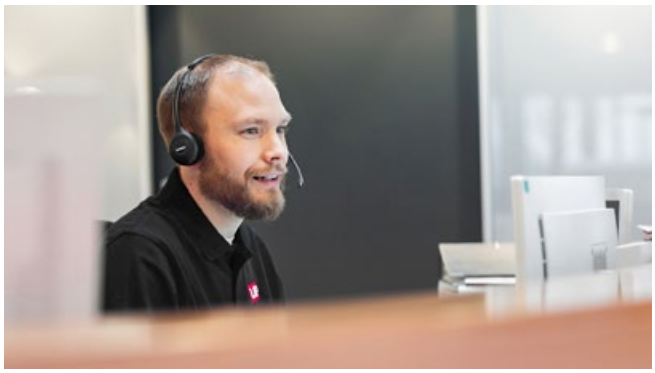
About us

LAP is one of the world's leading suppliers of systems that increase quality and efficiency through laser projection, laser measurement, and other processes. Every year, LAP supplies 15,000 units to customers in industries as diverse as radiation therapy, steel production, and composite processing. LAP employs 300 people at locations in Europe, America, and Asia.

90+
Partners

300
Employees

7
Locations



Quality

We work to uniform standards and with certified processes. For us, "Made in Germany" means the highest precision in manufacturing and quality inspection of each device. For our customers, this means planning and process certainty.

All our worldwide locations use a quality management system according to EN ISO 13485 or EN ISO 9001. Our products have all the necessary approvals and registrations almost everywhere in the world.

Service

We ensure the maximum availability of your equipment so you can concentrate on your core process. Wherever you need us, our certified service technicians are quickly on site in any time zone. We support you from installation and commissioning, through user training, up to maintenance, repair, or unit replacement.

Our efficient logistics ensure the fast availability of spare parts worldwide. For technical questions and support, our helpdesk is at your disposal by telephone, via e-mail, or remote diagnosis.

More about our global QM system

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www.lap-laser.com/carinanav